



New Dwelling at Rear of 98 Station Road

Daylight Analysis

Design Stage Report

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EXECUTIVE SUMMARY

This report discussed the finding of a daylight impact assessment on the new dwelling at the rear of 98 Station Road.

Following the guidance of the BRE2011 Site Layout and Planning for Daylight and Sunlight, we have undertaken an Average Daylight Factor (ADF) assessment of the proposed new occupied spaces.

To assess the performance of the proposed redevelopment we have used the IES <VE> FlucsDL software. This software is compliant with the requirements of CIBSE Application Manual AM11. HDSgreentech have input agreed parameters to the software to predict the internal daylight factors. Studies provide detailed average daylight factors for the test spaces.

This report will show that all occupied spaces will achieve the required daylight factors.

INTRODUCTION

This report looks at the conversion of an existing single storey outbuilding into a 3 three bed bungalow at the rear of 98 Station Road and how the surrounding trees would affect the ADF of the occupied spaces.

This report has been generated as evidence for planning to show it is in line with the recommendations set out in BRE "Site layout planning for daylight and sunlight" 2011.

To deliver this study HDSgreentech have used the Radiance package from the Virtual Environment analysis suite. This software provides for daylight calculation and analysis in accordance with the governing standard 'BS 8206-2:2008, Lighting for buildings, Code of practice for daylighting'.

The objective is to test the design against BS8206 Lighting Design for Buildings. The base target is to have an ADF in excess of 1% in bedrooms and 1.5 % in living spaces as stated in the BRE "Site layout planning for daylight and sunlight" 2011 (paragraph 2.1.9)

