

Education, Children, and Families Committee

10.00am, Tuesday, 22 May 2018

Daylight impact assessment Central Library

Item number	7.16
Report number	
Executive/routine	
Wards	
Council Commitments	

Executive Summary

Councillor Claire Miller requested that an independent daylight impact assessment be undertaken for the Central Library to provide information on the potential daylight levels impact of the Cowgate development. Malcolm Hollis Independent Building Consultants was instructed to undertake this work and have completed a report highlighting the impacts and some recommendations for mitigation.

Daylight impact assessment Central Library

1. Recommendations

- 1.1 That committee notes the findings of the daylight impact assessment.

2. Background

- 2.1 A proposed development adjacent to Central Library (as detailed in planning application 15/04445/FUL) is for a mixed-use scheme including a hotel, gym and retail units. The development site includes what is currently India Buildings on Victoria Street and an undeveloped gap site situated between the Library and Cowgate Free Church.
- 2.2 At the E,C & F committee Tuesday 6 March 2018, there was a motion by Councillor Claire Miller on the Central Library Daylight Impact Assessment.

Committee: Notes that the planned development of the Cowgate gap site to the rear of the Central Library may affect daylight enjoyed by library staff and users.

Calls for an independent daylight impact assessment report for the Central Library in one cycle, including but not limited to, recommendations on how to maintain lighting levels in the library.

- 2.3 Malcolm Hollis independent building consultants was instructed by the Council to determine the impact on the lighting amenity of Central Library arising from the adjacent development.

3. Main report

- 3.1 The proposed adjacent development is detailed in the planning application 15/04445/FUL and is for a mixed-use scheme including a hotel, gym and retail units. The development site includes what is currently India Buildings on Victoria Street and an undeveloped gap site situated between the Library and Cowgate Free Church.
- 3.2 Malcolm Hollis Independent Building Consultants assessed current and estimated post-development lighting levels on the library ground Floor (from George IV Bridge) and the floors below this: Level B1/B2 (the mezzanine floor and adjacent music room); B3 housing the Edinburgh & Scottish collections; B4 which houses the Resources team; B5 which is level with the Cowgate.

3.3 The report concludes that four of the levels assessed are not compliant with Building Research Establishment (BRE) guidelines in terms of maintaining daylight to existing buildings. This is because the reduction in daylight is over 20% from the current baseline position and will therefore be materially noticeable to occupants

Level GF Library: The reduction in daylight with the proposed development in place is 8%. This is BRE compliant as the reduction will not be materially noticeable to occupants. They note that the existing Average Daylight Factor (ADF) level is less than it would ideally be at 1.9% and so supplementary electric lighting is likely to be required.

Level B1/B2: The reduction in daylight with the proposed development in place is 22% and therefore not BRE compliant, albeit the level of non-compliance is marginal. The existing level of daylight is relatively low at 0.97% and supplementary electric lighting is required in the existing and the proposed condition.

Level B3: The reduction in daylight with the proposed development in place is 31% and therefore not BRE compliant because the reduction will be noticeable to occupants. The existing level of daylighting is good and despite the reduction post development, the absolute level of daylight will be in excess of 2%.

Level B4: The reduction in daylight with the proposed development in place is very high at 82% and therefore not BRE compliant. The existing level of daylight is relatively poor at 0.65% and supplementary electric lighting is required in the existing and the proposed condition, albeit this space will be very gloomy post development.

Level B5: The proposed development will limit all daylight and is therefore not BRE compliant. However the existing level of daylight to this area is very poor at 0.18% and therefore even limited development will have a significant impact.

(Malcolm Hollis report, 3 May 2018, p.7)

3.4 They note that current daylight conditions to four of the non-compliant areas is currently below optimal.

3.5 In terms of recommendations on how to maintain lighting levels in the library, they note that there is no specific threshold for daylight to libraries in the Edinburgh Design Guide (2017).

“The Building Research Establishment (BRE) Guide and British Standard 8206 – 2: 2008 advise that:

If electric lighting is not normally to be used during daytime, the Average Daylight Factor (ADF) should be not less than 5%. An ADF of 5% will provide a well daylight space.

If electric lighting is to be used during daytime, the ADF should be not less than 2%. An ADF of 2% will provide a partially daylight space.

If the ADF is below 2% the room will look dull and electric lighting is likely to be turned on”.

Malcolm Hollis report, paragraph 3.1.4 p.6.

- 3.5 They note that it would be possible to introduce measures to mitigate the loss of daylight and improve daylight received to the Library, post development.
- 3.6 The principal recommended mitigation measure would be to maximise reflected daylight. This would be achieved by ensuring that the materials to the façade of the proposed development were of a light colour or that a reflective material was specified. This will increase reflected light into the Library; and the impact of this can be measured subject to confirmation of the surface finishes to the proposed development.

4. Measures of success

- 4.1 That customers and staff report that the loss in daylight is sufficiently mitigated through improved electric lighting and light colour or reflective materials on the building façade of the proposed development .

5. Financial impact

- 5.1 Potential for increased energy costs to support additional lighting.

6. Risk, policy, compliance and governance impact

- 6.1 There is no identified risk.

7. Equalities impact

- 7.1 Some people have a sensitivity to the high frequency sound waves generated by some neon light starter motors. Any additional lighting should take this into consideration as far as possible.
- 7.2 It will be essential in providing additional lighting that this creates optimum conditions for reading print and digital information.

8. Sustainability impact

- 8.1 There are likely to be increased energy costs in providing additional lighting.

9. Consultation and engagement

- 9.1 It may be possible to carry out a consultation with customers as to the design and type of lighting preferred although this may not be wholly practicable. There would need to be engagement with customers during the development to advise them of the changes and ensure that impact on daylight is adequately mitigated through additional electric lighting.

10. Background reading/external references

- 10.1 N/A

Alistair Gaw

Executive Director Communities and Families

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11. Appendices

- 11.1 Appendix 1 - Malcom Hollis report 3 May 2018.

Daylight Report

Edinburgh Central Library, George IV Bridge, Edinburgh EH1 1EG

Prepared for **City of Edinburgh Council**
Prepared by **Ben Mack MA (Hons) MSc MRICS ICIOB AaPS**
Date **03 May 2018**
Reference **67407/BTM/SJK**

Prepared for
City of Edinburgh Council

Daylight Report
Edinburgh Central Library,
George IV Bridge, Edinburgh EH1 1EG

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1. Executive Summary

1.1 Scope

1.1.1 We have been instructed by City of Edinburgh Council to determine the impact on the daylight amenity of Edinburgh Central Library, George IV Bridge, Edinburgh EH1 1EG which may arise from an adjacent development.

1.2 Assessment Criteria

1.2.1 To ensure that this assessment can be appropriately evaluated against Edinburgh City Council's planning policy, daylight and sunlight calculations have been undertaken in accordance with following documents:

- Edinburgh Design Guidance (published 2017).
- Building Research Establishment Report 'Site Layout Planning for Daylight and Sunlight – A Guide to Good Practice' 2nd Edition, 2011 (the "BRE guide").
- British Standard 8206 – 2: 2008 – 'Lighting for Buildings – Part 2: Code of Practice for Daylighting'.

1.3 Summary of Effect of Proposed Development on Edinburgh Central Library

1.3.1 A daylight assessment has been undertaken to three library areas and two office areas.

1.3.2 Four out of the five areas assessed are not compliant with BRE guidelines in terms of maintaining daylight to existing buildings. This is because the reduction in daylight is over 20% with the proposed development in place. This level of reduction is noticeable to occupants.

1.3.3 It should be noted that existing daylight conditions to three of the non-compliant areas is currently below optimal levels and that supplementary electric lighting is required during daytime. The proposed development will further reduce daylight.

1.3.4 It would be possible to mitigate the impact of the proposed development on daylight to the Library through the use of appropriate building materials to the façade of the proposed development. This is discussed at section 3 below.

2. Introduction

2.1 Scope

- 2.1.1 We have been instructed by City of Edinburgh Council to determine the impact on the daylight amenity of Edinburgh Central Library, George IV Bridge, Edinburgh, EH1 1EG which may arise from an adjacent development.
- 2.1.2 The proposed adjacent development is detailed in planning application 15/04445/FUL and is for a mixed use scheme including a hotel, gym and retail units. The development site includes what is currently India Buildings on Victoria Street and also an undeveloped gap site situated between the Library and Cowgate Free Church.

2.2 Assessment Criteria

- 2.2.1 To ensure that this assessment can be appropriately evaluated against Edinburgh City Council's policy; daylight and sunlight calculations have been undertaken in accordance with following documents:
- Edinburgh Design Guidance (published 2017).
 - Building Research Establishment Report 'Site Layout Planning for Daylight and Sunlight – A Guide to Good Practice' 2nd Edition, 2011 (the "BRE guide").
 - British Standard 8206 – 2: 2008 – 'Lighting for Buildings – Part 2: Code of Practice for Daylighting'.
- 2.2.2 We note that Edinburgh City Council's planning policy and the Edinburgh Design Guidance are principally concerned with residential daylight amenity and not daylight to offices, shops and other commercial or administrative uses.
- 2.2.3 The standards and tests applied are briefly described in Appendix A.
- 2.2.4 Average Daylight Factor (ADF) assessments have been undertaken. The Edinburgh Design Guide sets out the variables that are to be used for these assessments, which are:
- Daylight to existing buildings (ADF calculation) variables
- Transmittance of double glazing - 0.65
 - Correction factor for dirt, curtains etc. - 0.9
 - Net to gross area of window - 0.7
 - Average reflectance of room surfaces - 0.5
- 2.2.5 These values have been used in this assessment, except that all the Library windows assessed are single glazed. Therefore a value of 0.8 has been used for transmittance, in accordance with British Standard 8206 – 2: 2008.
- 2.2.6 The baseline for the daylight assessment is the topography and layout of the site as it currently is. The assessment calculates daylight received in the baseline condition and compares this to daylight received with the proposed development in place. The results of the assessment have been reviewed in accordance with the criteria of the Edinburgh Design Guidance and the BRE Guide.

2.3 Data Sources

2.3.1 Our assessment is based on the following drawings:

Bennetts Associates - 2012 drawing package for the Edinburgh Central Library

- 130517 Model 12.dwg

ICA Architects - Planning Application 15/04445/FUL drawings

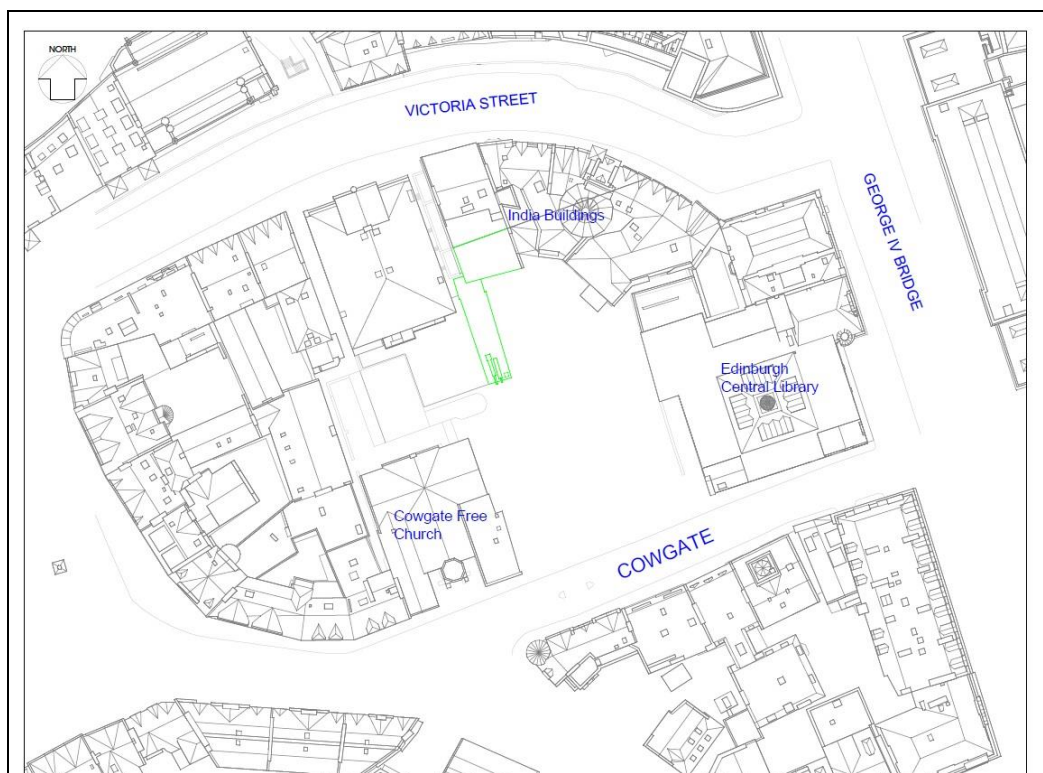
- AL_0_001.pdf - Level B5
- AL_0_002.pdf - Level B4
- AL_0_003.pdf - Level B3
- AL_0_004.pdf - Level B2-B1
- AL_0_005.pdf - Ground Floor

