

London Biggin Hill Airport

Noise Action Plan Review

Report 15/0009/R1//Rev 2

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London Borough of Bromley

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Summary Recommendations

This report reviews the content of the proposed Noise Action Plan prepared by London Biggin Hill Airport (BHAL) as part of their application to vary the hours of operation permitted under the terms of the existing Lease. It also sets out a series of conditions, controls and obligations which it is recommended should be included in the revised operating schedule in the event that the application is granted.

In summary we recommend the following:

Noise Levels

Current (2014) Noise Levels

Noise levels generated by current operations have been submitted by Bickerdike Allen Partners (BAP) based on operational information supplied by BHAL.

RECOMMENDATION: BHAL to quantify and agree with the Council existing noise levels, as they are a baseline measures of conditions experienced by people in the community around the Airport, and to produce and agree with the Council a set of noise contours that reflect these conditions. See paragraph 4.1.

Future (2030) Noise Levels

Noise levels generated by operations in the future have been submitted by BAP based on forecast operational information supplied by BHAL. These predicted noise levels for 2030 are very important as they are a 'statement of intent' by BHAL in terms of the noise levels it expects to generate if the variation in operating hours is permitted.

RECOMMENDATION: BHAL to establish and agree with the Council the limits on noise within which the Airport must operate and reasonable mitigation measures it shall be bound to implement. See paragraph 4.2.

Recommended Limits and Mitigation

Operating hours

BHAL are applying to extend the hours of operation to allow for aircraft movement earlier in the morning and later in the evening on all days. The requested variations to the hours of operation are set out in paragraph 5.2.

RECOMMENDATION: agree to a slightly modified variation to operating hours as follows:

- Weekday (as requested): 06h30 to 23h00
- Saturday (1 hour shorter than requested): 07h30 to 23h00.
- Sundays and Bank Holidays (1 hour shorter than requested): 08h00 to 22h00



Any changes to the hours to be conditioned on the Airport

Noise Envelopes

RECOMMENDATION: operations at the Airport are controlled such that the 57dB L_{Aeq} contours submitted by Bickerdike Allen Partners (BAP) for the daytime, early morning and evening periods are treated as *noise envelopes* and the total areas they encompass shall not be exceeded at any time between grant of the Lease variation and the end of 2030.

During 2030, each contour will be revised based on projected operations for the following 15 year period. The revised contours will then act as the applicable *noise envelopes* and the total area they encompass shall not be exceeded at any time during that 15 year period. A downward only revision to the contours shall be permitted. See paragraphs 5.1.2 to 5.1.7.

Early Morning Departures and Arrivals

RECOMMENDATION: No aircraft departing the Airport between the hours of 06h30 and 07h00 shall generate higher noise levels or give rise to a larger 90dBA SEL footprint than those submitted by BAP for the relevant departure and arrival modes. See paragraph 5.1.8.

A grant for sound insulation enhancement to bedroom windows shall be made to those residences at which a noise level in excess of 90 dB SEL occurs at an annual average frequency of once or greater during the early morning period of (06h30 to 07h00). The grant is to be wholly funded by BHAL. See paragraph 5.1.10.

Limit on Annual Movements

RECOMMENDATION: a cap of 50,000 annual movements to be applied. See paragraph 5.1.11.

Means of Control

Control on types of aircraft permitted to use the Airport

RECOMMENDATION: noise limits to be agreed with LBB that reflect the maximum noise levels likely to be generated by the aircraft mix forecast to operate in 2030. All aircraft will be monitored against these limits and appropriate sanctions employed in the event of the limits being exceeded. See paragraph 5.2.3.

Controls on flying training

RECOMMENDATION: BHAL to agree with LBB details of the scheme that will incentivise operators of light and training aircraft to install noise suppression equipment or to replace noisy aircraft. They will also submit details of the new permitted operating hours for flying training flights on circuits. See paragraph 5.2.4.



Working with existing operators to reduce noise levels

RECOMMENDATION: BHAL to agree with LBB the proposed code of practice to minimise noise impacts from all operations and to formalise no fly zones. See paragraph 5.2.6.

Introduction of Global Positioning System (GPS) based runway guidance system

RECOMMENDATION: BHAL shall continue to update LBB on the progress of, and timescale for, implementation of the scheme to improve the accuracy with which aircraft can be tracked and routed into and out of the Airport. Any amendment to the current hours is to be conditional on BHAL using best endeavours to achieve a successful implementation of the GPS system and agreeing a timetable for its implementation with the Council. See paragraph 5.2.7.

Changing the height of arriving and departing aircraft

RECOMMENDATION: BHAL shall continue to update LBB on the progress of, and timescale for, implementation of the scheme to adopt operating procedures that raise the height of all aircraft arriving at and departing from the Airport. Any amendment to the current hours is to be conditional on BHAL using best endeavours to achieve a successful implementation of the altered operating heights and agreeing a timetable for their implementation with the Council. See paragraph 5.2.8.

Changing the "03-Instrument Approach"

RECOMMENDATION: BHAL to update LBB on the progress of, and timescale for, implementation of the scheme that confines aircraft to much more tightly defined routes at specified heights when arriving from the north and routing onto a runway 03 landing. Any amendment to the current hours to be conditional on BHAL using best endeavours to achieve a successful implementation of the altered approach procedures and agreeing a timetable for that implementation with the Council. See paragraph 5.2.9.

Controls during the new shoulder hour periods

RECOMMENDATION: BHAL to agree with LBB details of the measures that will be implemented to ensure that the numbers and type of aircraft operating during the early morning period between 06h30 and 07h00 and also during the late evening period between 21h00 and 23h00 on weekdays and 20h00 and 23h00 on weekends and bank holidays give rise to noise levels that do not breach the limits set out in Section 5.1 of this report. See paragraph 5.2.10.

Sanctions for non-compliance with noise abatement measures

RECOMMENDATION: BHAL to agree with LBB detailed procedures for the setting of appropriate noise limits for all aircraft, how they are to be monitored and reported and the form of sanction that will apply. The agreed procedures will need to define how sanctions imposed on noisy operators can benefit the local community, who suffer the effects of the excess noise. See paragraph 5.2.11.



Relocating the VOR beacon

RECOMMENDATION: BHAL to report to LBB on the progress of, and timescale for, implementation of the scheme to relocate the Biggin Hill VOR. See paragraph 5.2.12.

Noise Monitoring

RECOMMENDATION: BHAL to take responsibility for installing and running a suitable noise monitoring system. The system shall be suitable for accurately recording the individual flyover noise levels associated to each aircraft operation and for deriving the long term average aircraft noise levels for the purpose of validating the noise contours.

The following procedure to be adopted:

- Maximum departure noise levels that would apply to operations during the daytime and during the early morning shoulder period.
- These would typically be defined as Noise Violation Limits and built into a transparent system of monitoring and control.
- Fines are paid into a 'community fund' for the benefit of those suffering the consequences of excessive noise.

The system to be installed and operated in a manner that meets LBB's noise monitoring requirements and gives LBB officers direct access to real time data and simple summary reports on a defined or an ad hoc basis.

BHAL are to operate a suitable noise inquiry and complaints handling system.

BHAL will also be required to develop proposals for incorporating track keeping into the monitoring system. The system shall provide access to a real time display of aircraft movements with information on aircraft location and height being clearly displayed. The access shall be via the BHAL website or an extension to the LBB website.

See paragraph 5.3.

Ground Noise

RECOMMENDATION: BHAL and BAP shall be requested to quantify the levels of ground noise currently generated by present day operations at the Airport. The exercise can then be repeated for the future operating conditions, and the results considered in both absolute and comparative terms. BHAL will be required to submit specific measures for limiting ground noise. See paragraph 5.4.

Aircraft Charging Schedule

RECOMMENDATION: any variation of hours are conditional on LBB seeking an increase in the amount payable by BHAL to reflect the increased level of business activity at the Airport



including an element to reflect the increased level of noise generated during unsocial hours and to take into account any public purse expenditure required as a result of the increased business at the Airport. The 'unsocial hours' additional charges shall be consistent with those that are levied at other, comparable airports in order not to place an unreasonable burden on BHAL.

It is proposed that a *unit of surcharge* be set which attracts a scaling factor according to the time of day at which an aircraft actually operates. It shall be applied to both departures and arrivals. The scale charges would mean that higher fees are paid at times when individuals are most sensitive to aircraft noise.

Full details of the forecast out of hours operations are not yet available, but once they are the total out of hours revenue likely to be generated can be determined based on the monetary value of the unit of surcharge that is considered most appropriate.



1 Introduction

- 1.1 Biggin Hill Airport Ltd. (BHAL) are seeking to alter the permitted hours of operation allowable under the terms of the 1991 lease with the London Borough of Bromley (LBB). They wish to be able to accommodate flights earlier in the morning and later in the evening on all days of the week.
- 1.2 The reason for seeking the change is to develop the Airport in a manner that makes it more attractive to business aviation users, including companies who may wish to base themselves at the Airport. Fewer restrictions on when aircraft may land or depart are seen as being an intrinsic part of an attractive offer to such users.
- 1.3 Additional aircraft noise during periods when residents around the Airport currently experience little is perceived as a significant drawback of the requested change. As a consequence, BHAL have employed Bickerdike Allen Partners (BAP) to draft a Noise Action Plan which sets out a number of measures that will be implemented at the Airport in order to control and contain noise. Adoption of a suitable NAP is expected to be a material benefit to noise sensitive receptors around the Airport, as existing formal controls are relatively few in number and limited in scope.
- 1.4 This report reviews the content of the draft NAP and comments on the benefits, adequacy and potential shortcomings of what is being proposed. It then goes on to consider the results of a more detailed quantitative assessment of current and future noise levels that has been requested of the Airport, undertaken and reported by BAP.
- 1.5 Resulting from this assessment, the report sets out a series of conditions, controls and obligations which it is recommended are imposed on the Airport in order to satisfactorily control noise emission if the lease modification is agreed.
- 1.6 Recommendations are also given on potential modifications to the aircraft charging structure at BHAL such that the costs of operation reflect the degree of noise pollution generated. It is proposed that the noisiest aircraft operating during the least social hours are charged more than quieter aircraft operating during normal working hours. The additional revenue generated would be paid to LBB thereby redressing some of the noise disbenefits suffered by the local community.

2 Lease Alteration

2.1 **1991 Lease: Third Schedule**

- 2.1.1 The third schedule of the 1991 lease contains various provisions that are intended to limit the noise effects in the local community. So far as the requested changes to the lease and the proposed NAP are concerned, the most significant of these are:



Hours of Operation

2.1.2 The operating hours of the Airport (including ground running of aircraft) are limited to between 07h30 and 21h00 on weekdays and from 09h00 to 20h00 on Saturdays, Sundays and Public Holidays. The following provisions apply:

- For aircraft normally based at the Airport (a) departures from the Airport may additionally take place from between 06h30 and 07h30 on weekdays only and (b) landings at the Airport may take place additionally up until 22h00 on weekdays only.
- Up to a maximum of three flight movements shall be permitted on Saturdays and Sundays between 08h15 and 09h00 to permit an operator based at the Airport to operate a scheduled service to France.
- This limitation shall not apply to any emergency movements, that is when an aircraft has to land for reasons of safety of the aircraft or its passengers.

Movements

2.1.3 Flight movements (a movement being a landing or a take-off) are limited to 125,000 per year.

Noise Limits

2.1.4 Propeller driven aircraft under 5,700kg are not permitted to generate a noise level that exceeds 80dBA for aircraft over 1,500kg when measured 300m below the aircraft in a level flyover, That level, at the same measurement location, reduces to 68dBA for aircraft over 600kg. If the weight of the aircraft is between these two values, the limit is derived by linear interpolation.

2.1.5 Other subsonic aircraft shall not exceed the following noise levels at reference points defined by the CAA certification procedures:

Sideline	94 EPNdB
Take off	89 EPNdB
Approach	98 EPNdB

2.1.6 Movements into and out of the Airport will not be permitted by any aircraft which the Landlord (LBB) has prescribed as being excessively noisy. The definition of excessively noisy shall have regard to:

- Measured noise tests undertaken by the LBB Chief EHO,
- Operating experience,
- Representations received from persons living in the area or surrounding the Airport,
- Users of the Airport,
- The views of the BHAL Consultative Committee.

2.1.7 The above bullet point restrictions shall not apply to movements occurring in connection with the International Air Fair or any specific event or display approved by the Landlord.



2.2 Requested Change

2.2.1 The table below sets out the currently permitted hours of operation, as defined in the Lease, together with the extended hours being sought by BHAL.

Period	Monday to Friday	Saturday	Sunday & Public Holiday
Currently Permitted	07h30 – 21h00 ¹	09h00 – 20h00 ²	09h00 – 20h00 ²
Full Duration Sought	06h30 – 23h00	06h30 – 23h00	08h00 – 23h00
Morning Extension	06h30 – 07h30	06h30 – 09h00	08h00 – 09h00
Evening Extension	21h00 – 23h00	20h00 – 23h00	20h00 – 23h00
Additional Time ³	3h	5h 30m	4h

¹ Aircraft normally based at the Airport can depart from 06h30 and arrive until 22h00.

² Up to a maximum of 3 flight movements shall be permitted on Saturdays and Sundays between 08h15 and 09h00 to permit an operator based at the Airport to operate a scheduled service to France.

³ This is the additional time for which non-based aircraft would be permitted to operate from the Airport: it amounts to 30h 30m over a full week, a slightly greater than 33% increase from 89h 30m to 120h.

2.3 Additional Restrictions

2.3.1 In addition, BHAL are proposing a number of restrictions on movement during the extended hours being sought.

Monday to Friday

- A cap of 8 aircraft movements between 06h30 and 07h00
- A cap of 8 aircraft movements between 22h00 and 23h00
- Piston engine light aircraft (except military/medical flights) not permitted between 06h30 and 09h00 and between 22h00 and 23h00

Saturday

- As per Monday to Friday
- No flying training before 09h00 or after 17h00

Sunday & Public Holiday

- A cap of 8 aircraft movements between 22h00 and 23h00
- Piston engine light aircraft (except military/medical flights) not permitted between 06h30 and 09h00 and between 22h00 and 23h00
- No flying training before 09h00 or after 17h00



2.4 **Alternative Hours**

Weekdays

- 2.4.1 The change in hours being requested for weekdays is considered reasonable. Although a one hour extension is being requested in the morning period for non-based aircraft, it is recognised that a small number movements by based aircraft already take place during this period.
- 2.4.2 The two hour extension requested for evening time operation is longer, but as the cut off at 23h00 coincides with the end of the daytime period normally employed for planning assessments, it is not considered unreasonable.

Saturdays

- 2.4.3 The 2.5 hour extension being requested during the morning significantly extends the period for which people in the vicinity will be exposed to morning aircraft noise. Allied to this is the request to operate during what is nominally defined as the night time for planning purposes, i.e. 06h30 to 07h00. A step change of this magnitude on a non-working day may be considered unacceptable by many living around the Airport, and we would recommend that the commencement of morning operations not be permitted until 07h00.
- 2.4.4 The three hour extension requested for evening time operation is substantial, but as the cut off at 23h00 coincides with the end of the daytime period normally employed for planning assessments, it is not considered unreasonable on a Saturday.

Sundays and Bank Holidays

- 2.4.5 The one hour extension requested for the morning period is considered reasonable; an 08h00 start is well into the nominally defined daytime period.
- 2.4.6 The three hour extension requested for evening time operation is substantial, and although the cut off at 23h00 coincides with the end of the daytime period normally employed for planning assessments, it is may considered excessive on a Sunday or Bank Holiday evening. These are days that may be particularly earmarked for rest, relaxation or recreation and we would recommend an evening extension to 22h00 only.

3 Provisions in the Noise Action Plan

3.1 **Draft NAP**

- 3.1.1 The current Noise Action Plan has been prepared by BAP as undated document 7597342v1. It is attached as Appendix A.
- 3.1.2 The following sections comment on the key elements of the plan.



3.2 Current Noise Levels

- 3.2.1 It is imperative that the NAP quantifies the noise levels experienced within the community for the current aircraft operations. Section 2 of the BAP document addresses this point, but does so in an approximate manner by adjusting contours prepared in 1998 (as part of the LBB UDP Review) to account typical changes in numbers of general and business aviation movements since that time. The current noise levels are indicated in the NAP by a set of airborne aircraft noise contours applicable for a typical summer's day operations over a 16 hour period from 07h00 to 23h00.
- 3.2.2 Our view is that these contours are not sufficient to properly quantify the existing noise climate because:
- They are not generated using up to date information on the aircraft numbers, types and mode of operations that took place in 2014,
 - Insufficient account has been given to the timing of operations. There is no delineation between those taking place during daytime hours (07h00 to 23h00) and those occurring in the early morning shoulder hours (06h30 to 07h00) by based aircraft only.
- 3.2.3 Since publication of the NAP, BAP have submitted technical noise contours that represent the current operational conditions. These are addressed in Section 4.1 of this report.

3.3 Future Noise Levels

- 3.3.1 It is equally imperative that the NAP quantifies the noise levels experienced within the community for the future aircraft operations allowing for projected growth as facilitated by any changes to the lease. Section 3 of the BAP document addresses this point, but again does so in an approximate manner again by reference to a set of airborne aircraft noise contours applicable for a typical summer's day operations over a 16 hour period from 07h00 to 23h00.
- 3.3.2 The derivation of those typical future noise contours relies on a set of stated assumptions, which we repeat below and comment on if appropriate:
- A slight increase in operating hours. *Comment: it is not certain that a 30% increase can be characterised as slight.*
 - Maintaining a cap on circuit flying at weekends.
 - An increase in business aviation that will operate more quietly as newer types are introduced and older noisier types are removed from our authorised list. *Comment: business aircraft are inherently noisier than the smaller general aviation aircraft which they will, over time displace. It is valid to point out that newer business aircraft are quieter than older aircraft, but there are no provisions in the NAP that set out exactly what steps BHAL will take to ensure that these evolutionary benefits will actually occur.*



- A progressive reduction in the noise of individual aircraft types. *Comment: again there are no provisions in the NAP that set out exactly what steps BHAL will take to ensure that this will actually occur.*
- A specific hours requirement to apply to aircraft operated in the “new shoulder hours” in the early morning and late evening. *Comment: there is a suggestion in a later paragraph that “marginally compliant” Chapter 3 aircraft will be excluded from operating in the shoulder hours. For reference, marginally compliant Chapter 3 aircraft are 5dB quieter overall than the limit permits taking account of the sum of the three measurement position values. However, there is no indication as to how many or which aircraft would be affected by such a restriction at Biggin Hill. Also, this commitment falls far short of the benefits that would be derived from incentivising operations by only the newer quieter aircraft. More recent noise limits have been defined for subsonic aircraft which, if applied at Biggin Hill would give rise to much greater reduction in noise level. Chapter 4 aircraft are 10dB quieter overall than the limit permits taking account of the sum of the three measurement position value, while Chapter 14 aircraft are 17 to 36dB quieter overall, assessed in the same way. With real commitment there is scope to control shoulder period noise emission much more stringently.*
- A significant reduction in the noise impacted area from that adopted in the Bromley UDP (Policy ER8) for land use planning. *Comment: this contour, derived in 1998 was not produced as a statement of the noise generated by operations at BHAL, but rather an indication of what areas could potentially be affected if the Airport were to operate at its full permitted capacity.*

3.3.3 The future noise contours set out in the draft NAP are considered to be no more than notional and not adequate to identify potential effects outside the daytime period of 07h00 to 23h00, especially as no reference at all is made to aircraft numbers, types and operations projected to take place in the future if the lease modification is agreed.

3.3.4 Since publication of the NAP, BAP have submitted technical noise contours that represent the current operational conditions. These are addressed in Section 4.2 of this report.

3.4 Noise Reduction Measures

3.4.1 The NAP sets out a number of measures that BHAL propose to implement in order manage and control noise at the Airport. A specific aim is stated as being to ensure that the area affected by aircraft noise, defined by the 57dB $L_{Aeq,16h}$ contour, is much less than that set in the LBB UDP. This aim is, for reasons referred to in the last bullet point above, neither challenging nor particularly meaningful. A more appropriate outcome of the monitoring and control is recommended in Section 5 of this report.

3.4.2 The specific measures referred to in the NAP are set out below, although not necessarily repeated verbatim, and commentary on their relevance, influence and potential effectiveness provided.

Noise monitoring and reporting

3.4.3 The general measures referred to under this category point to the Airport having good intentions with regard to monitoring and reporting and describe a framework that is generally



in line with what is adopted at other airports. However, while the tone is positive, the proposals lack detail and could go further. Specific issues are:

- Regular analysis of aircraft activity and noise. *Comment: it will be appropriate to agree a precise schedule of analysis and reviews and record the outcomes that are to be expected from them.*
- Radar tracking and monitoring of compliance with noise abatement procedures. *Comment: discussion should be held on the precise procedures and outputs from this process and how it will tie into the noise monitoring system (referred to in a later bullet point).*
- Monitor noise characteristics of aircraft and check compliance with agreed noise limits. *Comment: there is no detail on what form this monitoring will take and no recognition that the limits referred to (original Biggin Hill limits and marginally compliant Chapter 3 values) do not reflect the commitment that the Airport will be striving for future operations to be undertaken by newer, lower noise aircraft.*
- Produce noise contours every 5 years and assess progress toward reducing the noise impact to 50% of the UDP contours. *Comment: the basis on which contours shall be produced needs to be agreed and the status of the UDP contours as a noise control tool needs to be refuted. These contours are out of date and simply not relevant in the context of assessing and controlling noise from future activity at the Airport.*
- Monitor and report on the number of movements in the early morning and late evening periods (for which the lease variation is sought). *Comment: this is an important control exercise, but applying only the Chapter 3 noise limits does not go far enough in terms of minimising the impact and taking advantage of future trends in aircraft noise reduction.*
- Work with LBB to install, monitor and report on noise generated by the Airport. *Comment: this is far too loose a commitment to a vital part of the noise control process. In our view the Airport should identify exactly what form of monitoring system they will be installing, how it will operate and how information will be provided to LBB.*

Control on types of aircraft permitted to use the Airport

- 3.4.4 There is a commitment to work with operators to phase out noisier aircraft, these being identified as aircraft that are marginally Chapter 3 compliant or their actual noise levels in the community are considered unacceptable.
- 3.4.5 We would expect to see such a commitment in an NAP, but we would like to see specific actions and provisions described by the Airport as well as individual aircraft types requiring control being identified.

Controls on flying training

- 3.4.6 Incentivising operators of light and training aircraft to install noise suppression equipment or to replace noisy aircraft is an action we fully endorse. We also endorse the proposals to agree new permitted operating hours for flying training flights on circuits and minimising these at periods over the weekend.



- 3.4.7 In each case, however, some work is required to put ‘flesh on the bones’ of the proposals including identifying what incentives will be used to encourage the required behaviour and exactly what the training hours restrictions are intended to be.

Working with existing operators to reduce noise levels

- 3.4.8 The proposals to work with operators to ensure adherence to existing procedures should not strictly form part of a new NAP, as we would expect the Airport to conduct business in this manner as a matter of course. The NAP should simply refer to this as being normal business and identify how innovation and better practice will be encouraged.
- 3.4.9 The production of a code of practice to minimise noise impacts from all operations and to formalise no fly zones is to be encouraged and reference in the NAP is appropriate. In parallel to the development of the NAP, we would expect the code of practice to be published, so that the two documents can work together from the earliest opportunity.

