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Sustainability Checklist

Mizen Properties Limited

Unit B1 Railshead Road

Final

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MSc
September 2020

DOCUMENT CONTROL RECORD
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ABOUT HODKINSON CONSULTANCY

Our team of technical specialists offer advanced levels of expertise and experience to our clients. We have a wide experience of the construction and development industry and tailor teams to suit each individual project.

We are able to advise at all stages of projects from planning applications to handover.

Our emphasis is to provide innovative and cost-effective solutions that respond to increasing demands for quality and construction efficiency.

Executive Summary

The purpose of this Sustainability Checklist is to demonstrate that the proposed development at Unit B1 Railshead Road by Mizen Properties Limited in the London Borough of Richmond is considered sustainable, as measured against relevant local, regional and national planning policies.

The proposed development will comprise the conversion existing office space of the first floor into six dwellings.

Through the incorporation of sustainable design and construction methods, energy and water saving measures, sustainable transport methods, waste management and measures to enhance the ecological value of the site, a good quality and sustainable development is proposed.

CONTENTS

1. INTRODUCTION

1.1 This document has been prepared by Hodkinson Consultancy, a specialist energy and environmental consultancy for planning and development, appointed by Mizen Properties Limited.

1.2 This Statement sets out the sustainable measures as part of the sustainability checklist for the proposed development at Unit B1 Railshead Road in the London Borough of Richmond.

1.3 This report does not duplicate the work of the technical reports prepared in support of the application but presents the findings in the overall context of sustainability.

2. DEVELOPMENT OVERVIEW

2.1 The proposed development site at Unit B1 Railshead Road in the London Borough of Richmond is located at 1 Railshead Road, TW7 7EP, as shown in Figure 1 below.

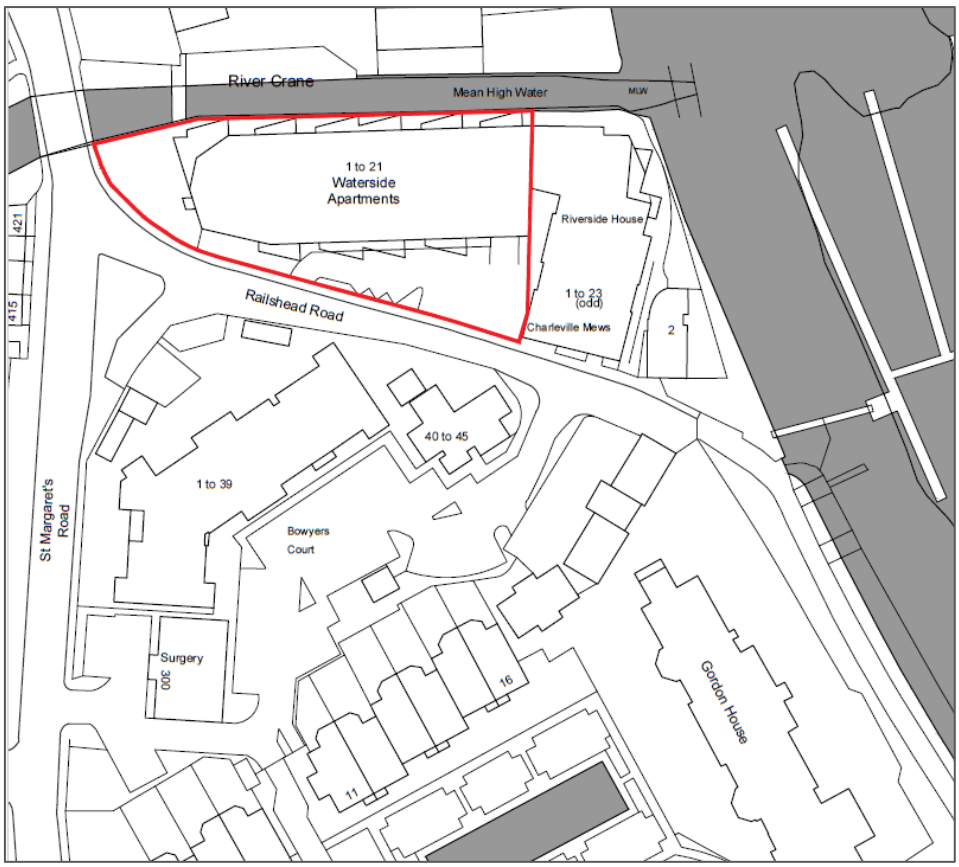

Figure 1: Site Location (FORMstudio Architects, 2020)

2.2 The site is currently occupied by a 4-storey building with office space on the ground and first floors and 21 dwellings.

Proposed Development

2.3 The proposed development is described as follows:

"Conversion to Use Class C3 of part only of B1 commercial space (with direct access at ground floor level) approved under LPA Ref: 13/3388 and providing at first floor level 4 x 2 Bed and 2 x 1 Bed dwellings"

