

## INTERNAL MEMORANDUM

**FROM: MR RICHARD ALLARD**  
**(ENVIRONMENTAL PROTECTION)**

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**Application:** Outline planning application (with reserved matters details for some elements included and some elements reserved for subsequent approval) for the development of Bristol Airport to enable a throughput of 12 million terminal passengers in any 12 month calendar period, comprising: 2no. extensions to the terminal building and canopies over the forecourt of the main terminal building; erection of new east walkway and pier with vertical circulation cores and pre-board zones; 5m high acoustic timber fence; construction of a new service yard directly north of the western walkway; erection of a multi-storey car park north west of the terminal building with five levels providing approximately 2,150 spaces and wind turbines atop; enhancement to the internal road system including gyratory road with internal surface car parking and layout changes; enhancements to airside infrastructure including construction of new eastern taxiway link and taxiway widening (and fillets) to the southern edge of Taxiway GOLF; the year-round use of the existing Silver Zone car park extension (Phase 1) with associated permanent (fixed) lighting and CCTV; extension to the Silver Zone car park to provide approximately 2,700 spaces (Phase 2); improvements to the A38; operating within a rolling annualised cap of 4,000 night flights between the hours of 23:30 and 06:00 with no seasonal restrictions; revision to the operation of Stands 38 and 39; and landscaping and associated works.

**Reference Number:**  
18/P/5118/OUT

**Location:** Bristol Airport North Side Road Felton Wrington BS48 3DP

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### Formal comments on Noise

There is a substantial amount of legislation, technical and planning policy guidance available relevant to airport and aircraft noise, which is sufficiently summarised in the noise chapter. It is not therefore intended to repeat a summary of it all within these comments. However, a brief summary of the pertinent guidance is summarised below to put my comments into context.

The Government's Aviation Policy Framework (APF) published in March 2013, recognises that noise is a primary concern of local communities near airports. The Government's overall policy on aviation noise is to limit and, where possible, reduce the number of people in the UK who are significantly affected by aircraft noise. This is consistent with the Noise Policy Statement for England (NPSE), 2010. The NPSE is discussed further below.

The APF also treats the 57dB  $L_{Aeq,16hr}$  noise contour as the average level of daytime aircraft noise marking the approximate onset of significant community annoyance. It does, however recognise that not all people within this contour will experience significant adverse effects from aircraft noise. Nor does it mean that no-one outside of the contour will consider themselves annoyed by aircraft.

The APF also continues to expect airport operators to offer households exposed to levels of noise of 69 dB  $L_{Aeq,16hr}$  or more with assistance with the costs of moving. It is also expected airport operators to offer acoustic insulation to noise-sensitive buildings such as schools and hospitals of noise of 63 dB  $L_{Aeq,16hr}$  or more. Where acoustic insulation cannot provide an appropriate or cost-effective solution, alternative mitigation measures should be offered.

In addition to the above, airport operators considering developments which result in an increase in noise, should review their compensation schemes to ensure they offer appropriate compensation to those potentially affected. As a minimum, the Government expects airport operators to offer financial assistance towards acoustic insulation to residential properties which experience an increase in noise of 3dB or more, which leaves them exposed to levels of 63dB  $L_{Aeq,16hr}$  or more.

The NPSE, 2010 aims to, through the effective management and control of environmental, neighbour and neighbourhood noise within the context of Government policy on sustainable development

- avoid significant adverse impacts on health and quality of life;
- mitigate and minimise adverse impacts on health and quality of life; and
- where possible, contribute to the improvement of health and quality of life

The NPSE also introduced the concept of No Observed Effect Level (NOEL), Lowest Observed Effect Level (LOAEL) and Significant Observed Effect Level (SOEL). These are defined as follows:

- NOEL – this is the level below which no effect can be detected
- LOAEL – This is the level above which adverse effects on health and quality of life can be detected; and
- SOAEL – this is the level above which significant adverse effects on health and quality of life occur.

The NPSE states that it is not possible to have a single objective noise-based measure that defines SOAEL that is applicable to all sources of noise in all situations. Consequently, the SOAEL is likely to be different for different noise sources, for different receptors and at different times.

