



Old Sports Hall, Talbot House, Talbot Manor,
Talbot Road, Glossop

Daylight & Sunlight Assessment

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Document History and Status

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Draft 1	23/10/25	-	-
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I Introduction

I.1 Introduction

- I.1.1 Daylight & Sunlight Solutions Ltd was instructed to prepare a Daylight and Sunlight Assessment for the proposed development at Old Sports Hall, Talbot House, Talbot Manor, Talbot Road, Glossop.
- I.1.2 The purpose of this report is to assess the daylight and sunlight levels of the proposed residential dwelling, in accordance with guidance set out in *BRE Report 209, Site Layout Planning for Daylight and Sunlight: A guide to good practice, Third Edition, 2022* (BR 209), and *BS EN 17037, Daylight in buildings*.

I.2 Development Description

- I.2.1 The proposed development is for the erection of a single detached bungalow with 3 bedrooms.

I.3 3D Models

- I.3.1 A 3D model has been developed. The model is of the proposed development and existing nearby trees. This is shown in Figure 1.
- I.3.2 MBS Software daylight for SketchUp, and Velux Daylight Visualizer are programs developed to calculate daylight and sunlight levels in accordance with guidance provided in BR 209 has been used.
- I.3.3 Trees have been modelled from the latest data provided in the Tree Survey by Cheshire Woodlands Ltd (June 2025). Only trees referenced in this report have been modelled. The difficulty of modelling the effects of trees on daylight is referenced in BR 209 paragraph G1.2 which states that:

It is generally more difficult to calculate the effects of trees on daylight because of their irregular shapes and because some light will generally penetrate through the tree crown.

- I.3.4 20 additional trees have been modelled. There is no data provided for these trees. The following assumptions have been made: The outline of the woodland area has been taken from Google maps. The height of the trees range from 19-24m with low (1m) ground clearance.
- I.3.5 Having considered the variety of tree species surrounding the development site it has been estimated that an average of 20% of light will pass through the tree crowns in the summer when trees will be in full leaf and that an average 60% of light will pass through the tree crowns in the winter when most trees won't be in leaf. Trees have been given a reflectance of 40% during the summer and 10% during the winter.
- I.3.6 Depending on the assessment trees have either been modelled as opaque objects, not included, or been given a transparency and reflectance factor. Modelling trees as opaque objects will underestimate the amount of daylight or sunlight received, and not modelling the trees will overestimate daylight and/or sunlight levels. BR 209 paragraph G1.2 recommends that trees are not modelled for the following reason:

Where the effect of a new building in existing buildings nearby is being analysed, it is usual to ignore the effect of existing trees. This is because daylight is at its scarcest and most valuable in winter when most trees will not be in leaf.

- I.3.7 For the purposes of the Daylight Factor (DF) calculations, for the new development, the area-weighted average reflectance of the room surfaces has been calculated on the assumption that the rooms have a white ceiling (0.80), light (pale cream) coloured walls (0.7) and light coloured carpet/light wood flooring (0.4). Any obstructions (surrounding buildings, external walls and floors) have been given a 0.2 reflectance. The maintenance factor has been calculated as 0.96 and 0.88 for sheltered windows. The diffuse visible transmittance of the glazing has been assumed to be 0.68 and the effective net area glazing has been measured from drawings provided ARCD Architects.