Introduction of Global Positioning System (GPS) based runway guidance system

- 3.4.10 The proposal to improve the accuracy with which aircraft can be tracked and routed into and out of the Airport is to be welcomed, and reference to the RNAV (Area Navigation) system reflects the intention to adopt best practice currently employed at airports.
- 3.4.11 It shall be recognised, however, that full implementation of improved procedures does require final approval from NATS, and BHAL cannot guarantee such changes will occur. BHAL can only commit to use best endeavours to achieve the goals, and evidence will need to be provided as to what processes are being followed to effect the changes.

Changing the height of arriving and departing aircraft

- 3.4.12 Again we endorse the proposal to adopt operating procedures that raise the height of all aircraft arriving at and departing from the Airport. Again, however, achieving this goal requires negotiation with, and final approval from, NATS. BHAL will need to use best endeavours to achieve the goals and provide evidence as to what those endeavours comprise.

Changing the “03-Instrument Approach”

- 3.4.13 Adoption of a procedure that confines aircraft to much more tightly defined routes at specified heights when arriving from the north and routing onto a runway 03 landing is expected to have benefits for a number of properties and communities currently located under the wide swath followed by aircraft currently using visual procedures. It is therefore to be welcomed in principle.
- 3.4.14 Again, however, achieving this goal requires negotiation with, and final approval from, NATS. BHAL will need to use best endeavours to achieve the goals and provide evidence as to what those endeavours comprise. In addition, the expected benefits of the change in noise terms can be quantified by appropriate modelling, and we would encourage BHAL to commission and report on the results of such modelling.



Controls during the new shoulder hour periods

- 3.4.15 There is a commitment to cap the number of movements taking place in the 'new shoulder hours', which are defined as the periods between 06h30 and 07h00 and also after 22h00, and to restrict the operations to aircraft that are not noisier than marginally compliant Chapter 3.
- 3.4.16 There are number of issues to be considered here, and that need to be developed with BHAL if the NAP is to address this matter in a rigorous and beneficial manner:
- Although not specifically stated in the NAP, BHAL have indicated elsewhere¹ that not more than 8 movements would take place on any day between the hours of 06h30 and 07h00 and 22h00 and 23h00 respectively. BHAL have also indicated that this upper limit reflects a worst case level of activity and is not representative of the aggregate number of movements averaged over the long term (e.g. summer or annual period). The limits and expected level of activity need to be clearly articulated in the NAP.
 - The 'new shoulder hours' defined in this particular control do not reflect the full extent of the changes to permitted operating hours that are being sought. We agree that 06h30 to 07h00 can be considered a period of particular noise sensitivity, as it is part of the night time period normally adopted for planning purposes. However, operations before 09h00 and after 20h00 on weekends will constitute new, and potentially disturbing, activity for receptors around the Airport. It may be reasonable to expect some controls during those periods as well as others that would come into effect on change of the lease but which are not include in the 'new shoulder hours' defined above.
 - Limiting movements during the 'new shoulder hours' to aircraft that do not generate noise above the marginally compliant Chapter 3 limits is, as noted in Section 3.3.2 above, a rather modest proposal in the context of the reference made elsewhere in the NAP to incentivise operations by only the newer quieter aircraft, the potential benefits of which are illustrated in paragraph 3.6 of the NAP.

Sanctions for non-compliance with noise abatement measures

- 3.4.17 We endorse the fact that BHAL will introduce a system of fines and controls for aircraft not complying with the Airport noise abatement regulations. It is an integral part of the noise control process adopted at any airport. We will want to agree detailed procedures for the setting of appropriate limits, how they are monitored and reported and the form of sanction that will apply.
- 3.4.18 The agreed procedures will need to define how sanctions imposed on noisy operators can benefit the local community, who suffer the effects of the excess noise.

¹ Managing Director's Report: Airport Consultative Committee, October to December 2014



Relocating the VOR beacon

- 3.4.19 The proposal to relocate the Biggin Hill VOR, which is used to position commercial aircraft in holding stacks in the airspace above Biggin Hill, will give rise to noise benefits. Fewer aircraft flying to other airports, Heathrow in particular, will be held circling above the area, removing, or significantly reducing, the noise they generate. This is to be welcomed and we endorse the initiative.
- 3.4.20 Again, achieving this goal requires negotiation with, and final approval from, NATS. BHAL will need to use best endeavours to achieve the goals and provide evidence as to what those endeavours comprise.

4 Current and Future Noise Levels

4.1 Current (2014) Noise Levels

- 4.1.1 It is important to establish the noise levels generated by existing operations at BHAL. This is a necessary starting point in any technical assessment of the noise issues arising from any operational changes being proposed.
- 4.1.2 Appendix B contains a note received from BAP quantifying the 2014 noise levels based on computer modelling of the operations in line with the standard convention for assessing such matters.
- 4.1.3 The note sets out:
- The aircraft numbers, types and operations that took place in 2014.
 - A set of noise contours that reflect those operations.
 - Some account has been given to the timing of operations, with a delineation having been made between those expected to take place during the normal (planning) daytime hours of 07h00 to 23h00 and those taking place in the requested extended hours that fall into the normal (planning) night time hours of 23h00 to 07h00.
 - $L_{Aeq,16h}$ contours at 57, 63 and 66dB for the summer period operations: these assess the 31% of operations that took place during the 92 day period between mid-June and mid-September 2014.
 - $L_{Aeq,30m}$ values at 57, 63 and 66dB for operations taking place between 06h30 and 07h00: these have again been undertaken for mid-summer operations for comparative purposes.
 - 90dB SEL footprints for departures of aircraft operating during the 06h30 and 07h00 period.
 - L_{den} contours at 55, 60 and 65dB for the full year operations.



4.1.4 The note is self-explanatory, but the following points are highlighted:

- The daytime contours set out in Figure A9780-N02-01 indicate that the overall extent of the modelled daytime 57dB $L_{Aeq,16h}$ noise contour is similar to what was estimated and include in the NAP. The changes in shape of the contour is attributed to the modal runway split used for the modelling being different to that allowed for in the estimated contour
- The noise modelling takes into account the very small number of operations that took place in 2014 between the hours of 06h00 and 07h00. On average, this amounts to less than 0.1 movements per day. The limited extent of the contours indicated in Figure A9780-N02-02 reflects this very small number.
- The L_{den} contours indicated in Figure A9780-N02-03 allow for the operations during the period 06h30 to 07h00 and incorporate a 10dB penalty for operations in that period to reflect the greater sensitivity to noise at that time. L_{den} also applies a 5dB penalty to operations taking place in the evening period between 19h00 and 23h00. However, the resulting contours are very similar to the $L_{Aeq,16h}$ contours in terms of extent and shape principally due to the very small number of 2014 operations between 06h30 and 07h00.
- The 90dBA SEL footprints set out in Figure A9780-N02-04 can be used to identify those properties exposed to aircraft noise levels taking place during the night time period (in this instance between 06h30 and 07h00) that give rise to a quantifiable risk of sleep disturbance².

4.1.5 The 2014 noise contours and noise footprints establish a baseline against which airborne aircraft noise levels expected to arise in the future can be compared.

4.2 Future (2030) Noise Levels

4.2.1 Appendix C contains a note from BAP setting out the airborne aircraft noise levels expected in 2030 based on the numbers and types of aircraft projected to be operating during that year. A point in time 15 years hence is considered to be a reasonable reflection of future operations arising if the requested change in operating hours is permitted.

4.2.2 The note is prepared on the same basis as that employed to quantify the current (2014) noise levels. BAP have confirmed that noise reduction measures referred to in the NAP, such as maintaining aircraft at higher altitude on arrival and revisions to the R03 approach, have not been incorporated into the 2030 noise model. The modelling does, however, incorporate a simple sensitivity study to assess the effects of uncertainty in the level and type of operations forecast to take place in the future

4.2.3 The following points are highlighted:

² A 1992 UK Department of Transport study 'Report of a Field Study of Aircraft Noise and Sleep Disturbance' found people exposed to single event levels above 90dBA SEL suffer a slight risk of sleep disturbance (a 1 in 75 chance of an awakening). It is therefore possible to examine the effects of people living within the footprints in terms of identifying the likelihood of the operations in question giving rise to sleep disturbance



- The total number of operations projected for the year 2030 is less than that indicated for 2014. However, this is primarily due to a significant reduction in the number of light aircraft General Aviation (GA) operations: the number of Business Aviation (BA) jet movements increases markedly (approximately doubles).
 - In particular, there is a very substantial increase in the number of movements projected to occur between the hours of 06h30 and 07h00: the figure increases from 31 in 2014 to 730 in 2030. This reflects an average daily number of movements of 2 in 2030, although the actual number of movements on any single day will vary.
 - The daytime contours set out in Figure A9780-N03-01 indicate a relatively modest increase in the overall extent of the modelled daytime noise contours. The 57dB $L_{Aeq,16h}$ contour is again similar to what was estimated and include in the NAP, the changes in shape of the contour being attributed to the modal runway split used for the modelling being different to that allowed for in the estimated contour.
 - The noise modelling clearly demonstrates the effect of the large increase in the number of operations expected to take place between the hours of 06h30 and 07h00. The contours indicated in Figure A9780-N03-02 cover a much wider area around the Airport than the equivalent contours for 2014.
 - As the L_{den} contours indicated in Figure A9780-N03-03 incorporate a 10dB penalty for operations between 06h30 and 07h00, they exhibit a larger increase in area than the daytime only $L_{Aeq,16h}$ contours.
 - The 90dBA SEL footprints set out in Figure A9780-N03-06 are identical to those prepared for the 2014 case on the basis that it exactly the same types of aircraft that are expected to depart during the early morning (night time) hours. Additional footprints to reflect the potential effects of aircraft arriving during this period are set out in Figure A9780-N03-05, but are much more limited in area and do not encroach on any areas containing residential accommodation.
 - The 'sensitivity' contours set out in Figure A9780-N03-04 identify that if in future aircraft are on aggregate 1dB quieter due to the progressive replacement of older aircraft by more modern, quieter aircraft up to 2030, then the overall extent of the contours reduces. On the other hand if no such fleet modernisation benefits are to be had and the growth in aircraft numbers is higher than modelled, then the overall extent of the contours increases.
 - These findings are expected: what is more worthy of consideration is whether either, or both, of these sensitivity adjustments is likely to reflect the actual conditions arising in 2030.
- 4.2.4 In a subsequent note, A9780-N04-DC dated 10 March 2015, BAP presented the results of an alternative sensitivity test that reflect both higher growth in traffic and benefits arising from fleet modernisation. The results are set out in table 5 of that note:



Contour Level	Area of Summer Daytime Air Noise Sensitivity Contours (07:00-23:00) $L_{Aeq,16h}$ (km ²)		
	Fleet Modernisation	Greater Growth	Fleet Modernisation and Greater Growth
57 dB $L_{Aeq,T}$	2.4	4.3	3.5
63 dB $L_{Aeq,T}$	0.8	1.3	1.1
66 dB $L_{Aeq,T}$	0.6	0.8	0.7

Table 5: Noise Contour Areas Sensitivity

- 4.2.5 If both fleet modernisation and greater growth occur together, the benefits arising from the lower noise levels generated by modern aircraft does not quite offset the disbenefits of the greater number of movements. Comparing the contour area figures in the table above to those set out Table 2 of Appendix C indicates that the 57dB contour for the combined sensitivity case is slightly more than 20% greater in area. The combined sensitivity contour has not been provided so its actual extent cannot be commented on.
- 4.2.6 In general terms, the predicted noise levels for 2030 can be viewed as a 'statement of intent' by BHAL in terms of the noise levels it expects to generate in the community around the Airport if the variation in operating hours is permitted. On balance, the base case future noise levels are not expected to be substantially higher during normal daytime operating hours, but significant changes are expected during the early morning period between 06h30 and 07h00.
- 4.2.7 It should be noted that changes of a material nature are also expected after 21h00 on weekdays and 20h00 on weekends and public holidays. At present no movements are permitted after these hours, but a number of movements may occur after these hours and before 23h00 if the lease variation is permitted. The changes cannot currently be quantified as the noise implications of the number of flights expected during these extended evening periods have not been separately modelled.
- 4.2.8 Subject to the late evening noise implications being properly quantified, our view is that the proposed changes should be considered acceptable in noise terms if suitable controls and relevant mitigation are applied. That is not to say that the noise changes are wholly desirable: there will be residents located in the vicinity the Airport, primarily to the south but also some to the north, who will experience a notable change in aircraft noise intrusion during the early morning and late evening periods.
- 4.2.9 Taking a balanced view, however, the controls recommended in the next section can be applied to ensure that the harm caused by noise does not outweigh the economic benefits to be derived from the proposed changes.



5 Monitoring and Control

5.1 Recommended Limits and Mitigation

Operating hours

5.1.1 Based on the discussion in Section 2.4 of this report, the following hours are recommended:

- Weekday (as requested): 06h30 to 23h00
- Saturday (1 hour shorter than requested): 07h00 to 23h00.
- Sundays and Bank Holidays (1 hour shorter than requested): 08h00 to 22h00

Daytime Noise Envelope

5.1.2 Operations at the Airport will be controlled such that the $L_{Aeq,16h}$ contour identified as 57dB 2030 (blue) in Figure A9780-N03-01 is treated as a *noise envelope* and the total area it encompasses is not exceeded at any time between grant of the Lease variation and the end of 2030.

5.1.3 During 2030, the contour will be revised based on projected operations for the following 15 year period. The revised contour will then act as the applicable *noise envelope* and the total area it encompasses shall not be exceeded at any time during that 15 year period. A downward only revision to the contour shall be permitted.

Night time Noise Envelope

5.1.4 Operations between the hours of 06h30 and 07h00 at the Airport will be controlled such that the $L_{Aeq,30m}$ contour identified as 57dB 2030 (blue) in Figure A9780-N03-02 is treated as a *noise envelope* and the total area it encompasses is not exceeded at any time between grant of the Lease variation and the end of 2030.

5.1.5 During 2030, the contour will be revised based on projected operations for the following 15 year period. The revised contour will then act as the applicable *noise envelope* and the total area it encompasses shall not be exceeded at any time during that 15 year period. A downward only revision to the contour shall be permitted.

Evening Period Noise Envelope

5.1.6 Operations between the hours of 21h00 and 23h00 on weekdays and between 20h00 and 23h00 on weekends and bank holidays at the Airport will be controlled such that the $L_{Aeq,30m}$ contour identified as 57dB 2030 yet to be defined by BAP is treated as a *noise envelope* and the total area it encompasses is not exceeded at any time between grant of the Lease variation and the end of 2030.

5.1.7 During 2030, the contour will be revised based on projected operations for the following 15 year period. The revised contour will then act as the applicable *noise envelope* and the total



area it encompasses shall not be exceeded at any time during that 15 year period. A downward only revision to the contour shall be permitted.

Early Morning Departures and Arrivals

- 5.1.8 No aircraft departing the Airport between the hours of 06h30 and 07h00 shall generate higher noise levels or give rise to a larger 90dBA SEL footprint than those shown for each departure mode in BAP Figure 9780-N03-06.
- 5.1.9 No aircraft arriving at the Airport between the hours of 06h30 and 07h00 shall generate higher noise levels or give rise to a larger 90dBA SEL footprint than those shown for R21 arrivals in BAP Figure 9780-N03-05. Although only a small percentage (6%) of arrivals are expected on R03, they shall only be permitted by aircraft that do not generate higher noise levels or give rise to a larger 90dBA SEL footprint than is indicated in this figure.
- 5.1.10 A grant for sound insulation enhancement to bedroom windows shall be made to those residences at which a noise level in excess of 90 dB SEL occurs at an annual average frequency of once or greater during the early morning period of (06h30 to 07h00)³.

Limit on Annual Movements

- 5.1.11 The lease permits up to 125,000 aircraft movements annually at the Airport. The current application indicates a forecast number of total movements of 31,270 by 2030. Even allowing for a significantly greater growth in Business Aviation operations than are currently forecast, the currently permitted maximum appears to be too large. We suggest a cap of 50,000 annual movements be applied.

5.2 Means of Control

- 5.2.1 The Noise Action Plan sets out a number of measures that are proposed to be implemented in order to control noise emission at the Airport. Those controls will be essential if the limits set out in Section 5.1 of this report are not to be exceeded.
- 5.2.2 Section 3 of this report comments on the controls proposed in the NAP and identifies where further information or clarification is considered appropriate. We set out below specific recommendations for development of the various controls proposed in NAP to ensure they can be properly implemented and monitored.

Control on types of aircraft permitted to use the Airport

- 5.2.3 Noise limits will need to be established that reflect the maximum noise levels likely to be generated by the aircraft mix forecast to operate in 2030. All aircraft will then be monitored against these limits and appropriate sanctions employed in the event of the limits being exceeded.

³ Full provisions of a suitable Sound Insulation Grant Scheme to be developed and agreed.



Controls on flying training

- 5.2.4 BHAL shall submit details of the scheme that will incentivise operators of light and training aircraft to install noise suppression equipment or to replace noisy aircraft.
- 5.2.5 BHAL shall submit details of the new permitted operating hours for flying training flights on circuits.

Working with existing operators to reduce noise levels

- 5.2.6 BHAL shall submit the proposed code of practice to minimise noise impacts from all operations and to formalise no fly zones.

Introduction of Global Positioning System (GPS) based runway guidance system

- 5.2.7 BHAL shall continue to update LBB on the progress of, and timescale for, implementation of the scheme to improve the accuracy with which aircraft can be tracked and routed into and out of the Airport. Any amendment to the current hours to be conditional on BHAL using best endeavours to achieve a successful implementation of the GPS system and agreeing a timetable for its implementation with the Council.

Changing the height of arriving and departing aircraft

- 5.2.8 BHAL shall continue to update LBB on the progress of, and timescale for, implementation of the scheme to adopt operating procedures that raise the height of all aircraft arriving at and departing from the Airport. Any amendment to the current hours to be conditional on BHAL using best endeavours to achieve a successful implementation of the altered operating heights and agreeing a timetable for their implementation with the Council.

Changing the "03-Instrument Approach"

- 5.2.9 BHAL shall continue to update LBB on the progress of, and timescale for, implementation of the scheme that confines aircraft to much more tightly defined routes at specified heights when arriving from the north and routing onto a runway 03 landing. Any amendment to the current hours to be conditional on BHAL using best endeavours to achieve a successful implementation of the altered approach procedures and agreeing a timetable for that implementation with the Council.

Controls during the new shoulder hour periods

- 5.2.10 BHAL shall submit to LBB details of the measures that will be implemented to ensure that the numbers and type of aircraft operating during the early morning period between 06h30 and 07h00 and also during the late evening period between 21h00 and 23h00 on weekdays and 20h00 and 23h00 on weekends and bank holidays give rise to noise levels that do not breach the limits set out in Section 5.1 of this report.



Sanctions for non-compliance with noise abatement measures

- 5.2.11 BHAL will submit to LBB detailed procedures for the setting of appropriate noise limits for all aircraft, how they are to be monitored and reported and the form of sanction that will apply. The agreed procedures will need to define how sanctions imposed on noisy operators can benefit the local community, who suffer the effects of the excess noise.

Relocating the VOR beacon

- 5.2.12 BHAL shall report to LBB on the progress of, and timescale for, implementation of the scheme to relocate the Biggin Hill VOR.

5.3 Noise Monitoring

- 5.3.1 We recommend that LBB make it a condition of any agreement to vary the Lease that BHAL take responsibility for installing and running a suitable noise monitoring system. The system shall be suitable for accurately recording the individual flyover noise levels associated each aircraft operation. These values can be used for assessing each operation against appropriate limits as described in Section 5.2 above as well as constructing the long term average aircraft noise levels for the purpose of validating the noise contours.

- 5.3.2 So far as individual accountability of the various operators / aircraft using the Airport is concerned, the following procedure would be adopted:

- Maximum departure noise levels that would apply to operations during the daytime and during the early morning shoulder period.
- These would typically be defined as Noise Violation Limits and built into a transparent system of monitoring and control. For example, if a violation is recorded this triggers a fine being levied on the perpetrator. A 1st violation leads to a modest fine, a 2nd violation leads to a more substantial fine and a 3rd violation points to persistent bad behaviour and may lead to a more stringent penalty such as being banned from using the Airport.
- Fines are paid into a 'community fund' for the benefit of those suffering the consequences of excessive noise.

- 5.3.3 BHAL have previously made reference to the adoption of a "3 strikes and you're out" system of dealing with noise and track keeping transgressors. This may well be a plausible approach, but it will be necessary for BHAL to provide more detail of the scheme and how it will be implemented.

- 5.3.4 So far as the monitoring system itself is concerned, it may be that the equipment currently under the ownership of LBB can be used by BHAL, in which case a suitable protocol for handing it over will need to be agreed. Thereafter BHAL will install it, and any other equipment deemed necessary, at locations that would enable them to properly monitor activities to ensure that the agreed/imposed controls are not violated.



- 5.3.5 The system will be installed and operated in a manner that meets LBB's noise monitoring requirements and gives LBB officers direct access to real time data and simple summary reports on a defined or an ad hoc basis. Those requirements will be set out in an agreement that can be appended to the modified lease and will include, but not be limited to:
- BHAL to operate a noise inquiry and complaints handling system. Members of the public will be advised of a suitable point of contact for articulating concerns and observations regarding aircraft noise, whether this be in relation to individual events or noise generally. The system will be organised such that a suitable response is made to all inquiries and complaints within 24 hours.
 - Members of the public to have access to a real time display of aircraft movements with information on aircraft location and height being clearly displayed. The access shall be via the BHAL website or an extension to the LBB website.
- 5.3.6 Time shall be allowed for the system to be acquired, installed and commissioned. Typically it would be expected to be fully functional and on line not more than 1 year after the modified lease agreement is in place.
- 5.3.7 BHAL will also be required to develop proposals for incorporating track keeping into the monitoring system. This may be a longer term proposition but one we would expect BHAL to sign up to as part of the agreement to vary the lease

5.4 **Ground Noise**

- 5.4.1 Although a secondary issue, noise from aircraft on the ground has not to date been assessed. It should not be ignored and should be subject to controls and monitoring as necessary.
- 5.4.2 BHAL and BAP shall be requested to quantify the levels of ground noise currently generated by present day operations at the Airport. The exercise can then be repeated for the future operating conditions, and the results considered in both absolute and comparative terms.
- 5.4.3 BHAL should spell out provisions that will be considered for the future containment or betterment of ground noise.
- They shall identify the proposed location for all future engine ground run ups as well as a description of the purpose built noise mitigation proposed (bunds or a ground running pen).
 - They shall identify where is it proposed to undertake compass swing tests in order to minimise their impact.



6 Aircraft Charging

6.1 Current Regime

- 6.1.1 The BHAL charging structure for aircraft movements is set out on the website at <http://www.bigginhillairport.com/airport-information/fees-and-charges/> .
- 6.1.2 Appendix D to this report summarises the principle elements of the charging regime at BHAL together with details of those used at Oxford (Kidlington) which is owned by the LPA and Northolt which is owned by the MOD.
- 6.1.3 It can be noted:
- Charges are levied according to the type of aircraft, with larger models paying higher fees.
 - Standard charges are scaled according to the weight, and therefore the size, of the aircraft.
 - Specific reference is not made to the scaling of charges according to the levels of noise generated by an aircraft type. Such a scale may apply indirectly, however, as larger aircraft tend to be noisier than smaller aircraft.
- 6.1.4 The rent or fees payable by BHAL to LBB, the Landlord is made up of an index linked base rent payable under the Lease plus an additional amount payable at the higher of the amount by which 3% of turnover or 12.5% of net profits exceeds the base rent.
- 6.1.5 The amount payable by BHAL to LBB is not linked to the levels of noise generated in the local community nor the hours over which that is generated. There is therefore no correlation between the degree of noise pollution imposed on inhabitants of the area around the Airport and the cost to BHAL. Furthermore, there is no direct link between the levels of noise generated by individual aircraft and the charges levied against them.