Vertex Modelling - 3D drawings of existing surrounding buildings

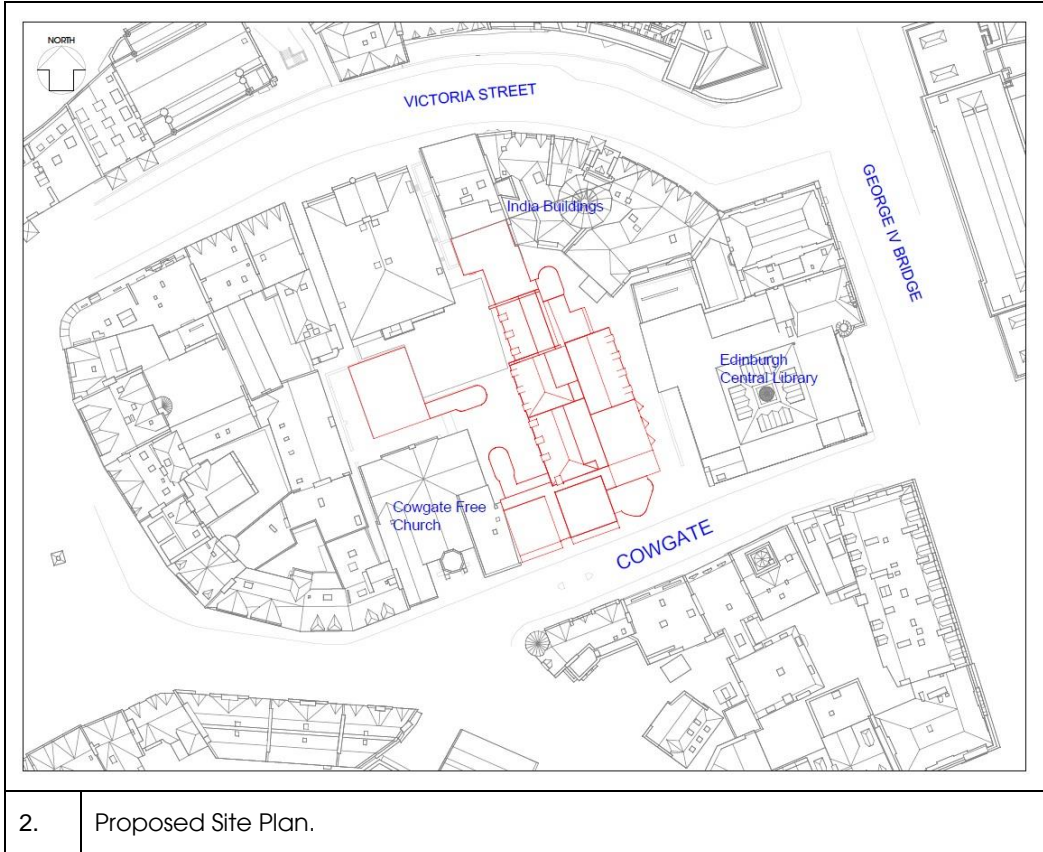
- 13651_Edinburgh_Central_Library_MASTER.dwg

2.3.2 A site inspection was undertaken to verify information detailed in the drawings. A three dimensional model of the surroundings including relevant topographical data was obtained from Vertex Modelling.

2.3.3 The existing and proposed site plans for the adjacent development are provided at Appendix B and replicated below.



1.	Existing Site Plan.
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2. Proposed Site Plan.

3. Assessment & Results - Impact of Adjacent Development on Edinburgh Central Library

3.1 Daylight

3.1.1 The scope of instruction was to assess the impact of the proposed development on the following areas:

- Level GF: Library
- Level B1/B2: Library Mezzanine Level
- Level B3: Library
- Level B4: Offices
- Level B5: Offices

3.1.2 The areas assessed are shown in the Reference Drawings at Appendix C.

3.1.3 Average Daylight Factor (ADF) assessments have been undertaken to the areas detailed above.

3.1.4 There is no specific threshold for daylight to libraries in the Edinburgh Design Guide; and more generally there is no UK wide standard for daylight to libraries. However the BRE Guide and British Standard 8206 – 2: 2008 advise that:

- If electric lighting is not normally to be used during daytime, the ADF should be not less than 5%. An ADF of 5% will provide a well daylight space.
- If electric lighting is to be used during daytime, the ADF should be not less than 2%. An ADF of 2% will provide a partially daylight space.
- If the ADF is below 2% the room will look dull and electric lighting is likely to be turned on.

3.1.5 In this assessment the impact on existing daylight levels is being assessed, rather than the absolute level of daylight. In line with the BRE guide, a reduction in daylight is not materially noticeable to occupants if it is less than 20%. Therefore if the daylight level to an area is 80% or more of its former value with the proposed development in place, then this is deemed to be compliant with the BRE guide and City of Edinburgh Council planning policy.

3.1.6 The full ADF test results are shown in full in Appendix D. Below is a summary of our findings:

Location	ADF Value		% of former value	BRE Compliant
	Existing	Proposed		
Level GF - Library	1.90	1.75	92%	Yes
Level B1/B2 - Mezzanine	0.97	0.76	78%	No
Level B3 - Library	3.33	2.29	69%	No
Level B4 - Offices	0.65	0.12	18%	No
Level B5 - Offices	0.18	0.00	0%	No

3.1.7 We comment as follows:

- **Level GF Library:** The reduction in daylight with the proposed development in place is 8%. This is BRE compliant as the reduction will not be materially noticeable to occupants. We note that the existing ADF level is less than it would ideally be at 1.9% and so supplementary electric lighting is likely to be required.
- **Level B1/B2:** The reduction in daylight with the proposed development in place is 22% and therefore not BRE compliant, albeit the level of non-compliance is marginal. The existing level of daylight is relatively low at 0.97% and supplementary electric lighting is required in the existing and the proposed condition.
- **Level B3:** The reduction in daylight with the proposed development in place is 31% and therefore not BRE compliant because the reduction will be noticeable to occupants. The existing level of daylighting is good and despite the reduction post development, the absolute level of daylight will be in excess of 2%. This is considered to be appropriate for library use.
- **Level B4:** The reduction in daylight with the proposed development in place is very high at 82% and therefore not BRE compliant. The existing level of daylight is relatively poor at 0.65% and supplementary electric lighting is required in the existing and the proposed condition, albeit this space will be very gloomy post development.
- **Level B5:** The proposed development will limit all daylight and is therefore not BRE compliant. However the existing level of daylight to this area is very poor at 0.18% and therefore even limited development will have a significant impact.

3.1.8 In summary, four out of the five areas assessed are not compliant with BRE guidelines in terms of maintaining daylight to existing buildings. This is because the reduction in daylight is over 20% from the current baseline position; and will therefore be materially noticeable to occupants.

3.1.9 It should be noted that current daylight conditions to three of the non-compliant areas is currently below optimal levels and that supplementary electric lighting is already required during daytime.

3.1.10 It would be possible to introduce measures to mitigate the loss of daylight and improve daylight received to the Library, post development.

3.1.11 The principal recommended mitigation measure would be to maximise reflected daylight. This would be achieved by ensuring that the materials to the façade of the proposed development were of a light colour or that a reflective material was specified. This will increase reflected light into the Library; and the impact of this can be measured subject to confirmation of the surface finishes to the proposed development.

Appendix A

Tests to be Applied



Introduction

The main purpose of the guidelines in the Building Research Establishment Report "Site Layout Planning for Daylight and Sunlight – a guide to good practice 2011, 2nd Edition" ("the BRE guide") is to assist in the consideration of the relationship of new and existing buildings to ensure that each retains a potential to achieve good daylighting and sunlighting levels. That is, by following and satisfying the tests contained in the guidelines, new and existing buildings should be sufficiently spaced apart in relation to their relative heights so that both have the potential to achieve good levels of daylight and sunlight. The guidelines have been drafted primarily for use with low density suburban developments and should therefore be used flexibly when dealing with dense urban sites and extensions to existing buildings, a fact recognised by the BRE Report's author in the Introduction where Dr Paul Littlefair says:

'The Guide is intended for building designers and their clients, consultants and planning officials. The advice given here is not mandatory and the guide should not be seen as an instrument of planning policy; its aim is to help rather than constrain the designer. Although it gives numerical guidelines, these should be interpreted flexibly since natural lighting is only one of many factors in site layout design..... In special circumstances the developer or planning authority may wish to use different target values. For example, in a historic city centre, or in an area with modern high rise buildings, a higher degree of obstruction may be unavoidable if new developments are to match the height and proportions of existing buildings.....'

In many cases in low-rise housing, meeting the criteria for daylight and sunlight may mean that the BRE criteria for other amenity considerations such as *privacy* and *sense of enclosure* are also satisfied.

The BRE guide states that recommended minimum privacy distances (in cases where windows of habitable rooms face each other in low-rise residential property), as defined by each individual Local Authority's policies, vary widely, from 18-35m¹. For two-storey properties a spacing within this range would almost certainly also satisfy the BRE guide's daylighting requirements as it complies with the 25⁰ rule and will almost certainly satisfy the 'Three times height' test too (as discussed more fully below). However, the specific context of each development will be taken into account and Local Authorities may relax the stated minimum, for instance, in built-up areas where this would lead to an inefficient use of land. Conversely, greater distances may be required between higher buildings, in order to satisfy daylighting and sunlighting requirements. It is important to recognize also that privacy can also be achieved by other means: design, orientation and screening can all play a key role and may also contribute towards reducing the theoretical 'minimum' distance.

A sense of enclosure is also important as the perceived quality of an outdoor space may be reduced if it is too large in the context of the surrounding buildings. In urban settings the BRE guide suggests a spacing-to-height ratio of 2.5:1 would provide a comfortable environment, whilst not obstructing too much natural light: this ratio also approximates the 25⁰ rule.

¹ The commonest minimum privacy distance is 21m (Householder Development Consents Review: Implementation of Recommendations – Department for Communities and Local Government – May 2007)

Daylight

The criteria for protecting daylight to existing buildings are contained in Section 2.2 and Appendix C of the BRE guide. There are various methods of measuring and assessing daylight and the choice of test depends on the circumstances of each particular window. For example, greater protection should be afforded to windows which serve habitable dwellings and, in particular, those serving living rooms and family kitchens, with a lower requirement required for bedrooms. The BRE guide states that circulation spaces and bathrooms need not be tested as they are not considered to require good levels of daylight. In addition, for rooms with more than one window, secondary windows do not require assessment if it is established that the room is already sufficiently lit through the principal window.

The tests should also be applied to non-domestic uses such as offices and workplaces where such uses will ordinarily have a reasonable expectation of daylight and where the areas may be considered a principal workplace.

The BRE has developed a series of tests to determine whether daylighting levels within new developments and rooms within existing buildings surrounding new developments will satisfy or continue to satisfy a range of daylighting criteria

Note: Not every single window is assessed separately, only a representative sample, from which conclusions may be drawn regarding other nearby dwellings.

Daylighting Tests

'Three times height' test - If the distance of each part of the new development from the existing windows is three or more times its height above the centre of the existing window then loss of light to the existing windows need not be analysed. If the proposed development is taller or closer than this then the 25° test will need to be carried out.

25° test - a very simple test that should only be used where the proposed development is of a reasonably uniform profile and is directly opposite the existing building. Its use is most appropriate for low density well-spaced developments such as new sub-urban housing schemes and often it is not a particularly useful tool for assessing urban and in-fill sites. In brief, where the new development subtends to an angle of less than 25° to the centre of the lowest window of an existing neighbouring building, it is unlikely to have a substantial effect on the diffuse skylight enjoyed by the existing building. Equally, the new development itself is also likely to have the potential for good daylighting. If the angle is more than 25° then more detailed tests are required, as outlined below.

VSC Test - the VSC is a unit of measurement that represents the amount of available daylight from the sky, received at a particular window. It is measured on the outside face of the window. The 'unit' is expressed as a percentage as it is the ratio between the amount of sky visible at the given reference point compared to the amount of light that would be available from a totally unobstructed hemisphere of sky. To put this unit of measurement into perspective, the maximum percentage value for a window with a completely unobstructed outlook (i.e. with a totally unobstructed view through 90° in every direction) is 40%.

The target figure for VSC recommended by the BRE is 27%. A VSC of 27% is a relatively good level of daylight and the level we would expect to find for habitable rooms with windows on principal elevations. However, this level is often difficult to achieve on secondary elevations and in built-up urban environments. For comparison, a window receiving 27% VSC is approximately equivalent to a window that would have a continuous obstruction opposite it which subtends an angle of 25° (i.e. the same results as would be found utilising the 25° Test).

Where tests show that the new development itself meets the 27% VSC target this is a good indication that the development will enjoy good daylighting and further tests can then be carried out to corroborate this (see under).

Through research the BRE have determined that in existing buildings daylight (and sunlight levels) can be reduced by approximately 20% of their original value before the loss is materially noticeable. It is for this reason that they consider that a 20% reduction is permissible in circumstances where the existing VSC value is below the 27% threshold. For existing buildings once this has been established it is then necessary to determine whether the distribution of daylight inside each room meets the required standards (see under).

