THIRD PARTY REVIEW
Whole Life Carbon Assessment

SELKIRK HOUSE

LONDON BOROUGH OF CAMDEN

5 October 2023

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Document History:

Issue	Date	Details
01	24/8/2023	INITIAL REVIEW OF WLCA
02	5/10/2023	SECOND ROUND OF VERIFICATION

Contents

1. Introduction

Hilson Moran has been instructed by the **London Borough of Camden** to undertake an independent review of the Whole Life Carbon Assessment (WLCA) submitted for planning for the extensive redevelopment of the site at **Selkirk House**. The WLCA has been produced by Scotch Partners LPP on behalf of **Lab Selkirk House Ltd** (here in after 'the applicant') and submitted to Camden Council as part of the planning application n. 2023/2510/P.

This independent review comes after a previous third-party appraisal, conducted and completed by Hilson Moran in March 2023, for the former planning application (2021/2954/P) of the same site.

Hilson Moran has reviewed the documents submitted for planning (details of which are provided in section 2) against Camden's planning policies, the latest GLA requirements for WLCAs and the London Plan 2021, specifically policy SI2, minimising greenhouse gas emissions.

The key policy reference documents are:

- Camden Local Plan 2017
- Camden Planning Guidance (CPG) Energy efficiency and adaptation - January 2021
- London Plan Guidance – Whole Life Carbon Assessments – GLA, March 2022
- London Plan 2021, Greater London Authority, March 2021

Note: The scope of this review is limited to a documentary review of the information submitted for planning. The carbon model in OneClick LCA and the energy modelling that form the basis of the WLC results reported in the planning documents have not been interrogated by Hilson Moran.

1.1. Initial review of the WLCA

An initial review of the Whole Life Carbon Assessment (WLCA) submitted for planning has been completed by Hilson Moran on August 24th, 2023.

As part of this review, Hilson Moran produced a technical and independent commentary report of compliance on the WLCA produced by the design team for planning. This report includes a summary of the main findings of the initial review, including:

NC	Areas of non-compliance against Camden planning policies and GLA WLCA requirements
RFI	Requests for further design information / clarifications
R	Recommendations and observations

The findings from the initial review have been summarised in section 5 of this report. The previous revision of this report (Issue 01 – 24/08/2023) sets out further details and references to the relevant clauses from the GLA WLC guidance.

A series of meetings have been held with Camden's planning officers and the project team in the period between the 1st and the 14th of September 2023 to discuss the findings from the initial review and to collaboratively agree the next actions.

1.2. Second round of verification

An updated set of WLCA information has been produced by the applicant (see Section 2 of this report for further details) and submitted to Hilson Moran on 25 September 2023.

We have undertaken a second round of verification to review applicant's response to the findings and ascertain if the necessary clarifications were provided.

The outcome of the second round of verification is summarised in section 5 of this report.

2. Documents reviewed

The initial review was limited to the following documents from Camden's planning portal:

Table 1 – List of planning documents within the scope of the initial review

Document	Revision	Date
Whole Life Carbon Assessment Report	r06c	29/06/2023
GLA WLCA Template for Wide Site	v1a	21/06/2023
GLA WLCA Template for 1 Museum Street	v5a	21/06/2023
GLA WLCA Template for High Holborn	v4a	14/06/2023
GLA WLCA Template for Vine Lane	v4a	21/06/2023
GLA WLCA Template for West Central Street	v4a	15/06/2023

In addition to the above, other planning reports were also read to understand the project context and the wider sustainability brief; however these were not commented on as they were not part of the agreed scope of appointment. This included:

- Design & Access Statement issued for planning (June 2023)
- Sustainability Statement (Rev. 09 – June 2023)
- Energy Assessment (Rev. 11 – June 2023) and GLA Carbon Emissions Reporting Spreadsheets
- Circular Economy Statement (Rev. 10 – June 2023) and corresponding GLA template
- Internal Daylight, Sunlight and Overshadowing Report (May 2023)

As part of the second round of verification, we have completed an independent review of the updated set of WLCA information produced by the applicant. This includes:

Table 2 – Planning documents within the scope of the second round of verification

Document	Revision	Date
Whole Life Carbon Addendum	r01	19/09/2023
GLA WLCA Template for Wide Site	v2a	18/09/2023
GLA WLCA Template for 1 Museum Street	v6a	18/09/2023
GLA WLCA Template for High Holborn	v5a	18/09/2023
GLA WLCA Template for Vine Lane	v5a	18/09/2023
GLA WLCA Template for West Central Street	v5a	18/09/2023

3. WLCA reviewers

The independent review of the Whole Life Carbon Assessment (WLCA) of Selkirk House has been carried out by **Andrew Moore, Amedeo Scofone** and **Samuele Rando**.

