Proof of Evidence of Councillor Adrian Neil Abbs B.Sc. – on behalf of Greenham Parish Council and Newbury Town Council

Sandleford Park, Newtown Road, Newtown, Newbury

Outline planning permission for up to 1,000 new homes; an 80 extra care housing units (Use Class C3) as part of the affordable housing provision; a new 2 form entry primary school (D1); expansion land for Park House Academy School; a local centre to comprise flexible commercial floorspace (A1-A5 up to 2,150 sq m, B1a up to 200 sq m) and D1 use (up to 500sq m); the formation of new means of access onto Monks Lane; new open space including the laying out of a new country park; drainage infrastructure; walking and cycling infrastructure and other associated infrastructure works. Matters to be considered: Access.

Planning Application Reference: 20/01238/OUTMAJ

Planning Inspectorate Reference: APP/W0340/W/20/3265460

Proof of Evidence

Summary

I am Adrian Neil Abbs B.Sc. and a witness for the Rule 6 Parties, Greenham Parish Council and Newbury Town Council, and will say:

A) I am qualified in various alternative energy types, technologies and their optimal use including.
    a. Lighting, Solar, Wind, Air Source Heat Pumps/Heat Exchangers, Ground source heat pumps, hydro based technologies, and energy storage technologies.
B) I have experience in developing, evaluating, advising, and installing alternative energy types gained over some 40 years and starting with my Applied physics degree which included a study on alternative energy types available at that time. This experience is both theoretical and practical covering the technologies above.

    Of specific relevance are the following examples of work carried out

    a. Heat Exchanger home installation
    b. Office Air source heat pump installation
    c. Home Solar Installations
    d. Office Solar Installations
    e. Ground source heat pump installations
    f. A series of web-published guides - SMATE (Save Money And The Environment) guides
        i. SMATE For home - Published July 2019
        ii. SMATE 4Biz - Published August 2019
        iii. SMATE Lights - Published February 2021

    I am also.

    - The shadow spokesperson for the environment at West Berkshire Council
    - A member of West Berkshire Council Environmental Advisory Group (EAG)
    - The lead Councillor at Greenham Parish Council looking at how to reach carbon zero as a Parish Council.
    - A contributor to Lib Dem policy on the environment concerning the creation of an Environmental Impact label that considers Energy, Transport, Sustainability & Reusability
    - A member of Western Area Planning and Sub for District planning since May 2019
C) I will explain how the current planning proposals are far less than optimal for a site that was designated for the delivery of net-zero carbon homes.

    I will also explain that the current indicative layout, once adjusted to deliver carbon zero homes, cast serious doubts on the traffic flows and subsequent modelling of traffic entering and exiting the site by the proposed routes.

D) I will detail.
    1. How solar gain has been ignored & roofline energy generation has not been considered.
    2. That this may result in incorrect traffic modelling

TABLE OF CONTENTS

1 - Introduction

1.1 When first brought forward the site was envisaged as a site suitable for delivery of net zero carbon homes. I can find no evidence that this position has ever altered from a West Berkshire Council perspective.

1.2 In addition, the 2019 Ministry of Housing, Communities and Local Government National Planning Policy Framework has some key points it makes in para's 151 and 153 that have direct implications for this site. Key points to keep in mind when reviewing this document are.

- Para 151 a), b) & c)
- Para 153 b) "take account of landform, layout, building orientation, massing and landscaping to minimise energy consumption."

2- How solar gain has been ignored & roofline energy generation has not been considered.

2.1 As the site is in the northern hemisphere Lat 51.383 Lon -1.330 we know that the sun rises in the east and sets in the west. We also know that the sun is higher in its arc in the summer than in the winter.

2.2 We also know that the orientation of buildings is a key factor for solar gain as is the design of the building itself and the space within it.