Daylight Distribution (DD) Test – This test looks at the position of the “No-Sky Line” (NSL) – that is, the line that divides the points on the working plane (0.7m from floor level in offices and 0.85m in dwellings and industrial spaces) which can and cannot see the sky. The BRE guide suggests that areas beyond the NSL may look dark and gloomy compared with the rest of the room and BS8206 states that electric lighting is likely to be needed if a significant part of the working plane (normally no more than 20%) lies beyond it.

In new developments no more than 20% of a room’s area should be beyond the NSL. For existing buildings the BRE guide states that if, following the construction of a new development, the NSL moves so that the area beyond the NSL increases by more than 20%, then daylighting is likely to be seriously affected.

The guide suggests that in houses, living rooms, dining rooms and kitchens should be tested; bedrooms are deemed less important, although should nevertheless be analysed. In other buildings each main room where daylight is expected should be investigated.

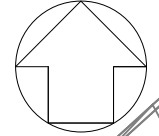
ADF Test –The ADF (Average Daylight Factor) test takes account of the interior dimensions and surface reflectance within the room being tested as well as the amount of sky visible from the window. For this reason it is considered a more detailed and representative measure of the adequacy of light. The minimum ADF values recommended in BS8206 Part 2 are: 2% for family kitchens (and rooms containing kitchens); 1.5% for living rooms; and 1% for bedrooms. This is a test used in assessing new developments, although, in certain circumstances, it may be used as a supplementary test in the assessment of daylighting in existing buildings, particularly where more than one window serves a room.

Room depth ratio test - This is a test for new developments looking at the relative dimensions of each room (principally its depth) and its window(s) to ensure that the rear half of a room will receive sufficient daylight so as not to appear gloomy.

Appendix B
Context Drawings



NORTH



VICTORIA STREET

GEORGE IV BRIDGE

India Buildings

Edinburgh Central Library

Cowgate Free Church

COWGATE

SOURCES OF INFORMATION:
 BENNETTS ASSOCIATES
 130517 Model 12.dwg
 Received 09 April 2018
 CITY OF EDINBURGH COUNCIL PLANNING
 Application No. 15_04445_FUL (India Buildings)
 AL_0_001.pdf - Level B5
 AL_0_002.pdf - Level B4
 AL_0_003.pdf - Level B3
 AL_0_004.pdf - Level B2-B1
 AL_0_005.pdf - Ground Floor

VERTEX MODELLING
 13651_Edinburgh_Central_Library_MASTER.dwg
 Received 23 April 2018

Rev.	Date	Amendments	Initial
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MALCOLM HOLLIS SHALL BE INFORMED IN WRITING OF ANY DISCREPANCIES.
 ALL DIMENSIONS ARE IN MILLIMETERS ONLY

TITLE
 Existing Site Plan

CLIENT
 City of Edinburgh Council

PROJECT
 Edinburgh Central Library
 George IV Bridge
 Edinburgh EH1 1EG

DRAWN BY SK **CHECKED** BM

SCALE 1:500@A3 **DATE** April 2018



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DRAWING NO. 67407_CTXT_01	RELEASE NO. 1
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SOURCES OF INFORMATION:
BENNETTS ASSOCIATES
 130517 Model 12.dwg
 Received 09 April 2018
CITY OF EDINBURGH COUNCIL PLANNING
 Application No. 15_04445_FUL (India Buildings)
 AL 0 001.pdf - Level B5
 AL 0 002.pdf - Level B4
 AL 0 003.pdf - Level B3
 AL 0 004.pdf - Level B2-B1
 AL 0 005.pdf - Ground Floor

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Rev.	Date	Amendments	Initial
MALCOLM HOLLIS SHALL BE INFORMED IN WRITING OF ANY DISCREPANCIES. ALL DIMENSIONS ARE IN MILLIMETERS ONLY			

TITLE
3D Views
Existing Site

CLIENT
City of Edinburgh Council

PROJECT
Edinburgh Central Library
George IV Bridge
Edinburgh EH1 1EG

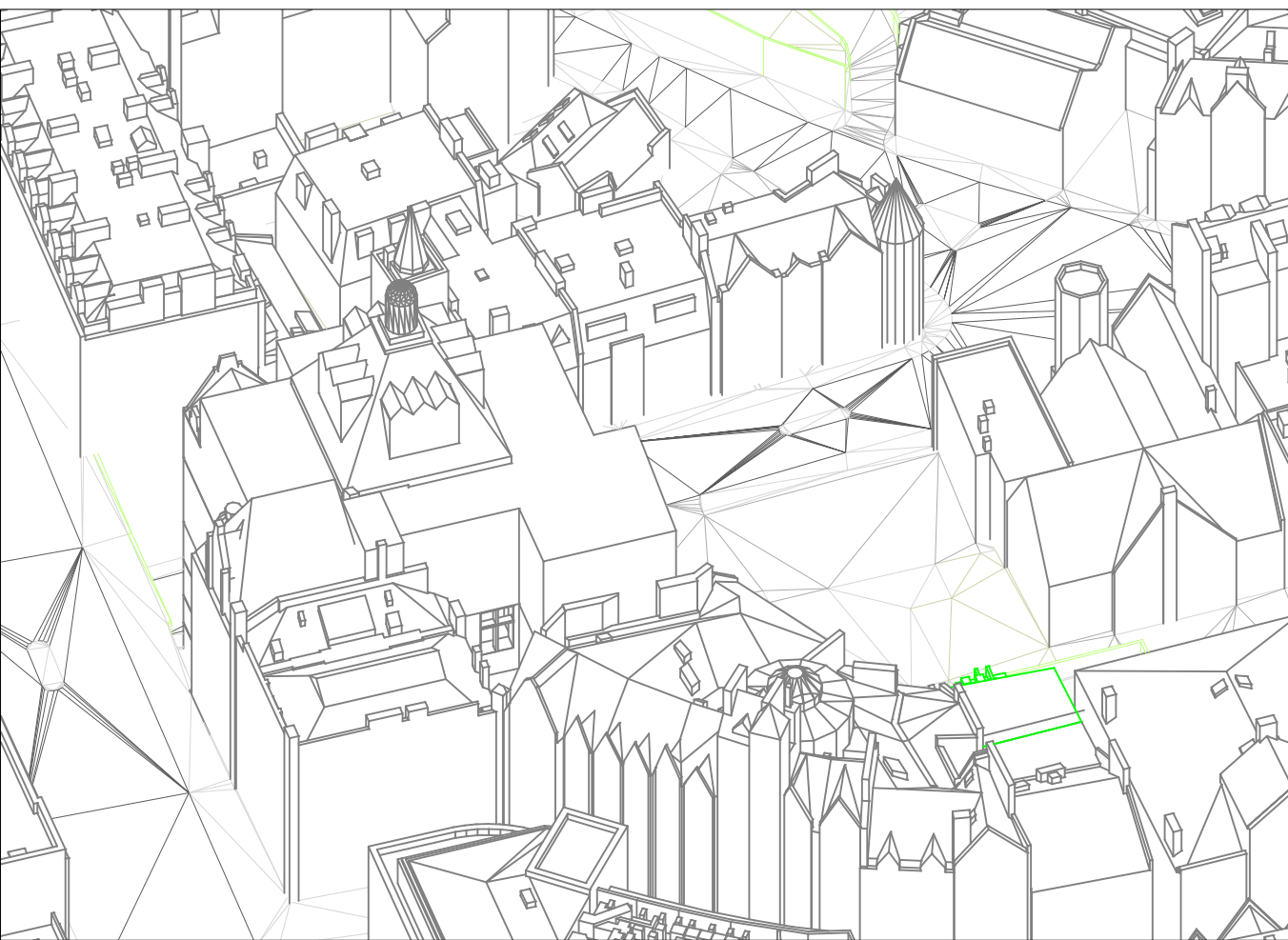
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SCALE NS@A3	DATE April 2018

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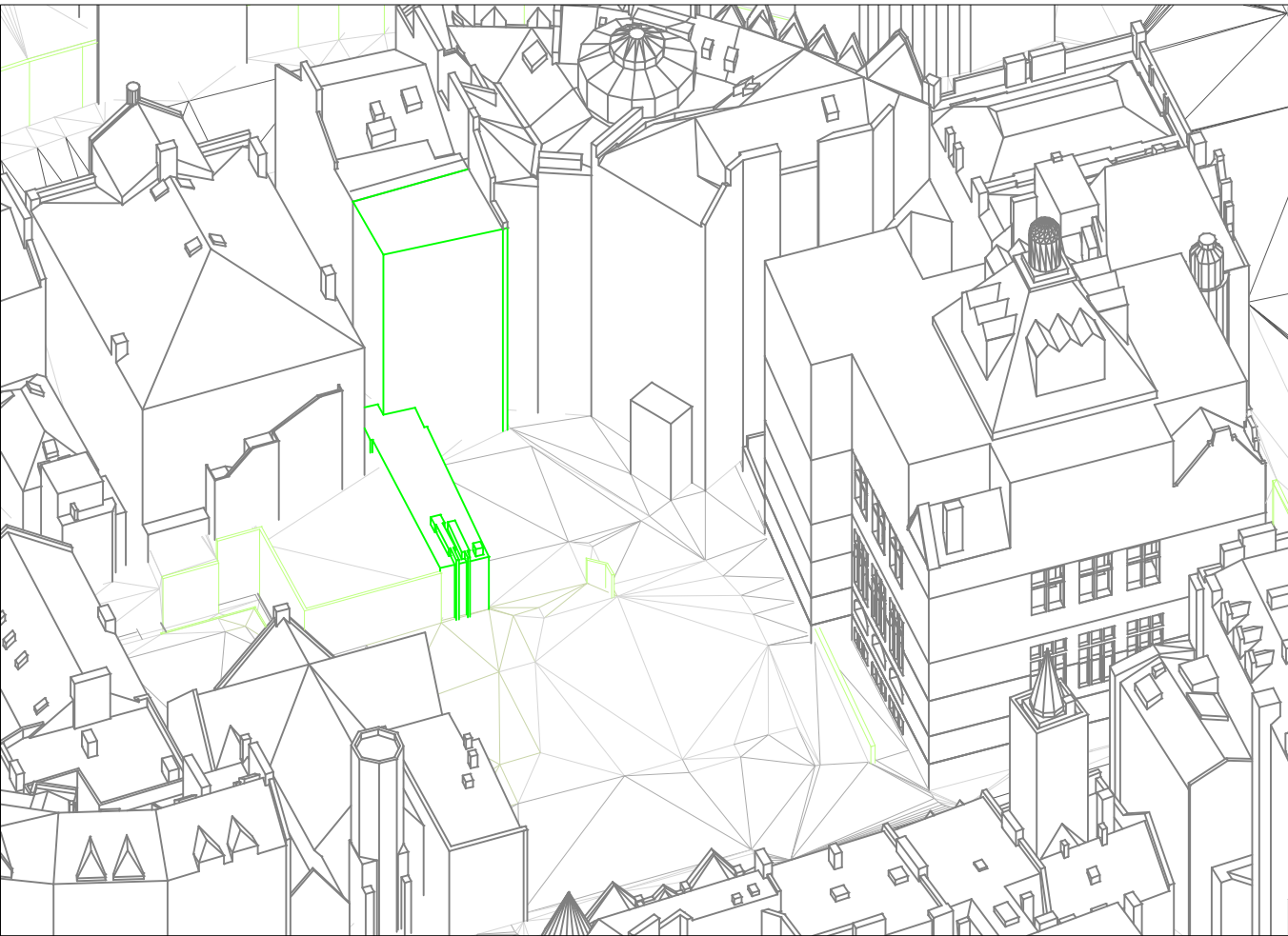
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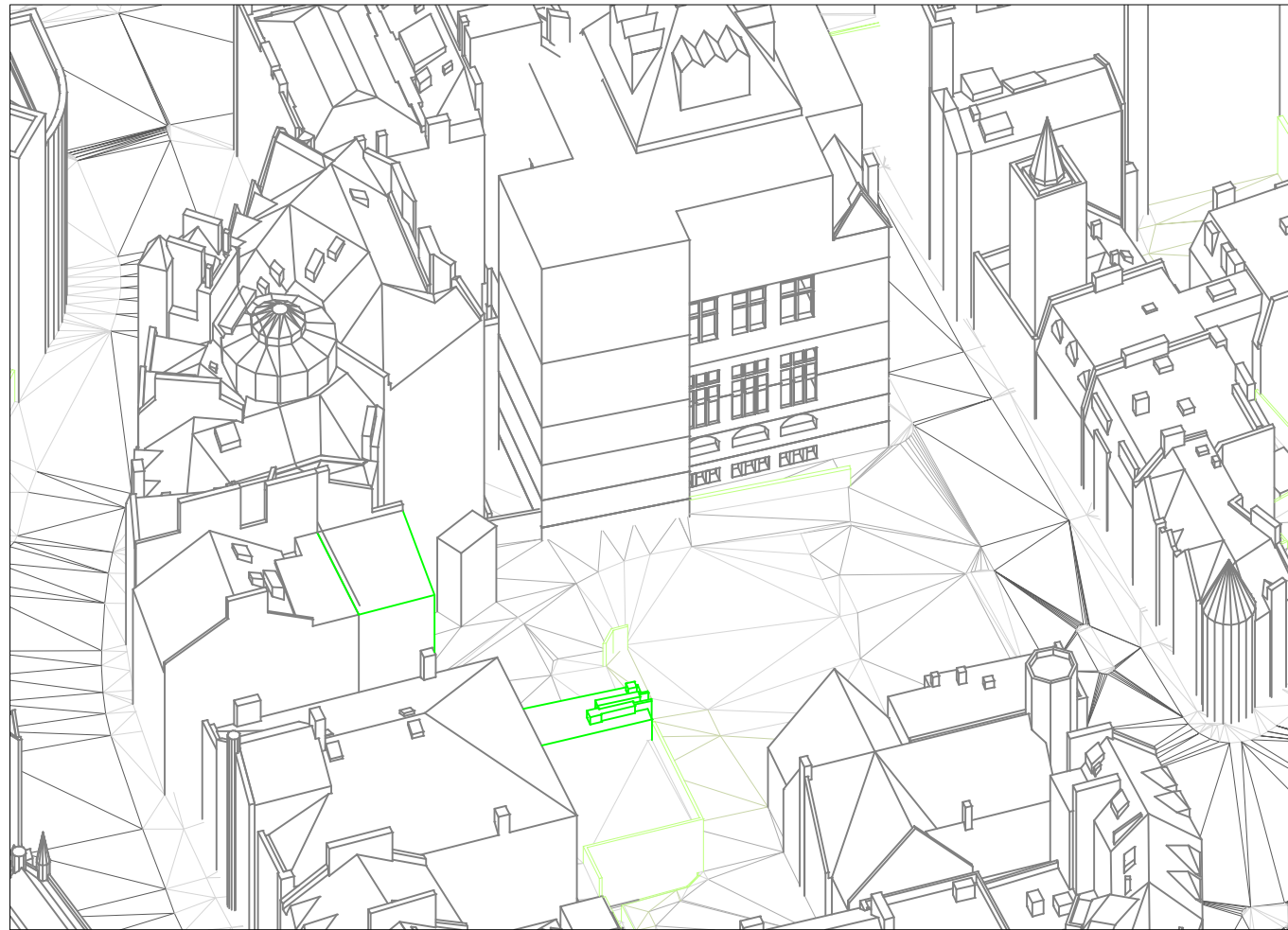
3D Context View - View from North (Existing)



