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Bowmer + Kirkland

Gomersal St Mary's Catholic Primary School

Sunlight and Daylight Analysis

Reference: SRP1134-ARP-XX-XX-T-O-6302

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Executive Summary

Arup has been requested to undertake a daylight and sunlight availability study for the proposed Gomersal St Mary's Primary School, Gomersal.

The effect of the development on the surrounding buildings has been assessed using recommendations set in Building Research Establishment (BRE) Technical Report BR 209 (2022) "Site layout planning for daylight and sunlight: a guide to good practice".

Assessment criteria are based on the recommendations set out in BRE document BR 209. This document is considered the de facto standard for planning and daylight and sunlight availability. BR 209 provides guidelines, sets targets and describes the methodology to assess the daylight and sunlight availability for buildings.

For the baseline condition the existing school massing, surrounding buildings and context information are used. For the Proposed Condition the new teaching block is included, minus any buildings to be demolished as part of the development scheme.

The properties that fall within the scope of this report are found on Shirley Avenue, house numbers 32, 34, 36, 38, 40, 42, 44 and 56. Of these properties, all windows facing the development were tested, along with their gardens, to determine the impact of the proposed development as per the criteria found in the BR 209 document.

The results have indicated:

- All assessed windows continue to receive a VSC value above 27% and/or are ≥0.80 of the Baseline Condition, meeting the target criteria set in BR 209.
- All assessed windows continue to receive a APSH value above 25% and/or are ≥0.86 of the Baseline Condition, meeting the target criteria set in BR 209.
- All assessed windows continue to receive a WPSH value above 5% and are ≥0.80 of the Baseline Condition, meeting the target criteria set in BR 209.
- All assessed private gardens will continue to receive greater than 2 hours of sunlight on the 21st of March and is ≥ 0.99 of the Baseline Condition, meeting the criteria set in BR209.

This report concludes that the effects of the proposed Gomersal St Mary's School on the daylight and sunlight availability of surrounding properties and amenity areas is unlikely to be noticeable in accordance with the criteria set in BR 209

1. Introduction

1.1 Scope of Report

Bowmer + Kirkland has commissioned Arup to undertake a sunlight and daylight availability assessment for the proposed development and surrounding properties of Gomersal St Mary's School, Gomersal, Cleckheaton.

The scope of the report appraises the impact of the proposed school development on the surrounding buildings and their associated external amenity space by undertaking a BRE daylight and sunlight availability assessment.

Daylight availability and sunlight assessments have been completed in accordance with the BRE document BR 209 "Site layout planning for daylight and sunlight: a guide to good practice" (2022).

The assessments have been based upon drawings and 3D models of the proposed development and its related landscape supplied by the Architect (Pick Everard) and the Landscape Architect (One Environments). Details of the surrounding areas have been modelled based on 3D models, sourced from Bluesky, topographical and ordinance survey data and site imagery.

1.2 Site Context

The site is located on Shirley Ave, Gomersal, Cleckheaton, latitude N 53.43˚, longitude E 1.41˚.

1.2.1 Surrounding Context

Figure 1 – Site and surrounding context.

The surrounding context presents a medium density residential area.

The site is adjacent to Shirley Avenue and surrounded by residential developments. To the south are the school's recreational fields, to the west is the main site entrance and car parks. 2-3 storey residential properties with gardens and sunrooms surround the school's site on all sides, with the topography gently rising at the north and northeast of the site.

1.2.2 Baseline Condition

The existing development site comprises of one existing single storey school and separate office building (Gomersal Children's Centre) grouped on the west of the site. The main school block, EFAC and EFAD will be demolished to make way for the construction of the recreational facilities and car park.

Existing buildings to be demolished

Existing buildings to be retained

Figure 2 – Existing (Baseline) Condition

1.2.3 Proposed Condition

The proposed development consists of a single storey teaching block with double height main hall located to the east of the site.

The Gomersal Children's Centre will be retained.

Figure 3 – Proposed Condition.

2. BRE Recommendations

The assessment of daylight and sunlight availability has been undertaken in accordance with recommendations set in BR 209 "Site layout planning for daylight and sunlight: a guide to good practice".

All design criteria are based on the recommendations set out in BR 209. This document is the de facto standard for planning and daylight and sunlight availability. BR 209 provides guidelines, sets targets and describes the methodology to assess the daylight and sunlight availability for buildings.

The document states:

"The guide is intended for building designers and their clients, consultants and planning officials. The 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 because natural lighting is only one of the many factors in site layout design".

The document sets out three criteria on which we assess the impact of a proposed development on existing surrounding buildings and amenity areas-

- Changes in daylight availability at windows of surrounding properties (Vertical Sky Component).
- Changes in sunlight availability at window locations (Annual Probable Sunlight Hours and Winter Probable Sunlight Hours).
- Provision of sunlight into external amenity areas and public spaces (percentage of amenity space area with $\geqslant$2 hours of sunlight on March 21st).

2.1 Sunlight and Daylight availability at Windows

BR 209 indicates where the guidelines and target sets are applicable and which rooms/spaces have a reasonable expectation of daylight:

> *"The guidelines given here are intended for use for rooms in adjoining dwellings where daylight is required, including living rooms, kitchens and bedrooms. Windows to bathrooms, toilets, store rooms, circulation areas and garages need not be analysed. The guidelines may also be applied to any existing non-domestic building where the occupants have a reasonable expectation of daylight; this would normally include schools, hospitals, hotels and hostels, small workshops and some offices".*

BR 209 provides a decision flow chart to indicate the potential impact of a proposed development on daylight received by existing buildings (Figure 4).