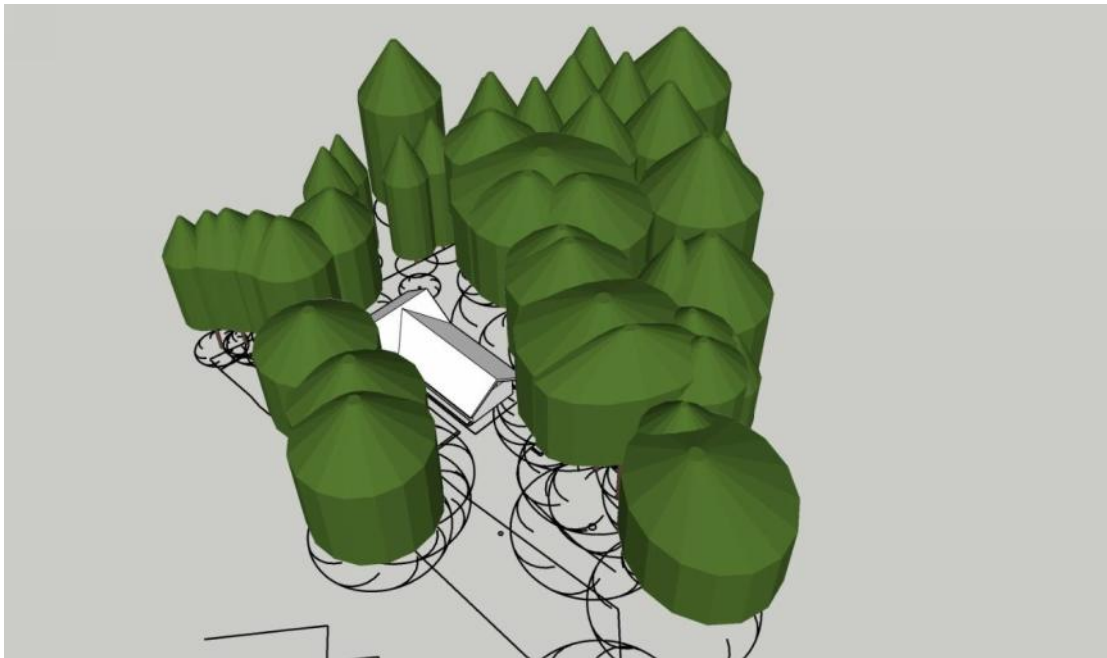


Figure I – Development area as proposed

2 Assessment

2.1 Daylight –Habitable Rooms – New Development

2.1.1 The criteria for the daylight factor is provided in BR 209 paragraph C16:

The UK National Annex gives illuminance recommendations of 100 lux in bedrooms, 150 lux in living rooms and 200 lux in kitchens. These are the median illuminances, to be exceeded over at least 50% of the assessment points in the room for at least half of the daylight hours. The recommended levels over 95% of a reference plane need not apply to dwellings in the UK.

2.1.2 BR 209 paragraph C17 to C19 further states that:

Where a room has a shared use, the highest target should apply. [...]. Local authorities could use discretion here. For example, the target for a living room could be used for a combined living/dining/kitchen area if the kitchens are not treated as habitable spaces, as it may avoid small separate kitchens in a design. The kitchen space would still need to be included in the assessment area.

The UK National Annex gives the latitude, median external diffuse and global illuminances for various UK locations, as well the daylight factor targets corresponding to the target illuminance as shown in Table C3. The targets for the latitude nearest to the assessment site should be used.

Table C3 shows the daylight factor targets to be achieved over at least 50% of the assessment grid in domestic habitable rooms with vertical and/or inclined daylight apertures.

Table C3 – Target daylight factors (D_T) to achieve over at least 50% of the assessment grid in UK domestic habitable rooms with vertical and/or inclined daylight apertures			
Location	D_T for 100 lx (Bedroom)	D_T for 150 lx (Living room)	D_T for 200 lx (Kitchen)
St Peter (Jersey)	0.6%	0.9%	1.2%
London (Gatwick Airport)	0.7%	1.1%	1.4%
Birmingham	0.6%	0.9%	1.2%
Hemsby (Norfolk)	0.6%	0.9%	1.3%
Finningley (Yorkshire)	0.7%	1.0%	1.3%
Aughton (Lancashire)	0.7%	1.1%	1.4%
Belfast	0.7%	1.0%	1.4%
Leuchars (Fife)	0.7%	1.1%	1.4%
Oban	0.8%	1.1%	1.5%
Aberdeen	0.7%	1.1%	1.4%

2.1.3 Of relevance to this report BR 209 G2.1 and G2.2 further states that:

Where a new dwelling is proposed near to large existing trees. There may be concern that future occupants of the dwelling may want the trees to be cut down if they block too much skylight or sunlight.