3D Context View - View from East (Existing)

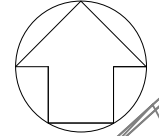


3D Context View - View from South (Existing)



3D Context View - View from South (Existing)

NORTH



VICTORIA STREET

India Buildings

GEORGE IV BRIDGE

Edinburgh Central Library

Cowgate Free Church

COWGATE

SOURCES OF INFORMATION:

BENNETTS ASSOCIATES

130517 Model 12.dwg
Received 09 April 2018

CITY OF EDINBURGH COUNCIL PLANNING

Application No. 15_04445_FUL (India Buildings)
AL_0_001.pdf - Level B5
AL_0_002.pdf - Level B4
AL_0_003.pdf - Level B3
AL_0_004.pdf - Level B2-B1
AL_0_005.pdf - Ground Floor

VERTEX MODELLING

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Received 23 April 2018

Rev.	Date	Amendments	Initial
MALCOLM HOLLIS SHALL BE INFORMED IN WRITING OF ANY DISCREPANCIES. ALL DIMENSIONS ARE IN MILLIMETERS ONLY			

TITLE

Proposed Site Plan

CLIENT

City of Edinburgh Council

PROJECT

Edinburgh Central Library
George IV Bridge
Edinburgh EH1 1EG

DRAWN BY

SK

CHECKED

BM

SCALE

1:500@A3

DATE

April 2018



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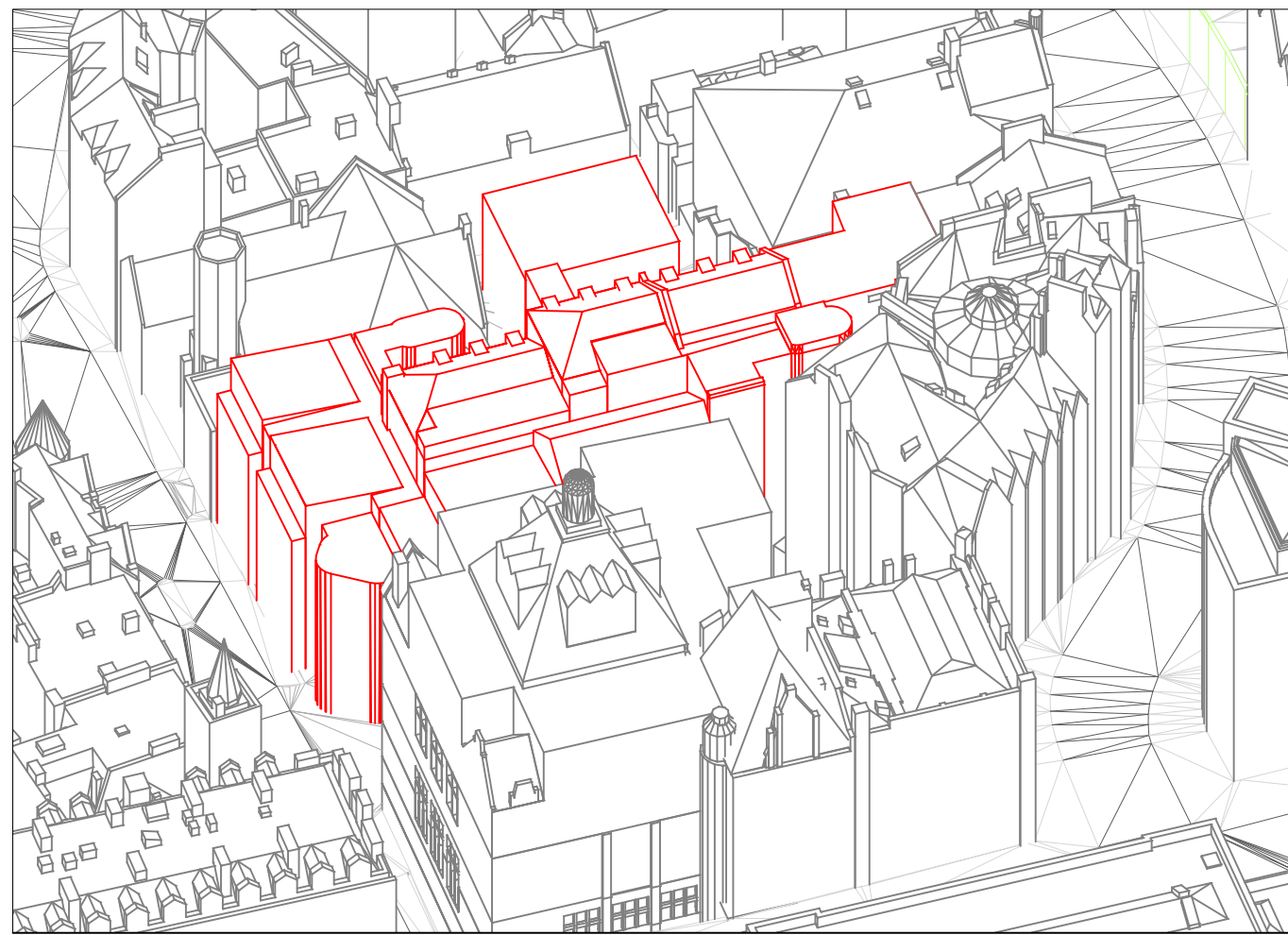
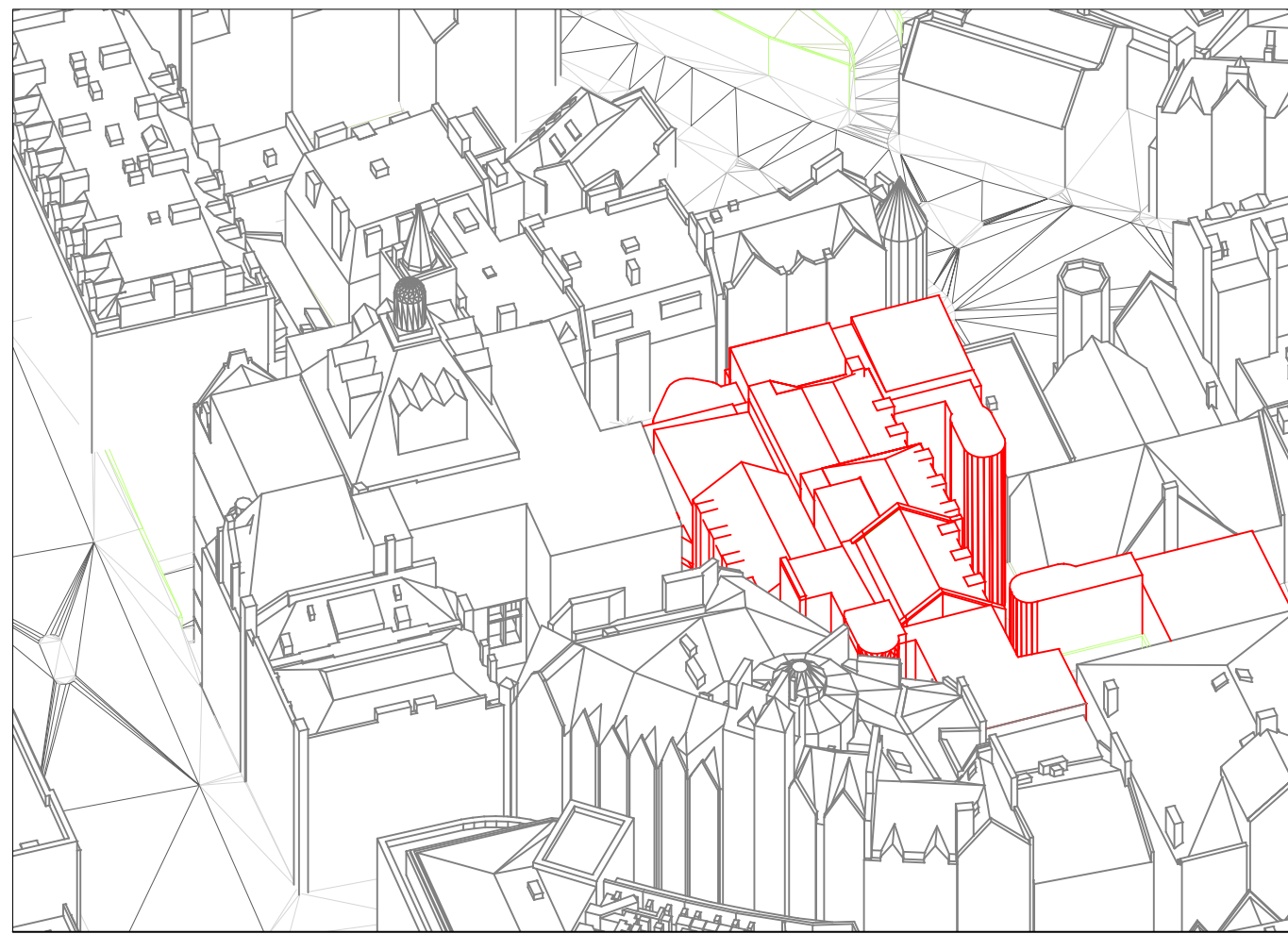
67407_CTXT_03

RELEASE NO.

