

Our ref: 10607 Balsall Common NDP (Jan 2019) HW

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25th January 2019

Dear Sir/Madam

Balsall Common Neighbourhood Development Plan 2018 – 2033 Pre-Submission Regulation 14 Consultation:

Representations on behalf of the landowners at Wootton Green Lane, Balsall Common.

We act on behalf of the landowners with land interests bounded by Wootton Green Lane, including Trevellian Stud. A plan with the composite site area edged red is attached for your ease of reference.

The individual sites making up this now combined site was promoted to Solihull Metropolitan Borough Council's (MBC) Brownfield Land Register (BLR), July 2017, and Strategic Housing and Economic Land Availability Assessment (SHELAA) 'Call for Sites', January 2016. In addition, representations have been submitted in response to the Solihull Local Plan Review Draft consultation document seeking removal of the site from the Green Belt and allocation for residential development.

In addition, this site was included in the site exhibition organised by the Balsall and Berkswell Parish Councils in August 2016.

Our Clients are grateful for the opportunity to comment on the Balsall Common Presubmission version of the Neighbourhood Development Plan (NDP). Comments are set out below in response to the questions raised in the document.

Balsall Common NDP Pre-submission Consultation Document

Page 27 Question: Do you agree with Policy H1? If not, why not and what alternative would you suggest?

1. Our Clients note that the middle sentence of Policy H1, 'Very special circumstances will need to be demonstrated to build in the green belt' does not meet the requirements of the National Planning Policy Framework

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(NPPF), 2018, and is unduly restrictive. The NPPF at paragraph 145 sets out exceptions to the assumption that the construction of new buildings is inappropriate in the Green Belt. Exceptions to this are listed as follows:

a) buildings for agriculture and forestry;

b) the provision of appropriate facilities (in connection with the existing use of land or a change of use) for outdoor sport, outdoor recreation, cemeteries and burial grounds and allotments; as long as the facilities preserve the openness of the Green Belt and do not conflict with the purposes of including land within it;

c) the extension or alteration of a building provided that it does not result in disproportionate additions over and above the size of the original building;

d) the replacement of a building, provided the new building is in the same use and not materially larger than the one it replaces;

e) limited infilling in villages;

f) limited affordable housing for local community needs under policies set out in the development plan (including policies for rural exception sites); and

g) limited infilling or the partial or complete redevelopment of previously developed land, whether redundant or in continuing use (excluding temporary buildings), which would: – not have a greater impact on the openness of the Green Belt than the existing development; or – not cause substantial harm to the openness of the Green Belt, where the development would re-use previously developed land and contribute to meeting an identified affordable housing need within the area of the local planning authority.

 Paragraph 146 of the NPPF goes on to say that certain other forms of development are also not inappropriate in the Green Belt provided they preserve its openness and do not conflict with the purposes of including land within it. These are:

a) mineral extraction;

b) engineering operations;

c) local transport infrastructure which can demonstrate a requirement for a Green Belt location;

d) the re-use of buildings provided that the buildings are of permanent and substantial construction;

e) material changes in the use of land (such as changes of use for outdoor sport or recreation, or for cemeteries and burial grounds); andf) development brought forward under a Community Right to BuildOrder or Neighbourhood Development Order.

3. Therefore, our Clients recommend deleting the third sentence and replacing it with the following wording:

"...Planning applications for development proposed within the Green Belt will need to comply with national planning policy..."

- 4. Our Clients support the proposal to consider the Built-up Area Boundary for the village which includes removal of brownfield land at the Wootton Green Lane site from the Green Belt. In doing so, the land will be formally recognised as suitable in principle for residential development, subject to other policies within the NDP. However, in removing the land from Green Belt it needs also to consider the need for consistency with NPPF para 139 (f) which suggest revised boundaries should be defined clearly 'using physical features that are readily recognisable and likely to be permanent'.
- 5. However, our Clients are keen, as a minimum, for the full extent of the land area which falls within the definition of brownfield/previously developed land, as set out in the National Planning Policy Framework (NPPF) Annex 2: Glossary, to be included within the Village Boundary. The NPPF definition is as follows:

'Previously developed land: Land which is or was occupied by a permanent structure, including the curtilage of the developed land (although it should not be assumed that the whole of the curtilage should be developed) and any associated fixed surface infrastructure. This excludes: land that is or was last occupied by agricultural or forestry buildings; land that has been developed for minerals extraction or waste disposal by landfill, where provision for restoration has been made through development management procedures; land in built-up areas such as residential gardens, parks, recreation grounds and allotments; and land that was previously developed but where the remains of the permanent structure or fixed surface structure have blended into the landscape.'

 Such a revision would be both consistent with the previous BLR submissions made to Solihull MBC, and be more consistent with the recently published SMBC Appendix B 'Draft Local Plan Supplementary Consultation' – please see Site 22 of Appendix B found at:

http://eservices.solihull.gov.uk/mgInternet/documents/s66831/Appendix%2 0B.pdf

7. We formally request that the Built-Up Area Boundary proposed on Figure 6 of the NDP, and the site allocation shown on Figure 7, be extended to align with the brownfield land development boundary proposed in our submissions. Our Clients consider it is entirely appropriate that residential development should be supported in principle on brownfield sites defined on Figure 7, which include site 5 'Trevellian Stud, Wootton Green Lane, Balsall Common'.

8. However, our Clients consider it premature for sites currently proposed for residential development in the emerging Draft Solihull Local Plan Review to be included as identified allocations within the NDP. The Frog Lane and Windmill Lane/Kenilworth Road proposed housing sites have not been considered at public examination and their allocation for development has not been formally adopted in local plan policies. Indeed, there are at least two further iterations of the Solihull Local Plan Review which remain to be published for consultation prior to submission for public Examination. During the forthcoming consultations and re-drafting process the proposed site allocations at Balsall Common and elsewhere may change; these are by no means forgone conclusions. We therefore suggest that the proposed Solihull Local Plan Review site allocations are deleted from Figure 7 of the Neighbourhood Development Plan, or the NDP process be put on hold until the SMBC Local Plan Review has been developed further, so as to ensure consistency between the two plans.

