

Daylight and Sunlight Report

**William Goodenough House
London WC1**

March 2010



5 Thames Street, Eynsham, Oxford, OX29 4HF
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1.0 Introduction

We have been instructed to examine the impact of the proposed extension to William Goodenough House on the daylight and sunlight amenity to both the neighbouring properties, and to William Goodenough House itself. We have also been asked to assess the daylight and sunlight amenity to the new residential units within William Goodenough House at lower ground floor level.

It is usual to assess daylight and sunlight in relation to the guidelines set out in the Building Research Establishment (BRE) Report 'Site layout planning for daylight and sunlight - A guide to good practice' by P. J. Littlefair.

2.0 Properties Considered

It is usual to only consider the impact on main habitable spaces (i.e. living rooms, bedrooms and kitchens) within residential properties. The recently completed Westminster Kingsway College building on Heathcote Street, opposite the site, is not in residential use but for completeness we have considered it.

1-8 Mecklenburgh Street
43-46 Mecklenburgh Square
1-7 Grayland Court
Westminster Kingsway College
William Goodenough House

3.0 Sources of Information

VISTA ARCHITECTURE
Drawings nos -
B41558_101 - 106 / 152 / 154 / 155 / 202 / 252 / 302

ORDNANCE SURVEY
Digital OS Extract

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Site Photographs

4.0 Drawings attached

Drawing Number	Title
605/PL1/01	- Site Plan, As Existing
605/PL1/02	- 3D View, As Existing
605/PL1/03	- 3D View, As Existing
605/PL1/04	- Site Plan, As Proposed
605/PL1/05	- 3D View, As Proposed
605/PL1/06	- 3D View, As Proposed
605/PL1/07	- Window Locations, Mecklenburgh Street
605/PL1/08	- Window Locations, Mecklenburgh Square
605/PL1/09	- Window Locations, 1-7 Grayland Court
605/PL1/10	- Window Locations, Westminster Kingsway College
605/PL1/11	- Window Locations, William Goodenough House
605/PL1/12	- Window Locations, William Goodenough House
605/PL1/13	- Window Locations, William Goodenough House
605/PL1/14	- William Goodenough House, Ground Floor Plan
605/PL1/15	- William Goodenough House, First Floor Plan
605/PL1/16	- William Goodenough House, Second Floor Plan
605/PL3/01	- William Goodenough House, Proposed Lower Ground Floor, Daylight Analysis

5.0 Daylight and Sunlight Analysis

Initially, a detailed 3-dimensional computer model of the existing site and all the surrounding buildings was created. This is illustrated in drawings 605/PL1/01-03. This model was then analysed using proprietary software to calculate the daylight levels at each window and within each room. These existing light levels were then compared with the corresponding levels with the proposed extension in place. This is illustrated in drawings 605/PL1/04-06. The resulting levels and their reductions were then compared to the BRE guidelines outlined below.

Each window and room examined has been assigned a unique label. These are shown in drawings 605/PL1/07-16 & 605/PL3/01.

5.1 Assumptions made in the 3D model

The massing and fenestration of William Goodenough House were modeled from the Vista Architecture drawings. The massing and fenestration of 43-46 Meckenburgh Square were modeled for a combination of the Vista Architecture drawings and aerial photography. The remaining buildings surrounding the site were modeled using Ordnance Survey data and site photographs.

The 3D model was created so as to reproduce the massing of the buildings both on and surrounding the site, at a level of detail appropriate to the calculations performed. All heights in the model are in mm AOD.

5.2 Calculations

5.2.1 Daylight

We have calculated Vertical Sky Component (VSC) and Average Daylight Factor (ADF) as measures of daylight. These methods are recommended in the BRE Report.

VSC is a measure of diffuse daylight received at a window centre. It is not dependent on factors such as the size of the room served. The BRE Report suggests that where a proposed VSC value is less than 27%, then the resultant value should be not less than 0.8 its former value.

ADF is a measure of the adequacy of daylight within a room and accounts for factors such as the size of window in relation to the size of the room, the reflectance of internal surfaces, the nature of the glazing and number of windows. Clearly a small room with a large window will be better illuminated by daylight than a large room with a small window. The ADF method is described in the BRE Report and has been updated in the British Standard BS8206-2:2008, "Lighting for Buildings". The acceptable minima depend on the room use and are 1% for a bedroom, 1.5% for a living room and 2% for a kitchen. Where living rooms are combined with kitchens the higher target of 2% should be used.

In assessing the impact of the proposed extension on the properties surrounding the site it is most appropriate to use the VSC method as we have had no information regarding the room layouts within the properties. As we have been provided with plans of William Goodenough House, in assessing the impact of the extension on it we have calculated both the VSC and ADF. In calculating the ADF values to the existing residential accommodation within William Goodenough House we have assumed the windows to be single glazed with a transmittance of 0.8. We have assumed that the rooms have an overall internal reflectance of 0.5. In calculating the ADF values to the new residential units at lower ground floor level we have assumed that the windows to the front are single glazed, and those facing the courtyard are double glazed with a transmittance of 0.7. We have assumed that there will be light internal finishes, and have therefore used the following reflectances: floors 0.4 (light wood veneer or cream carpets), ceilings 0.85 (white paint), walls 0.81 (cream paint).

The figures are shown in the attached table of results titled 'DAYLIGHT ANALYSIS' and drawing 605/PL3/01.

5.2.2 Sunlight

We have calculated the Annual Probable Sunlight Hours (APSH) before and after development as a measure of the impact of the proposal on the sunlight amenity to the neighbouring properties. The BRE Report recommends that the APSH in the proposed case should be at least 25% of the total including at least 5% in winter. Where the proposed values fall short of these, then the diminution should be such that the proposed value is no less than 0.8 times its former value in either case.

Only windows that face within 90 degrees of south are considered by the BRE to have a sunlight requirement.

The figures are shown in the attached tables of results titled 'SUNLIGHT ANALYSIS'.

6.0 Results and Discussion

We have calculated the sunlight and daylight figures as set out in the BRE Report. In its introduction this document states that, *"advice given here is not mandatory and this document 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."* Furthermore, *"In special circumstances the developer or planning authority may wish to use different target values. For example, in an historic city centre a higher degree of obstruction may be unavoidable if new developments are to match the height and proportion of existing buildings."*

A discussion of each property follows –

1-8 Mecklenburgh Street –

Daylight:

All windows serving the main habitable spaces in these properties comfortably achieve the VSC criteria set out in the BRE report. These properties will continue to receive good levels of daylight after the proposed extension is implemented.

Sunlight:

There are a number of windows that do not achieve the BRE APSH criteria. Six of these serve basement rooms, and as such receive comparatively low levels of sunlight in the existing situation. The absolute losses are small. The remainder are first floor windows which all achieve the recommended 25% of total APSH, but experience small losses in winter sun and do not achieve the recommended 5%. It is often rare to achieve good levels of winter sun in urban locations – for example, in midwinter the sun only reaches a maximum elevation angle of approximately 16 degrees at London latitudes.

Overall the levels of sunlight to these properties will remain good after the proposed extension is implemented.

43-46 Mecklenburgh Street –

Daylight:

All the windows assessed in 43 and 44 Mecklenburgh Street comfortably achieve the VSC criteria set out in the BRE report. Being located further from the proposal the same will be true of the windows in 45 & 46. These properties will continue to receive good levels of daylight after the proposed extension is implemented.

Sunlight:

None of the windows that could be impacted by the proposed extension face within 90 degrees of south. Sunlight is therefore not an issue.

1-7 Grayland Court –

Daylight:

We have calculated the daylight levels to the windows in the property nearest the site. As these windows all very comfortably achieve the BRE VSC criteria, the same will be true of the windows in the other properties.

Sunlight:

We have calculated sunlight levels to the windows in the property nearest the site. All these windows receive very good levels of sunlight in the proposed situation. They very comfortably achieve the BRE ASPH criteria; the same will be true of the windows in the other properties.

Westminster Kingsway College –

It should be noted that it is usual to only consider the impact on main habitable spaces within residential properties. This property is not in residential use but for completeness we have considered it.

Daylight:

A number of windows fall very marginally short of achieving the BRE VSC criteria. Although there are reductions in daylight amenity, they may be considered borderline losses in relation to the guidelines and therefore the losses should be considered acceptable, particularly given the urban location of the site.

Sunlight:

Six ground floor windows do not achieve the BRE recommended levels of winter sunlight. It is often rare to achieve good levels of winter sun in urban locations – for example, in midwinter the sun only reaches a maximum elevation angle of approximately 16 degrees at London latitudes. Overall, however, the annual sunlight amenity to this property will be very good after the proposal is implemented, as all the windows comfortably achieve the recommended 25% of total annual ASPH.

William Goodenough House –

Daylight:

We have calculated the daylight levels to those existing habitable residential rooms, and the windows that serve them, that could potentially be impacted by the proposed extension. We have also calculated the daylight levels to the new residential units at lower ground floor level.

With regard to the new residential units at lower ground floor level, we have only assessed the living rooms and bedrooms as the kitchens are working kitchens and should not be classed as habitable rooms. Of the five living rooms two achieve the recommended ADF value of 1.5%, two fall marginally short (achieving values of 1.38%) and one (R10/59) achieves a value of 1.19%. R10/59 is situated in the corner of the courtyard and, as the window serving it looks into an alcove, the daylight levels to it are slightly lower. With regard to the five bedrooms, one achieves the recommended 1.0% ADF value, and three fall very marginally short, all achieving values in excess of 0.9%. R3/109 will receive lower levels of daylight as the window serving it is situated under the access deck to the ground floor above.

With regard to the existing residential accommodation, a number of the windows fall short of achieving the VSC criteria set out in the BRE report, but of the rooms that these windows serve just six fall short of achieving their recommended ADF value. One of these (R6/70) is a kitchen with a floor area of just 4.2 sq m; it should therefore not be classed as a habitable room. Two are bedrooms (R1/60 & R2/61) that achieve ADF values of 0.99% and 0.98% respectively – very marginally short of the recommended 1.0%. The remainder (R4/62, R1/70 & R5/70) are living rooms that all achieve ADF values in excess of 1.29% in the proposed situation, not far short of the recommended 1.5%.

Given the urban courtyard location the overall levels of daylight to the residential rooms within William Goodenough will be good after the extension is implemented.

Sunlight:

While none of the windows to the new residential accommodation at lower ground floor level achieve the BRE sunlight criteria, this is to be expected given their location. The levels they do achieve are reasonable given the lower ground floor location within a courtyard.

There are 20 existing windows that do not strictly achieve the BRE APSH criteria. Of these, 10 achieve the recommended 25% of total APSH in the proposed situation but fall short of achieving the 5% in winter. It is often rare to achieve good levels of winter sun in urban locations – for example, in midwinter the sun only reaches a maximum elevation angle of approximately 16 degrees at London latitudes.

Of the remaining 10 windows, 8 serve either bedrooms or kitchens. The BRE states that sunlight in kitchens and bedrooms is less important than in living rooms. Of the 2 remaining windows (W5/70 & W5/71) W5/71 does not achieve the criteria due to a 1% absolute loss in winter sun. This is the smallest absolute loss possible using this method of calculation.

Given the urban courtyard location, the levels of sunlight to the existing windows will remain good after the proposal is implemented, and the reductions can be considered acceptable.

7.0 Conclusions

We have considered the impact of the proposed extension on the daylight and sunlight amenity to the surrounding properties and the existing residential accommodation within William Goodenough itself. We have also considered the daylight and sunlight amenity to the proposed residential units at lower ground floor level.

The levels of daylight to a number of rooms within the new lower ground floor residential units fall marginally short of the BRE guidelines. Sunlight levels are also lower than recommended. These results may be regarded as acceptable given the urban location and the units' position at lower ground floor level.

With regard to the existing residential accommodation within William Goodenough House, there will be some localised losses in both daylight and sunlight amenity. In most cases, where there is a material reduction in daylight to a window, the resultant levels of daylight within the room served by the window will remain good, and in excess of the BRE recommended levels. The levels of sunlight amenity to the south facing windows will also generally remain good after the proposal is implemented.

With regard to the impact on the properties surrounding the site, Westminster Kingsway College is the only property which will experience reductions in daylight that are greater than the BRE criteria. It should be noted that this property is not in residential use, and that it is usual to only consider the impact on residential accommodation. For completeness we have considered it, and find the reductions to it are only marginally greater than the BRE criteria. These may be considered borderline results. The resulting levels of daylight after development will be good for an urban location. We therefore consider that the proposed scheme will not have a material impact on the neighbours' daylight amenity.

While there are some sunlight losses to a number of windows, these are small and should be considered acceptable given the urban location of the site.

Given that the BRE advises that a flexible approach should be adopted in urban areas, overall we consider that the impact of the scheme accords with the BRE guidelines, and that it should be considered acceptable in relation to daylight and sunlight.