MODEL IMAGES

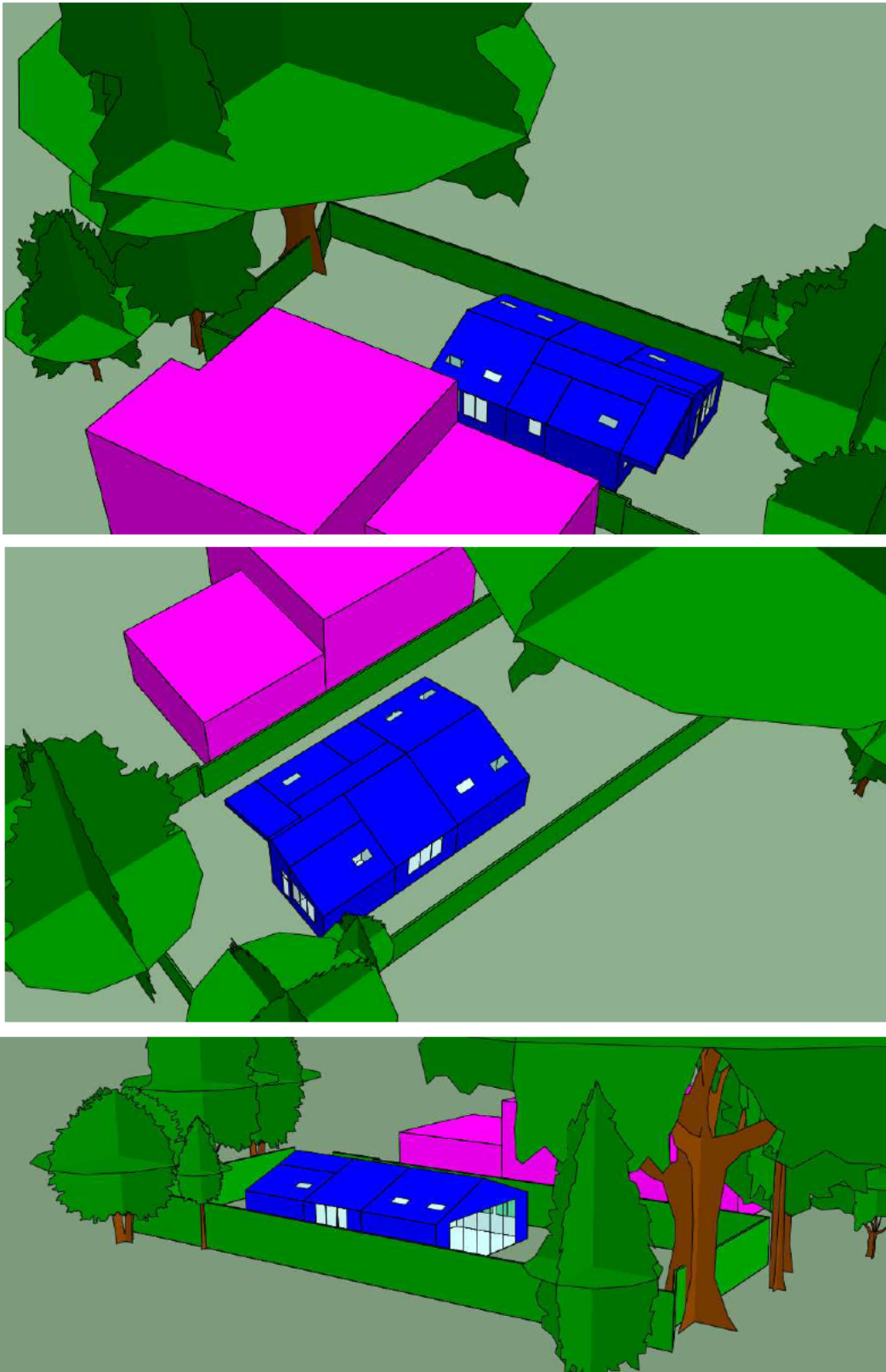


Figure 1 - Model images

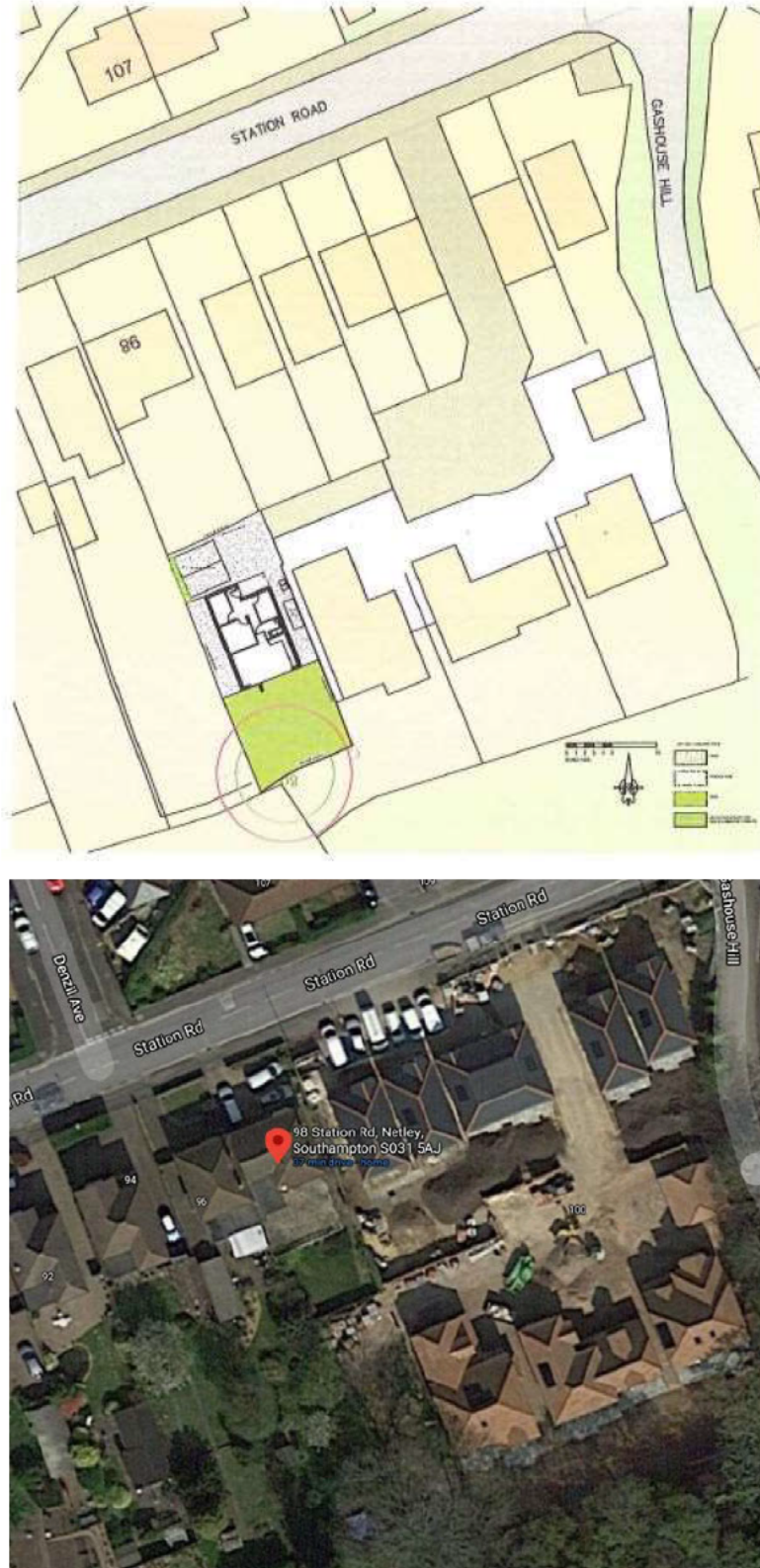


Figure 2 – Orientation, North towards top of page

SITE IMAGES





Figure 3 – Site survey images

MODEL CONSTRUCTION INFORMATION

The following plans were used during the determination of the application and are referenced on the decision notice:

P01 Location & Block Plan

P03 Proposed Elevations, Floor & Roof Layouts

LOCATION

This project uses the location of Southampton.

BUILDING FABRIC

The constructions assigned to the model have the basic properties as agreed with Stonehaven Holdings:

EXTERNAL OPAQUE ELEMENTS

Element	Reflectance
External walls (Internal)	0.7
Floor	0.35
Ceiling / Roof	0.9
Internal Walls	0.7

Table 1 – Opaque surface reflectance

GLAZING TO WINDOWS/ ROOFLIGHTS/ DOORS

Element	Description	Frame Factor %	Light transmittance
Windows External	Double glazing 20% frame	20	0.7

Table 2 – Glazing properties

ASSESSMENT CRITERIA

AVERAGE DAYLIGHT FACTOR ASSESSMENT

The performance standard for daylighting can also be judged against BS8206 Lighting for Buildings.

In domestic properties the minimum daylight standard is as listed below taken from the document.

5.6 Minimum values of average daylight factor in dwellings

Even if a predominantly daylit appearance is not achievable in a dwelling, it is recommended that the average daylight factor should be at least the relevant value as given in Table 2.

Table 2 Minimum average daylight factor

Room type	Minimum average daylight factor %
Bedrooms	1
Living rooms	1.5
Kitchens	2

Combined Living spaces are assessed under the 1.5% minimum due to the open plan living.

RESULTS – AVERAGE DAYLIGHT FACTORS

The following table gives results for the average daylight modelling.

Room name	AOI m ²	Min ADF	Max ADF	ADF	Required ADF based on occupancy	Result
Kitchen/Living	17.7	1.44	13.3	4.5	1.5	PASS
Bedroom 1	5.52	0.48	9.8	2.4	1	PASS
Bedroom 2	3.12	1.08	7.7	2.6	1	PASS
Bedroom 3	3.12	0.47	4.1	1.5	1	PASS

Table 3 – Results Table Average Daylight Factors

CONCLUSION

All occupied spaces studied achieve the average daylight factors as set by the BRE 2011 Site Layout and Planning for Daylight and Sunlight.