Andrew Moore is an Associate Director and experienced Sustainability Consultant / LCA reviewer. He has over 13 years' experience in the industry. Areas of expertise include embodied carbon and materials impacts, energy management in use, and climate change risk.

Andrew is a leading industry figure, most notably for developing and co-authoring the City of London policy advice note on WLC optioneering, for early-stage carbon related decision making.

Amedeo Scofone is an Associate Sustainability Consultant with 11 years of experience in the building sector. His expertise includes environmental and technical design, energy and sustainability.

He worked on range of projects including commercial, masterplans, mixed use developments, residential, and listed buildings and he currently lectures on sustainability and environmental design in various universities across London.

Samuele Rando is a Principal Sustainability Consultant who has extensive experience undertaking lifecycle assessments and supporting design teams in the implementation of Circular Economy principles over the last 7 years.

Samuele recently supported Camden Council as an independent sustainability reviewer of other strategic applications in the London Borough of Camden, having gained in-depth knowledge of Camden's planning policies.

4. Project overview

Table 3 – Project information

Project name	Selkirk House
Application no.	2023/2510/P
GLA referable scheme	The project is GLA refereable
Address	166 High Holborn and 1 Museum Street, 10-12 Museum Street, 35-41 New Oxford Street and 16A-18 West Central Street, London, WC1A 1JR
Property type	Mixed-Use – Office, Residential and Retail / Flexible Use
Gross Internal Area	30,980 m^2 (WLCA GLA template for wide site)
Project description	The existing site comprises of 0.52 hectares and is bounded by High Holborn to the south, Museum Street to the east and New Oxford Street to the north, with the rear of the properties fronting Grape Street forming the western boundary. The proposed scheme comprises of redevelopment and extension to provide a mixed-use scheme of affordable housing, town centre uses and office floor space within the new 19 storey building on Museum Street. The proposed development comprises of the following components: • **1 Museum Street** - A single new building rising to 19 storeys, providing office accommodation on upper levels and a range of flexible town centre uses (Class E) at ground level. • **High Holborn** - A single new building rising to 6 storeys, providing residential (Class C3) accommodation on upper levels and a flexible town centre use (Class E) at ground level. • **Vine Lane** - A single new building rising to 5 storeys, providing market residential units with a flexible town centre use (Class E) at ground level. • **West Central Street** - A series of new and refurbished buildings rising to 6 storeys, providing residential accommodation (market, LCR and Intermediate) on upper levels (Class C3) and flexible town centre uses (Class E) at ground level. This block includes 2 no. listed buildings: 35-37 New Oxford Street and 10-12 Museum Street.
Developer	Lab Selkirk House Ltd
Planning Consultant	Iceni Projects
Architect	DSDHA
Structural Engineer	Heyne Tillett Steel
Sustainability and MEP	Scotch Partners
Project Manager / QS	Gardiner and Theobald (G&T)

5. Summary of main findings

5.1. Areas of non-compliance

This section includes a list of discrepancies and 'non-compliant' items found during the initial review of the WLCA information submitted for planning with respect to the Camden's planning policies and the GLA requirements. The column on the right-side of Table 4 includes an independent commentary produced as part of the 2nd round of verification to review the applicant's response to the findings.

Table 4 – Areas of non-compliance

ID	Finding description – From initial review (24/08/2023)	**Comments from 2nd round of verification**
NC1	**Gross Internal Area (GIA)** The total development's Gross Internal Area (GIA) used to determine the WLC emissions ($kgCO_2e/m^2_{GIA}$) is 30,980 m^2. This does not match the total value of 28,309 m^2 given in the project's Design and Access Statement. The applicant shall provide clarifications / resolve the discrepancy.	☑ **Finding addressed** ☐ Finding partially addressed ☐ Finding not addressed Additional clarifications have been provided in the Whole Life Carbon addendum and in its Appendix 1. The two GIA figures address two methodologies of calculating GIA for planning and technical studies respectively. The GIA stated in the DAS represents the planning reportable GIA; this excludes significant elements of built area as required by LBC policy. The GIA used within the WLCA represents the total built area measured in accordance with IPMS with certain exclusions listed in Appendix 1.