The Governments Planning Practice Guidance for noise (<https://www.gov.uk/guidance/noise--2>) defines the SOAEL as:

- Noise which causes a material change in behaviour and/or attitude, e.g. avoiding certain activities during periods of intrusion; where there is no alternative ventilation, having to keep windows closed most of the time because of the noise. Potential for sleep disturbance resulting in difficulty in getting to sleep, premature awakening and difficulty in getting back to sleep. Quality of life diminished due to change in acoustic character of the area.

The Planning Practice Guidance also recommends that the SOAEL should be avoided.

The aims of the NPSE are also incorporated in the National Planning Policy Framework, 2018. Principally paragraph 180 states:

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

- a) mitigate and reduce to a minimum potential adverse impact resulting from noise from new development – and avoid noise giving rise to significant adverse impacts on health and the quality of life;
- b) identify and protect tranquil areas which have remained relatively undisturbed by noise and are prized for their recreational and amenity value for this reason; and
- c) limit the impact of light pollution from artificial light on local amenity, intrinsically dark landscapes and nature conservation.

Planning permission was granted in 2011 (09/P/1020/OT2) to increase the throughput of Bristol Airport to 10 mppa. As part of the planning permission a number of conditions were attached to mitigate the noise impact. These conditions have been summarised below:

**Condition 30:** Restricted the area enclosed by the 57 dB  $L_{Aeq,16h}$  (07:00 to 23:00) noise contour for the 92 day summer period not to exceed 12.42 km<sup>2</sup>.

**Condition 31** Required that the area enclosed by the 63 dB  $L_{Aeq, 16h}$  contour for the forthcoming year is reported to North Somerset Council. Residential properties located in the area of the contour are eligible for a grant under the noise insulation grant scheme.

**Conditions 32 and 33** Deal with ground noise

**Condition 34** Restricts the use of mobile diesel ground power generators and aircraft auxiliary power (APU's) units on stands 37 and 38.

**Condition 35** Restricts the use of APU's between the hours of 23:00 and 07:00

**Condition 36** A very detailed condition, but in summary provides details of the quota count system applied to aircraft movements at Bristol airport. The condition also provides details of exemptions of aircraft from the quota count and dispensations.

**Condition 37** Requires the airport to report at the end of every season on the usage of the quota count.

**Condition 38** Restricts the total number of take-offs and landings between the hours of 23:30 and 06:00 hours in the summer season to 3000 and for the same time period in the winter season to 1000.

**Condition 39** Restricts the total number of take offs and landings between the 06:00 & 07:00 and between 23:00 & 23:00 to 10500 in any calendar year.

Chapter 7 of the Environmental Statement covers noise. The chapter has set a SOAEL for air noise for residential receptors of 63 dB  $L_{Aeq, 16h}$  for daytime noise and 55 dB  $L_{Aeq, 8h}$  for night time noise. The chapter also sets a lower limit (LOEL) for air noise of 51 dB  $L_{Aeq, 16h}$  for day time noise and 45 dB  $L_{Aeq, 8h}$  for night time noise.

For ground noise for residential receptors the chapter sets a SOAEL of 60 dB  $L_{Aeq,16h}$  for the daytime and 55 dB  $L_{Aeq,8h}$  for night time. Additionally, a LOAEL is set at 50 dB  $L_{Aeq,16h}$  for daytime noise and 45 dB  $L_{Aeq,8h}$ .

For road traffic noise the assessment criteria have been set as SOEL daytime façade level as 68 dB  $L_{A10,18h}$  and LOAEL of 55 dB  $L_{A10,18h}$ .

The noise chapter has predicted noise levels for three scenarios, Baseline 2017, 10 million passengers per annum (mppa) 2021 and 12 mppa 2026. A “sensitivity scenario” of 10 mppa 2026 has also been included.

For air noise predictions are presented in Tables 7.32 and 7.33 of the chapter for both daytime and night time noise respectively. Additionally, secondary indicators for annoyance and sleep disturbance are presented in tables 7.34 and 7.35 of the chapter, which has been replicated below. these results are discussed in more detail below.