A way to assess this is to calculate the illuminance or daylight factors in the proposed rooms with the trees in place. This will depend on the transparency of the trees, the proportion of light that passes through the tree crown.

2.1.4 For this part of the assessment trees have been given a transparency and reflectance factor.

2.1.5 BR 209 G2.8 goes on to state that:

Using the daylight factor method, the calculations should be repeated for summer and winter conditions and two sets of results shown. If BS EN 17037 recommended values of daylight factor over at least half of an assessment grid are exceeded in both summer and winter, then daylight would be considered adequate; and if the recommendations are not reached in both summer or winter then daylight would be considered inadequate. For a room where the recommendation is exceeded in winter, but not in summer, daylight provision year round is likely to be adequate, but it is clear that the trees are having some effect on daylight.

2.1.6 The closest location, Funningley (Yorkshire), has been used for target daylight factors. With 0.7% for bedrooms, 1.0% for living rooms and 1.3% for kitchen. The target for multi-purpose rooms has been given a target level for a kitchen.

2.1.7 Table I provides a numerical record of the assessment of the daylight factors of all habitable rooms of the proposed development for both summer and winter.

Table I – Daylight Factor and Lux of proposed development

Habitable Room	Target Daylight Factor (D_T)	Summer Daylight Factor achieved (D)	Winter Daylight Factor achieved (D)
Living / Dining / Kitchen	1.3%	2.8%	3.1%
Bedroom 1	0.7%	1.6%	1.8%
Bedroom 2	0.7%	0.7%	0.7%
Bedroom 3	0.7%	0.7%	0.7%

2.1.8 All habitable rooms, of the proposed development meet the minimum daylight factor recommended in BR 209 during both summer and winter months, complying with BR 209 guidance.

2.2 Sunlight – Habitable Rooms – New Development

2.2.1 BR 209 paragraph 3.1.15 states:

In general a dwelling, or non-domestic building that has a particular requirement for sunlight, will appear reasonably sunlit provided:

- at least one main window wall faces within 90° of due south and;
- a habitable room, preferably a main living room, can receive a total of at least 1.5 hours of sunlight on 21 March. This is assessed at the inside centre of the window(s); sunlight received by different windows can be added provided they occur at different times and sunlight hours are not double counted.

2.2.2 Of relevance to this report BR 209 paragraph G3.1 and G3.2 states that:

To assess sunlight provision to new dwellings, BS EN 17037 recommends the calculation of hours of sunlight received on a single day, assuming clear skies; 21 March is the suggested date. [...] At this time of the year deciduous trees will not be in full leaf and therefore some sun will be expected to penetrate. However, it would be impossible to accurately simulate how the fragmented obstruction of a tree would obstruct direct sunlight to a point at a particular time.

It is therefore recommended that where trees may affect sunlight provision, the calculations should first be carried out with deciduous trees as opaque objects. The calculations could then be repeated without deciduous trees entirely. This gives the range of potential sunlight hours. Buildings and other solid objects should always be included. Evergreen trees where no light can penetrate all year round should also always be included as solid.

2.2.3 For this part of the assessment trees have been modelled as opaque objects and trees not included. Modelling trees as opaque objects will underestimate the amount of direct sunlight rooms would receive.

2.2.4 BR 209 paragraph G3.4 further states:

If the minimum recommendation is met with opaque trees then sunlight would be adequate. If the minimum recommendation is not reached with either opaque trees or no trees then sunlight would be considered inadequate. For a room where the recommendation is exceeded without trees, but not with opaque trees, sunlight provision may be adequate, but the trees will have some effect on the sunlight received.

- 2.2.5 Table 2 provides a numerical record of the assessment of sunlight hours of the windows of main habitable room of the proposed development. The closest Weather data has been used from BREEAM Location: Manchester (53.5° N).