6.2 Proposition

- 6.2.1 If the lease variation is permitted, aircraft will be able to operate during hours when the local population can be expected to have heightened sensitivity noise. That will come about due to two factors:
- Operations will be taking place during times when no, or very limited operations have previously occurred,
 - Those times are at the beginning and ends of the day when affected residents would be expected to be relaxing or even sleeping.
- 6.2.2 In addition, the lease variation is expected to lead to a large increase in the number of movements by business aviation aircraft; that figure potentially doubling over a 15 year period. The number of movements by smaller, quieter general aviation aircraft is expected to remain constant or reduce.



- 6.2.3 It would be reasonable and appropriate in our view to revise the charging schedule to take due account of the levels of noise generated by individual aircraft and the times at which the noise is generated. By increasing the cost burden on noisier aircraft and weighting the charging system so that operations during the unsocial, extended operating hours are penalised the regime will effectively adopt a 'polluter pays' approach to charging, with a focus on noise.
- 6.2.4 By way of comparison, reference can be made the charging schedule adopted at Northolt and Oxford Airports. Although a specific link is not made between the scale of charges and the noise levels generated by an individual aircraft, there is a clear application of surcharges for aircraft operating out of hours.
- 6.2.5 Due consideration shall also be given to the general charging regime applied at these airports to ensure that the system proposed at Biggin Hill is not clearly unrepresentative of that applied at similar or competing airports.
- 6.2.6 It should be noted that BHAL have already identified a potential increase in the income to LBB from the Airport through a Supplementary Community payment which is made for flights between 22h00 and 23h00. The principle of charging on a 'polluter pays' basis is therefore deemed to be accepted.

6.3 Proposal

- 6.3.1 If the lease variation is permitted, we would recommend that any variation of hours is conditional on LBB seeking an increase in the amount payable by BHAL to reflect the increased level of business activity at the Airport including an element to reflect the increased level of noise generated during unsocial hours. A possible framework for revised schedule of charges and payments to LBB that addresses these requirements is set out below.
- 6.3.2 For aircraft operating during the extended hours permitted by the lease variation, a surcharge shall be applied to each movement. The scale of the surcharge will depend on exactly when an operation takes place, as the community sensitivity to noise can be considered more acute during some operating periods than others.
- 6.3.3 It is proposed that a *unit of surcharge* be set: the monetary value for this is to be determined. The actual unit of surcharge that applies to each aircraft type will vary according to the size and level of noise it generates.
- 6.3.4 The actual amount of surcharge that will be applied should vary by time period as follows and be applied to both departures and arrivals:
- 06h30 to 07h00 weekdays: 3 units
 - 07h00 to 07h30 weekdays: 2 units
 - 22h00 to 23h00 weekdays: 2 units
 - 07h00 to 09h00 Saturdays: 2 units
 - 20h00 to 23h00 Saturdays: 2 units
 - 08h00 to 09h00 Sundays: 2 units
 - 20h00 to 22h00 Sundays: 2 units
 - All other extended hours: 1 unit



- Currently permitted hours: 0 units

6.3.5 Information provided by BAP and set out in Appendix C, dealing with 2030 noise levels, indicates, that there are expected to be 730 movements annually in the weekday time period 06h30 to 07h00. Further information provided by them on movements during other extended hours periods is set out in the memo A9780-N04-DC dated 10 March 2015 as follows:

Period	Indicative 2030 Annual Movements
Monday to Friday – 10pm to 11pm	520
Saturday – 7am to 9am	208
Saturday – 8pm to 11pm	312
Sunday – 8am to 9am	104
Sunday – 8pm to 11pm	312

Table 4: Indicative 2030 Extended Hours Annual Movements

6.3.6 Some extended hours periods are not included in this table, but values can be estimated or determined for the full range of alternative extended hours as we have set them out in Section 2.4 above. With that information and an appropriate unit of surcharge monetary value selected, the total out of hours revenue can be determined.

6.3.7 If the unit of surcharge is set at £75, the total revenue from this element of the charging structure would amount to in excess of £450k in 2030, while if the unit if surcharge is set out £250, the revenue would be slightly in excess of £1.5M.

6.3.8 Clearly these indicative values apply only when the Airport is operating at its full forecast capacity, and revenue generated during intervening years will be less but growing to this value. An accurate forecast of revenue generated in any year will require an accurate forecast of the total number of operations in any given extended hours period. This is not currently available.

Payments to LBB

6.3.9 All aircraft unsocial hours charges shall be paid to LBB. They shall constitute a transfer payment to reflect the level of noise pollution experienced in the local community and to take into account any public purse expenditure required as a result of the increased business at the Airport. They shall be paid in addition to the annual rent payable under the terms of the lease.

■ End of Section



Glossary of Acoustic Terms

L_{Aeq} :

The notional steady sound level (in dB) which over a stated period of time, would have the same A-weighted acoustic energy as the A-weighted fluctuating noise measurement over that period. Values are sometimes written using the alternative expression dB(A) L_{eq} .

L_{Amax} :

The maximum A-weighted sound pressure level recorded over the period stated. L_{Amax} is sometimes used in assessing environmental noise when occasional loud noises occur, which may have little effect on the L_{Aeq} noise level. Unless described otherwise, L_{Amax} is measured using the “fast” sound level meter response.

L_{A10} & L_{A90} :

If non-steady noise is to be described, it is necessary to know both its level and degree of fluctuation. The L_{An} indices are used for this purpose. The term refers to the A-weighted level (in dB) exceeded for n% of the time specified. L_{A10} is the level exceeded for 10% of the time and as such gives an indication of the upper limit of fluctuating noise. Similarly L_{A90} gives an indication of the lower levels of fluctuating noise. It is often used to define the background noise.

L_{A10} is commonly used to describe traffic noise. Values of dB L_{An} are sometimes written using the alternative expression dB(A) L_n .

L_{AX} , L_{AE} or SEL

The single event noise exposure level which, when maintained for 1 second, contains the same quantity of sound energy as the actual time varying level of one noise event. L_{AX} values for contributing noise sources can be considered as individual building blocks in the construction of a calculated value of L_{Aeq} for the total noise. The L_{AX} term can sometimes be referred to as Exposure Level (L_{AE}) or Single Event Level (SEL).

Perceived Noise Level

Perceived Noise Level: this measure is used specifically for the evaluation of aircraft noise, taking account of the high pitched whine generated by jet engines. There is an approximate relationship between the PNL and the A-weighted noise level as follows:

$$PNL = L_A + 13dB$$



EPNdB

Effective Perceived Noise Level: this is calculated by integrating the energy over the time period during which the tone corrected perceived noise level is within 10PN dB of the maximum value and normalising with respect to a reference time of 10s.

Appendix A

Subject: Noise Action Plan
Project: Biggin Hill Airport
Date: 10 March 2015



LONDON
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Noise Action Plan



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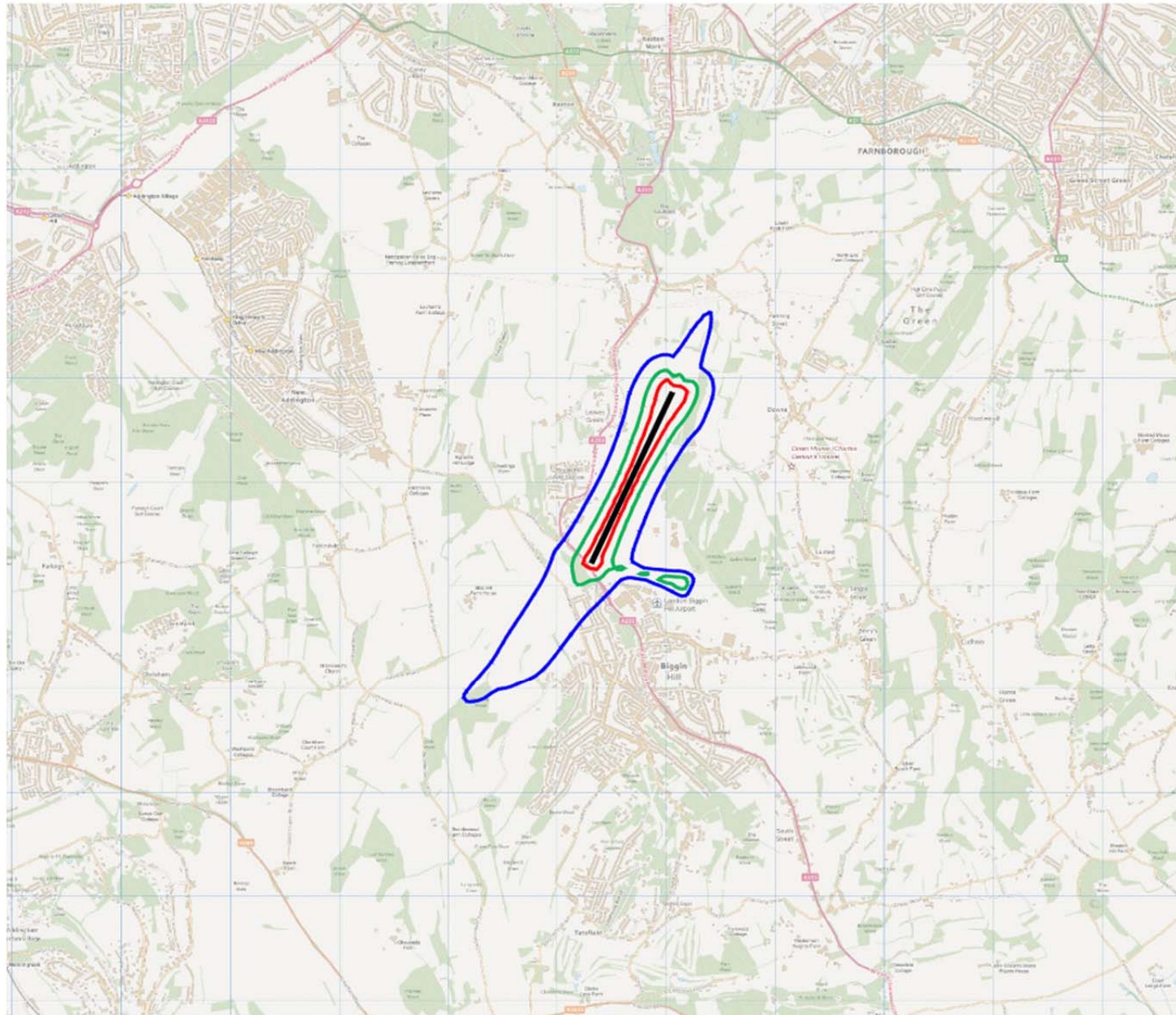
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1.0 Introduction

- 1.1 In order to make best use of this long established aviation facility, London Biggin Hill Airport plans to develop in order to attract more companies and this will require changes in operations as the Airport moves towards undertaking a more modern corporate and general aviation role. As part of this process the opportunity has been taken to update noise management measures at the airport.
- 1.2 The current controls were put in place over 20 years ago and are contained in the Operating Criteria of the Lease between the London Borough of Bromley and the airport. This requires that aircraft using the airport must comply with the Council's approved noise criteria set in 1994 which followed the most stringent ICAO Chapter 3 industry standards for modern turbo jets and turbo fans and used industry noise measurement limits for Side line, Take off and Approach. They also included a list of older and specifically approved aircraft, some of which are still in service. These earlier noise controls will be updated and the Airport has drawn on best industry practice to produce this voluntary Noise Action Plan (NAP). The aim is to ensure the Airport operates as quietly as possible and so has minimal effect on neighbours and has a process of regular reviews and improvements in place.
- 1.3 The key elements of the Plan relate to clarifying existing and future noise levels combined with measures to manage and monitor noise levels. Local stakeholders will be actively involved in the implementation of this NAP.
- 1.4 The NAP has been prepared taking into account the requirements of section 18 of the Environmental Noise (England) Regulations 2006 (as amended). These regulations transposed the EU Environmental Noise Directive (2002/49/EC), known as END, into UK legislation. Detailed guidance is available on the Defra website on preparation of a NAP. Many UK airports have produced a NAP, and many have already been reviewed. Such reviews are intended to occur on a five year basis.
- 1.5 The NAP is designed to manage noise issues and effects arising from aircraft departing from and arriving at an Airport. The NAP process involves airports considering the noise impact of their operations together with the current control measures they have in place.

2.0 **Current Noise Levels**

- 2.1 The current noise levels can be quantified by both production of airport noise contours and consideration of community responses as delineated by the comments received by the Airport. The latter are regularly evaluated by a specialist sub-committee of the Airport Consultative Committee. After their evaluation of the comments and the actions taken by the Airport, a report is given by the Chairman of that Noise and Safety sub-committee to the Airport Consultative Committee. The Biggin Hill Airport Consultative Committee meets four times each year and minutes of the meetings are published on the airport website.
- 2.2 Past contouring has considered various future scenarios, and adopted as baselines noise contours for 1997, 2004, 2008 and 2009. In the latter year there were about 58,000 movements, of which Aero Club and Private movements formed 80% of the total. In 2013, the overall annual movements had reduced to about 41,500, and the Aero Club and Private constituted 70% of the total. In that period the business aviation element increased from 10,081 to 11,487 movements. On a simple basis the noise contours at the airport now, specifically in 2014, would be expected to be similar to those in 2009. That simple basis takes into account a possible rise in noise of less than a decibel, due to increased business aviation traffic, and a theoretical reduction of 1.5 dB, due to the overall reduction in aircraft activity of 40%. On the basis that the contours of 2014 are similar to 2009, the latter produced taking into account many more details of the actual traffic, the current noise impact area will approximate to that shown in Figure NAP 1.



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L_{Aeq,16h} Noise Contours

- 57 dB
- 63 dB
- 69 dB

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**Biggin Hill Airport
Planning For Change**

Current Summer - 2013
 57, 63 & 69 dB L_{Aeq,16h}

DRAWN: EV CHECKED: DC

DATE: 29/09/2014 SCALE: 1:50000@A4

FIGURE No:

A9780 Fig NAP1

- 2.3 Adopting the usual assessment criteria relating to aviation noise impact, the current noise impact at London Biggin Hill Airport shows that the contour representing high levels of annoyance, 69 dB $L_{Aeq,16h}$, is completely contained within the operational boundaries of the airport except at the southern end of the main runway where it extends to the A233 but does not impinge on any residential properties. The contour representing moderate levels of annoyance, 63 dB $L_{Aeq,16h}$, is also largely contained within the airport site although it does extend to the south across the A233. Some properties on the A233 abut this contour.
- 2.4 The contour representing the onset of low community annoyance, 57 dB $L_{Aeq,16h}$, extends to south of Holwood Farm to the north of the airport. To the south-west of the airport it extends beyond Norheads Farm. In doing so it includes a number of properties (approximately 92), most of which are in Biggin Hill Village.
- 2.5 The relatively small size of the 2013 (based on 2009) contours and their location over largely uninhabited areas is compatible with the low level of public reaction to the airport's activities. In 2013 the airport received 30 comments relating to its activities. Given that in that year there was about 41,500 movements this rate of response is about 0.7 comments per thousand movements indicating an acceptable situation. As shown in Table 1.0, by comparison at London Luton Airport in 2013 there were 1022 complaints from 97,615 movements, approximately 10.5 complaints per thousand. At London City Airport, over the five year period (2009-2013) typically 60 complaints were recorded annually; approximately 0.8 per thousand movements. At Farnborough Airport, which specialises in business aviation, there were in 2013, 220 complaints and annual movements of 22,754; 9.7 complaints per thousand movements.
- 2.6 These other Airports would indicate that their noise emissions produce acceptable situations, acknowledging some impact.

Table 1.0 Community Reaction near London Area Airports serving Business Aviation (B.A.)

Airport (Annual 2013 Movements)	No. Of Complaints (Annual 2013)	Population exposed to Daytime 57 dB $L_{Aeq,16h}$ and above
London Luton (97,615)	1,022	7,128
Farnborough (22,754)	220	0
London City (74,006)	90	13,600
London Biggin Hill (41,500)	30	245

- 2.7 Table 1.0 also includes the populations within the contour representing the onset of low community annoyance at each airport. This highlights the much higher exposed populations at London Luton and in particular London City Airport compared with London Biggin Hill.

2.8

Figure NAP 1 indicates the approximate extent of the noise impacted area. The contours shown include the 57 dB $L_{Aeq,16h}$ contour which is used to represent the onset of significant community annoyance for major airports. This applies to busier airports unlike Biggin Hill where there is considerable activity during daytime and night-time. Used at Biggin Hill, it may exaggerate the impacted area.

3.0 Future Predicted Levels

3.1 Future noise will relate to the type of operations undertaken, the aircraft used, the activity levels, and the details of how aircraft are operated into and from the Airport.

3.2 In order to better understand the future noise climate at the airport the following changes are assumed:

- a slight increase in operating hours;
- maintaining a cap on circuit flying at weekends;
- an increase in business aviation that will operate more quietly as newer types are introduced and older noisier types are removed from our authorised list.
- a progressive reduction in the noise of individual aircraft types;
- a specific noise requirement to apply to aircraft operated in the “*new shoulder hours*” in the early morning, and late evening; and
- a significant reduction in the noise impacted area from that adopted in the Bromley UDP (policy ER8) for land use planning.

3.3 The Airport acknowledges that as at any Airport some noise intrusion occurs. From consideration of the comments received it appears that the majority of the intrusions relate to the Aero Club and Private movements, especially at the weekends and from occasional noise events with either an older business jet (now mainly replaced), or from the unusual arrival procedure that is currently necessary when the wind is from the north or east. On these days, aircraft approach the airport from the north east, and using the airports guidance systems, and then depart from that system and carry out a visual circuit to the west of the airport, circling to the south west before turning north to land on Runway 03. Pilots following that procedure are not following any set airfield or automatic guidance system and therefore height and track of aircraft will vary and be affected by the pilots experience of Biggin Hill and weather conditions. This procedure gives rise to occasional noise intrusion in Keston, Tatsfield and Warlingham in particular.

3.4 To minimise the use of noisier aircraft it is proposed to incentivise operators to use quieter aircraft and to phase out previously approved noisier types from January 2015. The airport already adopts the most stringent Chapter 3 noise standards. For the “*new shoulder hours*” between 06:30 and 7:00 in the morning and 22:00 and 23:00 in the evening, the airport will only allow operations by aircraft that meet Chapter 3 standard. It will exclude all aircraft during this period defined as “*marginally compliant aircraft*” i.e. those which cannot fully comply with the Chapter 3 standards. These aircraft are defined under EU Directive 2002/30/EC dated 26 March 2002. They are jet aircraft:

“... that meet the certification limits laid down in Volume 1, Part II, Chapter 3 of Annex 16 to the Convention on International Civil Aviation by a cumulative margin of not more than 5EPNdB (Effective Perceived Noise in decibels), whereby the cumulative margin is the figure expressed in EPNdB obtained by adding the individual margins (i.e. the differences between the certificated noise level and the maximum permitted noise level) at each of the three reference noise measurement points as defined in Volume 1, Part II, Chapter 3 of Annex 16 to the Convention on International Civil Aviation.”

- 3.5 Aircraft have become much quieter and recently new business aviation aircraft using Biggin Hill, for instance the Bombardier Global 5000, have a cumulative margin of 23dB below the current aircraft noise limits (see Table 2.0).
- 3.6 To illustrate the improvement in aircraft noise performance since 1994, the margin of cumulative noise from typical business jets using the airport today compared with the cumulative noise authorised in the Operating Criteria section of the Airport Lease is shown below.

Table 2.0 Margin re Biggin Hill Noise Limit

Aircraft Type	Cumulative Margin v Biggin Hill Noise Limit
Modern Aircraft	
Bombardier Global 5000	23 dB better
Gulfstream V	20 dB better
Falcon 7X	18 dB better
Hawker 750	14 dB better
Challenger 604	24 dB better
Citation Excel	30 dB better
Lear jet 60	39 dB better

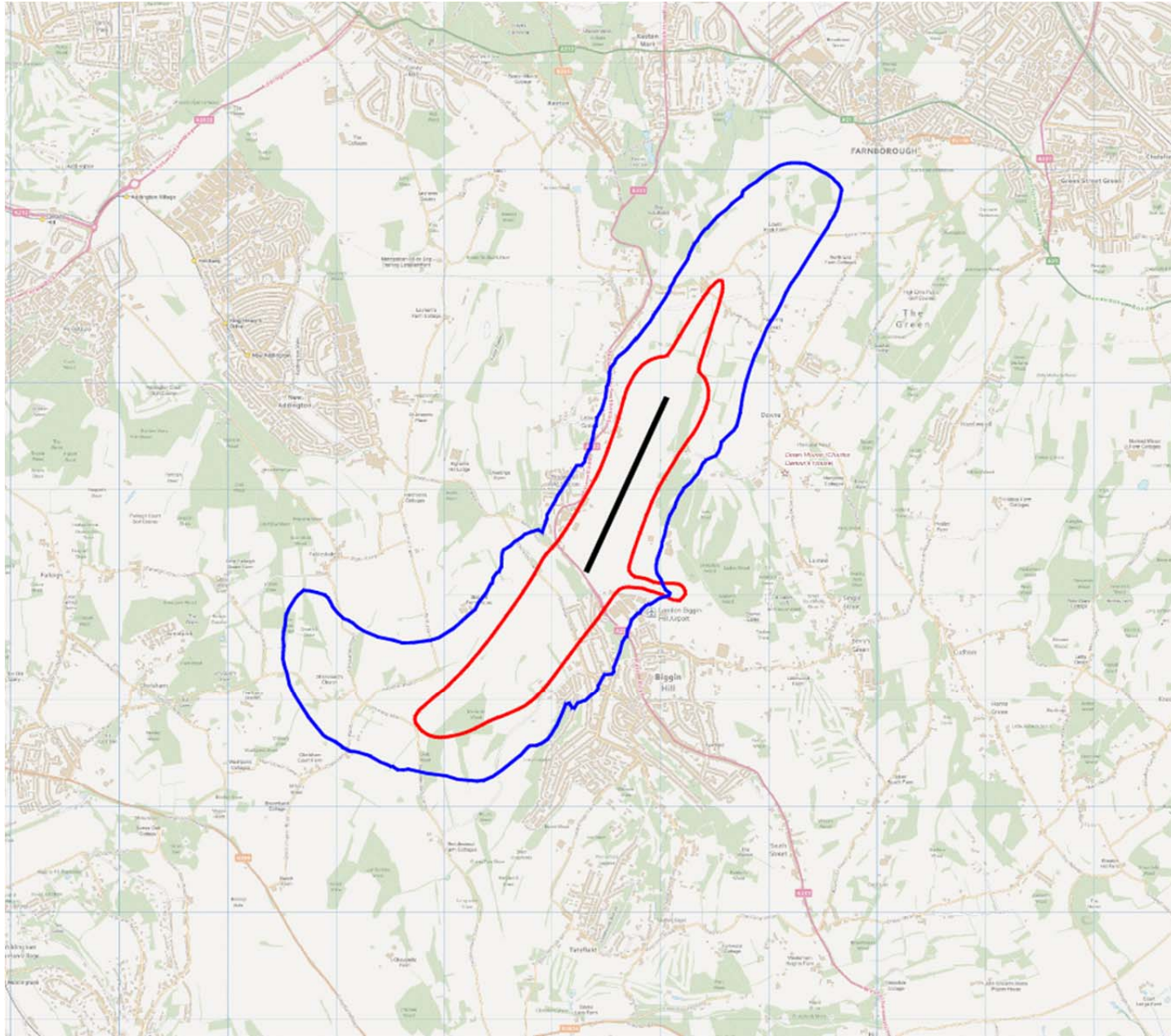
- 3.7 A preliminary assessment has been made of the future noise in 2025 and Figure NAP 2 compares the area and extent of that contour against the earlier UDP contour. The future contour takes into account the growth in overall activity, and the specific increase sought in business aviation. As shown by the Figure the future noise impact is considerably less than that forecast to arise for the UDP.
- 3.8 The contour representing the onset of community annoyance extends to Holwood Farm and at the other end of the Airport to south of Norheads Farm. It includes a number of properties in Biggin Hill Village.
- 3.9 The eventual contour for 2025 is likely to be smaller than that shown in Figure NAP 2, as no account has been taken of the expected benefits of the noise reduction measures proposed in the NAP, and later versions of the NAP. It will also benefit from improved aircraft noise performance as manufacturers produce quieter aircraft.
- 3.10 Responses to stated levels of noise, e.g. 57 $L_{Aeq,16h}$ are sometimes difficult to understand in practice. To assist Tables 3.0 and 3.1 rates common situations and the noise climate expressed using the same unit.