Page 33 Question: Do you agree with Policy H.3? If not why not, and what alternative would you suggest?

- 9. Our Clients are concerned that the proposed wording of Policy H.3 does not encourage the development of brownfield previously developed land prior to the development of greenfield land identified in the Solihull Local Plan review. Paragraph 117 of the NPPF states that, 'Planning policies and decisions should promote an effective use of land in meeting the need for homes and other uses, while safeguarding and improving the environment and ensuring safe and healthy living conditions. Strategic policies should set out a clear strategy for accommodating objectively assessed needs, in a way that makes as much use as possible of previously-developed or 'brownfield' land.' (Except where this would conflict with other policies in this Framework, including causing harm to designated sites of importance for biodiversity.)
- 10. It is recommended that development of otherwise sustainably located brownfield sites is prioritised before any development is permitted on proposed greenfield site allocations in the Solihull Local Plan Review. It is also recommended that consideration be given to redevelopment of brownfield sites for a mix of uses if there is a need and if the design and use is appropriate for the location.
- 11. The Parish Council could perhaps make representations to Solihull MBC in response to the forthcoming submission consultation scheduled for summer 2019, to seek phased development with the brownfield land to be developed first. Depending upon the yield of the brownfield land, the Parish Council might be minded to recommend that some of the proposed greenfield site allocations put forward in the Solihull Local Plan Review in Balsall Common

are included as 'safeguarded' sites, rather than site allocations, for potential development beyond the plan period if a future review demonstrates a need, as set out in paragraph 139 of the NPPF.

12. It is recommended that Policy H.3 be reworded as follows (changes shown in bold):

POLICY H.3: Site Allocations

This Plan will support the redevelopment of brownfield sites identified on Figure 7 for residential and other appropriate uses. All development proposals, including on land identified in the adopted Solihull Local Plan Review, will be required to *comply with* other relevant policies in the Plan.'

Page 34 Question: Do you agree with Community Aspiration CA.01? If not, why not, and what alternative would you suggest?

- 13. Our Clients are concerned that Policy CA.1 is too prescriptive and unduly restrictive effectively prohibiting all residential development until post 2026. There is an immediate identified housing need for Solihull (which is not in any event dependent upon the delivery of HS2) and it would be contrary to national and emerging local plan policies to delay development on otherwise sustainable sites identified as suitable and deliverable for development, particularly those which are a priority for development, the brownfield sites.
- 14. Chapter 5 of the NPPF seeks to ensure local planning authorities significantly boost the supply of housing, maintain a 5 year housing land supply, and monitor progress in building out sites which have permission. Where necessary, local planning authorities will be required to prepare an action plan in line with national planning guidance, to assess the causes of under delivery and identify actions to increase delivery in future years.
- 15. In the light of the emphasis in national policy on ensuring delivery of sufficient homes to meet need, our Clients consider it would be inappropriate for all residential development to be held in abeyance at Balsall Common for at least 7 years. It is to be hoped that a major national infrastructure construction project, such as HS2, will be managed in a way which will minimise any adverse impact on local transport infrastructure.
- 16. Therefore, our Clients do not consider the potential impact of the HS2 construction works should sterilise all potential development sites at Balsall Common. Though it is accepted that it may be necessary to, for example, phase development on some sites, such as Barratt's Farm which lies adjacent to the proposed route of HS2.

17. It is recommended that Policy CA.01 be reworded to reflect the brownfield land first approach (arguments set out in response to the question on page 33 regarding policy H3) and the need to consider the implications of HS2 as follows (changes shown in bold):

'POLICY CA.01: New Homes

Development of allocated housing sites in Balsall Common should be phased to prioritise development on brownfield land first. Development on any sites likely to be significantly adversely impacted by construction of the HS2 national infrastructure delivery project should be phased to ensure the housing development is either completed prior to HS2 construction works or postponed until after the HS2 works are completed.

Page 35 Question: Do you agree with Policy H.4? If not why not, and what alternative would you suggest?

- 18. Our Clients support the inclusion of a policy which encourages the redevelopment of brownfield land, however, they are concerned that the policy is too restrictive. We recommend that the policy should be amended to encourage redevelopment of brownfield land for all appropriate uses and not just restricted to housing development. Clearly a range of needs will arise from the step increase in the size of the village proposed in the emerging Solihull Local Plan Review including, for example, specialist accommodation, services, community facilities, employment premises and other support infrastructure.
- 19. Our Clients also recommend that the final sentence in proposed Policy H.4 be changed to better reflect the definition of brownfield land contained in the NPPF Annex 2 Glossary (reproduced at paragraph 2 above). Policies and proposals contained within a NDP are required to be in conformity with national and local plan policies.
- 20. We therefore recommend that Policy H.4 be reworded as follows (changes shown in bold):

'POLICY H.4: Use of Brownfield Land including in the Green Belt

The redevelopment of brownfield land to create new homes or for other appropriate uses will be encouraged and supported subject to the following criteria:

a) The new use would be compatible with the surrounding uses;b) Any remedial works to remove contaminants are satisfactorily dealt with;

c) The proposal would lead to an enhancement in the character and appearance of the site and would not result in the loss of any land of high environmental quality; and

d) Safe and suitable access and parking arrangements would be provided to serve the new use.

The redevelopment of brownfield land will be restricted to the land which is or was occupied by a permanent structure, including the curtilage of the land (although it should not be assumed that the whole of the curtilage should be developed) and any associated fixed surface infrastructure in accordance with the definition of previously developed land set out in the NPPF Annex 2 Glossary.

Page 77 Question: Do you agree with Policy ECON.3? If not why not, and what alternative would you suggest?

- 21. Our Clients are concerned that the wording of policy ECON.3 is overly restrictive. With the projected growth in the population of the village it seems unlikely that the village centre alone will be able to meet the increased needs of the existing and future residents. We therefore suggest that it may be necessary for some support functions, such as employment uses, to be located in other, easily accessible sustainable locations.
- 22. We therefore recommend that Policy ECON.3 be reworded as follows (changes shown in bold):

POLICY ECON.3: Encouraging Local Business and Employment

Proposals for new business premises, office space, and commercial development within the village centre (Character Assessment K) will be supported and encouraged providing they do not conflict with other policies in this Plan. Proposals for employment uses outside the village centre will be assessed on their merits on a case by case basis.

