



96 Bath Road

**Daylight and Sunlight Report
August 2018**

Revision History

<i>Version</i>	<i>Date Issued</i>	<i>Issued by</i>	<i>QA Check</i>
1	15/08/2018	 Michael Woodbridge	 Tim James

About Environmental Economics

Our team of experienced consultants specialise in construction and building energy. We have qualifications in sustainability, energy, engineering, building physics and construction as well as environmental, quality management and auditing.

Over the last decade, we have provided assessments and consultancy for some of the largest UK house builders, including Barratt Developments, David Wilson Homes, Bellway Homes, Abbey New Homes and Davidsons. We develop flexible, practical, cost-effective specifications for our clients through identifying solutions and delivering design advice. This includes the following disciplines:

- Overheating Analysis (dynamic thermal modelling)
- Daylighting / Sunlight Simulations
- Energy Reports
- Compliance assessments and advice covering
 - Part L (SAP)
 - Part F (ventilation)
 - Part G (water)
- BREEAM
- SBEM (existing and newbuild)
- Minimum Energy Efficiency Standards (MEES)
- Thermal Bridging (Psi value calculations)

Contents

1. Executive Summary	1
2. Introduction.....	1
3. Methodology	2
3.1. Vertical Sky Component – Existing Dwellings	2
3.2. Sunlight Availability – Existing Dwellings	2
4. Site Description.....	3
4.1. Daylight Amenity – Existing Dwellings	12
4.1.1. Vertical Sky Component Results	12
4.2. Annual/Winter Probably Sunlight Hours – Existing Dwellings	13
4.2.1. Probable Sunlight Results – APSH	13
4.2.2. Probable Sunlight Results – WPSH.....	13
5. Conclusion	14

1. Executive Summary

The objective of this report is to establish the affect the proposed scheme at 96 Bath Road will have on two neighbouring windows at 94 Bath Road.

The proposed development is situated in Tilehurst, a suburb of the town of Reading. Environmental Economics have been involved in the design process with Form Architecture and Planning in order to minimise any adverse effects of the proposed scheme.

Two windows that directly face the proposed development have been assessed against the Vertical Sky Component (VSC) and the A/WPSH (Annual/Winter Probable Sunlight Hours), in order to establish the affect the proposed scheme may have. The results for all both windows meet or exceed BRE guidelines.

2. Introduction

Environmental Economics (EE) has been instructed to provide a report to review the daylight and sunlight potential and impact of the proposed scheme as designed by Form Architecture and Planning on behalf of Tara Construction Ltd In order to demonstrate the daylight and sunlight potential of this scheme, EE will carry out the following in line with BRE methodology:

- Create a 3D computer model of the proposed scheme based on the drawings received from Form Architecture and Planning..
- Assess the impact on existing dwellings by calculating the Vertical Sky Component (VSC) and Annual and Winter Probable Sunlight Hours (A/WPSH).
- Prepare a report detailing our analysis and results.

3. Methodology

The Building Research Establishment (BRE) have set out in their guide 'Site Layout Planning for Daylight and Sunlight a Guide to Good Practice 2011' guidelines and methodology in order to analyse sunlight and daylight within the proposed development. The document is also intended to be used in conjunction with British Standard 'BS 8206-2, Code of practice for daylighting'.

Focusing primarily on residential amenity, the document is intended to be used as a guide to inform the design process and to "help rather than constrain the designer". Furthermore, the guide states that the advice given is not mandatory and under certain circumstances, revising target values may be required. Such instances could include, proposed developments neighboured by high rise buildings or proposed developments in high density areas. Therefore, failure to exceed BRE guideline values does not necessarily mean a development should not be granted planning permission.

3.1. Vertical Sky Component – Existing Dwellings

In assessing the daylight availability of existing buildings, the BRE have developed a decision chart which determines whether or not daylighting is likely or unlikely to be significantly affected. The metric used to determine this potential loss is the Vertical Sky Component (VSC).