2.4 Figure 2 illustrates the proposed site layout.

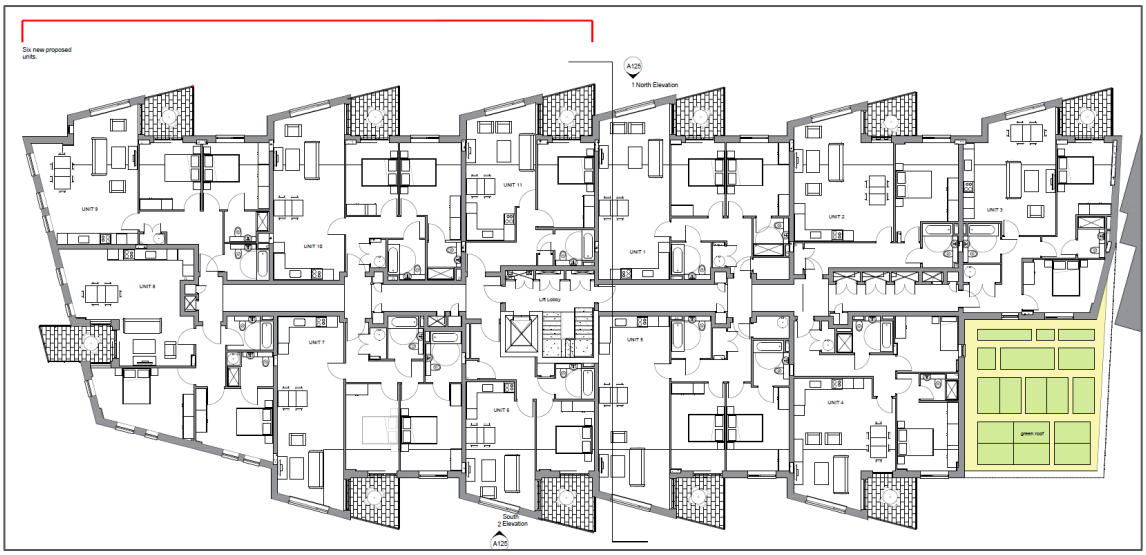

Figure 2: Proposed Ground Floor Plan (FORMstudio Architects, 2020)

3. SUSTAINABILITY CONSIDERATIONS

Sustainability Checklist

3.1 As required by Richmond Council, a Sustainability Checklist has been completed to compliance with Richmond Borough's minimum policy requirements with regards to environmental ratings under the applicable BREEAM scheme, energy and carbon dioxide emissions savings, water use, energy use and pollution, transport, biodiversity, flooding and drainage, and resource efficiency. Overall, the checklist demonstrates that measures will be implemented towards minimising environmental impact and improving quality of life of future occupiers.

3.2 The completed checklist can be found in **Appendix A**.

Internal Water Efficiency

3.3 The dwellings will target a minimum water efficiency standard of 105 litres/person/day (excluding an allowance of 5 litres/person/day) in accordance with the Intend to Publish London Plan Policy SI5.

3.4 The proposed strategy to minimise internal water consumption is to install fittings with a low flow rate/flush volume and install flow restrictors to reduce the flow rates further where necessary. The following are an indication of the flow rates and flush volumes that will be achieved.

> WC: 6/4 litres dual flush

> Taps: 4 litres per minute

> Bath: 160 litre capacity

> Shower: 8 litres per minute

> Kitchen sink taps: 5 litres per minute

> Washer-dryer: 8.17 litres/kg

> Dishwasher: 1.25 litres/place setting

3.5 This strategy will achieve an internal water consumption of 104.9 litres/per/day and a total water consumption of 109.9 litres/person/day. The full strategy is detailed in **Appendix B.**

BREEAM Domestic Refurbishment

3.6 The proposed development will be assessed under the BREEAM Domestic Refurbishment 2014 scheme with a target of achieving the required 'Excellent' rating.

3.7 A full BREEAM Pre-Assessment is presented in **Appendix C** and provides an illustrative route to achieving the 'Excellent' rating. The predicted score at this stage is 70.58%, where a 'Very Good' score is ≥55% and an 'Excellent' score is ≥70%. This represents a high level of sustainable design and construction.

3.8 The principles and requirements of many of the individual credits feature throughout this Sustainability Statement, where appropriate, however the mandatory credits for the required 'Excellent' rating are as follows:

> **Ene 02 Energy efficiency rating post-refurbishment** – A minimum of 2.5 credits is to be achieved.

- **Wat 01 Internal water use**– A minimum of 2 credits is to be achieved based on the water consumption per person per day or the equivalent terminal fitting standards.
- **Hea 05 Ventilation** - A minimum of 1 credit is to be achieved, requiring a minimum level of background, extract, and purge ventilation to be provided in applicable areas.
- **Hea 06 Safety** – Compliant fire and carbon monoxide (CO) detection and alarm systems are installed.
- **Pol 03 Flooding** – Avoidance of flooding is achieved. Where this is not possible, where avoidance is not possible, a full flood resilience/resistance strategy must be implemented for the dwellings in accordance with recommendations of a suitably qualified building professional.
- **Mat 01 Environmental impact of materials** - Credits are achieved according to the impact of new materials according to their Green Guide rating and their impact on improving the thermal performance of the dwelling.

3.9 Whilst this has been determined as the most appropriate route to certification, the actual route to certification may vary as the detailed design progresses.

Energy

3.10 Representative dwellings from the proposed development were assessed using Standard Assessment Procedure (SAP 2012) methodology to estimate the energy performance of the proposed dwellings. The results were used use to complete the relevant sections of the sustainability checklist.

3.11 A technical note explaining the results referenced against the relevant policy requirements can be found in **Appendix D.**

4. SUMMARY

4.1 The purpose of this report is to demonstrate that the proposed development at Unit B1 Railshead Road by Mizen Properties Limited in the London Borough of Richmond is considered sustainable.

4.2 Through the incorporation of sustainable design and construction methods, energy and water saving measures, sustainable transport methods, waste management and measures to enhance the ecological value of the site, a good-quality and sustainable development is proposed.

4.3 The completed sustainability checklist demonstrates that the proposed development achieves a score of 59.5, which equates to a B rating. This confirms that the proposed development helps to significantly improve the borough's stock of sustainable developments.

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APPENDICES

Appendix A
Sustainability Checklist

Appendix B
Water Calculator

Appendix C
BREEAM Domestic Refurbishment 2014 Pre-assessment targeting ‘Excellent’ rating

Appendix D
Energy Performance Summary

Appendix A

Sustainability Checklist

LBRUT Sustainable Construction Checklist - June 2020

This document forms part of the Sustainable Construction Checklist SPD. This document **must** be filled out as part of the planning application for the following developments: all residential development providing **one or more new residential units (including conversions leading to one or more new units)**, and all other forms of development providing **100sqm or more of non-residential floor space**. Developments including new non-residential development of less than 100sqm floor space, extensions less than 100sqm, and other conversions are strongly encouraged to comply with this checklist. Where further information is requested, please either fill in the relevant section, or refer to the document where this information may be found in detail, e.g. Flood Risk Assessment or similar. **Further guidance** on completing the Checklist may be found in the Justification and Guidance section of this SPD.