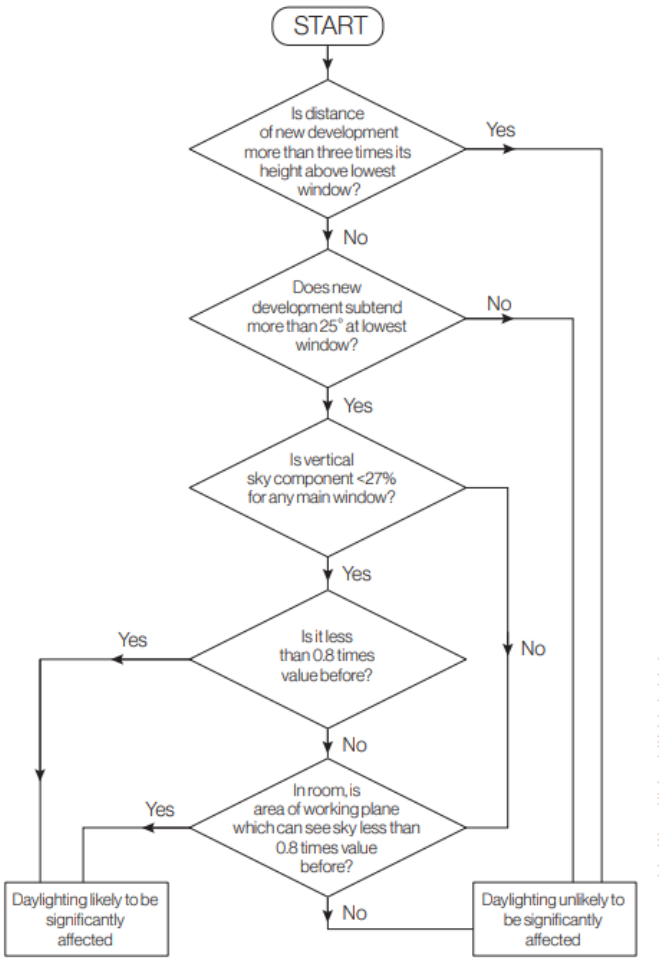

Figure 4 - Flow chart indicating the potential impact of a proposed development on daylight received by existing buildings (taken from BR 209, page 18, figure 20)

2.1.1 Vertical Skylight Component

Daylight availability is measured in terms of the 'vertical skylight component' (VSC).

BR 209 defines VSC as:

> *"The ratio of that part of illuminance, at a point on a given vertical plane, that is received directly from a CIE standard overcast sky, to illuminance on a horizontal plan due to an unobstructed hemisphere of the sky. Usually, the 'given vertical plane' is the outside of a window wall, the VSC does not include reflected light, either from the ground or from other buildings."*

BR 209 states that for existing properties:

> *"If the VSC is greater than 27% then enough skylight should still be reaching the window of the existing building. This value of VSC typically supplies enough daylight to a standard room when combined with a window of normal dimensions, with glass area around 10% or more of the floor area. Any reduction below this level should be kept to a minimum"*

BR 209 explains that VSC value reduction to no less than 0.80 of the baseline (existing) scenario is unlikely to be noticeable to occupants of the existing buildings.

2.1.2 Sunlight availability at window locations

Annual Probable Sunlight Hours is the total number of hours in the year that the sun is expected to shine on unobstructed ground, allowing for average levels of cloudiness for the location in question.

The calculation of the probable sunlight hours is orientation dependant, and the calculations produce the percentage of annual (APSH) and winter (WPSH) number of probable sunlight hours that the point on the window receives. The annual and winter probable sunlight hours are calculated for any window that has an orientation within 90° of due south. Thus, other orientations are not analysed.

BR 209 indicates that the sunlight recommendations refer primarily to windows of living rooms and conservatories within domestic properties:

> *"To assess the loss of sunlight to an existing building it is suggested that all main living rooms of dwellings, and conservatories, should be checked if they have a window facing within 90° of due south. Kitchens and bedrooms are less important, although care should be taken not to block too much sun. In non-domestic buildings any spaces which are deemed to have special requirement for sunlight should be checked."*

BR 209 states:

> *"If a room can receive more than one quarter (25%) of APSH, including at least 5% of APSH in the winter months between 21st September and 21st March (WPSH), then it should still receive enough sunlight"*
>
> *"Any reduction in sunlight access below this level should be kept to a minimum. If the available sunlight hours are both less than the amount above and less than 0.80 of their former value, either over the whole year or just in the winter months (21st September to 21st March), then the occupants of the existing building will notice the loss of sunlight. If the overall annual loss is greater than 4% of APSH, the room may appear colder"*

2.1.3 Amenity Areas Sunlight Penetration

The BR 209 document states:

> *"Sunlight in the spaces between buildings has an important impact on the overall appearance and ambiance of a development."*

The criteria set out in the document applies to both new gardens and amenity areas and to existing ones which are affected by the new development.