The VSC measures visible sky from the centre point of the window and takes into account all surrounding obstructions. The VSC does not take window size or reflected light from any source into account. The BRE recommend that if an existing building retains a VSC of 27% or more, daylighting is unlikely to be significantly affected. If the proposed scheme reduces the VSC below 27%, but within 0.8 times of the former VSC value, again, daylighting is unlikely to be significantly affected. If, however, the VSC is below 0.8 times the former value, the BRE conclude daylighting is likely to be affected.

3.2. Sunlight Availability – Existing Dwellings

In limiting sunlight amenity loss for existing buildings, the BRE guide details "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 [in terms of sunlight loss], although care should be taken not to block too much sun." The APSH should be measured from the centre point of the window, with the APSH measurement being taken at 1.6m above ground level for floor-to-ceiling fenestration.

In determining whether or not sunlight amenity may be adversely affected by a new development, the assessed windows should receive 25% of APSH and 5% of APSH during the winter months (21st September – 21st March). If these recommendations are not met, the BRE state "[if available sunlight is] less than 0.8 times the former value, either over the whole year or during the winter months, then the occupants of the existing building will notice the loss of sunlight."

4. Site Description

The proposed development resides on the site of the current bungalow at 96 Bath Road, and will consist of a 2.5 storey dwelling.