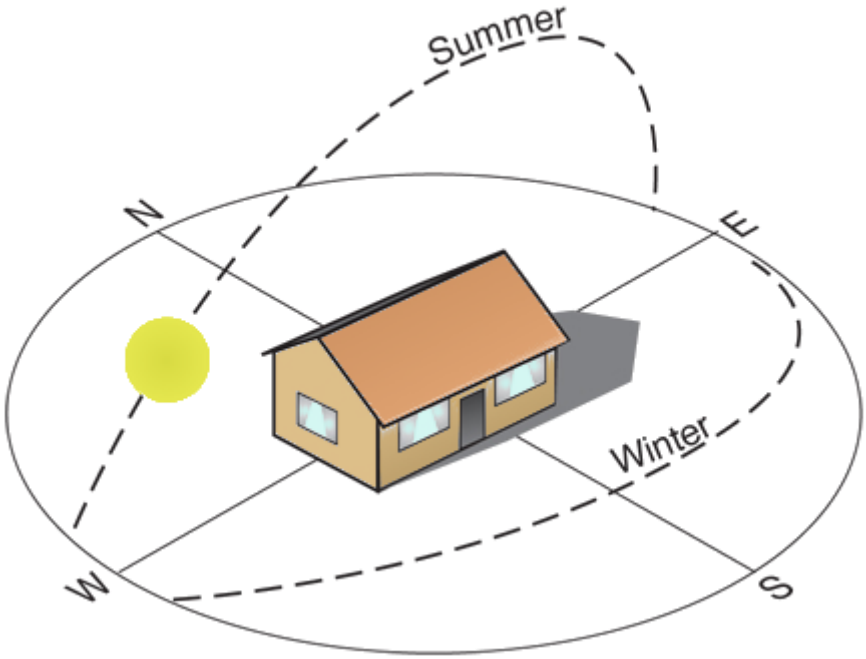


Image 1 (Best Practice orientation for a home for solar gain)

3- Best Practice for solar gain from solar panels

3.1 Focusing on just the roof orientation we can see from available data that for this Lat & Lon the best solar orientation is achieved between 0 and 10 degrees from due south.

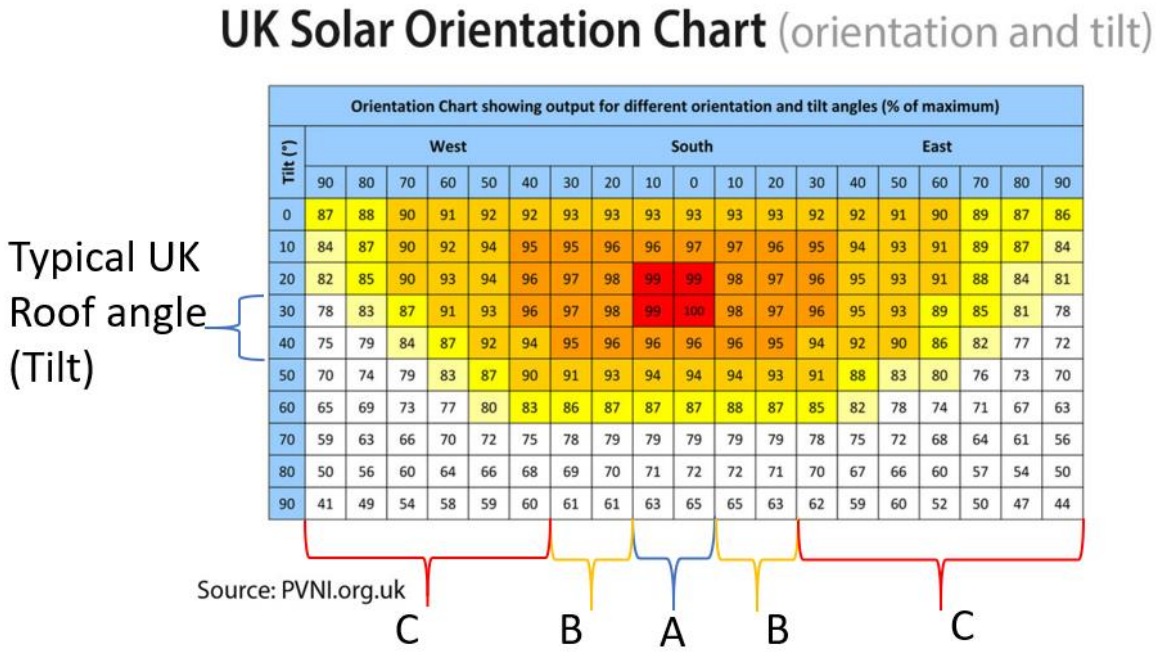


Image 2 (UK Solar chart showing peak performance by orientation and pitch angle)

3.2 Once roof angle is taken into account we can see a rapid drop in solar performance with orientations and angle.

3.3 Although roof pitch is not defined in this application using UK home averages (40 degrees in this analysis) I created a tool against which the indicative layout of the properties was measured.