Table 3.0 Continuous average noise levels, Examples in terms of noise traffic.

Road Traffic External Noise Levels Noise Level	Description
78 dB(A)	Façade noise level in a very busy town street or a dwelling immediately next to a major road (Recently proposed Central Government criterion for retrospective soundproofing of housing near major unaltered highways).
68 dB (A)	Typical noise level at urban or rural property set back a little from the kerb on a busy street, or a property about 100m from a Motorway.
63 dB(A)	Level typical of many dwellings on fairly busy roads or with a clear view of a main road. Also typical of dwellings about 200m from a Motorway.
58 dB(A)	Typical of the back through streets of a town or dwellings fringing a main road or those on a quieter road.
48 dB(A)	Rural noise level or well screened suburban area away from heavily trafficked routes.
38 dB(A)	Unusually quiet.

Table 3.1 Quasi-continuous sound internal examples

Experience within Buildings	Level, dB(A) $L_{eq, T}$
Nightclub Dance Floor	105
Nightclub Bar	95
Noisy Pub Bar	85
Theme Restaurant	75
Posh Restaurant	65
Open plan office (busy)	55
Open plan office (night shift)	45
Cinema (before showing)	35



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57 dB L_{day,even} Noise Contours

- UDP
- 2025 Forecast

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**Comparison of 2025 Daytime Noise Contour
with UDP Noise Contour**

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DATE: 29/09/2014 SCALE: 1:50000@A4

FIGURE No:

A9780 Fig NAP2

4.0 **Noise Reduction Measures**

4.1 As part of this NAP, LBHA will continue with certain noise control measures and introduce a number of new measures to manage noise levels generally at the airport and more specifically to ensure the area affected by aircraft noise (defined by the area within the 57dB(A) $L_{Aeq,16h}$ contour) is much less than that set in the UDP contour. Overall these measures will represent a significant improvement on the noise control regime contained in the existing lease between the London Borough of Bromley and the airport.

4.2 The proposed measures will include regular monitoring and reporting of operations as well as active management of the types of aircraft able to use the airport and procedures associated with take-off and landing.

4.3 A large number of the new measures can be introduced in the short-term while others will require further investigation and the support of external stakeholders such as NATs. The airport is currently engaged in various background studies and is working closely with these external parties and is committed to the introduction of the measures set out below.

- **Noise monitoring and reporting**

- The airport will undertake regular analysis of aircraft activity and noise to identify where a review of procedures may help minimise disturbance.
- Community visits to investigate complaints will be continued.
- To continue to investigate, log, record on the radar tracking system and respond to all complaints, reporting quarterly to the Airport Consultative Committee.
- To continue to provide radar recording of all arrivals and departures at Biggin Hill so as to provide evidence for the community.
- Monitor compliance with procedures given in the UK Aeronautical Information Publication (AIP) to minimize noise, i.e. EGKB AD 2.21 Noise Abatement Procedures.
- Monitor the noise characteristics of aircraft with regard to their ICAO noise certification levels, to ensure full compliance with the original Biggin Hill Noise Limits and the need to minimise operations by marginally compliant Chapter 3 aircraft.
- Produce every five years Airport noise contours, and assess progress towards reducing the noise impacted area to 50% of that approved in the previously adopted contours included in the UDP.
- Produce noise information for sites agreed with London Borough of Bromley.
- Monitor and report progress against the NAP actions to the Airport Consultative Committee.

- Monitor and report on the number of movements in the early morning/late evening and obtain details of the aircraft used and their noise performance so ensuring any operations in those periods are only carried out by those aircraft rated as fully Chapter 3 compliant.
- Work with the London Borough of Bromley to install, monitor and report on noise generated by the airport and submit reports to the Airport Consultative Committee when required.
- Monitoring noise management at other comparable airports, and investigate whether any innovations used elsewhere could usefully be applied so ensuring industry best practice is applied at Biggin Hill.
- Report, as now, the number of departures and arrivals on each runway per quarter, and annually so demonstrating compliance with annual limits.
- **Control on types of aircraft permitted to use the airport**
 - New engine and airframe designs are delivering major reductions in noise. To ensure the local community benefits from this it will work with operators to phase out noisier aircraft currently on the list approved as part of the lease. The noisier aircraft will be identified by consideration of whether they are marginally compliant to Chapter 3 standards and where their actual noise affecting the local community is found unacceptable.
- **Controls on flying training**
 - The airport will work with operators of light and training aircraft to incentivize installation of noise suppression equipment, such as silencers and/or improved propellers, or aircraft replacement, to ensure Biggin Hill aircraft fleet is as quiet as practicable.
 - The airport will work with operators to agree new permitted operating hours for flying training flights that involve repetitive circuits of the airport and to seek agreement to minimise these at periods over weekends.
- **Working with existing operators to reduce noise levels**
 - The airport will continue its regular liaison with operators to ensure adherence to existing operational procedures and encourage innovation.
 - The airport will keep under review the Standard operating procedures for both aircraft and helicopter operations and whether new procedures would produce significant benefit.
 - The airport will produce with operators a code of practice to minimise noise impact from Business Aviation and General Aviation operations, in particular formalise "no fly zones" to protect local settlements where safe and practicable.

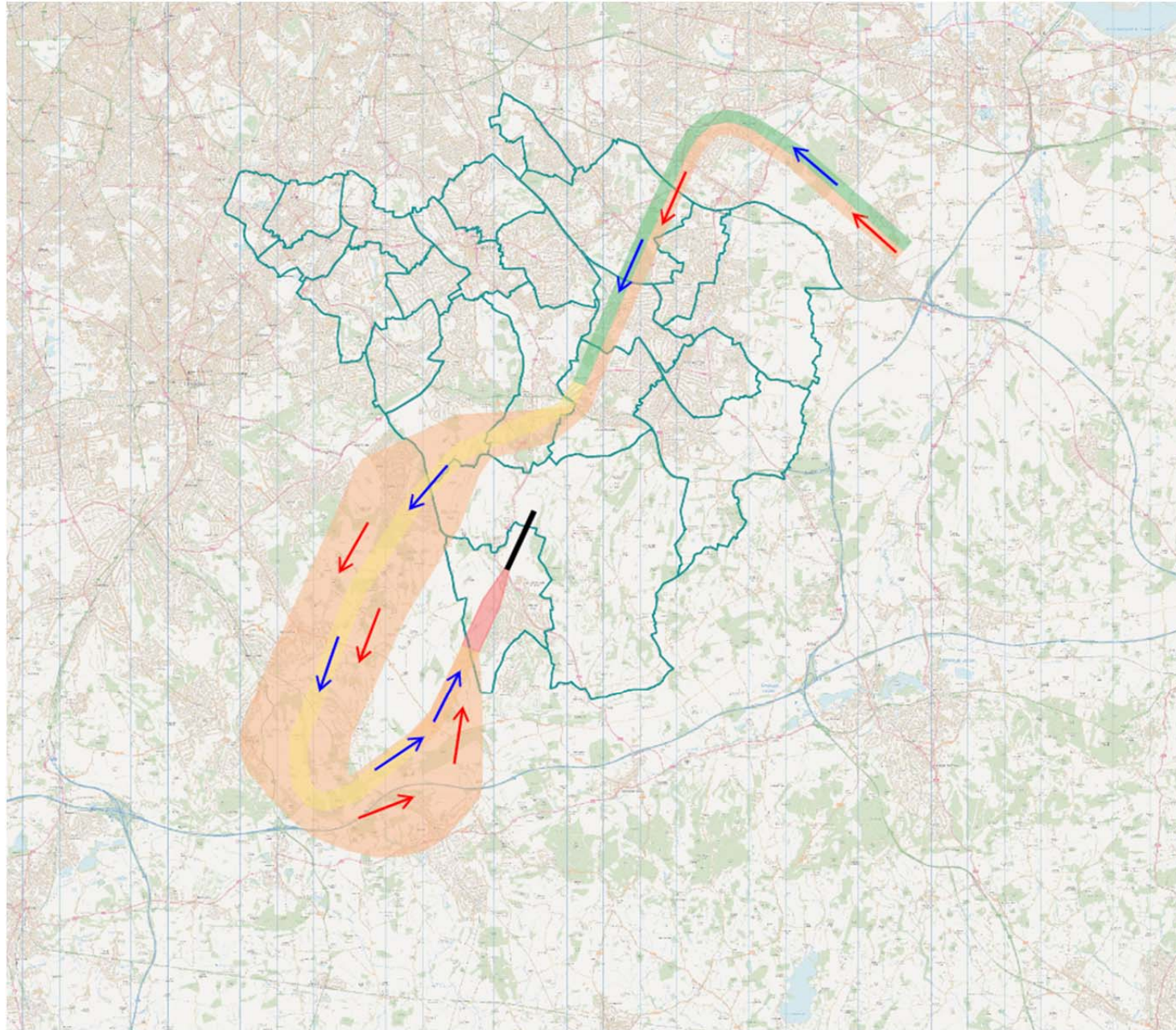
- **Introduction of Global Positioning System (GPS) based runway guidance system**
 - The airport will continue its investment and application for the installation of a new specific GPS based runway guidance system for all aircraft using the northern runway 03 in which both height and track guidance is provided to the pilot.
 - The airport will work with NATS to introduce as soon as practical improved aircraft guidance procedures for all arriving and departing aircraft, on both the 03 and 21 runways such as the highly accurate GPS based Area Navigation system (RNAV) that improve both track and height guidance for pilots.

- **Changing the height of arriving and departing aircraft**
 - Wherever practicable and safe and allowed by NATS, the airport will adopt appropriate operational procedures to raise the height of all aircraft arriving and departing at Biggin Hill in order to secure a reduction in noise. To ensure the local community benefits from this the airport will work with NATS and the Airport Consultative Committee, as part of the London Airspace Management Plan (LAMP) , for better airspace arrangements for Biggin Hill traffic and particularly raising the height of arriving and departing aircraft, whenever safe and practicable.

- **Changing the "03-Instrument Approach"**
 - The airport will continue to seek the provision of a new approach procedure for runway 03. It will work with NATS to introduce as soon as practicable the new procedure to replace the present visual procedure that gives rise to varied tracks and heights for arriving aircraft when the northern runway is in use. Such a system would produce a number of benefits in relation to noise reduction including:
 - (a) the arrivals for runway 03 over Farnborough Hospital would be at a higher level (almost 3,000 ft above sea level) with the related reduction in noise; and
 - (b) the area overflown to the west of the airport would be markedly reduced during the easterly approaches and aircraft would be at a higher level (over 2,000 ft above sea level) and slowly descending as opposed to maintaining a lower height with the related reduction in noise.

4.4

Figure NAP3 shows a schematic of the current arrival procedure and that sought by the airport.



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Altitude above sea level:

- 3000ft and above
- 2000 ft - 3000 ft
- 1000 ft - 2000 ft
- 0 ft - 1000 ft

Arrival routes:

- ← Current
- ← Proposed

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**Biggin Hill Airport
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**Current and Proposed
Runway 03 Arrivals Routes**

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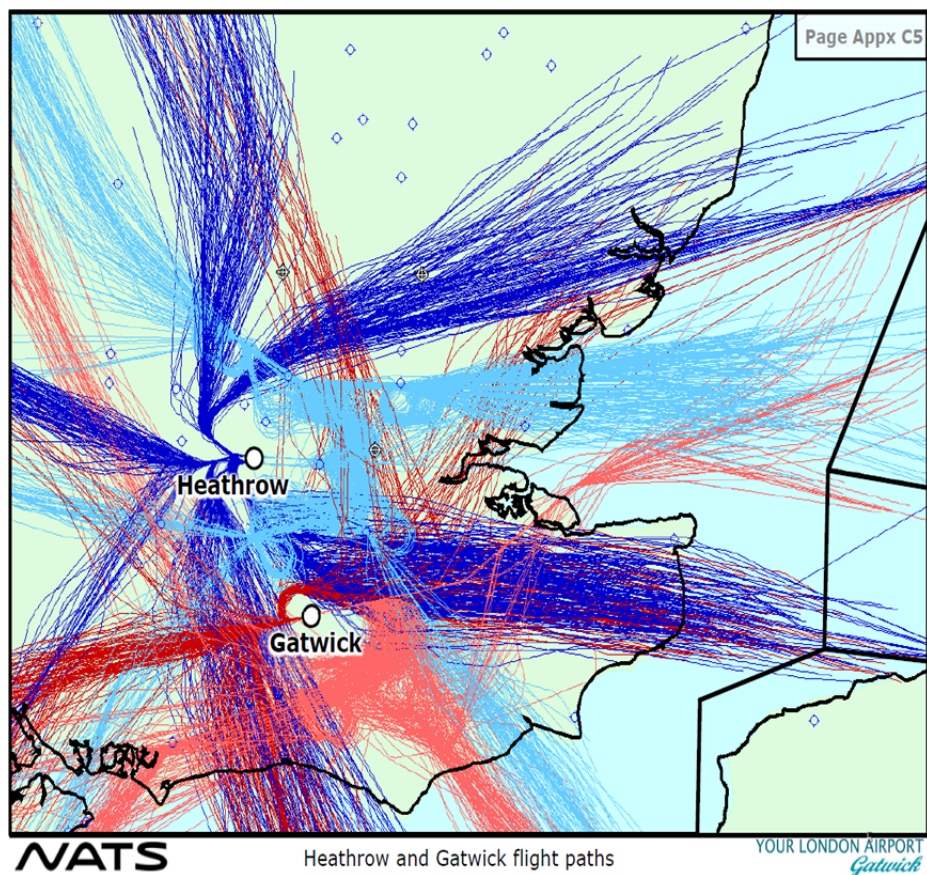
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FIGURE No:

A9780 Fig NAP3

- **Controls during the new shoulder hours period**
- New engine and airframe designs are delivering major reductions in noise. To ensure the local community benefits from this it will cap the number of flights in the '*new shoulder hours*' and introduce a system of control over the allowable noise performance of aircraft in these new '*shoulder hours*' between 0630hrs and 0700hrs and after 2200hrs which will involve only allowing fully compliant Chapter 3 aircraft.
- **Restricting noise sensitive development close to the airport**
- There is evidence that residential and other noise sensitive developments are being developed close to airports throughout the Country. This exposes such development and their populations to noise and can give rise to objections to airport operations. The airport believes the best way to minimise noise exposure is to ensure it does not take place at locations identified as subject to current and predicted airport noise in the first place. The airport will therefore discourage residential and other noise sensitive development close to the airport boundary or areas likely to be affected by aircraft noise, in liaison with Local Authorities.
- **Sanctions for non-compliance with noise abatement measures**
- The airport will introduce a system of fines and controls for aircraft not complying with its airport noise abatement regulations.
- **Relocating the VOR beacon**
- Biggin Hill Airport is the location of one of four holding areas or '*stacks*' used by aircraft in busy periods seeking to land particularly at London Heathrow Airport and arriving from the south east. Biggin Hill Airport has for the past 50 years had a beacon, known as a VOR located centrally within the airport. It is this beacon which provides the location of the '*hold*' or stack. Aircraft enter this area as high as 17,000 ft but then descend in circles to as low as 9,000 ft, sometimes lower. Aircraft are held vertically above each other and as the lowest departs for landing then other aircraft reduce their height. This means that at any one time many large passenger aircraft can be circling over the stack and therefore contribute to the ambient noise climate of the airport. This has resulted in a situation where noise associated with this operational procedure is often wrongly attributed to aircraft using the airport.

- This beacon is due to be removed from the airport in the next 5 years as the system of 'stacks' is being replaced by Continuous Descent Procedures that will keep aircraft much higher and quieter avoiding circling as before. Such a procedure requires less engine thrust than level flight and provides noise attenuation by keeping aircraft higher for longer thereby offering noise reduction benefits. To ensure this happens the airport will continue to work with NATs and others to secure the early removal of the VOR beacon at Biggin Hill in order to remove such overflying. Such relocation will make an important contribution to reducing noise at the airport.
- An extract from a consultation on London Airspace by Gatwick Airport and NATs visually expresses the scale of the issue.



Appendix B

Subject: 2014 Noise Levels
Project: Biggin Hill Airport
Date: 10 March 2015

Project: **London Biggin Hill Airport – Noise Action Plan**

File Ref: A9780-N02-NW

Date: 05 March 2015

Subject: **2014 Contouring**

From: N Williams

To:	Name	Company
	Vernon Cole	Cole Jarman
	Will Curtis	London Biggin Hill Airport

1.0 INTRODUCTION

Further to the request by Vernon Cole, Bickerdike Allen Partners (BAP) have prepared various 2014 noise contours for London Biggin Hill Airport, in addition to providing information regarding aircraft types and 90 dB(A) SEL footprints of typical aircraft.

2.0 AIRCRAFT OPERATIONS

The basis for the 2014 noise contours are the actual aircraft movements as provided by the airport. This movement data contained details of aircraft type, operation, runway and time and has been processed for input into the noise computation software, the FAA's Integrated Noise Model (INM). A summary of the aircraft movements over the calendar year of 2014 are summarised in Table 1 below by INM type. For the summer contours, the actual summer traffic was used. This comprised 31% of the annual traffic, with no significant changes in aircraft mix.

In common with noise contouring elsewhere we have excluded military movements from the contouring.

INM Aircraft Type	Typical Aircraft Description	2014 Movements	
		Daytime (07:00-23:00)	Early Morning (06:30-07:00)
A109	Agusta A109 (Helicopter)	1251	7
BEC58P	Piper PA34	1348	0
CL600	Canadair CL600, Dassault Falcon 2000	845	0
CNA172	Cessna 152, 172	8767	0
CNA208	Pilatus PC12	581	0
CNA441	Beechcraft 200	873	1
CNA500	Cessna 550	494	4
CNA510	Cessna 510	1096	2
CNA525C	Cessna Citation Jet (CJ2, CJ3, CJ4)	1164	2
CNA560XL	Cessna 560 Excel	1494	0
CNA680	Cessna 680	191	1
F10062	Falcon 7X, Falcon 900	637	1
GASEPF	Grumman AA-5B	4222	0
GASEPV	Cirrus SR22	2781	0
GIV	Gulfstream IV	167	2
GV	Gulfstream V, Global Express	518	0
LEAR35	Hawker 700/800/900, Learjet 45	1927	11
PA28	Piper PA28	14864	0
Other ^[1]	Various business jets, helicopters, propeller aircraft	3384	0
Overall Total		46604	31

^[1] "Other" covers 46 INM types which individually all comprised less than 1% of the total movements and did not operate in the early morning period.

Table 1: Aircraft Movements in 2014

3.0 NOISE CONTOURS

The following noise contours were requested:

- Summer Daytime $L_{Aeq,16h}$ contours, based on 07:00 to 23:00, at 57, 63 and 66 dB
- Summer Early Morning $L_{Aeq,30m}$ contours, based on 06:30 to 07:00, at 57, 63 and 66 dB
- Annual L_{den} contours, at 55, 60 and 65 dB

These contours have been produced using the current version of the INM software (version 7.0d), with the effects of local terrain included in the model. The areas of the contours are given in Table 2 and are plotted on Figures A9780-N02-01 to 03.

Contour Level	Area of Air Noise Contours (km ²)		
	Summer Daytime (07:00-23:00) $L_{Aeq,16h}$	Summer Early Morning (06:30-07:00) $L_{Aeq,30m}$	Annual L_{den}
>57 dB $L_{Aeq,T}$	2.1	0.6	-
>63 dB $L_{Aeq,T}$	0.8	0.3	-
>66 dB $L_{Aeq,T}$	0.5	0.2	-
>55 dB L_{den}	-	-	2.1
>60 dB L_{den}	-	-	0.9
>65 dB L_{den}	-	-	0.4

Table 2: Noise Contour Areas

Also shown on Figure A9780-N02-01 is the current (2009) daytime noise contour (at 57 dB $L_{Aeq,16h}$) given in the recent Noise Action Plan. This differs in shape to that now produced for 2014, extending further south but not as far to the north, due to a runway usage with more of the departures on runway 21. However it has an almost identical area, 2.2 km² as opposed to 2.1 km² for 2014.

4.0 SEL FOOTPRINTS

90 dB(A) SEL footprints have been produced for departures on each runway by the INM aircraft type LEAR35, which represents both the loudest and the most common aircraft types currently operating in the early morning period. The areas of these footprints are given in Table 3 below, and they are shown in Figure A9780-N02-04.