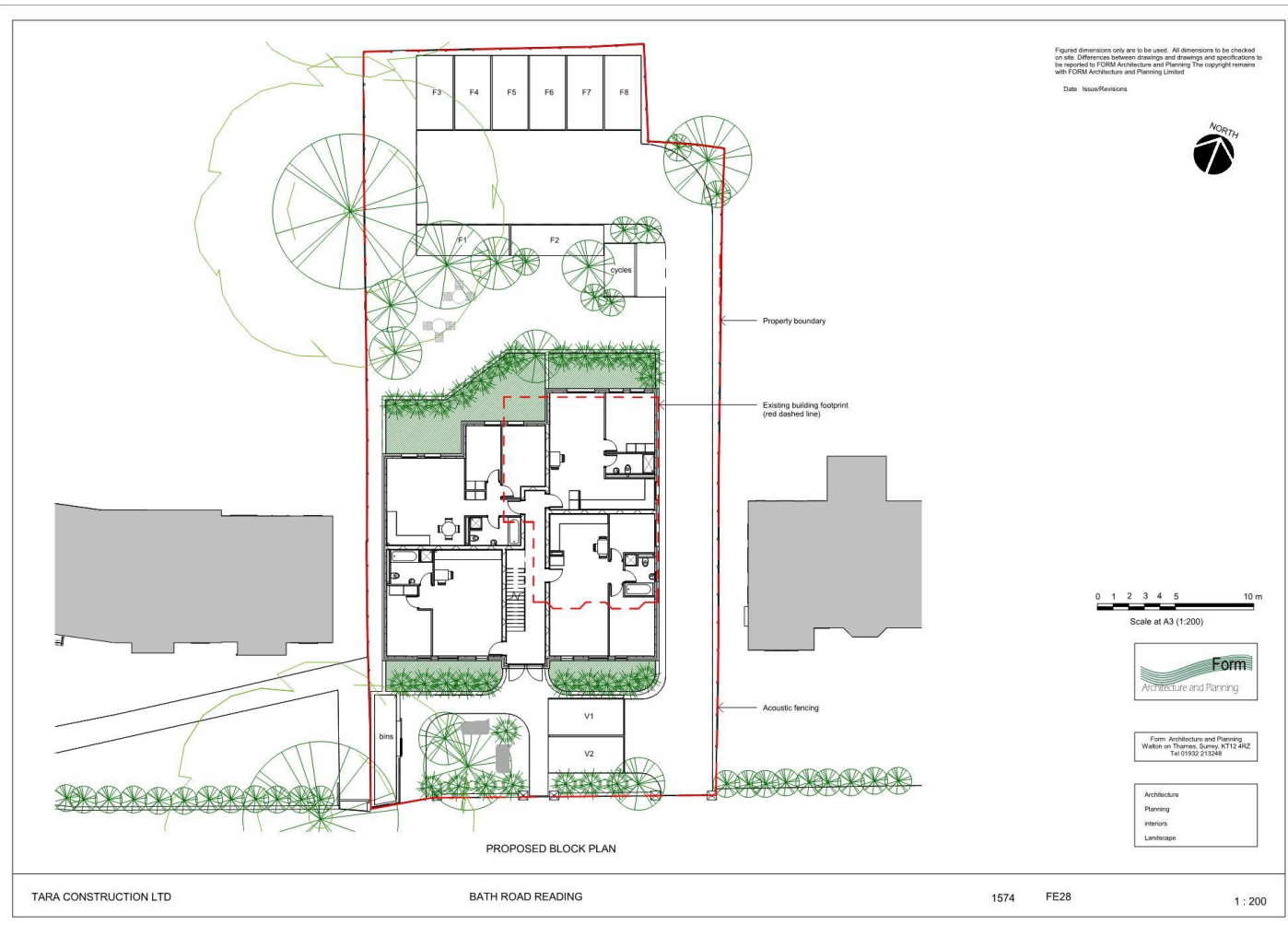




Figure 2 – Site Layout (Google Maps)