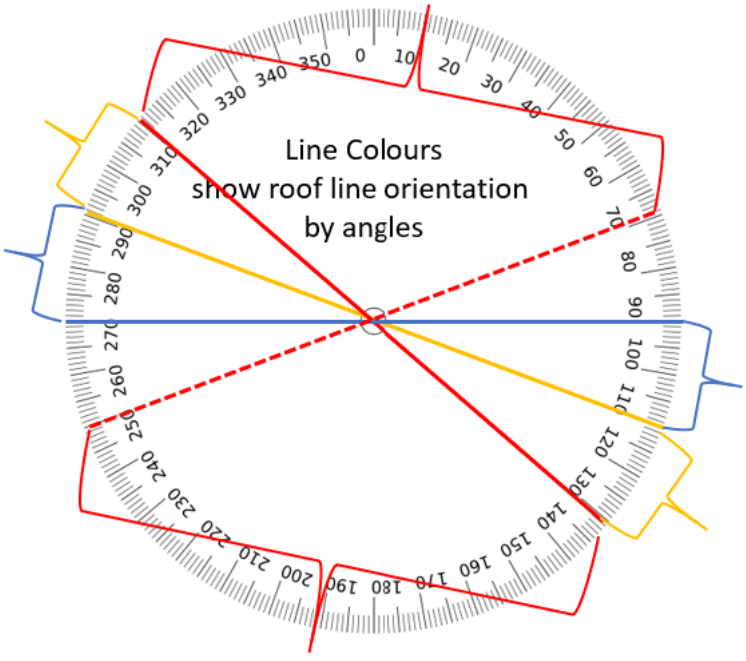


Image 3 (tool created to evaluate the orientation of indicative layout proposed by the appellant)