Aircraft Type and Operation	Area of 90 dB(A) SEL Footprint (km ²)
LEAR35 Departure, Runway 03	4.0
LEAR35 Departure, Runway 21	4.3

Table 3: 90 dB(A) SEL Footprint Areas

Nick Williams

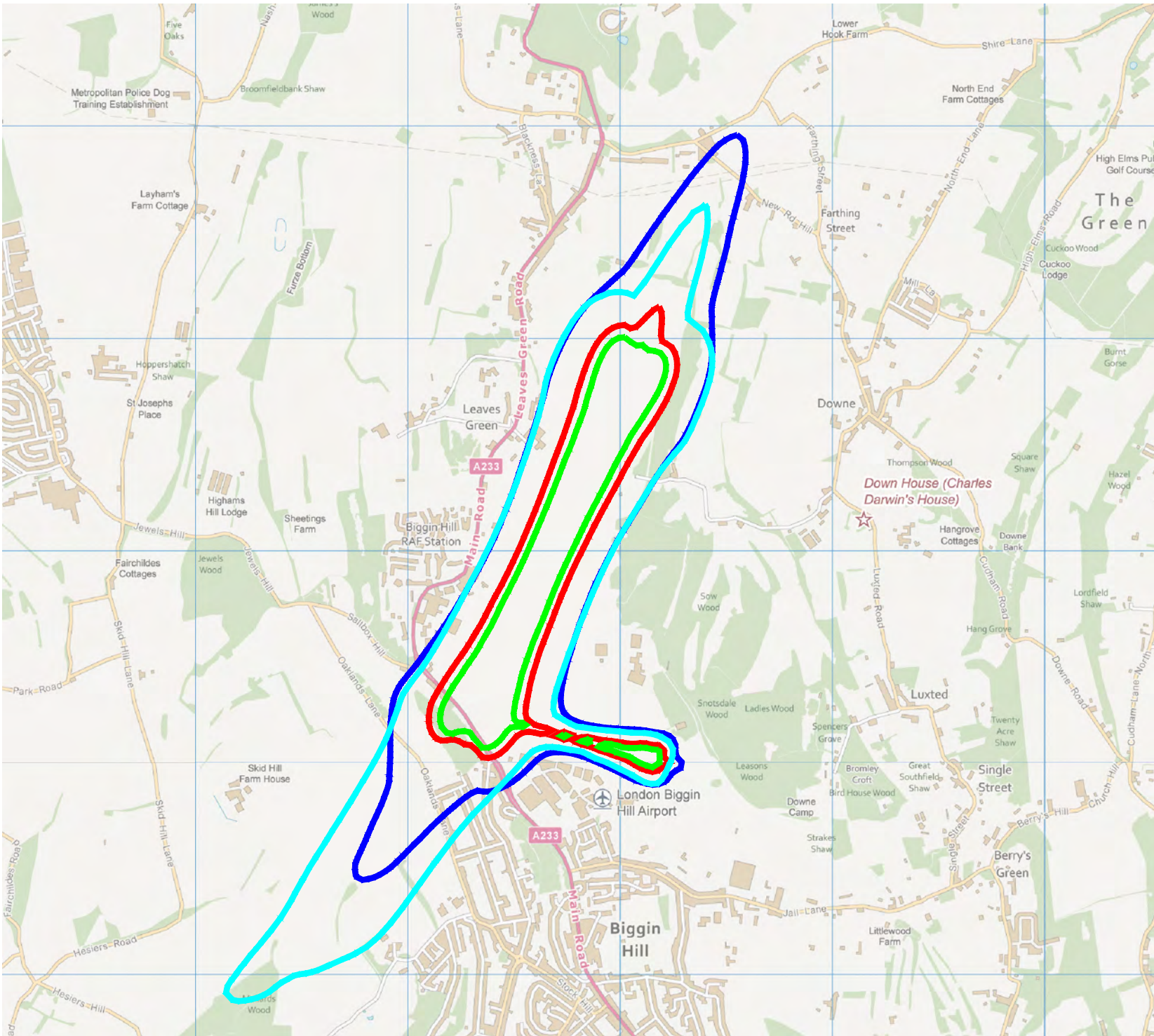
for Bickerdike Allen Partners

David Charles

Associate

Peter Henson

Partner



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L_{Aeq,16h} Noise Contours

- 57 dB, 2009 (NAP)
- 57 dB, 2014
- 63 dB, 2014
- 69 dB, 2014

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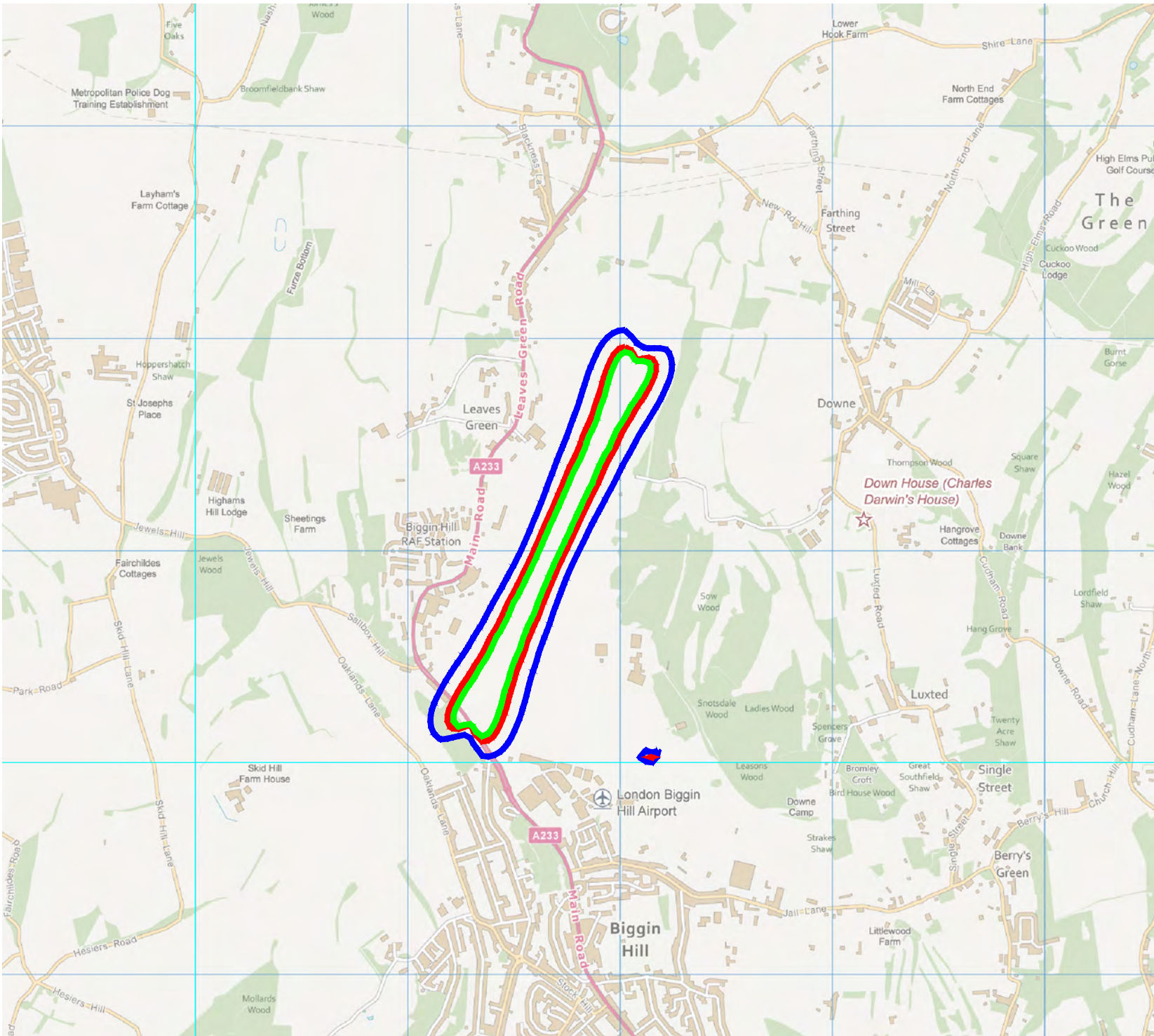
Airborne Aircraft Noise Contours
 2014 Actual Summer
 Daytime (07:00-23:00)

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DATE: 05/03/2015 SCALE: 1:25000@A4

FIGURE No:

A9780-N02-01



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L_{Aeq,30m} Noise Contours

- 57 dB
- 63 dB
- 69 dB

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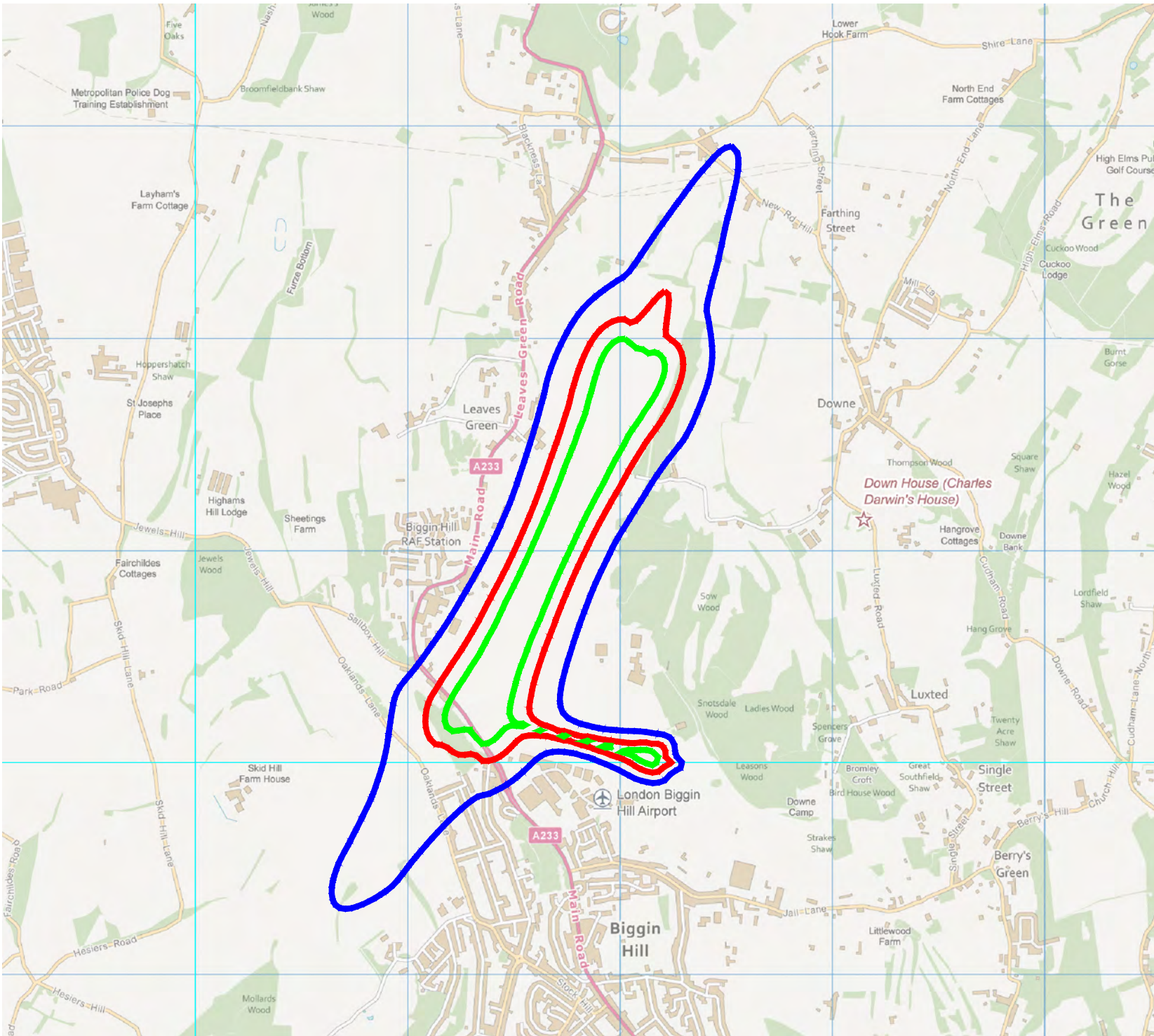
Airborne Aircraft Noise Contours
 2014 Actual Summer
 Early Morning (06:30-07:00)

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DATE: 05/03/2015 SCALE: 1:25000@A4

FIGURE No:

A9780-N02-02



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L_{den} Noise Contours

- 55 dB
- 60 dB
- 65 dB

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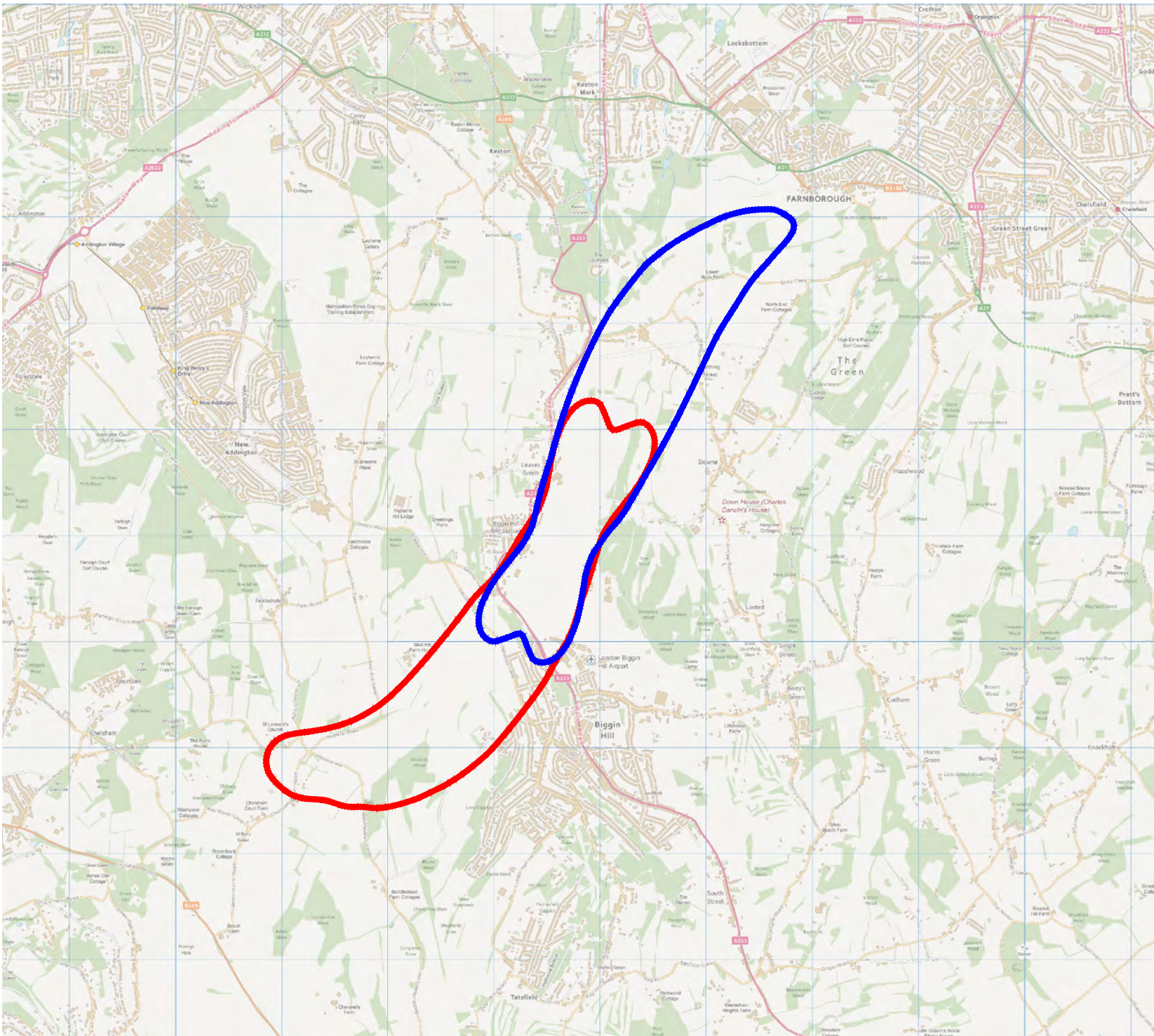
**Airborne Aircraft Noise Contours
2014 Actual L_{den}**

DRAWN: NW CHECKED: DC

DATE: 05/03/2015 SCALE: 1:25000@A4

FIGURE No:

A9780-N02-03



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90 dB(A) Footprints

- LEAR35 Dep R03
- LEAR35 Dep R21

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**Biggin Hill Airport
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**90 dB(A) SEL Footprints
2014 Actual
Early Morning**

DRAWN: NW CHECKED: DC

DATE: 05/03/2015 SCALE: 1:50000@A4

FIGURE No:

A9780-N02-04

Appendix C

Subject: 2030 Noise Levels
Project: Biggin Hill Airport
Date: 10 March 2015

Project: **London Biggin Hill Airport – Noise Action Plan**

File Ref: A9780-N03-NW

Date: 05 March 2015

Subject: **2030 Contouring**

From: N Williams

To:	Name	Company
	Vernon Cole	Cole Jarman
	Will Curtis	London Biggin Hill Airport

1.0 INTRODUCTION

Further to the request by Vernon Cole, Bickerdike Allen Partners (BAP) have prepared various 2030 noise contours for London Biggin Hill Airport, in addition to providing information regarding aircraft types and 90 dB(A) SEL footprints of typical aircraft.

2.0 AIRCRAFT OPERATIONS

The basis for the 2030 noise contours is a forecast provided by the airport. This has been supplemented with data for 2014, for example the same runway split has been used and the same operational procedures. With regard to aircraft type the forecast assumes the movements are split amongst the common types currently in operation.

The FAA's Integrated Noise Model (INM) has been used to produce the contours. A summary of the forecast aircraft movements over the calendar year of 2030 are summarised in Table 1 below by INM type. For the summer contours 31% of the annual traffic was used with the same aircraft mix.

In common with noise contouring elsewhere we have excluded military movements from the contouring.

INM Aircraft Type	Typical Aircraft Description	2030 Movements	
		Daytime (07:00-23:00)	Early Morning (06:30-07:00)
Business Aircraft			
CL600	Canadair CL600, Dassault Falcon 2000	2427	73
CNA441	Beechcraft 200	2427	73
CNA510	Cessna 510	3640.5	109.5
CNA525C	Cessna Citation Jet (CJ2, CJ3, CJ4)	3640.5	109.5
CNA560XL	Cessna 560 Excel	3640.5	109.5
F10062	Falcon 7X, Falcon 900	2427	73
LEAR35	Hawker 700/800/900, Learjet 45	6067.5	182.5
Other Aircraft			
A109	Agusta A109 (Helicopter)	700	0
BEC58P	Piper PA34	350	0
CNA172	Cessna 152, 172	1750	0
GASEPF	Grumman AA-5B	700	0
GASEPV	Cirrus SR22	700	0
PA28	Piper PA28	2800	0
Combined Total		31,270	730

Table 1: Forecast Aircraft Movements in 2030

3.0 NOISE CONTOURS

The following noise contours were requested:

- Summer Daytime $L_{Aeq,16h}$ contours, based on 07:00 to 23:00, at 57, 63 and 66 dB
- Summer Early Morning $L_{Aeq,30m}$ contours, based on 06:30 to 07:00, at 57, 63 and 66 dB
- Annual L_{den} contours, at 55, 60 and 65 dB

These contours have been produced using the current version of the INM software (version 7.0d), with the effects of local terrain included in the model. The areas of the contours are given in Table 2 and are plotted on Figures A9780-N03-01 to 03.

Contour Level	Area of Air Noise Contours (km ²)		
	Summer Daytime (07:00-23:00) $L_{Aeq,16h}$	Summer Early Morning (06:30-07:00) $L_{Aeq,30m}$	Annual L_{den}
57 dB $L_{Aeq,T}$	2.9	2.6	-
63 dB $L_{Aeq,T}$	1.0	0.9	-
66 dB $L_{Aeq,T}$	0.7	0.6	-
55 dB L_{den}	-	-	3.6
60 dB L_{den}	-	-	1.4
65 dB L_{den}	-	-	0.7

Table 2: Noise Contour Areas

Also shown on Figure A9780-N03-01 is the 2025 forecast daytime noise contour (at 57 dB $L_{Aeq,16h}$) given in the recent Noise Action Plan. This is similar to that now produced for 2030, albeit using a different runway usage, and has the same area.

As with any forecast there is some uncertainty over the future situation. The effect of this has been initially explored by undertaking two sensitivity tests. One assumes that the fleet is modernised leading to an average reduction of 1 dB(A). This does not seem unreasonable given the growth in aircraft meeting the new Chapter 14 standard over the next 15 years. The second sensitivity assumes that instead of the business movements increasing to 25,000 by 2030 they increase to 40,000 but without any modernisation of the fleet. The areas of the resulting summer daytime contours are given in Table 3.

In Figure A9780-N03-04 the summer daytime sensitivity contours at 57 dB $L_{Aeq,16h}$ are compared with the central forecast. Also included is the contour from the UDP. In all cases the future contours are less than 50% of the area of the UDP contour which is 8.7 km².

Contour Level	Area of Summer Daytime Air Noise Sensitivity Contours (07:00-23:00) $L_{Aeq,16h}$ (km ²)	
	Fleet Modernisation	Greater Growth
57 dB $L_{Aeq,T}$	2.4	4.3
63 dB $L_{Aeq,T}$	0.8	1.3
66 dB $L_{Aeq,T}$	0.6	0.8

Table 3: Noise Contour Areas Sensitivity

4.0 SEL FOOTPRINTS

90 dB(A) SEL footprints have been produced for departures on each runway by the INM aircraft type LEAR35, which represents both the loudest and the most common aircraft type forecast to depart in the early morning period. 90 dB(A) SEL footprints have also been produced for arrivals using runway 21 by the INM aircraft types CNA560XL and LEAR35, which represent the loudest and the most common aircraft types forecast to arrive in the early morning period. No arrival footprints have been prepared for runway 03 as in 2014 only 6% of business jets arrivals used this runway.

The areas of these footprints are given in Table 4 below, and they are shown in Figure A9780-N03-05 to 06.

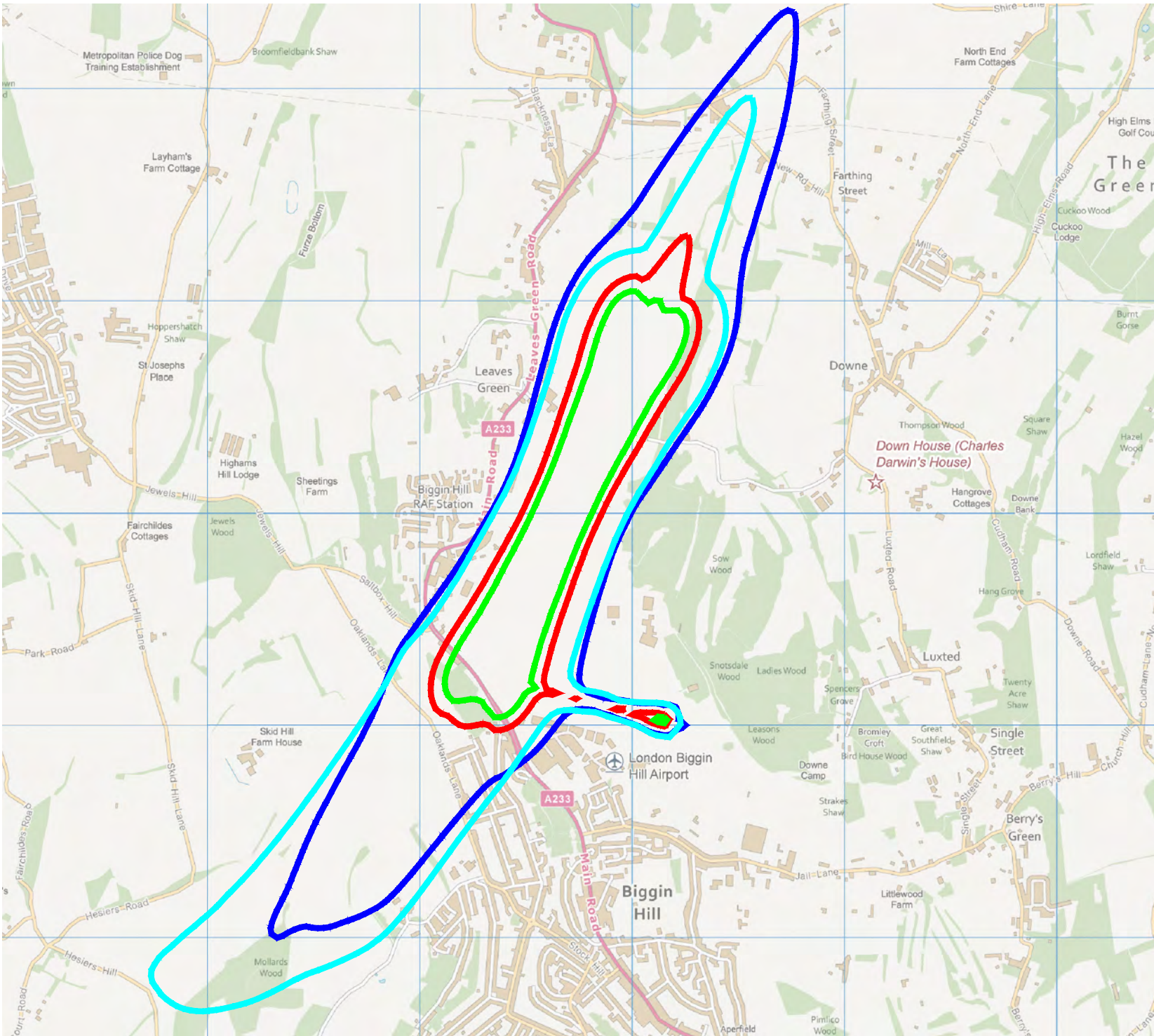
Aircraft Type and Operation	Area of 90 dB(A) SEL Footprint (km ²)
LEAR35 Departure, Runway 03	4.0
LEAR35 Departure, Runway 21	4.3
CNA560XL Arrival, Runway 21	0.3
LEAR35 Arrival, Runway 21	0.2