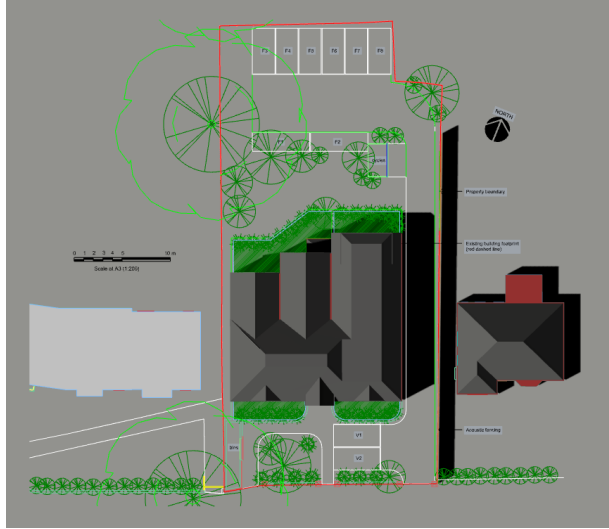


Figure 3 – Plane View from 3D Model

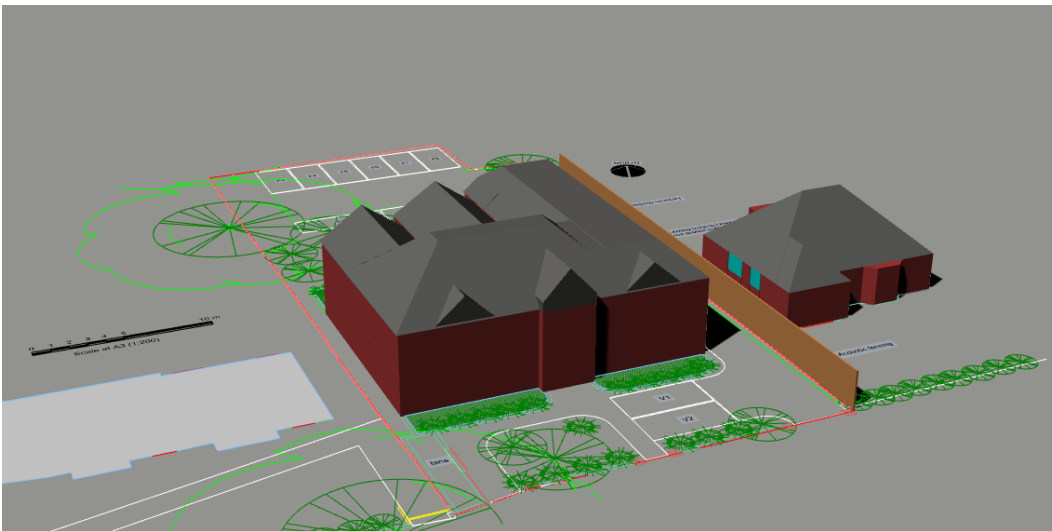


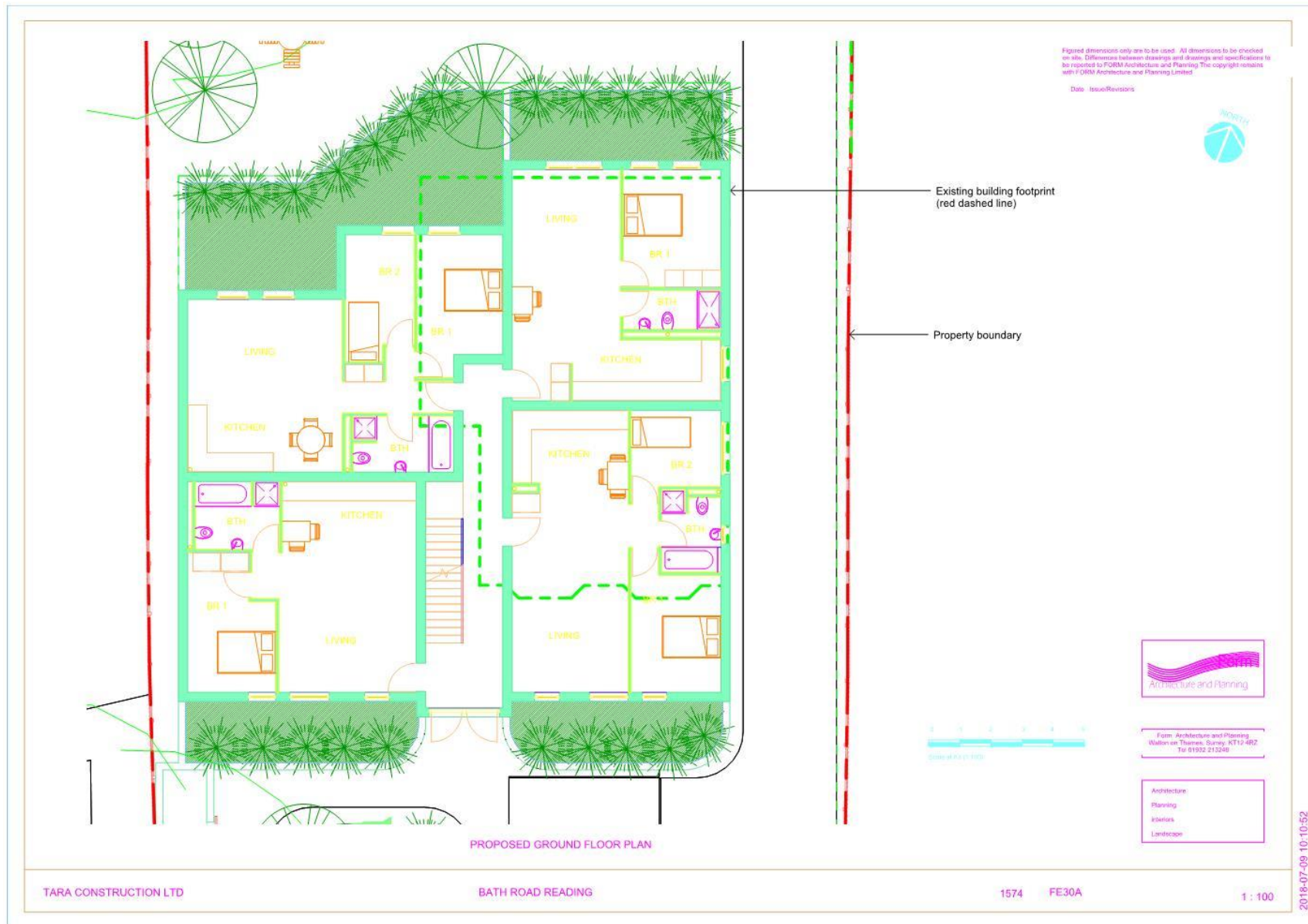
Figure 4 – Perspective View from 3D model