3.4 The results for various plots are shown below

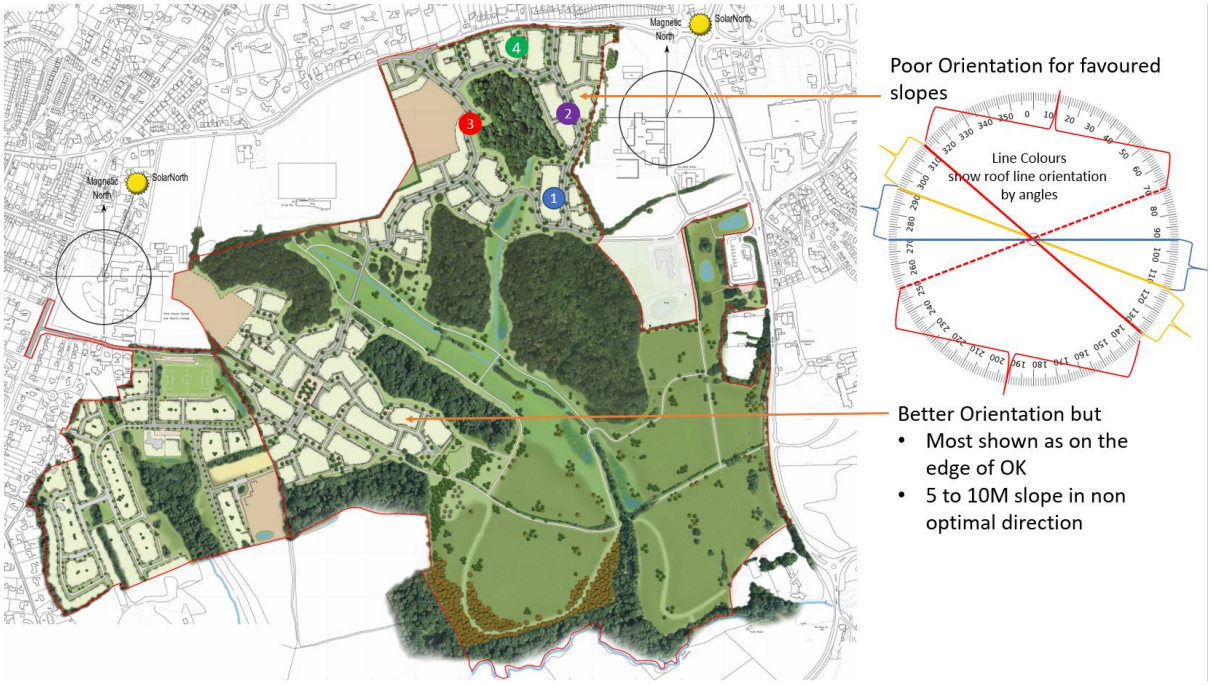


Image 4 (overview of the proposed development and plot layout)

3.5 The overview above includes coloured dots numbered 1 to 4. The next 4 images show detail from the plans provided by the appellant of the suggested layout and road structure internal to the site of these areas.

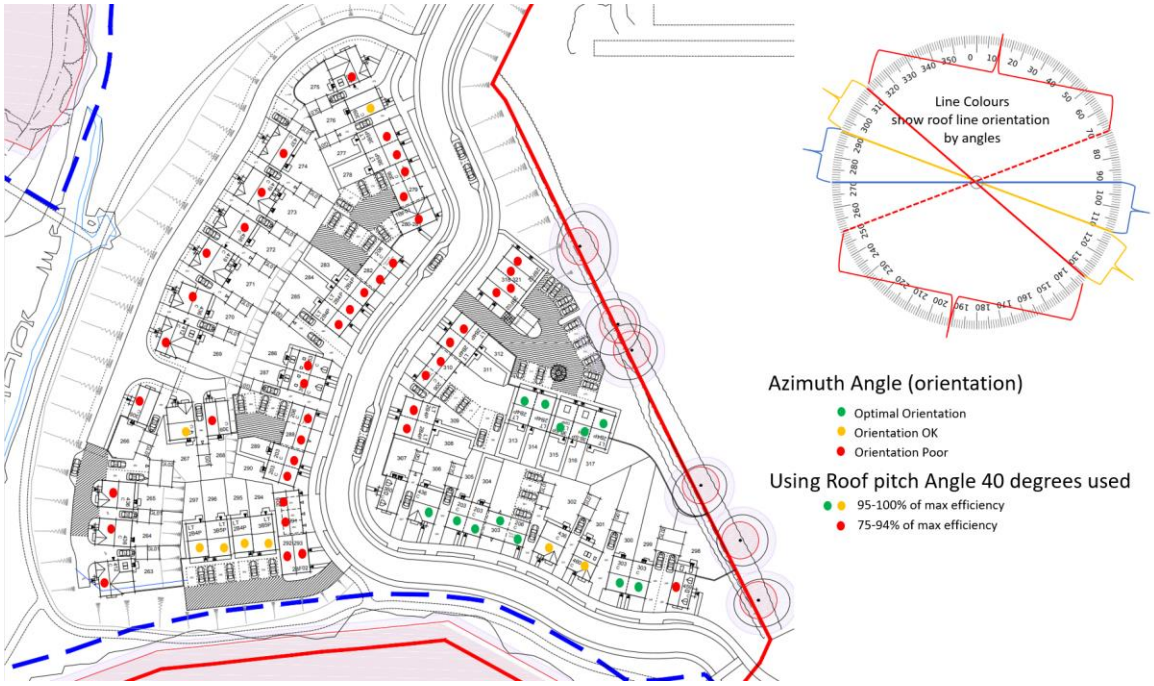


Image 5 - indicative home orientation (Bloor Homes (2015) 'Site Plan – Pt 2')

