MEMORANDUM

BDP.

TO	Montague Evans	DATE	17/04/18
FROM	BDP	CC	MJP Architects BDP Greenwood projects
FILE REF	P2008080		

SUBJECT **TAVISTOCK PLACE TP2 – LONDON BOROUGH OF CAMDEN ENERGY AND SUSTAINABILITY STATEMENT COMMENTS RESPONSE**

BDP submitted an Energy and Sustainability Statement to the London Borough of Camden in October 2017 to accompany the planning application for the development of The London School for Hygiene and Tropical Medicine new facility at Tavistock Place 2. This addendum addresses the comments made by the London Borough of Camden's Planning Officer.

The table below itemises the LBC's comments alongside the team's response and any proposed:

Comment Ref	LBC Comment	Design Team Response
1.0	*The approved energy reports state that the scheme will achieve 81% BREEAM rating and give specific scores for water, materials and energy. However I cannot see that the new reports give any % scores. Can you advise?*	Page 9 of the sustainability statement provides a summary doughnut with the percentage scores for each category. A summary table has now been added and demonstrates category scores for Energy, Water and Materials as 65.22%, 62.50% and 69.23% respectively.
2.0	*The approved scheme involved 340sqm of PV panels plus GSHP to achieve a 19.5% CO_2 emission reduction total with 14% from renewables. This score has risen to 37.8% and it would be interesting to know how that was achieved.*	The calculations provided in the WSP/Parsons Brinckerhoff energy statement were based on a new laboratory building comprising of research laboratories, open plan write up spaces, offices and category 3 containment laboratories (wet laboratory space). The revised scheme, though architecturally similar, has a modified internal function. There are no wet laboratories, instead the primary functions of the spaces will be write up spaces with high quality dry laboratory spaces. It is not possible to make a direct comparison between the two energy models as the energy loads will be different for the different use types of the two schemes. The nature of Cat 3 laboratory work means high levels of ventilation are required and further consideration of how to reduce energy demand in the lab spaces is needed. As shown on page 11 of the BDP Energy Statement, the baseline tCO_2/yr. is 67.36 (dry lab scheme) compared to 150 tCO_2/yr. stated in the WSP/Parsons Brinckerhoff statement (wet lab scheme). Significant improvements through lean measures have been demonstrated in the BDP energy statement (29.9%).
3.0	*The scheme is now only proposing 100sqm of PVs and no GSHP which only achieves 7.8% reduction. Can you advise why, as this does not accord with our targets.*	The original energy statement provided an approximate area of PV required. Further review as part of the revised energy statement has shown that the available roof area for PV is limited due to the profiled roof design of LSHTM Tavistock Place and the inclusion of a green and blue roof. The project team have identified the adjacent roof for the installation of PV, maximising the availability of usable roof space with a 100m^2 array, contributing to the reduction in carbon emissions. The c.15kWp PV array is proposed to be installed at an inclination of 10 ° and aligned close to south, to maximise performance. The PV array is assumed to have 17% efficiency.

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<td>Due to the space constraints associated with the scheme, it was stated in the energy statement that specialists will be engaged to assess efficiencies of the system to optimise layouts to maximise yield.

The omission of the GSHP was on the basis the building had got smaller and its different use would demand less energy overall. This refinement in expected loads meant inclusion of the system was no longer viable.

Please note the Energy Statement has now been updated (17/04/18) to align percentage energy hierarchy savings with those in LBC table. Be Green savings now corrected to 11.2% based on a carbon reduction of 5.28 tonnes, as shown below and on page 11 of the report. There is no change in the tCO_2 figure but the percentage reduction had been incorrectly stated.

