

Daylight & Sunlight Analysis

Ref: Z61922 RevA

Russell Road Development

Russell Road, Manchester

for

Rowlinson Constructions Ltd.



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Contents

1.0	Introduction.....	4
2.0	Executive Summary.....	7
3.0	Existing Site	9
4.0	Proposed Development.....	11
5.0	Daylight and Sunlight Analysis.....	15

1.0 Introduction

This report has been prepared to support the submission of a planning application for the proposed Russell Road Extra Care development in Whalley Range, Manchester. The new development is to provide residential accommodation in a four-storey Extra Care building and a three-storey shared ownership apartment block. We have undertaken an assessment of the potential impact in daylight / sunlight received by the surrounding properties as a result of the new development, as follows:

- Carlton Road flats
- 75-79 Carlton Road
- St Luke's Centre
- 98 & 100 Whalley Road
- 65-83 Russell Road

This report reviews the potential daylight / sunlight impact from the proposed new build development. In accordance with good practise and planning policy we have therefore reviewed the following against the BRE's daylight and sunlight standards:

- Vertical sky component
- Daylight distribution / no sky line
- Annual probable sunlight hours

Basis of Assessment

It is usual to assess daylight and sunlight in relation to the guidelines set out in the 'Site layout planning for daylight and sunlight, A guide to good practice – BR209 2022'.

The BRE guidelines provide two principal measures of daylight for assessing the impact of a proposal on neighbouring properties – namely Vertical Sky Component (VSC), and No Sky Line (NSL). There is also a principal measure of received sunlight for the relevant windows – Annual Probable Sunlight Hours (APSH). We have used IES Virtual Environment software to carry out the analysis, specifically the RadianceIES programme. These measures of daylight are discussed in the following report below.

Vertical Sky Component (VSC) - VSC is a measure of the skylight reaching a point from an overcast sky. For existing buildings, the BRE guideline is based on the minimum standard for VSC

at a point at the centre of a window, on the outer plane of the wall. The BRE guidelines state that if the VSC at the centre of a window is less than 27%, and it is less than 0.8 times its former value, then the diffuse daylighting of the existing building may be adversely affected. If a room has two or more windows of equal size, the mean of their VSCs may be taken.

No Sky Line (NSL) - NSL is a measure of the distribution of daylight within a room. As it maps out the region within a room where light can penetrate directly from the sky, it therefore accounts for the size of and number of windows by simple geometry. The BRE guidelines suggest the area of the working plane within a room that can receive direct skylight should not be reduced to less than 0.8 times its former value.

Sunlight (APSH) - In relation to sunlight, if a living room of an existing dwelling has a main window facing within 90° of due south, and any part of a new development subtends an angle of more than 25° to the horizontal measured from the centre of the window in a vertical section perpendicular to the window, then the sunlighting of the existing dwelling may be adversely affected. This will be the case if the centre of the window:

- receives less than 25% of annual probable sunlight hours and less than 0.80 times its former annual value;

Or,

- less than 5% of annual probable sunlight hours between 21st September and 21st March and less than 0.80 times its former value during that period; and also has a reduction in sunlight received over the whole year greater than 4% of annual probable sunlight hours.

Notwithstanding the above, the BRE guidance also states the following:

1.6 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 (see Section 5). 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.

Therefore, providing for more flexibility when dealing with sites proposing buildings to match the height and proportions of existing buildings.

Trees and shrubs have not been included within the analysis, partly because their exact shape is very hard to predict, and partly because the dappled shade of a tree is more pleasant than the deep shadow of a building or wall. Only where there is a dense belt or group of evergreen planting will this be included within and shading modelling.

We have only assessed occupied rooms, i.e. Living Rooms, Kitchens and Bedrooms, as these are the rooms where daylight and sunlight are most important.

2.0 Executive Summary

We have reviewed the proposals for the new build development against the BRE's criteria.

Section 6.0 of our report shows the proposed massing after development.

We have modelled the massing provided by the existing buildings on site currently, and the proposed design as provided by Triangle Architects. The submitted Site Plan and new building arrangements have generally resulted in compliance with the BRE criteria, however some windows/spaces do not quite meet all of the criteria for Daylight. There are still good levels of daylight and sunlight received by the majority of affected windows pre and post-development.

The analysis shows that for the proposed development:

- 1. Impact to the windows in the surrounding buildings is mostly in accordance with the BRE VSC criteria** – the VSC to the relevant existing windows comfortably achieves the minimum VSC of 27% in the majority of cases, however there are a few of the Ground Floor and First Floor rooms in the adjacent Carlton Road Apartment Block and St Luke's Centre which have been impacted beyond the minimum BRE standard. Six rooms in the Apartment Block and one room in St Luke's Centre fall below the minimum VSC level of 27% and therefore the diffuse daylighting of the existing buildings has been adversely affected. All of the failing windows still achieve a minimum of 22.58%, therefore still achieve a reasonable level of daylight but just fall short of the BRE minimum. The Spire Hospital that previously existed on site had a similar massing to the proposals, so we believe the level of daylight received by these spaces is commensurate with the previous levels before the building was demolished. All of the other windows/spaces within the surrounding buildings achieve a VSC which exceeds 30% and is as high as 33-4% for most windows.
- 2. All rooms comfortably achieve the BRE's NSL criteria. In all but 2 cases there is no loss of 'View of the Sky' from the working plane, therefore within acceptable levels** – the View of the Sky provision has only changed as a result of the new development in two relevant spaces and is well within acceptable levels. There is no change for all other spaces.
- 3. Impact to all of the windows is minimal and fully accords with the BRE APSH criteria** – the proposed APSH is very good due to the orientation of the relevant dwellings, and all windows achieve the minimum value of 25%, therefore the sun-lighting of the relevant

spaces in the existing dwellings has not been adversely affected. The APSH exceeds 30% for all but one window and is as high as 45% for most windows.