Table 2: Sunlight Hours of proposed development

Room	Target Sunlight Hours on 21 March	Sunlight hours received on 21 March with opaque trees	Sunlight hours received on 21 March with no trees
Living / Dining / Kitchen	1.5 hrs	2.0 hrs	4.3 hrs

- 2.2.6 All rooms assessed exceed the minimum sunlight hours on 21 March with both trees modelled as opaque objects and not included, complying the BR 209 guidance.

2.3 Sunlight – Gardens – New Development

2.3.1 BR 209 paragraph 3.3.17 states:

It is recommended that for it to appear adequately sunlit throughout the year, at least half of a garden or amenity area should receive at least two hours of sunlight on 21 March.

2.3.2 For this part of the assessment trees have been modelled as opaque objects. Modelling trees as opaque objects will underestimate the amount of direct sunlight gardens would receive.

2.3.3 BR 209 paragraph G4.2 further states:

People vary in their preferences, and some like to have a shady, secluded garden. However, most people would be satisfied with some areas of partial shade under trees, and other parts of the garden or amenity area in full sun. If the whole of the garden is shaded by trees for a lengthy period of time in summer, the garden is probably too shady.

2.3.4 Figure 2 and 3 show the areas of amenity that would most likely enjoy direct sunlight on March 21 (equinox). Areas in yellow meet BR 209 guidance, darker colours fall outside BR 209 guidance and are more shaded throughout the day. Figure 2 represents a worst-case scenario with opaque tree modelled. Figure 3 shows trees not included in the assessment.

2.3.5 Table 3 provides a numerical record of the amenity spaces to the proposed 3 areas with trees modelled as opaque objects, and trees not included as per BR 209 guidance.

Table 3: % of Amenity Space that receives direct sunlight

Reference	% of amenity space that receives 2 or more hours of direct sunlight on March 21 with opaque trees	% of amenity space that receives 2 or more hours of direct sunlight on March 21 with no trees
Woodland	41%	99%
Patio Space	71%	97%
Main Garden	85%	100%

2.3.6 Two amenity areas with opaque trees modelled achieves the recommended target value. All three amenity areas with no trees modelled, as per BR 209 guidance exceed the recommended target value, complying with BR 209 guidance.