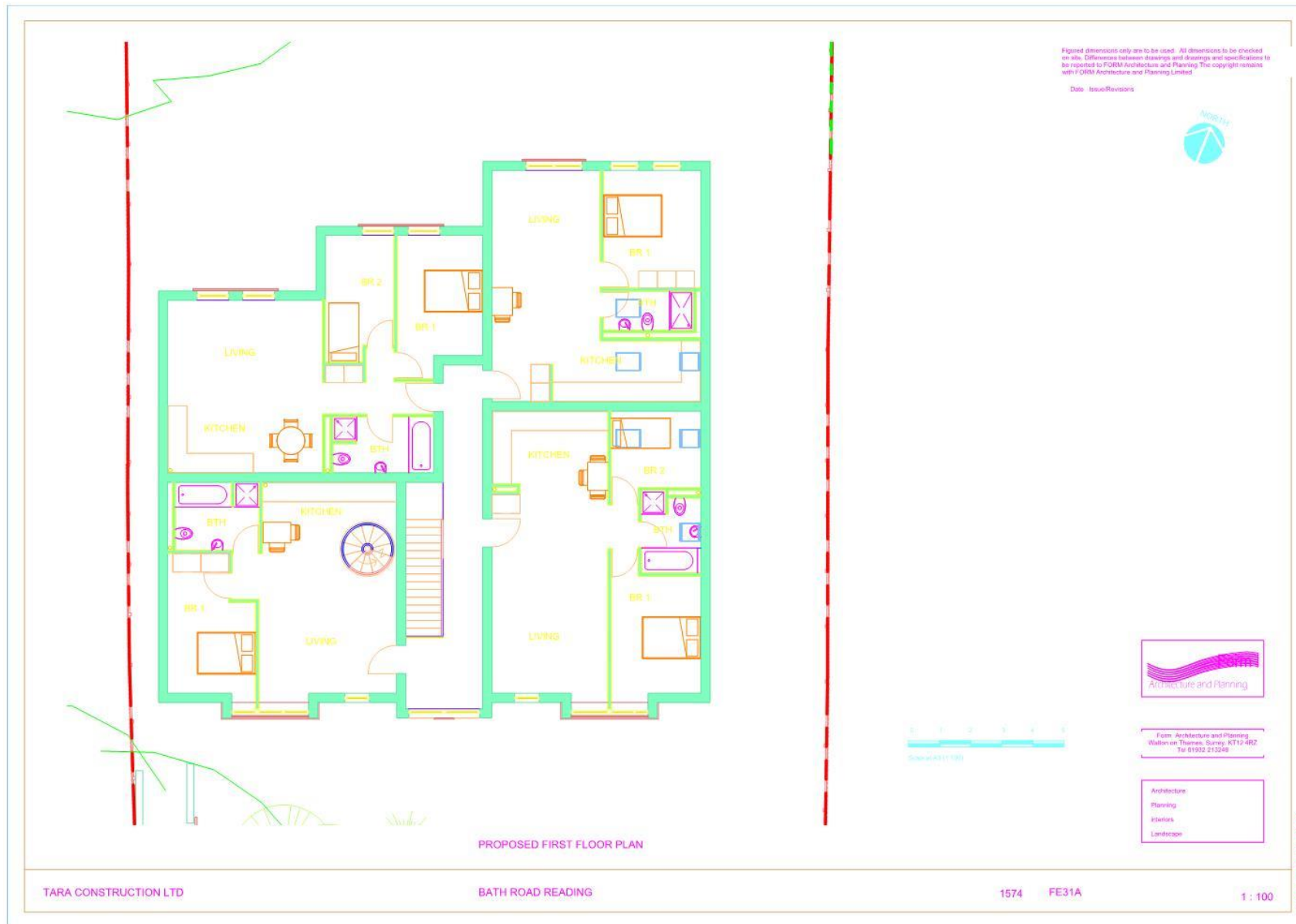


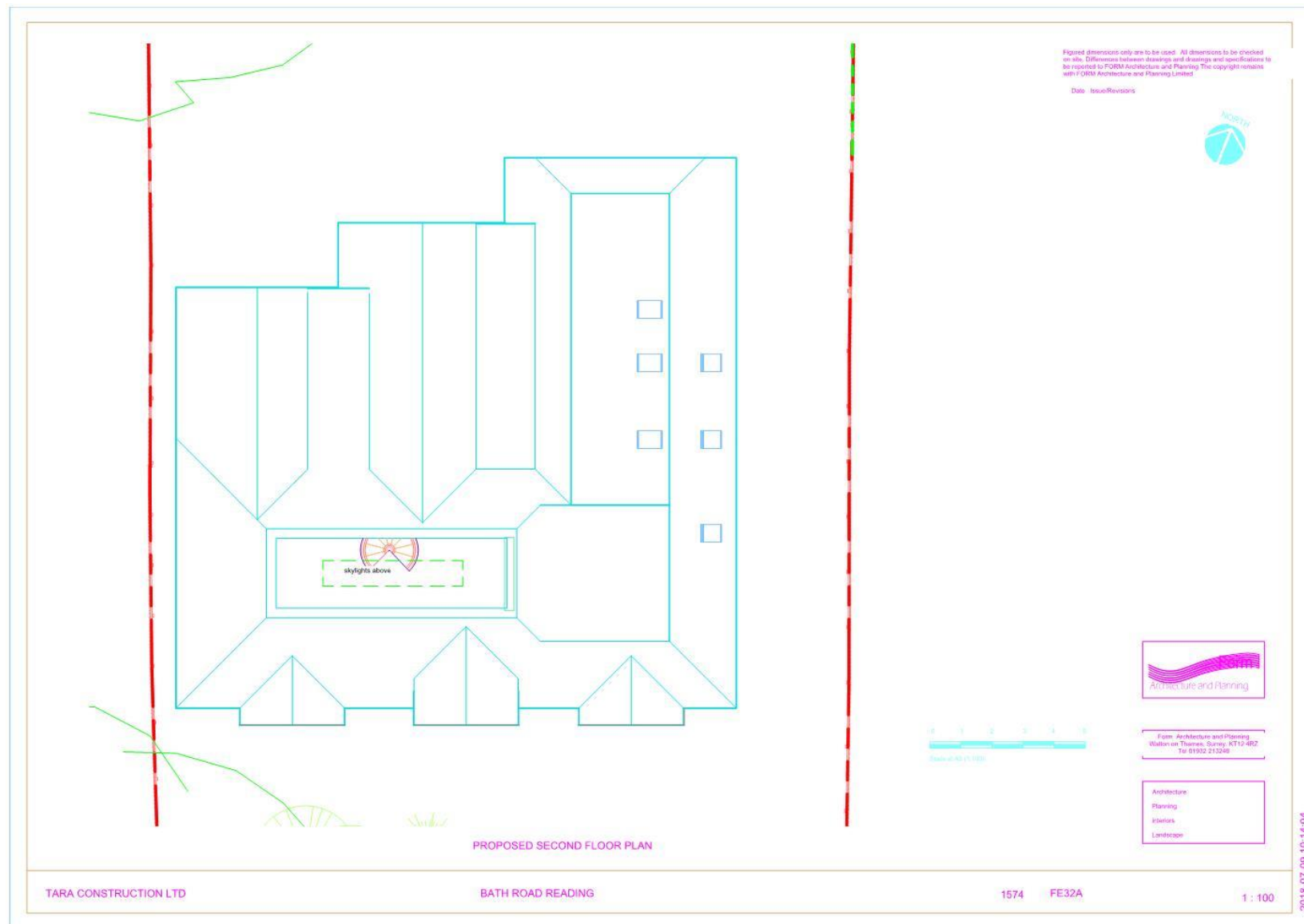












4.1. Daylight Amenity – Existing Dwellings

Two neighbouring windows in have been identified as a having a risk of being overshadowed. Both windows have been assessed using the VSC metric, as described in the methodology. Window locations are indicative and have been plotted using cross referenced information.

The VSC results meet the BRE guidelines set for domestic dwellings. Both windows retain at least 80% of their former VSC value. Therefore it can be deemed that the reduction the daylighting is unlikely to be significantly affected.

4.1.1. Vertical Sky Component Results