Conclusion

We therefore conclude that, in respect of the proposed development, the daylight and sunlight amenity to the existing dwellings are generally in accordance with the current BRE BR209 guidance.

There are some exceptions to the guidance, but the numerical guidelines stated should be treated with some flexibility when the site is surrounded by buildings of a similar height and proportion. The fact that a building of similar height and massing was present on the site up to 2019 and all of the affected buildings were already on in existence at this time, also adds weight to this theory. In fact the Spire Hospital is likely to have provided more shading of the Carlton Road Flat Block and St Luke's Centre due to the shape of the building providing a more solid block along this site adjacency.

The majority of the surrounding spaces will still achieve a good level of daylight and sunlight post-development, in excess of the minimum values stated in BR209. Also, the limited number of spaces which do not meet the minimum standards still achieve a good level of daylight for Apartments of this type within this urban setting.

3.0 Existing Site

3.1 Location:

The area for the proposed development is on the site of the former Spire Hospital, located on Russell Road, Whalley Range, Manchester; and is highlighted by the red line boundary shown in Figure 1.



Figure 1 - Location and surrounding area of proposed Extra Care development.

The site is to be accessed via new entrances off Whalley Road, Russell Road and Carlton Road leading to designated car parking. The site is surrounded by existing residential development.

3.2 Existing Visuals:

View of the existing site from the South, at the corner of Carlton Road and Russell Road.

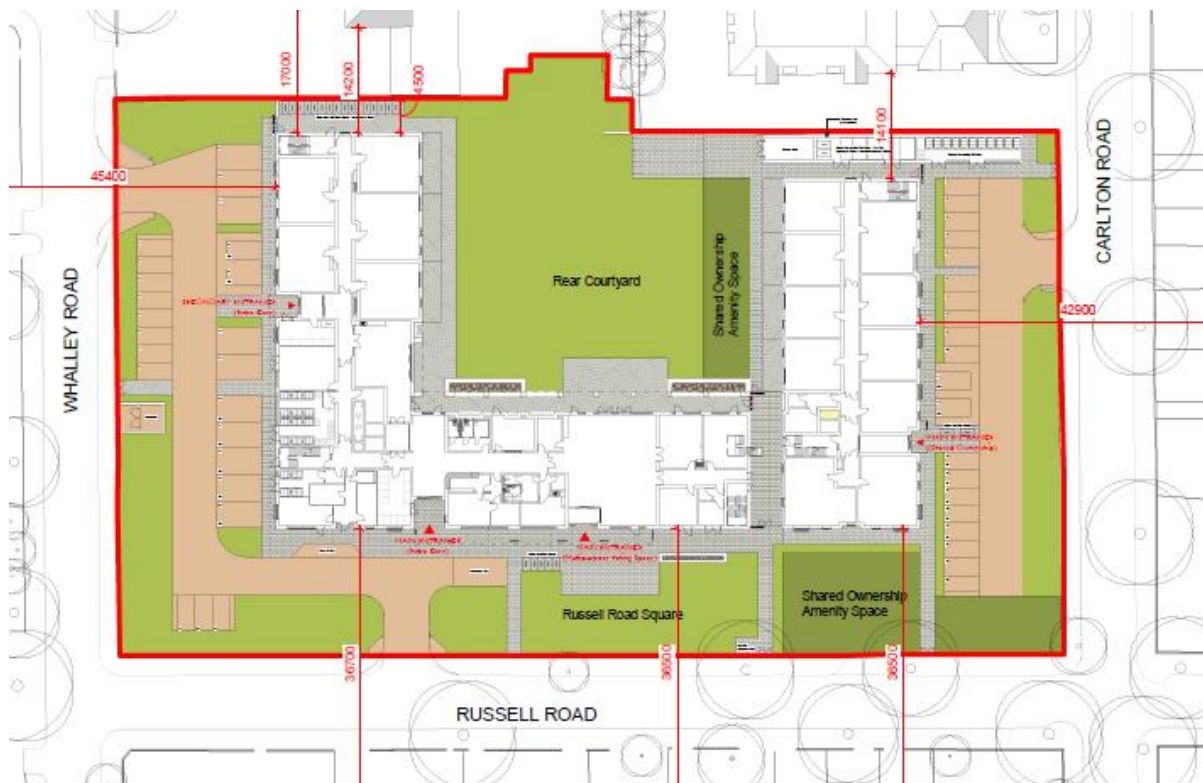


View of the site from the West, at the corner of Russell Road and Whalley Road.