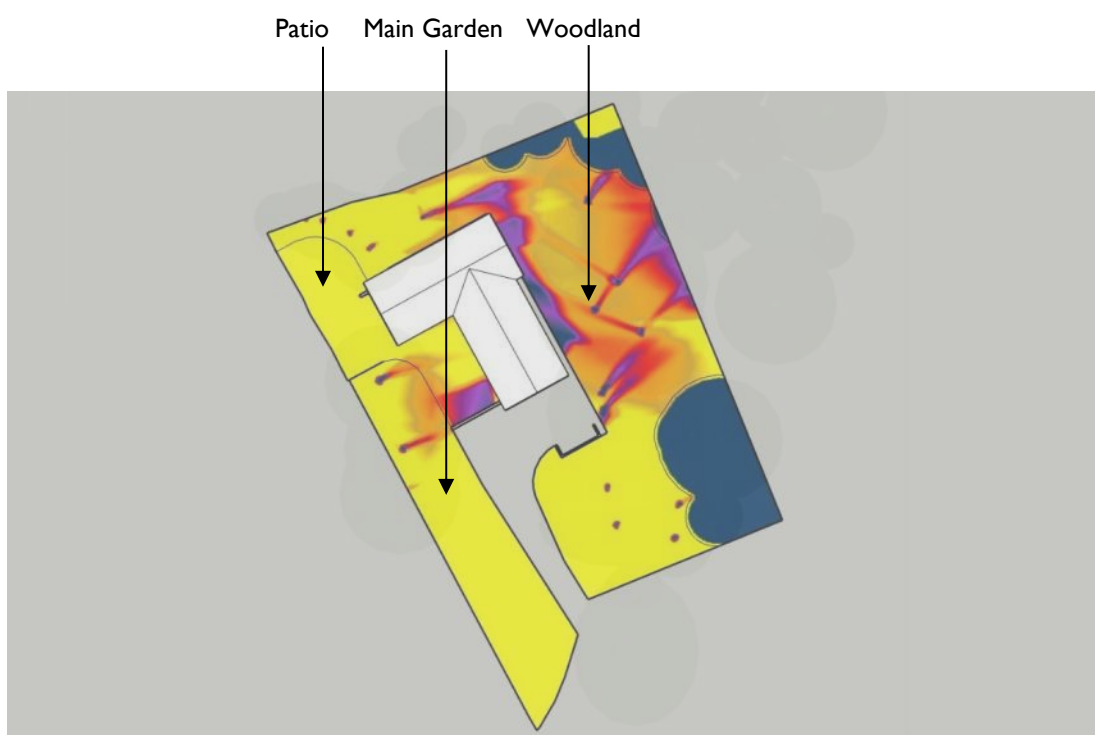


Figure 2: Amenity assessment with opaque trees (trees made transparent for image)

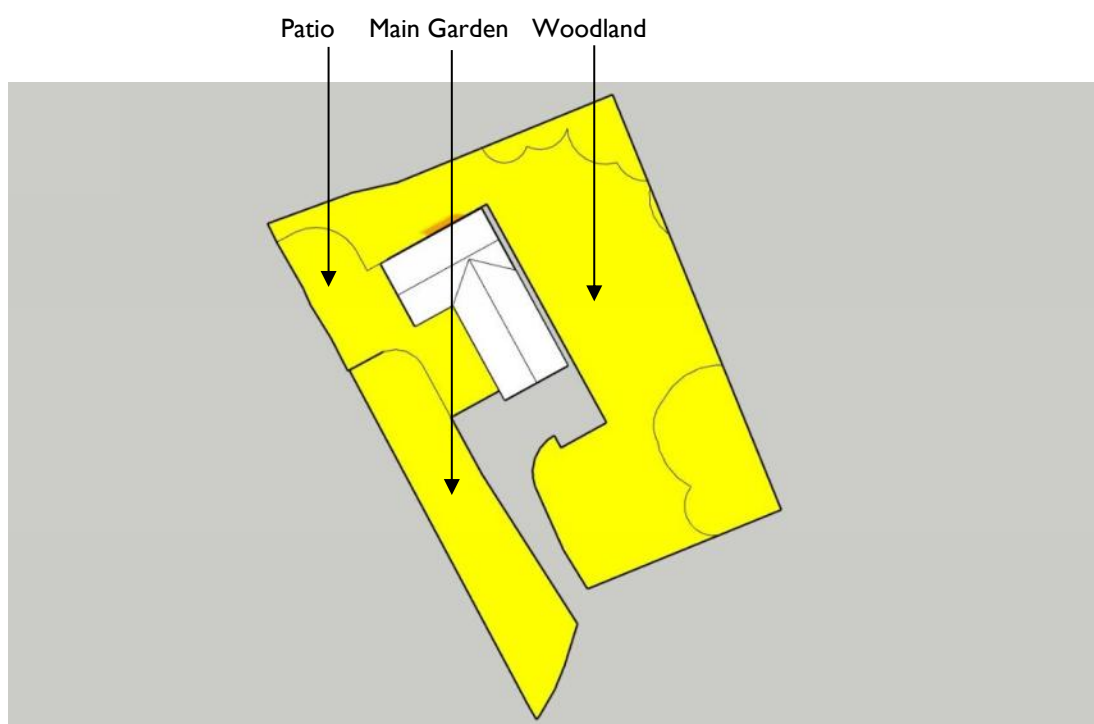


Figure 3: Amenity assessment with no trees

2.4 Sunlight – Shadow Mapping

2.4.1 BR 209 paragraph 3.3.14 states:

If a space is used all year round, the equinox (21 March) is the best date for which to prepare shadow plots as it gives an average level of shadowing.