Property Name (if relevant): Unit B1 Railshead Road

Application No. (if known): PP-08839494

Address (include. postcode): No.1 Railshead Road, TW7 7EP

Completed by: Alicia Ramos of Hodkinson Consultancy

For Non-Residential
Size of development (m2):

For Residential
Number of dwellings: 6

1 MINIMUM COMPLIANCE (RESIDENTIAL AND NON-RESIDENTIAL)

Energy Assessment

Has an energy assessment been submitted that demonstrates the expected energy and carbon dioxide emissions saving from energy efficiency and renewable energy measures, including the feasibility of CHP/CCHP and community heating systems? If yes, please select TRUE. **TRUE**

Carbon Dioxide emissions reduction

What is the on site carbon dioxide emissions reduction against a Building Regulations Part L (2013) baseline: 15 %

Policy LP 22 B. and Draft London Plan Policy 9.2.5 require a 35% onsite reduction in CO_2 emissions beyond Building Regulations 2013.

What is the percentage reduction from efficiency measures alone: 0 %

Policy LP 22 C. and Draft London Plan Policy 9.2.6 require a 10% onsite reduction in CO2 emissions beyond Building Regulations 2013 from efficiency measures for residential and 15% for non-residential.

Percentage of **total** site CO2 emissions saved through renewable energy installation? 21 %

What is the total remaining carbon to be offset: 30.115 Tonne

Policy LP 22 B. and Draft London Plan Policy 9.2.4 require Major developments to achieve Zero Carbon after offsetting.

Are remaining emissions going to be offset through offset fund payment in accordance with current guidelines issued for the cost per tonne of CO2? **FALSE**

What is the total predicted cost of offset? £

The London Plan sets this as £95/tonne per year over 30 years, this should be updated based on As Build calculations.

1A MINIMUM POLICY COMPLIANCE (NON-RESIDENTIAL AND DOMESTIC REFURBISHMENT)

Please check the Guidance Section of this SPD for the policy requirements

Environmental Rating of development:

Non-Residential new-build (100sqm or more)
BREEAM Level: **Please Select** — Have you attached a pre-assessment to support this? **FALSE**
Excellent required under Policy LP22 A 3

Extensions and conversions for residential dwellings
BREEAM Domestic Refurbishment: **Excellent** — Have you attached a pre-assessment to support this? **TRUE**
Excellent required under Policy LP22 A 4

Extensions and conversions for non-residential buildings
BREEAM Level: **Please Select** — Have you attached a pre-assessment to support this? **FALSE**
Excellent required under Policy LP 22

Score awarded for Environmental Rating:
BREEAM: Good = *0*, Very Good = 4, Excellent = *8*, Outstanding = *16*

Subtotal 8

1B MINIMUM POLICY COMPLIANCE (RESIDENTIAL)

Water Usage

	Score	
Internal water usage after gray/rainwater systems limited to 105 litres person per day. (Excluding an allowance 5 litres per person per day for external water consumption). Calculations using the water efficiency calculator for new dwellings have been submitted.	*1*	**TRUE**

110l/p/d Required for new dwellings under Policy LP22 A 2 105l/p/d required under Draft London Plan Policy SI5

Subtotal 1

2. ENERGY USE AND POLLUTION

2.1 Need for Cooling

		Score	
a.	How does the development incorporate cooling measures? Tick all that apply:		
	Energy efficient design incorporating specific heat demand to less than or equal to 15 kWh/sqm	6	FALSE
	Reduce heat entering a building through providing/improving insulation and living roofs and walls	2	TRUE
	Reduce heat entering a building through shading	3	FALSE
	Exposed thermal mass and high ceilings	4	FALSE
	Passive ventilation	3	TRUE
	Mechanical ventilation with heat recovery	1	FALSE
	Active cooling systems, i.e. Air Conditioning Unit	0	FALSE
	See Draft London Plan SI4		

2.2 Heat Generation

		Score	
b.	How have the heating and cooling systems, with preference to the heating system hierarchy, been selected (defined in London Plan policy **SI3)** Tick all heating and cooling systems that will be used in the development:		
	Connection to existing heating or cooling networks powered by renewable energy	6	FALSE
	Connection to existing heating or cooling networks powered by gas or electricity	5	FALSE
	Site wide CHP network powered by renewable energy	4	FALSE
	Site wide CHP network powered by gas	3	FALSE
	Communal heating and cooling powered by renewable energy	2	FALSE
	Communal heating and cooling powered by gas or electricity	1	FALSE
	Individual heating and cooling	0	TRUE
	See Draft London Plan SI3		

2.3 Pollution: Air, Noise and Light

a.	Does the development plan to implement reduction strategies for dust emissions from construction sites?	2	TRUE
b.	Does the development plan to include a biomass boiler?		FALSE
	If yes, please refer to the biomass guidelines for the Borough of Richmond, please see guidance for supplementary information. If the proposed boiler is of a qualifying size, you may need to complete the information request form found on the Richmond website.		
c.	Has an air quality impact assessment been provided		FALSE
	If yes, has 'Emissions Neutral' been achieved	1	Please Select:
	If yes, have occupants of new development been protected from existing pollution	1	Please Select:
	If no to any of the above are there any sensitive receptors as defined in Policy LP 10 present?	-1	TRUE
	see Policy LP 10		
d.	Please tick only one option below		
	Has the development taken measures to reduce existing noise and enhance the existing soundscape of the site?	3	TRUE
	Has the development taken care to not create any new noise generation/transmission issues in its intended operation?	1	FALSE
	see Policy LP 10		
e.	Has the development taken measures to reduce light pollution impacts on character, residential amenity and biodiversity?	3	TRUE
	see Policy LP 10		
f.	Have you attached a Lighting Pollution Report?	-	No

Subtotal 12

Please give any additional relevant comments to the Energy Use and Pollution Section below