4.0 Proposed Development

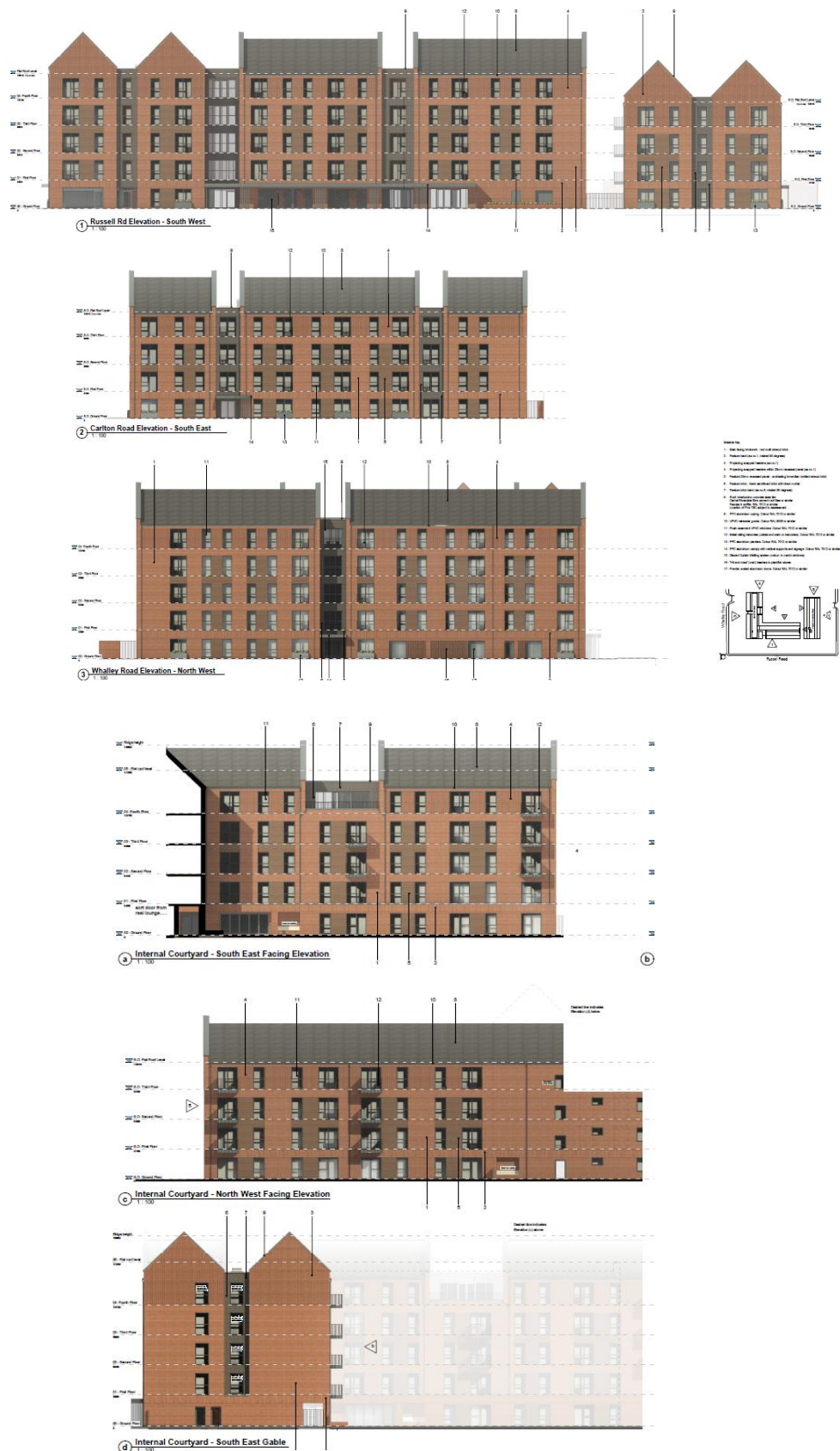
4.1 Proposed Site Plan and Floor Plans:





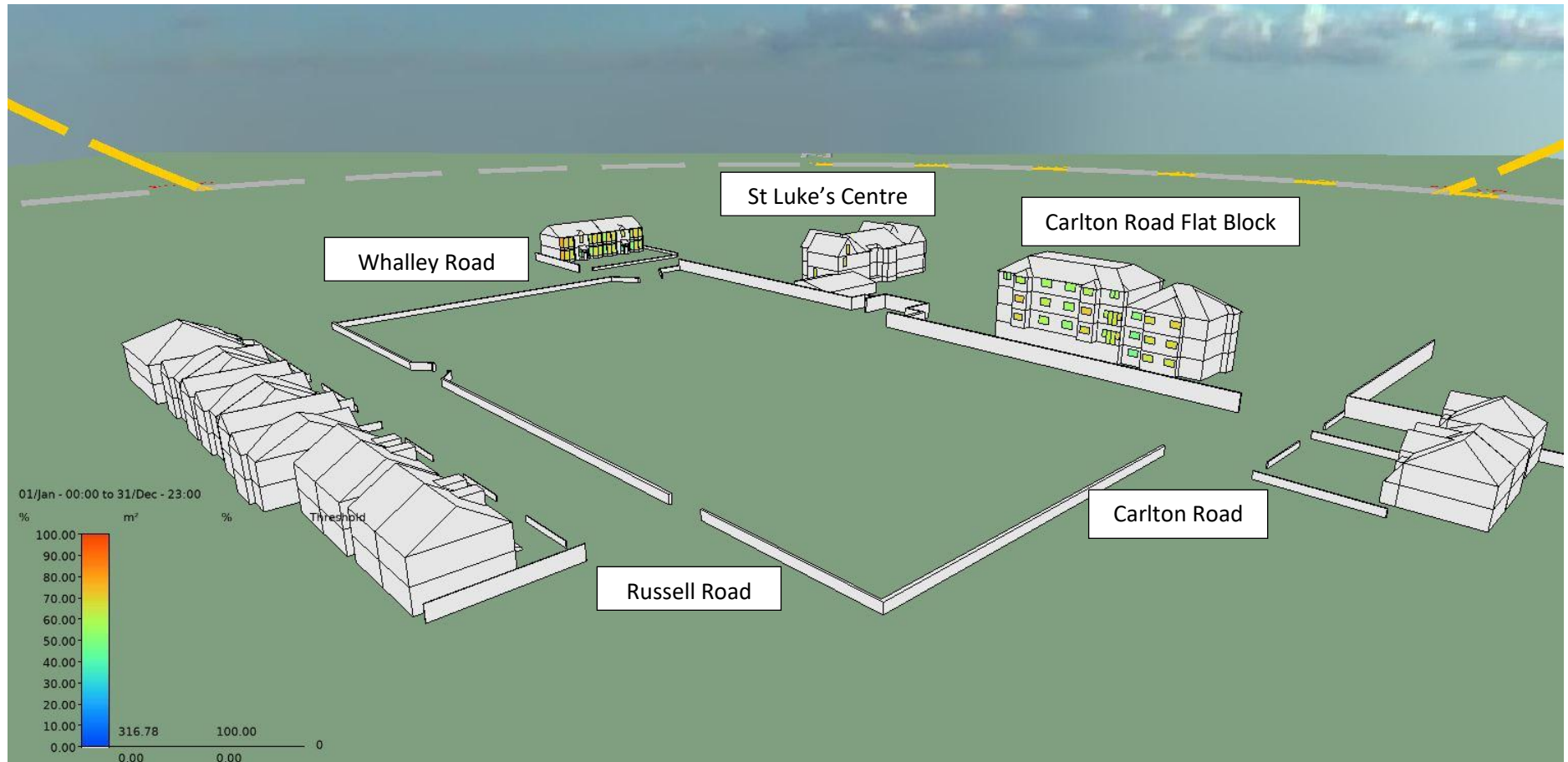


4.2 Proposed Elevations:



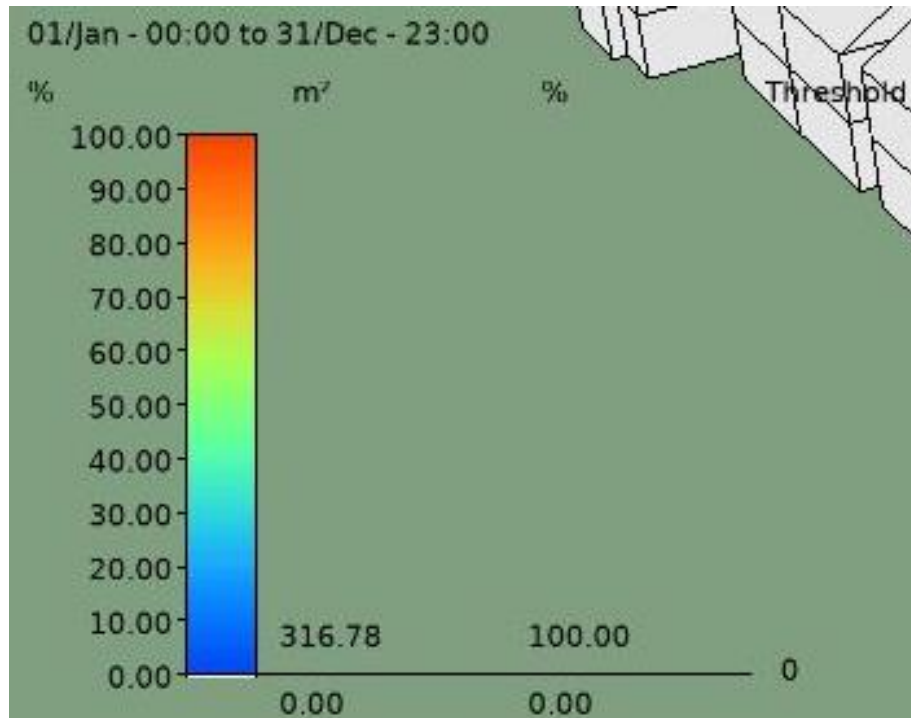
5.0 Daylight and Sunlight Analysis

Existing view of the site from the South, showing the percentage of Annual Probable Sunlight Hours (APSH) for each window.