Page 101 Question: Do you agree with Policy NE.5? If not why not, and what alternative would you suggest?

- 23. Our Clients strongly object to the blanket restriction on residential development imposed by Policy NE.5 for land which lies within the noise preferential route corridors either side of the Standard Instrument Departure (SID) flight paths or below arrival flight paths. The policy, as drafted, would resist any proposal for residential development on Trevellian Stud and surrounding land, Wooton Green Lane, despite this site having been:
 - identified as brownfield land suitable for residential

development by Solihull Council in their Brownfield Land Register;

- proposed for removal from the Green Belt and included within the Built-Up Area Boundary, where land will be recognised as suitable in principle for residential development, under Balsall Common NDP Policy H1; and
- identified in the Solihull Local Plan Review Supplementary Draft consultation document (published for consultation on 25th January 2019), as a preferred site for delivery of approximately 300 dwellings.
- 24. An expert noise report has been commissioned and undertaken by Sharps Redmore Acoustic Consultants (copy enclosed with this letter) which assesses the aircraft noise environment beneath the flight paths on site Trevellian Stud and surrounding land, Wooton Green Lane. The report summarises in the Executive Summary that '...It was found that noise levels from aircraft at the site would be below either of the two SOAEL values which might be applied. The results therefore demonstrate that it would be unnecessary for there to be a blanket ban on residential development across the site area...'
- 25. Instead of a blanket ban on residential development on the site, the report suggests residential development could be made acceptable with noise mitigation measures. The Executive Summary concludes, '...since noise levels across the site would be above the lowest observable effect level (LOAEL), noise mitigation would be required to reduce levels, so far as can reasonably be achieved. Reasonable internal noise levels could be achieved busing conventional acoustic glazing and alternative means of ventilation with appropriate acoustic performance...'
- 26. Paragraph 180 of the NPPF explains that 'Planning policies and decisions should also ensure that new development is appropriate for its location taking into account the likely effects (including cumulative effects) of pollution on health, living conditions and the natural environment, as well as the potential sensitivity of the site or the wider area to impacts that could arise from the development. In doing so they should: a) mitigate and reduce to a minimum potential adverse impacts resulting from noise from new development and avoid noise giving rise to significant adverse impacts on health and the quality of life.'
- 27. The NPPF references the Explanatory Note to the Noise Policy Statement for England (Department for Environment, Food & Rural Affairs, 2010) which has an aim at paragraph 1.7 of: 'Through the effective management and control of environmental, neighbour and neighbourhood noise within the context of Government policy on sustainable development: • avoid significant adverse impacts on health and quality of life; • mitigate and

minimise adverse impacts on health and quality of life; and • where possible, contribute to the improvement of health and quality of life.' At paragraph 2.9 the Explanatory Note states, 'Noise management is a complex issue and at times requires complex solutions. Unlike air quality, there are currently no European or national noise limits which have to be met...'

- 28. The Explanatory Note emphasises, within the context of Government policy on sustainable development, at paragraph 2.18 'There is a need to integrate consideration of the economic and social benefit of the activity or policy under examination with proper consideration of the adverse environmental effects, including the impact of noise on health and quality of life. This should avoid noise being treated in isolation in any particular situation, i.e. not focussing solely on the noise impact without taking into account other related factors.'
- 29. Therefore, it would be contrary to national policy to 'resist' all residential development on Trevellian Stud and surrounding land, simply because it lies within the noise preferential route corridors either side of the Standard Instrument Departure (SID) flight paths or below arrival flight paths. Other economic and social benefits of the proposal to redevelop the site for residential dwellings need to be taken into account when making a planning judgement, together with the knowledge that the proposed dwellings could provide a healthy living environment with appropriate noise mitigation measures controlled at the planning application stage through conditions.
- 30. Our Clients contend that it would be contrary to national policy for the redevelopment of a sustainable brownfield site on the edge of a large village adjacent to existing residential development to be sterilised on the basis of aircraft noise. Trevellian Stud and surrounding land has been assessed by Solihull MBC alongside alternative sites and, having considered all opportunities and constraints, the Council have identified it as a preferred site for residential development. It would therefore be contrary to national and emerging local planning policies for our Client's site to be sterilised by the current wording of Balsall Common NDP Policy NE.5.
- 31. We therefore recommend that Policy NE.5 Minimising Pollution be reworded as follows (changes shown in bold):

'POLICY NE.5: Minimising Pollution

Where appropriate, development proposals will be required to demonstrate how measures to minimise the impact of pollution have been considered.

Proposals which would give rise to unacceptable levels of air, noise or water pollution will be resisted.

Proposals to build new homes within the noise preferential route corridors either side of the Standard Instrument Departure (SID) flight paths or below arrival flight paths will **be required to include appropriate noise mitigation measures to protect the amenities and well-being of future residents.**'

We should be grateful if you would acknowledge receipt of this letter of representation.

Yours faithfully,

Helen R Winkler Bsc(Hons) DipTP MRTPI Senior Planning Consultant



GENERAL NOTES

- For the purpose of design development and construction this drawing must not be scaled and only written or calculated dimensions used.
- Any errors or divergences should be referred to the originator.
- 3. All dimensions to be checked on site.
- All drawings are to be read in conjunction with the relevant consultants drawings, schedules, and specifications.





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Report

Wootton Green Lane, Balsall Common Proposed Residential

Development Noise Assessment

Prepared by Dominic Attwell BEng(Hons), AMIOA

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Date 25th January 2019 **Project No** 1918541

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Executive Summary

- 1.0 Introduction
- 2.0 National Planning Policy and Guidance, Assessment Methodology and Criteria
- 3.0 Noise Survey Details
- 4.0 Overview of aircraft arriving and departing at Birmingham Airport
- 5.0 Assessment

Appendices

- A. Site Plans and Noise Measurement Locations
- B. Survey Data
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Executive Summary

Sharps Redmore has been instructed by Tyler-Parkes to undertake a noise survey and assessment in relation to a proposal to develop land off Wootton Green Lane, Balsall Common for residential use. The main purpose of the assessment was to comment on existing noise levels at the site from aircraft using Birmingham Airport.