3. TRANSPORT

3.1 Provision for the safe efficient and sustainable movement of people and goods

a.	Does your development provide opportunities for occupants to use innovative travel technologies?		TRUE

Please explain:

The travel plan developed by COTTEE Transport Planning confirm that there are measures to provide residents with a full range of travel options and encourage walking and cycling. This includes measures to encourage cycling, car club schemes, and the provision of an information pack to promote green travel

		Score	
b.	Does your development provide for 100% active provision for electric vehicle charging point(s) and have you successfully demonstrated that it would be able to operate satisfactorily in the future expectation of all vehicles being electrically powered?	2	FALSE
c.	**For major developments ONLY**: Has a Transport Assessment been produced for your development based on TfL's Best Practice Guidance?		
	If you have provided a Transport Assessment as part of your planning application, please tick here and move to Section 3 of this Checklist.	5	FALSE
	See policy LP44		
d.	**For smaller developments ONLY**: Have you provided a Transport Statement?	5	TRUE
e.	Does your development provide cycle storage? (Standard space requirements are set out in the Council's Parking Standards - Local Plan Appendix 3)	2	TRUE
	If so, for how many bicycles?	45	
	Is this shown on the site plans?		TRUE
	See Local Plan Appendix 3		
f.	Will the development create or improve links with local and wider transport networks? If yes, please provide details.	2	TRUE

Subtotal 9

Please give any additional relevant comments to the Transport Section below

4 BIODIVERSITY

4.1 Minimising the threat to biodiversity from new buildings, lighting, hard surfacing and people

a.	Does your development involve the loss of an ecological feature or habitat, including a loss of garden or other green space? (Indicate if yes)					-2	FALSE
	If so, please state how much in sqm?				0 sqm		
b.	Does your development involve the removal of any tree(s)? (Indicate if yes)						FALSE
	If so, has a tree report been provided in support of your application? (Indicate if yes)						FALSE
c.	Does your development plan to add (and not remove) any tree(s) on site? (Indicate if yes)						FALSE
d.	Please indicate which features and/or habitats that your development will incorporate to improve on site biodiversity:						
	Pond, reedbed or extensive native planting	6	Area provided:		sqm		FALSE
	An extensive green roof	5	Area provided:	350	sqm		TRUE
	An intensive green roof	4	Area provided:		sqm		FALSE
	Garden space	4	Area provided:	246	sqm		TRUE
	Additional native and/or wildlife friendly planting to peripheral areas	3	Area provided:	35.4	sqm		TRUE
	Additional planting to peripheral areas	2	Area provided:		sqm		FALSE
	A living wall	2	Area provided:		sqm		FALSE
	Bat boxes	0.5					TRUE
	Bird boxes	0.5					FALSE
	Swift boxes	0.5					FALSE
	Other	0.5					FALSE
e.	Does your development use at least 70% of available roof plate as green/brown roof					1	FALSE
	Policy LP 17 requires 70%						
						Subtotal	**12.5**

Please give any additional relevant comments to the Biodiversity Section below

The measure detailed in (d) were incorporated as part of the exisiting development on site and the proposed development benefits from them. A green roof has been installed, but this does not cover 70% of the available roof plate, as solar panels have also been installed on the roof. The use of green roofs and photovoltaic panels together increases the efficiency of solar photovoltaic panels by regulating temperature. The reduced CO2 emissions due to the use of solar panels is an added benefit to the development.

5 FLOODING AND DRAINAGE

5.1 Mitigating the risks of flooding and other impacts of climate change in the borough

a.	Is your site located in a high flood risk zone (Zone 3)? (Indicate if yes)		-2		TRUE
	Have you submitted a Flood Risk Assessment? (Indicate if yes)				TRUE
b.	Which of the following measures of the drainage hierarchy are incorporated onto your site? (tick all that apply)				
	Store rainwater for later use		5		TRUE
	Use of infiltration techniques such as porous surfacing materials to allow drainage on-site		3		TRUE
	Attenuate rainwater in ponds or open water features		4		FALSE
	Store rainwater in tanks for gradual release to a watercourse		3		TRUE
	Discharge rainwater directly to watercourse		2		FALSE
	Discharge rainwater to surface water drain		1		TRUE
	Discharge rainwater to combined sewer		0		TRUE
	Have you submitted a Drainage Statement (Indicate if yes)				TRUE
	See Policy LP 21 and Draft London Plan SL 13				
c.	Please give the change in area of permeable surfacing which will result from your development proposal:	0 sqm			
	Please provide details of the permeable surfacing below	*please represent a loss in permeable area as a negative number*			
				Subtotal	**10**

Please give any additional relevant comments to the Flooding and Drainage Section below

The proposed dwellings are at 1st floor level, and are at a level identical to the level (FFL) of 6 other approved dwellings at 1st floor level; and as a consequence there is no risk of inundation. The conversion of units is within the existing building; hence, there is no change in permeable area. The conversion dwellings have no impact at all, and contribute no outfall to the drains or the adjoining/adjacent rivers. The surface water runoff is dealt with by the envelope and infrastructure of the existing building.

6 IMPROVING RESOURCE EFFICIENCY

6.1 Reduce waste generated and amount disposed of by landfill though increasing level of re-use and recycling

a.	Will demolition be required on your site prior to construction? *[Points will only be awarded if 10% or greater of demolition waste is reused/recycled]*		1		TRUE
	If so, what percentage of demolition waste will be reused in the new development?	100 %			
	What percentage of demolition waste will be recycled?	0 %			
b.	Does your site have any contaminated land?		1		FALSE
	Have you submitted an assessment of the site contamination?		2		FALSE
	Are plans in place to remediate the contamination?		2		FALSE
	Have you submitted a remediation plan?		1		FALSE
	Are plans in place to include composting on site?		1		FALSE
c.	Will a waste management plan and facilities be in place in line with Policy LP24	Yes. Refuse and mixed recycling bins			

6.2 Reducing levels of water waste

a.	Will the following measures of water conservation be incorporated into the development? (Please tick all that apply):				
	Fitting of water efficient taps, shower heads etc		1		TRUE
	Use of water efficient A or B rated appliances		1		TRUE
	Rainwater harvesting for internal use		4		FALSE
	Greywater systems		4		FALSE
	Fit a water meter		1		TRUE
				Subtotal	**3**

Please give any additional relevant comments to the Improving Resource Efficiency Section below

Demolition is not anticipated, as the proposed development is a conversion of the existing office space into dwellings. This will mainly involve a fitout. Remediation was undertaken during the development of the whole site previously and the corresponding planning condition was approved. Remediation for the proposed development, which involves conversion within the exisitng building, is therefore outside the scope of works. Individual water meters will be installed in the new dwellings. A++ rated dishwashers and washing machines will be provided.