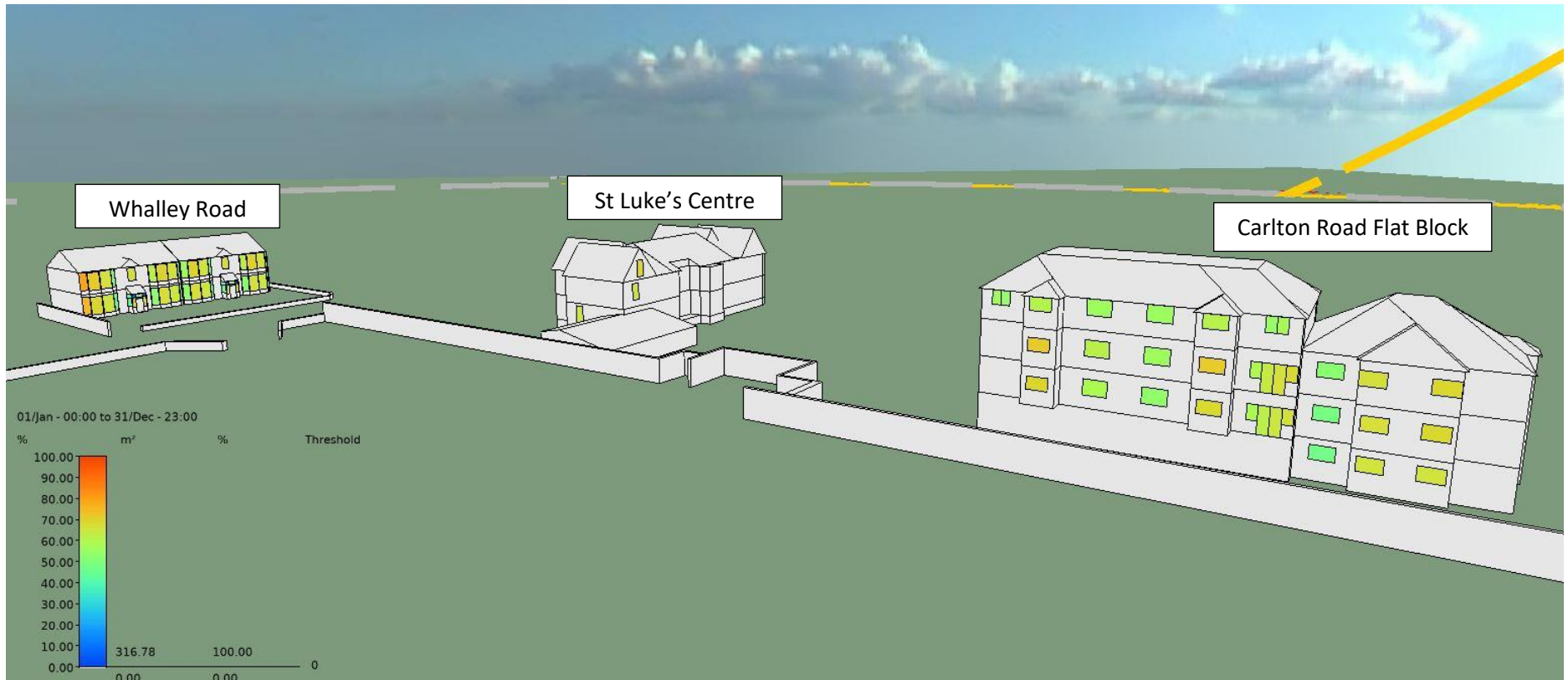


The legend in the bottom left corner of the image shows the number of Annual Probable Sunlight Hours (APSH) that is received by each window.

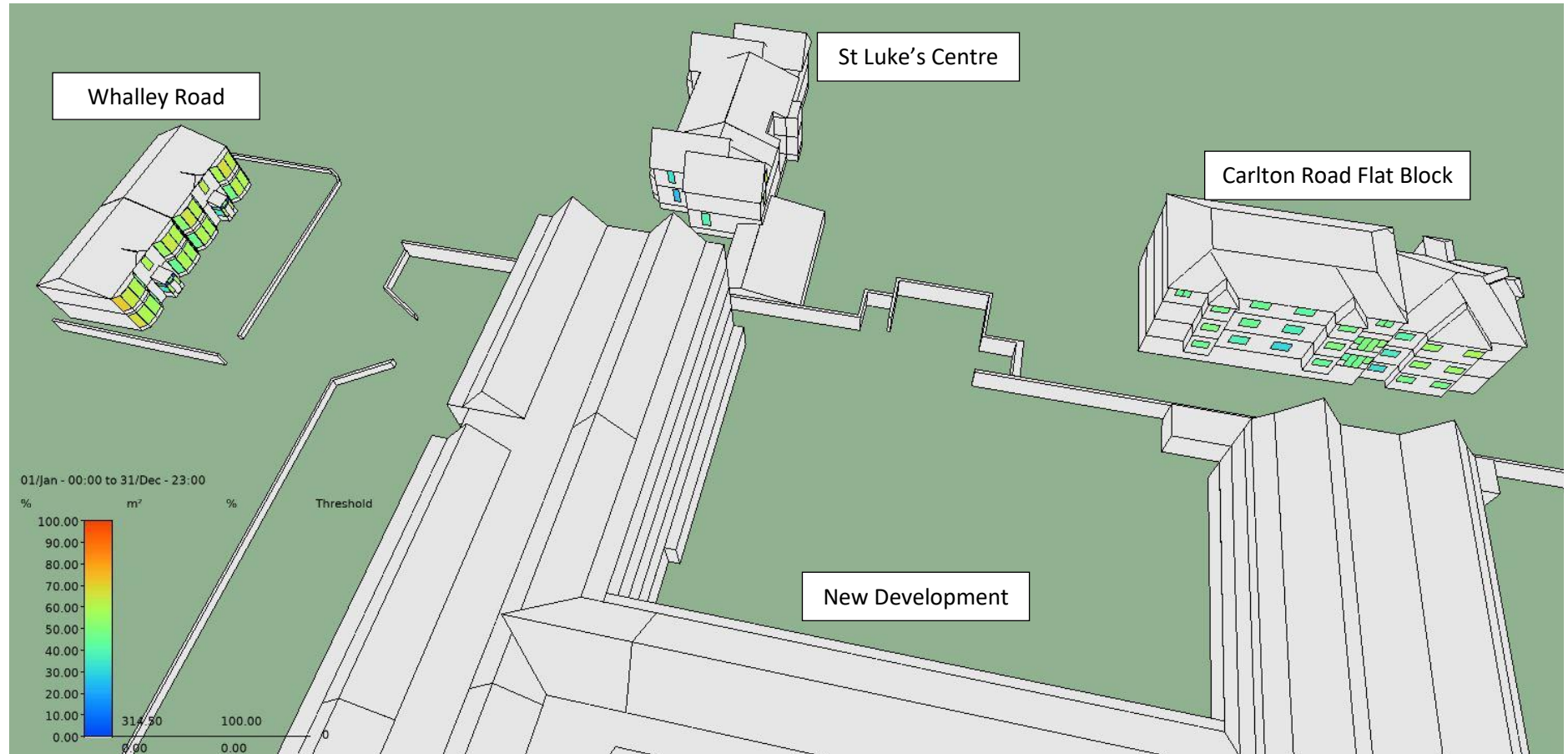
The warmer the colour, the higher the probable number of sunlight hours that are received by each window.