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Sources: VISTA ARCHITECTURE
Drawings nos -
B41558_101 - 106 / 152 / 154 / 155 / 202 / 252 / 302

ORDNANCE SURVEY
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Westminster Kingsway College

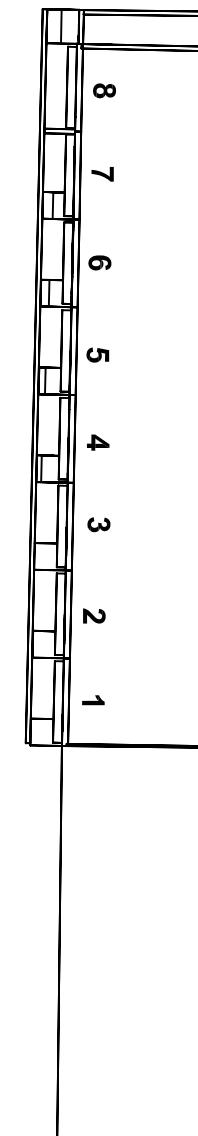
1-7 Grayland Court

HEATHCOTE STREET

MECKLENBURGH STREET

MECKLENBURGH SQUARE

46 45 44 43



Project Title: **WILLIAM GOODENOUGH HOUSE
LONDON WC1**

Drawing Title: **SITE PLAN
AS EXISTING**

Date: **FEB 2010**

Drawing No. **605/PL1/01**

Scale: **1:500**



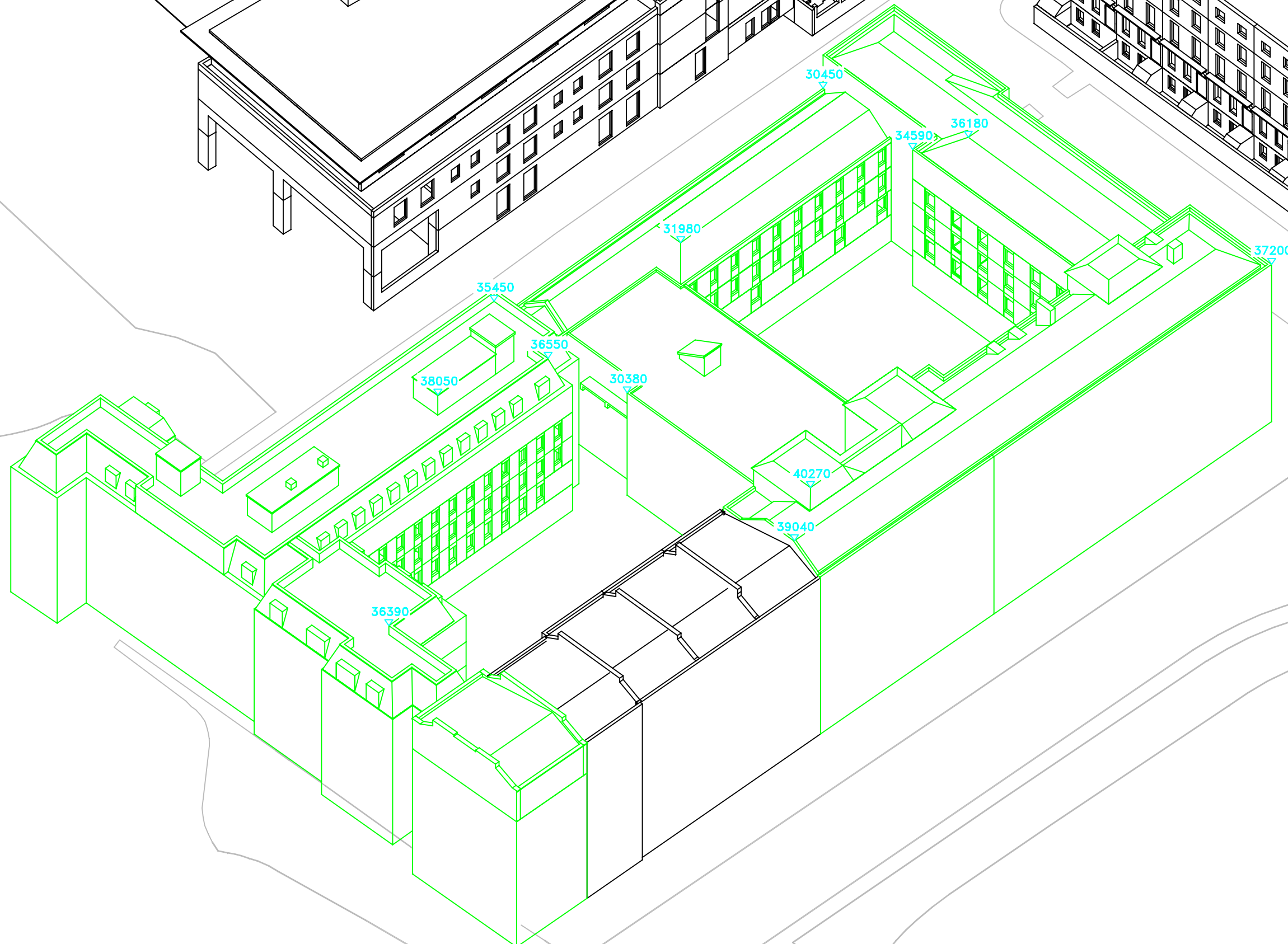
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ALL HEIGHTS IN mm AOD



Project Title: **WILLIAM GOODENOUGH HOUSE
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Drawing Title: **3D VIEW
AS EXISTING**

Date: **FEB 2010**

Drawing No. **605/PL1/02**

Scale: **NTS**



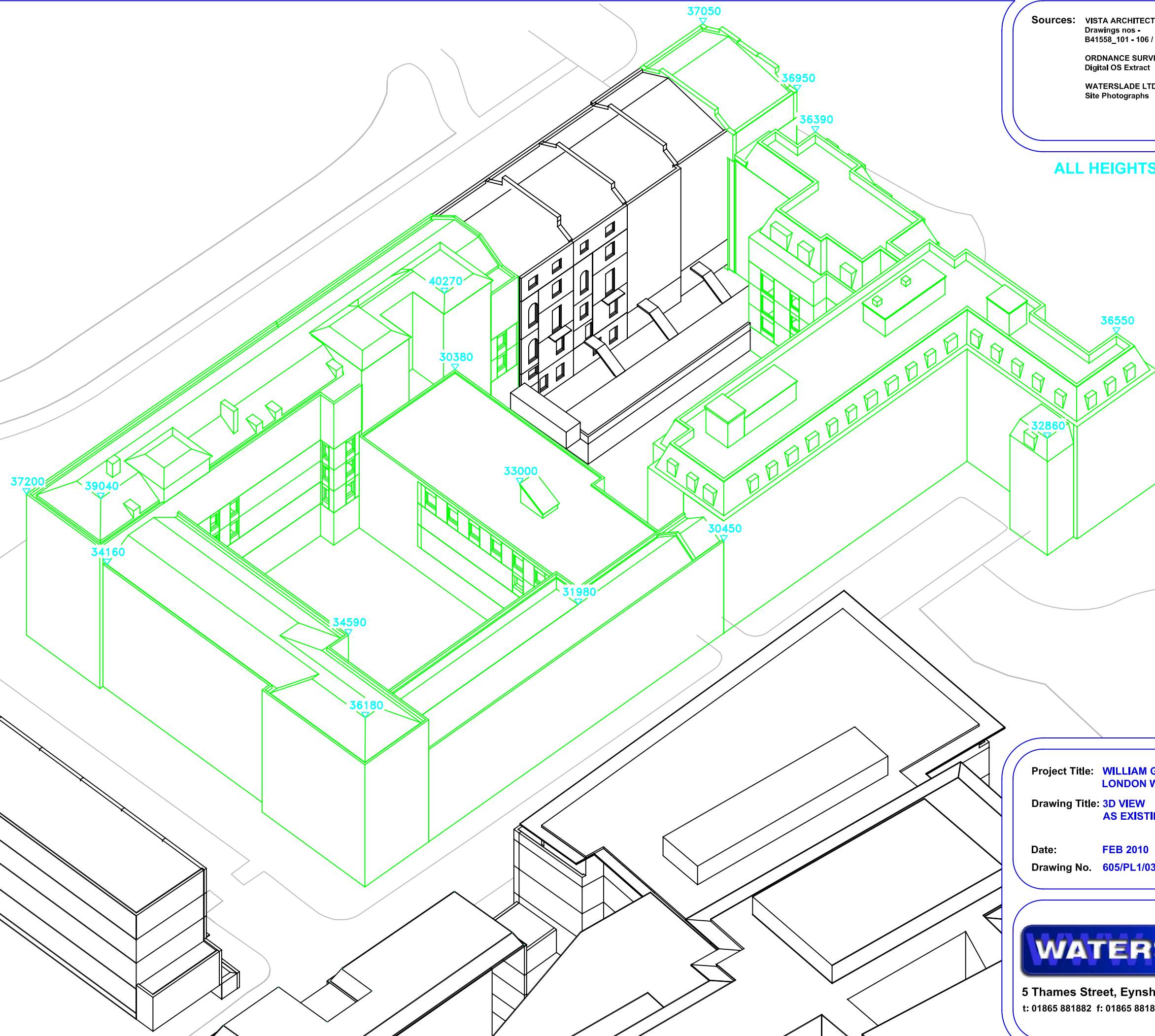
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Drawing Title: **3D VIEW
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Drawing No. **605/PL1/03**

Scale: **NTS**



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Westminster Kingsway College

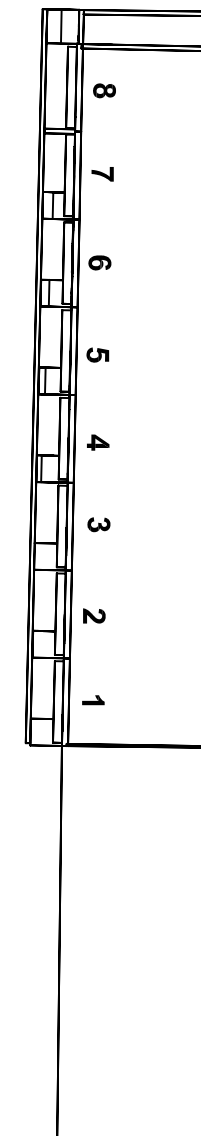
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HEATHCOTE STREET

MECKLENBURGH STREET

MECKLENBURGH SQUARE

46 45 44 43



Project Title: **WILLIAM GOODENOUGH HOUSE
LONDON WC1**

Drawing Title: **SITE PLAN
AS PROPOSED**

Date: **FEB 2010**

Drawing No. **605/PL1/04**

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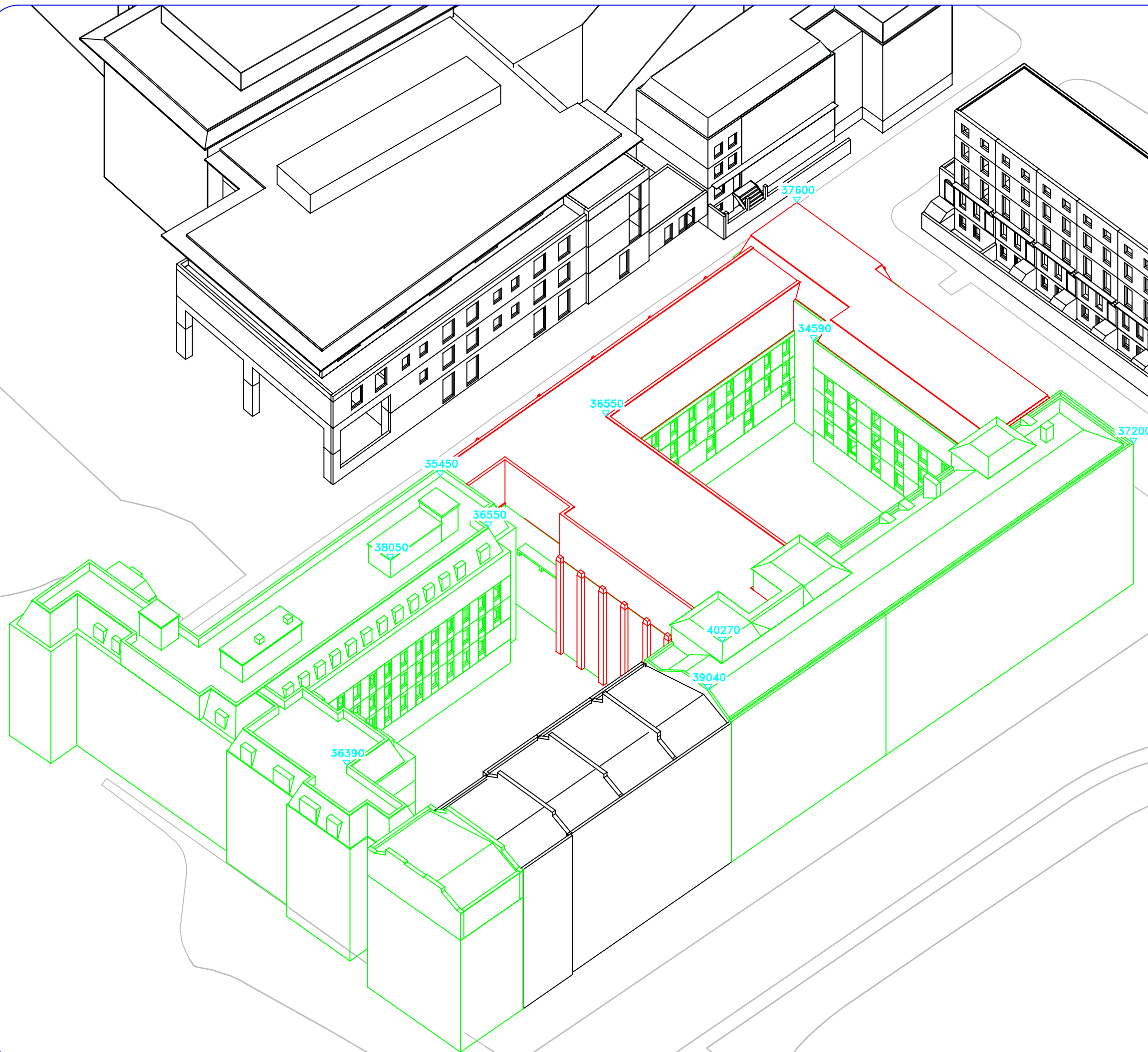
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Drawing Title: **3D VIEW
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Date: **FEB 2010**