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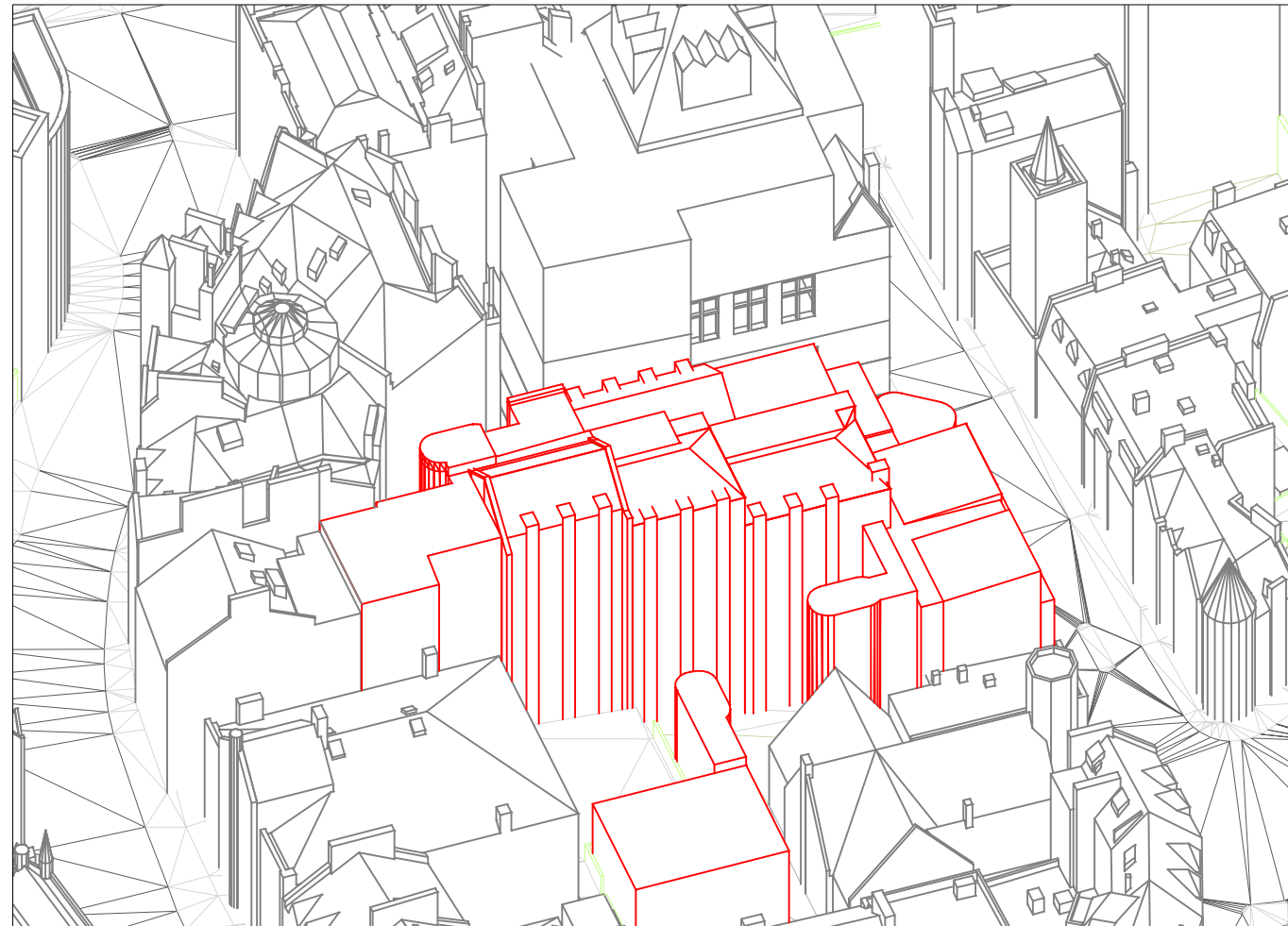
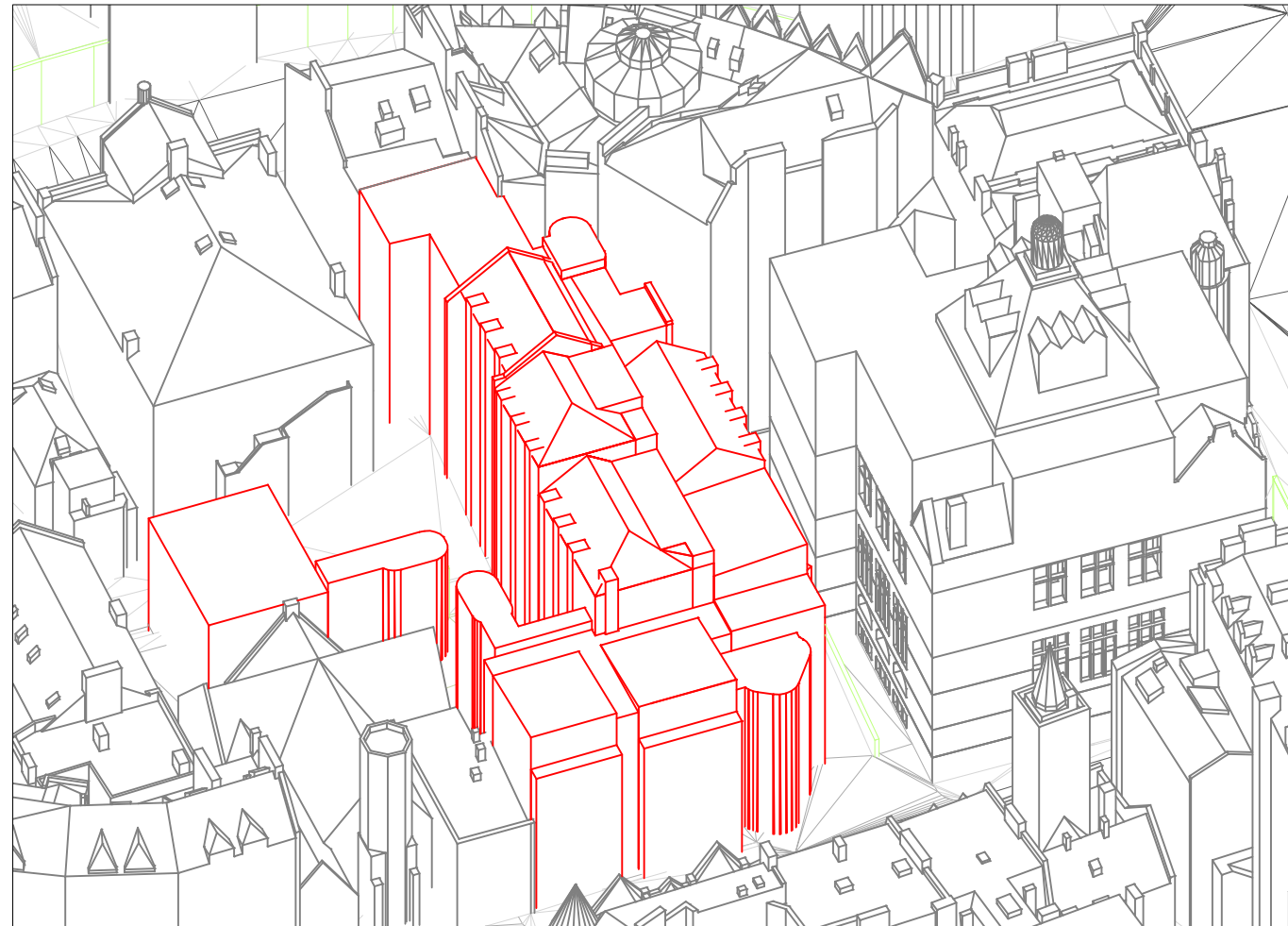
SOURCES OF INFORMATION:
BENNETTS ASSOCIATES
 130517 Model 12.dwg
 Received 09 April 2018
CITY OF EDINBURGH COUNCIL PLANNING
 Application No. 15_04445_FUL (India Buildings)
 AL 0_001.pdf - Level B5
 AL 0_002.pdf - Level B4
 AL 0_003.pdf - Level B3
 AL 0_004.pdf - Level B2-B1
 AL 0_005.pdf - Ground Floor

VERTEX MODELLING
 13651 Edinburgh_Central_Library_MASTER.dwg
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3D Context View - View from North (Existing)

3D Context View - View from East (Existing)



3D Context View - View from South (Existing)

3D Context View - View from South (Existing)

Rev.	Date	Amendments	Initial
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TITLE
3D Views
Proposed Site

CLIENT
City of Edinburgh Council

PROJECT
Edinburgh Central Library
George IV Bridge
Edinburgh EH1 1EG

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SK	BM
SCALE	DATE
NS@A3	April 2018

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 London
 SW8 3HE

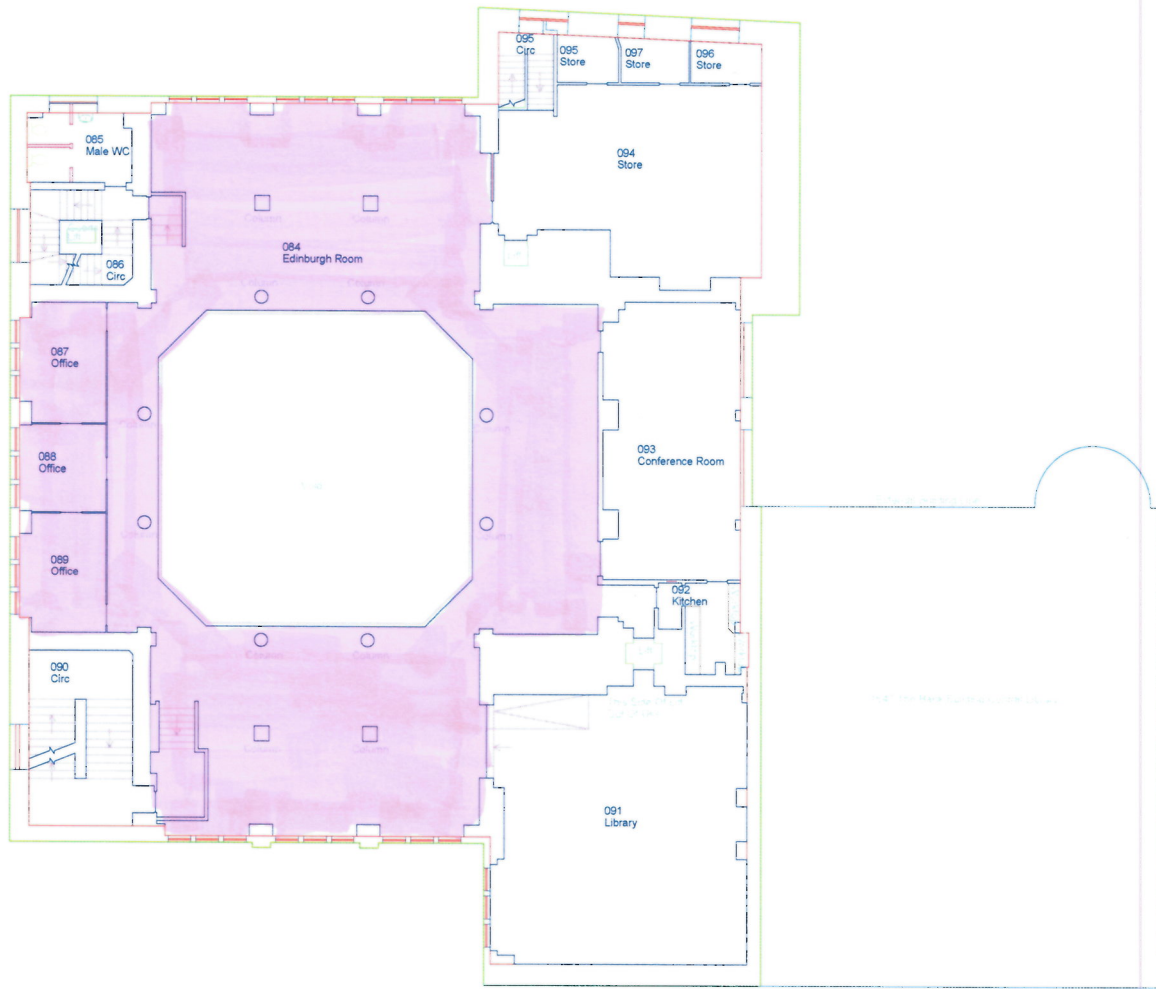
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DRAWING NO. 67407_CTXT_04	RELEASE NO. 1
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Appendix C

Room Reference Drawings





CONSTRUCTION

A	CONSTRUCTION ISSUE	28/01/13	MC
0	Original document	00/00/00	ABC
Rev	Description	Date	Drawn

• EDINBURGH •
THE CITY OF EDINBURGH COUNCIL

**Services for Communities
PROPERTY SERVICES**
329 High Street, Edinburgh, EH1 1PN
Tel. 0131 200 2000 Fax. 0131 529 7077

Project
Central Library
Refurbishment Works

Project No
H1022

Drawing Title
Main Building
Existing Plans
Level B1 - B2

Drawing No
AL(0)004

Purpose/ Issue
Date
20/07/2012

Scale
1:50 @ A1
Drawn
CJB

DO NOT SCALE THIS DRAWING

CONSTRUCTION



A	CONSTRUCTION ISSUE	28/01/13	MC
0	Original document	00/00/00	ABC
Rev	Description	Date	Con

• EDINBURGH •
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**Services for Communities
PROPERTY SERVICES**
329 High Street, Edinburgh, EH1 1PN
Tel. 0131 200 2000 Fax. 0131 529 7077

Project
Central Library
Refurbishment Works

Project No
H1022

Drawing Title
Main Building
Existing Plan
Level B3

Drawing No
AL(0)003

Purpose/Issue
Date
20/07/2012

Scale
1:100 @ A1

Drawn
CJB

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CONSTRUCTION



A	CONSTRUCTION ISSUE	28/01/13	MC
0	Original document	10/00/00	ABC
Rev	Description	Date	Drawn

EDINBURGH
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**Services for Communities
PROPERTY SERVICES**
329 High Street, Edinburgh, EH1 1PN
Tel. 0131 200 2000 Fax. 0131 529 7077

Project:
Central Library
Refurbishment Works

Project No:
H1022

Drawing Title:
Main Building
Existing Drawings
Level B4

Drawing No:
AL(0)002

Purpose/ Issue: Date: 20/07/2012

Scale: 1:100 @ A1 Drawn: CJB

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CONSTRUCTION



A	CONSTRUCTION ISSUE	28/01/13	MC
0	Original document	00/00/00	ABC
Rev	Description	Date	Chg

EDINBURGH
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**Services for Communities
PROPERTY SERVICES**
329 High Street, Edinburgh. EH1 1PN
Tel. 0131 200 2000 Fax. 0131 529 7077

Project:
Central Library
Refurbishment Works

Project No
H1022

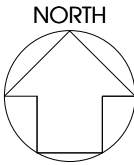
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Main Building
Existing Drawings
Level B5