**Table 7.32 Air noise dwelling counts,  $L_{Aeq,16hr}$  average mode summer day**

Contour $L_{Aeq,16h}$ dB	Number of Dwellings			
	Baseline 2017	10 mppa 2021	12 mppa 2026	10mppa 2026
51	3250	3150	3100	2200
63	20	10	10	10

**Table 7.33 Air noise dwelling counts,  $L_{Aeq8h}$  average mode summer night**

Contour $L_{Aeq,8h}$ dB	Number of Dwellings			
	Baseline 2017	10 mppa 2021	12 mppa 2026	10mppa 2026
45	3750	5150	5050	4150
55	150	300	350	250

**Table 7.34 Highly annoyed population count,  $L_{Aeq,16h}$  average mode summer day**

Metric	Baseline 2017	10 mppa 2021	12 mppa 2026	10 mppa 2026
Population Highly Annoyed	750	75	750	550

**Table 7.35 Highly sleep disturbed population count,  $L_{night}$  average mode annual night**

Metric	Baseline 2017	10 mppa 2021	12 mppa 2026	10 mppa 2026
Population Highly Sleep Disturbed	450	850	800	650

For ground noise the predicted noise levels are presented in Tables 7.47 and 7.48, which as with air noise have been replicated below.

**Table 7.47 Ground noise dwelling counts,  $L_{Aeq,16h}$  average summer day**

Contour $L_{Aeq,16hr}$ dB	Number of dwellings		
	Baseline 2017	10 mppa 2026	12 mppa 2026
50	70	80	70
60	1	1	1
70	0	0	0

**Table 7.48 Ground noise dwelling counts,  $L_{Aeq,8h}$  average summer night**

Contour $L_{Aeq, 8hr}$ dB	Number of dwellings		
	Baseline 2017	10 mppa 2026	12 mppa 2026
45	70	100	100
55	1	2	3
65	0	0	0

For road traffic the predicted noise levels are presented in Tables 7.54, which as with air and ground noise have been replicated below.

**Table 7.54 Number of receptors,  $L_{A10,18h}$** 

Contour $L_{A10, 18hr}$ dB	Number of receptors		
	Baseline 2017	10 mppa 2026	12 mppa 2026
55	100	100	100
68	20	30	30
75	2	4	4

The chapter concludes that:

- For air noise the number of dwellings exposed to significant levels of aircraft noise during the daytime period will generally stay the same as now and as for the Without development scenarios (either 2021 or 2026). This is primarily due to the change in aircraft utilising Bristol Airport, with more modern, quieter types being introduced in the future.
- The change in air noise levels between the Without Development scenarios and the Proposed Development Scenario is negligible.
- More people will be affected by aircraft noise at night as Bristol Airport continues to grow within its permitted limits, irrespective of whether the Proposed Development goes ahead or not. The Proposed Development will give rise to a negligible adverse effect compared to if the Proposed Development does not go ahead and so will have no significant effect on the surrounding noise climate.
- The principle difference between future ground noise levels under the Proposed Development compared to those without the Proposed Development is the change in distribution of ground noise around the area and therefore the change in the population that will be exposed to ground noise, resulting in increased ground noise levels for some and decrease for others.
- There is a small increase in the number of dwellings exposed to ground noise during the day and night in the future compared to now for both the Proposed Development and Without Development scenarios. In the future, there is an increase of one in the number of dwellings exposed to the ground noise SOAEL and a slight decrease in the number of dwellings exposed to the LOAEL.
- More people will become affected by ground noise as Bristol Airport continues to grow within its permitted limits irrespective of whether the Proposed Development goes ahead or not. The Proposed Development will give rise to a negligible adverse effect compared to if the Proposed Development does not go ahead and so will have no significant effect on the surrounding noise climate.
- The Proposed Development will change the road traffic noise levels around Bristol Airport. There is a small increase in the number of dwellings exposed to road traffic noise in the future compared to 2017 for both the Proposed Development and Without Development scenarios.