Drawing No. **605/PL1/05**

Scale: **NTS**



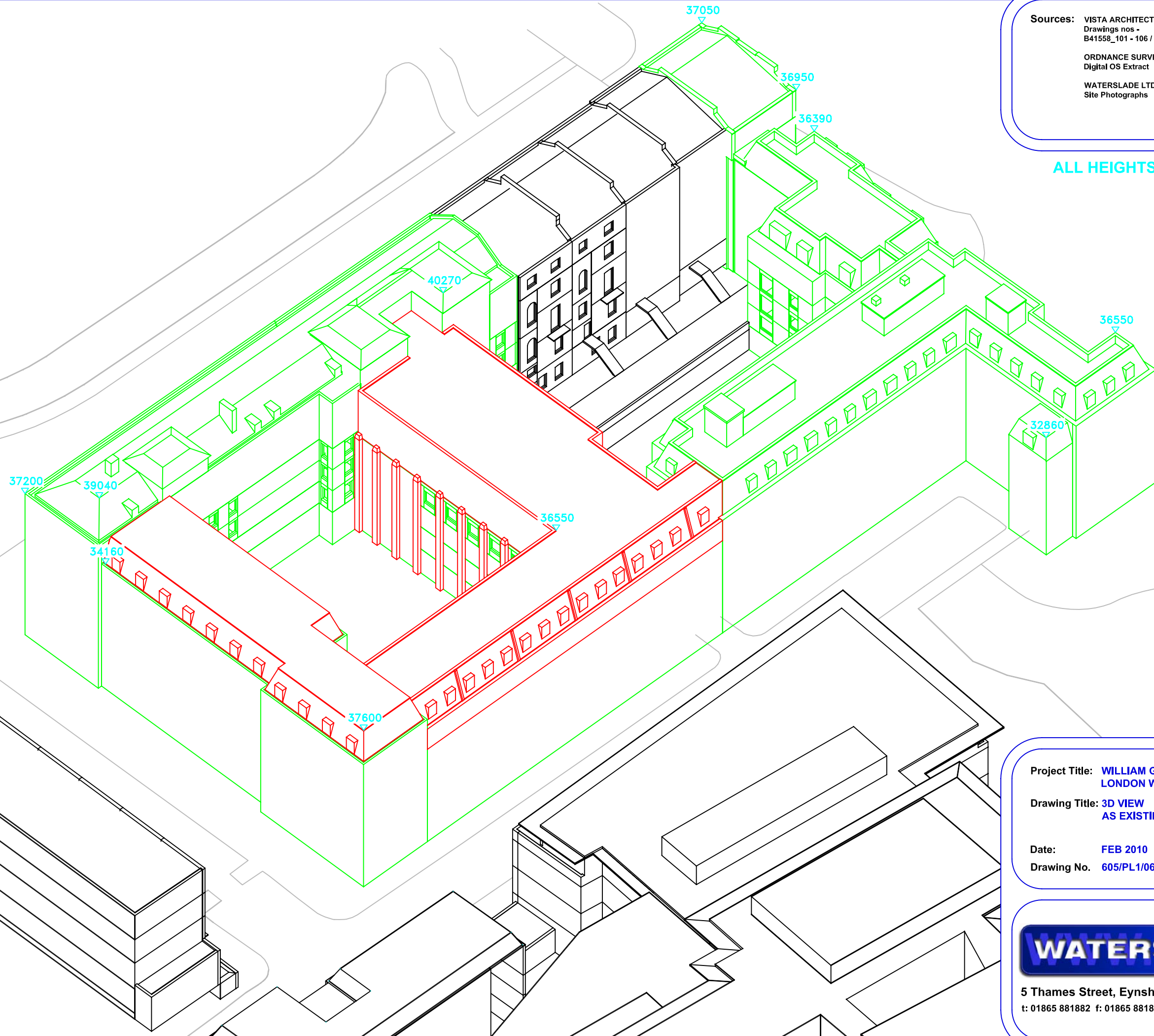
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Drawing Title: **3D VIEW
AS EXISTING**

Date: **FEB 2010**

Drawing No. **605/PL1/06**

Scale: **NTS**



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Project Title: **WILLIAM GOODENOUGH HOUSE
LONDON WC1**

Drawing Title: **WINDOW LOCATIONS
MECKLENBURGH STREET**

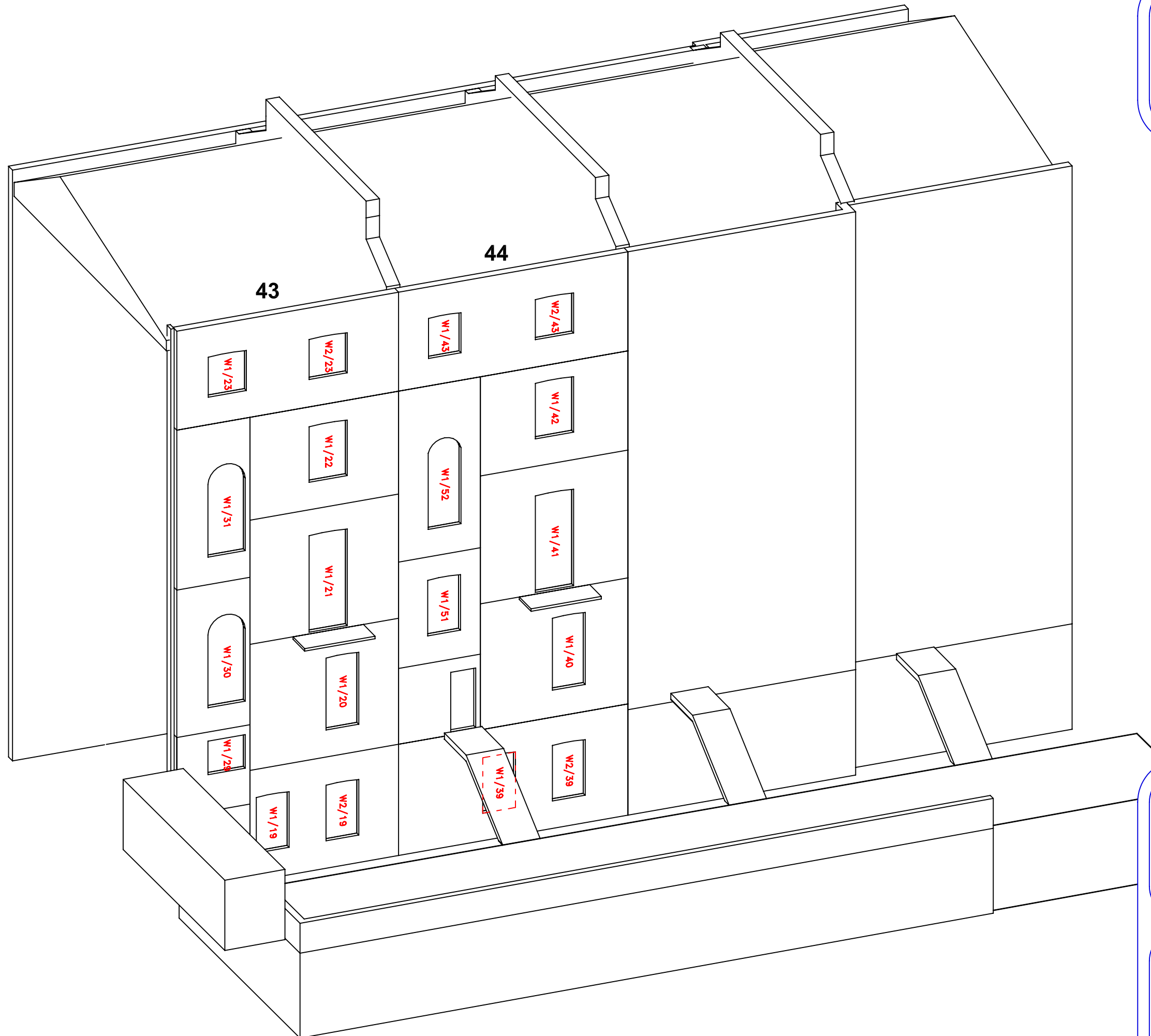
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Drawing No. **605/PL1/07**

Scale: **NTS**



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Project Title: **WILLIAM GOODENOUGH HOUSE
LONDON WC1**

Drawing Title: **WINDOW LOCATIONS
MECKLENBURGH SQUARE**

Date: **FEB 2010**
Drawing No. **605/PL1/08** Scale: **NTS**

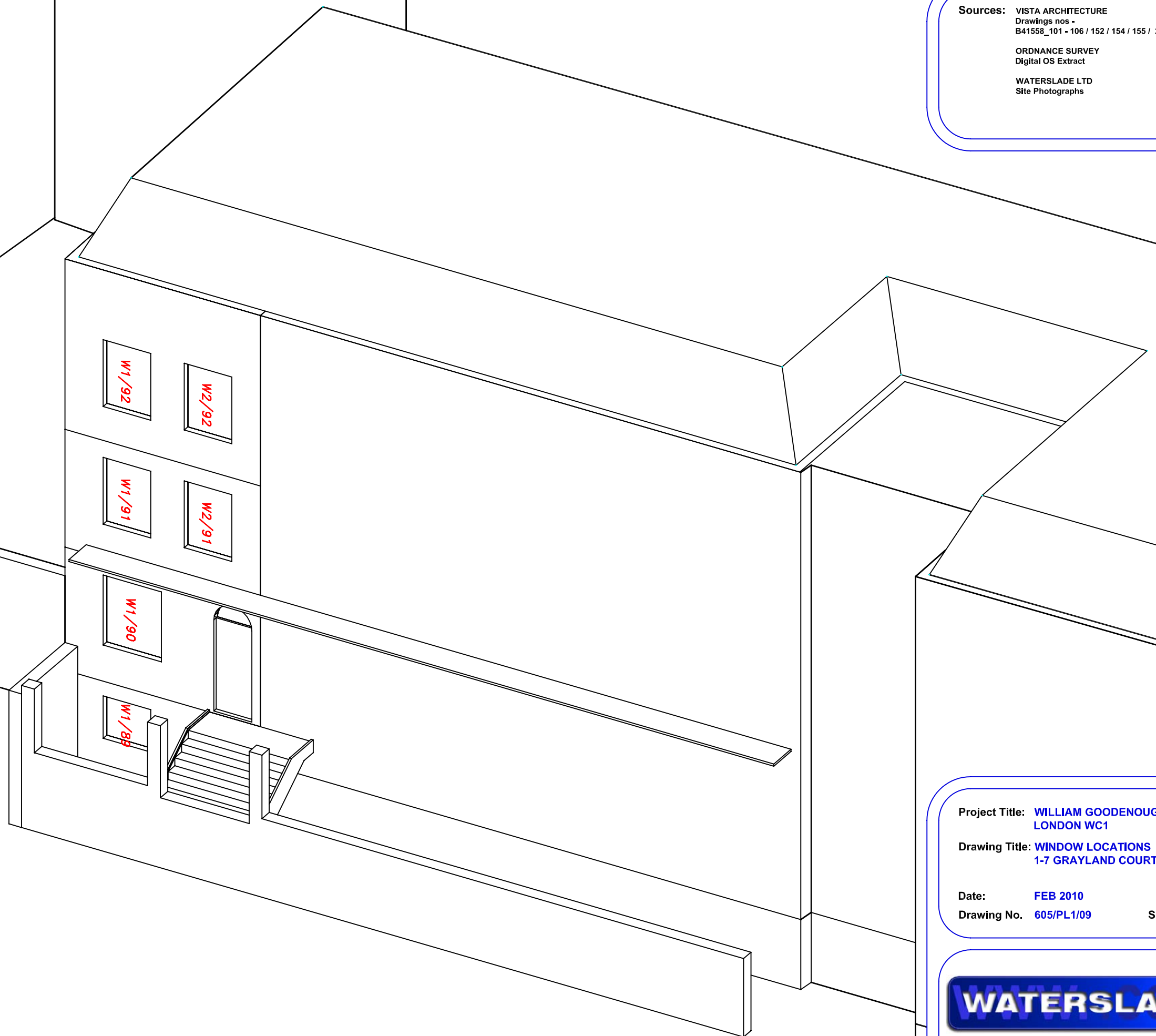


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Project Title: **WILLIAM GOODENOUGH HOUSE
LONDON WC1**

