BREEAM Domestic Refurbishment

Pre-Assessment Report – Rev D

for The Railway Tavern,
100 West End Lane

3rd December 2013

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Prepared For:
First Urban (WH) Limited &
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1 Executive Summary

Dalen has been commissioned to carry out a BREEAM (BRE Environmental Assessment Method) Domestic Refurbishment Pre-Assessment of the following property:

The Railway
100 West End Lane
London NW6 2LU

The proposed application will seek permission for change of use and conversion of the upper floors of the existing Public House (Class A4) and ancillary accommodation to Office (Class B1) at first floor level and self-contained flats (Class C3) at second and third floor level. The Public House (Class A4) & ancillary accommodation use will be retained at ground floor and lower ground floor levels. Access to the upper floors will be via the existing separate entrance and staircase. The first floor will provide 248sm NIA of office accommodation. The Residential accommodation will comprise 3 no. Two bedroom flats, 2 no. One bedroom flats and 1 no. studio. Third floor alterations will include modification and extension to the existing roof. It is proposed that a number of previously blocked up windows are to be reopened in order to sufficiently light the living, office and circulation spaces. The existing fire escape to the rear of the property will be removed.

It is only the residential area that needs assessment as our office area falls below the 500m^2 threshold.

This report contains the BREEAM Domestic Refurbishment (BDR) Pre-Assessment for the residential development. The initial Pre-Assessment results indicate that the residential apartments should be able to achieve a BREEAM Domestic Refurbishment (BDR) rating of Very Good, with a score of 59.97% (at least 55% required for Very Good rating).

The London Borough of Camden, in which the property is located, requires that a Ecohomes score of ‘Excellent’ be achieved for such a development. However, with the replacement of Ecohomes with the more onerous BREEAM Domestic Refurbishment 2012 (BDR) scheme, meeting this requirement poses a significant challenge

The development is able to achieve a BDR rating of ‘Very Good’. An ‘Excellent’ rating is not feasible because several of the required credits cannot be met due to the sensitive nature of the conservation area, as some sustainable factors are not possible within the existing site demise. This is demonstrated within the below report.

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3 BREEAM

BREEAM (Building Research Establishment's Environmental Assessment Method) is the world's leading and most widely used environmental assessment method for buildings. It sets the standard for best practice in sustainable design and has become the de facto measure used to describe a building's environmental performance. The aims and objectives of BREEAM are as follows.

Aims of BREEAM

- To mitigate the impacts of buildings on the environment
- To enable buildings to be recognised according to their environmental benefits
- To provide a credible, environmental label for buildings
- To stimulate demand for sustainable buildings

Objectives of BREEAM

- To provide market recognition to low environmental impact buildings
- To ensure best environmental practice is incorporated in buildings
- To set criteria and standards surpassing those required by regulations and challenge the market to provide innovative solutions that minimise the environmental impact of buildings
- To raise the awareness of owners, occupants, designers and operators of the benefits of buildings with a reduced impact on the environment
- To allow organisations to demonstrate progress towards corporate environmental objectives

3.1 BREEAM Domestic Refurbishment Principles

In addition to the overarching principles of BREEAM, the BREEAM Domestic Refurbishment scheme has been developed in accordance with the following set of principles:

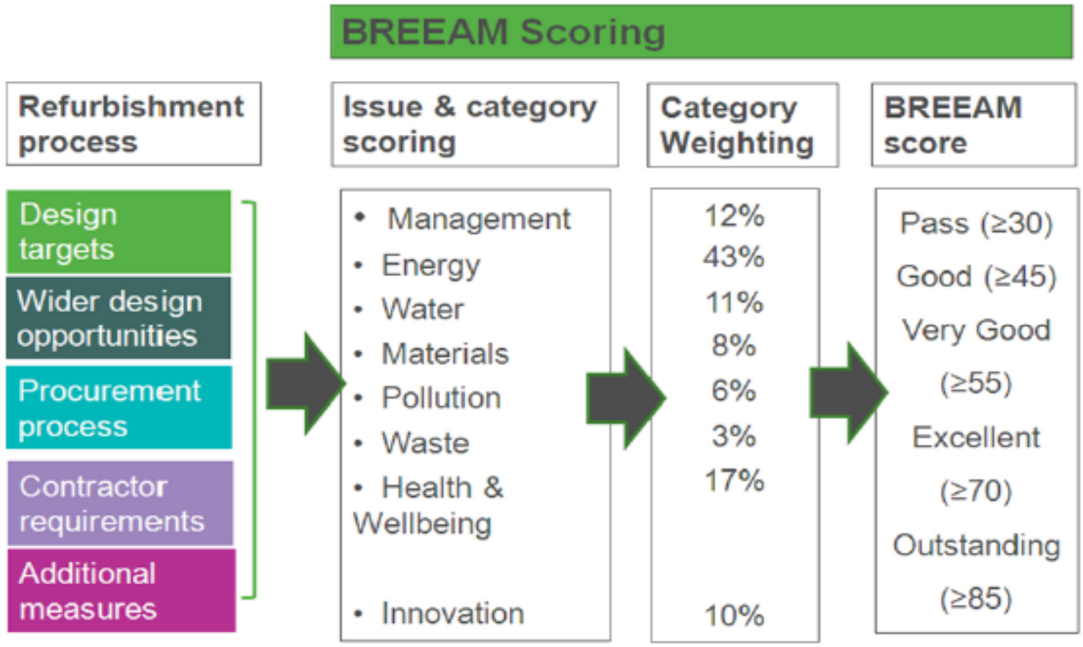
1. Promote low cost, sustainable refurbishment
2. Recognise the limitations of existing buildings including their inherent built form and location
3. Drive market transformation by promoting best practice and innovation in the refurbishment of existing buildings
4. Provide a holistic environmental assessment that works effectively across different building and project types
5. Recognise the different starting points of our existing building stock

Scoring and Rating

There are a number of elements that determine the overall performance of a Domestic Refurbishment project assessed using BREEAM. These are as follows:

- The BREEAM rating level benchmarks
- The minimum BREEAM standards
- The environmental section weightings
- The BREEAM assessment issues and credits

The following diagram illustrates how scoring in a BREEAM project is calculated.



In addition to the total scores depicted in the illustration above, in order to achieve particular rating levels, certain minimum standards are required from particular credits. These are summarised in the following table.

Minimum Standards by Rating Level					
	Pass	**Good**	**Very Good**	**Excellent**	**Outstanding**
Ene 02: Energy Efficiency Rating Post Refurbishment	0.5 credits	1 credit	2 credits	2.5 credits	3.5 credits
Wat 01: Internal Water Use	-	-	1 credit	2 credits	3 credits
Hea 05: Ventilation	1 credit	1 credit	1 credit	1 credit	1 credit
Hea 06: Safety	1 credit	1 credit	1 credit	1 credit	1 credit
Pol 03: Flooding	-	-	-	2 credits	2 credits
Mat 02: Responsible Sourcing of Materials	criterion 3 only	criterion 3 only	criterion 3 only	criterion 3 only	criterion 3 only

4 The Pre-Assessment Score

BREEAM Domestic Refurbishment Pre-Assessment / 15112013 Rev A The Railway - First Urban							
Credit Summary - BDR Technical Guide		**Assessment Credit**	**Credits Available**	**ACHIEVABLE Credits**	**NON Achievable**	**Responsible Party**	**Credit Requirements**
Management Credit value: 1.09	Home User Guide	Man 01	3	3	0	Goring Berry Partnership	It is assumed that the following are to be undertaken: A Home User guide will be provided that is in line with the credit requirements; Three credits are achievable
	Responsible Construction Policies	Man 02	2	2	0	Goring Berry Partnership	It is assumed that the following are to be undertaken: A commitment to go significantly beyond best practice under the Considerate Constructor Scheme; Two credits are achievable
	Construction Site Impacts	Man 03	1	1	0	Goring Berry Partnership	It is assumed that the following are to be undertaken: Procedures to monitor and report on two items listed under MAN 3 & all site timber is sourced in accordance with the UK Government 's Timber Procurement Policy Two credits are achievable
	Security	Man 04	2	1	1	Cornish Architects	It is assumed that the following are to be undertaken: One credit where external doors and accessible windows meet minimum standards and appropriately certified. One credit is achievable
	Protection and Enhancement of Ecological Features	Man 05	1	1	0	Cornish Architects	It is assumed that the following are to be undertaken: Site survey is carried out by a member of the project team to demonstrate that there are no ecological features present. One credit is achievable