BR 209 guidance states:

> *"It is recommended that at least half of the amenity area should receive at least 2 hours of sunlight on March 21st."*
>
> *"If, as a result of the new development, an existing garden or amenity area does not meet the above, and the area which can receive two hours of sunlight on 21st March is less than 0.80 times its former value then the loss of light is likely to be noticeable."*

The types of outdoor spaces with a reasonable expectation of sunlight are defined as:

- Gardens – such as the main back garden of a house or communal gardens including courtyards and roof terraces

- Parks and playing fields
- Children's playgrounds
- Outdoor swimming pools and paddling pools and other areas of recreational water such as marinas and boating lakes
- Sitting out areas between non-domestic buildings and in public squares
- Nature reserves

2.1.4 No Sky Line

The BR 209 document states:

> *"Where room layouts are known (for example if they are available on the local authority's planning portal), the impact on the daylighting distribution in the existing building should be found by plotting the no sky line in each of the main rooms."*

As the internal layouts of surrounding properties are unknown and unavailable through the planning portal, we have excluded the calculation of the no sky line within the existing surrounding developments.

2.2 Assessment Criteria

The tables below summarise the numerical target values used in the assessment of the effect of the development on surrounding buildings.

Target value for daylight availability (all windows)	
VSC	≥27 % (or ≥0.80 of existing)

Table 1 - Daylight availability requirements.

Target value for sunlight availability (windows 90° of due south)	
Annual Probable Sunlight Hours [APSH]	≥ 25% (or ≥0.80 of existing)
Winter Probable Sunlight Hours [WPSH]	≥ 5% (or ≥0.80 of existing)

Table 2 - Sunlight availability requirements.

Sunlight penetration for 21 March target values	
Sunlight penetration	≥ 50% of area (or ≥0.80 of existing) receives at least 2 hours of sunlight

Table 3 Target values for amenity areas sunlight penetration (percentage of area in permanent shadow).

3. Methodology

A 3D computer model of the site has been assembled from the following sources:

- Site model: QT-118678-Gomersal.obj (20/03/2026) (Source Bluesky)
- Proposed school model: SRP1134-PEV-01-ZZ-M3-A-0001 (18/03/2026) (Source Pick Everard Architects)
- Landscape Model: SRP1134-ONE-00-EX-M-L-0001-P05_LandscapeModel (18/03/026) (Source: One Environments Landscape Architects)

The 3D computer model was imported into the Arup software and used for the analysis of sunlight and daylight availability.

The Arup software is based on a ray tracing algorithm that calculates the percentage of vertical skylight component, probable annual and probable winter sunlight hours for a set of assessment points chosen in the model.

All daylight and sunlight calculations are based on the BRE method as described in BR 209. Assessment points are located in the middle of the windows on surrounding buildings corresponding to rooms that have a reasonable expectation of daylight as defined in BR209. Where room layouts are unknown all windows have been analysed.

In accordance with BRE guidelines, hedges, trees, railings, trellises and solid walls/fences lower than 1.5m high have not been included within the analysis.

Typically, the calculation of the probable annual and winter sunlight hours is orientation dependant and only the points located on facades within 90° of due south are calculated. However, the windows assessed are slightly beyond this orientation; they have been assessed for sunlight hours for completeness.

The landscape model provided was not required in the final model as the topology information was better captured in the site model.

4. Analysis Conditions

This analysis considers two conditions, the Baseline Condition and the Proposed Condition.

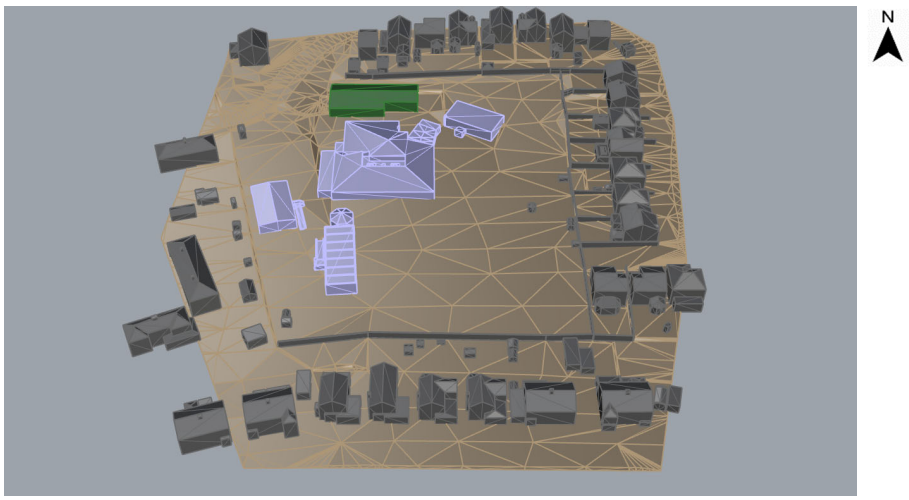

Figure 5 - Analysis conditions represented in the 3D computer model – Baseline Condition.

