29-41 HIGH STREET TEDDINGTON SUSTAINABILITY REPORT

PROJECT:	LAND TO REAR OF 29-41 HIGH STREET TEDDINGTON
CLIENT	SABA PROPERTY AND INVESTMENT COMPANY LIMITED 7A,NORTHGATE PRINCE ALBERT ROAD ST JOHN'S WOOD LONDON NW8 7RE
ARCHITECT	ROSENAUER TONNET LINCOLN 5/15 GRITTLETON ROAD LONDON W9 2DD
PREPARED BY	DR V VASILEVA 143 COULSDON ROAD CATERHAM SURREY CR3 5NJ T : 01883 337909 E: VanyaVas@yahoo.co.uk
DATED	30TH AUGUST 2014

29-41 HIGH STREET TEDDINGTON

SUSTAINABILITY REPORT

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RENEWABLE ENERGY STRATEGY/29-41 HIGH STREET TEDDINGTON

1.00 INTRODUCTION

The site is in the car park to the rear of Nos 29-41 High Street Teddington and the proposal is to construct 3 new Town Houses. This report sets out the key steps taken to comply with the building renewable energy requirements of the Supplementary Planning Document (SPD).The data provided is specific to this project and should not be used in order to size or cost other renewable energy systems which should be carried out on a site by site basis.

2.00 THE PROJECT

The Development comprises the construction of 3 No 3-storey Town Houses. The location is an urban environment and each house will have the benefit of a south facing roof.
The site wind resource at the site is approximately 4.5m/s.
There is no known established wood fuel supply chain in the area but this could be resourced if there was sufficient demand.

4.00 SYSTEMS

The following systems have been considered to achieve the desired carbon savings.

4.01 Stand alone or roof mounted wind turbines

This development allows little scope for wind turbines due to space limitations. We also believe they would be considered intrusive in this location and have not therefore considered them further

4.02 Solar thermal systems

This system is widely used and popular and is therefore considered in more detail in section 5.00.

4.03 Domestic biomass heating or combined heat and power (CHP)

Biomass heating and Biomass CHP have not been considered appropriate to this development as the availability of a readily available and reliable fuel supply is not established and there is a lack of fuel storage facility on the site.

4.04 Ground source heat pumps

Ground source heating has been eliminated principally on cost grounds but also there is no available owner space on the site to provide such a facility.

4.05 Photo Voltaic (PV) solar energy system.

This is considered to be a viable alternative to Solar Thermal systems and has therefore been considered in more detail in section 5.00.

5.00 WORKED EXAMPLES

5.01 To achieve saving from solar thermal system

Annual carbon savings from solar thermal systems are 1.08kgC/m2

GIFA = 315m2 giving overall saving of 340kgC which equates to an average of 113kgC per house

The carbon reduction is therefore 4.24% which does not meet the required target.

5.02 To achieve saving from PV solar energy system

Annual carbon savings from PV solar energy system are 11.3kgC/m2 of panel

Required area of panels therefore is 9.29m2 per house

The carbon reduction achieved is 20%

The estimated cost per house to achieve this reduction is £9,000.00

In the above examples the PV solar energy system is the only system that achieves the desired target carbon reduction.

6.00 CONCLUSION

6.01 In conclusion the PV solar energy system achieves the target 20% carbon reduction for each of the houses.

6.02 The Architect has demonstrated that the required area of solar panels can be incorporated into the roof design.

6.03 The conclusion therefore is that to achieve the desired 20% carbon reductions the PV solar energy system is recommended.