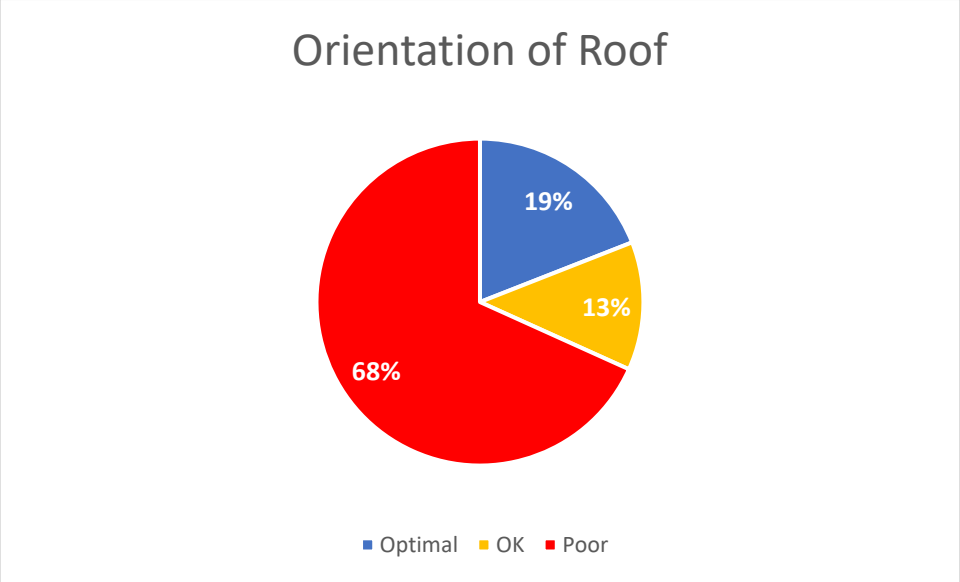


Chart 1

Chart 1 shows 68% of homes where the orientation is greater than 40 degrees from optimal

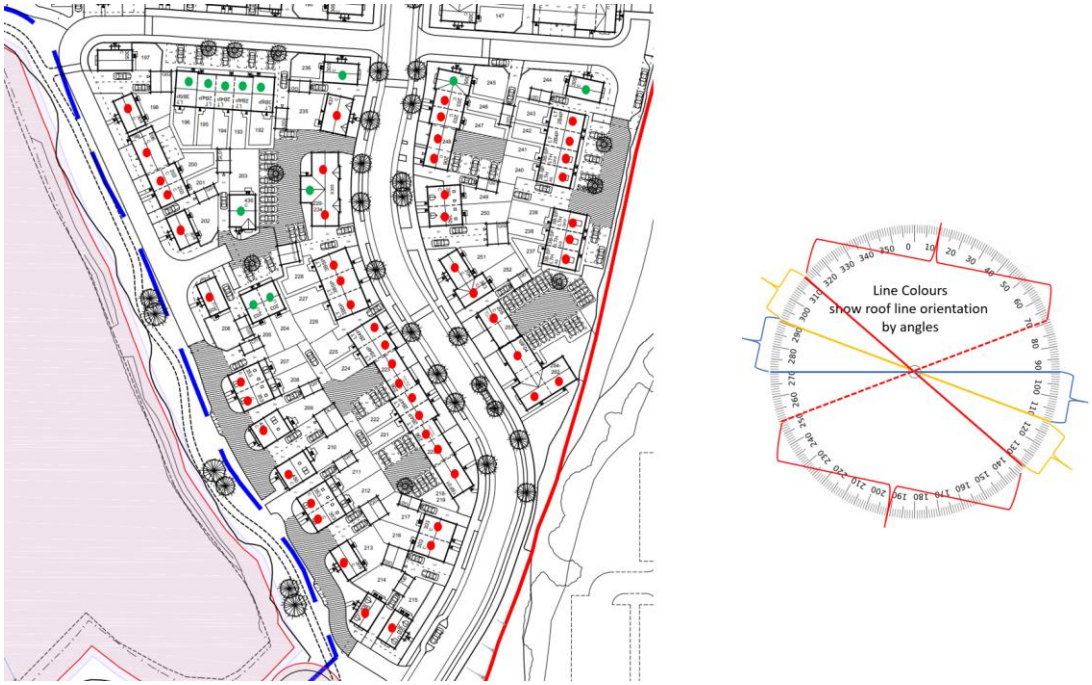


Image 6 - indicative home orientation (Bloor Homes (2015) 'Site Plan')