Closer view of the site from the Southwest focusing on the relevant buildings (those containing a living room that has a main window facing within 90° of due south), showing the percentage of Annual Probable Sunlight Hours (APSH) for each window.



View of the site from the Southwest including the proposed new development:



Tabulated Results for VSC, No Sky Line and APSH:

Location			Vertical Sky Component (VSC)					No-Sky Line (NSL)				Window		Annual Probable Sunlight Hours (APSH)			
Room	Room Use	Window	EXISTING VSC	PROPOSED VSC	LOSS VSC	Reduction Factor	PASS/ FAIL	EXISTING % of room	PROPOSED % of room	%Loss	Reduction Factor	Angle from North	Aspect	EXISTING Annual %	PROPOSED Annual %	Reduction Factor	PASS/ FAIL
Carlton Road Flats																	
1/1	GF Living Space	W1	38.03	30.67	7.36	0.81	PASS	100.00	100.00	0.00	1.00	225.00	SW	65.00	47.00	0.72	PASS
1/2	GF Living Space	W2	37.81	28.68	9.13	0.76	PASS	100.00	100.00	0.00	1.00	225.00	SW	65.00	46.00	0.71	PASS
1/3	GF Living Space	W3	33.76	24.40	9.36	0.72	FAIL	100.00	89.00	11.00	0.89	225.00	SW	47.00	32.00	0.68	PASS
1/4	FF Living Space	W4	39.44	33.11	6.33	0.84	PASS	100.00	100.00	0.00	1.00	225.00	SW	68.00	54.00	0.79	PASS
1/5	FF Living Space	W5	39.19	31.87	7.32	0.81	PASS	100.00	100.00	0.00	1.00	225.00	SW	66.00	53.00	0.80	PASS
1/6	FF Living Space	W6	34.32	26.40	7.92	0.77	FAIL	100.00	100.00	0.00	1.00	225.00	SW	48.00	36.00	0.75	PASS
1/7	FF Living Space	W7	37.66	25.52	12.14	0.68	FAIL	100.00	100.00	0.00	1.00	225.00	SW	62.00	44.00	0.71	PASS
1/8	FF Living Space	W8	39.53	25.30	14.23	0.64	FAIL	100.00	88.00	12.00	0.88	225.00	SW	68.00	44.00	0.65	PASS
1/9	FF Living Space	W9	36.82	24.28	12.54	0.66	FAIL	100.00	100.00	0.00	1.00	225.00	SW	53.00	31.00	0.58	PASS
1/10	FF Living Space	W10	37.02	25.39	11.63	0.69	FAIL	100.00	100.00	0.00	1.00	225.00	SW	59.00	38.00	0.64	PASS
1/11	FF Living Space	W11	39.37	27.71	11.66	0.70	PASS	100.00	100.00	0.00	1.00	225.00	SW	69.00	45.00	0.65	PASS
1/12	SF Living Space	W12	39.29	35.15	4.14	0.89	PASS	100.00	100.00	0.00	1.00	225.00	SW	69.00	56.00	0.81	PASS
1/13	SF Living Space	W13	39.54	33.95	5.59	0.86	PASS	100.00	100.00	0.00	1.00	225.00	SW	66.00	55.00	0.83	PASS
1/14	SF Living Space	W14	35.40	28.47	6.93	0.80	PASS	100.00	100.00	0.00	1.00	225.00	SW	52.00	40.00	0.77	PASS
1/15	SF Living Space	W15	37.90	28.32	9.58	0.75	PASS	100.00	100.00	0.00	1.00	225.00	SW	63.00	50.00	0.79	PASS
1/16	SF Living Space	W16	39.69	29.46	10.23	0.74	PASS	100.00	100.00	0.00	1.00	225.00	SW	71.00	50.00	0.70	PASS
1/17	SF Living Space	W17	37.61	28.08	9.53	0.75	PASS	100.00	100.00	0.00	1.00	225.00	SW	56.00	37.00	0.66	PASS
1/18	SF Living Space	W18	37.62	28.38	9.24	0.75	PASS	100.00	100.00	0.00	1.00	225.00	SW	62.00	45.00	0.73	PASS
1/19	SF Living Space	W19	39.79	30.65	9.14	0.77	PASS	100.00	100.00	0.00	1.00	225.00	SW	71.00	49.00	0.69	PASS
1/20	TF Living Space	W20	36.86	32.45	4.41	0.88	PASS	100.00	100.00	0.00	1.00	225.00	SW	56.00	46.00	0.82	PASS
1/21	TF Living Space	W21	37.53	31.13	6.40	0.83	PASS	100.00	100.00	0.00	1.00	225.00	SW	60.00	46.00	0.77	PASS
1/22	TF Living Space	W22	37.16	31.79	5.37	0.86	PASS	100.00	100.00	0.00	1.00	225.00	SW	55.00	41.00	0.75	PASS
1/23	TF Living Space	W23	38.13	31.96	6.17	0.84	PASS	100.00	100.00	0.00	1.00	225.00	SW	56.00	44.00	0.79	PASS
1/24	TF Living Space	W24	38.00	32.03	5.97	0.84	PASS	100.00	100.00	0.00	1.00	225.00	SW	60.00	46.00	0.77	PASS
1/24	TF Living Space	W25	36.35	31.13	5.22	0.86	PASS	100.00	100.00	0.00	1.00	225.00	SW	56.00	44.00	0.79	PASS
79 Carlton Road																	
79/1	GF Living Space	W26	36.49	33.66	2.83	0.92	PASS	100.00	100.00	0.00	1.00	315.00	NW	N/A			
79/2	FF Bedroom	W27	38.71	36.10	2.61	0.93	PASS	100.00	100.00	0.00	1.00	315.00	NW	N/A			
79/3	FF Bedroom	W28	38.44	35.76	2.68	0.93	PASS	100.00	100.00	0.00	1.00	315.00	NW	N/A			
77 Carlton Road																	
77/1	GF Living Space	W29	38.14	34.58	3.56	0.91	PASS	100.00	100.00	0.00	1.00	315.00	NW	N/A			
77/2	FF Bedroom	W30	38.73	35.86	2.87	0.93	PASS	100.00	100.00	0.00	1.00	315.00	NW	N/A			
77/3	FF Bedroom	W31	38.56	35.48	3.08	0.92	PASS	100.00	100.00	0.00	1.00	315.00	NW	N/A			
75 Carlton Road																	
75/1	GF Living Space	W32	38.04	34.02	4.02	0.89	PASS	100.00	100.00	0.00	1.00	315.00	NW	N/A			
75/2	FF Bedroom	W33	38.82	35.33	3.49	0.91	PASS	100.00	100.00	0.00	1.00	315.00	NW	N/A			
75/3	FF Bedroom	W34	38.58	35.03	3.55	0.91	PASS	100.00	100.00	0.00	1.00	315.00	NW	N/A			
65 Russell Road																	
65/1	GF Living Space	W35	39.05	33.43	5.62	0.86	PASS	100.00	100.00	0.00	1.00	45.00	NE	N/A			
65/2	FF Bedroom	W36	39.34	34.56	4.78	0.88	PASS	100.00	100.00	0.00	1.00	45.00	NE	N/A			
65/3	SF Bedroom	W37	39.48	35.65	3.83	0.90	PASS	100.00	100.00	0.00	1.00	45.00	NE	N/A			