	Project Management	Man 06	2	2	0	Cornish Architects / First Urban	It is assumed that the following are to be undertaken: **Project Roles & Responsibilities:** First credit - The project manager assigns individual and shared responsibilities across the following key design and refurbishment stages i. Planning and Building control notification ii. Design iii. Refurbishment iv. Commissioning and handover v. Occupation **Handover and Aftercare**: Second credit - Two or more of the following committed to: - Site inspection within 3 months of occupation - Conduct post occupancy interviews with building occupants with 3 months of occupation - Longer term aftercare e.g. helpline, nominated individual or other appropriate system to support building users for at least the first 12 months of occupancy. Two credits are achievable
Section Credit Total			11	10	1		
Weighted Section Total			12.00%	10.91%	1.09%		
Health & Wellbeing Credit value: 1.42	Daylighting	Hea 01	2	1	1	Cornish Architects / Daylight consultant	It is assumed that the following are to be undertaken: **Maintaining Good Daylighting:** First credit (Existing dwellings) - The refurbishment results in a neutral impact on the dwellings daylighting levels in the kitchen, living room, dining room and study. One credit is achievable
	Sound insulation	Hea 02	4	4	0	WSP	It is assumed that the following are to be undertaken: The separating walls and floors are to be specified to go 5dB beyond regulations; Four credits are achievable
	Volatile Organic Compound	Hea 03	1	0	1	-	This credit is not sought/cannot be achieved.

	Inclusive Design	Hea 04	2	0	2	-	These credits are not sought/cannot be achieved.
	Ventilation MANDATORY criteria	Hea 05	2	2	0	Crofton Design	It is assumed that the following are to be undertaken: Ventilation is provided for the dwelling that meets the requirements of Section 5 of Building Regulations Part F in full Two credits are achievable
	Safety MANDATORY criteria	Hea 06	1	1	0	Crofton Design	It is assumed that the following are to be undertaken: - Carbon Monoxide detector installed if dwelling is supplied with mains gas or other fossil fuel - Mains supplied fire detection and fire alarm system is provided One credit is achievable
Section Credit Total			12	8	4		
Weighted Section Total			17.00%	11.33%	5.67%		
Energy Credit value: 1.48	Improvement in Energy Efficiency Rating	Ene 01	6	2	4	Crofton Design / Cornish Architects	It is assumed that the following are to be undertaken: The building and M&E services design are to be improved to achieve **an improvement** in Energy Efficiency Rating of >17; Two credits are achievable
	Energy Efficiency Rating Port Construction MANDATORY criteria	Ene 02	4	2	2	Crofton Design / Cornish Architects	It is assumed that the following are to be undertaken: The building and M&E services design are to be improved to achieve a **Post Construction** Energy Efficiency Rating of >65; Two credits are achievable
	Primary Energy Demand	Ene 03	7	2	5	Crofton Design / Cornish Architects	It is assumed that the following are to be undertaken: The building and M&E services design are to be improved to achieve a Primary Energy Demand of <320; Two credits are achievable
	Renewable Technologies	Ene 04	2	0	2	-	These credits are not sought/cannot be achieved.
	Energy Labelled White Goods	Ene 05	2	2	0	Cornish Architects	It is assumed that the following are to be undertaken: All appliances will achieve A+ rating: • Fridge and Freezer & • Washing machine and dishwasher & • Tumble dryer or EU Energy Efficiency Labelling Scheme

							information sheet; Two credits are achievable
	Drying Space	Ene 06	1	1	0	Cornish Architects	It is assumed that the following are to be undertaken: 4m+ of drying line for 1-2 bed dwellings and 6m+ for dwellings with 3 bedrooms or greater are to be provided; One credit is achievable
	Lighting	Ene 07	2	2	0	Crofton Design	It is assumed that the following are to be undertaken: **External Lighting:** First credit Where Energy Efficient Space lighting (including lighting in communal areas) and Energy Efficient Security lighting is provided **Internal Lighting:** Second credit The energy required for internal lighting is minimised through the provision of a maximum average wattage across the total floor area of the dwelling of 9 watts/m2 Two credits are achievable
	Display Energy Devices	Ene 08	2	2	0	Crofton Design	It is assumed that the following are to be undertaken: Where current electricity AND primary heating fuel consumption data are displayed to occupants by a compliant correctly specified Energy Display Devices. Two credits are achievable
	Cycle Storage	Ene 09	2	1	1	Cornish Architects	It is assumed that the following are to be undertaken: **Five** adequately sized, safe, secure, convenient and weatherproof cycle storage spaces are to be provided; One credit is achievable
	Home Office	Ene 10	1	0	1	-	This credit is not being sought/cannot be achieved.
Section Credit Total			29	14	15		
Weighted Section Total			43.00%	20.76%	22.24%		