29-41 HIGH STREET TEDDINGTON

SUSTAINABILITY REPORT

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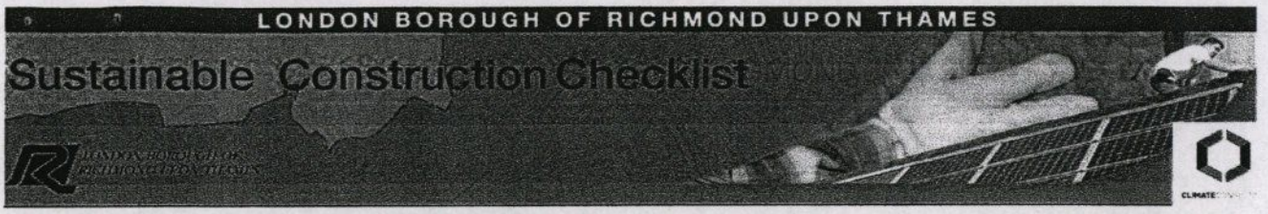
SUSTAINABLE CONSTRUCTION CHECKLIST



LBRUT SUSTAINABLE CONSTRUCTION CHECKLIST

TO BE FILLED IN FOR ALL RESIDENTIAL DEVELOPMENT PROVIDING ONE OR MORE NEW RESIDENTIAL UNITS, AND ALL OTHER FORMS OF DEVELOPMENT PROVIDING 100sqm OR MORE OF NON-RESIDENTIAL DEVELOPMENT

ALL OTHER CLASSES OF DEVELOPMENT ARE ENCOURAGED TO COMPLY WITH THIS CHECKLIST

*This document forms part of the Sustainable Construction Checklist SPD, and **should be read in conjunction with the associated Guidance Document**. 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. Scores will be awarded for different achievements on site, and a final score attributed to the site as a whole.

Property Name (if relevant): 29-A HIGH ST TEDDINGTON
Development Type: 3 No. TOWN HOUSES
Application No. (if known):
Address (include. postcode):
Completed by: DR V. D. VASILEVA

MINIMUM POLICY COMPLIANCE

Please check the Sustainable Construction webpage for the policy requirements

Environmental Rating of development:

	Rating achieved		
Residential new-build Code for Sustainable Homes Level	Please Select: CODE LEVEL 3	A pre-assessment is required to support this. Has this been provided?	☑
Non-Residential new-build (100sqm or more) BREEAM Level	Please Select	A pre-assessment is required to support this. Has this been provided?	☐
Extensions and conversions (residential dwellings) EcoHomes Level	Please Select	A pre-assessment is required to support this. Has this been provided?	☐
If other environmental rating sought please state:			

Score awarded for Environmental Rating (this will only be awarded once a pre-assessment is submitted to verify the level achieved): **Score** 0

CSH: Level 3 = , Level 4 = , Level 5 = , Level 6 =
BREEAM: Good = 0, Very Good = 0, Excellent = 8, Outstanding = 16
EcoHomes: Good = , Very Good = , Excellent =

Accredited Assessors *(Please see Guidance document for more details on accredited assessors)*

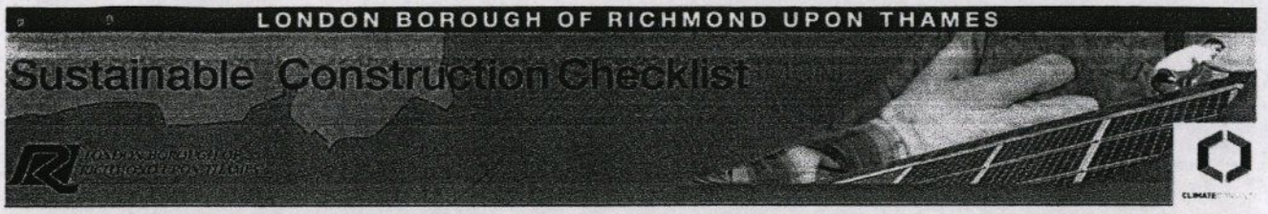
Have you used a licensed Code for Sustainable Homes, EcoHomes and BREEAM Accredited Assessor respectively? ☐

Energy Assessment *(Please see Justification & Guidance document for more details on how to prepare an Energy Assessment)*

An energy assessment is required 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. Has this been submitted? If yes, please tick. ☐

Carbon Dioxide emissions reduction *(Please see Justification & Guidance document for more details on how to calculate these figures as part of the Energy Assessment)*

- Percentage of **total** site CO_2 emissions saved through renewable energy installation?
- Percentage of **regulated** CO_2 emissions saved below Building Regulations target level through all low carbon measures?