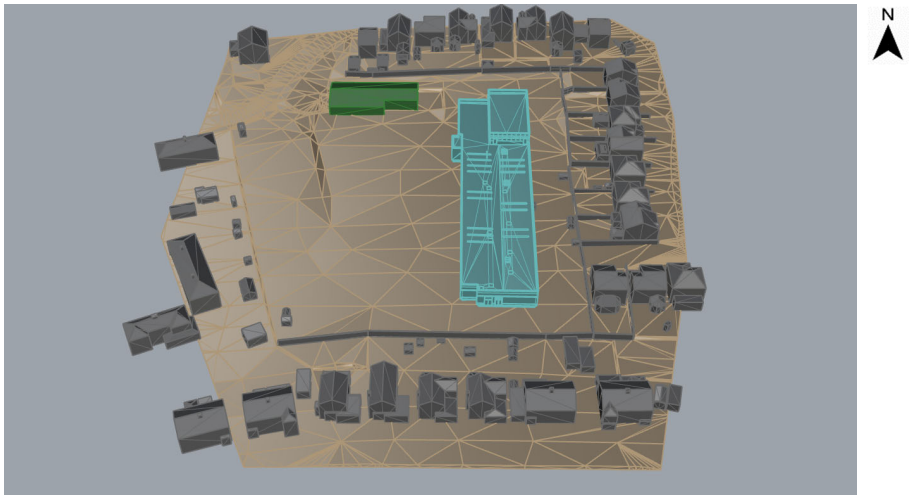

Figure 6 - Analysis conditions represented in the 3D computer model – Proposed Condition.

- Existing school buildings to be retained
- Existing school buildings to be demolished
- Surrounding development
- Landscape
- Proposed new school buildings

5. Selection of Receptors

For domestic buildings, BR 209 defines the types of spaces which require daylight as living rooms, kitchens and bedrooms. Where the internal building layouts are known, only windows on to these spaces have been analysed. Where internal building layouts are not known, all windows have been analysed for access to daylight and sunlight.

For non-domestic buildings, BR 209 states that the guidelines can be applied to any existing non-domestic building with a reasonable expectation for daylight, this would normally include: schools, hospitals, hotels and hostels, small workshops and some offices.

5.1 Study Area Assessment

BR 209 provides guidance on initial analysis which can be undertaken to determine whether a new development may cause a noticeable obstruction to daylight and sunlight:

> *"Loss of light to existing windows need not be analysed if the distance of each part of the new development from the existing window is three or more times its height above the centre of the existing window."*

The extent of the study area takes into consideration the height of the proposed building and the changes in topographical site levels to adjacent surrounding buildings.

Figure 7 - Study area for the Proposed Condition

In accordance with BR 209, no analysis is required on buildings and amenity areas outside of the study area. Windows to the east of the proposed school are either marginally outside the assessment area or on the edge; for completeness these have been assessed.

Where amenity areas are to the south of the proposed school they have been omitted from the analysis as sunlight is likely not affected by obstructions to the north.

Amenity areas to the north of the proposed development have not been tested due to the existing fenceline, increase in elevation and the fact that the majority of the gardens are outside of the assessment area. These sites are unlikely affected by the obstruction to the south.

The area assessments demonstrates that further assessment is required for properties along Shirley Avenue, house numbers 32, 34, 36, 38, 40, 42, 44 and 56.

5.2 Geometric Angle Analysis

For window locations within the assessment area, BR 209 states:

> *"... a modified form of the procedure adopted for new buildings can be used to find out whether an existing building still receives enough skylight. First, draw a section in a plane perpendicular to each effected main window wall of the existing building. Measure the angle to the horizontal subtended by the new development at the level of the centre of the lowest window. If this angle is less than 25 degrees for the whole of the development then it is unlikely to have a substantial effect on the diffuse skylight enjoyed by the existing building."*
>
> *"Obstruction to sunlight may become an issue if in the section drawn perpendicular to the existing window wall, the new development subtends an angle greater than 25 degrees to the horizontal measured from the centre of the lowest window to a main living room."*

Geometric analysis has been undertaken to verify whether a detailed analysis study is required for windows on the surrounding properties.

Where the locations of windows are unknown, it has been assumed that windows located closest to the modelled landscape represents a worst-case scenario.

Figure 8 - 2D view of the analysis area and obstruction to sunlight sections.