Drawing Title: **WINDOW LOCATIONS
1-7 GRAYLAND COURT**

Date: **FEB 2010**

Drawing No. **605/PL1/09**

Scale: **NTS**



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Project Title: **WILLIAM GOODENOUGH HOUSE
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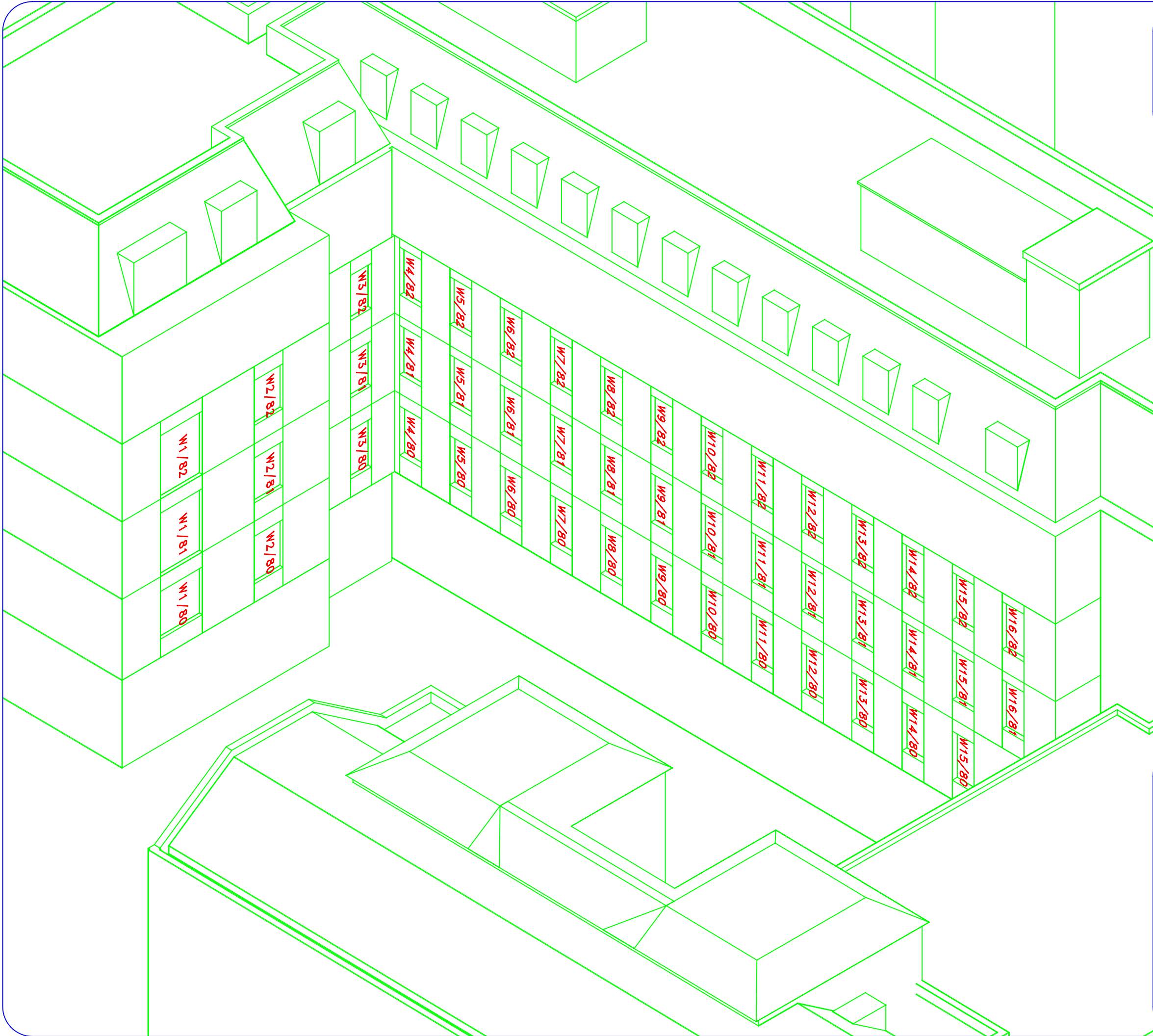
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WESTMINSTER KINGSWAY
COLLEGE**

Date: **FEB 2010**

Drawing No. **605/PL1/10** Scale: **NTS**



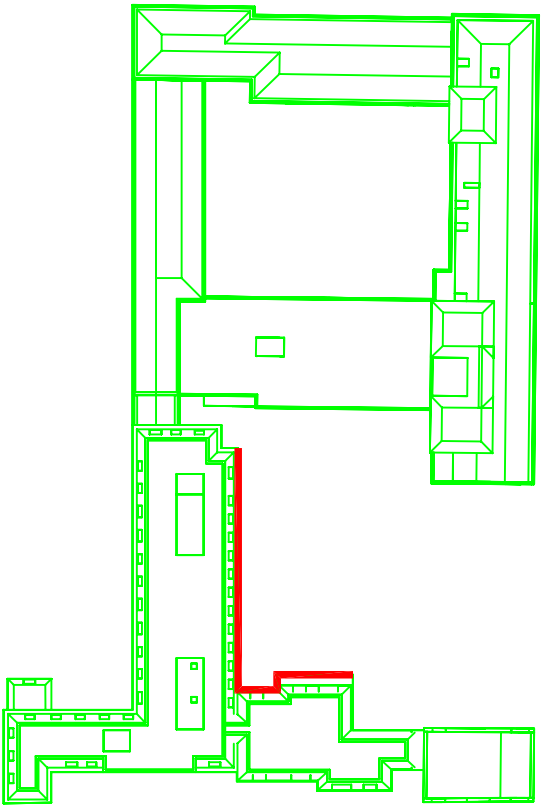
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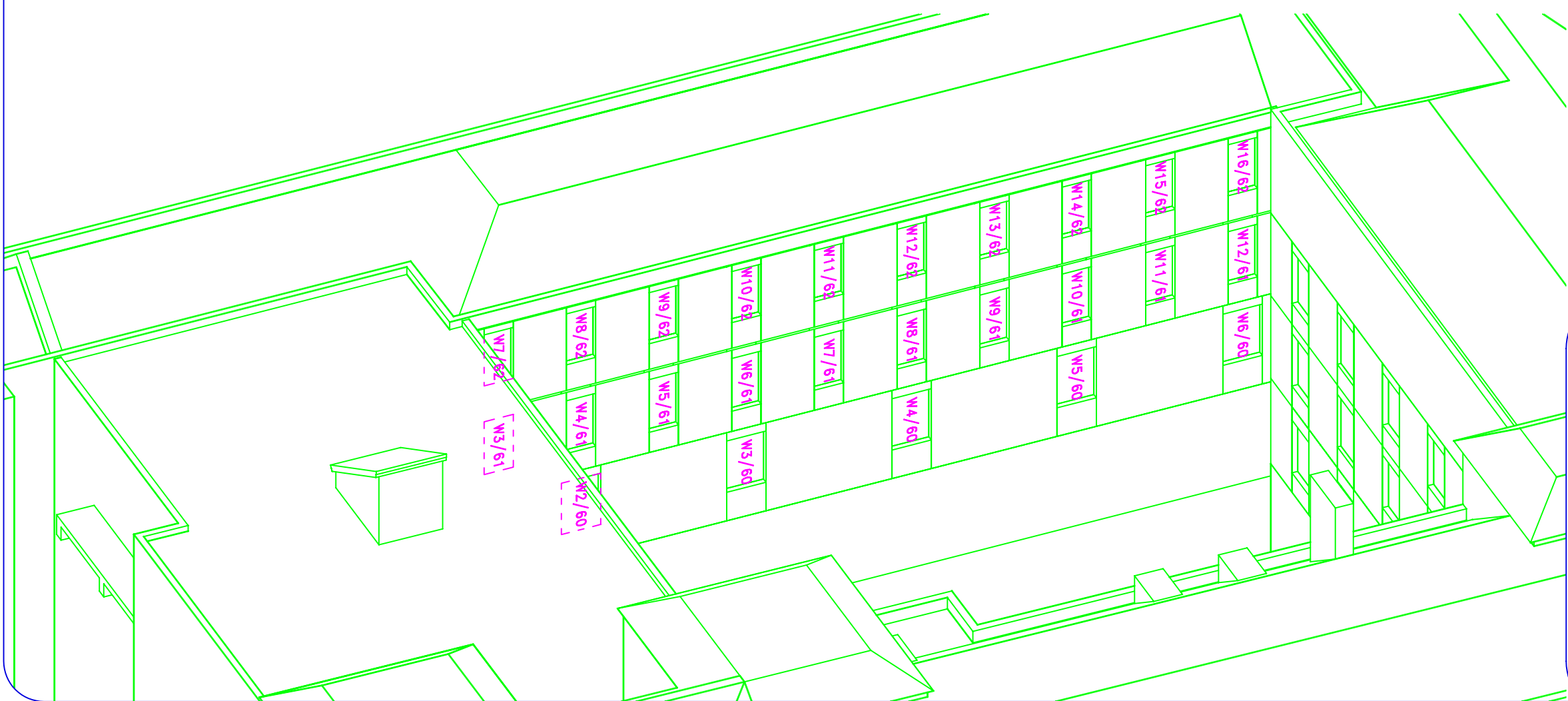
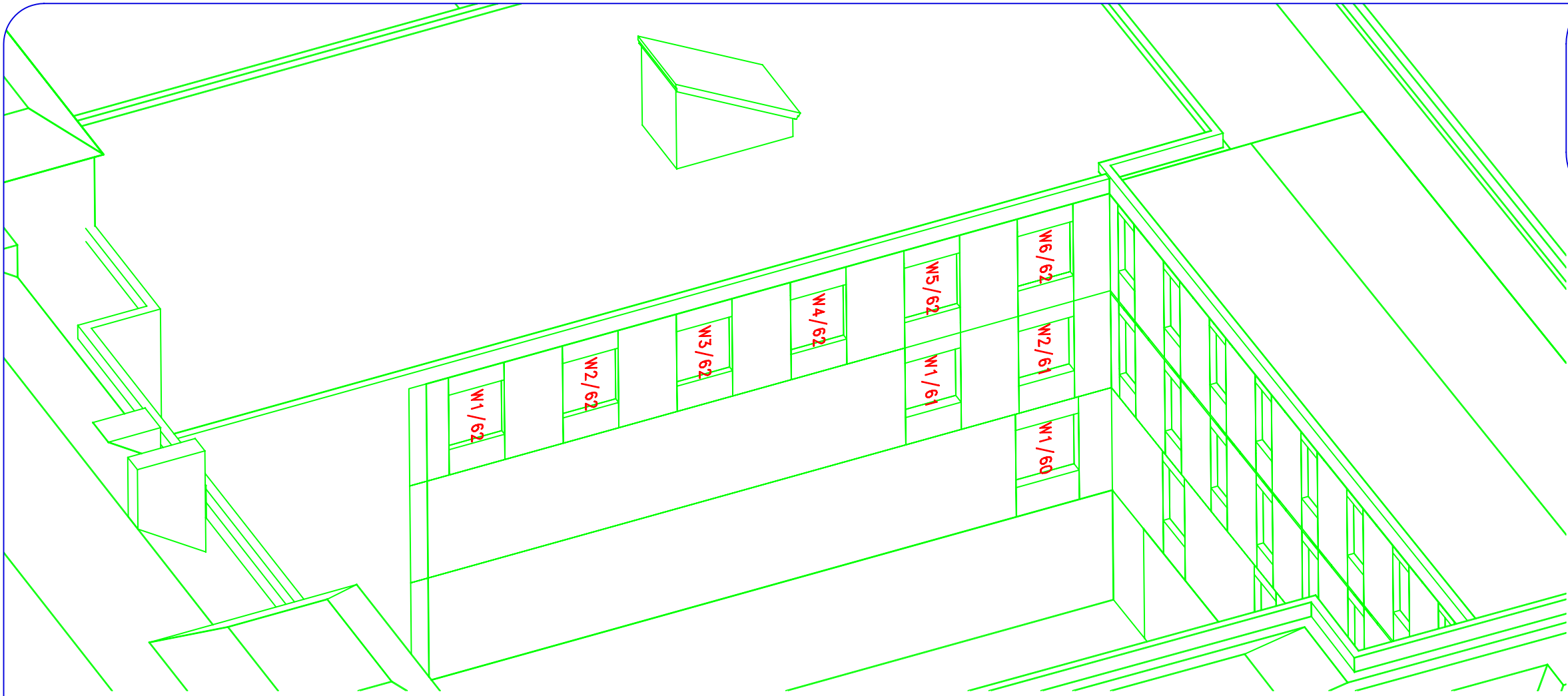
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WILLIAM GOODENOUGH HOUSE**

Date: **FEB 2010**

Drawing No. **605/PL1/11** Scale: **NTS**



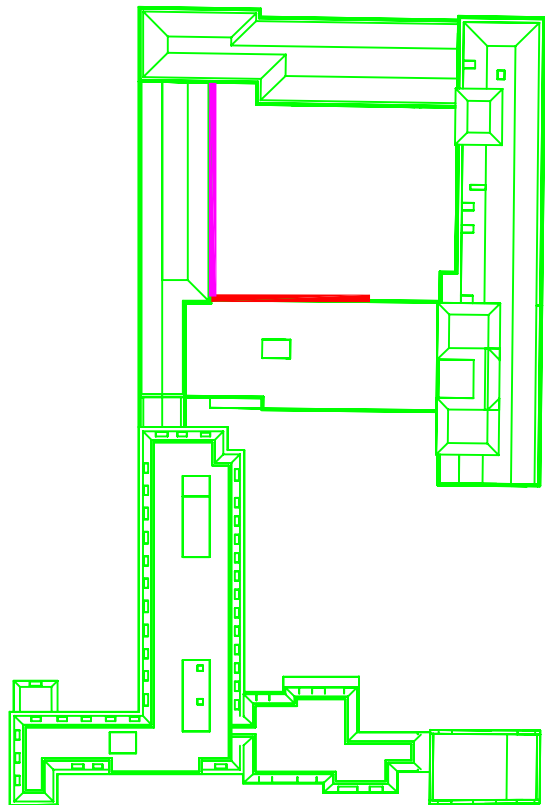
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WILLIAM GOODENOUGH HOUSE**