Tyler-Parkes has requested an assessment of noise levels at the site, bearing in mind noise and planning policy. National planning policy states that where levels are above the significant observable adverse effect level (SOAEL), noise sensitive development should be avoided; although it also points out that noise should not be considered in isolation and that, where there are other environmental, social or economic reasons why a development should go ahead, an adverse noise impact should be balanced against these when considering whether to refuse a development.

A review was carried out of appropriate policy and guidance. There are two possible ways in which the level which represents a significant adverse effect might be determined and these are discussed.

Noise levels at the site were determined by survey and analysis of data from Birmingham airport. The key noise sources were road traffic, railway and aircraft. It was found that noise levels from aircraft at the site would be below either of two the SOAEL values which might be applied.

The results therefore demonstrate that it would be unnecessary for there to be a blanket ban on residential development across the site area.

However, since noise levels across the site would be above the lowest observable adverse effect level (LOAEL), noise mitigation would be required to reduce levels, so far as can reasonably be achieved.

Reasonable internal noise levels could be achieved across the site using conventional acoustic glazing and alternative means of ventilation with appropriate acoustic performance. Specifications for these systems would be dealt with post planning and incorporated into the building drawings.

1.0 Introduction

- 1.1 Sharps Redmore has been instructed by Tyler-Parkes to carry out an environmental noise assessment in relation to a proposal to develop land off Wootton Green Lane, Balsall Common for residential use.
- 1.2 The rural site currently comprises fields and livery farmland as well as residential premises (site extent shown in Figure A1 in Appendix A). The Hampton In Arden-Berkswell railway-line runs approximately 20m from the northern boundary of the site which is crossed diagonally by the busy A452 (Kenilworth Road).
- 1.3 Section 2.0 contains a discussion of the planning policy and guidance, available methodology and assessment criteria; Section 3.0 of this report contains details of the environmental noise survey.
- 1.4 Section 4.0 a background and overview of the relevant Birmingham Airport procedures; and Section 5.0 contains the noise assessment.
- 1.5 Plans showing the site extent and monitoring locations are shown in Appendix A, survey results in Appendix B and any other relevant external data is displayed in Appendix C.

2.0 National Planning Policy and Guidance, Assessment Methodology and Criteria

National Policy

2.1 The National Planning Policy Framework (NPPF 2018) sets out the Government's economic, environmental and social planning policies for England and, in relation to noise (in paragraph 180), requires that:

"Planning policies and decisions should also ensure that new development is appropriate for its location taking into account the likely effects (including cumulative effects) of pollution on health, living conditions and the natural environment, as well as the potential sensitivity of the site or the wider area to impacts that could arise from the development. In doing so they should:

- a) mitigate and reduce to a minimum potential adverse impacts resulting from noise from new development – and avoid noise giving rise to significant adverse impacts on health and the quality of life;
- b) identify and protect tranquil areas which have remained relatively undisturbed by noise and are prized for their recreational and amenity value for this reason ..."
- 2.2 The NPPF reinforces the March 2010 DEFRA publication, "Noise Policy Statement for England" (NPSE), which states three policy aims, as follows:

"Through the effective management and control of environmental, neighbour and neighbourhood noise within the context of Government policy on sustainable development:

- avoid significant adverse impacts on health and quality of life;
- mitigate and minimise adverse impacts on health and quality of life; and
- where possible, contribute to the improvement of health and quality of life."
- 2.3 Together, the first two aims require that no significant adverse impact should occur and that, where a noise level which falls between a level which represents the lowest observable adverse effect and a level which represents a significant observed adverse effect, then according to the explanatory notes in the statement:

"... all reasonable steps should be taken to mitigate and minimise adverse effects on health and quality of life whilst also taking into consideration the guiding principles of sustainable development. This does not mean that such effects cannot occur."

2.4 Paragraph 170 of the NPPF advises that the planning system should:

"... contribute to and enhance the natural and local environment by ... e) preventing new and existing development from contributing to or being put at unacceptable risk from, or being adversely affected by, unacceptable levels of ... noise pollution ...".

NPPG

- 2.5 The "National Planning Practice Guidance note Noise" was published online in March 2014. It reinforces the concepts discussed above and seeks to define a person's perception at different effect levels using the following definitions:
 - NOEL (No Observable Effect Level);
 - LOAEL (Lowest Observable Adverse Effect Level); and
 - SOAEL (Significant Observable Adverse Effect Level)
- 2.6 It is notable that the NPPG describes the NOEL as "noise can be heard, but does not cause any change in behaviour or attitude", whereas at a LOAEL "noise can be heard and causes small changes in behaviour and/or attitude, e.g. turning up volume of television; speaking more loudly..." The former is described as "noticeable and not intrusive" whereas the latter is described as "noticeable and intrusive".
- 2.7 A "significant" effect is described as "noticeable and disruptive" resulting in "a material change in behaviour and/or attitude..."
- 2.8 The NPPG provides a hierarchy of planning actions required for different perceptions and effects of noise. Between LOAEL and SOAEL the recommended action is to mitigate noise and reduce to a minimum. At SOAEL the action recommended is to avoid. These are the same terms used in the NPPF and NPSE.

Alternative approaches for deriving specific criteria

- 2.9 It is possible to apply objective standards to the assessment of noise and the effect produced by the introduction of a certain noise source may be determined by several methods, as follows:
 - i) The effect may be determined by reference to guideline noise values. British Standard (BS) 8233:2014 and World Health Organisation (WHO) "Guidelines for Community Noise" contain such guidelines.
 - ii) Alternatively, the impact may be determined by considering the change in noise level that would result from the proposal, in an appropriate noise index for the characteristic of the noise in question. There are various criteria linking change in noise level to effect. This is the method that is suited to, for example, the assessment of noise from road traffic because it is capable of displaying impact to all properties adjacent to a road link irrespective of their distance from the road.
 - iii) Another method is described within BS 4142:2014 to determine the significance of sound impact from sources of industrial and/or commercial nature. The sources that the standard is intended to assess are sound from industrial and manufacturing processes, sound from fixed plant installations, sound from loading and unloading of goods at industrial and/or commercial premises and the sound from mobile plant and vehicles, such as forklift, train or ship movements.