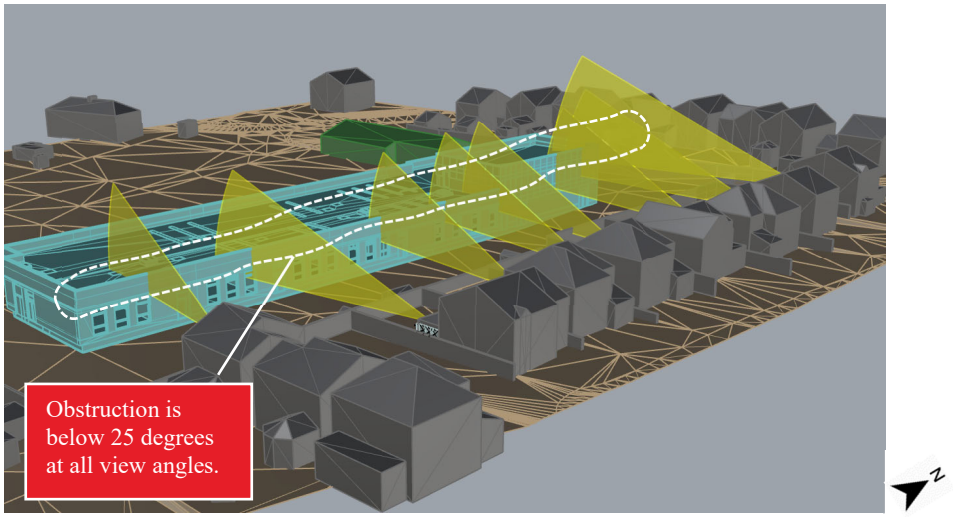

Figure 9 - 3D view of the analysis sections - View 1

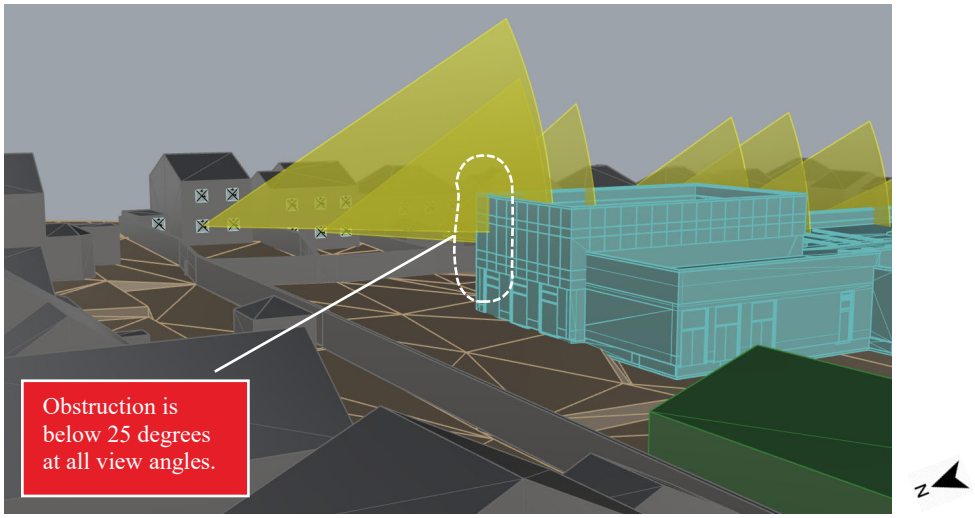

Figure 10 - 3D view of the analysis sections - View 2

Obstruction threshold of 25-degree angles was incorporated into the assessment model. The proposed development remains within this limit, and therefore no further assessment is required under BR209.

However, for transparency, further evaluation has been undertaken on all windows previously identified.

6. Daylight & Sunlight Availability at Windows

Daylight window receptor points were placed upon all windows as illustrated in Figures 11 – 12.