Water Credit value: 2.2	Internal Water Use MANDATORY criteria	Wat 01	**3**	1	2	Cornish Architects / Crofton Design	It is assumed that the following are to be undertaken:- WC - 4 litres effective flushing volume- Wash hand basin tap - 5 litres per minute- Shower - 6 litres per minute- Bath - 200 litre capacity to overflow- Kitchen tap - 5 litres per minute- Dishwasher -17 litres per cycle- Washing machine -90 litres per useOne credit is achievable
	External Water Use	Wat 02	1	1	0	Cornish Architects	This is achieved by default, as the dwellings have no individual or communal garden space.
	Water Meter	Wat 03	1	1	0	Crofton Design	It is assumed that the following are to be undertaken: An appropriate water meter for measuring usage of mains potable water is to be provided to each dwelling; One credit is achievable
Section Credit Total			5	3	2		
Weighted Section Total			11.00%	6.60%	4.40%		
Materials	Environmental Impact of Materials	Mat 01	25	10	15	Cornish Architects	It is assumed that the following are to be undertaken: The Green Guide ratings (A+ to E) of the: - roof, - external walls, - internal walls (including separating walls), - upper and ground floors & - window results in 10 points (Elements retained in-situ achieve A+ ratings);Ten credits are achievable

Credit value: 0.18	Responsible Sourcing of Materials MANFDATORY criteria	Mat 02	12	1	11	Goring Berry Partnership	It is assumed that the following are to be undertaken: Any new material used in the - structural frame, - ground floor, - upper floors (including separating floors), - roof, - external walls, - internal walls (including separating walls), - foundations / substructure & - staircase - windows - external and internal doors - Secondary fixes (including skirting panelling, fascia's and balustrades) - Fixed furniture All **Non-Timber materials** used in key building elements are responsibly sourced to a Tier 6 level (ISO14001 certificate for Key Process & Supply chain extraction); Concrete, Steel, Aggregates & Blockwork are to be responsibly sourced to Tier 2 (BES6001 Excellent certification); All **Timber materials** used in key building elements are responsibly sourced to a Tier 3 level (FSC, CSA, SFI with CoC); One credit is achievable
	Insulation	Mat 03	8	4	4	Cornish Architects / Crofton Design	It is assumed that the following are to be undertaken: • Thermal insulation products (fabric & services) are to achieve a Green Guide rating of A or A+; • 80% of the thermal insulation products are to be responsibly sourced to a Tier 1 for timber products & Tier 3 for non-timber products (Key Process & Supply Chain); Four credits are achievable
Section Credit Total			45	15	30		
Weighted Section Total			8.00%	2.67%	5.33%		
Waste	Household Waste	Was 01	2	0	2	-	These credits are not sought/cannot be achieved.

Credit value: 0.60	Refurbishment Site Waste Management Plan	Was 02	3	2	1 0	Goring Berry Partnership	It is assumed that the following are to be undertaken: The amount of non-hazardous construction waste generated is limited to **<16.90 tonnes per 100,000 of project value** Two credits are achievable
Section Credit Total			5	2	3		
Weighted Section Total			3.00%	1.20%	1.80%		
Pollution Credit value: 0.75	NOX Emissions	Pol 01	3	3	0	Crofton Design	It is assumed that the following are to be undertaken: Low Nox boilers are to be specified (≤ 40mg/kWh); Three credits are achievable
	Surface Water Runoff	Pol 02	3	1	2	Crofton Design	It is assumed that the following are to be undertaken: The area of impermeable hard standing is not to be increased by the development works., and there is no additional run-off; One credit is achievable
	Flooding MANDATORY criteria	Pol 03	2	2	0	Flood Consultant	**It is assumed that the following are to be undertaken:** A Flood Risk Assessment (FRA) is to carried out and the assessed dwellings are defined as having a low annual probability of flooding; Two credits are achievable
Section Credit Total			8	6	2		
Weighted Section Total			6.00%	4.50%	1.50%		
Innovation Credit value: 1.00	Responsible Construction Practices	Man 02	1	0	1	-	This credit is not sought/cannot be achieved.
	Protection and Enhancement of Ecological Features	Man 05	1	0	1	-	This credit is not sought/cannot be achieved.
	Project Management	Man 06	2	**1**	1	Dalen	It is assumed that the following are to be undertaken: A BREEAM AP has been appointed to oversee key stages within the project; One credit is achievable