Table 4: 90 dB(A) SEL Footprint Areas

Nick Williams
for Bickerdike Allen Partners

David Charles
Associate

Peter Henson
Partner



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L_{Aeq,16h} Noise Contours

- 57 dB, 2025 (NAP)
- 57 dB, 2030
- 63 dB, 2030
- 69 dB, 2030

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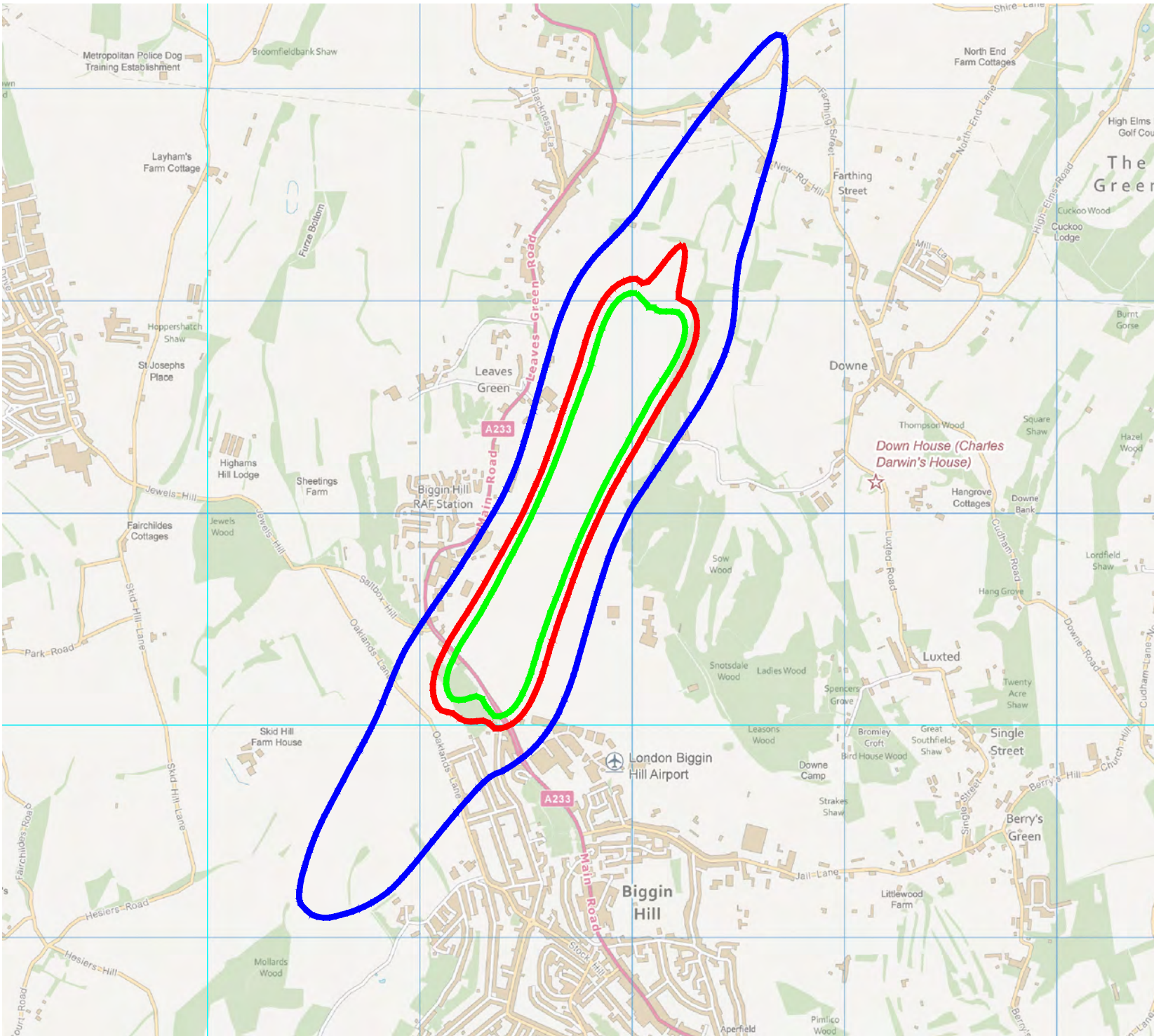
Airborne Aircraft Noise Contours
 2030 Forecast Summer
 Daytime (07:00-23:00)

DRAWN: NW CHECKED: DC

DATE: 05/03/2015 SCALE: 1:25000@A4

FIGURE No:

A9780-N03-01



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L_{Aeq,30m} Noise Contours

- 57 dB
- 63 dB
- 69 dB

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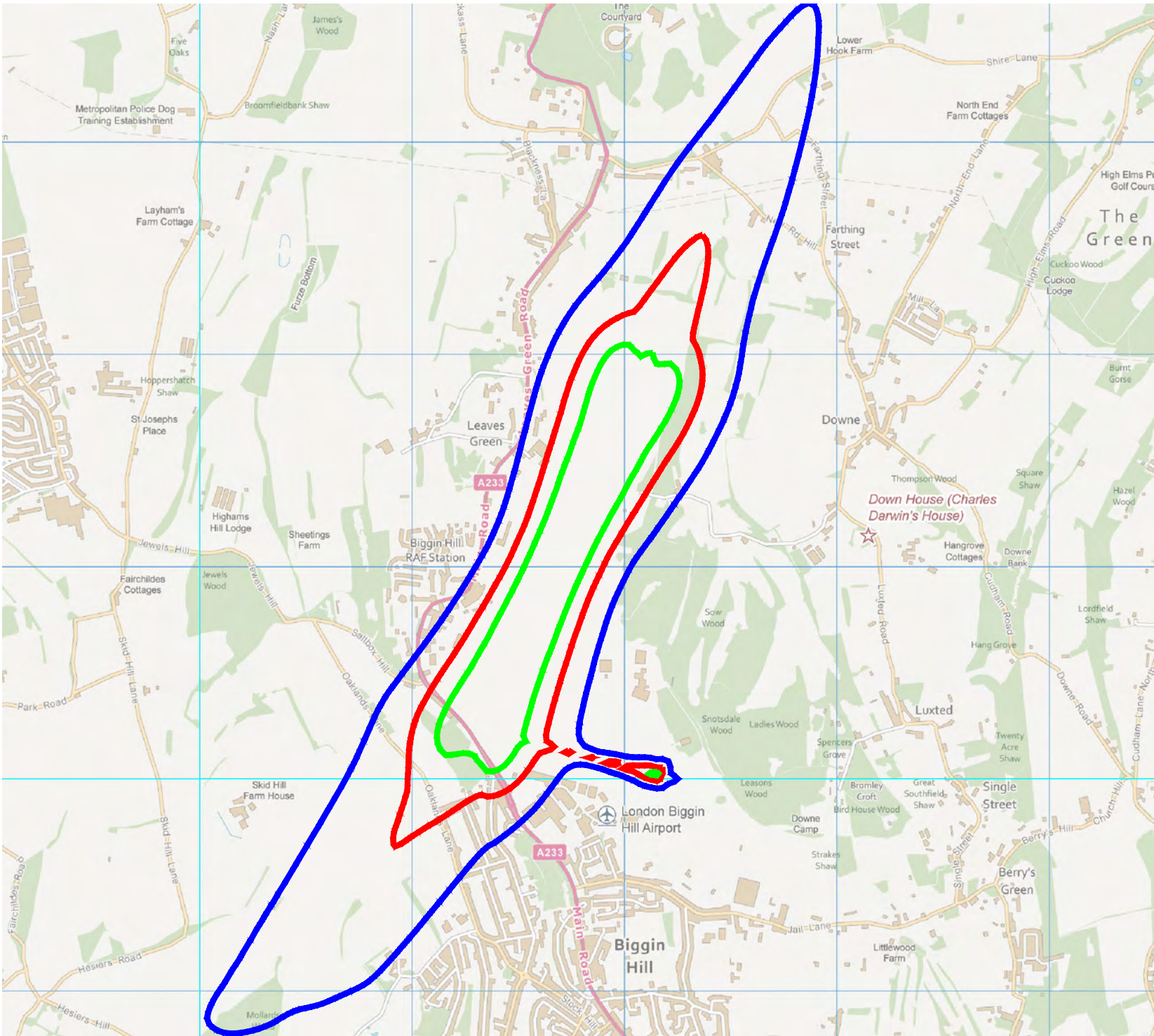
Airborne Aircraft Noise Contours
 2030 Forecast Summer
 Early Morning (06:30-07:00)

DRAWN: NW CHECKED: DC

DATE: 05/03/2015 SCALE: 1:25000@A4

FIGURE No:

A9780-N03-02



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L_{den} Noise Contours

- 55 dB
- 60 dB
- 65 dB

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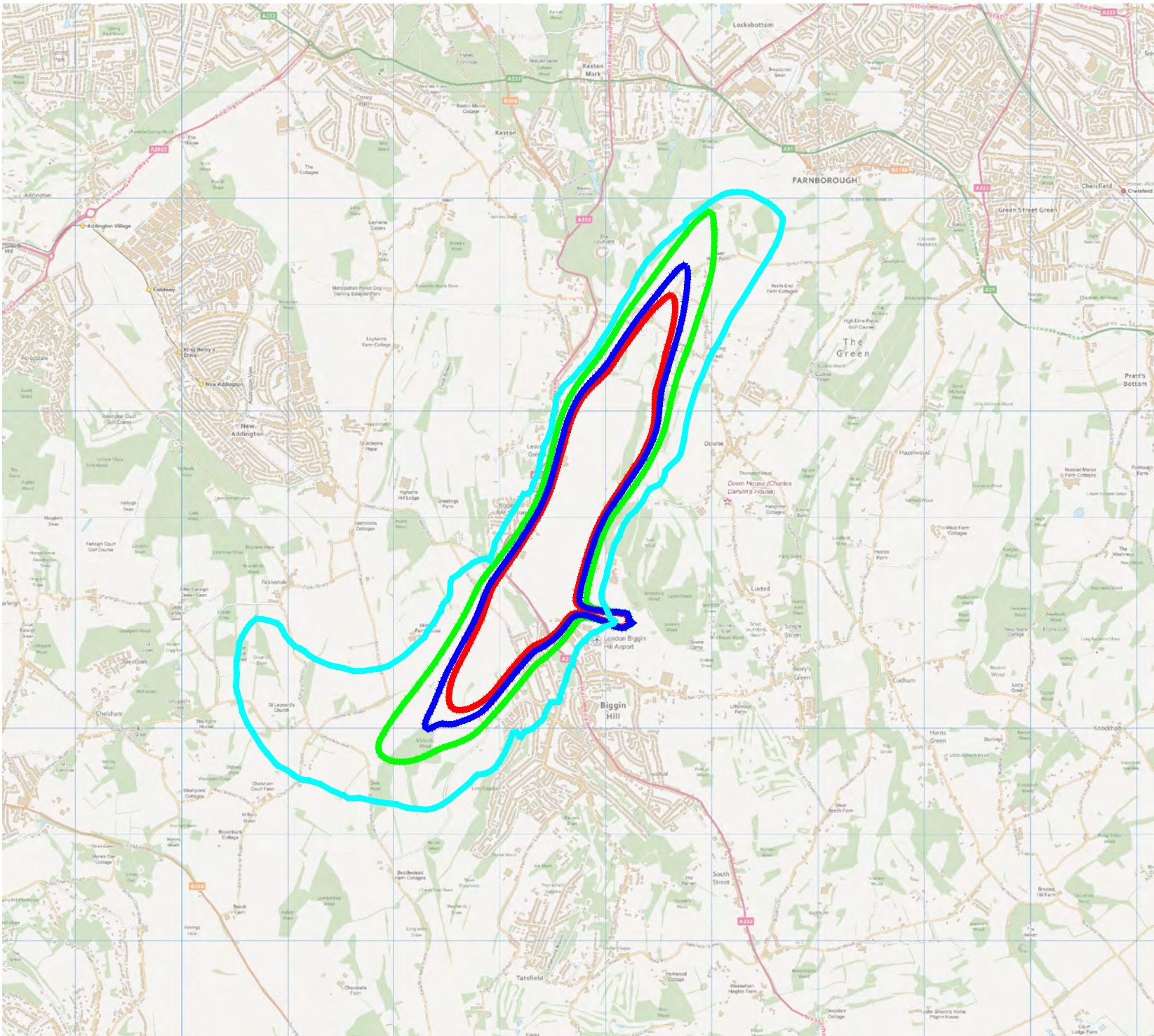
**Airborne Aircraft Noise Contours
2030 Forecast L_{den}**

DRAWN: NW CHECKED: DC

DATE: 05/03/2015 SCALE: 1:25000@A4

FIGURE No:

A9780-N03-03



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L_{Avg,16h} Noise Contours

- 57 dB, UDP
- 57 dB, 2030
- 57 dB, 2030 (Fleet Modernisation)
- 57 dB, 2030 (Greater Growth)

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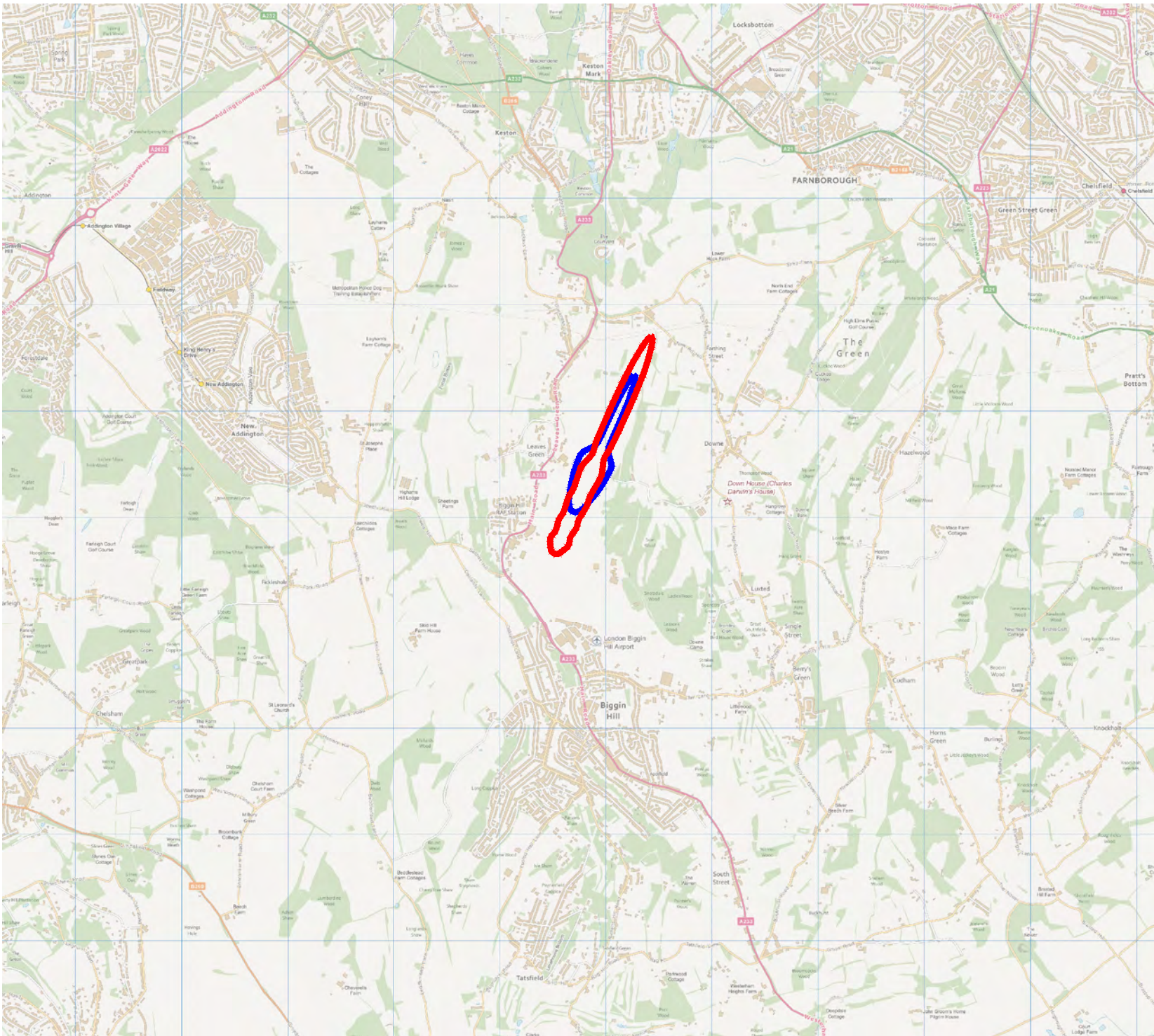
**Airborne Aircraft Noise Contours
2030 Forecast
Sensitivity Comparisons**

DRAWN: NW CHECKED: DC

DATE: 05/03/2015 SCALE: 1:50000@A4

FIGURE No:

A9780-N03-04



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90 dB(A) Footprints

- LEAR35 Arr R21
- CNA560XL Arr R21

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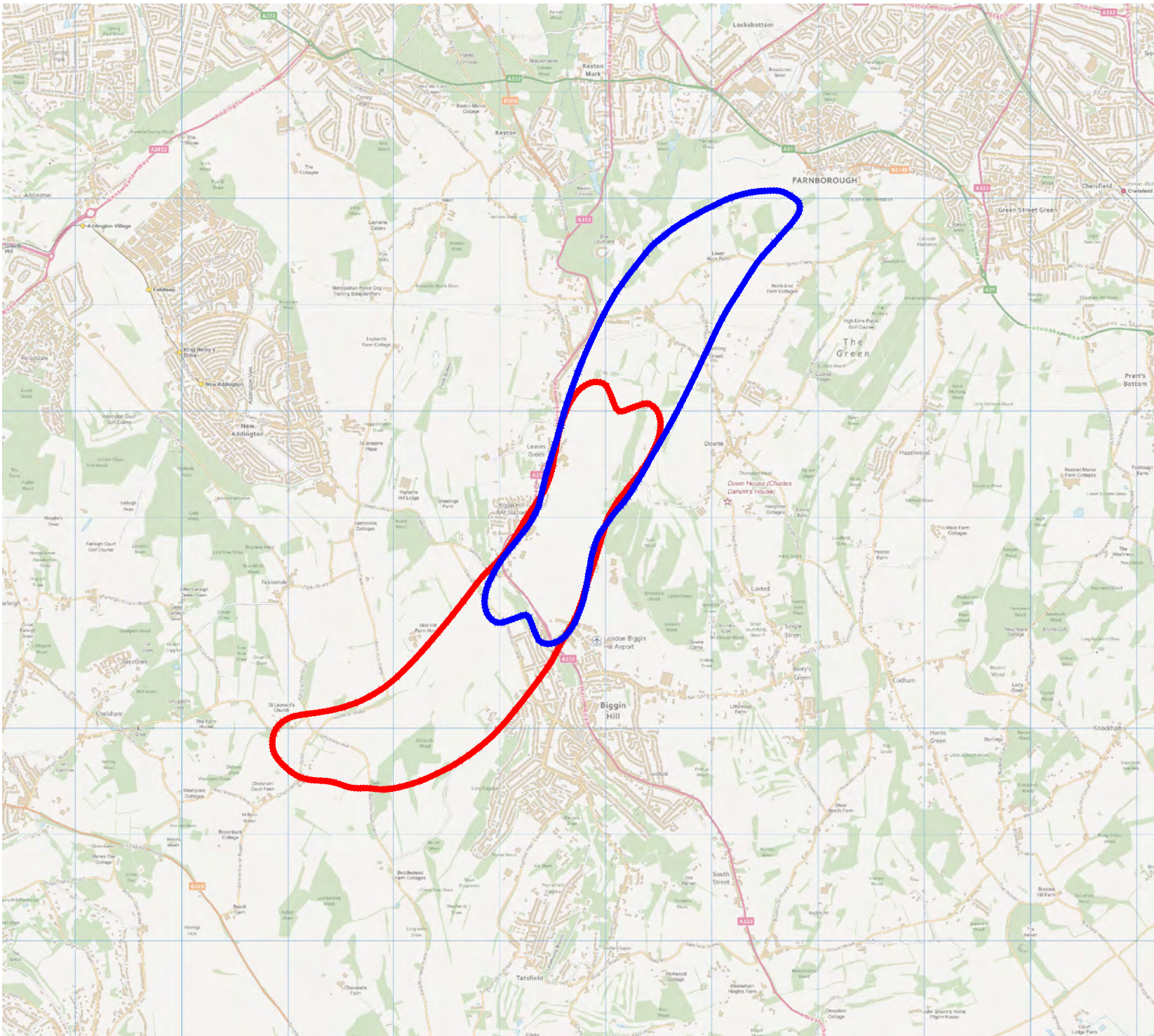
**90 dB(A) SEL Footprints
2030 Forecast
Early Morning Arrivals**

DRAWN: NW CHECKED: DC

DATE: 05/03/2015 SCALE: 1:50000@A4

FIGURE No:

A9780-N03-05



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90 dB(A) Footprints

- LEAR35 Dep R03
- LEAR35 Dep R21

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**90 dB(A) SEL Footprints
2030 Forecast
Early Morning Departures**

DRAWN: NW CHECKED: DC

DATE: 05/03/2015 SCALE: 1:50000@A4

FIGURE No:

A9780-N03-06

Appendix D

Subject: Aircraft Fees and Charges at Biggin Hill, Oxford and Northolt Airports
Project: Biggin Hill Airport
Date: 10 March 2015

BIGGIN HILL: Standard Schedule of Fees and Charges

	Domestic Landing	International Landing	Handling	Parking per day
AIRBUS				
ACJ	2015.00	2333.50	363.00	520.00
BOEING				
BBJ	2015.00	2333.50	363.00	520.00
BOMBARDIER				
LJ40/45/55	310.00	359.00	121.00	80.00
LJ60	341.00	394.90	121.00	88.00
CL300	558.00	646.20	180.00	144.00
CL601	620.00	718.00	180.00	160.00
CL604/605	682.00	789.80	231.00	176.00
GL5000	930.00	1077.00	295.00	328.00
GLEX	930.00	1077.00	295.00	328.00
CITATION				
MUSTANG	98.00	115.70	66.00	35.20
500/525/CJ1/CJ2	142.00	166.10	95.00	48.00
550/CII/CJ3	186.10	216.30	95.00	56.00
560	219.00	253.80	95.00	64.00
560XL/650	310.00	359.00	121.00	80.00
680	434.00	502.60	151.00	112.00
750	527.00	610.30	180.00	136.00



Appendix D

10 March 2015

	Domestic Landing	International Landing	Handling	Parking per day
TURBOPROP				
DORNIER 328	434.00	502.60	151.00	112.00
PILATUS PC 12	98.00	115.70	66.00	35.20
TBM 700/850	65.10	77.40	66.00	25.60
BEECH 200/350	142.00	166.10	95.00	48.00
ECLIPSE				
ECLIPSE 500/550	65.10	77.40	66.00	25.60
EMBRAER				
Phenom 100	142.00	166.10	95.00	48.00
Phenom 300	219.00	253.80	95.00	64.00
LEGACY 600/650	682.00	789.80	231.00	176.00
FALCON				
50	558.00	646.20	180.00	144.00
2000	527.00	610.30	180.00	136.00
2000 EX/LX	589.00	682.10	180.00	152.00
900	651.00	753.90	231.00	168.00
900 EX/LX	682.00	789.80	231.00	176.00
7X	930.00	1077.00	261.00	256.00
GULFSTREAM				
200/280	496.00	574.40	151.00	128.00
G 3	930.00	1077.00	261.00	256.00
G 350/4/450	930.00	1077.00	261.00	272.00
G 5/500/550/650	930.00	1077.00	295.00	328.00
HAWKER				
PREMIER 1	142.00	166.10	95.00	48.00
BE400	219.00	253.80	95.00	64.00
HS125/800XP	403.00	466.70	151.00	104.00
4000	558.00	646.20	180.00	144.00

**Weight Charges on Landing**

Aircraft Weight Category (tonnes)	Landing Fee
0.0 - 0.8	£21.90
0.8 - 1.7	£26.20
1.7 - 2.5	£45.20
2.5 - 3.5	£65.10
3.5 - 4.5	£98.00
4.5 - 6.0	£142.00
6.0 - 7.0	£186.10
7.0 - 8.0	£219.00
8.0 - 9.0	£255.10
Thereafter, Per tonne or part thereof	£31.00

An International levy is applicable to all arrivals from outside the United Kingdom, Channel Islands or Isle of Man and is charged at a separate rate of approx. £ 4.90 / tonne.