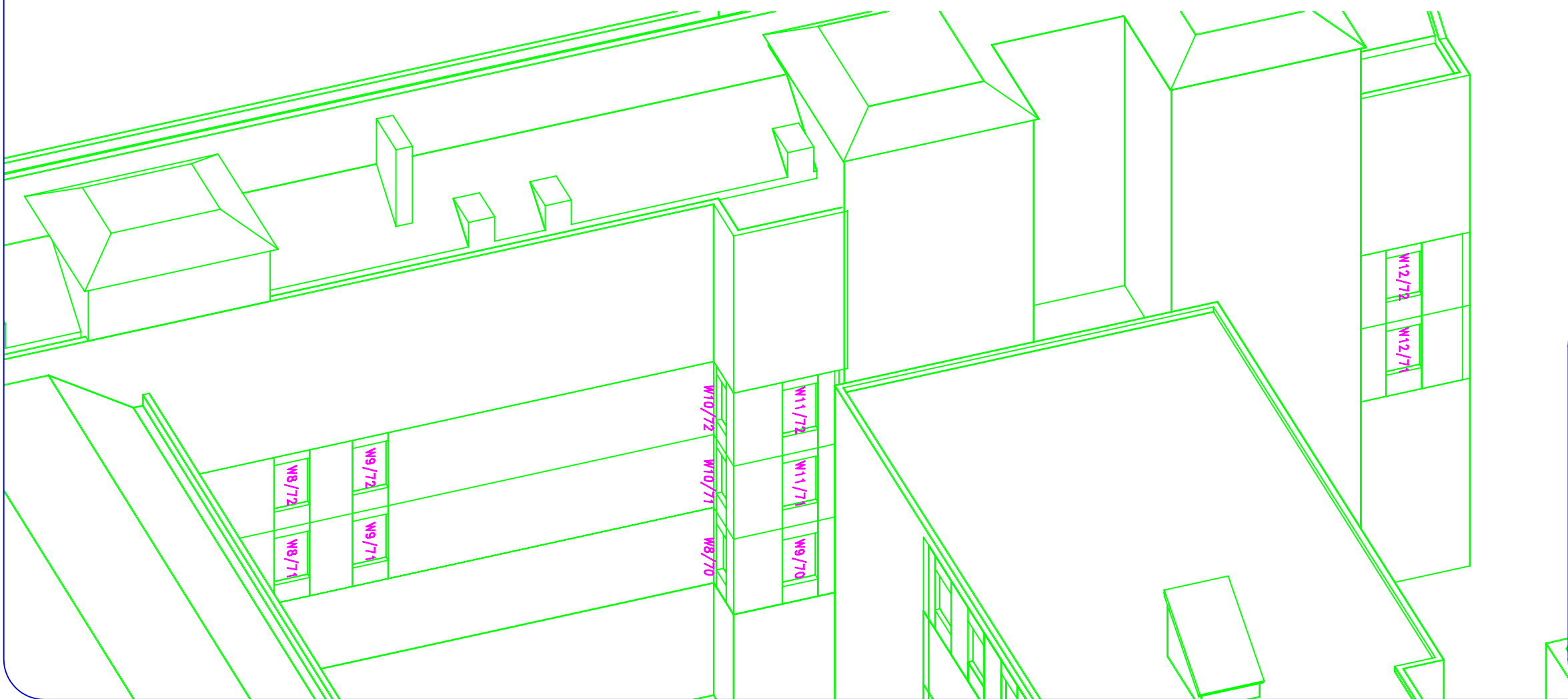
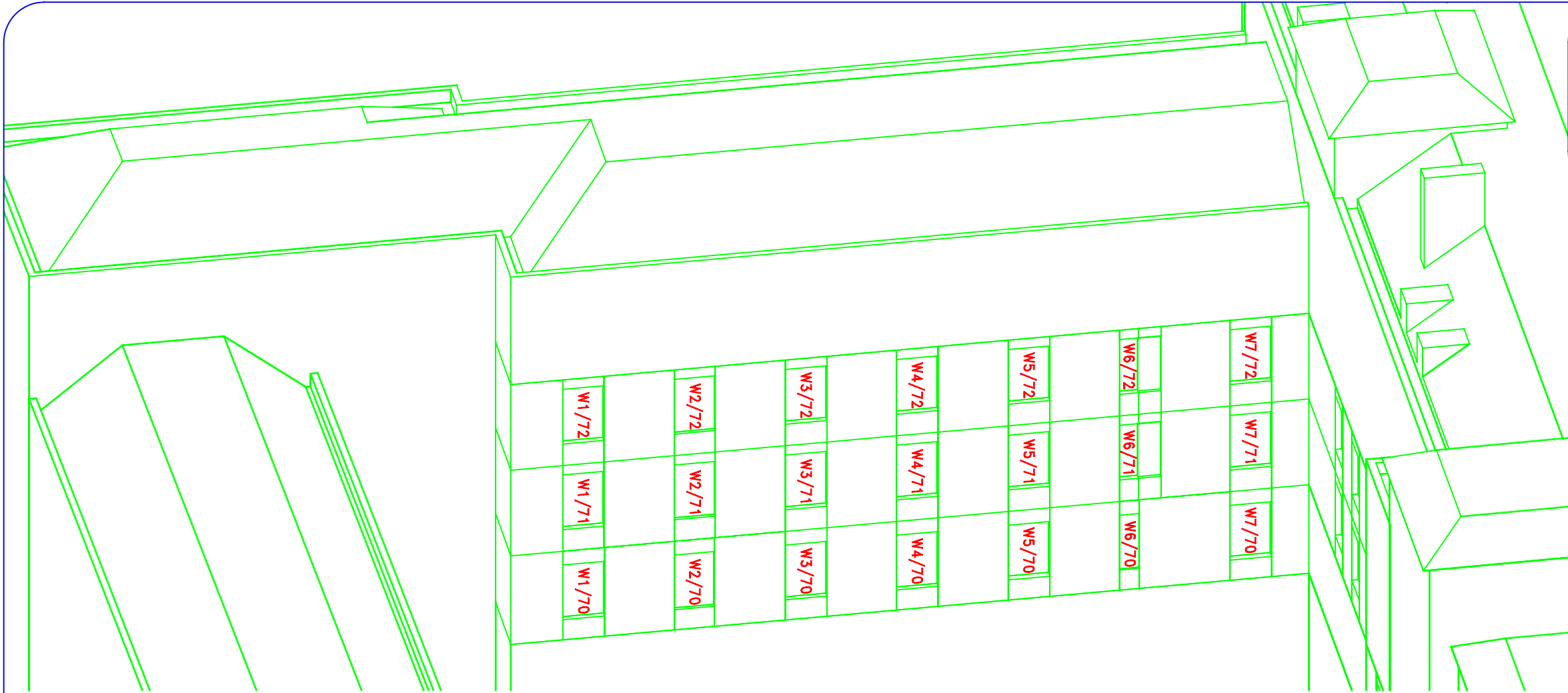
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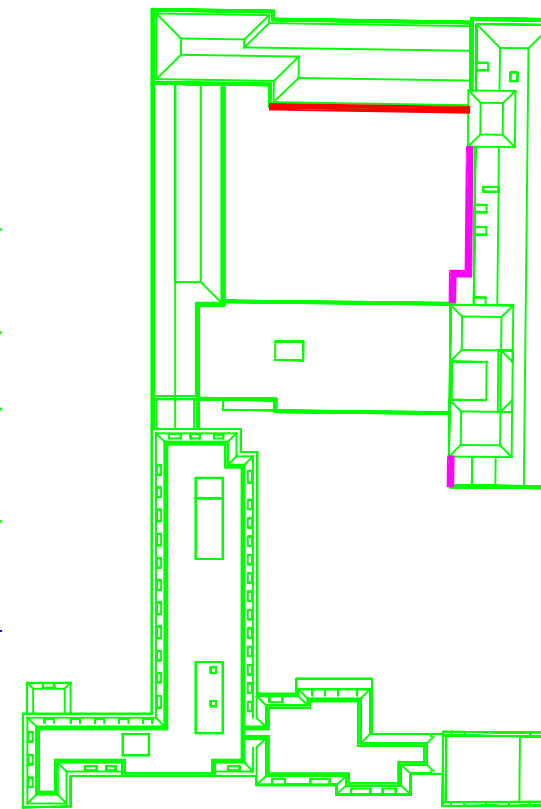
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Drawing Title: **WINDOW LOCATIONS
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Date: **FEB 2010**

Drawing No. **605/PL1/13** Scale: **NTS**

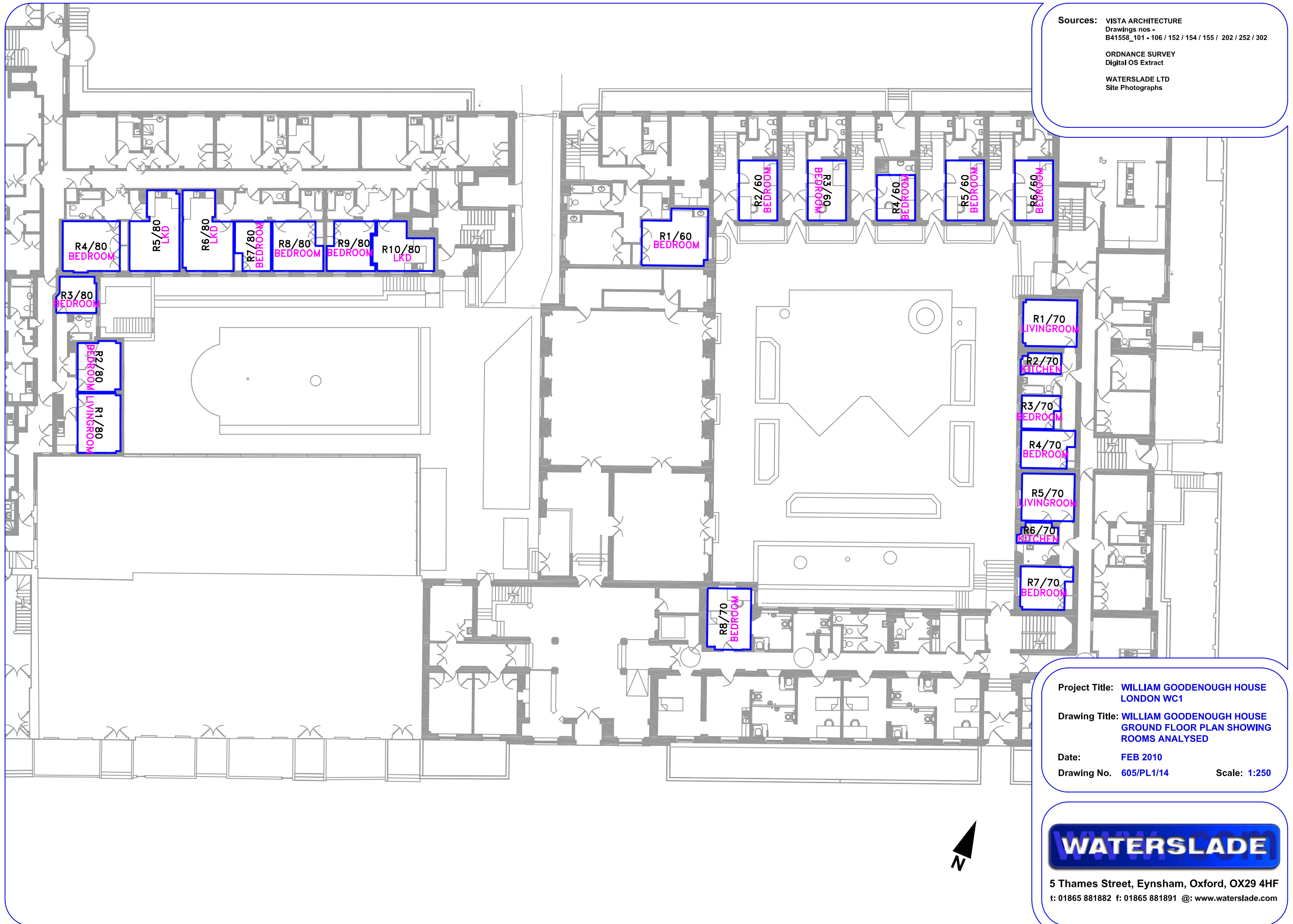
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Project Title: **WILLIAM GOODENOUGH HOUSE
LONDON WC1**

Drawing Title: **WILLIAM GOODENOUGH HOUSE
GROUND FLOOR PLAN SHOWING
ROOMS ANALYSED**

Date: **FEB 2010**

Drawing No. **605/PL1/14** Scale: **1:250**



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Project Title: **WILLIAM GOODENOUGH HOUSE
LONDON WC1**

Drawing Title: **WILLIAM GOODENOUGH HOUSE
FIRST FLOOR PLAN SHOWING
ROOMS ANALYSED**

Date: **FEB 2010**

Drawing No. **605/PL1/15** Scale: **1:250**

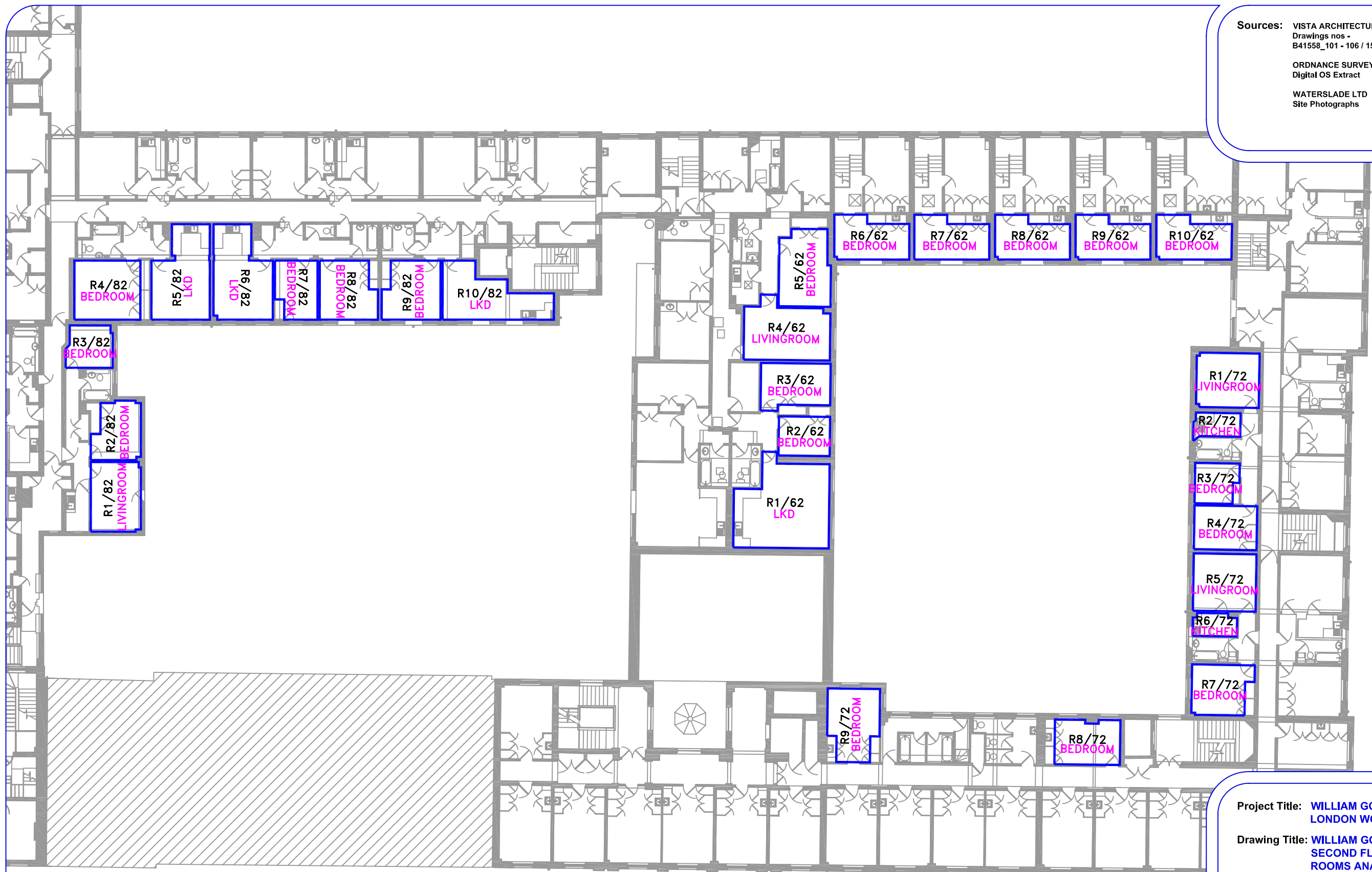


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Project Title: **WILLIAM GOODENOUGH HOUSE
LONDON WC1**