Guideline noise values

- 2.10 There are a number of guidance documents that contain recommended guideline noise values. These are discussed below.
- 2.11 The "Environmental Noise Guidelines for the European Region" published by the World Health Organisation Regional Office for Europe are:

"... intended to be suitable for policy-making primarily in the WHO European Region. They are therefore based on the most frequently used average noise indicators in Europe:

L_{den} and L_{night}."

The guidelines strongly recommend that, for average exposure:

"... reducing noise levels produced by aircraft below 45 decibels (dB) L_{den} , as aircraft noise above this level is associated with adverse health effects."

2.12 For night noise exposure, the advice is that aircraft noise is reduced:

"... below 40 dB L_{night} , as night-time aircraft noise above this level is associated with adverse effects on sleep."

2.13 Finally, in relation to aircraft noise, the guidance strongly recommends that, in order to reduce health effects:

"... policy-makers implement suitable measures to reduce noise exposure from aircraft in the population exposed to levels above the guideline values for average and night noise exposure. For specific interventions the GDG recommends implementing suitable changes in infrastructure."

2.14 The Guideline's authors have stated that the guideline levels should not be taken as representing a LOAEL. The guidance does not suggest a level which might be considered the Significant Observed Adverse Effect Level (SOAEL). There have been serious criticisms made of the WHO guideline values for aircraft in a paper¹ published in December 2018, which is summarised in its abstract:

"The new WHO Environmental Noise Guidelines for the European Region have recommendations for limiting noise exposure associated with adverse health effects. The limits are said to be based on a systematic review of existing evidence. This paper gives a systematic assessment of the presented evidence with respect to annoyance from aircraft noise. The new guidelines have been based on the results from a selection of existing aircraft noise studies. This paper demonstrates that a similar selection of other existing post-2000 studies will yield very different results. In addition, the validity of the presented evidence has been questioned as some of the referenced studies have not been conducted according

¹ <u>https://www.mdpi.com/1660-4601/15/12/2717</u>, A Systematic Review of the Basis for WHO's New Recommendation for Limiting Aircraft Noise Annoyance, Truls Gjestland, published in the International Journal of Environmental Research and Public Health

to standardized methods, and the selection of respondents is not representative of the general airport population."

2.15 The report concluded:

"The respondents in half of the selected surveys were recruited from a specially noise sensitive age group not representative for the general airport population. In addition, the non-standardized questionnaire that was used may not give comparable annoyance results. Two surveys had exceptionally high annoyance scores and were discarded as outliers by the researchers that conducted them. Nevertheless, the results were included in the WHO full dataset. One particular airport contributed 40 % of the data, thus giving this airport a disproportionate influence on the result. The team that collected the evidence assigned the grade "moderate quality" to their proposed dose-response function.

The moderate quality evidence report was used by the WHO Guidelines Development Group to strongly recommend a limit of L_{den} 45 dB to avoid adverse health effects from aircraft noise.

A separate dataset has been compiled from 18 post-2000 aircraft noise surveys. All of these surveys were conducted strictly in compliance with recommended standardized methods. The survey results were analysed according to the CTL method described in the standard ISO 1996-1, Annex E.

The results of this effort indicate that the recommended exposure limit to avoid adverse health effects from aircraft noise should be L_{den} 53 dB."

- 2.16 These levels are much closer to those recommended in the UK Government's commissioned report, "Possible Options for the Identification of SOAEL and LOAEL in Support of the NPSE"², (which was published in 2014) suggested that the following levels might be suitable values for aircraft noise in external areas during the day time:
 - LOAEL: 52 dB, L_{Aeq,16 hour}
 - SOAEL: 60 dB, L_{Aeq, 16 hour}.
- 2.17 Hence, although the WHO guidelines (which are primarily intended to guide policy making in Europe) recommend that a level of 45dB, L_{den} for external noise from aircraft should be achieved, this level is not the same as a LOAEL and should be regarded with a degree of caution, given the criticisms which have been made and the fact that it is considerably below previous recommended guideline values.
- 2.18 In relation to internal noise levels, the 2018 guidance from The World Health Organisation recommends that its earlier "Community Noise Guidelines" should be used. The WHO's guideline values (which are generally considered to represent a LOAEL for internal and external areas) are summarised in Table 2.1 below.

² Possible Options for the Identification of SOAEL and LOAEL in Support of the NPSE, Defra, 2014

Table 2.1: WHO guideline noise values

Value	Guidance	Location
L _{den} = 45 dB	Levels above this are associated with adverse health effects	Noise exposure at the most
L _{night} = 40 dB	Levels above this are associated with adverse effects on sleep	exposed façade, outdoors
L _{Aeq,T} = 35 dB	Acceptable level to avoid speech interference, daytime and evening	Continuous noise, Dwellings, indoors
$L_{Aeq,T} = 30 \text{ dB}$	To avoid sleep disturbance at night	Continuous noise, Bedrooms, indoors
L _{Amax} = 45 dB	To avoid sleep disturbance at night	Noise peaks, Bedrooms, indoors

2.19 The national interpretation of the 1999 WHO guidelines is contained in BS 8233:2014 'Guidance on Sound Insulation and Noise Reduction for Buildings'. BS 8233:2014 recommends the following. This recommends design to the standards shown in Table 2.2 below.