Helicopter Landings shall be subject to a minimum landing fee of £45.20.

All prices quoted in pounds sterling and are subject to VAT where applicable.

				VISITOR (NON-RESIDENT) FEES/ RATES				RESIDENCY FEES/ RATES									
OXF Class	Aircraft Group/Category	MTOW Weight Tonnes	MTOW Weight lbs. (app.)	Landing Fees ⁽²⁾⁽⁴⁾⁽⁵⁾		Nav. Fee ⁽⁵⁾⁽¹¹⁾ (ILS/NDB & radar approach slots only)	Handling Fee ⁽⁸⁾⁽⁹⁾ (Executive & VIP)	Parking ⁽³⁾ (any duration to 24 hrs.) (First 4 hrs. free)		Hangarage ⁽³⁾⁽¹⁰⁾ (any duration to 24 hrs.)		Monthly Parking Only	Monthly Hangarage Only	OXF 'INCLUSIVE' DEAL Monthly Parking incl. 10 x Landings ⁽¹²⁾ (on residency agreement)		OXF 'INCLUSIVE' DEAL Monthly Hangarage ⁽¹³⁾ incl. 10 x Landings ⁽¹²⁾ (on residency agreement)	
				Flat Rate	Rate / Tonne	Flat Rate <i>Not levied for VFR App.</i>	Visitor	Flat Rate	Rate/ Tonne	Flat Rate	Rate/ Tonne	Month Rate / sq.ft. ⁽¹³⁾ (excl. NAV fee)	Month Rate / sq.ft. ⁽¹³⁾ (excl. NAV fee)	Grass (excl. NAV fee)	Hard (Paved) (excl. NAV fee)	Flat Rate (excl. NAV fee)	Rate / sq.ft. ⁽¹³⁾ (excl. NAV fee)
A	Light Piston Singles & Helis (Low / Normal Utilisation)	< 2.73	< 6,000	£16.50		£15.00 ⁽¹¹⁾	N/A ⁽⁸⁾	£16.00	£25.00	As per inclusive deal (min charge)	As per inclusive deal (min charge)	£169 (incl. 8 x landings / ILS)	£225 (incl. 8 x landings / ILS)	min £375	£0.59 ⁽¹³⁾		
B	Light Piston Singles & Helis (High / Unlimited Utilisation)	< 2.73	< 6,000	£16.50				£16.00	£25.00			£252.00	£335.00	£252.00	£335.00	Make Enquiry	Make Enquiry
C	Light Twin Piston & Single F/W Turbines + Single Turbine Helis	< 2.73	< 6,000	£40.00				£22.00	£30.00			£252.00	£335.00	£252.00	£335.00	min £375	£0.59 ⁽¹³⁾
D	Light Twin Helicopters	< 2.73	< 6,000	£50.00				£40.00	£30.00			£420.00	£530.00	£420.00	£530.00	min £820	£0.95 ⁽¹³⁾
E	Larger Twin Helis	> 2.73	> 6,000	£74.00		£30.00	£47.00	£26.00	£58.00	£0.45	£0.75	N/A	Make Enquiry	min £1420	Make Enquiry		
F	Larger Piston & Turbine Singles (G-Eagle, Navajo, TBM700, PC12)	2.73 - 5.69	6,000 - 12,499	£66.00				£29.00	£68.00	£0.40	£0.70						
G	Light Jet (VLJs)/Turboprop (Mustang, CJ1, Phenom 100, KA90)	2.73 - 4.855	6,000 - 10,700	£89.00				£32.00	£74.00	£0.40	£0.70						
H	Light Jet/Turboprop (Piaggio Avanti, KA200, CJ2, Prem 1 < 12,500lbs)	4.856 - 5.69	10,701 - 12,500	£110.00				£37.00	£84.00	£0.40	£0.70						
I	Turboprop / Jet (BE400, Cit. 550, 560, CJ3, Phenom 300 >12,500 lbs.)	5.7 - 7.99	12,501 - 17,635	£135.00				£46.00	£95.00	£0.40	£0.70						
J	TurboProp / Jet ⁽¹⁾⁽⁶⁾⁽¹³⁾ (8 tonnes and above)	8.0+	17,636 - 88,185	min £192	£24.00	£40.00	£136 ⁽⁸⁾⁽⁹⁾	min £52	£6.50	min £130	£16.30	£0.45	£0.75	N/A	Make Enquiry	Make Enquiry	
K	Jet (40 tonnes and above)	40+	88,185+	min £192	£24.00	£45.00	£263	min £52	£6.50	min £130	£16.30	£0.45	£0.75	N/A	Make Enquiry	Make Enquiry	

A separate comprehensive sheet is available for different individual aircraft types on request

Alternative fees apply to airline operations - scheduled or seasonal charter - available to airlines on request

Other sundry fees and surcharges are shown on a separate Miscellaneous/Sundry Surcharges sheet

OASL Reserve the right to change fees & charges at any time. Fees and charges are correct at the time of printing.

Class A, B, C Weekend Discount:

Landings £12 incl. VAT or free with uplift of 45 Litres of Avgas (Class C light twins - £24)

Annual Up-front Payment:

Residents paying annually in advance will receive a 5% discount over the normal monthly rate

Handling for Residents:

When required, handling for residents is charged at 65% of the visitor rate

Additional Landings for Residents (+10/month):

Where more than 10 landings a month are required, aircraft on inclusive residency agreements enjoy a 35% reduction in landing fees for any additional landings above the free allowance

Important! - Please read notes overleaf/below where identified - variations to certain weight/categories above are applied under certain circumstances

Notes & Policy:

- 1) Below 8 tonnes, where an aircraft class category is in dispute, the landing fee is @ **£24/tonne** or part thereof whilst daily parking fee is @ **£6.5/tonne** or part thereof.
Above 8 tonnes, our invoicing system will *round up* to the nearest whole tonne for the fees to be levied, so for instance a 9.2 metric tonne aircraft will be charged as a 10 tonne aircraft.
- 2) **WEEKEND DISCOUNT:** Any *private* aircraft under 2,730Kg (piston single or helicopter) pay **£12 incl. VAT** (Twins **£24**) or free with uplift of 45 litres or more of Avgas (singles only). *Commercial/training* operators pay normal prices at weekends.
- 3) Parking free for the first four hours, thereafter charged per Overnight Fee *in full (24 hrs.)*. Daily hangarage charge *applies for any duration up to 24 hrs. which accounts for towing and hangar re-arrangement requirements to accommodate aircraft*
- 4) For all visitors & Class A or B residents, touch and go landings are charged at half the published landing fee (except for aircraft under 2,730Kg at the weekends when half the normal weekday fee applies anyway). For all other Residents on landings inclusive agreements only, a touch & go will count as one of their permitted/inclusive landings. *OAGAG resident Class A members alone may undertake VFR Touch & Goes/practice low approach & go-arounds at no charge between 06:30-08:00, and 17:30-22:30 (local times) weekdays and weekends. VFR approaches without landing are charged as per a touch and go - i.e. half the landing fee.
- 5) Instrument (NDB) training approaches and overshoot *without landing* are charged as per ILS approach slots (the NAV fee) - see (13) below. Class A aircraft note higher fee of £25 for training purposes.
- 6) All aircraft need to pay VAT for all services unless under the terms of HMRC Notice 744C, the operator claims to be an 'airline' operating chiefly on international routes and complete a VAT Certification form filed with OXF - available on request
- 7) MOD, POLICE, AIR AMBULANCE, UTILITY are charged normal rates. CHARITY events, no charges subject to prior approval from airport management. Emergency weather/tech diversions - no charges.
- 8) Mandatory handling fees will be levied for any aircraft rotation when carrying passengers (for A/C over 6,000 lbs. / 2.73 tonnes MTOW). Aircraft over 40 tonnes MTOW will incur a higher handling fee of £263/rotation (from GlobalX/G550 upwards)
Positioning flights will not be charged a handling fee (if both in-bound and outbound flights empty). Aircraft on Residency Agreements will be charged 65% of the normal handling fee.
For all other aircraft under 2.73 tonnes/ 6,000 lbs. MTOW (classes A to D), if airside/landside vehicle escort is requested (for passengers and/or bags), a handling fee of **£20+VAT** will be levied.
- 9) Handling includes aircraft marshalling, ops assistance with flight planning, crew briefing/NOTAM/weather packs, customs/immigration/special branch liaison, booking services, meet & greet of crew/pax, airside escorting of vehicles and permits free terminal lounge usage, coffee, tea, Wi-Fi and free car parking for passengers by the FBO/Terminal. For car parking arrangements for crews, vehicle registrations must be lodged with Customer Services on day of arrival.
- 10) Non-resident aircraft parked in third party hangars (non-airport controlled) on an ad-hoc/per diem basis will be charged **50%** of the daily parking fee for the type concerned to the airport, on top of any charge made by the third party hangar lessee/lessor.
- 11) Requests/bookings for ILS/NDB procedural approach slots (**whether or not for training**) on RWY 19 will attract NAV fees shown overleaf. Block bookings for training cancelled with less than 3 hours notice will be charged for unless weather-related. Class A aircraft on residency agreements have a monthly allowance of a mix of 8 landings or ILS approaches included in the monthly fee. *Class A or B ILS usage for training purposes will be charged at £25.*
- 12) To benefit from the monthly rate, aircraft *must be on a signed/dated residency agreement & have an account in place* with the airport. Monthly fees must be paid in advance. **Over 10 landings/month, 65% of normal landing fees will apply.** Note (11) above still applies to residents re ILS approach slots. Class A aircraft on residency agreements have an allowance of a mix of 8 landings or ILS/month, whilst class B aircraft on residency agreements have unlimited landings but must pay for each ILS approach slot.
For aircraft on residency agreements, unused monthly landings entitlement (or ILS for Class A aircraft) *cannot be carried forward*.
- 13) Monthly hangarage charges are based on wingspan or rotor diameter times fuselage length (to tail rotor tip on helis).
All hangar/ramp positioning included, though high utilisation aircraft with over 10 rotations/month may attract a premium. Some aircraft have fixed min or max charges highlighted in **BLUE** on the comprehensive price list (**a separate file**).
Aircraft maintained at OXF will generally have priority on available space.

A separate comprehensive fee sheet is available for different common aircraft types

Other fees and surcharges are shown on a separate Sundry Surcharges sheet

*Note: Residents with light GA aircraft under 6,000 lbs. MTOW can opt to join the Oxford Airport General Aviation Group - OAGAG (www.oagag.org.uk) which affords members with unique privileges and benefits including periods within which free VFR touch & goes are permitted, periods when practice ILS/NDB procedural approaches are permitted at no charge, reduced costs for ILS training at other times, an opt-in for three months notice rather than one month's notice on price changes and residency. Such benefits only apply for private aircraft, not fleet operators or schools. OAGAG is run by its members, not by the airport.

London Oxford Airport Landing/Handling/NAV/Parking and Hangarage Fees - By Aircraft Type (Comprehensive) - valid from January 2015 - all prices excl. VAT

Class	Aircraft Group / Category	Size Area Sq. Ft.	Weight MTOW lbs.	Weight MTOW Tonnes
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FOR GUIDANCE - VISITOR (NON-RESIDENT) FEES/RATES

Landing Fee	NAV Fee (ILS use)	Handling Fee	Parking +4 - 24hrs	Hangarage 0 - 24hrs
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FOR GUIDANCE - RESIDENCY FEES / RATES (BASED AIRCRAFT PAYING MONTHLY)

Resident's Landing Fee (+10/month)	Handling Fee (Resident)	Monthly Parking - hard NO LANDINGS	Monthly Hangarage NO LANDINGS	Monthly Parking - grass incl. 10 x Landings	Monthly Parking - hard incl. 10 x Landings	Monthly Hangarage incl. 10 x Landings
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I Turboprop / Jet (5.7 - 7.999 tonnes) 12,500 - 17,635 5.7 - 7.99

Swearingen SJ-30		1,980	13,950	6.33
Premier II (390)		2,098	13,800	6.26
Beechjet/Hawker 400	BE40	2,105	16,300	7.39
Lear 31/35	LJ31/LJ35	2,133	17,000	7.71
Grob Spn G180		2,376	13,899	6.30
Citation II (550)	C550	2,463	14,800	6.71
Citationjet (CJ3)	CJ3	2,675	13,870	6.29
Citation Ultra/Encore+ (560)	C560	2,679	16,830	7.63
King Air 350	BE350	2,704	15,000	6.80
King Air 350 iER	BE350	2,704	16,500	7.48
Citationjet (CJ4)	CJ4	2,708	16,950	7.69
Dornier 228		2,746	12,560	5.70
Embraer Phenom 300	E550	2,771	17,526	7.95
Raytheon/Beech 1900 C/D	B190	3,311	17,120	7.76

£135.00	£35	£79	£46	£95
£135.00	£35	£79	£46	£95
£135.00	£35	£79	£46	£95
£135.00	£35	£79	£46	£95
£135.00	£35	£79	£46	£95
£135.00	£35	£79	£46	£95
£135.00	£35	£79	£46	£95
£135.00	£35	£79	£46	£95
£135.00	£35	£79	£46	£95
£135.00	£35	£79	£46	£95
£135.00	£35	£79	£46	£95
£135.00	£35	£79	£46	£95
£135.00	£35	£79	£46	£95
£135.00	£35	£79	£46	£95
£135.00	£35	£79	£46	£95
£135.00	£35	£79	£46	£95

£87.75	£51.35	£792	£1,386	N/A	£1,319	£1,913
£87.75	£51.35	£839	£1,469	N/A	£1,366	£1,995
£87.75	£51.35	£842	£1,474	N/A	£1,369	£2,000
£87.75	£51.35	£853	£1,493	N/A	£1,380	£2,020
£87.75	£51.35	£950	£1,663	N/A	£1,477	£2,190
£87.75	£51.35	£985	£1,724	N/A	£1,512	£2,251
£87.75	£51.35	£1,070	£1,873	N/A	£1,597	£2,399
£87.75	£51.35	£1,072	£1,875	N/A	£1,598	£2,402
£87.75	£51.35	£1,082	£1,893	N/A	£1,608	£2,419
£87.75	£51.35	£1,082	£1,893	N/A	£1,608	£2,419
£87.75	£51.35	£1,083	£1,896	N/A	£1,610	£2,422
£87.75	£51.35	£1,098	£1,922	N/A	£1,625	£2,449
£87.75	£51.35	£1,108	£1,940	N/A	£1,635	£2,466
£87.75	£51.35	£1,324	£2,318	N/A	£1,851	£2,844

J Mid-Size Jet / Turboprop (8.0 - 15.999 tonnes) >17,636 >8.00

Lear 35A	LJ35	1,924	18,300	8.30
Lear 60	LJ60	2,571	23,500	10.66
Hawker 700/750	H25B	2,621	27,000	12.24
Hawker 800/950	H25B	2,631	27,400	12.43
Lear 40 (XR)	LJ40	2,657	21,000	9.52
Hawker 1000	H25C	2,719	31,000	14.06
Hawker 900XP		2,774	28,000	12.70
Lear 45 (XR)	LJ45	2,792	21,500	9.75
Gulfstream 100 (Astra)	GLF100	2,930	23,500	10.66
Citation Excel (XLS+)	C56X	2,955	20,200	9.16
Citation III/VI/VII (650)	C650	2,969	22,450	10.18
Gulfstream 150 (Astra)	GLF150	3,158	26,100	11.84
Gulfstream G200	GLF200	3,620	35,450	16.08
Falcon 50	FA50	3,750	38,800	17.60
Citation Sovereign (680)	C680	4,020	30,300	13.74
Falcon 2000 (+DX)	F2TH	4,203	35,800	16.24
Gulfstream G250	GLF250	4,208	39,600	17.96
Hawker 4000 (Horizon)	HA4T	4,308	39,500	17.91
Challenger 300	CL300	4,377	38,850	17.62
Challenger 601	CL601	4,398	45,100	20.45
Challenger 604/605	CL604/5	4,411	48,200	21.86
Citation X	C750	4,598	36,100	16.37
Falcon 900 D/C/B/EX	F900	4,654	49,000	22.22
Falcon 2000EX/LX	F2TH	4,654	42,200	19.14
Dornier 328 Jet	D328	4,705	34,524	15.66
Gulfstream II	GLF2	5,743	69,700	31.61
Embraer Legacy 600	E135	5,952	49,604	22.50
Embraer Legacy 650	E135	5,952	53,572	24.30
Challenger 850 (CRJ 200)	CRJ2	6,111	53,000	24.04
Gulfstream III	GLF3	6,407	69,700	31.61
Falcon 7X	FA7X	6,545	69,000	31.29
Gulfstream 350	G350	6,947	70,900	32.15
Gulfstream IV/450	GLF4/G450	6,948	73,900	33.51
de Havilland DHC-7		7,514	34,500	15.65
Gulfstream V/500	GLF5/G500	9,013	85,100	38.59

£216.00	£40	£136	£59	£147
£264.00	£40	£136	£72	£179
£312.00	£40	£136	£85	£212
£312.00	£40	£136	£85	£212
£240.00	£40	£136	£65	£163
£360.00	£40	£136	£98	£245
£312.00	£40	£136	£85	£212
£240.00	£40	£136	£65	£163
£264.00	£40	£136	£72	£179
£264.00	£40	£136	£72	£179
£264.00	£40	£136	£72	£179
£288.00	£40	£136	£78	£196
£408.00	£40	£136	£111	£277
£432.00	£40	£136	£117	£293
£336.00	£40	£136	£91	£228
£408.00	£40	£136	£111	£277
£432.00	£40	£136	£117	£293
£432.00	£40	£136	£117	£293
£432.00	£40	£136	£117	£293
£504.00	£40	£136	£137	£342
£528.00	£40	£136	£143	£359
£408.00	£40	£136	£111	£277
£552.00	£40	£136	£150	£375
£480.00	£40	£136	£130	£326
£384.00	£40	£136	£104	£261
£768.00	£40	£136	£208	£522
£552.00	£40	£136	£150	£375
£600.00	£40	£136	£163	£408
£600.00	£40	£136	£163	£408
£768.00	£40	£136	£208	£522
£768.00	£40	£136	£208	£522
£792.00	£40	£136	£215	£538
£816.00	£40	£136	£221	£554
£384.00	£40	£136	£104	£261
£936.00	£40	£136	£254	£636

£140.40	£88.40	£866	£1,443	N/A	£1,708	£2,285
£171.60	£88.40	£1,157	£1,928	N/A	£2,187	£2,958
£202.80	£88.40	£1,179	£1,966	N/A	£2,396	£3,183
£202.80	£88.40	£1,184	£1,973	N/A	£2,401	£3,190
£156.00	£88.40	£1,196	£1,993	N/A	£2,132	£2,929
£234.00	£88.40	£1,224	£2,039	N/A	£2,628	£3,443
£202.80	£88.40	£1,248	£2,081	N/A	£2,465	£3,297
£156.00	£88.40	£1,256	£2,094	N/A	£2,192	£3,030
£171.60	£88.40	£1,319	£2,198	N/A	£2,348	£3,227
£156.00	£88.40	£1,330	£2,216	N/A	£2,266	£3,152
£171.60	£88.40	£1,336	£2,227	N/A	£2,366	£3,256
£187.20	£88.40	£1,421	£2,369	N/A	£2,544	£3,492
£265.20	£88.40	£1,629	£2,715	N/A	£3,220	£4,306
£280.80	£88.40	£1,688	£2,813	N/A	£3,372	£4,497
£218.40	£88.40	£1,809	£3,015	N/A	£3,119	£4,325
£265.20	£88.40	£1,891	£3,152	N/A	£3,483	£4,743
£280.80	£88.40	£1,894	£3,156	N/A	£3,578	£4,841
£280.80	£88.40	£1,939	£3,231	N/A	£3,623	£4,916
£280.80	£88.40	£1,970	£3,283	N/A	£3,654	£4,968
£327.60	£88.40	£1,979	£3,299	N/A	£3,945	£5,264
£343.20	£88.40	£1,985	£3,308	N/A	£4,044	£5,367
£265.20	£88.40	£2,069	£3,449	N/A	£3,660	£5,040
£358.80	£88.40	£2,094	£3,491	N/A	£4,247	£5,643
£312.00	£88.40	£2,094	£3,491	N/A	£3,966	£5,363
£249.60	£88.40	£2,117	£3,529	N/A	£3,615	£5,026
£499.20	£88.40	£2,584	£4,307	N/A	£5,580	£7,302
£358.80	£88.40	£2,678	£4,464	N/A	£4,831	£6,617
£390.00	£88.40	£2,678	£4,464	N/A	£5,018	£6,804
£390.00	£88.40	£2,750	£4,583	N/A	£5,090	£6,923
£499.20	£88.40	£2,883	£4,805	N/A	£5,878	£7,800
£499.20	£88.40	£2,945	£4,909	N/A	£5,940	£7,904
£514.80	£88.40	£3,126	£5,210	N/A	£6,215	£8,299
£530.40	£88.40	£3,127	£5,211	N/A	£6,309	£8,393
£249.60	£88.40	£3,381	£5,636	N/A	£4,879	£7,133
£608.40	£88.40	£4,056	£6,760	N/A	£7,706	£10,410

Note: Handling levied per rotation (not movement) and not normally for positioning/empty flights

London Oxford Airport Landing/Handling/NAV/Parking and Hangarage Fees - *By Aircraft Type (Comprehensive)* - valid from January 2015 - **all prices excl. VAT**

Class	Aircraft Group / Category	Size Area Sq. Ft.	Weight MTOW lbs.	Weight MTOW Tonnes	
K	Large Jets/Airliners (> 40 tonnes) ⁽¹³⁾		>88,185	>40	
	Gulfstream V/550	GLF5/G550	9,013	91,000	41.27
	Global 5000	GLEX	9,099	92,500	41.95
	Global Express	GLEX	9,343	95,000	43.08
	Global 6000 (XRS IGW)		9,343	99,500	45.12
	Gulfstream 650		9,933	99,600	45.17
	Global 8000		10,597	104,800	47.53
	Embraer Lineage 1000 (E190)		11,200	120,150	54.49
	Global 7000		11,536	106,250	48.19
	Airbus A318 Elite (A318-112)		11,537	145,500	65.99
	Airbus A319 Corp. Jet (A319-133)		12,409	168,650	76.49
	Boeing BBJ (737-700IGW)		12,949	171,000	77.55
	Airbus A320 Prestige (A320-214)		13,785	171,950	77.98