7	ACCESSIBILITY		
7.1	**Ensure flexible adaptable and long-term use of structures**		
a.	**If the development is residential,** will it meet the requirements of the nationally described space standard for internal space and layout?	*1*	TRUE
	If the standards are not met, in the space below, please provide details of the functionality of the internal space and layout		
AND			
b.	**If the development is residential**, will it meet Building Regulation Requirement M4 (2) 'accessible and adaptable dwellings'?	*2*	TRUE
	If this is not met, in the space below, please provide details of any accessibility measures included in the development.		
	For major residential developments, are 10% or more of the units in the development to Building Regulation Requirement M4 (3) 'wheelchair user dwellings'?	*1*	TRUE
OR			
c.	**If the development is non-residential,** does it comply with requirements included in Richmond's Local Plan LP1, LP28.B, LP30 & LP45	*2*	Please Select:
	Please provide details of the accessibility measures specified in the Local Plan that will be included in the development		

Subtotal 4

Please give any additional relevant comments to the Design Standards and Accessibility Section below

The Design and Access statement confirms that the M4 (2) and M4(3) requirements will be met.

LBRUT Sustainable Construction Checklist- Scoring Matrix for *New Construction* **(Non-Residential and domestic refurb)** ***TOTAL*** ***59.5***

Score	Rating	Significance
84 or more	*A+*	Project strives to achieve highest standard in energy efficient sustainable development
75-83	*A*	Makes a major contribution towards achieving sustainable development in Richmond
56-74	*B*	Helps to significantly improve the Borough's stock of sustainable developments
40-55	*C*	Minimal effort to increase sustainability beyond general compliance
39 or less	*FAIL*	Does not comply with SPD Policy

LBRUT Sustainable Construction Checklist- Scoring Matrix for New Construction **Residential new-build**

Score	Rating	Significance
85 or more	A++	Project strives to achieve highest standard in energy efficient sustainable development
68-84	*A+*	Project strives to achieve higher standard in energy efficient sustainable development
59-67	*A*	Makes a major contribution towards achieving sustainable development in Richmond
39-58	*B*	Helps to significantly improve the Borough's stock of sustainable developments
24-38	*C*	Minimal effort to increase sustainability beyond general compliance
23 or less	*FAIL*	Does not comply with SPD Policy

Authorisation:

I herewith declare that I have filled in this form to the best of my knowledge

Signature  **Date** 02.09.2020

Appendix B

Water Calculator

Water Efficiency Calculator
Unit B1 Railshead Road

	Internal Water Consumption			
Installation Type	**Unit of Measure**	**Capacity / Flow Rate**	**Litres/person/day**	**Notes**
WC	Full Flush Volume (Litres)	**6**	8.76	Low flush WCs will be installed to reduce the volume of water consumed during flushing. All WCs will have dual flush cisterns which will provide both part (4L) and full (6L) flushes.
	Part Flush Volume (Litres)	**4**	11.84	
Basin Tap	Flow Rate (Litres/minute)	**4**	7.90	All taps (excluding kitchen taps) will be reduced to 4 litres/minute using flow restrictors. Where multiple taps are to be provided the average flow rate will be used.
Bath	Capacity (Litres to overflow)	**160**	17.60	All baths will have reduced capacities of 160 litres (excluding displacement). The bath taps are not included in this calculation as they are already incorporated into the use factor for the baths.
Shower	Flow Rate (Litres/minute)	**8**	34.96	Shower flow rates will be reduced to a maximum of 8 litres/minute using flow restrictors fixed to the shower heads. These contain precision-made holes or filters to restrict water flow and reduce the outlet flow and pressure.
Kitchen Tap	Flow Rate (Litres/minute)	**5**	12.56	Kitchen taps will be reduced to 5 litres/minute using flow restrictors which will be fitted within the console of the tap or in the pipework.
Washing Machine	Water Consumption (Litres/kg)	**8.17**	17.16	Water efficient washing machines or washer-dryers will be specified. The make and model numbers of the appliances are unknown at this stage therefore a default figure of 8.17 litres/kg has been assumed.
Dishwasher	Water Consumption (Litres/place setting)	**1.25**	4.50	All dishwashers will be water efficient. The make and models numbers are unknown therefore a default figure of 1.25 litres/place setting has been assumed at this stage.
Net Internal Water Consumption (Litres/person/day)			**115.3**	
Normalisation Factor			**0.91**	
Total Internal Water Consumption (Litres/person/day)			**104.9**	The total *internal* water consumption target of ≤105 litres/person/day will be achieved in accordance with Regulation 36 para (2)b optional requirement Approved Document G.
Allowance for External Water Consumption (Litres/person/day)			**5**	
Total Water Consumption (Litres/person/day)			**109.9**	The *total* water consumption target of ≤110 litres/person/day will be achieved in accordance with Regulation 36 para (2)b optional requirement of Approved Document G.