1. ENERGY USE AND POLLUTION

1.1 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 ☐
- Reduce heat entering a building through providing/improving insulation and living roofs and walls — 2 ☐
- Reduce heat entering a building through shading — 3 ☐
- Exposed thermal mass and high ceilings — 4 ☐
- Passive ventilation — 3 ☑
- Mechanical ventilation with heat recovery — 1 ☐
- Active cooling systems, i.e. Air Conditioning Unit — 0 ☐

1.2 Heat Generation

b. How have the heating and cooling systems, with preference to the heating system hierarchy, been selected (defined in London Plan policy 4A.6)? Tick the heating and cooling system that will be used in the development:

- Connect to existing CCHP/CHP networks — 6 ☐
- Site-wide CCHP/CHP powered by renewable energy — 5 ☐
- Gas-fired CCHP/CHP — 4 ☐
- Communal heating/cooling powered by renewable energy — 3 ☐
- Communal heating/cooling powered by gas — 2 ☐
- Individual heating/cooling powered by renewable energy — 1 ☑
- Individual heating/cooling powered by gas or electricity — 0 ☐

1.3 Pollution: Air, Noise and Light

a. Does the development plan to implement reduction strategies for dust emissions from construction sites? — 2 ☐

b. Does the development plan to include a biomass boiler? — ☐

- If yes, please refer to the biomass guidelines for the Borough of Richmond, and 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 websit — ☐

c. Please tick only one option below

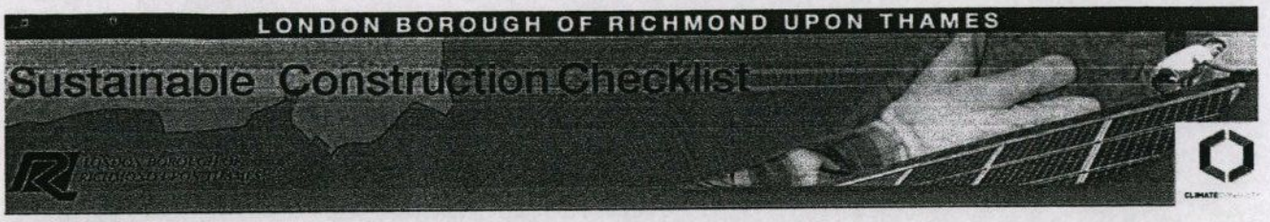
- Has the development taken measures to reduce existing noise and enhance the existing soundscape of the site? — ☑
- Has the development taken care to not create any new noise generation/transmission issues in its intended operation? — ☐

d. Has the development taken measures to reduce light pollution impacts on character, residential amenity and biodiversity? — ☑

e. *Have you attached a Lighting Pollution Report?* — ☐

Subtotal 0.0 10.0

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



2. TRANSPORT

2.1 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, such as electric cars? 2 ☐

b. **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 ☐

c. **For smaller developments ONLY**: Have you provided a Transport Statement? 5 ☐

d. Does your development provide cycle storage? 2 ☑ (3)
- If so, for how many bicycles?
- Is this shown on the site plans? - ☐

e. Will the development create or improve links with local and wider transport networks? If yes, please provide details below. 2 ☐

Subtotal 0.0 3.0

Please give any additional relevant comments to the Transport Section below

3 BIODIVERSITY

3.1 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 compared to the pre-development site? (Tick if yes) -2 ☐
- If so, please state how much in sqm? sqm

b. Does your development involve the removal of any tree(s)? (Tick if yes) - ☐
- If so, has a tree report been provided in support of your application? (Tick if yes) ☐