Drawing Title: **WILLIAM GOODENOUGH HOUSE
SECOND FLOOR PLAN SHOWING
ROOMS ANALYSED**

Date: **FEB 2010**

Drawing No. **605/PL1/16** Scale: **1:250**



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Site Photographs



Project Title: WILLIAM GOODENOUGH HOUSE
LONDON WC1

Drawing Title: WILLIAM GOODENOUGH HOUSE
LOWER GROUND FLOOR
DAYLIGHT ANALYSIS

Date: FEB 2010

Drawing No. 605/PL3/01 **Scale:** 1:100

WATERSLADE

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Window	EXISTING VSC	PROPOSED VSC	LOSS VSC	REDUCTION FACTOR
1 MECKLENBURGH STREET				
W17/9	18.13	17.69	0.44	0.98
W18/9	16.67	16.00	0.67	0.96
W23/10	26.28	25.34	0.94	0.96
W24/10	26.95	26.13	0.82	0.97
W15/11	31.75	30.79	0.96	0.97
W16/11	32.55	31.78	0.77	0.98
W15/12	34.42	33.59	0.83	0.98
W16/12	34.93	34.27	0.66	0.98
W15/13	36.58	35.91	0.67	0.98
W16/13	36.86	36.33	0.53	0.99
2 MECKLENBURGH STREET				
W14/9	18.10	17.35	0.75	0.96
W15/9	16.41	15.44	0.97	0.94
W16/9	0.98	0.91	0.07	0.93
W20/10	24.58	23.27	1.31	0.95
W21/10	24.89	23.71	1.18	0.95
W13/11	30.54	29.17	1.37	0.96
W14/11	31.06	29.88	1.18	0.96
W13/12	33.70	32.50	1.20	0.96
W14/12	34.01	32.98	1.03	0.97
W13/13	36.20	35.23	0.97	0.97
W14/13	36.37	35.53	0.84	0.98
3 MECKLENBURGH STREET				
W12/9	18.04	17.02	1.02	0.94
W13/9	16.71	15.51	1.20	0.93
W17/10	23.53	21.94	1.59	0.93
W18/10	23.59	22.09	1.50	0.94
W11/11	29.80	28.12	1.68	0.94
W12/11	30.09	28.55	1.54	0.95
W11/12	33.25	31.80	1.45	0.96
W12/12	33.43	32.09	1.34	0.96
W11/13	35.97	34.81	1.16	0.97
W12/13	36.06	34.98	1.08	0.97

Window	EXISTING VSC	PROPOSED VSC	LOSS VSC	REDUCTION FACTOR
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4 MECKLENBURGH STREET

W9/9	18.01	16.75	1.26	0.93
W10/9	17.17	15.78	1.39	0.92
W11/9	1.06	1.06	0.00	1.00
W14/10	23.08	21.29	1.79	0.92
W15/10	22.99	21.26	1.73	0.92
W9/11	29.43	27.53	1.90	0.94
W10/11	29.56	27.75	1.81	0.94
W9/12	33.05	31.42	1.63	0.95
W10/12	33.12	31.56	1.56	0.95
W9/13	35.92	34.60	1.32	0.96
W10/13	35.93	34.68	1.25	0.97

5 MECKLENBURGH STREET

W7/9	17.95	16.53	1.42	0.92
W8/9	17.36	16.01	1.35	0.92
W11/10	22.89	21.04	1.85	0.92
W12/10	22.77	20.93	1.84	0.92
W7/11	29.39	27.38	2.01	0.93
W8/11	29.42	27.43	1.99	0.93
W7/12	33.06	31.33	1.73	0.95
W8/12	33.06	31.35	1.71	0.95
W7/13	35.94	34.56	1.38	0.96
W8/13	35.92	34.57	1.35	0.96

6 MECKLENBURGH STREET

W5/9	18.01	16.60	1.41	0.92
W6/9	17.72	16.50	1.22	0.93
W8/10	22.94	21.18	1.76	0.92
W9/10	22.75	20.94	1.81	0.92
W5/11	29.50	27.55	1.95	0.93
W6/11	29.41	27.41	2.00	0.93
W5/12	33.19	31.48	1.71	0.95
W6/12	33.10	31.37	1.73	0.95
W5/13	36.04	34.68	1.36	0.96
W6/13	35.99	34.60	1.39	0.96

Window	EXISTING VSC	PROPOSED VSC	LOSS VSC	REDUCTION FACTOR
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7 MECKLENBURGH STREET

W3/9	21.62	20.39	1.23	0.94
W4/9	18.11	17.10	1.01	0.94
W5/10	23.39	21.85	1.54	0.93
W6/10	23.00	21.37	1.63	0.93
W3/11	29.85	28.12	1.73	0.94
W4/11	29.66	27.81	1.85	0.94
W3/12	33.46	31.93	1.53	0.95
W4/12	33.32	31.69	1.63	0.95
W3/13	36.22	34.99	1.23	0.97
W4/13	36.14	34.82	1.32	0.96

8 MECKLENBURGH STREET

W1/9	21.60	20.62	0.98	0.95
W2/9	22.64	21.58	1.06	0.95
W2/10	24.70	23.49	1.21	0.95
W3/10	23.99	22.66	1.33	0.94
W1/11	30.70	29.34	1.36	0.96
W2/11	30.34	28.79	1.55	0.95
W1/12	34.08	32.87	1.21	0.96
W2/12	33.81	32.43	1.38	0.96
W1/13	36.55	35.58	0.97	0.97
W2/13	36.41	35.30	1.11	0.97

43 MECKLENBURGH SQUARE

W1/19	19.43	16.98	2.45	0.87
W2/19	19.59	17.36	2.23	0.89
W1/20	21.95	19.18	2.77	0.87
W1/21	30.18	27.20	2.98	0.90
W1/22	34.91	33.36	1.55	0.96
W1/23	37.88	37.37	0.51	0.99
W2/23	37.83	37.49	0.34	0.99
W1/29	22.50	19.26	3.24	0.86
W1/30	27.36	23.35	4.01	0.85

Window	EXISTING VSC	PROPOSED VSC	LOSS VSC	REDUCTION FACTOR
W1/31	33.85	30.65	3.20	0.91
44 MECKLENBURGH SQUARE				
W1/39	13.85	12.23	1.62	0.88
W2/39	17.92	17.18	0.74	0.96
W1/40	20.64	19.11	1.53	0.93
W1/41	28.80	27.32	1.48	0.95
W1/42	34.35	33.62	0.73	0.98
W1/43	37.79	37.55	0.24	0.99
W2/43	37.72	37.55	0.17	1.00
W1/51	27.63	25.48	2.15	0.92
W1/52	32.61	31.11	1.50	0.95
1-7 GRAYLAND COURT				
W1/89	21.01	20.70	0.31	0.99
W1/90	23.25	21.94	1.31	0.94
W1/91	31.24	29.78	1.46	0.95
W2/91	31.45	30.13	1.32	0.96
W1/92	33.94	32.40	1.54	0.95
W2/92	34.08	32.67	1.41	0.96
WESTMINSTER KINGSWAY COLLEGE				
W1/100	24.33	18.54	5.79	0.76
W2/100	24.48	18.61	5.87	0.76
W3/100	24.49	18.99	5.50	0.78
W4/100	24.37	19.24	5.13	0.79
W5/100	24.33	20.48	3.85	0.84
W6/100	25.38	23.18	2.20	0.91
W7/100	26.68	24.80	1.88	0.93
W8/100	26.75	25.05	1.70	0.94
W1/101	30.10	23.92	6.18	0.79
W2/101	30.48	24.07	6.41	0.79
W3/101	30.63	24.13	6.50	0.79
W4/101	30.63	24.12	6.51	0.79
W5/101	30.61	24.19	6.42	0.79
W6/101	30.56	24.37	6.19	0.80
W7/101	30.36	24.53	5.83	0.81

Window	EXISTING VSC	PROPOSED VSC	LOSS VSC	REDUCTION FACTOR
W8/101	29.88	25.81	4.07	0.86
W1/102	33.15	29.59	3.56	0.89
W2/102	33.66	29.65	4.01	0.88
W3/102	34.06	29.68	4.38	0.87
W4/102	34.27	29.71	4.56	0.87
W5/102	34.50	29.80	4.70	0.86
W6/102	34.63	29.85	4.78	0.86
W7/102	34.67	29.86	4.81	0.86
W8/102	34.69	29.90	4.79	0.86
W9/102	34.67	30.00	4.67	0.87
W10/102	34.56	30.08	4.48	0.87
W11/102	34.27	30.81	3.46	0.90
W1/103	19.38	18.65	0.73	0.96
W2/103	19.58	18.69	0.89	0.95
W3/103	19.75	18.77	0.98	0.95
W4/103	19.91	18.85	1.06	0.95
W5/103	20.03	18.94	1.09	0.95
W6/103	17.40	16.58	0.82	0.95

Room	Room Use	Window	EXISTING VSC	PROPOSED VSC	LOSS VSC	REDUCTION FACTOR	EXISTING ADF	PROPOSED ADF	EXISTING TOTAL	PROPOSED TOTAL
WILLIAM GOODENOUGH HOUSE										
R1/60	BEDROOM	W1/60	15.06	11.96	3.10	0.79	1.16	1.16	0.99	0.99
R2/60	BEDROOM	W2/60	17.26	14.54	2.72	0.84	1.51	1.51	1.38	1.38
R3/60	BEDROOM	W3/60	20.56	17.22	3.34	0.84	1.69	1.69	1.53	1.53
R4/60	BEDROOM	W4/60	19.91	17.49	2.42	0.88	2.01	2.01	1.89	1.89
R5/60	BEDROOM	W5/60	16.71	15.46	1.25	0.93	1.45	1.45	1.41	1.41
R6/60	BEDROOM	W6/60	10.12	9.36	0.76	0.92	1.05	1.05	1.03	1.03
R1/61	BEDROOM	W1/61	24.07	17.50	6.57	0.73	1.30	1.30	1.06	1.06
R2/61	BEDROOM	W2/61	18.87	14.23	4.64	0.75	1.17	1.17	0.98	0.98
R3/61	BEDROOM	W3/61	16.28	14.35	1.93	0.88	1.00		0.94	
R3/61	BEDROOM	W4/61	21.75	17.20	4.55	0.79	1.20	2.20	1.05	1.99
R4/61	BEDROOM	W5/61	24.16	19.31	4.85	0.80	1.28		1.14	
R4/61	BEDROOM	W6/61	24.85	20.64	4.21	0.83	1.29	2.56	1.19	2.33
R5/61	BEDROOM	W7/61	24.67	21.17	3.50	0.86	1.28		1.21	
R5/61	BEDROOM	W8/61	23.81	20.96	2.85	0.88	1.25	2.52	1.19	2.40
R6/61	BEDROOM	W9/61	22.32	20.11	2.21	0.90	1.19		1.16	
R6/61	BEDROOM	W10/61	20.01	18.58	1.43	0.93	1.11	2.30	1.10	2.25
R7/61	BEDROOM	W11/61	16.72	15.76	0.96	0.94	0.98		0.97	
R7/61	BEDROOM	W12/61	11.68	10.92	0.76	0.93	0.77	1.75	0.76	1.73
R1/62	LKD	W1/62	28.64	25.01	3.63	0.87	1.14		1.03	
R1/62	LKD	W2/62	29.72	25.20	4.52	0.85	1.16	2.29	1.03	2.06
R2/62	BEDROOM	W3/62	30.29	24.86	5.43	0.82	3.14	3.14	2.74	2.74
R3/62	BEDROOM	W4/62	30.48	23.68	6.80	0.78	2.30	2.30	1.93	1.93
R4/62	LIVINGROOM	W5/62	30.08	21.38	8.70	0.71	1.63	1.63	1.29	1.29
R5/62	BEDROOM	W6/62	26.17	16.97	9.20	0.65	1.78	1.78	1.34	1.34
R6/62	BEDROOM	W7/62	22.71	16.71	6.00	0.74	1.27		1.05	
R6/62	BEDROOM	W8/62	28.84	20.85	7.99	0.72	1.44	2.71	1.21	2.27
R7/62	BEDROOM	W9/62	29.49	23.60	5.89	0.80	1.45		1.32	
R7/62	BEDROOM	W10/62	29.48	25.11	4.37	0.85	1.45	2.90	1.37	2.69
R8/62	BEDROOM	W11/62	29.17	25.65	3.52	0.88	1.45		1.38	
R8/62	BEDROOM	W12/62	28.39	25.38	3.01	0.89	1.43	2.87	1.37	2.75
R9/62	BEDROOM	W13/62	27.06	24.43	2.63	0.90	1.38		1.33	
R9/62	BEDROOM	W14/62	24.76	22.64	2.12	0.91	1.31	2.69	1.27	2.60
R10/62	BEDROOM	W15/62	20.83	19.42	1.41	0.93	1.17		1.14	
R10/62	BEDROOM	W16/62	14.34	13.40	0.94	0.93	0.91	2.08	0.88	2.02
R1/70	LIVINGROOM	W1/70	24.53	17.54	6.99	0.72	1.75	1.75	1.40	1.40