4.1.2‘Lean’, ‘Clean’, ‘Green’ Breakdown in accordance with London Plan

Table 5. Regulated CO_2 emissions after each stage of the hierarchy
<table><tr><th></th><th>Total tCO_2/yr</th><th>Ref</th><th></th><th></th></tr><tr><td>Baseline</td><td>67.36</td><td>A</td><td></td><td></td></tr><tr><td>Lean</td><td>47.19</td><td>B</td><td></td><td></td></tr><tr><td>Clean</td><td>47.19</td><td>C</td><td></td><td></td></tr><tr><td>Green</td><td>41.91</td><td>D</td><td></td><td></td></tr><tr><td></td><td>Ref</td><td>Reduction tCO_2</td><td>Ref</td><td>% change</td></tr><tr><td>Lean</td><td>A-B</td><td>20.17</td><td>(A-B)/A x 100</td><td>29.9</td></tr><tr><td>Clean</td><td>B-C</td><td>0.00</td><td>(B-C)/B x 100</td><td>0.0</td></tr><tr><td>Green</td><td>C-D</td><td>5.29</td><td>(C-D)/C x 100</td><td>11.2</td></tr><tr><td>Total Cumulative Savings</td><td>A-D=E</td><td>25.46</td><td>(A-D)/A x 100</td><td>37.8</td></tr></table></td>
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<td>4.0</td>
<td>Submission of an Energy Efficiency and Renewable Energy Plan should be secured in the s106 agreement for approval prior to this could take the form of an updated Energy Statement or Compliance Report, with supporting documentation (eg BRUKL reports for each stage of the hierarchy from Baseline to Be Green). A completed Sustainability s106 Pro-forma must be submitted alongside the Plan.</td>
<td>Noted</td>
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<td>5.0</td>
<td>Further information required: gas boilers should be confirmed to be ultra low NOx type (emissions <40 umg/m3). The boiler stack(s) should be located away from existing and newly constructed air intakes for the ventilation system. Submission of details of MVHR and locations of air intakes should be secured by condition. See recommended conditions below.</td>
<td>The gas boilers specified meet the criteria of <40mg/kWh (39.8). See TP2-BDP-XX-XXX-SH-M-560001 – Boiler – CO1 for details.

The boilers are located in the roof level plant enclosure, away from existing and newly constructed air intakes. The closest air intake is at ground level and the boiler flue discharges above the L04 roof.
TP2-BDP-XX-B01-DR-M-501401 shows the incoming position of the air intake and TP2-BDP-XX-L04-DR-M-501401 shows the position of the boiler flues.