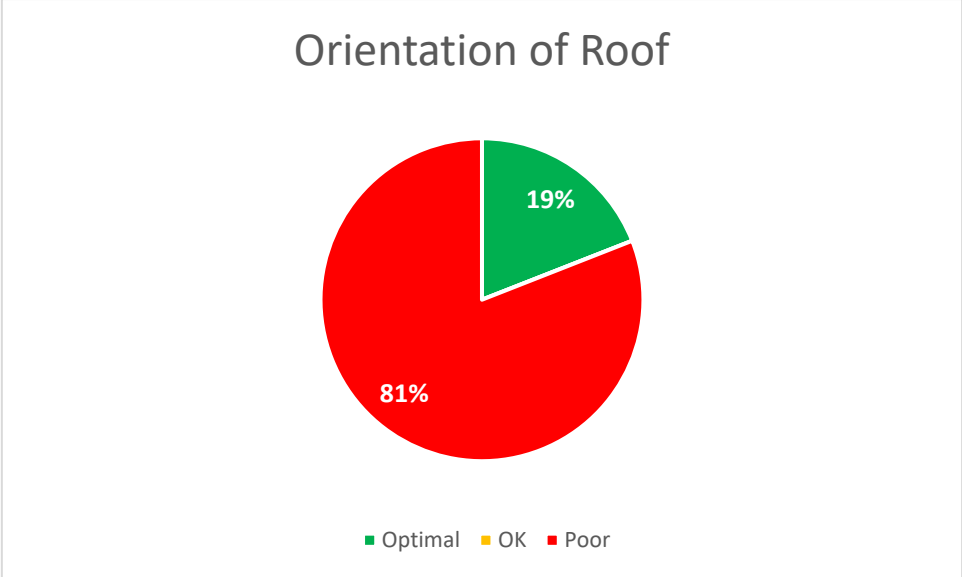


Chart 2

Chart 2 shows 81% of homes where the orientation is greater than 40 degrees from optimal

Image 7 - indicative home orientation(Bloor Homes (2015) 'Site Plan – Pt 1')

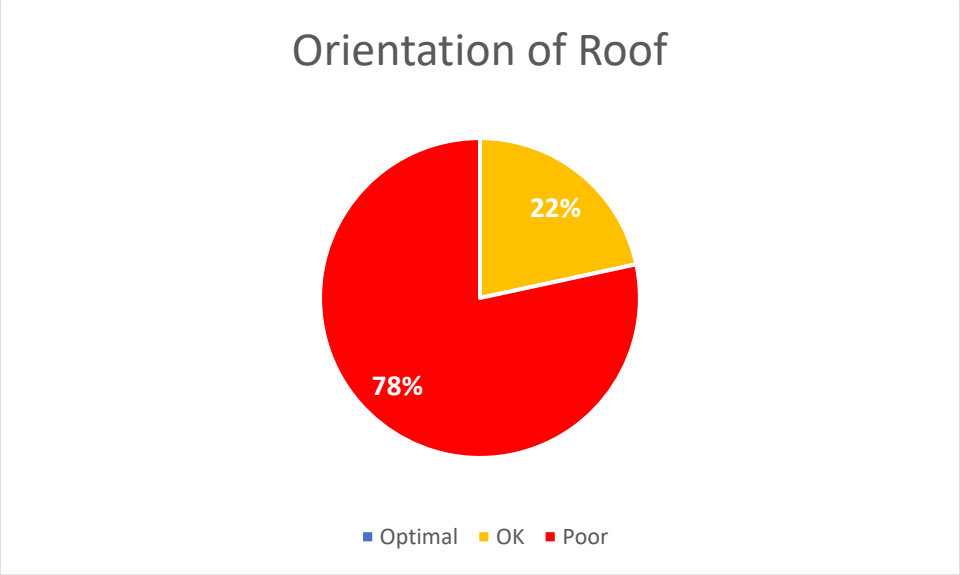


Chart 3

Chart 3 shows 78% of homes where the orientation is greater than 40 degrees from optimal

Image 8 - indicative home orientation (Bloor Homes (2015) 'Site Plan')