Room	Room Use	Window	EXISTING VSC	PROPOSED VSC	LOSS VSC	REDUCTION FACTOR	EXISTING ADF	PROPOSED ADF	EXISTING TOTAL	PROPOSED TOTAL
R2/70	KITCHEN	W2/70	25.59	18.85	6.74	0.74	3.73	3.73	3.06	3.06
R3/70	BEDROOM	W3/70	25.42	19.29	6.13	0.76	2.91	2.91	2.44	2.44
R4/70	BEDROOM	W4/70	24.43	18.96	5.47	0.78	2.05	2.05	1.75	1.75
R5/70	LIVINGROOM	W5/70	22.72	17.83	4.89	0.78	1.55	1.55	1.32	1.32
R6/70	KITCHEN	W6/70	20.51	16.11	4.40	0.79	1.65	1.65	1.43	1.43
R7/70	BEDROOM	W7/70	17.05	13.24	3.81	0.78	1.43	1.43	1.21	1.21
R8/70	BEDROOM	W8/70	12.99	11.18	1.81	0.86	0.66		0.60	
R8/70	BEDROOM	W9/70	17.35	13.47	3.88	0.78	1.22	1.88	1.04	1.64
R1/71	LIVINGROOM	W1/71	29.67	21.65	8.02	0.73	1.97	1.97	1.60	1.60
R2/71	KITCHEN	W2/71	29.94	23.18	6.76	0.77	4.28	4.28	3.60	3.60
R3/71	BEDROOM	W3/71	29.50	23.63	5.87	0.80	3.15	3.15	2.72	2.72
R4/71	BEDROOM	W4/71	28.39	23.22	5.17	0.82	2.23	2.23	1.95	1.95
R5/71	LIVINGROOM	W5/71	26.48	21.88	4.60	0.83	1.83	1.83	1.61	1.61
R6/71	KITCHEN	W6/71	23.87	19.73	4.14	0.83	1.51	1.51	1.35	1.35
R7/71	BEDROOM	W7/71	19.38	15.81	3.57	0.82	1.66	1.66	1.46	1.46
R8/71	BEDROOM	W8/71	25.80	21.22	4.58	0.82	1.94		1.72	
R8/71	BEDROOM	W9/71	28.48	22.81	5.67	0.80	2.08	4.01	1.81	3.53
R9/71	BEDROOM	W10/71	15.35	13.43	1.92	0.87	0.87		0.80	
R9/71	BEDROOM	W11/71	21.29	15.83	5.46	0.74	1.53	2.39	1.27	2.08
R10/71	BEDROOM	W12/71	28.21	22.31	5.90	0.79	1.77	1.77	1.52	1.52
R1/72	LIVINGROOM	W1/72	33.67	26.34	7.33	0.78	2.13	2.13	1.81	1.81
R2/72	KITCHEN	W2/72	33.46	27.81	5.65	0.83	4.65	4.65	4.06	4.06
R3/72	BEDROOM	W3/72	32.82	28.20	4.62	0.86	3.38	3.38	3.05	3.05
R4/72	BEDROOM	W4/72	31.64	27.74	3.90	0.88	2.39	2.39	2.18	2.18
R5/72	LIVINGROOM	W5/72	29.70	26.30	3.40	0.89	1.93	1.93	1.77	1.77
R6/72	KITCHEN	W6/72	26.87	23.84	3.03	0.89	1.64	1.64	1.53	1.53
R7/72	BEDROOM	W7/72	21.23	18.65	2.58	0.88	1.76	1.76	1.62	1.62
R8/72	BEDROOM	W8/72	29.81	25.42	4.39	0.85	2.13		1.93	
R8/72	BEDROOM	W9/72	32.32	27.25	5.07	0.84	2.25	4.39	2.02	3.95
R9/72	BEDROOM	W10/72	17.57	15.92	1.65	0.91	0.95		0.90	
R9/72	BEDROOM	W11/72	32.35	18.49	13.86	0.57	2.00	2.95	1.40	2.29
R10/72	BEDROOM	W12/72	33.32	26.64	6.68	0.80	1.97	1.97	1.72	1.72
R1/80	LIVINGROOM	W1/80	20.72	18.54	2.18	0.89	2.35	2.35	2.18	2.18

Room	Room Use	Window	EXISTING VSC	PROPOSED VSC	LOSS VSC	REDUCTION FACTOR	EXISTING ADF	PROPOSED ADF	EXISTING TOTAL	PROPOSED TOTAL
R2/80	BEDROOM	W2/80	20.03	18.01	2.02	0.90	1.77	1.77	1.66	1.66
R3/80	BEDROOM	W3/80	14.27	12.83	1.44	0.90	1.45	1.45	1.36	1.36
R4/80	BEDROOM	W4/80	9.47	9.14	0.33	0.97	0.55	0.55	0.55	0.55
R5/80	LKD	W5/80	12.96	12.57	0.39	0.97	0.57		0.57	
R5/80	LKD	W6/80	15.23	14.78	0.45	0.97	0.64	1.21	0.64	1.21
R6/80	LKD	W7/80	17.04	16.49	0.55	0.97	0.68		0.68	
R6/80	LKD	W8/80	18.44	17.76	0.68	0.96	0.72	1.40	0.72	1.40
R7/80	BEDROOM	W9/80	19.33	18.51	0.82	0.96	1.31	1.31	1.31	1.31
R8/80	BEDROOM	W10/80	19.95	18.94	1.01	0.95	1.06		1.06	
R8/80	BEDROOM	W11/80	20.32	19.08	1.24	0.94	1.06	2.12	1.06	2.12
R9/80	BEDROOM	W12/80	20.48	18.97	1.51	0.93	1.09		1.08	
R9/80	BEDROOM	W13/80	20.41	18.59	1.82	0.91	1.09	2.17	1.06	2.14
R10/80	LKD	W14/80	20.13	17.97	2.16	0.89	0.96		0.93	
R10/80	LKD	W15/80	19.58	17.08	2.50	0.87	0.95	1.92	0.90	1.82
R1/81	LIVINGROOM	W1/81	23.95	21.84	2.11	0.91	2.64	2.64	2.48	2.48
R2/81	BEDROOM	W2/81	23.61	21.69	1.92	0.92	1.92	1.92	1.81	1.81
R3/81	BEDROOM	W3/81	16.43	15.12	1.31	0.92	1.43	1.43	1.36	1.36
R4/81	BEDROOM	W4/81	11.29	11.02	0.27	0.98	0.69	0.69	0.69	0.69
R5/81	LKD	W5/81	15.92	15.59	0.33	0.98	0.69		0.69	
R5/81	LKD	W6/81	18.91	18.52	0.39	0.98	0.78	1.47	0.78	1.47
R6/81	LKD	W7/81	21.08	20.61	0.47	0.98	0.83		0.83	
R6/81	LKD	W8/81	22.49	21.91	0.58	0.97	0.87	1.70	0.87	1.70
R7/81	BEDROOM	W9/81	23.38	22.67	0.71	0.97	1.54	1.54	1.54	1.54
R8/81	BEDROOM	W10/81	23.99	23.07	0.92	0.96	1.26		1.26	
R8/81	BEDROOM	W11/81	24.37	23.18	1.19	0.95	1.27	2.53	1.26	2.52
R9/81	BEDROOM	W12/81	24.58	23.05	1.53	0.94	1.26		1.25	
R9/81	BEDROOM	W13/81	24.61	22.64	1.97	0.92	1.26	2.53	1.23	2.48
R10/81	LKD	W14/81	24.48	21.94	2.54	0.90	0.89		0.85	
R10/81	LKD	W15/81	24.12	20.92	3.20	0.87	0.88		0.83	
R10/81	LKD	W16/81	23.36	19.51	3.85	0.84	0.87	2.63	0.79	2.47
R1/82	LIVINGROOM	W1/82	27.66	26.00	1.66	0.94	2.91	2.91	2.78	2.78
R2/82	BEDROOM	W2/82	27.32	25.90	1.42	0.95	2.11	2.11	2.03	2.03
R3/82	BEDROOM	W3/82	19.42	18.48	0.94	0.95	1.57	1.57	1.52	1.52
R4/82	BEDROOM	W4/82	14.14	13.96	0.18	0.99	0.81	0.81	0.81	0.81
R5/82	LKD	W5/82	20.12	19.90	0.22	0.99	0.82		0.82	
R5/82	LKD	W6/82	23.69	23.43	0.26	0.99	0.91	1.72	0.91	1.72

Room	Room Use	Window	EXISTING VSC	PROPOSED VSC	LOSS VSC	REDUCTION FACTOR	EXISTING ADF	EXISTING TOTAL	PROPOSED ADF	PROPOSED TOTAL
R6/82	LKD	W7/82	25.70	25.37	0.33	0.99	0.95		0.95	
R6/82	LKD	W8/82	26.92	26.51	0.41	0.98	0.98	1.93	0.98	1.93
R7/82	BEDROOM	W9/82	27.68	27.16	0.52	0.98	1.72	1.72	1.72	1.72
R8/82	BEDROOM	W10/82	28.16	27.48	0.68	0.98	1.41		1.41	
R8/82	BEDROOM	W11/82	28.44	27.55	0.89	0.97	1.41	2.82	1.41	2.81
R9/82	BEDROOM	W12/82	28.61	27.42	1.19	0.96	1.40		1.39	
R9/82	BEDROOM	W13/82	28.66	27.03	1.63	0.94	1.40	2.80	1.38	2.77
R10/82	LKD	W14/82	28.68	26.37	2.31	0.92	0.98		0.96	
R10/82	LKD	W15/82	28.63	25.36	3.27	0.89	0.98		0.94	
R10/82	LKD	W16/82	28.48	23.83	4.65	0.84	0.97	2.93	0.90	2.79

Window	EXISTING			PROPOSED			REDUCTION FACTOR	
	Summer	Winter	Total	Summer	Winter	Total	Winter	Total
1 MECKLENBURGH STREET								
W17/9	12	2	14	12	2	14	1.00	1.00
W18/9	12	1	13	12	1	13	1.00	1.00
W23/10	17	7	24	15	7	22	1.00	0.92
W24/10	17	7	24	16	7	23	1.00	0.96
W15/11	23	8	31	22	8	30	1.00	0.97
W16/11	23	8	31	22	8	30	1.00	0.97
W15/12	27	8	35	25	8	33	1.00	0.94
W16/12	27	8	35	25	8	33	1.00	0.94
W15/13	27	8	35	26	8	34	1.00	0.97
W16/13	27	8	35	26	8	34	1.00	0.97
2 MECKLENBURGH STREET								
W14/9	12	1	13	10	1	11	1.00	0.85
W15/9	12	0	12	10	0	10	-	0.83
W16/9	0	0	0	0	0	0	-	-
W20/10	17	3	20	15	3	18	1.00	0.90
W21/10	17	4	21	15	4	19	1.00	0.90
W13/11	24	4	28	23	4	27	1.00	0.96
W14/11	23	6	29	22	6	28	1.00	0.97
W13/12	28	6	34	26	6	32	1.00	0.94
W14/12	28	7	35	26	7	33	1.00	0.94
W13/13	27	8	35	26	8	34	1.00	0.97
W14/13	27	7	34	26	7	33	1.00	0.97
3 MECKLENBURGH STREET								
W12/9	13	1	14	10	1	11	1.00	0.79
W13/9	12	0	12	9	0	9	-	0.75
W17/10	18	2	20	15	2	17	1.00	0.85
W18/10	17	2	19	15	2	17	1.00	0.89
W11/11	24	3	27	23	3	26	1.00	0.96
W12/11	24	3	27	23	3	26	1.00	0.96
W11/12	28	5	33	26	5	31	1.00	0.94
W12/12	28	5	33	26	5	31	1.00	0.94
W11/13	27	7	34	26	7	33	1.00	0.97
W12/13	27	7	34	26	7	33	1.00	0.97

Window	EXISTING			PROPOSED			REDUCTION FACTOR	
	Summer	Winter	Total	Summer	Winter	Total	Winter	Total

4 MECKLENBURGH STREET

W9/9	15	1	16	11	1	12	1.00	0.75
W10/9	13	0	13	9	0	9	-	0.69
W11/9	0	0	0	0	0	0	-	-
W14/10	19	4	23	16	4	20	1.00	0.87
W15/10	19	5	24	16	5	21	1.00	0.88
W9/11	24	3	27	23	3	26	1.00	0.96
W10/11	24	4	28	23	4	27	1.00	0.96
W9/12	29	5	34	26	5	31	1.00	0.91
W10/12	29	5	34	26	5	31	1.00	0.91
W9/13	27	7	34	26	7	33	1.00	0.97
W10/13	27	7	34	26	7	33	1.00	0.97