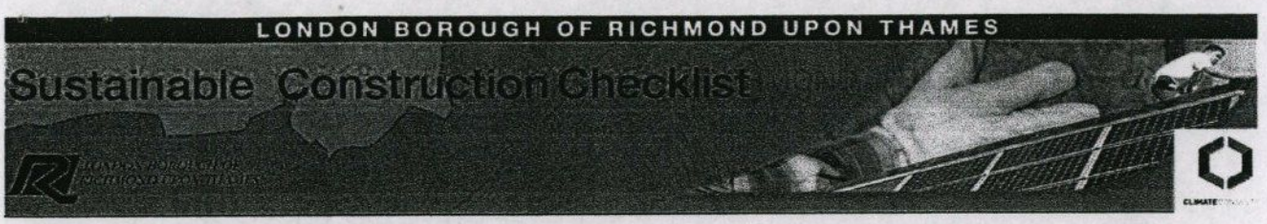
c. Does your development plan to add any tree(s) on site? (Tick if yes) .. ☐

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
• An extensive green roof	5 ☐	Area provided:	sqm
• An intensive green roof	4 ☐	Area provided:	sqm
• A brown roof	4 ☐	Area provided:	sqm
• Garden space	4 ☑	Area provided: 150 m²	sqm
• Additional native and/or wildlife friendly planting to peripheral areas	3 ☑	Area provided: 40 m²	sqm
• Additional planting to peripheral areas	2 ☑	Area provided: 20 m²	sqm
• A living wall	2 ☐	Area provided:	sqm
• Bat boxes	0.5 ☐		
• Bird boxes	0.5 ☐		
• Other	0.5 ☐		

Subtotal 0.0 9.0

Please give any additional relevant comments, including specific reasons why living roofs cannot be incorporated in proposals with roof plate areas of 100sqm or more should this be the case, to the Biodiversity Section below



4 FLOODING AND DRAINAGE

4.1 Reducing and mitigating the risks of flooding and other impacts of climate change in the borough

a. Is your site located in an area at risk of flooding? (Tick if yes) - ☐

If yes, please tick only ONE option below:

- New development in a high flood risk zone (3a) -2 ☐
- New development in a medium flood risk zone (2) -1 ☐
- Redevelopment of an existing building or conversion 0 ☐

Is your development within 20 metres of a watercourse or a flood defence? (Tick if yes) - ☐

Have you submitted a Flood Risk Assessment? (Tick if yes) - ☐

b. Which of the following measures of the drainage hierarchy are incorporated onto your site? (tick all that apply)

- Store rainwater for later use ☑
- Use of infiltration techniques such as porous surfacing materials to allow drainage on-site ☑
- Attenuate rainwater in ponds or open water features ☐
- Store rainwater in tanks for gradual release to a watercourse ☐
- Discharge rainwater directly to watercourse ☐
- Discharge rainwater to surface water drain ☐
- Discharge rainwater to combined sewer ☐

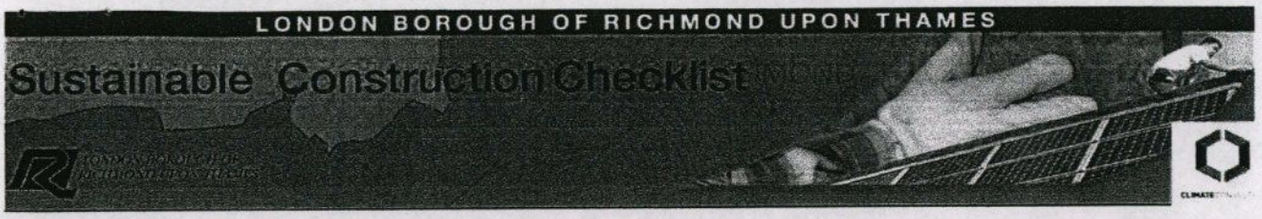
c. Please give the change in area of permeable surfacing which will result from your development proposal: 40 sqm