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Location			Vertical Sky Component (VSC)					No-Sky Line (NSL)				Window		Annual Probable Sunlight Hours (APSH)			
Room	Room Use	Window	EXISTING VSC	PROPOSED VSC	LOSS VSC	Reduction Factor	PASS/ FAIL	EXISTING % of room	PROPOSED % of room	%Loss	Reduction Factor	Angle from North	Aspect	EXISTING Annual %	PROPOSED Annual %	Reduction Factor	PASS/ FAIL
67 Russell Road																	
67/1	GF Living Space	W38	39.08	33.07	6.01	0.85	PASS	100.00	100.00	0.00	1.00	45.00	NE				N/A
67/2	FF Bedroom	W39	39.25	33.98	5.27	0.87	PASS	100.00	100.00	0.00	1.00	45.00	NE				N/A
67/3	SF Bedroom	W40	39.41	35.28	4.13	0.90	PASS	100.00	100.00	0.00	1.00	45.00	NE				N/A
69 Russell Road																	
69/1	GF Living Space	W41	39.08	31.74	7.34	0.81	PASS	100.00	100.00	0.00	1.00	45.00	NE				N/A
69/2	FF Bedroom	W42	39.27	33.42	5.85	0.85	PASS	100.00	100.00	0.00	1.00	45.00	NE				N/A
69/3	SF Bedroom	W43	39.34	34.38	4.96	0.87	PASS	100.00	100.00	0.00	1.00	45.00	NE				N/A
71 Russell Road																	
71/1	GF Living Space	W44	39.08	31.37	7.71	0.80	PASS	100.00	100.00	0.00	1.00	45.00	NE				N/A
71/2	FF Bedroom	W45	39.43	32.51	6.92	0.82	PASS	100.00	100.00	0.00	1.00	45.00	NE				N/A
71/3	SF Bedroom	W46	39.61	33.87	5.74	0.86	PASS	100.00	100.00	0.00	1.00	45.00	NE				N/A
73 Russell Road																	
73/1	GF Living Space	W47	39.18	30.21	8.97	0.77	PASS	100.00	100.00	0.00	1.00	45.00	NE				N/A
73/2	FF Bedroom 1	W48	39.24	32.05	7.19	0.82	PASS	100.00	100.00	0.00	1.00	45.00	NE				N/A
73/3	FF Bedroom 2	W49	39.26	31.85	7.41	0.81	PASS	100.00	100.00	0.00	1.00	45.00	NE				N/A
75 Russell Road																	
75/1	GF Living Space	W50	39.05	30.01	9.04	0.77	PASS	100.00	100.00	0.00	1.00	45.00	NE				N/A
75/2	FF Bedroom 1	W51	39.41	31.81	7.60	0.81	PASS	100.00	100.00	0.00	1.00	45.00	NE				N/A
75/3	FF Bedroom 2	W52	39.53	31.64	7.89	0.80	PASS	100.00	100.00	0.00	1.00	45.00	NE				N/A
77 Russell Road																	
77/1	GF Living Space	W53	39.20	30.26	8.94	0.77	PASS	100.00	100.00	0.00	1.00	45.00	NE				N/A
77/2	FF Bedroom 1	W54	39.39	32.10	7.29	0.81	PASS	100.00	100.00	0.00	1.00	45.00	NE				N/A
77/3	FF Bedroom 2	W55	39.46	31.84	7.62	0.81	PASS	100.00	100.00	0.00	1.00	45.00	NE				N/A
79 Russell Road																	
79/1	GF Living Space	W56	39.24	30.67	8.57	0.78	PASS	100.00	100.00	0.00	1.00	45.00	NE				N/A
79/2	FF Bedroom 1	W57	39.31	32.71	6.60	0.83	PASS	100.00	100.00	0.00	1.00	45.00	NE				N/A
79/3	FF Bedroom 2	W58	39.51	32.75	6.76	0.83	PASS	100.00	100.00	0.00	1.00	45.00	NE				N/A
81 Russell Road																	
81/1	GF Living Space	W59	39.03	32.17	6.86	0.82	PASS	100.00	100.00	0.00	1.00	45.00	NE				N/A
81/2	FF Bedroom 1	W60	39.15	33.68	5.47	0.86	PASS	100.00	100.00	0.00	1.00	45.00	NE				N/A
81/3	FF Bedroom 2	W61	39.48	33.12	6.36	0.84	PASS	100.00	100.00	0.00	1.00	45.00	NE				N/A
83 Russell Road																	
83/1	GF Apt 1 Living Space	W62	39.36	33.77	5.59	0.86	PASS	100.00	100.00	0.00	1.00	45.00	NE				N/A
83/2	GF Apt 1 Living Space	W63	38.41	33.92	4.49	0.88	PASS	100.00	100.00	0.00	1.00	45.00	NE				N/A
83/3	GF Apt 2 Living Space	W64	38.40	34.19	4.21	0.89	PASS	100.00	100.00	0.00	1.00	45.00	NE				N/A
83/4	GF Apt 2 Living Space	W65	39.22	35.52	3.70	0.91	PASS	100.00	100.00	0.00	1.00	45.00	NE				N/A
83/5	FF Apt 3 Living Space	W66	39.16	34.39	4.77	0.88	PASS	100.00	100.00	0.00	1.00	45.00	NE				N/A
83/6	FF Apt 3 Living Space	W67	38.48	34.40	4.08	0.89	PASS	100.00	100.00	0.00	1.00	45.00	NE				N/A
83/7	FF Apt 4 Living Space	W68	38.69	35.14	3.55	0.91	PASS	100.00	100.00	0.00	1.00	45.00	NE				N/A
83/8	FF Apt 4 Living Space	W69	38.74	35.56	3.18	0.92	PASS	100.00	100.00	0.00	1.00	45.00	NE				N/A