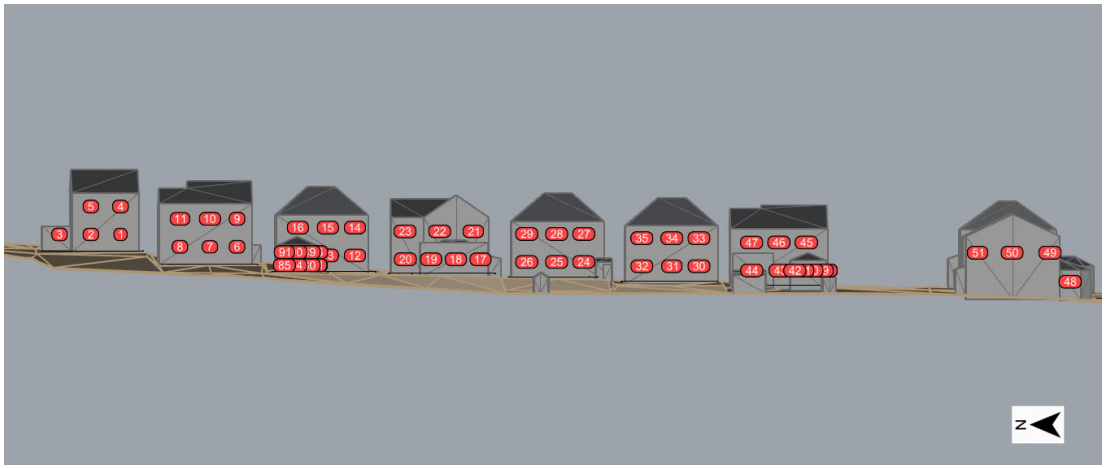

Figure 11 - Window receptors along Shirley Ave their Receptor Reference

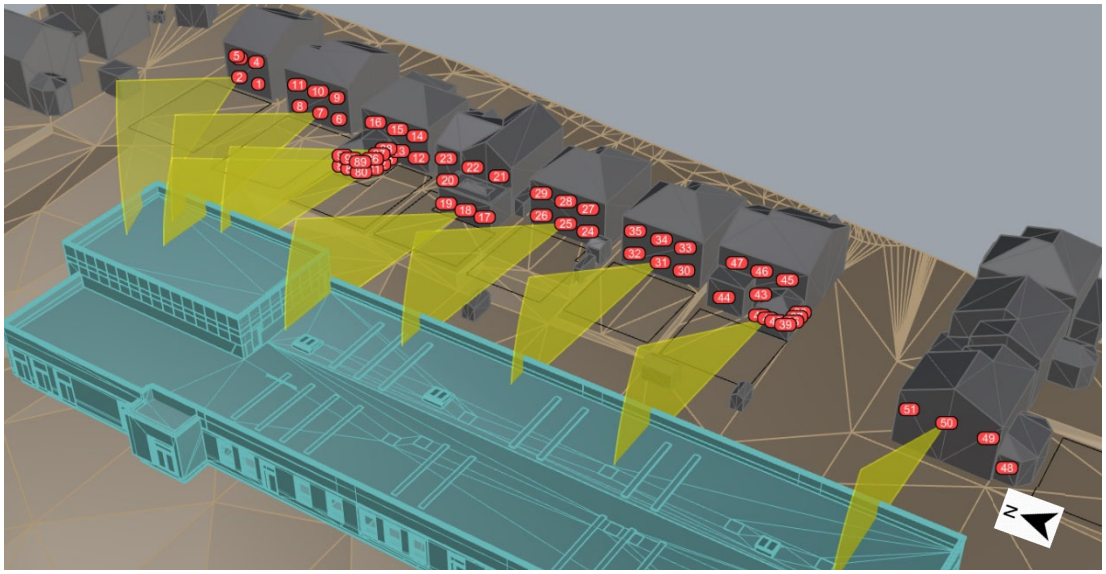

Figure 12 - Window receptors on Shirley Avenue properties and an indicative area showing their alignment to the proposed development.

6.1 Vertical Sky Component (VSC) Results

A full set of numerical results for individual receptors are available within Appendix A.

In the Baseline Condition, all receptors exceed the VSC target of 27%.

In the Proposed Condition, all receptors continue to exceed the VSC target 27%, and 0.80 of the Baseline Condition.

Therefore, no windows are likely to be significantly affected in daylight availability in accordance with VSC criteria as per BR 209.

6.2 Sunlight Availability at Windows (APSH & WPSH) Results

A full set of numerical results for individual receptors are available within Appendix B.

In the baseline condition, all receptors exceed the APSH target of 25% and WPSH target of 5%.

In the Proposed Condition, all receptors exceed the APSH target of 25% and the WPSH target of 5%, and the target of 0.80 of the Baseline Condition.

Therefore, no windows are expected to be significantly affected in accordance with APSH and WPSH target criteria set in BR 209.

7. Amenity Areas Sunlight Penetration

The 8 residential gardens shown in Figure 12 are located wholly or partly within the study area and have been identified as having potential shading from the proposed development.

The baseline and Proposed Condition have been analysed to demonstrate the potential shadowing to adjacent gardens on March 21.

Figure 13 - Amenity areas analysed with grid numbers.

The following images present the results of the sunlight penetration study for 21st March. Red indicates areas of external amenity area which receive ⩾ 2 hours of direct sunlight on 21 March. Blue indicates areas of external amenity area which receive < 2 hours of direct sunlight on 21 March.

7.1.1 Amenity Areas Sunlight Penetration Results

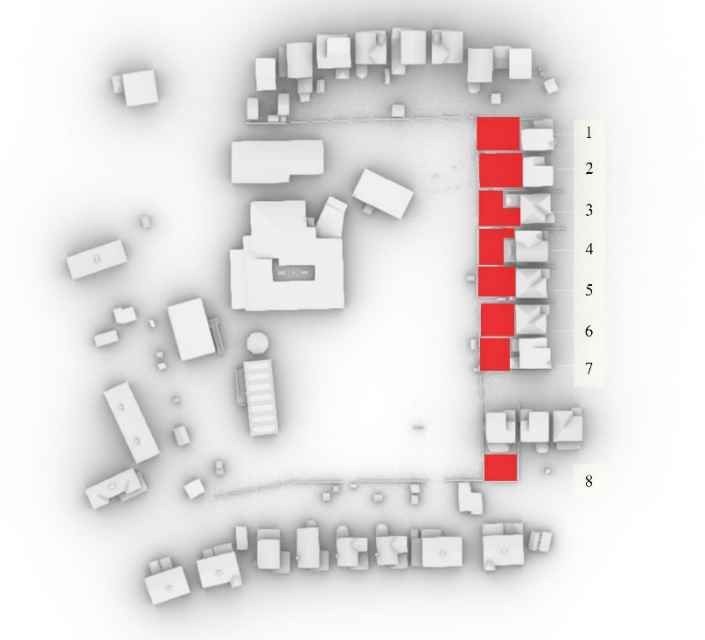

Figure 14 – Duration of direct sunlight on March 21st in Baseline Condition.

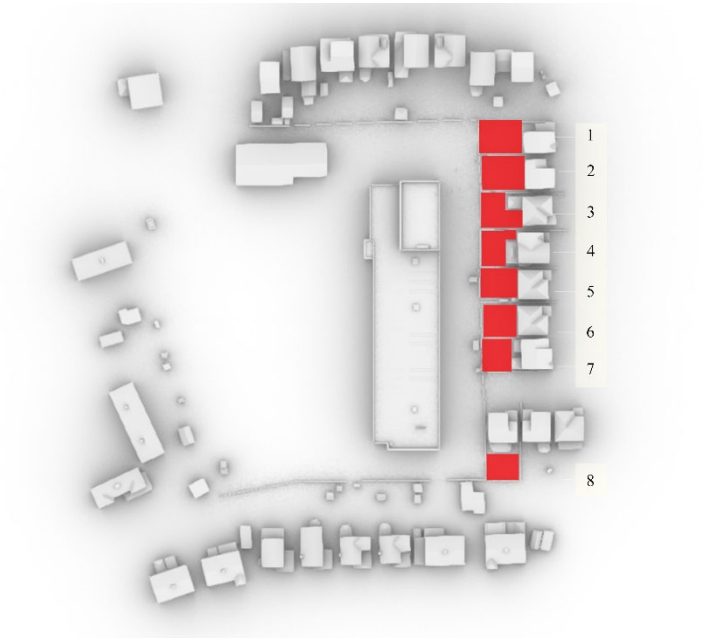

Figure 15 – Duration of direct sunlight on March 21st at Proposed Condition.