ID	Finding description – From initial review (24/08/2023)	**Comments from 2nd round of verification**
NC2	**Elemental scope of assessment** The WLCA report states that all building elements in line with GLA requirements, including facilitating works (NRM RICS categories 0.3, 0.4 and 0.5) have been included in the assessment. However, embodied carbon impacts for these building categories are not provided in the GLA WLCA templates. The applicant shall provide clarifications / resolve the discrepancy.	☐ Finding addressed ☑ **Finding partially addressed** ☐ Finding not addressed The applicant provided clarifications in the Whole Life Carbon addendum. Facilitating works under building categories 0.3-0.5 are not included in the WLCA for planning due to lack of information and lack of industry benchmarks to estimate the carbon impacts of these items at early design stage. Exclusion of facilitating works could be acceptable at this stage, also considering that this exclusion does not significantly affect the completeness of the WLCA for planning (the achieved cost coverage exceeds 96% of the cost plan). However, it should be noted that the GLA require applicants to consider and include all building elements within the project's scope of works, including temporary works. Therefore, from a formal perspective, this exclusion is not in line with GLA planning requirements. In addition to the above, we note that the project team succeeded in estimating the carbon impacts associated with temporary works in the optioneering study for Options 1-3 based on figures provided by the Structural Engineers. Clarifications should be provided as to why a similar approach cannot be adopted for the preferred option submitted for planning.

ID	Finding description – From initial review (24/08/2023)	**Comments from 2nd round of verification**
NC3	**Material lifespans and future replacements (B4)** Discrepancies between the declared lifespans of the internal partitions and the arising B4 impacts have been found in the WLCA GLA templates. For example, in the 'High Holborn WLCA Template, v4a' the impacts associated with future replacements (B4) of internal partitions (NRM 2.7) is zero, despite the reference service life declared for some of the partition materials is less than 60 years. This is not possible and needs to be reviewed.	☐ Finding addressed ☐ Finding partially addressed ☑ **Finding not addressed** The applicant has updated and re-submitted the GLA WLCA templates. The discrepancies identified during the initial review do not appear to have been resolved. B4 impacts of internal partitions (NRM 2.7) in the updated 'High Holborn WLCA Template, v5a' are not provided. The applicant shall provide clarifications / resolve the discrepancy.
NC4	**Use of GGBS in substructure concrete for 1 Museum Street** Discrepancies have been found with regard to the targeted percentages of GGBS within the concrete elements. In the WLCA report, Table 3, the proposed cement replacement rate for the substructure of 1 Museum Street is 70%. In Table 26 of the same WLCA report, the targeted GGBS rate for 1 Museum Street is 50%. The applicant shall resolve the discrepancy. The carbon reduction estimated by the applicant in the GLA WLCA template of 1 Museum Street for the '*Specification of 70% GGBS in substructure, compared to 20% GGBS (RICS recommendation)*' is 138 $kgCO_2e/m^2GIA$. This seems largely overestimated. The applicant shall provide further details on how this reduction has been determined.	☑ **Finding addressed** ☐ Finding partially addressed ☐ Finding not addressed Additional clarifications have been provided by the applicant in the Whole Life Carbon addendum. The targeted cement replacement rate for the substructure concrete of 1 Museum Street is 70%. The carbon reduction associated with this initiative has been recalculated and included in the updated GLA WLCA template of 1 Museum Street (v6a). The new estimate stands at 36 $kgCO_2e/m^2GIA$, this seems a more reasonable figure.

5.2. Requests for further clarifications

This section identifies areas where compliance against Camden planning policies and GLA WLCA requirements cannot be demonstrated during the initial review of the WLCA submitted for planning due to lack of details. The column on the right-side of Table 5 includes an independent commentary produced as part of the 2nd round of verification to review the applicant's response to the requests for further clarifications.

