



*Basingstoke  
and Deane*

APPLICATION BY: Cala Homes

RE: Land at Boundary Hall, Aldermaston Road, Tadley.

INSPECTORATE REF: APP/H1705/V/10/2124548

LOCAL AUTHORITY REF: BDB/67609

Prepared by:

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Certificate in Architecture

My name is Geoff Gosling and I currently work for Basingstoke and Deane Borough Council as Intelligence Officer within the Strategy and Innovation Team. Prior to taking up my current post in 2001, I had worked in the Forward Planning Team at Basingstoke and Deane since 1977, during which time I was called upon to give evidence as an expert witness at various Planning Inquiries, particularly in relation to housing land supply issues.

I hold a certificate in Architecture from the Polytechnic of Central London.

The evidence which I have prepared and provide for this 'called in application' under reference APP/H1705/V/10/2124548 in this proof of evidence is true and I confirm that the opinions expressed are my true and professional opinions.

## CONTENTS

1. Introduction
2. Population data prior to site licensing
3. Principles of monitoring population change
4. Population estimates and forecasts within AWE area
5. Reduction in average household size
6. Conclusion

## APPENDICES

1. 1991 Census population and household spaces, ONS
2. Map showing AWE 3km Detailed Emergency Planning Zone (DEPZ) in relation to ward and parish boundaries (2002-2008 wards within Basingstoke and Deane)
3. Methodology for the 2009 based Small Area Population and Dwellings Forecasts, Hampshire County Council (HCC)
4. Parish level population and dwelling stock change 1997-2001, HCC
5. Ward level components of population and dwelling stock change 2001-2009, HCC
6. Forecast ward level components of population and dwelling stock change 2009-2016, HCC

# **1 Introduction**

- 1.1 This proof will provide evidence in respect of the issues identified in paragraph 7(c) of the Secretary of State's Call In letter dated 4th March 2010, which stands as the Secretary of State's statement under rule 6(12) of the 2000 Rules. Specifically, in addressing the extent to which the proposed development is consistent with policies to ensure that any acceptable risks to human health are identified and properly dealt with, this proof will focus on issues relating to the impact of the proposal on the level of population in the wards and parishes within the 3km Detailed Emergency Planning Zone (DEPZ) surrounding Aldermaston Atomic Weapons Establishment (AWE).
  
- 1.2 It will provide an accurate approach to the extent to which the overall population within the 3km DEPZ has changed since the site was licensed. In particular, it will demonstrate how an underestimation of the population within the DEPZ prior to licensing resulted in erroneous information regarding population growth being given to the Development Control Committee on 1 July 2009 and to the Inspectorate in a written statement dated 13 July 2009 in relation to an appeal on a nearby site at Shyshack Lane.
  
- 1.3 It will also set out the Borough Council's view of 'natural growth' in the local population, and explain how the Borough Council (BDBC) calculates the level of additional housing development necessary to meet this growth.
  
- 1.4 The complexities of the modelling approach employed by the Health and Safety Executive Nuclear Installations Inspectorate (HSE/NII) to provide estimates of population within various sectors of polar grids based on

numerous points of origin within the AWE site are beyond the scope of the Borough Council's resources. These issues have been well documented in Chapter 15 of the Environmental Statement submitted on behalf of the applicants, and will be addressed in the evidence to be provided by experts in the appropriate field on behalf of the applicants and the HSE. This proof will confine itself to providing an overview of the levels of population recorded at various points in time within the defined DEPZ.

- 1.5 All other evidence in respect of criteria a, b, c, d, e and f of the Secretary of State's Statement will be provided by other expert witnesses.

## **2 Population data prior to site licensing**

- 2.1 The purpose of this section is to explain the differences in approach between local authority population estimates at the small area level and those utilised by the Health and Safety Executive Nuclear Installations Inspectorate (HSE/NII), and to highlight the implications of the differences.
- 2.2 Whilst it is acknowledged that, for the purposes of considering public safety, the geographical distribution of the population is important as well as the overall number of people in the area in question, it is also important to establish a true picture of the extent of population change within the 3km Detailed Emergency Planning Zone (DEPZ) since the Aldermaston Atomic Weapons Establishment (AWE) was granted a nuclear licence in July 1997.