Jacobs Consultants have also been employed by North Somerset Council to critically review the noise chapter. Jacob's comments have been reviewed and I fully support their analysis of the noise chapter. In addition to Jacob's comments, I have the additional comments to make below, which along with Jacob's comments will need to be addressed before I am in a position to be satisfied that the proposed development will not have a detrimental impact on noise.

**Comparison of scenarios** - The noise chapter generally compare the 10 mppa 2021 scenario, i.e. what the airport already has consent for compared to the 12 mppa 2026. However, the higher noise levels seem to be weighted towards the 2021 scenario with the reliance of quieter air craft for 12 mppa 2026. It is usual in Environmental Impact Assessments to compare the With Development Scenario (12 mppa, 2026) with the Without Development scenario (10 mppa, 2026).

Tables 7D.20, through to 7D.29 of appendix 7D provide the contour areas for each scenario. Each table has been summarised below, showing the difference between the 12 mmpa 2026 scenario and 10 mppa 2026 scenario.

**Table 7D.20 Contour areas  $L_{Aeq,16h}$  average mode summer day**

<b>Contour Areas (<math>km^2</math>)</b>			
<b>Contour <math>L_{Aeq,16h}</math> (dB)</b>	<b>12 mppa 2026</b>	<b>10mppa 2026</b>	<b>Difference between 12 mmpa 2026 and 10 mppa 2026</b>
51 (LOAEL)	37.0	29.9	7.1
54	19.7	16.0	3.7
57	10.9	8.6	1.3
60	5.7	4.5	1.2
63 (SOAEL)	2.8	2.2	0.6
66	1.4	1.2	0.2
69 (UAEL)	0.8	0.7	0.1

**Table 7D.21 Number of dwellings,  $L_{Aeq,16h}$  average mode summer day**

<b>Number of Dwellings</b>			
<b>Contour <math>L_{Aeq,16h}</math> (dB)</b>	<b>12 mppa 2026</b>	<b>10mppa 2026</b>	<b>Difference between 12 mmpa 2026 and 10 mppa 2026</b>
51 (LOAEL)	3100	2200	900
54	900	750	150
57	450	400	50
60	150	80	70
63 (SOAEL)	10	10	-
66	1	0	1
69 (UAEL)	0	0	-

**Table 7D.22 Population Count,  $L_{Aeq,16h}$  average mode summer day**

<b>Population Count</b>			
<b>Contour <math>L_{Aeq,16h}</math> (dB)</b>	<b>12 mppa 2026</b>	<b>10mppa 2026</b>	<b>Difference between 12 mmpa 2026 and 10 mppa 2026</b>
51 (LOAEL)	7500	5400	2100
54	200	1800	400
57	1150	950	200
60	300	200	100
63 (SOAEL)	40	40	-
66	3	0	3

69 (UAEL)	0	0	-
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**Table 7D.23 Contour areas,  $L_{Aeq,8h}$  average mode summer night**

Contour areas (km <sup>2</sup> )			
Contour $L_{Aeq,8h}$ (dB)	12 mppa 2026	10mppa 2026	Difference between 12 mppa 2026 and 10 mppa 2026
45(LOAEL)	65.6	54.7	10.9
48	36.7	29.8	6.9
51	19.3	15.7	3.6
57	10.5	8.4	2.0
55 (SOAEL)	8.5	6.8	1.7
57	5.6	4.3	1.3
60	2.7	2.1	0.6
63 (UAEL)			

**Table 7D.24 Number of dwellings,  $L_{Aeq,8h}$  average mode summer night**

Number of dwellings			
Contour $L_{Aeq,8h}$ (dB)	12 mppa 2026	10mppa 2026	Difference between 12 mppa 2026 and 10 mppa 2026
45(LOAEL)	5050	4150	900
48	3000	2000	1000
51	850	750	100
54	450	400	50
55 (SOAEL)	350	250	150
57	150	80	70
60	10	10	-
63 (UAEL)	1	0	1