		Period	
Activity	Location	Day (0700 to 2300 hours)	Night (2300 to 0700 hours)
Resting	Living Room	35 dB L _{Aeq, 16hr}	
Dining	Dining Room	40 dB L _{Aeq, 16hr}	-
Sleeping	Bedroom	35 dB L _{Aeq, 16hr}	30 dB L _{Aeq, 8hr}
Use of external amenity space	Outdoor areas such as gardens	50 dB, L _{Aeq, 16 hr} , with an upper guideline value of 55 dB L _{Aeq, 16 hr} in higher noise areas.	-

Table 2.2: BS 8233 design recommendations for internal and external environments

2.20 Combining the various sets of guidance would give the following design targets for new dwellings, which would represent compliance with the robust LOAEL:

Gardens	L_{AeqT}	=	50 dB
Living rooms	L_{AeqT}	=	35 dB
Bedrooms	L_{AeqT}	=	30 dB
	L_{Amax}	=	45 dB

External amenity noise level targets - discussion

2.21 BS 8223:2014 considers outdoor areas and external amenity areas (gardens and patios) and recognises that design standards cannot always be achieved. Specifically, it states:

"In higher noise areas, such as city centres or urban areas adjoining the strategic transport network, a compromise between elevated noise levels and other factors, such as the convenience of living in these locations or making efficient use of land resources to ensure development needs can be met, might be warranted. In such a situation, development should be designed to achieve the lowest practicable levels in these external amenity spaces, but should not be prohibited."

2.22 The National Planning Practice Guidance on Noise (NPPG), published on www.gov.uk, gives further consideration relating to mitigating the impact of noise on residential developments. It states that:

"If external amenity spaces are an intrinsic part of the overall design, the acoustic environment of those spaces should be considered so that they can be enjoyed as intended". (Paragraph 006 Reference ID: 30-006-20141224)

- 2.23 It also suggests that noise may be partially off-set if residents of the dwellings have access to:
 - "A relatively quiet façade (containing windows to habitable rooms as part of their dwelling);
 - A relatively quiet external amenity space for their sole use such as a balcony which is generally considered as desirable;
 - A relatively quiet nearby external space for use by a number of residents as part of the amenity of their dwellings, and/or;
 - A relatively quiet external, publicly accessible amenity space that is nearby (e.g. within a 5 minute walk)."

(Paragraph 009 Reference ID: 30-009-20140306)

2.24 It is also important to avoid treating noise in isolation. The overarching advice in the Noise Policy Statement for England (NPSE), states:

"There is a need to integrate consideration of the economic and social benefit of the activity or policy under examination with proper consideration of the adverse environmental effects, including the impact of noise on health and quality of life. This should avoid noise being treated in isolation in any particular situation, i.e. not focussing solely on the noise impact without taking into account other related factors."

2.25 In summary, then, provided that internal noise levels can be adequately controlled (using the design target of the LOAEL values above, and the external noise levels are below the LOAEL, there should be no observable adverse effects from aircraft noise.

- 2.26 Where external noise levels are above the LOAEL value, they should be reduced so far as reasonably possible. There is no clarity in relation to a suitable SOAEL and guidance in BS 8233:2014 suggests that there is no upper limit, but that the detrimental impact needs to be weighed against the possible economic, social or environmental benefit. The values in the Defra report (described in 2.16 above), suggest that the SOAEL would be around 8 dB above the LOAEL and the LOAEL appears to be a value between 50 and 52 dB, L_{Aeq,16} hours.
- 2.27 Hence, on the strictest interpretation of guidance (from the 2018 WHO guidelines) and if it were to be assumed that the guideline values represented a LOAEL, the SOAEL might be a value 8 dB above this: 53 dB, L_{den} for external areas. Alternatively, using the value from the Defra report and the guidance in BS 8233:2014, a suitable SOAEL would be between 58 and 60 dB, L_{Aeg, 16 hour}.
- 2.28 In general, then, if noise exposure from aircraft in an external area is below the SOAEL (whichever value is used), then planning guidance does not suggest that this should be avoided. Even if the level were to be above the SOAEL, it would be important to consider other factors alongside noise (to avoid noise being considered in isolation) before deciding to refuse planning permission for a development in such circumstances. Where the level is below the SOAEL but above the LOAEL, a scheme would need to be designed to provide appropriate sound reduction to achieve internal noise levels as set out in paragraph 2.20 above.

3.0 Noise Survey Details

- 3.1 A site survey was carried out on 3rd January 2019 to observe and measure aircraft noise around the proposed development area. Noise was measured at the north eastern edge of the site extent (Position 1) and a sound level meter (SLM) was set to continuously monitor noise levels for 6 days at a neutral position (Position 2) in the middle of the site (see Figure A1 in Appendix A).
- 3.2 The instruments used to carry out the noise survey were both Type 1, SLMs; a Brüel & Kjær 2236 and a Norsonic 140. The weather was suitable for the measurement of environmental noise throughout the survey. All measurements were made at 1.5 metres above ground level in free field locations.
- 3.3 The SLMs were set to measure the following "A" weighted parameters: L_{Aeq}, L_{A10}, L_{A90}, L_{Amin} and L_{Amax}. Typical measurement sample periods were in 5 minutes intervals. Immediately before and after the measurements were carried out, the SLMs were calibrated using the acoustic calibrator and no drift was noted.
- 3.4 The main noise sources at the site were from fast moving vehicles on the A452 (Kenilworth Road), distant passing trains, occasional aircraft landing from the south, intermittent noise from animal/agricultural sources slow moving vehicles on Wootton Green Lane and surrounding smaller roads. Measurement locations were chosen in order to capture these transport noise sources separately and to assess the potential impact on proposed residential amenity and specify the required façade glazing.
- 3.5 Continuous monitoring results measured at Position 2 are shown graphically in Figure B1 in Appendix B. A summary of the results split into the individual days is shown in Table 3.1 below:

Date	Period	L_{Aeq}	L _{Amax}	L _{A90}	Wind	Wind Speed	
			dB		direction	(mph)	
02 01 2010	Daytime	47	70	37	N	n	
03.01.2019	Night time	44	58	35	IN	2	
04 01 2010	Daytime	50	74	43	14/	Δ	
04.01.2019	Night time	42	74	36	vv	4	
05 01 2010	Daytime	49	72	41	14/	F	
05.01.2019	Night time	41	58	35	vv	5	
06.01.2019	Daytime	48	73	41		7	
	Night time	42	61	40	INVV		
07.01.2010	Daytime	50	72	46	14/	10	
07.01.2019	Night time	47	63	42	vv	12	
08 01 2010	Daytime	52	70	45		16	
08.01.2019	Night time	44	58	40	INVV	10	
00.01.2010	Daytime	51	70	45	N	11	
05.01.2019	Night time	-	-	-	IN	11	

Table 3.1: Summary of Position 2 survey results

4.0 Overview of aircraft arriving and departing at Birmingham Airport

- 4.1 Birmingham Airport has just one runway which operates in two directions (northwest and southeast); these are known as Runway 33 and Runway 15 respectively. The runway is used differently depending on meteorological conditions, and thus, noise exposure to the surrounding area differs from day to day.
- 4.2 Although there are rules for aircraft approach and departure, currently no statutory controls exist for aircraft noise to prevent an aircraft overflying a particular area and Air Traffic Control (ATC) are given a degree of flexibility to ensure safe aircraft separation.