Drawing No	Rev
AL(0)001	A

Purpose/issue	Date
	20/07/2012

Scale	Drawn	Checked
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SOURCES OF INFORMATION:

BENNETTS ASSOCIATES

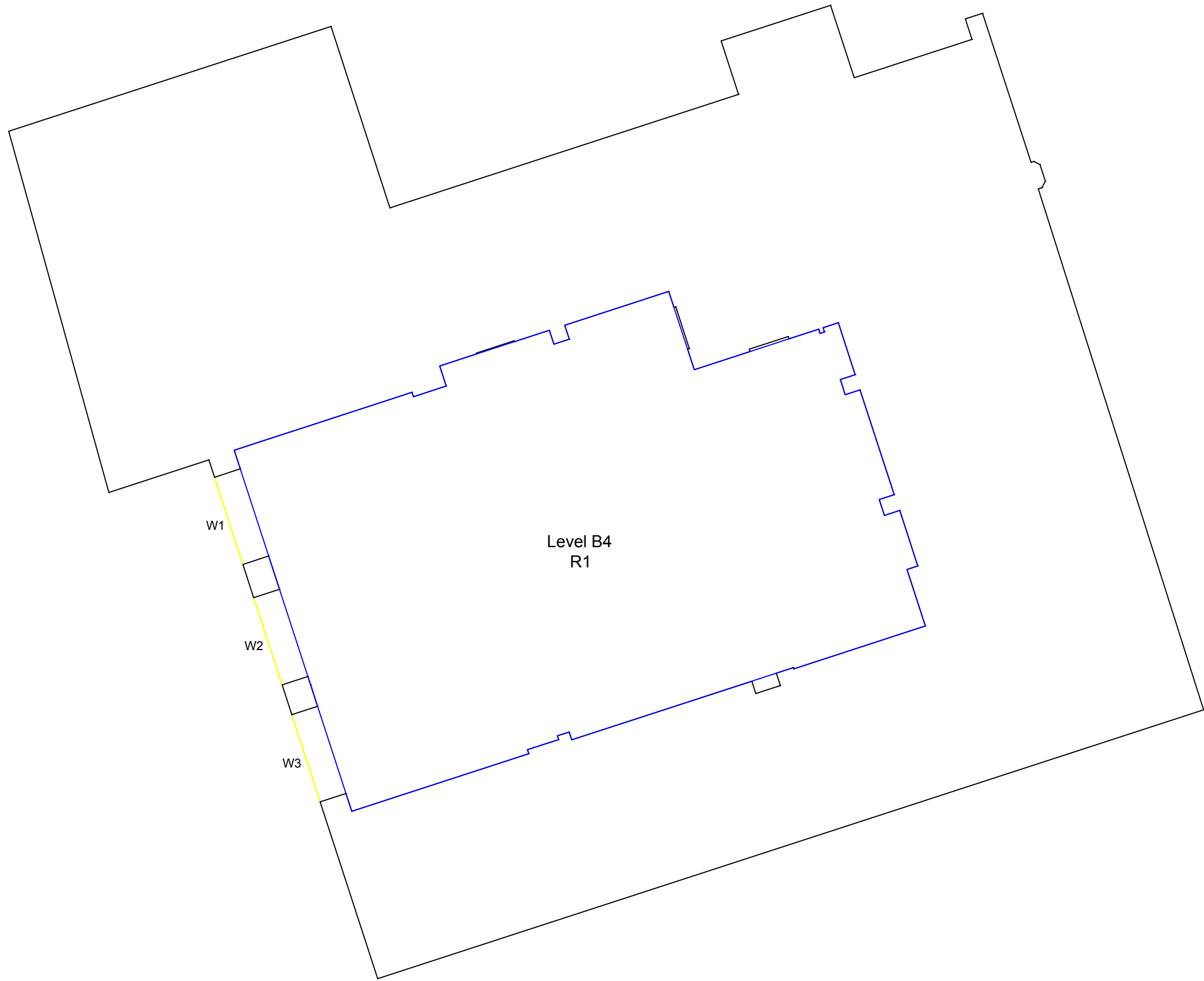
130517 Model 12.dwg
Received 09 April 2018

CITY OF EDINBURGH COUNCIL PLANNING

Application No. 15_04445_FUL (India Buildings)
AL_0_001.pdf - Level B5
AL_0_002.pdf - Level B4
AL_0_003.pdf - Level B3
AL_0_004.pdf - Level B2-B1
AL_0_005.pdf - Ground Floor

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TITLE

**Window & Room Referencing Plans
Edinburgh Central Library**

CLIENT

City of Edinburgh Council

PROJECT

**Edinburgh Central Library
George IV Bridge
Edinburgh EH1 1EG**

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SK	BM

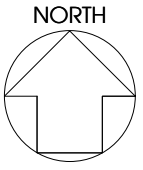
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London
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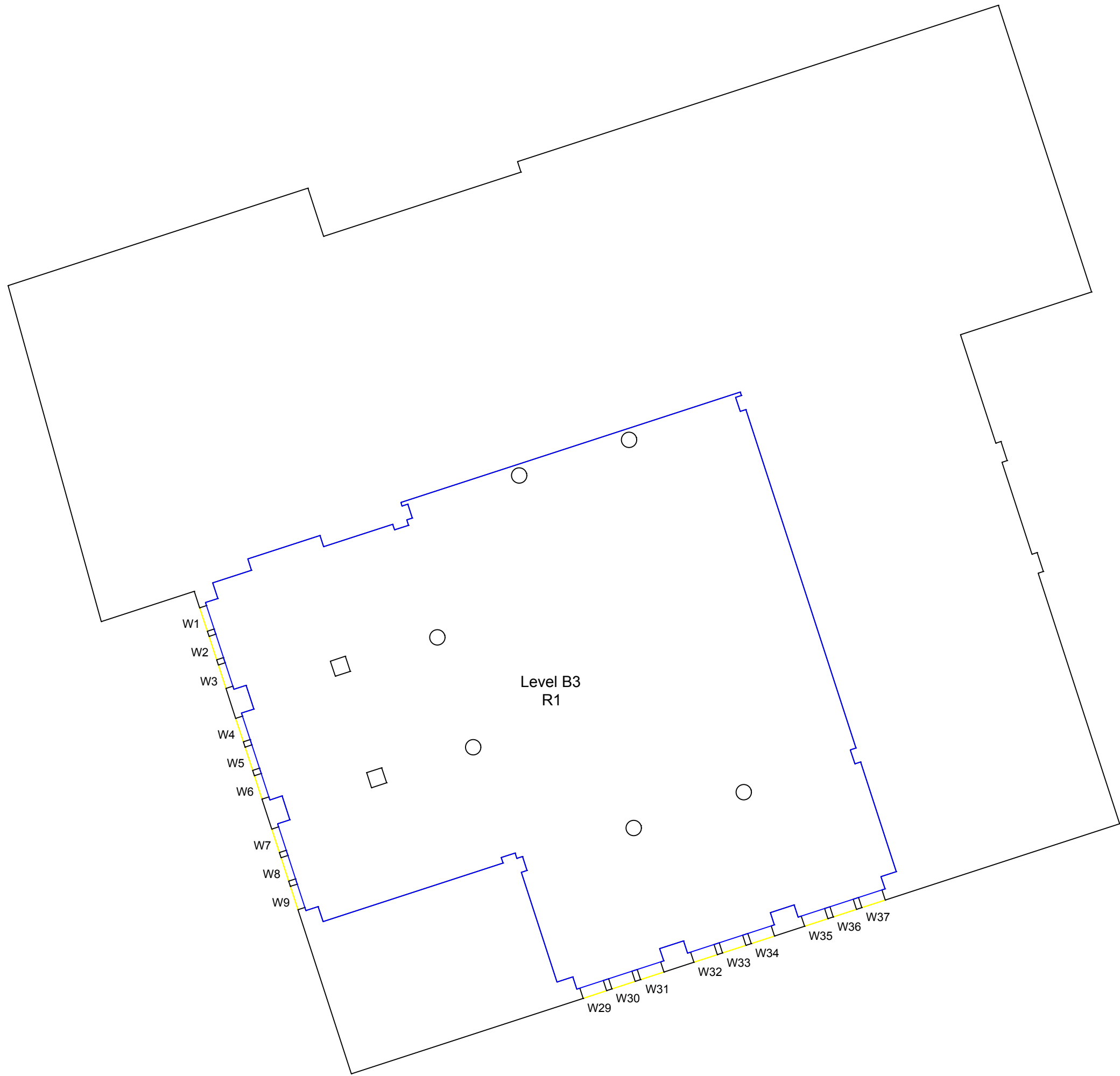
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67407_DD_01	1



SOURCES OF INFORMATION:
 BENNETTS ASSOCIATES
 130517 Model 12.dwg
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 CITY OF EDINBURGH COUNCIL PLANNING
 Application No. 15_04445_FUL (India Buildings)
 AL_0_001.pdf - Level B5
 AL_0_002.pdf - Level B4
 AL_0_003.pdf - Level B3
 AL_0_004.pdf - Level B2-B1
 AL_0_005.pdf - Ground Floor

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 Window & Room Referencing Plans
 Edinburgh Central Library

CLIENT
 City of Edinburgh Council

PROJECT
 Edinburgh Central Library
 George IV Bridge
 Edinburgh EH1 1EG

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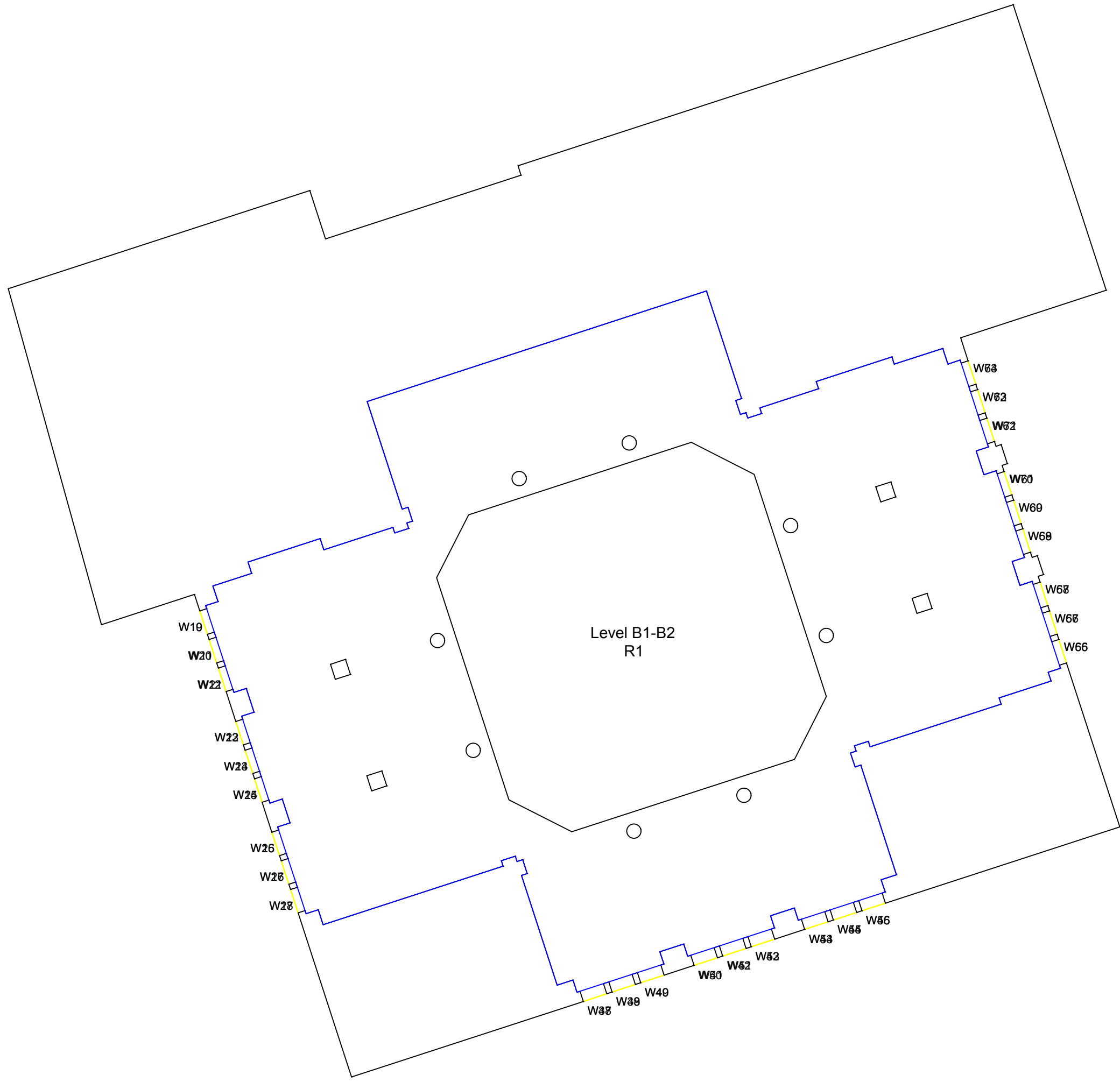
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SOURCES OF INFORMATION:

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CITY OF EDINBURGH COUNCIL PLANNING
Application No. 15_04445_FUL (India Buildings)
AL_0_001.pdf - Level B5
AL_0_002.pdf - Level B4
AL_0_003.pdf - Level B3
AL_0_004.pdf - Level B2-B1
AL_0_005.pdf - Ground Floor

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TITLE

**Window & Room Referencing Plans
Edinburgh Central Library**

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George IV Bridge
Edinburgh EH1 1EG**

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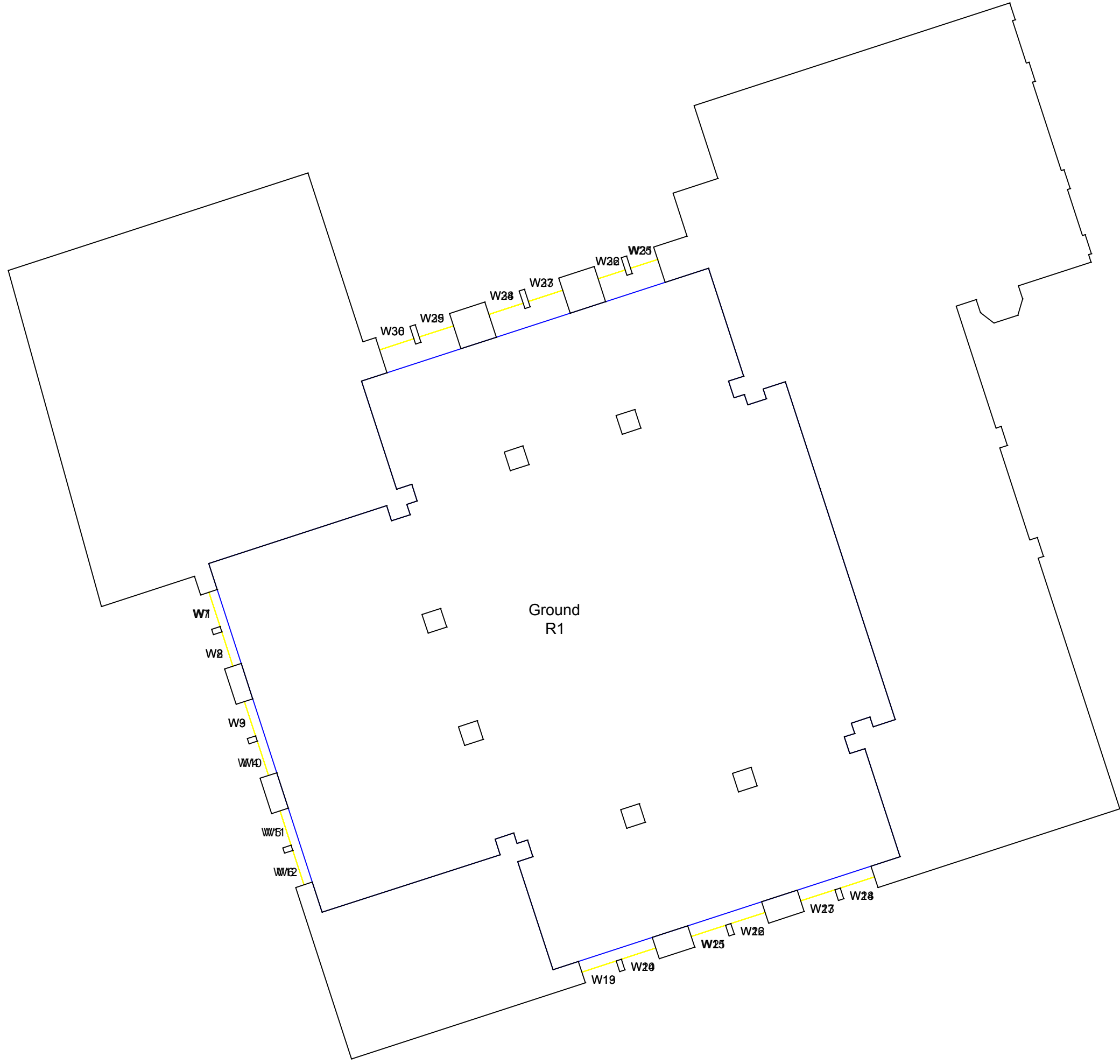
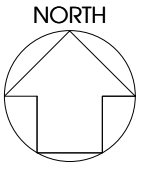
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Application No. 15_04445_FUL (India Buildings)
AL_0_001.pdf - Level B5
AL_0_002.pdf - Level B4
AL_0_003.pdf - Level B3
AL_0_004.pdf - Level B2-B1
AL_0_005.pdf - Ground Floor

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Rev.	Date	Amendments	Initial
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Edinburgh Central Library

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City of Edinburgh Council

PROJECT
Edinburgh Central Library
George IV Bridge
Edinburgh EH1 1EG

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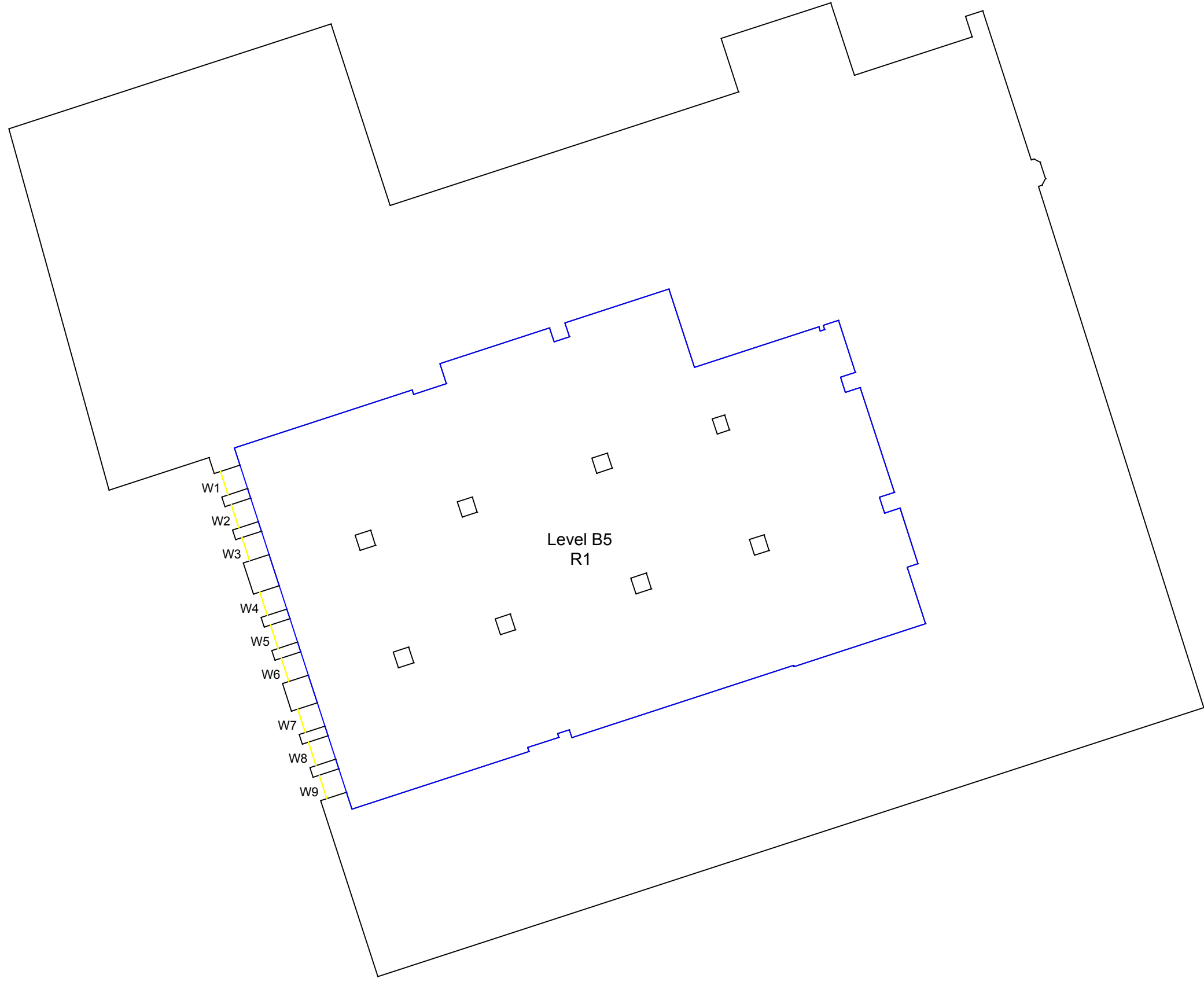
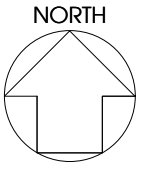
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 BENNETTS ASSOCIATES
 130517 Model 12.dwg
 Received 09 April 2018
 CITY OF EDINBURGH COUNCIL PLANNING
 Application No. 15_04445_FUL (India Buildings)
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 AL_0_002.pdf - Level B4
 AL_0_003.pdf - Level B3
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 AL_0_005.pdf - Ground Floor

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DRAWING NO. 67407_DD_05	RELEASE NO. 1
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Appendix D
Daylight Study



Floor Ref.	Room Ref.	Room Use	Window Ref	Existing ADF	Proposed ADF	Times Former Value	Meets BRE Criteria
Edinburgh Central Library							
Ground	R1	Library	W1	0.09	0.07	0.93	
Ground	R1	Library	W2	0.10	0.08	0.93	
Ground	R1	Library	W3	0.11	0.09	0.93	
Ground	R1	Library	W4	0.11	0.09	0.93	
Ground	R1	Library	W5	0.11	0.10	0.93	
Ground	R1	Library	W6	0.11	0.10	0.93	
Ground	R1	Library	W7	0.05	0.04	0.93	
Ground	R1	Library	W8	0.05	0.05	0.93	
Ground	R1	Library	W9	0.06	0.05	0.93	
Ground	R1	Library	W10	0.06	0.05	0.93	
Ground	R1	Library	W11	0.06	0.05	0.93	
Ground	R1	Library	W12	0.06	0.05	0.93	
Ground	R1	Library	W13	0.08	0.08	0.93	
Ground	R1	Library	W14	0.08	0.08	0.93	
Ground	R1	Library	W15	0.08	0.08	0.93	
Ground	R1	Library	W16	0.08	0.08	0.93	
Ground	R1	Library	W17	0.07	0.07	0.93	
Ground	R1	Library	W18	0.07	0.07	0.93	
Ground	R1	Library	W19	0.04	0.04	0.93	
Ground	R1	Library	W20	0.04	0.04	0.93	
Ground	R1	Library	W21	0.04	0.04	0.93	
Ground	R1	Library	W22	0.04	0.04	0.93	
Ground	R1	Library	W23	0.04	0.04	0.93	
Ground	R1	Library	W24	0.03	0.03	0.93	
Ground	R1	Library	W30	0.04	0.04	0.93	
Ground	R1	Library	W29	0.04	0.04	0.93	
Ground	R1	Library	W36	0.02	0.02	0.93	
Ground	R1	Library	W35	0.02	0.02	0.93	
Ground	R1	Library	W28	0.04	0.04	0.93	
Ground	R1	Library	W34	0.02	0.02	0.93	
Ground	R1	Library	W27	0.04	0.04	0.93	
Ground	R1	Library	W33	0.02	0.02	0.93	
Ground	R1	Library	W32	0.00	0.00	0.93	
Ground	R1	Library	W31	0.00	0.00	0.93	
Ground	R1	Library	W26	0.00	0.00	0.93	
Ground	R1	Library	W25	0.00	0.00	0.93	
Total				1.90	1.75	0.92	YES
Level B1-B2	R1	Library	W10-L	0.00	0.00	0.76	
Level B1-B2	R1	Library	W10-U	0.01	0.00	0.76	
Level B1-B2	R1	Library	W11-L	0.00	0.00	0.76	
Level B1-B2	R1	Library	W11-U	0.01	0.00	0.76	
Level B1-B2	R1	Library	W12-L	0.00	0.00	0.76	
Level B1-B2	R1	Library	W12-U	0.01	0.00	0.76	
Level B1-B2	R1	Library	W13-L	0.00	0.00	0.76	
Level B1-B2	R1	Library	W13-U	0.01	0.00	0.76	
Level B1-B2	R1	Library	W14-L	0.00	0.00	0.76	
Level B1-B2	R1	Library	W14-U	0.01	0.00	0.76	
Level B1-B2	R1	Library	W15-L	0.00	0.00	0.76	
Level B1-B2	R1	Library	W15-U	0.01	0.00	0.76	
Level B1-B2	R1	Library	W16-L	0.00	0.00	0.76	
Level B1-B2	R1	Library	W16-U	0.01	0.01	0.76	
Level B1-B2	R1	Library	W17-L	0.00	0.00	0.76	