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Room	Room Use	Window	EXISTING VSC	PROPOSED VSC	LOSS VSC	Reduction Factor	PASS/ FAIL	EXISTING % of room	PROPOSED % of room	%Loss	Reduction Factor	Angle from North	Aspect	EXISTING Annual %	PROPOSED Annual %	Reduction Factor	PASS/ FAIL
100 Whalley Road																	
100/1	GF Living Space 1	W70	38.64	34.10	4.54	0.88	PASS	100.00	100.00	0.00	1.00	135.00	SE	68.00	59.00	0.87	PASS
100/2	GF Living Space 2	W71	38.67	34.83	3.84	0.90	PASS	100.00	100.00	0.00	1.00	135.00	SE	66.00	57.00	0.86	PASS
100/3	FF Living Space 1	W72	39.19	35.42	3.77	0.90	PASS	100.00	100.00	0.00	1.00	135.00	SE	69.00	61.00	0.88	PASS
100/4	FF Living Space 2	W73	39.10	35.85	3.25	0.92	PASS	100.00	100.00	0.00	1.00	135.00	SE	67.00	60.00	0.90	PASS
98 Whalley Road																	
98/1	GF Living Space 1	W74	38.52	34.89	3.63	0.91	PASS	100.00	100.00	0.00	1.00	135.00	SE	66.00	57.00	0.86	PASS
98/2	GF Living Space 2	W75	38.67	38.46	0.21	0.99	PASS	100.00	100.00	0.00	1.00	135.00	SE	66.00	58.00	0.88	PASS
98/3	FF Living Space 1	W76	39.15	36.21	2.94	0.92	PASS	100.00	100.00	0.00	1.00	135.00	SE	67.00	60.00	0.90	PASS
98/4	FF Living Space 2	W77	39.18	36.64	2.54	0.94	PASS	100.00	100.00	0.00	1.00	135.00	SE	69.00	61.00	0.88	PASS
St Luke's Centre																	
SL/1	GF Living Space 1	W78	38.60	22.58	16.02	0.58	FAIL	100.00	100.00	0.00	1.00	225.00	SW	64.00	40.00	0.63	PASS
SL/2	GF Living Space 2	W79	32.00	20.15	27.49	0.18	PASS	100.00	100.00	0.00	1.00	225.00	SW	43.00	26.00	0.60	PASS
SL/3	GF Living Space 2	W80	34.85	34.83				100.00	100.00	0.00	1.00	315.00	NW	N/A			
SL/4	FF Living Space 1	W81	38.80	36.76	2.04	0.95	PASS	100.00	100.00	0.00	1.00	135.00	SE	65.00	60.00	0.92	PASS
SL/5	FF Living Space 2	W82	33.60	24.06	31.16	0.07	PASS	100.00	100.00	0.00	1.00	225.00	SW	49.00	33.00	0.67	PASS
SL/6	FF Living Space 2	W83	38.28	38.26				100.00	100.00	0.00	1.00	315.00	NW	N/A			
SL/7	SF Living Space 1	W84	39.29	37.81	1.48	0.96	PASS	100.00	100.00	0.00	1.00	135.00	SE	69.00	66.00	0.96	PASS