Appendix C

BREEAM Domestic Refurbishment 2014 Pre-assessment targeting ‘Excellent’ rating

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BREEAM Domestic Refurbishment (2014)
PRE-ASSESSMENT

Unit B1 Railshead Road

Development Description:	Conversion of a commercial space on the western half of the first floor of the building into 6 residential units.
Developer Details:	**Mizen Properties Limited** No 1 Railshead Road, St Margarets, Old Isleworth, Middlesex, TW7 7EP
HC Assessor Details:	**Zoë Lowther** Hodkinson Consultancy, Trinity Court, Batchworth Island, Church Street, Rickmansworth Tel: 020 3603 1619 Email: zoe@hodkinsonconsultancy.com
Document Control Record:	**Version:** 1 **Date:** 17.08.20 **Author:** Z Lowther **Checked by:** Z Watkins **Approved by Project Manager:** Z Lowther

This Pre-Assessment is designed to track the design stage assessment through to iterim certification. It details the evidence to be provided by the respective design team members to meet the BREEAM criteria, and highlights the design requirements to achieve the credits.

Target Design Score - This represents the design route to achieve the required BREEAM rating. The design measures and evidence should therefore be provided as stated in the Evidence Required column.

Current Design Score - This represents the credits which have been fully secured through the full and correct provision of evidence for the credit to be awarded.

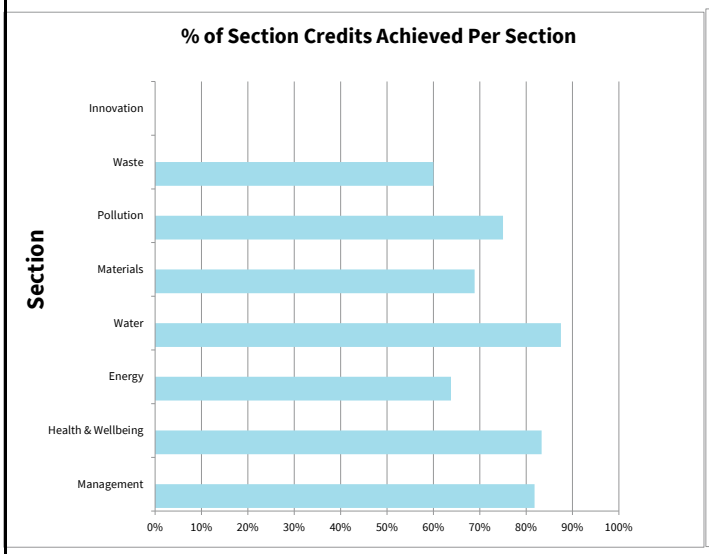
BREEAM®

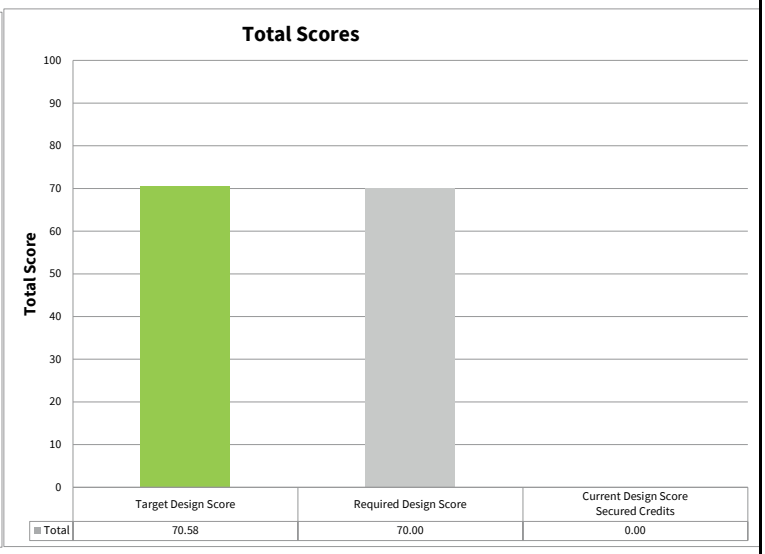
Predicted Scores

Target Design Score	**70.58**	**BREEAM Level Sought**	**Excellent**	**70**	**Credits Required**
BREEAM Level Achieved	**Excellent**	**Mandatory Level Met**		**Met**	

Categories

	Management							Health							Energy											Water				Materials				Pollution				Waste			Innovation	Predicted Scores
	1	2	3	4	5	6	Total	1	2	3	4	5	6	Total	1	2	3	4	5	6	7	8	9	10	Total	1	2	3	Total	1	2	3	Total	1	2	3	Total	1	2	Total	Total	Total Points
Target Score	3	1	1	1	1	2	9.82	1	4	1	1	2	1	14.17	3	2.5	3	0	2	1	2	2	2	1	27.43	2.5	0	1	7.70	15	8	8	5.17	3	1	2	4.50	2	1	1.80	0.00	70.58
Current Score							0.00							0.00											0.00				0.00				0.00				0.00			0.00	0.00





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Section 1 - Management

Issue	Total Credits Available		Credits Targeted	Innovation Credit	Evidence Needed
MAN 1 Home User Guide (HUG)	3		3	N/A	A **Home User Guide** will be provided to all dwellings, covering the below as a minimum: About BREEAM Domestic Refurbishment Recommendations Report Energy Efficiency Water Use Transport Facilities Materials and Waste Emergency Information Local Amenities Provision of Information in Alternative Formats Links and references
MAN 2 Responsible Construction Practices (1 Innovation Credit)	2		1		The scheme to be registred with the Considerate Constructors and a score of 25-34 with a score of 5 in each section is achieved. Completed copy of **Checklist A5** - Large Scale Refurbishment
MAN 3 Construction Site Impacts	1		1	N/A	Monitor, report and set targets for CO_2 production of energy use arising from site activities. Monitor, report and set targets for water consumptions arising from site activities. All site timber to be sourced from suppliers capable of providing certification.
MAN 4 Security	2		1	N/A	External Doors will achieve the following: PAS24:2007 and/or LPS1175 Issue 7 Security Rating 1 or equivalent Windows will achieve the following: BS7950:1997(36) and/or LPS1175 Issue 7 Security Rating 1 or equivalent
MAN 5 Protection and Enhancement of Ecological Features (1 Innovation Credit)	1		1		Site survey to determine the presence of ecological features. Any recommendations set out by the SNCO will be implemented and all ecological features will be protected. **Copy of Ecologist report**
MAN 6 Project Management (2 Innovation Credit)	2		2		**Responsibilities Schedule** stating when the collaboration began and the roles and responsibilities of project team. Compliant aftercare support and training to be provided to the occupants.