2.4.2 Figures 4 to 11 show the shadow maps of the development site and the surrounding area. Shadow mapping provides a good visual record of when gardens and amenity spaces receive the most sunlight. The times have been taken at 9:00am, every hour until 16:00pm on the 21st of March.

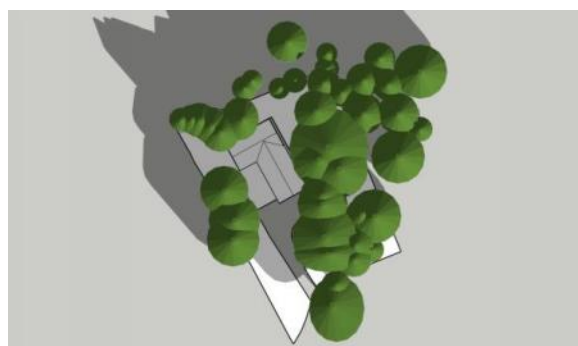
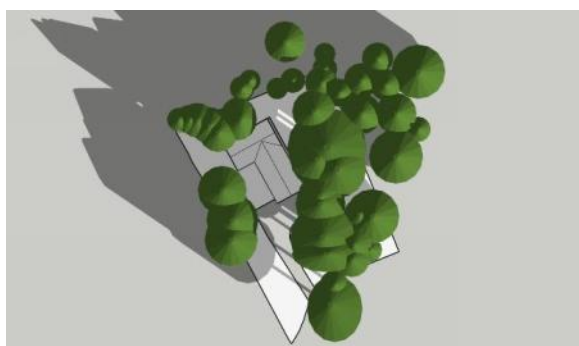


Figure 4 & 5: Shadow cast at 09:00am and 10:00am on 21 March

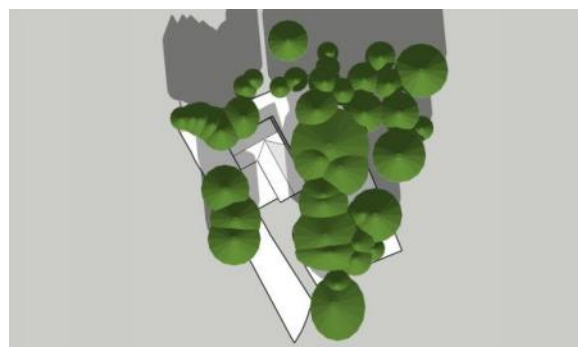
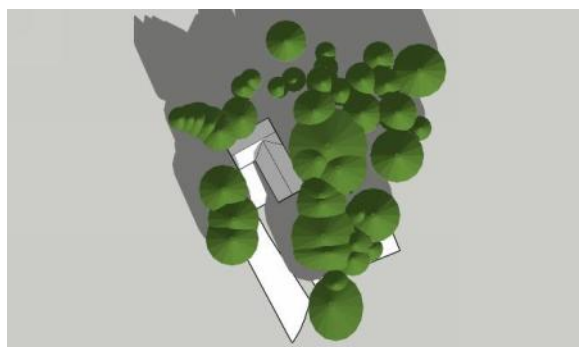


Figure 6 & 7: Shadow cast at 11:00am and 12:00pm on 21 March

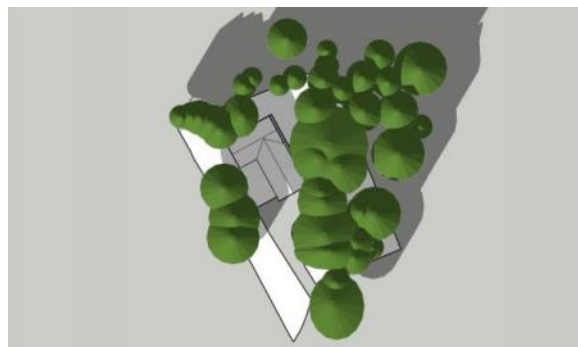
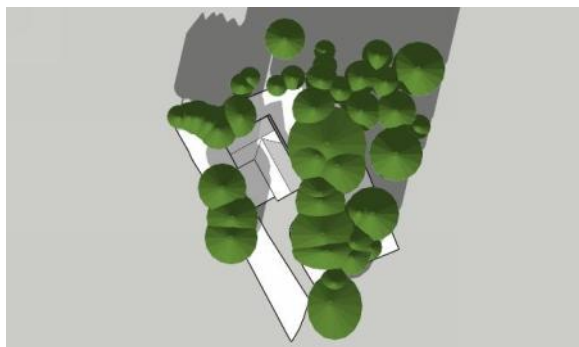