The air handling units will incorporate heat recovery consisting of a thermal wheel within a minimum efficiency of 70%. The heat recovery thermal wheel shall be interlocked with the supply fan. See TP2-BDP-XX-XXX-SH-M-570001 – AHU – CO1 for details.</td>
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<td>6.0</td>
<td>Sites within 500m of an existing network should connect unless demonstrated to be unfeasible. CO_2 reductions can be included in the energy statement as long as connection is made within an</td>
<td>The existing Bloomsbury Heat and Power network
The LSHTM site is less than 200m from the proposed network expansion. It is suggested that discussions are initiated with the BHP energy manager (SOAS) to determine the potential for including the LSHTM in the network expansion.</td>
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	agreed timescale/trigger point. If not then the shortfall will be offset or met through other means. *A financial contribution towards Decentralised Energy Networks in the Borough should be sought, if connection to the existing network is found to be feasible but is not taken up by the scheme.* *Final details may be secured by s106.*	*The network is supplied by two gas-fired CHP engines (725kWe each), two gas-fired boilers and back up oil-fired boilers and steam generators.* A capped connection has been provided on the LTHW header to allow for future connection to a district heating network should any of the schemes be feasible (See TP2-BDP-XX-XXX-DR-M-567901 for the schematic and TP2-BDP-XX-B01-DR-M-501401, TP2-BDP-XX-L04-DR-M-501401 for plant room details) The studies carried out as part of this project in addition to the studies carried out for the previous scheme on this site in 2015 indicate no networks are currently available. The Borough of Camden Guidance (CPG3) also recommends that a district network will be suitable for projects with high heating demands or mixed energy demands. The energy statement demonstrates a 29.9% reduction in CO_2 emissions from the baseline model as a result of lean measures, demonstrating the low heating and overall energy demands for this building.
7.0	*Sites within 1km of a potential network should future proof unless demonstrated to be unfeasible. CO2 reductions can be included in the energy statement as long as connection is made within an agreed timescale/trigger point. If not then the shortfall will be offset or met through other means.* *Developments which are in locations where no heat networks are planned and that are not of the size/density to benefit from connection to a network would not be expected to future proof. In these circumstances, building specific heating technologies, such as individual gas boilers or heat pumps, would be acceptable.* A financial contribution towards a Feasibility Study for a Decentralised Energy Network in the area should be sought if connection is found to be feasible but is not taken up or future-proofed by the scheme.	See above. **The potential Camden Town Hall scheme** Initial studies for the Camden Town Hall extension indicated the viability of small district network fed from a new CHP in the Town Hall would not be financially viable. A second study considered an extension project, with further expansion to include potential housing estates and as school, but this was not financially viable. Extension of the proposed network down Judd Street to Tavistock Place was considered but has not yet been constructed. From the information obtained, it is not clear if these schemes will be developed further. Further investigation for connection would be required, if and when the network is constructed. **The new local DEN originating from Cartwright Court** Meeting with the Cartwright Halls design team established there does not appear to be any potential to increase the utilisation of the CHP units in the winter (all three units appear to operate at maximum output over a 24 hour period) **The proposed Euston road DEN** Where LSHTM Tavistock Place does not have its own CHP or connect to the BHP or Camden Town Hall networks, connection to the Euston road DEN should be investigated as and when the network is constructed. As stated in 6.0, the design has been future proofed to for future connection to a DEN.
8.0	*Submission of BREEAM assessment review reports and certificates for approval (Design Stage prior to implementation; Post Construction prior to occupation) should be secured in the s106 agreement. See recommended s106/conditions below.*	This condition presents notable challenges as a product of the activities (and timescales) required to generate and provide compliant evidence prior to handover. These activities include, but are not limited to; commissioning results (and any remedial works), building user guides and post completion acoustic testing. These items would need to be complete 6-8 weeks prior to occupation to allow the BRE sufficient time to conduct their quality assurance audit before issuing the final post-construction certificate. This 6-8 week period assumes no clarifications are requested from the BRE, which could further extend the process. We would propose setting a timeframe for providing the final post-construction certificate following handover. The LPA would be in possession of the design/interim stage certificate well in advance of completion to provide comfort.
9.0	*Submission of final green roof design details (including species/makep and a lifetime green/living roof maintenance plan) for approval prior to implementation should be secured by condition*	MJP to advise

10.0	*Submission of final SuDS (blue-green roof) design details (including a SuDS pro-forma and Drainage Statement with supporting calculations, confirming it meets the target runoff rates and storage capacities, and a lifetime SuDS maintenance plan) for approval prior to implementation should be secured by condition. See conditions below.*	MJP and Carter Clack to advise
11.0	*Submission of a Sustainability Plan should be secured in the s106 agreement for approval prior to implementation (Design Stage) and again prior to occupation (Post Construction). This could take the form of an updated Sustainability Statement or Compliance Report, with supporting documentation (ie relevant BREEAM report and certificate as recommended above). A completed Sustainability s106 Pro-forma must be submitted alongside this Plan.*	See item 8.0 regarding timing of BREEAM certification Noted: Completed Sustainability s106 Pro-forma to be submitted alongside Sustainability Statement
12.0	*A revised AQ Assessment should be required prior to determination if possible, and if not then secured by condition, and any changes to the scheme or its construction should be secured in the s106.* ***Recommendation:*** *Approve subject to condition and s106 agreement. (Or request further information prior to planning, where possible.)*	Peter Brett to advise