FOR GUIDANCE - VISITOR (NON-RESIDENT) FEES/RATES

Landing Fee	NAV Fee (ILS use)	Handling Fee	Parking +4 - 24hrs	Hangarage 0 - 24hrs
£1,008.00	£45	£263	£268	£673
£1,008.00	£45	£263	£273	£684
£1,056.00	£45	£263	£280	£702
£1,104.00	£45	£263	£293	£736
£1,104.00	£45	£263	£294	£736
£1,152.00	£45	£263	£309	£775
£1,320.00	£45	£263	£354	£888
£1,176.00	£45	£263	£313	£785
£1,584.00	£45	£263	£429	£1,076
£1,848.00	£45	£263	£497	£1,247
£1,872.00	£45	£263	£504	£1,264
£1,872.00	£45	£263	£507	£1,271

FOR GUIDANCE - RESIDENCY FEES / RATES (BASED AIRCRAFT PAYING MONTHLY)

Resident's Landing Fee (+10/month)	Handling Fee (Resident)	Monthly Parking - hard NO LANDINGS	Monthly Hangarage NO LANDINGS	Monthly Parking - grass incl. 10 x Landings	Monthly Parking - hard incl. 10 x Landings	Monthly Hangarage incl. 10 x Landings ⁽¹³⁾
£655.20	£170.95	£4,056	£6,760	N/A	£7,987	£10,691
£655.20	£170.95	£4,095	£6,824	N/A	£8,026	£10,755
£686.40	£170.95	£4,204	£7,007	N/A	£8,323	£11,126
£717.60	£170.95	£4,204	£7,007	N/A	£8,510	£11,313
£717.60	£170.95	£4,470	£7,450	N/A	£8,775	£11,755
£748.80	£170.95	£4,769	£7,948	N/A	£9,261	£12,441
£858.00	£170.95	£5,040	£8,400	N/A	£10,188	£13,548
£764.40	£170.95	£5,191	£8,652	N/A	£9,778	£13,238
£1,029.60	£170.95	£5,192	£8,653	N/A	£11,952	£17,415
£1,201.20	£170.95	£5,584	£9,307	N/A	£13,853	£20,186
£1,216.80	£170.95	£5,827	£9,712	N/A	£14,046	£20,468
£1,216.80	£170.95	£6,203	£10,339	N/A	£14,124	£20,581

Note: Handling levied per rotation (not movement) and not normally for positioning/empty flights

Notes & Policy:

- Below 8 tonnes, where an aircraft class category is in dispute, the landing fee is @ **£24/tonne** or part thereof whilst daily parking fee is @ **£6.50/tonne** or part thereof. Above 8 tonnes, our invoicing system will *round up* to the nearest whole tonne for the fees to be levied, so for instance a 9.2 metric tonne aircraft will be charged as a 10 tonne aircraft.
- WEEKEND DISCOUNT:** Any *private* aircraft under 2,730Kg (piston single or helicopter) pay **£12 incl. VAT** (Twins **£24**) or free with uplift of 45 litres or more of Avgas (singles only). *Commercial/training* operators pay normal prices at weekends.
- Parking free for the first four hours, thereafter charged per Overnight Fee *in full (24 hrs.)*. Daily hangarage charge *applies for any duration up to 24 hrs. which accounts for towing and hangar re-arrangement requirements to accommodate aircraft*
- For all visitors & Class A or B residents, touch and go landings are charged at half the published landing fee (except for aircraft under 2,730Kg at the weekends when half the normal weekday fee applies anyway). For all other Residents on landings inclusive agreements only, a touch & go will count as one of their permitted/inclusive landings. *OAGAG resident Class A members alone may undertake VFR Touch & Goes/practice low approach & go-arounds at no charge between 06:30-08:00, and 17:30-22:30 (local times) weekdays and weekends. VFR approaches without landing are charged as per a touch and go - i.e. half the landing fee.
- Instrument (NDB) training approaches and overshoot *without landing* are charged as per ILS approach slots (the NAV fee) - see (13) below. Class A aircraft note higher fee of £25 for training purposes.
- All aircraft need to pay VAT for all services unless under the terms of HMRC Notice 744C, the operator claims to be an 'airline' operating chiefly on international routes and complete a VAT Certification form filed with OXF - available on request
- MOD, POLICE, AIR AMBULANCE, UTILITY are charged normal rates. CHARITY events, no charges subject to prior approval from airport management. Emergency weather/tech diversions - no charges.
- Mandatory handling fees will be levied for any aircraft rotation when carrying passengers (for A/C over 6,000 lbs. / 2.73 tonnes MTOW). Aircraft over 40 tonnes MTOW will incur a higher handling fee of £263/rotation (from GlobalX/G550 upwards). Positioning flights will not be charged a handling fee (if both in-bound and outbound flights empty). Aircraft on Residency Agreements will be charged 65% of the normal handling fee. For all other aircraft under 2.73 tonnes/ 6,000 lbs. MTOW (classes A to D), if airside/landside vehicle escort is requested (for passengers and/or bags), a handling fee of **£20+VAT** will be levied.
- Handling includes aircraft marshalling, ops assistance with flight planning, crew briefing/NOTAM/weather packs, customs/immigration/special branch liaison, booking services, meet & greet of crew/pax, airside escorting of vehicles and permits free terminal lounge usage, coffee, tea, Wi-Fi and free car parking for passengers by the FBO/Terminal. For car parking arrangements for crews, vehicle registrations must be lodged with Customer Services on day of arrival.
- Non-resident aircraft parked in third party hangars (non-airport controlled) on an ad-hoc/per diem basis will be charged **50%** of the daily parking fee for the type concerned to the airport, on top of any charge made by the third party hangar lessee/lessor.
- Requests/bookings for ILS/NDB procedural approach slots (**whether or not for training**) on RWY 19 will attract NAV fees shown overleaf. Block bookings for training cancelled with less than 3 hours notice will be charged for unless weather-related. Class A aircraft on residency agreements have a monthly allowance of a mix of 8 landings or ILS approaches included in the monthly fee. *Class A or B ILS usage for training purposes will be charged at £25.*
- To benefit from the monthly rate, aircraft *must be on a signed/dated residency agreement & have an account in place* with the airport. Monthly fees must be paid in advance. **Over 10 landings/month, 65% of normal landing fees will apply.** Note (11) above still applies to residents re ILS approach slots. Class A aircraft on residency agreements have an allowance of a mix of 8 landings or ILS/month, whilst class B aircraft on residency agreements have unlimited landings but must pay for each ILS approach slot. For aircraft on residency agreements, unused monthly landings entitlement (or ILS for Class A aircraft) *cannot be carried forward*.
- Monthly hangarage charges are based on wingspan or rotor diameter times fuselage length (to tail rotor tip on helis). All hangar/ramp positioning included, though high utilisation aircraft with over 10 rotations/month may attract a premium. Some aircraft have fixed min or max charges highlighted in **BLUE** on the comprehensive price list (**a separate file**). Aircraft maintained at OXF will generally have priority on available space.

A separate comprehensive fee sheet is available for different common aircraft types

Other fees and surcharges are shown on a separate Sundry Surcharges sheet

OASL Reserve the right to change fees & charges at any time. Fees and charges are correct at the time of printing.

*Note: Residents with light GA aircraft under 6,000 lbs. MTOW can opt to join the Oxford Airport General Aviation Group - OAGAG (www.oagag.org.uk) which affords members with unique privileges and benefits including periods within which free VFR touch & goes are permitted, periods when practice ILS/NDB procedural approaches are permitted at no charge, reduced costs for ILS training at other times, an opt-in for three months notice rather than one month's notice on price changes and residency. Such benefits only apply for private aircraft, not fleet operators or schools. OAGAG is run by its members, not by the airport.

Annual Up-front Payment:

Residents paying annually in advance will receive a 5% discount over the normal monthly rate

Handling for Residents:

Handling for residents is charged at 65% of the visitor rate

Additional Landings for Residents (+10/month):

Where more than 10 landings a month are required, aircraft on *inclusive* residency agreements enjoy a 35% reduction in landing fees for any additional landings above the free allowance

London Oxford Airport Surcharges - valid from January 2015 - all prices excl. VAT

MISCELLANEOUS SUNDRY CHARGES (Business Aviation & General Aviation only - Commercial/Airline Fees on separate sheet - contact OXF Marketing for details - 01865 290 710 / 720):

FIRE CAT (RFF) UPGRADE:

Cat 5 RFFS +2 Addl. Fire Crew	CAT 6 RFFS +3 Addl. Fire Crew + 1 Exec
£150	£400

CAT 4 FIRE COVER IS STANDARD

Note: CAT 4 RFFS is standard all day, every day

OUT OF HOURS CHARGES:

	Cat 1 RFF * 2 x Fire Crew + 1 ATC (+1 assistant) + 1 OPS	Cat 2 RFF * 3 x Fire Crew + 1 ATC (+1 assistant) + 1 OPS	Cat 3 or 4 RFF * 5 x Fire Crew + 1 ATC (+1 assistant) + 1 OPS	Cat 5 RFF * 7 x Fire Crew + 1 ATC (+1 assistant) + 1 OPS	Cat 6 RFF * 8 x Fire Crew + 1 ATC (+1 assistant) + 1 OPS
Open Hours Extension (up to 1 hrs. after normal open hours)	£175	£210	£270	£335	£370
Out of Hours Call-out (cover any other time beyond above - min 4 hours overtime)	£700	£840	£1,080	£1,340	£1,480

Lights Only Surcharge: £35 charged in addition to normal landing fee - SEE NOTE (6) - MEDEVAC BASE OPERATORS ONLY

OUT OF HOURS NOTES:

- *Cat 1 Fire requires min 2 x fire (RFF) personnel, Cat 2 requires 3 x fire personnel, 3/4 - 5 x personnel and 5 - 7 x fire personnel
- *Addl. 4th & 5th Fire personnel (for Cat 3/4 RFFS cover) will attract a £60/hr. premium - as required under CAP 168, Chapter 8.
- Surcharges are made in addition to the normal landing fee as applicable unless a resident on landings inclusive package
- Operations between midnight and 06:00 hrs. are not permitted unless for emergency services / medevac / organ transplant work etc.
- Licensed opening for flights with more than 10 POB will require a minimum of Cat 2 RFF cover even when 'private'
- 'Lights Only' ops allowed for base operators resident aircraft (medevac) only with requisite experience/briefing/training at Airport Manager's discretion
- All official daylight, unlicensed operations require resident operator to sign and submit indemnity form prior to flight (via fax or otherwise)
- Each separate operator/company is charged full rate but several of its aircraft may use the same extension period at no extra cost
- Firm* quotes for extensions or call-out will only be made after staff availability is checked - staff availability is on a voluntary basis only
- If requesting an extension that requires a staff member to be called in to provide the requisite cover, they will be charged at 4 hrs. minimum

NOTICE & AVAILABILITY:

Requests for an extension of airport hours or call-out outside of those hours published within the UK AIP are undertaken subject to Fire, Ops and ATC staff availability and therefore no assurance/guarantee can be given that a request can be met. However, notice periods of at least 24 hrs. / 1 working (week)day or more for licensed cover are recommended to ensure chances of cover being available. The earlier in the day an after-hours extension may be requested, the greater the likelihood of fulfilling the request.

AIRFIELD OPENING HOURS ARE 06:30-22:30 hrs. SEVEN DAYS

CANCELLATION:

Any call-out or extension cover requested and then cancelled with less than 4 hours notice during published opening hours for that same day, or before the next day (for the morning), will incur the full call-out charge. Extension requirements not used will be charged at the pro-rata rate but any part of this which was to include call-out of any personnel will be charged at the full rate.

PER PASSENGER FEES

Passenger Surcharge (PLS) £3.50 per passenger for departing flights with **10 or more passengers only**, private or public (not levied when NASP EC300 Screening is required).

Security Screening (NASP/EC300) **£250 minimum fee plus cost per passenger @:** 1-6 Passengers £15.50/pax 7-20 passengers £10/pax 21+ passengers £5/pax

12 hrs. notice call-out req.

Delays incurred will be charged at £50/half hour or part thereof.

A cancellation charge of 50% of the screening fee will be charged with less than 6 hours' notice and 100% of the fee if less than 4 hours' notice is given.

SYSTEMS REPLENISHMENT

	Appx. Man Hrs.	Estimated Charge (confirmed on date of order)		
Shell Fluid 41 (Hydraulic Fluid)		T.B.A		Note: 3rd Party Supplied
Shell Compound 07 (de-ice)		£6.23	per litre	Airport Supplied
180p Isopropyl Alcohol (06H)		£12.00	per litre	Note: 3rd Party Supplied (Hangar 8 or EBAS)
Freon Charge	3 Hr.	£315.00		Day's notice Required
Oxygen Charge	2 Hr.	£145.00		Note: 3rd Party Supplied (Hangar 8 or EBAS)
Nitrogen Charge	1 Hr.	£65.00		Note: 3rd Party Supplied (Hangar 8 or EBAS)

AIRCRAFT VALET/DETAILING & PREPARATION

Aircraft Valet/Detailing and Preparation:

Contact: Please contact Customer Services at London Oxford Airport customerservices@oxfordjet.com

(Approximations only - guide price only - please ask for quote)

	Pist. Single	Pist. Twin	Turboprop	Helicopter	Light - Mid Size Jet
Full Cabin Valet	£60	£85	£110	£85	£145
Aircraft Cleaning (external wash)	£195	£150	£265	£160	£315
Full External Clean + Full Polish	£160	£290	£420	£290	£630

DE-ICING

Aircraft Weight:	Under 2.73 tonne	2.73-5.7 tonne	5.7-8.0 tonne	over 8 tonne	(Kilfroast fluid diluted charged at £2.50/litre)
	£42.50 + fluid used	£79 + fluid used	£158 + fluid used	£262.50 + fluid used	

Note: Kilfroast ABC Type II fluid used, typically diluted 50/50 above -3 degrees or 75/25 below -3 degrees (charge remains the same either way)

AIRSIDE SERVICES

Toilet Service per WC	£65				
Water Service	£65				
Ground Power Unit	£65 per start up then £65 each hour				
Forklift Truck	£65 per hour or part thereof (min. charge £65)				
Cargo/Freight Throughput Charge	£0.03 / Kg subject to a minimum charge of £65 per rotation				
Tow Fee (in/out of 3 rd party hangars)	£27 .50 per tow	Not levied for aircraft on individual residency (non-fleet) agreements, unless for third party access/support requests			
International Catering Waste (ICW)	£5 per bag EU / £80 for first bag non-EU disposal, £30 per bag thereafter				
Compass Swing/Base use	£30<5.69 tonne £55>5.7 tonne to 9.99 tonne £95 - 10-19.99 tonne £125>20 tonne (+£30 for each additional 30 mins)				(incl. engine runs/testing)
Airside Vehicle Escort	£20				(if not paying handling fee)
Ballast Load/Offload	£30				
Pet Handling Fee (import)	£157.50 (1 st pet, £55 for each other - max 5 animals)				

London Oxford Airport Surcharges - valid from January 2015 - all prices excl. VAT

TERMINAL (FBO) SERVICES

Fax, Photocopy, PC, Wi-Fi, Pilot Briefs and Weather	No charges other than standard aircraft handling fees when applicable	<i>Within Reason!</i>
Hotel & Travel Services	Contact Customer Services	Priced as applicable on confirmation
Taxis, Hire or Chauffeured Vehicles	Contact Customer Services	Priced as applicable on confirmation
Catering (ordered through OXF)	Contact Customer Services	Priced as applicable on confirmation
Catering Handling Fee	£17.50 (£12.50 for Residents)	When storing/handling 3rd party deliveries (<i>not ordered by us</i>)
Newspapers	Contact Customer Services	Priced as applicable on confirmation
Ice Packs	£5 / 2Kg pack	
Cabin, Galley, Toilet Supplies	Contact Customer Services	Priced as applicable on confirmation
Laundry	Contact Customer Services	Customer Services (24 hour turnaround)
Crockery Cleaning	Contact Customer Services	Customer Services
Courtesy Crew Car	Currently Unavailable - check with Customer Services	12 hrs. notice recommended

OTHER MISC SERVICES

Filming & Photography	£110 min charge (half day) plus £65/hr./man for escorting airside or £550 min fee for commercial broadcasting/film exercise + £550/area/room/zone used	
Meeting Room Hire	(Terminal Meeting Rooms - from £65/2 hrs. - incl. coffee etc.)	On application/availability Call: Customer Services*
In-Terminal Bedroom day rates	- Free of Charge	Snooze room for two crew (with bunk-bed)
Office Rental (subject to standard):	Rent: £12.50 / sq.ft. / annum Service Charge: £1.44 / sq.ft. / annum	Note: <i>Typical benchmark only subject to availability</i>
Oil/Fuel Spillage Contamination	£160 per incident requiring RFF attendance and remedial action	
UHF Radio Hire	£40/month (minimum charge)	

PERMITS & PASSES

Airport Identity Pass	No Charge 1 st Issue	(£8 for replacement pass)
Airside Access Pass	1st Issue - £55	(Damaged pass replacement - £35, lost, stolen or unreturned pass - £80)
Airside Driving Permit (ADP)	Initial Training/Permit - £160 Revalidation 3 or 5 years - £80 Refresher/OXF familiarisation for pre-trained staff - £55 (with APD from other airfield)	
Airside Vehicle Permit	£55 - initial issue/vehicle	
Aircraft Tug Airside Permit	£55 - initial issue/tug	
Annual Car Parking Space	£800 - general car parks, £1100 - terminal car park	
Annual Car Parking Pass	£8 per pass	

HELICOPTER TRAINING

Use of Heli Training Area 1	£55 per 30 mins session or part thereof (£110 per 30 mins if RFF attendance required)	(Use of Helicopter 'T')
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Notes: All 3rd party-derived services are co-ordinated and invoiced by Oxfordjet Customer Services. For Training School Services (OAA) Contact: 01865 844 216

Damage to Airport Property - Where an airport user damages airport property (which for the avoidance of doubt includes but is not limited to; the runway, buildings, security barriers, fences) the company shall have the right to recharge the user for any costs incurred by the company including but not limited to materials, vehicles, manpower, equipment, etc. deemed necessary to make good the damage.

Administration fee of £10 will be levied when issuing credit notes due to incorrect information having been provided to OASL by user.

For all queries and further details on fees and charges, please call marketing / business development on +44 01865 290 710 / 720 or e-mail sales@londonoxfordairport.com

Separate fee/charges sheets are available with:
 (A) Basic Rates Summary - Landing/Handling/NAV/Parking/Hangarage - for both GA/Biz Av visitors and residents
 (B) Comprehensive Fees - both visitor and residency costs by individual aircraft type - for both GA/Biz Av visitors and residents
 (C) Airline / Commercial Operator Fees & Charges

LANDING AND PARKING FEES AS AT 1 APRIL 2014

MAX AUW – Kg 000's	LANDING FEES				PARKING FEE	
	Daily Rate (Fixed Wing)	Daily Rate (Rotary Wing)	Weekend Surcharge	Out Of Hours Surcharge	Per Hour (up to 72hrs)	Per 24 Hours or part thereof (over 72hrs)
UPTO 5	£209.96	£393.98	£157.47	£314.94	£12.17	£584.00
UPTO 6	£250.93	£393.98	£188.20	£376.39	£12.68	£608.48
UPTO 7	£291.90	£393.98	£218.93	£437.84	£13.19	£632.96
UPTO 8	£332.87	£393.98	£249.66	£499.29	£13.70	£657.44
UPTO 9	£373.84	£393.98	£280.39	£560.74	£14.21	£681.92
UPTO 10	£414.81	£393.98	£311.12	£622.19	£14.72	£706.40
UPTO 11	£455.78	£393.98	£341.85	£683.64	£15.23	£730.88
UPTO 12	£496.75	£393.98	£372.58	£745.09	£15.74	£755.36
UPTO 13	£537.72	£393.98	£403.31	£806.54	£16.25	£779.84
UPTO 14	£578.69	£393.98	£434.04	£867.99	£16.76	£804.32
UPTO 15	£619.66	£393.98	£464.77	£929.44	£17.27	£828.80
UPTO 16	£660.63	£393.98	£495.50	£990.89	£17.78	£853.28
UPTO 17	£701.60	£393.98	£526.23	£1,052.34	£18.29	£877.76
UPTO 18	£742.57	£393.98	£556.96	£1,113.79	£18.80	£902.24
UPTO 19	£783.54	£393.98	£587.69	£1,175.24	£19.31	£926.72
UPTO 20	£824.51	£393.98	£618.42	£1,236.69	£19.82	£951.20
UPTO 21	£865.48	£393.98	£649.15	£1,298.14	£20.33	£975.68
UPTO 22	£906.45	£393.98	£679.88	£1,359.59	£20.84	£1,000.16
UPTO 23	£947.42	£393.98	£710.61	£1,421.04	£21.35	£1,024.64
UPTO 24	£988.39	£393.98	£741.34	£1,482.49	£21.86	£1,049.12
UPTO 25	£1,029.36	£393.98	£772.07	£1,543.94	£22.37	£1,073.60
UPTO 26	£1,070.33	£393.98	£802.80	£1,605.39	£22.88	£1,098.08
UPTO 27	£1,111.30	£393.98	£833.53	£1,666.84	£23.39	£1,122.56
UPTO 28	£1,152.27	£393.98	£864.26	£1,728.29	£23.90	£1,147.04
UPTO 29	£1,193.24	£393.98	£894.99	£1,789.74	£24.41	£1,171.52
UPTO 30	£1,234.21	£393.98	£925.72	£1,851.19	£24.92	£1,196.00
UPTO 31	£1,275.18	£393.98	£956.45	£1,912.64	£25.43	£1,220.48
UPTO 32	£1,316.15	£393.98	£987.18	£1,974.09	£25.94	£1,244.96
UPTO 33	£1,357.12	£393.98	£1,017.91	£2,035.54	£26.45	£1,269.44
UPTO 34	£1,398.09	£393.98	£1,048.64	£2,096.99	£26.96	£1,293.92
UPTO 35	£1,439.06	£393.98	£1,079.37	£2,158.44	£27.47	£1,318.40
UPTO 36	£1,480.03	£393.98	£1,110.10	£2,219.89	£27.98	£1,342.88
UPTO 37	£1,521.00	£393.98	£1,140.83	£2,281.34	£28.49	£1,367.36
UPTO 38	£1,561.97	£393.98	£1,171.56	£2,342.79	£29.00	£1,391.84
UPTO 39	£1,602.94	£393.98	£1,202.29	£2,404.24	£29.51	£1,416.32
UPTO 40	£1,643.91	£393.98	£1,233.02	£2,465.69	£30.02	£1,440.80
UPTO 41	£1,684.88	£393.98	£1,263.75	£2,527.14	£30.53	£1,465.28
UPTO 42	£1,725.85	£393.98	£1,294.48	£2,588.59	£31.04	£1,489.76
UPTO 43	£1,766.82	£393.98	£1,325.21	£2,650.04	£31.55	£1,514.24
UPTO 44	£1,807.79	£393.98	£1,355.94	£2,711.49	£32.06	£1,538.72
UPTO 45	£1,848.76	£393.98	£1,386.67	£2,772.94	£32.57	£1,563.20
UPTO 46	£1,889.73	£393.98	£1,417.40	£2,834.39	£33.08	£1,587.68
UPTO 47	£1,930.70	£393.98	£1,448.13	£2,895.84	£33.59	£1,612.16
UPTO 48	£1,971.67	£393.98	£1,478.86	£2,957.29	£34.10	£1,636.64
UPTO 49	£2,012.64	£393.98	£1,509.59	£3,018.74	£34.61	£1,661.12
UPTO 50	£2,053.61	£393.98	£1,540.32	£3,080.19	£35.12	£1,685.60