	Inclusive Design	Hea 04	1	0	1	-	This credit is not sought/cannot be achieved.
	Energy Efficiency Rating Port Construction	Ene 02	2	0	2	-	This credit is not sought/cannot be achieved.
	Display Energy Devices	Ene 08	1	**1**	0	Crofton Design	It is assumed that the following are to be undertaken: The Energy Display Device for each dwelling is capable of recording consumption data; One credit is achievable
	Internal Water Use	Wao 01	1	0	1	-	This credit is not sought/cannot be achieved.
	Refurbishment Site Waste Management Plan	Was 02	1	0	1	-	This credit is not sought/cannot be achieved.
	Surface Water Runoff	Pol 2	1	0	1	-	This credit is not sought/cannot be achieved.
Section Credit Total			10	2	8		
Weighted Section Total			10.00%	2.00%	8.00%		
			100.00%	59.97%	40.03%		
				Very Good			

5 BREEAM Project Analysis

The development involves the refurbishment of the property with the conversion of the existing second and third floors into six residential units. The London Borough of Camden, in which the property is situated, requires building certification as follows:

Extract of Camden Planning Regulations on EcoHomes

9.12 EcoHomes is a version of BREEAM for housing. It is used to assess the sustainability of existing housing where refurbishment, conversion or a change of use is proposed. It uses the same principles as BREEAM with categories, criteria and credits.

You are strongly advised to meet the following standards in accordance with Development Policy DP22 – *Promoting Sustainable Design and Construction:*

Time Period	Minimum Rating	Minimum standard for categories (% of un-weighted credits)
2010-2012	'Very Good'	Energy 60% Water 60% Materials 40%
2013+	'Excellent'	

9.13 BRE are developing BREEAM for Domestic Refurbishment scheme to replace EcoHomes. We may update this guidance to reflect this in the future.

The Ecohomes standard, referred to above, has now been replaced by the more onerous BREEAM Domestic Refurbishment (BDR) standard. The initial Pre-Assessment results indicate that the residential apartments should be able to achieve BREEAM Domestic Refurbishment Very Good, with a score of 59.97%.

The BRE have undertaken a number of case studies to demonstrate that an Ecohomes Very Good rating should in most cases translate into a BDR Very Good rating. The one major change from Ecohomes to BDR is the introduction of 'mandatory' credits to achieve a particular rating.

In order to improve the predicted 'Very Good' score to an 'Excellent', a minimum score of 70% must be achieved in addition to the following mandatory credits:

Mandatory credit	Mandatory Excellent requirement	Achievable for The Railway
Hea 5: Ventilation	1 credit	Yes
Hea 6: Safety	1 credit	Yes

Ene 02: Energy efficient rating post refurbishment	2.5 credits	**No (only 2 credits achievable)**
Wat 1: Internal water use	2 credits	**No (only 1 credit achievable)**
Mat 2:Responsible sourcing of materials	Criterion 3 only	Yes
Pol 3: Flooding	2 credits	Yes

Due to working within the constraints of the existing building, within a conservation area the development cannot achieve the required 70%, or all of the mandatory credits required for an 'Excellent' rating, for the following reasons:

- The existing shape and layout of the building does not allow the accessibility criteria to be easily met.
- The design team have given due regard to the buildings existing context, building typology, heritage, design life and materiality. The proposed changes to the building envelope are therefore limited and this restricts the improvements in terms of energy efficiency. Highly efficient building services equipment are being installed, but the overall energy efficiency improvement does not guarantee the mandatory energy efficient rating improvement required for the 'Excellent' rating.
- The amounts renewable technologies required to achieve the BDR credits are not viable for the existing site, there is only a very amount of space available.
- The existing shape and layout of the building does not allow the space to properly the facilities to provide a home office.
- Low flow water sanitary fittings are to be installed, however the existing size and shape of the development does not allow for rainwater harvesting or grey water recycling.
- Due to the sensitive nature of working within the heritage conservation area the new material selection is limited in that they are being chosen to match the existing. It is less likely that the new materials required to match the existing will score highly on the Green Guide to specification. Further the existing materials are not deemed to score highly either due to their age and make up.
- The lack of space on site does not allow surface water to be captured and stored on-site

6 Conclusion

This report contains the BREEAM Domestic Refurbishment pre-assessment for the residential development. The initial Pre-Assessment for this scheme indicates that the Residential Apartments should be able to achieve BREEAM Domestic Refurbishment Very Good, with a score of 59.97%.

The design team are incorporating vast improvements to the existing building whilst working within the constraints of the existing site demise and sensitive nature of the heritage conservation area.

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