Departures

4.3 In departing, aircraft are required to fly within a Noise Preferential Route (NPR) partnered with a Standard Instrument Departure (SID) route (typically displayed as lines drawn on satellite images). SIDs apply to all departing aircraft of more than 5700kg, unless otherwise instructed by the ATC. A number of factors will affect the ability of an aircraft to fly within these corridors such as aircraft type, weight factors and weather conditions.



Figure 4.1: Runway 15 NPRs for aircraft undertaking RNAV departures³

³ "Policies and Procedures relating to: Arriving and Departing Aircraft at Birmingham Airport" <u>www.birminghamairport.co.uk</u>

- 4.4 Departure routes from Birmingham airport differ depending on the runway direction being used (Runway 33 or Runway 15) and the type/weight of aircraft. Almost all aircraft departing from Runway 15 (98%) use an area navigation procedure known as RNAV. Using satellite technology these RNAV SIDs tend to be more accurate than Conventional departure routes, resulting in 2km wide NPRs.
- 4.5 The prescribed NPRs (using RNAV) for Runway 15 are shown in Figure 4.1 on the previous page; note that NPRs are valid until an altitude of 3000ft has been achieved for aircraft departing on route P6; the NPRs for RNAV departures using route P1 are 4000ft). A map showing a typical day of departing aircraft from Runway 15 (RNAV departures) is shown in Appendix C, Figure C1. Currently there are a set of Conventional 3km wide SID routes from Runway 33 (directed to the northwest); these are not relevant to this assessment as they run in the opposite direction to the Balsall Common site.

<u>Arrivals</u>

4.6 A number of different procedures can be used when an aircraft makes an approach to land: flying visually, by using the Non-Directional Beacon (NDB) or using RNAV procedures (mentioned above); but the most common approach uses the Instrument Landing System (ILS).



Figure 4.2: Aircraft tracks for arrivals on Runway 33 (2015)⁴

⁴ "Birmingham Airport Community Impact: Focus on Balsall Common" (July 2018)

4.7 Unlike departing aircraft, arriving aircraft do not have a specified route to follow before joining the ILS. They will be vectored by ATC and therefore there is a greater variation in the position of arriving aircraft. However, as shown in Figure 4.2 above, ILS concentrates aircraft before they travel adjacent to Balsall Common.

Combination of operations

4.8 Average daytime and night time noise exposure contours are produced independently every 2 years for Birmingham Airport, based on real air traffic data for the 92 day summer period (16th June – 15th September).

A quote from Birmingham Airport's "Revised Noise Action Plan 2013-2018"

"It is often difficult to describe the effect that aircraft noise has on the local community, as noise perception is very subjective. Indeed, there is no direct correlation between the noise levels modelled and the community concerns we receive. 90% of 2010 complaints came from outside our 2010 L_{Aeq} 57 dB(A) contour (the level the Government states is the approximate onset of significant community annoyance)."

And later:

"The Environmental Noise Regulations (England) 2006 (as amended) requires that the Airport Company consider the 55 dB(A) L_{den} and 50 dB (A) L_{night} noise contours, when developing the Noise Action Plan. However, Birmingham Airport recognises that the population affected by aircraft noise extends beyond these noise contours..."

4.9 Resulting noise contours, for both L_{Aeq} and L_{den} results, are shown in Appendix C, Figure C2 and C3 respectively. It can be seen from these two Figures that Balsall Common lies well outside of the 54 dB L_{Aeq, 16hr} contour and outside the 55dB, L_{den} contour.

5.0 Assessment

Derivation of LOAELs and SOAELs

5.1 There is some debate as to which guidance to turn to when assessing the adverse effects of aircraft noise. Research within the 2013/2014 *"Possible Options for the identification of SOAEL and LOAEL"* suggests the following LOAEL and SOAEL values for aircraft noise:

Table 5.1: Summary of derived LOAELs and SOAELs based on "Possible Options for the identification of SOAEL and LOAEL in Support of the NPSE (AECOM)"

	Annoyance		Sleep Disturbance		
Source	L _{Aeq, 16hour} (dB)		L _{Aeq, 8hour} (dB)		
LOAEL S		SOAEL	LOAEL	SOAEL	
Air	52	60	41	53	
All	(50 - 54)	(58-62)	(40-49)	(47-60)	

- 5.2 The LOAEL and SOAEL values in Table 5.1 were derived based on the population that is highly annoyed (%HA) which corresponds to the Noise Exposure Categories NEC A/B and NEC B/C boundary levels (see Figure C3 in Appendix C).
- 5.3 These criteria line up well with BS 8233:2014 in that any external amenity spaces should be designed below 55 dB and as close to 50 dB as is reasonably achievable.
- 5.4 However the recently published "WHO Environmental Noise Guidelines [2018]" referenced within the emerging "Balsall Parish Neighbourhood Development Plan: Pre-Submission Reg 14" suggests the following guideline levels:

Table 5.2: Summary of derived LOAELs and SOAELs based on based on "WHO Environmental Noise Guidelines (2018)"

Source	To reduce adver L _{den}	se health effects (dB)	To reduce adverse effects on sleep L _{night} (dB)		
	LOAEL	SOAEL	LOAEL	SOAEL	
Air	45	55	40	50	

5.5 It is worth noting that these noise limits seem an overly onerous target for the application of local development. This may be due to WHO's requirements being specifically intended to help inform policy in relation to changes in infrastructure, such as changes in an airport's runway design. As discussed in Section 2.0 above, the derivation of the guideline values for aircraft have been strongly criticised and have not been adopted into National Policy in any way. However, their advice should be borne in mind, nonetheless.