Table 5 – Additional information/clarification required

ID	Finding description – From initial review (24/08/2023)	**Comments from 2nd round of verification**
RFI1	**Life expectancy of residential partitions** The material lifespans used in the WLCA are in line with the default assumptions given in the 1st edition of the RICS PS for Whole Life Cycle Assessments, except for the residential drylining partitions; these have been assumed to have a 60-year life expectancy. The WLCA report does not clarify which considerations/facts formed the basis of this assumption. Appropriate supporting evidence should be provided to justify deviation from RICS default material lifespans. The assumption that residential partitions could last for 60 years is listed in Table 26 of the WLCA report (item 9) as one of the actions taken by the project team to reduce whole life carbon impacts. We believe that this shouldn't be referred as an action taken, as it's more an assumption by the project team. We would therefore suggest removing this item from the list.	☐ Finding addressed ☐ Finding partially addressed ☑ **Finding not addressed** No supporting evidence has been provided to justify deviation from RICS default lifespans for residential drylining partitions. The applicant has updated and re-submitted the GLA WLCA templates; a series of discrepancies have been found in the updated spreadsheets: • Lifespan of glass wool insulation panels used within project's internal walls and partitions (NRM 2.7) – Shown as 30 years in GLA WLCA template for the site wide analysis and as 60 years in GLA WLCA template for Vine Lane • Lifespan of water-borne interior paint used within project's internal walls and partitions (NRM 2.7) – Shown as 60 years in GLA WLCA template for wide site and as 10 years in GLA WLCA template for 1 Museum Street • The aluminium frame glazed partitions for 1MS are assumed to last for 60 years. This is not in line with RICS default lifespans for internal partitions. Appropriate supporting evidence should be provided to justify deviation from RICS default material lifespans. Discrepancies within GLA WLCA templates should be resolved.

ID	Finding description – From initial review (24/08/2023)	**Comments from 2nd round of verification**
RFI2	**Material quantities** The WLCA GLA templates do not include any material quantities for external works (NRM 8). These seem missing from the CES GLA template too. Both the WLCA and CES templates should be updated including relevant quantities of materials for the proposed external works. Material quantities are not provided in the WLCA GLA template for the wide site, but only for the individual building's spreadsheets. The spreadsheet for whole development should be completed with the missing information (this does not appear to be a challenging task as it could be easily done by summing the material quantities of each individual spreadsheet).	☑ **Finding addressed** ☐ Finding partially addressed ☐ Finding not addressed The applicant has updated and re-submitted the GLA WLCA templates; the updated spreadsheets include material quantities for external works (NRM 8). The material table of the GLA WLCA template for the wide site has also been completed with the overall material quantities needed to redevelop the site.

ID	Finding description – From initial review (24/08/2023)	**Comments from 2nd round of verification**
RFI3	**Acceptable sources of carbon data for materials and products** The WLCA report does not include sufficient details to ascertain compliance against some of the quality data requirements outlined in the GLA guidance for Whole Life Carbon Assessments, (reference paragraphs: 2.7.1 and 2.7.2). Additional information should be provided with regard to: • Approach to data selection - OneClick LCA database includes an extensive range of both sector-level and product-specific data. In many circumstances, for the same material, both generic (e.g. industry-average) and product-specific (e.g. EPD) data are available in the database. What's the general approach adopted by the applicant? How has data been selected from the OneClick LCA database where multiple choices for the same material were available? Could the applicant provide more information? • Structural materials - Have the default values suggested by the IStructE's guide 'How to calculate embodied carbon' for structural materials been considered? • Building services - How was the embodied carbon of the MEP systems calculated? • Fittings, furnishings and equipment – What's the approach taken to estimate the embodied carbon impacts of the FF&E? What's included in the WLCA?	☑ **Finding addressed** ☐ Finding partially addressed ☐ Finding not addressed Additional information has been provided by the applicant in the Whole Life Carbon addendum. This includes clarifications on the approach to data selection for structural materials, building services and FF&E.

ID	Finding description – From initial review (24/08/2023)	**Comments from 2nd round of verification**
RFI4	**Cost plan and cost coverage** The WLCA report (paragraph 3.4) states "*Quantities have been provided by the design team and the latest cost plan*" but does not reference date/revision of the cost plan used to inform the calculation. This would be a useful information to include in the WLCA report. The WLCA report (paragraph 3.4.1) states "*Cost-consultant confirmation that 96.87% of cost allocated to each building element category has been accounted for in the assessment - this confirmation is in progress and will be updated*". We understand the QS confirmation of the cost coverage was in progress at the time of issue of the WLCA report (29/06/2023). Has this been finalised now? Can a copy of the QS confirmation be submitted?	☑ **Finding addressed** ☐ Finding partially addressed ☐ Finding not addressed The following information has been provided by the applicant in the Whole Life Carbon addendum: • Cost plan used to inform the WLCA: 'Viability Cost v2' issued by G&T • QS confirmation of achieved coverage: screenshot of email sent by N.F. (G&T) on 29/06/2023
RFI5	**Study period of life cycle assessment** There is no reference to the study period of the assessment in the WLCA report. We assume in-use impacts (B) have been determined over a study period of 60 years, in line with GLA requirements and RICS methodology. However, this should be clearly stated in the report.	☑ **Finding addressed** ☐ Finding partially addressed ☐ Finding not addressed Confirmation of study period provided in the Whole Life Carbon addendum. WLCA impacts determined over a study period of 60 years.
RFI6	**Carbon savings associated with retention, reuse and recycling of existing structures** Carbon savings associated with the retention of the existing basement have not been quantified in the GLA WLC template for 1 Museum Street, nor in the WLCA report. A rough estimate can possibly be extrapolated from the 'Retention & Redevelopment Options Review & WLC Comparison' report, as a difference between the embodied carbon of Option 4 (basement retention) and Option 5 (new basement) and included in the GLA WLC template for 1MS.	☐ Finding addressed ☑ **Finding partially addressed** ☐ Finding not addressed Carbon savings associated with the retention of the existing basement for 1 Museum Street have been quantified and reported in the Whole Life Carbon addendum (77 $kgCO_2e/m^2_{GIA}$) and in the updated WLCA GLA template for 1MS (72 $kgCO_2e/m^2_{GIA}$). However, the figures provided don't match. The applicant shall provide clarifications / resolve the discrepancy.