Figure 8 & 9: Shadow cast at 13:00pm and 14:00pm on 21 March

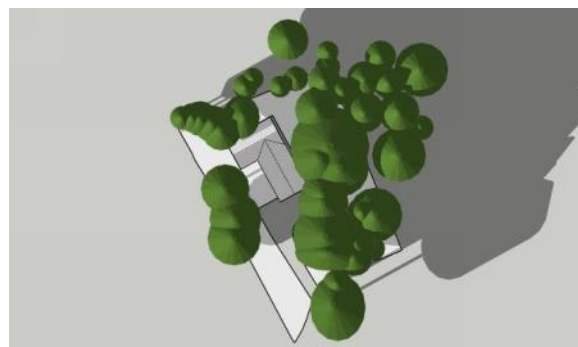
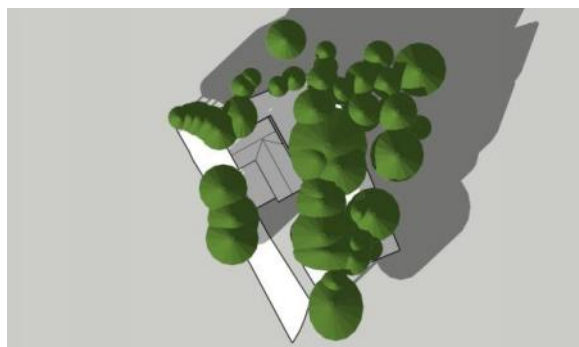