Assessment

5.6 Measurements at Position 1 are representative of any dwelling located along the northern boundary of the site extent. Noise levels here were unaffected by aircraft movements due to the high ambient levels from nearby road traffic noise.

- 5.7 Typical existing noise levels measured at Position 2 are representative of the mid-site soundfield when aircraft are approaching the airport to land from the south east. As summarised in Table 3.1 above, ambient noise levels at this central position are 50 dB $L_{Aeq, 16hr}$ in the day and 44 dB $L_{Aeq, 8hr}$ in the night. In periods where aircraft were noted (either due to observation or assumption from L_{Amax} level) the ambient level would rise by $2-5 \text{ dB} (L_{Aeq, 5min})$.
- 5.8 During the 6 days of continuous monitoring the wind directions were such that Runway 15 was unlikely to have been used for take-offs; this tied in with survey observations of aircraft coming into land from the south west. Taking off will result in higher noise levels and therefore measured results from this period were not representative of a worst-case.
- 5.9 For this reason, published noise contours provide a more relevant and robust source of information for this assessment as they include those times when meteorological conditions were such that Runway 15 was active.
- 5.10 When Runway 15 is in operation SIDs will be either be southbound (P1 in Figure 4.1) or will undertake the "Northbound Turn" (P2 in Figure 4.1). As stated in the "Birmingham Airport Community Impact: Focus on Balsall Common" [July 2018], this northbound movement is undertaken for only 15% of departures. It is also inferred from the Birmingham Airport Action Plan 2013-2018 that on a yearly average there is a 66% split between NW (Runway 33) activity and 34% SE (Runway 15) activity. Therefore the Northbound Turn (which comes closest to the village of Balsall Common) only occurs approximately 15% of 34% of the time: i.e. for 5% of the time.
- 5.11 Actual daytime L_{Aeq} contours (shown in Figure C1 in Appendix C) and L_{den} Contours 2011 and 2006 (Figure C2 in Appendix C) provide an estimate of typical average noise levels from Birmingham Airport. According to these, noise levels at the site are below both of the possible SOAEL values for external day time noise in Tables 5.1 and 5.2 above.
- 5.12 Ambient and peak noise levels from the aircraft would need to be mitigated to achieve reasonable internal noise levels. Living room façades could be effectively treated with a glazing specification based on the L_{Aeq} contours, however typical L_{Amax} contours would be required to accurately specify bedroom windows; this could be implemented at the detailed design stage. Windows to habitable rooms would need to be closed to achieve the required acoustic performance of the structure. They could be openable windows to allow for purge ventilation, but generally, if a good acoustical environment is desired, windows would need to be closed.
- 5.13 Alternative means of background ventilation may also be necessary to satisfy the requirements of Building Regulations Approved Document F. Where passive means of ventilation are selected (air bricks, wall vents or trickle vents), these would need to be of good acoustic standard.
- 5.14 Based on the summer daytime L_{Aeq} contours (Figure C1 in Appendix C) gardens within the site (screened or situated away from the main roads) would have ambient levels below the SOEAL so levels in these would be higher than desirable, but below a level which would be considered significant.

- 5.15 The majority of the above assessment focusses on noise from aircraft. It would be important to note that noise from rail and road traffic would also need to be attenuated to ensure acceptable internal and external noise levels across the site. Based on the levels measured, this would be possible using conventional noise mitigation techniques such as specification of appropriate performance from glazing and ventilation and by screening from timber fences or similar.
- 5.16 In conclusion, noise levels are below a significant adverse level and it would be unnecessary for there to be a blanket ban on residential development across the site area. However, since noise levels across the site would be above the lowest observable adverse effect level, noise mitigation would be required to reduce levels, so far as can reasonably be achieved. Reasonable internal noise levels could be achieved across the site using conventional acoustic glazing and alternative means of ventilation with appropriate acoustic performance. Specifications for these systems would be dealt with post planning and incorporated into the building drawings.

APPENDIX A

Site Plans and Noise Measurement Locations





APPENDIX B

SURVEY DATA

Table B1: Measurement results and survey notes from Position 1

	Manned Notes at Position 1					
Time	Notes	L _{Aeq}	L_{Amax}	L _{A90}	L _{A10}	L _{A90}
14:01	7m from kerb Aircraft landing L _{Aeq} = 64 dB L _{Amax} = 77 dB (Not from aircraft)	64	76.9	51.1	67.3	52.9
14:03	Aircraft landing L _{Aeq} = 70 dB L _{Amax} = 78 dB	69.6	78.3	51.5	75.6	53.4
14:12	14:12 Aircraft landing L _{Aeq} = 74 dB L _{Amax} = 82 dB (From HGV)	73.7	82.8	45.8	77.9	53.5
14:13	NO aircraft in period L _{Aeq} = 72 dB LA _{max} = 81 dB (HGV)	71.7	80.6	50.2	76.3	56.1

	Manned Notes at Postion 2
Time	Comments
	No aircraft in period
14.45	RTN dominant in between aircraft with intermittent farmyard noises
14.45	L _{Aeq} = 42dB
	L _{Amax} = 62dB
	Aircraft landing
15.00	2min measurement
15.00	L _{Aeq} = 55dB
	L _{Amax} = 70dB
	NO aircraft
	L _{Aeq} = 40dB
15.03	L _{Amax} = 61dB
15.05	L _{Amin} = 33dB
	L _{A90} = 36dB
	L _{A10} = 42dB
	Aircraft landing
	$L_{Aeq} = 64$
	L _{Amax} = 76
	L _{A10} = 69
	(In 1.5mins)
15:11	Other sounds include cockerels and RTN
	Train at 15:15
	$L_{Aeq} = 64$
	L _{Amax} = 76
	L _{A10} = 69
	L _{A90} = 41
	Jan 4th
07.00	Aircraft landing
07.20	L _{Aeq} = 53
	L _{Amax} = 57
	No aircraft
07:25	L _{Aeq} = 50
	L _{Amax} = 54



Figure B1: Graph showing continuous measurement results at Position 2 (03-09.01.19)

APPENDIX C

External Data





Appendix E 2010 LAeq contours



2006

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