2.3 With regard to the issue of the geographical level at which data is collected and analysed, both the HSE/NII and BDBC/Hampshire County Council (HCC) start from the smallest 'building block' at which Census data is made available. Up until the 2001 Census, this 'building block' was represented by an enumeration district (ED – typically about 200 households or 600 persons – an area covered by one census enumerator). ED's formed the basis of population analysis undertaken on behalf of HSE/NII prior to the release of 2001 Census data. ED's nested within wards and parishes, and were also used by Hampshire County Council (HCC) as the building block for its Small Area Population Forecasts (SAPF) prior to 2001.

2.4 Small area statistics from the 1991 Census, attached at Appendix 1, record the resident population in each of the ED's within the six BDBC Wards (as they were constituted at the time) which fell, at least in part, within the 3km DEPZ. The total population of all six wards in 1991 is recorded as 17,966. Excluding the former Silchester Ward (covering the parishes of Mortimer West End and Silchester), which has relatively few residents within the 3 km DEPZ, the remaining wards, which cover the three parishes of Baughurst, Pamber and Tadley, had a total population of 16,538, and a private household population of approximately 16,400. The geographical relationship between these parishes and the DEPZ is shown in the map at Appendix 2. (It should be noted that the ward boundaries depicted on this map represent those in force between 2002 and 2008. I shall return to this issue in section 4 of this proof).

2.5 Appendix 1 also shows that of the 37 ED's within the six wards, the population of 28 of them was located principally inside the 3km DEPZ. It is considered that the population of these 28 ED's provides the best proxy available to the Borough Council for the 1991 population within the BDBC part of the 3km DEPZ. The private household population of this area at the time of the 1991 Census was approximately 14,700 residents, which represents 90% of that of the three parishes in entirety. A further 150 people were recorded as living in communal establishments, the majority of them being residents of Boundary Hall, the former AWE hostel.

2.6 This is an appropriate point to make it clear that only the southern half the 3km DEPZ falls predominantly within Basingstoke and Deane (and thereby within Hampshire). The remainder falls within only four ED's in West Berkshire (formerly Newbury District at the time of the 1991 Census), with a total population of just over 800. As nearly 95% of the total 1991 population within the 3km DEPZ is are residents of Basingstoke and Deane, it is considered appropriate to focus on this part of the DEPZ.

### **3 Principles of monitoring population change**

3.1 Within the public sector generally, from national down to local level, it is conventional to estimate and forecast population data according to administrative boundaries such as local authority wards and civil parishes. Small Area Population Forecasts (SAPF) were initially updated by Hampshire County Council (HCC) every two years, and published in the form of forecasts of population and dwelling stock at ward and parish level for each of the following 7 years.

- 3.2 Since the 2001 Census, Output Areas (OA's), which are broadly based on postcode geography, but still nest within wards and parishes (as they stood when the majority of Census data was published in 2003), have replaced ED's as the smallest 'building block', both for Census data and for SAPF, as well as population analysis undertaken on behalf of HSE/NII. OA's typically contain about 125 households or 300 persons, thereby increasing the level of geographical refinement.
- 3.3 During the past decade, HCC have begun to update SAPF annually, ensuring that the estimates and forecasts are as up to date as possible. These forecasts, which form the basis of all local service planning, are predominantly used at ward and parish level, the data for which are available via the HCC website, while OA level data is available on request.
- 3.4 As the current level of housing stock within each OA is not an issue of contention, and as the geography of OA's does not relate directly to that of 1991 Census ED's, I have taken the view that it would be more helpful to analyse population growth over time at ward/parish level, where we have common geographical boundaries.
- 3.5 Whilst the origin of the building block used for population analysis remains common to both HSE/NII and BDBC/HCC, it is the method by which estimates are rolled forward that results in significant differences over time. In particular, the local authority approach, within Hampshire at least, tracks



annual changes in the relationship between population and housing stock, which are normally expressed as changes in average household size.