Please provide details of the permeable surfacing below

please represent a loss in permeable area as a negative number

Subtotal 0.0 8.0

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



5 IMPROVING RESOURCE EFFICIENCY

5.1 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? 0 ☐
- Will 10% of demolition waste or more be reused in the new development? 1 ☐
- Will 15% of demolition waste or more be recycled? 1 ☐

b. Does your site have any contaminated land or has the site previously been used for potentially contaminating uses? 1 ☐
- Have you submitted an assessment of the site contamination? 2 ☐
- Are plans in place to remediate the contamination? 2 ☐
- Have you submitted a remediation plan? ☐

c. Are plans in place to include composting on site? 1 ☑

5.2 Reducing levels of water waste

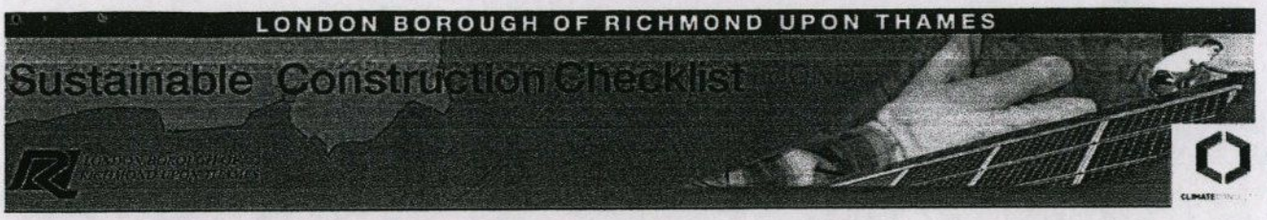
a. Will the following measures of water conservation be incorporated into the development? (Please tick all that apply):
- Fitting of water efficient taps, shower heads, dual flush toilets etc 1 ☑
- Use of water efficient A or B rated appliances –
- Rainwater harvesting for internal use ☐
- Greywater systems –
- Fit a water meter 1 ☑

b. What is the water consumption target of the development (in litres per person per day?) ☐
- The recommended target for conversions or other small scale residential properties is 105 litres/person/day. Will this be met? (Indicate if yes) 1 ☑

c. If applicable, have you submitted evidence that capacity exists in the public sewerage and water supply network? ☐

Subtotal 0.0

Please give any additional relevant comments, including reasons why the water consumption target has not been met should this be the case, to the Improving Resource Efficiency Section below



6 DESIGN STANDARDS AND ACCESSIBILITY

6.1 Ensure flexible adaptable and long-term use of structures

a. **If the development is residential,** will it meet the requirements set out in the Residential Design Standards SPD for internal space and layout? 1 ☑

- 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 the criteria included in the Lifetime Home Standards? 2 ☑

- If not all Lifetime Homes criteria are to be met, in the space below, please provide details of any accessibility measures included in the development.

c. • Are 10% or more of the units in the development wheelchair accessible? 1 ☑

OR

d. **If the development is non-residential,** does it comply with requirements included in Richmond's Design for Maximum Access SPG? ☐

- Please provide details of the accessibility measures specified in the Maximum Access SPG that will be included in the development

Subtotal 0 4.0

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

LBRUT Sustainable Construction Checklist- Scoring Matrix

TOTAL 0 39.0

Score for new construction	Score for extensions or conversions	Rating	Significance
80 or more	*70 or more*	*A+*	Project strives to achieve highest standard in energy efficient sustainable development
71-79	*61-69*	*A*	Makes a major contribution towards achieving sustainable development in Richmond
51-70	*41-60*	*B*	Helps to significantly improve the Borough's stock of sustainable developments
36-50	*26-40*	*C*	Minimal effort to increase sustainability beyond general compliance
35 or less	*25 or less*	*FAIL*	Does not comply with planning policies on sustainability and climate change

Authorisation:

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

Signature _____ Date 30/08/2014