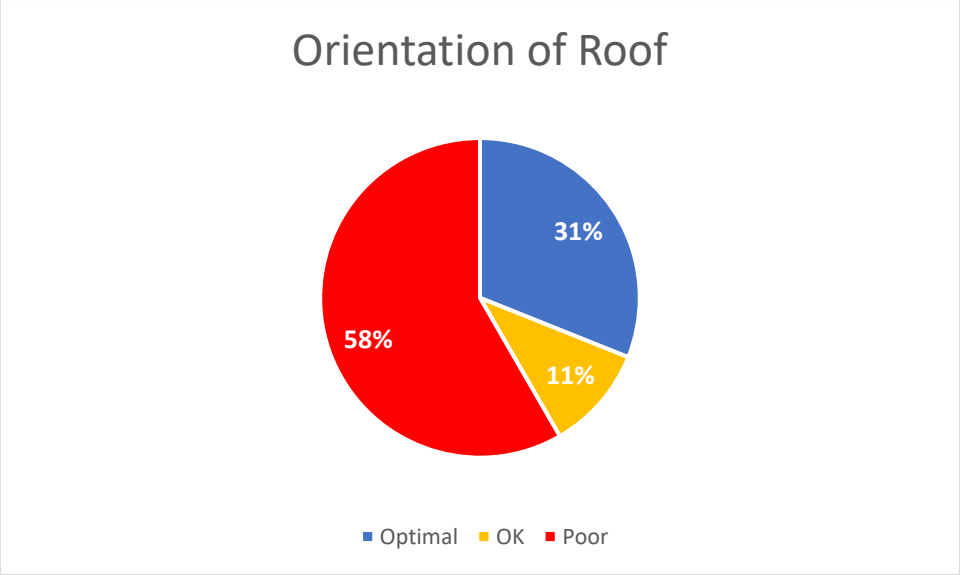


Chart 4

Chart 4 shows 58% of homes where the orientation is greater than 40 degrees from optimal

Conclusion Solar Gain

3.7 The analysis was carried on the area of the proposed development most suited to solar gain due to its slope direction.

3.8 It is clear from a large number of red dots (71.25% average across the 4 areas) that the appellant has either decided to actively ignore the advantages offered by the site or has simply not considered either the natural passive solar gain available or the resulting orientation of rooflines that could easily lead to net-zero carbon homes. Therefore, it is safe to conclude that the outline indications of the layout provided by the appellant are not suitable for this location either at a macro scale (image 4) or at the detail level (images 5-8)

4 - That this may result in incorrect traffic modelling

4.1 All traffic modelling provided into the VISSIM tool will have been based on indicative information provided by the appellant. Clearly, any changes to the orientation of buildings and the resulting changes to the internal road structure will affect the flow of traffic within the site. That in turn could alter the loading at the various entry and exit points. The VISSIM modelling tool can take these things into account.

Conclusion traffic modelling

4.2 Given a significant change may be required on road layout to account for solar gain, it is not safe to assume the current proposals for entry and exit points are adequate or sized correctly at each location.

5 - Evidence conclusion

5.1 When the site was allocated, one of its criteria and the relevant standard that applied at the time, was to build net-zero carbon homes.

5.2 Given that the appellant is not aiming to build net-zero homes and does not appear to have considered even the passive solar gain available to them on the site I suggest that this application should be rejected as unsuitable for this location.

5.3 Also, once orientation for solar gain is accounted for, the current proposals traffic modelling is at high risk of being inaccurate and therefore is unsafe to be approved.

6 - Reference materials

MHCLG (2019) 'National Planning Policy Framework'

Para 151.

To help increase the use and supply of renewable and low carbon energy and heat, plans should:

> a) provide a positive strategy for energy from these sources, that maximises the potential for suitable development, while ensuring that adverse impacts are addressed satisfactorily (including cumulative landscape and visual impacts);
> b) consider identifying suitable areas for renewable and low carbon energy sources, and supporting infrastructure, where this would help secure their development; and
> c) identify opportunities for development to draw its energy supply from decentralised, renewable or low carbon energy supply systems and for co-locating potential heat customers and suppliers.

Para 153.

In determining planning applications, local planning authorities should expect new development to:

> a) comply with any development plan policies on local requirements for decentralised energy supply unless it can be demonstrated by the applicant, having regard to the type of development involved and its design, that this is not feasible or viable; and
> b) take account of landform, layout, building orientation, massing and landscaping to minimise energy consumption."