Below 2 hours of sunlight on 21 March

Equal to or above 2 hours of sunlight on 21 March

Table 4 below presents the percentage of the amenity area which receives at least two hours of direct sunlight on 21 March for the Baseline and Proposed Condition.

Table 4The table also provides a ratio to define the impact the proposed building may have on the existing sunlight availability.

Grid number	baseline scenario % of area >2hrs	proposed scenario % of area >2hrs	ratio baseline/proposed	Address
1	0.85	0.85	1.00	32 Shirley Ave
2	0.84	0.84	1.00	34 Shirley Ave
3	0.79	0.79	1.00	36 Shirley Ave
4	0.83	0.83	1.00	38 Shirley Ave
5	0.99	0.96	0.99	40 Shirley Ave
6	0.89	0.89	1.00	42 Shirley Ave
7	0.84	0.84	1.00	44 Shirley Ave
8	0.76	0.76	1.00	56 Shirley Ave

Table 4 Amenity area sunlight penetration results

All amenity areas analysed are expected to experience at least two hours of sunlight on 21st March over at least 50% of the area in the Proposed Condition.

Therefore, all amenity areas meet the criteria determined by BR 209 and occupants are unlikely to notice any change in sunlight penetration into their external amenity areas.

8. Conclusion

This report has been prepared to assess the potential impact that the proposed Gomersal St Mary's School may have on the availability of daylight and sunlight at neighbouring properties.

The results have indicated:

- All assessed windows continue to receive a VSC value above 27% and/or are ≥0.80 of the Baseline Condition, indicating that enough skylight is available at windows and any reduction should not be noticeable to occupants.
- All assessed windows continue to receive a APSH value above 25% and/or are ≥0.80 of the Baseline Condition, indicating that enough annual sunlight is available at windows and any reduction should not be noticeable to occupants.
- All assessed windows continue to receive a WPSH value above 5% and are ≥0.80 of the Baseline Condition, indicating enough winter sunlight is available at windows and any reduction should not be noticeable to occupants.
- All assessed private gardens will continue to receive greater than 2 hours of sunlight on the 21st of March and is ≥ 0.99% of the Baseline Condition, indicating enough sunlight is received and any reduction is unlikely to be noticable.

This report concludes that the effects of the proposed Gomersal St Mary's School on the daylight and sunlight availability of surrounding properties and amenity areas is unlikely to be noticeable in accordance with the criteria set in BR 209.

Appendix A

VSC Results

Tabulated results of VSC for all receptors in Baseline and Proposed Condition.

Receptor reference	Vertical skylight component			Address
	Baseline Condition (%)	Proposed Condition >27%	Ratio >0.80 [Proposed/Baseline]	
1	37	36	0.97	32 Shirley Ave
2	32	31	0.97	
3	26	26	1.00	
4	40	40	1.00	
5	36	36	1.00	
6	39	37	0.95	34 Shirley Ave
7	39	36	0.92	
8	38	36	0.95	
9	40	39	0.98	
10	40	39	0.98	
11	39	38	0.97	
12	32	28	0.88	36 Shirley Ave
13	26	22	0.85	
14	34	33	0.97	
15	34	33	0.97	
16	30	29	0.97	
80*	35	31	0.89	
81*	25	24	0.96	
82*	18	18	1.00	
83*	19	19	1.00	
84*	35	31	0.89	
85*	32	29	0.91	
86*	30	29	0.97	
87*	23	22	0.96	
88*	23	22	0.96	
89*	39	36	0.92	
90*	40	36	0.90	
91*	39	35	0.90	
17*	38	34	0.89	38 Shirley Ave
18*	39	33	0.85	
19*	40	34	0.85	

Receptor reference	Vertical skylight component			Address
	Baseline Condition (%)	Proposed Condition >27%	Ratio >0.80 [Proposed/Baseline]	
20	30	27	0.90	
21	40	39	0.98	
22	40	39	0.98	
23	40	38	0.95	
24	39	36	0.92	
25	39	35	0.90	
26	37	34	0.92	
27	40	39	0.98	40 Shirley Ave
28	40	39	0.98	
29	40	39	0.98	
30	40	36	0.90	
31	40	36	0.90	42 Shirley Ave
32	39	35	0.90	
33	40	39	0.98	
34	40	39	0.98	42 Shirley Ave
35	40	40	1.00	
36*	36	35	0.97	
37*	35	35	1.00	
38*	35	34	0.97	
39*	40	35	0.88	
40*	40	35	0.88	
41*	40	35	0.88	
42*	39	33	0.85	44 Shirley Ave
43*	21	19	0.90	
44	40	35	0.88	
45	32	31	0.97	
46	40	40	1.00	
47	40	40	1.00	
48	28	28	1.00	
49	40	36	0.90	
50	39	34	0.87	56 Shirley Ave
51	38	33	0.87	

*** Denotes receptors positions on rooms know to have multiple windows – in accordance with BR 209, if there would be a significant loss of light to the main window but a room has more than one**

window, an overall VSC may be derived from a weighting of all VSC results. As no receptor demonstrates a significant loss of light, this weighted value is not reported.