- 3.6 The latest HCC forecasts are the 2009-based SAPF, which were published in March 2010. The methodology employed in these forecasts is set out in Appendix 3, which has been reproduced from HCC's website. The forecasts commence from April 2009 population estimates which are rolled forward from the 2001 Census, incorporating known births and deaths and known dwelling completions.
- 3.7 A very important and frequently overlooked component of both the HCC forecasts and those prepared by the Office for National Statistics (ONS) is that of decreasing average household size. Indeed, for many decades, decreasing household size has generated a very significant proportion of the additional housing required every year throughout the UK. Taking the period 1991-2001 as an example, the reduction in average household size within the Borough of Basingstoke and Deane from 2.64 persons per household at the 1991 Census to 2.45 in 2001 results in the formation of 4,265 additional households before any account is taken of any increase in population itself.
- 3.8 If no new housing provision was made for these additional households, then the population of the area in question would decline.

#### **4 Population estimates and forecasts within AWE area**

- 4.1 The task of monitoring ward level population within Basingstoke and Deane over the past two decades has been complicated by successive changes to ward boundaries (and ward names) over this period (in 1992, 2002 and 2008), each of which has impacted on the Tadley area. Prior to 2001, I have therefore used (in Appendix 4) the more stable geography of parishes to demonstrate how levels of dwelling stock and population changed in the period from 1997. As indicated in paragraphs 2.4-2.5 above, the AWE 3km DEPZ contains the most highly populated parts of the three parishes of Baughurst, Pamber and Tadley, accommodating 90% of their collective population, but covers the relatively sparsely populated areas of the parishes of Silchester and Mortimer West End, which fall within the 2002-2008 ward of Calleva.
- 4.2 Housing monitoring shows that there has been very little change in terms of additional development over the past two decades within the sparsely populated parts of Baughurst, Pamber and Tadley which lie outside the 3km DEPZ, and also within those parts of Silchester and Mortimer West End within the DEPZ. The level of population change within the entire parishes of Baughurst, Pamber and Tadley can therefore be taken as a good indicator of the level of change in that part of the DEPZ falling within Basingstoke and Deane.
- 4.3 Notwithstanding successive changes to ward boundaries in the area as identified above, very detailed SAPF data is in fact available for wards that existed between 2002 and 2008, both for the period 2001-2009, and for the

latest forecasts (which extend to 2016). It can be seen from the map attached at Appendix 2 that the four 2002-2008 wards of Baughurst, Tadley North, Tadley South and Pamber collectively cover the same area as the three parishes of Baughurst, Pamber and Tadley identified in Appendix 4. With 90% of the 1991 population of these parishes/former wards falling within the 3km DEPZ, it follows that monitoring population change for these administrative areas can be taken as a good indicator of the level of population change within the Basingstoke and Deane portion of the 3km DEPZ. I have therefore used this former ward geography in Appendices 5 and 6 to show the relationship between dwelling stock and population change over the 2001-2016 period (both recorded and forecast respectively).

4.4 As already acknowledged in paragraph 2.6 above, about half the area of the 3km DEPZ lies within West Berkshire, predominantly in the Parish of Aldermaston. However, as this covers the relatively sparsely populated area immediately adjacent to AWE, which was recorded as having only 930 residents at the 2001 Census, this proof remains focused on the far more heavily populated area within Basingstoke and Deane.

4.5 It can be seen from Appendix 4 that at the time of licensing in 1997 the estimated total resident population in the three parishes of Baughurst, Pamber and Tadley was recorded in HCC's 1997-based SAPF as 16,650. This represents an increase of just 112 people over the 1991 Census population of 16,538 (from Appendix 1), or 0.11% per annum.