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Section 2 - Health & Wellbeing

HEA 1 Daylighting	**2**		**1**	N/A	**First credit - maintaining good daylight:** The refurbishment results in a neutral impact on the dwellings daylighting levels in the kitchen, living room, dining room and study.
HEA 2 Sound Insulation	**4**		**4**	N/A	Sound testing to be **5dB improvement** over Part E Building Regulations.
HEA 3 Volatile Organic Compounds	**1**		**1**	N/A	The VOC content of the relevant specified product types will comply with the required European Standards.
HEA 4 Inclusive Design (1 Innovation Credit)	**2**		**1**		Complete Section 1 of **Appendix A : Hea 04 -** to be completed by an access exprt or suitably qualified member of the design stage. Access Statement which covers the requirements in Section 1 (and 2 if going for 2 credits).
Has the MINIMUM STANDARD been met?				**Yes**	
HEA 5 Ventilation	**2**		**2**		Ventilation to meet the requirements of Section 5 of Building Regulations Part F in full.
Has the MINIMUM STANDARD been met?				**Yes**	
HEA 6 Safety	**1**		**1**		**Compliant fire and carbon monoxide detection and alarm system:** - Fire detection & alarm systems in accordance with BS 5839-6:2013 and to at least a Grade D Category LD3 standard - Carbon monoxide detector and alarm system should be in accordance with and positioned in accordance to BS EN 50291–1:2010+A1:2012 and BS EN 50292:2013

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Section 3 - Energy

ENE 1 Improvement in Energy Efficiency Rating	**6**		**3**	N/A	Make, model and type of primary and secondary heating systems and flues. A copy of the Design Stage Energy Performance Certificate Report or SAP 2012 worksheet Pre and Post Refurbishment.
Has the MINIMUM STANDARD been met?				**Yes**	
ENE 2 Energy Efficiency Rating Post Refurbishment (2 Innovation Credit)	**4**		**2.5**		≥70 BREEAM Excellent level requires a minimum EER of 70 A copy of the Design Stage Energy Performance Certificate Report or SAP 2012 worksheet Post Refurbishment.
ENE 3 Primary Energy Demand	**7**		**3**	N/A	A copy of the Design Stage Energy Performance Certificate Report or SAP 2012 worksheet Post refurbishment to confirm the Primary Energy Demand.
ENE 4 Renewable Technologies	**2**		**0**	N/A	Copy of Design Stage SAP or RdSAP outputs **Letter of Commitment** stating that the Low or Zero Carbon Technologies meet the requirements defined in Directive 2009/28/EC, are certified under the Microgeneration Certification Scheme and/or are certified under the CHPQA standard
ENE 5 Energy Labelled White Goods	**2**		**2**	N/A	White goods to be provided, with the following EU energy efficiency labelling scheme: Fridges and fridge-freezers - A+ rating. Washing machines - A++ rating. Dishwashers - A+ rating. Washer dryers and tumble dryers - A rating.
ENE 6 Drying Space	**1**		**1**	N/A	**Internal drying space:** 1-2 bedrooms will have a 4m+ line length and 3+ bedrooms will have a 6m+ line length. Appropriate ventilation to be provided.
ENE 7 Lighting	**2**		**2**	N/A	All external lighting to be energy efficient. All internal lighting to have a maximum average wattage across the total floor area of the dwelling of 9watt/m^2.
ENE 8 Energy Display Devices (1 Innovation Credit)	**2**		**2**		Energy Display Devices to show the following: Current Energy Consumption (Watts), Current Emissions (kg CO2), Current Cost, (£ per hour) and Projected Cost (£ per month and £ per year)
ENE 9 Cycle Storage	**2**		**2**	N/A	The following number of cycles for 2 credits: • 1 bed unit – 1 space for every other unit • 2 & 3 bed units – 2 spaces per unit • 4 bed units – 4 spaces per unit
ENE 10 Home Office	**1**		**1**	N/A	Home office to provide the following services: • Openable window of at least 0.5m2 • 2 double power points • telephone point • achieve an average daylighting factor of at least 1.5% • Wall greater than 1.8m Home office can be located in the following rooms: 1. 1&2 bedroom – living room, any bedroom, or any areas suitable which fulfils the criteria above 2. 3+ bedrooms – any room other than kitchen, living room, master bedroom and bathroom

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Section 4 - Water

Has the MINIMUM STANDARD been met?				**Yes**	
WAT 1 Indoor Water Use (1 Innovation Credit)	**3**		**2.5**		Specifications showing flow rates and volumes for all taps, WC, showers and bath capacity to overflow. Internal water consumption of 96 to < 107 litres/person/day
WAT 2 External Water Use	**1**		**0**	N/A	Compliant water butts are being installed in the private/communal gardens.
WAT 3 Water Meter	**1**		**1**	N/A	Water meter to be provided to all dwellings - consumption data to be displayed to the occupants.

Section 5 - Materials

MAT 1 Environmental Impact of Materials	**25**		**15**	N/A	Specifications and detailed drawings of new and existing materials
Has the MINIMUM STANDARD been met?				**Yes**	All timber used on the project to be **legally harvested and traded timber.**
MAT 2 Responsible Sourcing of Materials - Basic Building Elements	**12**		**8**	N/A	Principal contractor must source materials in accordance with a **documented sustainable procurement plan.** Suppliers of materials to have ISO 14001 and ISO 9001 accreditation as a minimum, preferably BES 6001.
MAT3 Insulation	**8**		**8**	N/A	The insulation index for new insulation used in the building is ≥ 2. Where ≥ 80% of the new thermal insulation used in the building elements is responsibly sourced.