Floor Ref.	Room Ref.	Room Use	Window Ref	Existing ADF	Proposed ADF	Times Former Value	Meets BRE Criteria
Level B1-B2	R1	Library	W17-U	0.01	0.01	0.76	
Level B1-B2	R1	Library	W18-L	0.00	0.00	0.76	
Level B1-B2	R1	Library	W18-U	0.01	0.01	0.76	
Level B1-B2	R1	Library	W19	0.03	0.01	0.76	
Level B1-B2	R1	Library	W20	0.03	0.02	0.76	
Level B1-B2	R1	Library	W21	0.04	0.02	0.76	
Level B1-B2	R1	Library	W22	0.04	0.02	0.76	
Level B1-B2	R1	Library	W23	0.04	0.02	0.76	
Level B1-B2	R1	Library	W24	0.04	0.02	0.76	
Level B1-B2	R1	Library	W25	0.04	0.02	0.76	
Level B1-B2	R1	Library	W26	0.04	0.03	0.76	
Level B1-B2	R1	Library	W27	0.04	0.03	0.76	
Level B1-B2	R1	Library	W38-L	0.00	0.00	0.76	
Level B1-B2	R1	Library	W38-U	0.01	0.01	0.76	
Level B1-B2	R1	Library	W39-L	0.00	0.00	0.76	
Level B1-B2	R1	Library	W39-U	0.01	0.01	0.76	
Level B1-B2	R1	Library	W40-L	0.00	0.00	0.76	
Level B1-B2	R1	Library	W40-U	0.01	0.01	0.76	
Level B1-B2	R1	Library	W41-L	0.00	0.00	0.76	
Level B1-B2	R1	Library	W41-U	0.00	0.00	0.76	
Level B1-B2	R1	Library	W42-L	0.00	0.00	0.76	
Level B1-B2	R1	Library	W42-U	0.00	0.00	0.76	
Level B1-B2	R1	Library	W43-L	0.00	0.00	0.76	
Level B1-B2	R1	Library	W43-U	0.00	0.00	0.76	
Level B1-B2	R1	Library	W44-L	0.00	0.00	0.76	
Level B1-B2	R1	Library	W44-U	0.00	0.00	0.76	
Level B1-B2	R1	Library	W45-L	0.00	0.00	0.76	
Level B1-B2	R1	Library	W45-U	0.00	0.00	0.76	
Level B1-B2	R1	Library	W46-L	0.00	0.00	0.76	
Level B1-B2	R1	Library	W46-U	0.00	0.00	0.76	
Level B1-B2	R1	Library	W47	0.03	0.03	0.76	
Level B1-B2	R1	Library	W48	0.02	0.02	0.76	
Level B1-B2	R1	Library	W49	0.02	0.02	0.76	
Level B1-B2	R1	Library	W50	0.02	0.02	0.76	
Level B1-B2	R1	Library	W51	0.02	0.02	0.76	
Level B1-B2	R1	Library	W52	0.02	0.02	0.76	
Level B1-B2	R1	Library	W53	0.02	0.02	0.76	
Level B1-B2	R1	Library	W54	0.02	0.02	0.76	
Level B1-B2	R1	Library	W55	0.01	0.01	0.76	
Level B1-B2	R1	Library	W56-L	0.00	0.00	0.76	
Level B1-B2	R1	Library	W56-U	0.01	0.01	0.76	
Level B1-B2	R1	Library	W57-L	0.00	0.00	0.76	
Level B1-B2	R1	Library	W57-U	0.01	0.01	0.76	
Level B1-B2	R1	Library	W58-L	0.00	0.00	0.76	
Level B1-B2	R1	Library	W58-U	0.01	0.01	0.76	
Level B1-B2	R1	Library	W59-L	0.00	0.00	0.76	
Level B1-B2	R1	Library	W59-U	0.01	0.01	0.76	
Level B1-B2	R1	Library	W60-L	0.00	0.00	0.76	
Level B1-B2	R1	Library	W60-U	0.01	0.01	0.76	
Level B1-B2	R1	Library	W61-L	0.00	0.00	0.76	
Level B1-B2	R1	Library	W61-U	0.01	0.01	0.76	
Level B1-B2	R1	Library	W62-L	0.00	0.00	0.76	
Level B1-B2	R1	Library	W62-U	0.01	0.01	0.76	

Floor Ref.	Room Ref.	Room Use	Window Ref	Existing ADF	Proposed ADF	Times Former Value	Meets BRE Criteria
Level B1-B2	R1	Library	W63-L	0.00	0.00	0.76	
Level B1-B2	R1	Library	W63-U	0.01	0.01	0.76	
Level B1-B2	R1	Library	W64-L	0.00	0.00	0.76	
Level B1-B2	R1	Library	W64-U	0.01	0.01	0.76	
Level B1-B2	R1	Library	W65	0.03	0.03	0.76	
Level B1-B2	R1	Library	W66	0.03	0.03	0.76	
Level B1-B2	R1	Library	W67	0.03	0.03	0.76	
Level B1-B2	R1	Library	W68	0.03	0.03	0.76	
Level B1-B2	R1	Library	W69	0.03	0.03	0.76	
Level B1-B2	R1	Library	W70	0.03	0.03	0.76	
Level B1-B2	R1	Library	W71	0.02	0.02	0.76	
Level B1-B2	R1	Library	W72	0.02	0.02	0.76	
Level B1-B2	R1	Library	W73	0.02	0.02	0.76	
Total				0.97	0.76	0.78	NO
Level B3	R1	Library	W1	0.09	0.04	0.69	
Level B3	R1	Library	W2	0.10	0.04	0.69	
Level B3	R1	Library	W3	0.11	0.04	0.69	
Level B3	R1	Library	W4	0.12	0.05	0.69	
Level B3	R1	Library	W5	0.12	0.05	0.69	
Level B3	R1	Library	W6	0.12	0.06	0.69	
Level B3	R1	Library	W7	0.12	0.06	0.69	
Level B3	R1	Library	W8	0.12	0.07	0.69	
Level B3	R1	Library	W9	0.12	0.07	0.69	
Level B3	R1	Library	W10	0.04	0.01	0.69	
Level B3	R1	Library	W11	0.04	0.01	0.69	
Level B3	R1	Library	W12	0.04	0.01	0.69	
Level B3	R1	Library	W13	0.05	0.01	0.69	
Level B3	R1	Library	W14	0.05	0.01	0.69	
Level B3	R1	Library	W15	0.05	0.02	0.69	
Level B3	R1	Library	W16	0.05	0.02	0.69	
Level B3	R1	Library	W17	0.05	0.02	0.69	
Level B3	R1	Library	W18	0.05	0.03	0.69	
Level B3	R1	Library	W19	0.04	0.02	0.69	
Level B3	R1	Library	W20	0.05	0.02	0.69	
Level B3	R1	Library	W21	0.05	0.03	0.69	
Level B3	R1	Library	W22	0.06	0.03	0.69	
Level B3	R1	Library	W23	0.06	0.03	0.69	
Level B3	R1	Library	W24	0.06	0.03	0.69	
Level B3	R1	Library	W25	0.06	0.04	0.69	
Level B3	R1	Library	W26	0.06	0.04	0.69	
Level B3	R1	Library	W27	0.06	0.04	0.69	
Level B3	R1	Library	W29	0.07	0.07	0.69	
Level B3	R1	Library	W30	0.07	0.07	0.69	
Level B3	R1	Library	W31	0.07	0.07	0.69	
Level B3	R1	Library	W32	0.06	0.06	0.69	
Level B3	R1	Library	W33	0.06	0.06	0.69	
Level B3	R1	Library	W34	0.05	0.05	0.69	
Level B3	R1	Library	W35	0.05	0.05	0.69	
Level B3	R1	Library	W36	0.04	0.04	0.69	
Level B3	R1	Library	W37	0.04	0.04	0.69	
Level B3	R1	Library	W38	0.02	0.02	0.69	
Level B3	R1	Library	W39	0.02	0.02	0.69	
Level B3	R1	Library	W40	0.02	0.02	0.69	

Floor Ref.	Room Ref.	Room Use	Window Ref	Existing ADF	Proposed ADF	Times Former Value	Meets BRE Criteria
Level B3	R1	Library	W41	0.02	0.02	0.69	
Level B3	R1	Library	W42	0.01	0.01	0.69	
Level B3	R1	Library	W43	0.01	0.01	0.69	
Level B3	R1	Library	W44	0.01	0.01	0.69	
Level B3	R1	Library	W45	0.00	0.00	0.69	
Level B3	R1	Library	W46	0.00	0.00	0.69	
Level B3	R1	Library	W47	0.04	0.04	0.69	
Level B3	R1	Library	W48	0.03	0.03	0.69	
Level B3	R1	Library	W49	0.03	0.03	0.69	
Level B3	R1	Library	W50	0.03	0.03	0.69	
Level B3	R1	Library	W51	0.03	0.03	0.69	
Level B3	R1	Library	W52	0.03	0.03	0.69	
Level B3	R1	Library	W53	0.02	0.02	0.69	
Level B3	R1	Library	W54	0.02	0.02	0.69	
Level B3	R1	Library	W55	0.02	0.02	0.69	
Level B3	R1	Library	W56	0.03	0.03	0.69	
Level B3	R1	Library	W57	0.02	0.02	0.69	
Level B3	R1	Library	W58	0.02	0.02	0.69	
Level B3	R1	Library	W59	0.02	0.02	0.69	
Level B3	R1	Library	W60	0.02	0.02	0.69	
Level B3	R1	Library	W61	0.02	0.02	0.69	
Level B3	R1	Library	W62	0.02	0.02	0.69	
Level B3	R1	Library	W63	0.02	0.02	0.69	
Level B3	R1	Library	W64	0.02	0.02	0.69	
Level B3	R1	Library	W65	0.04	0.04	0.69	
Level B3	R1	Library	W66	0.04	0.04	0.69	
Level B3	R1	Library	W67	0.04	0.04	0.69	
Level B3	R1	Library	W68	0.04	0.04	0.69	
Level B3	R1	Library	W69	0.04	0.04	0.69	
Level B3	R1	Library	W70	0.04	0.04	0.69	
Level B3	R1	Library	W71	0.03	0.03	0.69	
Level B3	R1	Library	W72	0.03	0.03	0.69	
Level B3	R1	Library	W73	0.03	0.03	0.69	
Total				3.33	2.29	0.69	NO
Level B4	R1	Library	W1	0.21	0.01	0.17	
Level B4	R1	Library	W2	0.22	0.04	0.17	
Level B4	R1	Library	W3	0.22	0.07	0.17	
Total				0.65	0.12	0.18	NO

Floor Ref.	Room Ref.	Room Use	Window Ref	Existing ADF	Proposed ADF	Times Former Value	Meets BRE Criteria
Edinburgh Central Library							
Level B5	R1	Library	W1-L	0.00	0.00	0.00	
Level B5	R1	Library	W1-U	0.02	0.00	0.00	
Level B5	R1	Library	W2-L	0.00	0.00	0.00	
Level B5	R1	Library	W2-U	0.02	0.00	0.00	
Level B5	R1	Library	W3-L	0.00	0.00	0.00	
Level B5	R1	Library	W3-U	0.02	0.00	0.00	
Level B5	R1	Library	W4-L	0.00	0.00	0.00	
Level B5	R1	Library	W4-U	0.02	0.00	0.00	
Level B5	R1	Library	W5-L	0.00	0.00	0.00	
Level B5	R1	Library	W5-U	0.02	0.00	0.00	
Level B5	R1	Library	W6-L	0.00	0.00	0.00	
Level B5	R1	Library	W6-U	0.02	0.00	0.00	
Level B5	R1	Library	W7-L	0.00	0.00	0.00	
Level B5	R1	Library	W7-U	0.02	0.00	0.00	
Level B5	R1	Library	W8-L	0.00	0.00	0.00	
Level B5	R1	Library	W8-U	0.02	0.00	0.00	
Level B5	R1	Library	W9-L	0.00	0.00	0.00	
Level B5	R1	Library	W9-U	0.02	0.00	0.00	
Total				0.18	0.00	0.00	NO

Floor Ref.	Room Ref.	Room Use	Window Ref	Existing ADF	Proposed ADF	Times Former Value	Meets BRE Criteria
Edinburgh Central Library							
Level B5	R1	Library	W1-L	0.00	0.00	0.00	
Level B5	R1	Library	W1-U	0.02	0.00	0.00	
Level B5	R1	Library	W2-L	0.00	0.00	0.00	
Level B5	R1	Library	W2-U	0.02	0.00	0.00	
Level B5	R1	Library	W3-L	0.00	0.00	0.00	
Level B5	R1	Library	W3-U	0.02	0.00	0.00	
Level B5	R1	Library	W4-L	0.00	0.00	0.00	
Level B5	R1	Library	W4-U	0.02	0.00	0.00	
Level B5	R1	Library	W5-L	0.00	0.00	0.00	
Level B5	R1	Library	W5-U	0.02	0.00	0.00	
Level B5	R1	Library	W6-L	0.00	0.00	0.00	
Level B5	R1	Library	W6-U	0.02	0.00	0.00	
Level B5	R1	Library	W7-L	0.00	0.00	0.00	
Level B5	R1	Library	W7-U	0.02	0.00	0.00	
Level B5	R1	Library	W8-L	0.00	0.00	0.00	
Level B5	R1	Library	W8-U	0.02	0.00	0.00	
Level B5	R1	Library	W9-L	0.00	0.00	0.00	
Level B5	R1	Library	W9-U	0.02	0.00	0.00	
Total				0.18	0.00	0.00	NO