5.3. Observations and recommendations

This section includes a list of recommendations provided as part of the initial review to further improve the quality and enhance transparency of the WLCA submitted for planning. The column on the right-side of Table 6 includes an independent commentary produced as part of the 2nd round of verification to review the applicant's response to the recommendations provided.

Table 6 – Recommendation's list

ID	Finding description – From initial review (24/08/2023)	
R1	**Reporting carbon intensities (A1-A3) for key materials** The WLCA report provides some details on the recycled content of key materials (e.g. structural steel for 1 Museum Street 60%, structural steel for other buildings 80%, rebar 97%) and percentage of cement replacement for RC substructure and superstructure items. However, the applicant did not provide any information on the corresponding carbon intensities (A1-A3) used to inform the calculations. This would be a useful information to include in the WLCA report, at least for the most impactful materials to enable a greater level of transparency.	☑ **Finding addressed** ☐ Finding partially addressed ☐ Finding not addressed Additional information on the carbon intensities (A1-A3) of some key materials (concrete mixes, structural steel, rebar and curtain walling) has been provided by the applicant in the Whole Life Carbon addendum.
R2	**TM54 Operational energy modelling** A detailed TM54 standalone report has not been provided, only a summary as part of the energy statement. On the basis of the information currently available on the planning portal, it's difficult to review the assumptions and accuracy of the TM54 operational energy modelling. We appreciate that a standalone TM54 report is not required for planning. However, this would be a very useful element and should be encouraged.	☐ Finding addressed ☐ Finding partially addressed ☑ **Finding not addressed** TM54 report not provided at this stage. This has meant it is difficult to review the carbon outcomes from module B6 and its basis.

6. Conclusions

Hilson Moran has completed the independent review of the Whole Life Carbon Assessment (WLCA) submitted for planning for the extensive redevelopment of the site at **Selkirk House**.

The third-party verification process consisted of two parts:

- An initial review of the WLCA submitted for planning, conducted and completed by Hilson Moran on 24/08/2023, which has identified a number of clarifications and updates required by the project team to demonstrate compliance against GLA's WLCA requirements
- A second round of verification of the updated set of Whole Life Carbon information submitted by the applicant on 25/09/2023 in response to the previous findings

The following table shows, in extreme summary, the results of the initial review conducted in August 2023 and the results of the second round of verification. Further details relating to the various findings are available in Section 5 of this report.

Table 7 – Outcome of the independent review of the WLCA for planning

Findings from initial review (24/08/2023)	**Outcome of 2nd round of verification**
4 no. non-conformities	• 2 no. non-conformities resolved • 1 no. non-conformity partially addressed • 1 no. non conformity not addressed
6 no. requests for further information	• 4 no. requests for information addressed • 1 no. request for information partially addressed • 1 no. request for information not addressed
2 no. recommendations	• 1 no. recommendation addressed • 1 no. recommendation not addressed

The WLCA submitted for planning contain a significant amount of useful information and overall WLC results appear sensible and adequately conservative for the current design stage. However, as shown in Table 7, there are still a number of items that need to be addressed by the applicant and the project team to fully demonstrate compliance against GLA's WLCA requirements.

It should be noted that all pending elements that require further clarifications are elements of minor importance at this stage with a limited impact on the final WLCA results.

The planning officers might be satisfied / accept the current submission and condition the resolution of all pending items through detailed assessment of the whole life carbon impacts in the next design stages before construction takes place.

Hilson Moran

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