- 4.6 It can also be seen from Appendix 4 that the population of the three parishes increased by only 55 residents to 16,705 between 1997 and 2001, a rate of just 0.08% per annum. Over the same period, the dwelling stock in the three parishes increased by 239 to reach 6,872, representing an annual increase of 0.90%.
- 4.7 Likewise, from Appendix 5, it can be seen that SAPF records an estimated increase in the overall population of the four former wards of Baughurst, Tadley North, Tadley South and Pamber of just 2 people between 2001 and 2009, effectively representing no change. Over the same period, the dwelling stock in the four former wards increased by 262 to reach 7,134, representing an annual increase of 0.48%.
- 4.8 The analysis set out in paragraphs 4.6-4.7 above shows that dwelling stock has been increasing at a faster rate than population within the parishes/former wards since at least 1997.
- 4.9 Looking ahead to 2016, the longest term forecast currently available at sub-district level, 2009-based SAPF indicate a similar pattern in the four former wards: population is forecast to increase by 85 residents over the 7 year period, representing an increase of 0.07% per annum, while the dwelling stock is forecast to increase by 247 to reach 7,381, representing an annual increase of 0.49%. This forecast increase includes the Local Plan allocation of an estimated 100 dwellings on the Boundary Hall site.

4.10 The first sentence of paragraph 5(d) of the HSE Statement of Case reads: “the construction of 115 dwellings would introduce an estimated further 268 persons (Developer’s estimate), and further exacerbate the already excessive population within the Inner nuclear safeguarding zone set for AWE.” The analysis in paragraphs 4.6-4.9 above demonstrates that the HSE statement takes no account of the context of development, in which a steady rate of housing development is accompanied by a gradual reduction in average household size over time, thereby minimising the impact on the overall population of the area. Reference has already been made to this principle in paragraph 3.7 above, and it is explored further below.

## **5 Reduction in average household size**

5.1 It can be seen from Appendix 4 that in 1997 the total dwelling stock in the three parishes of Baughurst, Pamber and Tadley was recorded as 6,633, with an estimated total resident population of 16,650. The average number of persons per dwelling within the area in 1997 can therefore be calculated as 2.51 persons. (NB. For the purpose of this proof of evidence, the average number of persons per dwelling has been used rather than average household size in order to represent consistently the total population of the area in question divided by the total number of dwellings in that area).

5.2 It is noted that the concept of ‘natural growth’ is set out in the discussion document ‘The Siting of Nuclear Installations in the United Kingdom’<sup>1</sup> presented to the Nuclear Safety Advisory Committee in July 2008. On page 4 of this document, within the section headed ‘Background to the Hansard

(1988) Demographic Criteria’ under the sub-heading ‘Nuclear Safeguarding Zones’, states that: “Current custom and practice in the UK, requires that general site demographic characteristics as they exist at the time of licensing, are maintained throughout the entire life cycle of the plant with an allowance for future developments to account for natural growth whilst restricting inward migration. For residential and commercial developments, therefore, planning control guidelines are in place with local authorities to ensure that the general site characteristics are preserved.”

5.3 In order to assess what might be understood by the term ‘natural growth’ within a specified area, I have adopted the approach of a zero net migration (ZNM) projection. This concept is often employed in strategic planning as a starting point to assess potential future housing requirements at sub-regional or district level. By planning for population change within a defined area to be confined to that resulting solely from births and deaths occurring within the population of that area, it is assumed that the number of people moving into that area over a given period is equal to the number of people moving out. The difference between the number of births and the number of deaths is referred to as natural change. Within the Borough of Basingstoke and Deane, where births have outnumbered deaths by several hundreds per annum for many decades, this natural change has consistently resulted in natural growth.