Excel (SD2.xlsx) showing number count of coloured dots (Images 5-8)

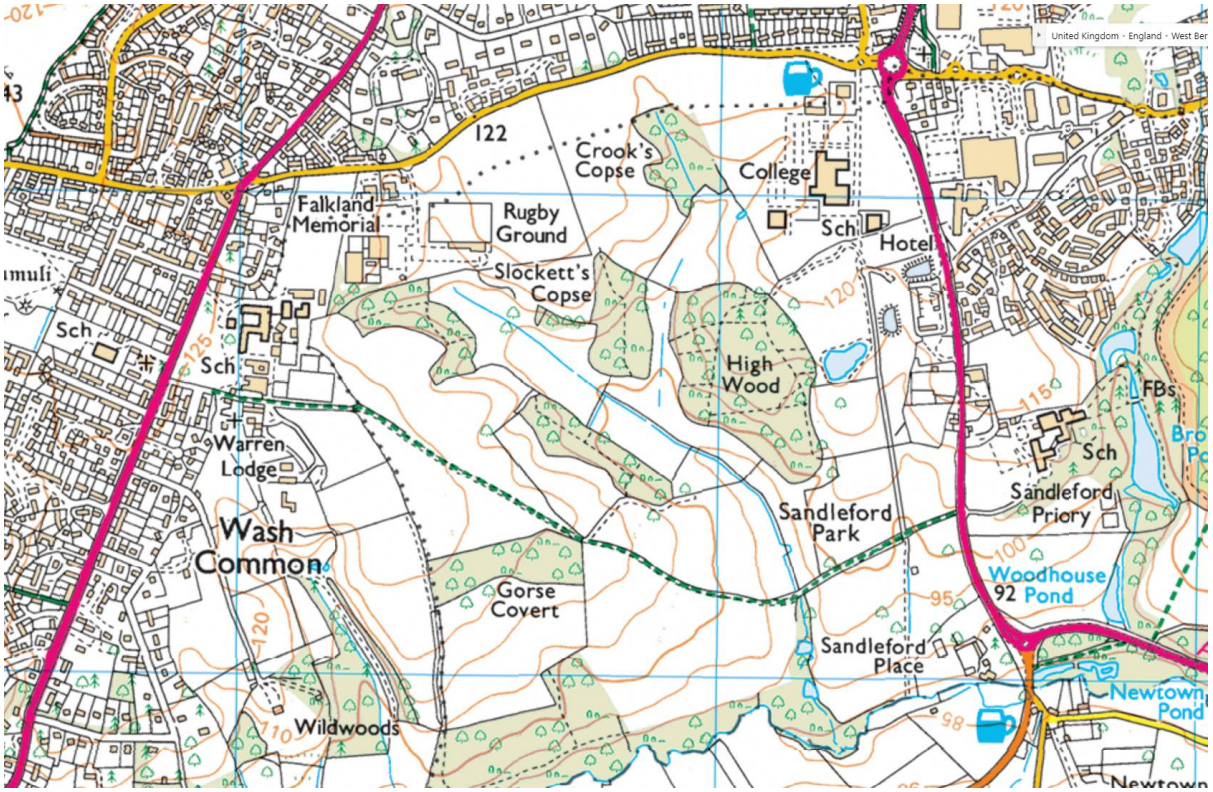
Solar Irradiation at proposed development – The European Commission (2019) 'The Photovoltaic Geographical Information System (PVGIS) – Solar radiation tool' , Available at: https://re.jrc.ec.europa.eu/pvg_tools/en/#MR

- Bloor Homes (2015) 'Design and Access Statement'
- Bloor Homes (2015) 'Site Plan'
- Bloor Homes (2015) 'Site Plan – Pt 1'
- Bloor Homes (2015) 'Site Plan – Pt 2'

Various architect and firms describing Passive solar gain.

- GreenSpec (2021) 'Passive Solar Design – Siting and Orientation'
- Koru Architects (2021) 'Passive Solar – the low-tech way to your your home'

Ordnance survey from the proposed site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122
Crook's Copse
College
Sch
Hotel
Falkland Memorial
Rugby Ground
Slockett's Copse
Sch
Sch
High Wood
FBs
Sch
Warren Lodge
Sandleford Priory
Wash Common
Sandleford Park
Woodhouse 92 Pond
Gorse Covert
Sandleford Place
Newtown Pond
Wildwoods