5 MECKLENBURGH STREET

W7/9	14	1	15	11	1	12	1.00	0.80
W8/9	13	0	13	10	0	10	-	0.77
W11/10	17	1	18	15	1	16	1.00	0.89
W12/10	17	1	18	15	1	16	1.00	0.89
W7/11	24	4	28	23	3	26	0.75	0.93
W8/11	24	4	28	23	3	26	0.75	0.93
W7/12	29	6	35	28	5	33	0.83	0.94
W8/12	29	6	35	27	5	32	0.83	0.91
W7/13	27	7	34	26	7	33	1.00	0.97
W8/13	27	7	34	26	7	33	1.00	0.97

6 MECKLENBURGH STREET

W5/9	14	1	15	11	1	12	1.00	0.80
W6/9	13	0	13	10	0	10	-	0.77
W8/10	19	2	21	17	2	19	1.00	0.90
W9/10	18	2	20	16	2	18	1.00	0.90
W5/11	25	4	29	25	3	28	0.75	0.97
W6/11	25	4	29	24	3	27	0.75	0.93
W5/12	29	6	35	27	5	32	0.83	0.91
W6/12	29	6	35	28	5	33	0.83	0.94
W5/13	27	8	35	26	7	33	0.88	0.94
W6/13	27	7	34	26	7	33	1.00	0.97

Window	EXISTING			PROPOSED			REDUCTION FACTOR	
	Summer	Winter	Total	Summer	Winter	Total	Winter	Total

7 MECKLENBURGH STREET

W3/9	18	1	19	15	1	16	1.00	0.84
W4/9	15	0	15	12	0	12	-	0.80
W5/10	21	2	23	19	2	21	1.00	0.91
W6/10	20	2	22	18	2	20	1.00	0.91
W3/11	28	5	33	27	3	30	0.60	0.91
W4/11	27	5	32	26	3	29	0.60	0.91
W3/12	29	6	35	28	5	33	0.83	0.94
W4/12	29	6	35	28	5	33	0.83	0.94
W3/13	27	8	35	27	7	34	0.88	0.97
W4/13	27	8	35	27	7	34	0.88	0.97

8 MECKLENBURGH STREET

W1/9	18	1	19	16	1	17	1.00	0.89
W2/9	18	1	19	15	1	16	1.00	0.84
W2/10	21	2	23	20	2	22	1.00	0.96
W3/10	20	2	22	19	2	21	1.00	0.95
W1/11	26	5	31	25	2	27	0.40	0.87
W2/11	27	5	32	26	2	28	0.40	0.88
W1/12	29	7	36	29	5	34	0.71	0.94
W2/12	29	6	35	28	5	33	0.83	0.94
W1/13	27	9	36	27	7	34	0.78	0.94
W2/13	27	8	35	27	7	34	0.88	0.97

1-7 GRAYLAND COURT

W1/89	28	8	36	27	8	35	1.00	0.97
W1/90	31	13	44	31	11	42	0.85	0.95
W1/91	38	15	53	38	13	51	0.87	0.96
W2/91	38	16	54	38	14	52	0.88	0.96
W1/92	39	20	59	39	16	55	0.80	0.93
W2/92	39	20	59	39	17	56	0.85	0.95

WESTMINSTER KINGSWAY COLLEGE

W1/100	43	8	51	38	2	40	0.25	0.78
W2/100	43	10	53	38	2	40	0.20	0.75
W3/100	43	10	53	41	3	44	0.30	0.83
W4/100	43	10	53	41	3	44	0.30	0.83

Window	EXISTING			PROPOSED			REDUCTION FACTOR	
	Summer	Winter	Total	Summer	Winter	Total	Winter	Total
W5/100	37	7	44	36	1	37	0.14	0.84
W6/100	35	8	43	34	4	38	0.50	0.88
W7/100	36	11	47	35	7	42	0.64	0.89
W8/100	36	9	45	35	7	42	0.78	0.93
W1/101	38	17	55	37	7	44	0.41	0.80
W2/101	45	19	64	43	9	52	0.47	0.81
W3/101	44	19	63	43	9	52	0.47	0.83
W4/101	37	18	55	37	7	44	0.39	0.80
W5/101	37	18	55	37	7	44	0.39	0.80
W6/101	45	20	65	45	9	54	0.45	0.83
W7/101	45	20	65	45	9	54	0.45	0.83
W8/101	45	19	64	45	10	55	0.53	0.86
W1/102	45	22	67	45	16	61	0.73	0.91
W2/102	45	22	67	45	16	61	0.73	0.91
W3/102	38	21	59	38	14	52	0.67	0.88
W4/102	38	22	60	38	14	52	0.64	0.87
W5/102	45	24	69	45	17	62	0.71	0.90
W6/102	45	23	68	45	17	62	0.74	0.91
W7/102	38	21	59	38	14	52	0.67	0.88
W8/102	38	21	59	38	14	52	0.67	0.88
W9/102	45	23	68	45	16	61	0.70	0.90
W10/102	45	23	68	45	17	62	0.74	0.91
W11/102	45	25	70	45	19	64	0.76	0.91
W1/103	6	23	29	6	22	28	0.96	0.97
W2/103	6	23	29	6	22	28	0.96	0.97
W3/103	6	23	29	6	22	28	0.96	0.97
W4/103	6	23	29	6	22	28	0.96	0.97
W5/103	6	23	29	6	22	28	0.96	0.97
W6/103	2	18	20	2	18	20	1.00	1.00

Room	Window	Room Use	EXISTING			PROPOSED			REDUCTION FACTOR	
			Summer	Winter	Total	Summer	Winter	Total	Winter	Total
WILLIAM GOODENOUGH HOUSE										
R2/60	W2/60	BEDROOM	29	3	32	24	2	26	0.67	0.81
R3/60	W3/60	BEDROOM	34	6	40	27	4	31	0.67	0.78
R4/60	W4/60	BEDROOM	27	8	35	27	6	33	0.75	0.94
R5/60	W5/60	BEDROOM	20	7	27	20	6	26	0.86	0.96
R6/60	W6/60	BEDROOM	11	6	17	11	6	17	1.00	1.00
R3/61	W3/61	BEDROOM	22	3	25	20	3	23	1.00	0.92
R3/61	W4/61	BEDROOM	31	5	36	25	3	28	0.60	0.78
R4/61	W5/61	BEDROOM	33	9	42	29	6	35	0.67	0.83
R4/61	W6/61	BEDROOM	33	11	44	31	7	38	0.64	0.86
R5/61	W7/61	BEDROOM	33	11	44	31	8	39	0.73	0.89
R5/61	W8/61	BEDROOM	29	11	40	28	8	36	0.73	0.90
R6/61	W9/61	BEDROOM	27	10	37	26	10	36	1.00	0.97
R6/61	W10/61	BEDROOM	21	10	31	21	10	31	1.00	1.00
R7/61	W11/61	BEDROOM	17	9	26	17	9	26	1.00	1.00
R7/61	W12/61	BEDROOM	12	6	18	11	6	17	1.00	0.94
R6/62	W7/62	BEDROOM	30	10	40	21	7	28	0.70	0.70
R6/62	W8/62	BEDROOM	34	17	51	28	8	36	0.47	0.71
R7/62	W9/62	BEDROOM	34	17	51	31	10	41	0.59	0.80
R7/62	W10/62	BEDROOM	33	16	49	33	12	45	0.75	0.92
R8/62	W11/62	BEDROOM	33	14	47	33	13	46	0.93	0.98
R8/62	W12/62	BEDROOM	33	15	48	33	14	47	0.93	0.98
R9/62	W13/62	BEDROOM	31	14	45	28	11	39	0.79	0.87
R9/62	W14/62	BEDROOM	30	13	43	25	13	38	1.00	0.88
R10/62	W15/62	BEDROOM	23	13	36	20	13	33	1.00	0.92
R10/62	W16/62	BEDROOM	15	10	25	15	10	25	1.00	1.00
R1/70	W1/70	LIVINGROOM	26	6	32	21	4	25	0.67	0.78
R2/70	W2/70	KITCHEN	31	5	36	25	3	28	0.60	0.78
R3/70	W3/70	BEDROOM	27	2	29	21	1	22	0.50	0.76
R4/70	W4/70	BEDROOM	28	0	28	21	0	21	-	0.75
R5/70	W5/70	LIVINGROOM	20	0	20	13	0	13	-	0.65
R6/70	W6/70	KITCHEN	17	0	17	10	0	10	-	0.59
R7/70	W7/70	BEDROOM	12	0	12	5	0	5	-	0.42
R1/71	W1/71	LIVINGROOM	27	7	34	22	4	26	0.57	0.76
R2/71	W2/71	KITCHEN	34	7	41	28	5	33	0.71	0.80
R3/71	W3/71	BEDROOM	28	5	33	23	3	26	0.60	0.79
R4/71	W4/71	BEDROOM	28	3	31	24	2	26	0.67	0.84
R5/71	W5/71	LIVINGROOM	28	1	29	24	0	24	0.00	0.83
R6/71	W6/71	KITCHEN	21	1	22	18	0	18	0.00	0.82
R7/71	W7/71	BEDROOM	13	1	14	8	0	8	0.00	0.57
R1/72	W1/72	LIVINGROOM	29	9	38	24	7	31	0.78	0.82
R2/72	W2/72	KITCHEN	35	10	45	31	9	40	0.90	0.89
R3/72	W3/72	BEDROOM	30	7	37	26	5	31	0.71	0.84
R4/72	W4/72	BEDROOM	30	5	35	27	3	30	0.60	0.86
R5/72	W5/72	LIVINGROOM	29	4	33	27	2	29	0.50	0.88
R6/72	W6/72	KITCHEN	25	3	28	23	1	24	0.33	0.86

Room	Window	Room Use	EXISTING			PROPOSED			REDUCTION FACTOR	
			Summer	Winter	Total	Summer	Winter	Total	Winter	Total
R7/72	W7/72	BEDROOM	17	2	19	14	0	14	0.00	0.74
R4/80	W4/80	BEDROOM	14	0	14	14	0	14	-	1.00
R5/80	W5/80	LKD	19	1	20	19	1	20	1.00	1.00
R5/80	W6/80	LKD	22	1	23	22	1	23	1.00	1.00
R6/80	W7/80	LKD	27	1	28	27	1	28	1.00	1.00
R6/80	W8/80	LKD	29	2	31	29	2	31	1.00	1.00
R7/80	W9/80	BEDROOM	28	4	32	28	4	32	1.00	1.00
R8/80	W10/80	BEDROOM	28	4	32	28	4	32	1.00	1.00
R8/80	W11/80	BEDROOM	28	4	32	28	4	32	1.00	1.00
R9/80	W12/80	BEDROOM	28	4	32	26	4	30	1.00	0.94
R9/80	W13/80	BEDROOM	28	4	32	24	4	28	1.00	0.88
R10/80	W14/80	LKD	27	4	31	23	4	27	1.00	0.87
R10/80	W15/80	LKD	27	4	31	21	4	25	1.00	0.81
R4/81	W4/81	BEDROOM	17	1	18	17	1	18	1.00	1.00
R5/81	W5/81	LKD	23	3	26	23	3	26	1.00	1.00
R5/81	W6/81	LKD	27	3	30	27	3	30	1.00	1.00
R6/81	W7/81	LKD	31	5	36	31	5	36	1.00	1.00
R6/81	W8/81	LKD	32	7	39	32	7	39	1.00	1.00
R7/81	W9/81	BEDROOM	33	7	40	33	7	40	1.00	1.00
R8/81	W10/81	BEDROOM	33	9	42	33	9	42	1.00	1.00
R8/81	W11/81	BEDROOM	33	9	42	33	9	42	1.00	1.00
R9/81	W12/81	BEDROOM	33	9	42	33	9	42	1.00	1.00
R9/81	W13/81	BEDROOM	34	9	43	33	9	42	1.00	0.98
R10/81	W14/81	LKD	33	9	42	29	9	38	1.00	0.90
R10/81	W15/81	LKD	33	10	43	27	9	36	0.90	0.84
R10/81	W16/81	LKD	33	9	42	25	9	34	1.00	0.81
R4/82	W4/82	BEDROOM	21	2	23	21	2	23	1.00	1.00
R5/82	W5/82	LKD	27	4	31	27	4	31	1.00	1.00
R5/82	W6/82	LKD	33	7	40	33	7	40	1.00	1.00
R6/82	W7/82	LKD	34	10	44	34	10	44	1.00	1.00
R6/82	W8/82	LKD	34	11	45	34	11	45	1.00	1.00
R7/82	W9/82	BEDROOM	34	13	47	34	13	47	1.00	1.00
R8/82	W10/82	BEDROOM	34	14	48	33	14	47	1.00	0.98
R8/82	W11/82	BEDROOM	34	14	48	33	14	47	1.00	0.98
R9/82	W12/82	BEDROOM	34	14	48	33	14	47	1.00	0.98
R9/82	W13/82	BEDROOM	34	13	47	33	13	46	1.00	0.98
R10/82	W14/82	LKD	34	13	47	33	13	46	1.00	0.98
R10/82	W15/82	LKD	34	14	48	31	13	44	0.93	0.92
R10/82	W16/82	LKD	34	15	49	28	12	40	0.80	0.82

Room	Window	Room Use	Summer %	Winter %	Total %
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WILLIAM GOODENOUGH HOUSE (new residential units at lower ground floor level]

R2/59	W1/59	LIVINGROOM	15	0	15
R4/59	W2/59	LIVINGROOM	19	0	19
R6/59	W3/59	LIVINGROOM	22	0	22
R8/59	W4/59	LIVINGROOM	21	0	21
R10/59	W5/59	LIVINGROOM	16	3	19