5.4 Whilst it would not generally be appropriate to apply the concept of ZNM to very small areas, it is considered ideal for assessing the level of population

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<sup>1</sup> <http://www.hse.gov.uk/aboutus/meetings/iacs/nusac/030708/p12-sittingpaper.pdf>

growth which can be attributed to natural change within an area containing an estimated base population as large as 16,650 people. Although the Borough Council does not have access to sufficiently detailed data covering births and deaths prior to 2001, ward level data from Hampshire County Council (HCC) at Appendix 5 shows how births in the four former wards totalled 1,445 over the period 2001-2009, an average of just over 180 per annum. Over the same period 978 deaths were recorded, an average of 122 per annum, resulting in 'natural change' of 467 people over the 8-year period, or 58 additional persons per annum. It would not be unreasonable to assume a similar rate of natural growth over the years 1997-2001, which would result in a natural increase in the local population of almost exactly 700 people over the 12-year period as a whole. In relation to the 2001 total population for the area of approximately 16,700 people, this natural change represents growth of 0.35% per annum.

- 5.5 Over the 12-year period 1997-2009 covered in Appendices 4 and 5, the average number of persons per dwelling within the parishes of Baughurst, Pamber and Tadley is shown to have declined from 2.51 persons per dwelling to 2.34. This decline is broadly in line with that estimated to have occurred within Basingstoke and Deane as a whole, and other parts of Hampshire. It represents a slightly slower rate of decline compared with that recorded for the area between the Censuses of 1991 and 2001. Nevertheless, when applied to the 1997 population of 16,650, this reduction in average persons per dwelling would require an additional 476 dwellings to house the same population – before any additional provision is made for the extra 700 people living in the area as a result of natural change. At an average of 2.34 persons per dwelling, these extra 700 people would require a further 299 dwellings,

resulting in a total additional dwelling requirement of 775 dwellings over the period 1997-2009.

5.6 In actual fact, as can be seen from Appendices 4 and 5, actual dwelling stock change within the area was confined to 239 additional dwellings over the period 1997-2001, plus a further 262 additional dwellings over the period 2001-2009, resulting in a total net gain of 501 dwellings over the 12-year period as a whole.

5.7 Comparing actual dwelling stock change over the period 1991-2009 with that shown to be required to support natural growth indicates that it could be argued that a further 274 dwellings were needed in the area at 2009 in order to address what could be described as a backlog. Appendix 5 indicates that over the period 2001-2009 alone, the number of people migrating out of the four former wards exceeded the number migrating in by a total of 471, an average of 59 per annum. Solely based on making provision for this latter period, development of the Boundary Hall site as proposed would be entirely in accordance with accounting for natural growth, without making any provision for net inward migration.

5.8 In addition, as can be seen from Appendix 6, births are forecast to continue to exceed deaths in the area by an average of 58 per annum. This continuing natural growth will itself generate the need for a further 25 dwellings per annum at the current number of persons per dwelling. On top of this requirement, all current household projections, whether prepared by HCC or ONS, indicate that the long-standing trend in gradual reduction in average



household size will continue, resulting in the need for even more development to facilitate on-going natural growth.

5.9 Whilst it is acknowledged that we do not yet know the full medium to long term implications of the current economic climate on household formation, it is considered that a minimum of 25 additional dwellings per annum are required in order to meet the on-going needs of natural growth in the four former wards, without addressing the past backlog or making any provision for further reduction in average household size beyond 2009.

## **6 Conclusion**

6.1 I have demonstrated that the HSE/NII methodology tends to over-estimate future population levels within a given dwelling stock. As the methodology adheres to a ratio of persons per dwelling frozen in time at the last census, the level of over-estimation tends to increase with the number of years which pass since the last census results were published.

6.2 Given the significant effect on population levels of decreasing numbers of persons per dwelling over time, my view is that as far as estimating levels of residential population is concerned, the NPD2 approach adopted by HSE/NII produces a less accurate population estimate than that derived from HCC's Small Area Population Forecasts.

6.3 Moreover, it has been demonstrated that in order to allow for 'natural growth' since 1997, a backlog of need can be identified that exceeds the capacity of

the Boundary Hall site, and a further annual housing requirement of at least 25 dwellings per annum can be identified in the area to accommodate future natural growth.