Figure 10 & 11: Shadow cast at 15:00pm and 16:00pm on 21 March

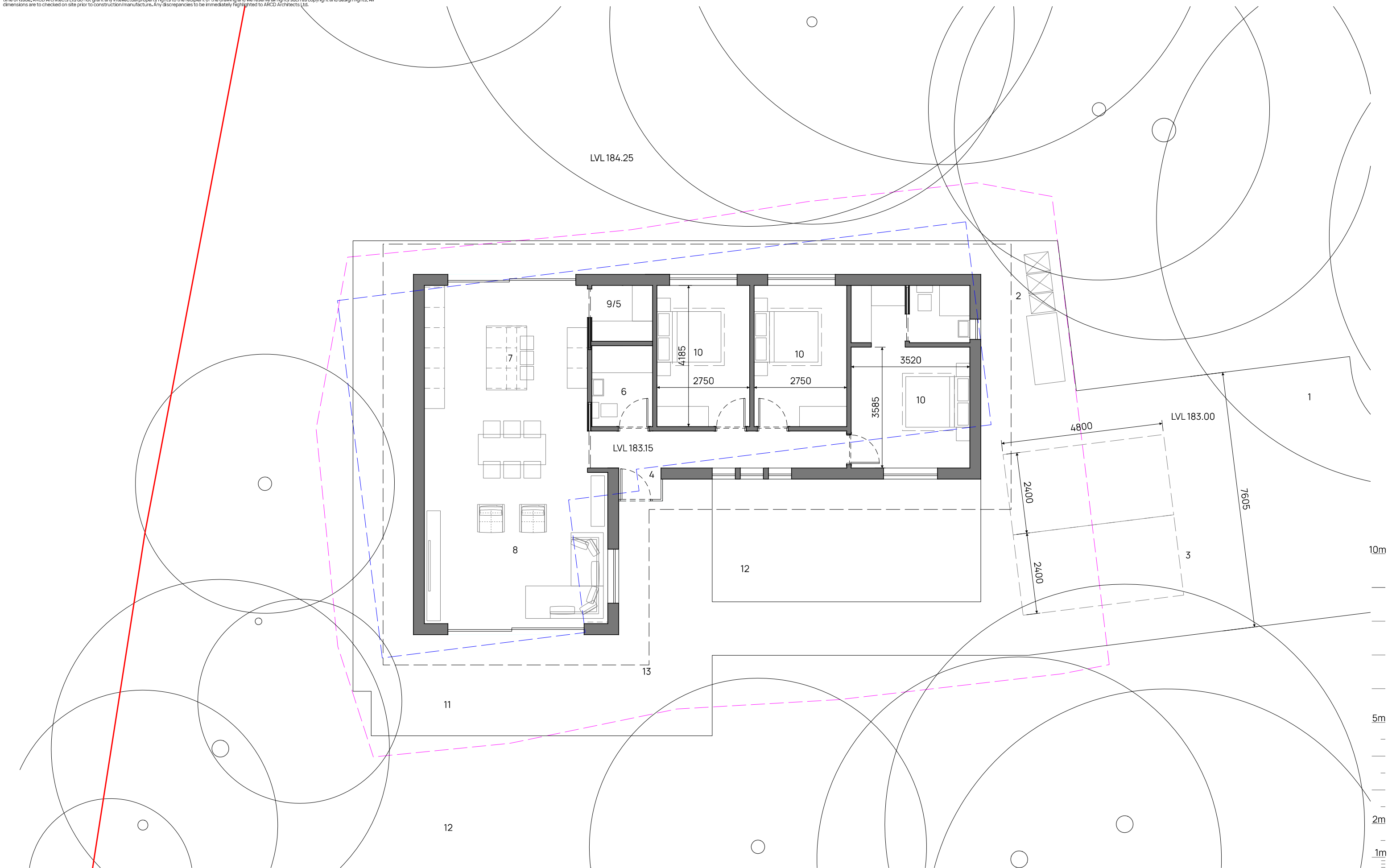
3 Conclusions

- 3.1.1 An assessment of the daylight and sunlight levels of the proposed development Old Sports Hall, Talbot Road, Glossop, has been undertaken in accordance with guidance set out in *BRE Report 209, Site Layout Planning for Daylight and Sunlight: A guide to good practice, Third Edition, 2022 (BR 209)*, and *BS EN 17037, Daylight in buildings*.
- 3.1.2 Whilst BR 209 gives numerical guidelines for assessing daylight and sunlight levels, it is important to bear in mind that the guidance is predicated on a suburban model of development and that the numerical guidelines should be interpreted flexibly. BR 209 Paragraph 1.6 states:

The guide (BR 209) 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 taken 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.

- 3.1.3 With this in mind, the following conclusions have been drawn:
- 1) All habitable rooms of the proposed development meet the minimum daylight factor recommended in BR 209 during both summer and winter months, complying with BR 209 guidance.
 - 2) All rooms assessed exceed the minimum sunlight hours on 21 March with trees modelled as opaque objects and not included, complying with the BR 209 guidance.
 - 3) Two amenity areas with opaque trees modelled achieves the recommended target value. All three amenity areas with no trees modelled, as per BR 209 guidance exceed the recommended target value, complying with BR 209 guidance.

Appendix A – Floor Plans



1. Gravel driveway
2. Bin and bike store
3. Cars
4. Entrance
5. Cloaks
6. Bathroom
7. Kitchen
8. Dining & Lounge
9. Utility
10. Bedroom
11. Covered patio
12. Gardens
13. Roof overhang

GIA 114m²

- Pre app footprint
- Existing hardstanding / Footprint of former sports r



rev	date		description		
Project	OLD SPORTS HALL, TALBOT ROAD				
Title	GROUND FLOOR PLAN AS PROPOSED				
Project No	25-11	Drawing No	L(-2)001	Status	PLAN
Scale	1:100@A3	Date	JUL 2026	Rev	