Table 5 VSC Results

Appendix B

APSH & WPSH Results

Tabulated results of APSH & WPSH for all receptors in Baseline and Proposed Condition.

	Probable annual sunlight hours			Probable annual winter sunlight hours			Address
Receptor No.	Base line Condition (%)	Proposed Condition >25%	Ratio [Proposed/ Baseline] >0.80	Baseline Condition (%)	Proposed Phase >5%	Ratio [Proposed/ Baseline] >0.80	
1	40	38	0.95	10	8	0.80	32 Shirley Ave
2	38	37	0.97	10	9	0.90	
3	15	15	1.00	0	0	1.00	
4	54	54	1.00	16	16	1.00	
5	39	39	1.00	10	10	1.00	
6	48	48	1.00	11	11	1.00	34 Shirley Ave
7	51	51	1.00	13	13	1.00	
8	53	52	0.98	15	14	0.93	
9	54	54	1.00	16	16	1.00	
10	54	54	1.00	16	16	1.00	
11	54	54	1.00	16	16	1.00	
12	33	30	0.91	7	7	1.00	36 Shirley Ave
13	29	29	1.00	7	7	1.00	
14	35	34	0.97	8	8	1.00	
15	35	34	0.97	9	9	1.00	
16	31	31	1.00	6	6	1.00	
80*	39	35	0.90	10	9	0.90	
81*	52	51	0.98	16	15	0.94	
82*	39	39	1.00	14	14	1.00	
83*	43	41	0.95	14	12	0.86	
84*	46	42	0.91	13	12	0.92	
85*	46	43	0.93	13	12	0.92	
86*	60	57	0.95	21	18	0.86	
87*	43	42	0.98	16	15	0.94	
88*	48	46	0.96	17	15	0.88	
89*	42	36	0.86	12	10	0.83	
90*	49	44	0.90	15	12	0.80	
91*	49	45	0.92	15	12	0.80	
17*	52	48	0.92	14	14	1.00	38 Shirley Ave
18*	43	37	0.86	11	9	0.82	

	Probable annual sunlight hours			Probable annual winter sunlight hours			Address
Receptor No.	Base line Condition (%)	Proposed Condition >25%	Ratio [Proposed/ Baseline] >0.80	Baseline Condition (%)	Proposed Phase >5%	Ratio [Proposed/ Baseline] >0.80	
19*	54	48	0.89	16	14	0.88	
20	29	25	0.86	0	0	1.00	
21	54	53	0.98	16	16	1.00	
22	54	53	0.98	16	16	1.00	
23	54	53	0.98	16	16	1.00	
24	51	49	0.96	13	13	1.00	
25	54	51	0.94	16	15	0.94	
26	54	50	0.93	16	15	0.94	
27	54	54	1.00	16	16	1.00	40 Shirley Ave
28	54	54	1.00	16	16	1.00	
29	54	53	0.98	16	16	1.00	
30	46	43	0.93	11	9	0.82	42 Shirley Ave
31	47	44	0.94	12	10	0.83	
32	42	39	0.93	10	8	0.80	
33	54	54	1.00	16	16	1.00	42 Shirley Ave
34	51	51	1.00	15	15	1.00	
35	46	46	1.00	12	12	1.00	
36*	76	75	0.99	24	23	0.96	
37*	81	80	0.99	24	23	0.96	
38*	76	75	0.99	24	23	0.96	
39*	52	50	0.96	14	13	0.93	
40*	52	49	0.94	14	12	0.86	
41*	45	42	0.93	11	9	0.82	
42*	40	37	0.93	10	8	0.80	44 Shirley Ave
43*	24	23	0.96	0	0	1.00	
44	52	49	0.94	14	12	0.86	
45	32	32	1.00	7	7	1.00	
46	54	54	1.00	16	16	1.00	
47	54	54	1.00	16	16	1.00	
48	33	33	1.00	8	8	1.00	
49	54	53	0.98	16	16	1.00	56 Shirley Ave
50	42	41	0.98	10	10	1.00	

	Probable annual sunlight hours			Probable annual winter sunlight hours			Address
Receptor No.	Base line Condition (%)	Proposed Condition >25%	Ratio [Proposed/ Baseline] >0.80	Baseline Condition (%)	Proposed Phase >5%	Ratio [Proposed/ Baseline] >0.80	
51	40	39	0.98	10	10	1.00	

*** Denotes receptors positions on rooms know to have multiple windows - In accordance with BR 209, where rooms are known have multiple windows, The APSH for the best daylit window should be taken.**

Table 6 APSH and WPSH Results

Appendix C

Sunlight Penetration to Amenity Areas

Tabulated results of sunlight penetration to amenity areas in Baseline and Proposed Condition.

Grid number	Baseline Condition Percentage of area => 2hrs	Proposed Condition Percentage of area => 2hrs	Ratio [Proposed/ Baseline] >0.80	address
1	0.85	0.85	1.00	32 Shirley Ave
2	0.84	0.84	1.00	34 Shirley Ave
3	0.79	0.79	1.00	36 Shirley Ave
4	0.83	0.83	1.00	38 Shirley Ave
5	0.99	0.96	0.99	40 Shirley Ave
6	0.89	0.89	1.00	42 Shirley Ave
7	0.84	0.84	1.00	44 Shirley Ave
8	0.76	0.76	1.00	56 Shirley Ave

Table 7 Sunlight penetration into amenity areas results