Window ID	Existing VSC(%)	Proposed VSC(%)	% Retained
W1	30.81	25.09	81%
W2	31.43	25.73	82%

Table 1 – VSC Results for W1

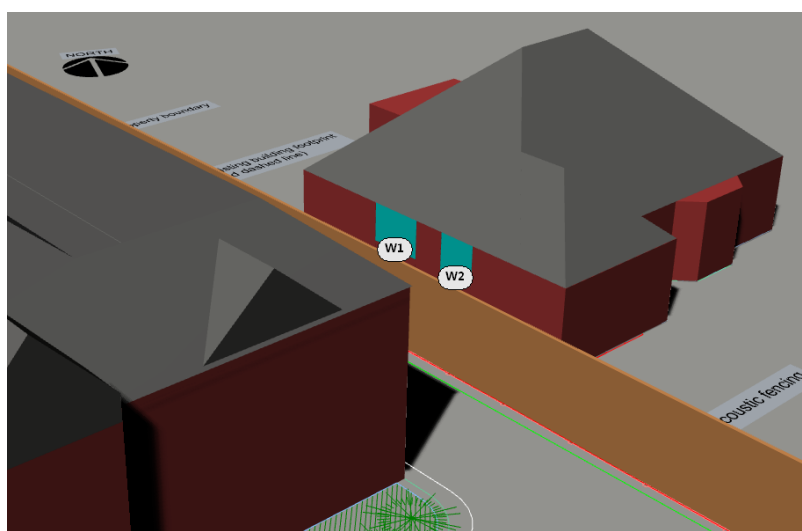


Figure 7– W1 and W2 in 3D Model

4.2. Annual/Winter Probably Sunlight Hours – Existing Dwellings

The same two windows have also been assessed against the annual and winter probable sunlight hours scenario.

BRE guidelines determine that APSH values of 25% or more will and WPSH values of 5% or more will enable a room to appear reasonably sunlit. Both windows surpass these values comfortably and will therefore not be adversely affected by the proposed development.

4.2.1. Probable Sunlight Results – APSH

Window ID	Existing APSH(%)	Proposed APSH(%)	% Retained
W1	50.00	40.00	80%
W2	51.00	41.00	80%

Table 2 – ASPH Results

4.2.2. Probable Sunlight Results – WPSH

Window ID	Existing WPSH(%)	Proposed WPSH(%)	% Retained
W1	17.00	13.00	76%
W2	17.00	14.00	82%

Table 3 – WPSH Results

5. Conclusion

The objective of this report is to establish the affect the proposed scheme at 96 Bath Road will have on two neighbouring windows at 94 Bath Road.

The proposed development is situated in Tilehurst, a suburb of the town of Reading. Environmental Economics have been involved in the design process with Form Architecture and Planning in order to minimise any adverse effects of the proposed scheme.

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