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Section 7 - Waste

WAS 1 Household Waste	2		2	N/A	Internal recycling bins to be provided. Composting facilities to be provided.
WAS 2 Refurbishment Site Waste Management (+ 1 Innovation Credit)	3		1	Has the Innovation Credit been sought? No	**Projects £100K and under** **Checklist A-9** to be completed Pre-refurbishment audit **Projects from £300K** Site Waste Management Plan.

Section 6 - Pollution

POL 1 NO_x Emissions	3		3	N/A	Make, model and type of primary and secondary heating systems and flues. Three credits where the dry NOx emissions of space heating and hot water systems are ≤ 40 mg/kWh.
POL 2 Surface Water Run off	3		1		**One credit - neutral impact on surface water:** Relevant Calculations Drawings showing impermeable areas pre and post refurbishment Confirmation that the drainage consultant is an appropriately qualified professional.
Has the MINIMUM STANDARD been met?				**Yes**	**Low Flood Risk** A copy of the Flood Risk Assessment (FRA) **Medium/High Flood Risk** A copy of the FRA Where appropriate, confirmation from an appropriate statutory body confirming reduced annual probability of flooding due to existing flood defences Detailed documentary evidence of how **Checklist A10** has been used to assess the site Flood Resilient Strategy Document Detailed documentary evidence of how the recommendations will be implemented
POL 3 Flooding	2		2		

Section - Innovation

INN 1 Innovation A total of 10 credits available	10		0		One innovation credit can be awarded for each individual BREEAM issue exemplary performance level complied with and one innovation credit can be awarded for each innovation application approved by BRE Global

Appendix D

Energy Performance Summary

ENERGY PERFORMANCE SUMMARY

Introduction

This technical note has been produced by Hodkinson Consultancy, a specialist energy and environmental consultancy for planning and development. It summarises the energy strategy and expected energy performance for the proposed redevelopment at Unit B1 Railshead Road by Mizen Properties in the London Borough of Richmond.

The proposed development comprises the conversion of existing office space on the first floor into six residential dwellings. This note summarises the expected CO_2 performance of the new dwellings compared to policy targets for the development.

Methodology

Representative units have been assessed using Standard Assessment Procedure (SAP 2012) methodology to estimate the energy performance of the proposed dwellings. The results from these calculations have been extrapolated to represent all 6 of the proposed dwellings. The results are compared to a Part L 2013 baseline.

The draft London Plan policy requires that all major developments should target a 10% CO_2 reduction through fabric energy efficiency measures, and an overall on-site 35% CO_2 reduction. These targets are also referenced in the sustainability construction checklist. As this is a minor application, the CO_2 targets do not apply, however, measures will be considered to reduced CO_2 emissions where feasible.

Energy Performance Specification

The energy performance specification for the new residential units has been based on the specification provided by AECOM for the SAP assessments for the other residential dwellings in the building. There are limited opportunities to change the performance of the external elements of the building.

The outline specification for the proposed development is presented in Table 1, below. The sustainability construction checklist has been updated based on these specification details.

Table 1: Energy Performance Specification	
Element	**U-Value / Performance**
External Wall	0.21 W/m²K
Party Wall	0.00 W/m²K
Wall to unheated spaces	0.34 W/m²K
Exposed Floor	0.20 W/m²K (above commercial – halved in SAP to 0.10)
Window U-Value	1.30 W/m²K (Double Glazing)
Ventilation	MEV (Specific Fan Power (SFP) - 0.24)
Target Air Permeability	4.0 m³/hm² @50pa
Thermal Bridging	Accredited Construction Details (ACDs)
Space Heating and Hot Water	Individual Gas Combi Boiler – Efficiency 89%
Lighting	100% Low Energy Lighting
Solar PV	21 kWp (approximately 0.55 kWp per dwelling)

Table 2, below, shows the estimated CO_2 reduction for the 6 new proposed units, based on the specification above. This is broken down between the stages of the London Plan Energy Hierarchy ***Be Lean***, ***Be Clean*** and ***Be Green.***

As it is only mid floor units that have been assessed, it is not estimated what the whole building block compliance would be. It is expected that top floor dwellings and dwellings of different orientations would compensate for lower performance of mid floor flats. This is not shown in these calculations.

As it is an existing building, it would be costly to retrofit improvements to the external fabric elements of the building. Additionally, individual gas boilers are in place for the existing residential dwellings, therefore it is not feasible to install a communal heating system to the current existing design. Therefore, individual gas boilers are also proposed for these units.

It has been noted that a PV array of 21 kWp has been installed on the building, and there is limited space to increase this PV array. The CO_2 reductions are calculated on the assumption that this is split equally between all residential dwellings in the building. The whole building block compliance has not been calculated in this assessment.

Table 2: Residential Carbon Dioxide Emissions and Savings after each stage of the Energy Hierarchy		
Stage	**Carbon Dioxide Emissions (Tonnes CO_2 per Annum)**	
	Regulated	**Unregulated**
Baseline: Part L 2013 Compliant Development	9	-
After *Be Lean* Measures	9	9
After *Be Clean* Measures	9	9
After *Be Green* Measures	8	9
Stage	**Regulated Carbon Dioxide Savings**	
	Tonnes CO_2 per Annum	**Percentage**
Savings from *Be Lean* Measures	0	0.2%
Savings from *Be Clean* Measures	0	0.0%
Savings from *Be Green* Measures	1	14.7%
Cumulative On-Site Savings	**1**	**14.9%**

Summary

The proposed development at Unit B1 Railshead Road by Mizen Properties comprises the conversion of existing office space on the first floor into six residential dwellings. The energy performance strategy is based on the specification of the existing building. The estimated CO_2 reduction falls short of London Plan targets, however, as it is a minor application, and a conversion of an existing building there are limited opportunities to improve the performance of the external fabric elements. Additionally, only the 6 new residential dwellings on the first floor have been assessed and the overall block performance of the building is not known. A good reduction in CO_2 emissions has been shown despite these limitations.