**Table 7D.25 Population count  $L_{Aeq,8h}$  average mode summer night**

Population count			
Contour $L_{Aeq,8h}$ (dB)	12 mppa 2026	10mppa 2026	Difference between 12 mppa 2026 and 10 mppa 2026
45(LOAEL)	12300	10100	2200
48	7250	4900	2350
51	2200	1800	400
54	1100	900	200
55 (SOAEL)	800	600	200
57	300	200	100
60	40	40	-
63 (UAEL)	3	0	3

**Table 7D.28 Highly annoyed population count,  $L_{Aeq,16h}$  average mode summer day**

Highly Annoyed Population Count				
Contour $L_{Aeq,16h}$ (dB)	% Highly Annoyed	12 mppa 2026	10mppa 2026	Difference between 12 mppa 2026 and 10 mppa 2026
51-54	8	400	300	100
54-57	11	100	100	-

57-60	15	150	100	50
60-63	20	50	30	20
63-66	27	10	10	-
66-69	35	1	0	1
Total		750	550	200

**Table 7D.29 Highly sleep disturbed population count, L<sub>night</sub> average mode annual night**

Contour L <sub>night</sub> (dB)	% Highly Annoyed	Highly Annoyed Population Count		
		12 mppa 2026	10mppa 2026	Difference between 12 mppa 2026 and 10 mppa 2026
45-50	6	550	450	100
50-55	9	150	150	-
55-60	12	80	60	20
60-65	16	6	0	6
65+	19	0	0	-
Total		800	650	150

Overall, the noise chapter indicates that the increase in noise levels experienced at all assessed receptors is between 0 – 2 dB which is considered to be negligible. However, as can be seen from the tables above, that although the change in noise levels is negligible, the number of dwellings and population account has increased between the two scenarios.

For daytime, summer noise the largest increase in affected dwellings is within the 51 dB L<sub>Aeq,16h</sub> (LOAEL) contour for 12 mppa 2026. There is also an increase in one dwelling within the 66 dB L<sub>Aeq,16h</sub> contour, which is above the SOAEL. Overall the total number of dwellings affected by an increase in noise for all contours for 12mppa 2026 compared with 10 mppa 2026 is 1171.

For daytime, summer noise the largest increase of affected population is within the 51 dB L<sub>Aeq,16h</sub> contour. There is also an increase of three for population account within the 66 dB L<sub>Aeq,16h</sub> contour, which is above the SOAEL. Overall the total population account affected by an increase in noise for all contours for 12mppa 2026 compared with 10 mppa 2026 is 2803.

For summer, night time noise, the largest increase in affected dwellings is within the 48 dB L<sub>Aeq,8hr</sub> noise contour. There is also an increase in the 55 dB L<sub>Aeq, 8hr</sub> noise contour (SOAEL) of 150 dwellings. In addition to this there is also an increase of 70 people affected in the 57 dB L<sub>Aeq, 8h</sub> and 3 people affected in the 63 L<sub>Aeq, 8h</sub> contour, both above the SOAEL. In fact, the 63 L<sub>Aeq, 8h</sub> contour is considered to be the Unacceptable Adverse Effect Level. Overall the total population count affected by an increase in night noise for all contours for 12mppa 2026 compared with 10 mppa 2026 is

For summer, night time noise, the largest increase in population count is within the 48 dB L<sub>Aeq,8hr</sub> noise contour. There is also an increase in the 55 dB L<sub>Aeq, 8hr</sub> noise contour (SOAEL) of 200 dwellings. In addition to this there is also an increase of 100 dwellings in the 57 dB L<sub>Aeq, 8h</sub> and 3 63 L<sub>Aeq, 8h</sub> contour, both above the SOAEL. In fact, the 63 L<sub>Aeq, 8h</sub> contour is considered to be the Unacceptable Adverse Effect Level. Overall the total number of dwellings affected by an increase in night noise for all contours for 12mppa 2026 compared with 10 mppa 2026 is 5453.

**Summer Season** – As summarised above, planning condition 36 of the current planning permission (09/P/1020/OT2) for night flying defines “the summer season” as the period of British Summer Time in each year as fixed by the Summer Time Act 1972 and “the winter season” as the period between the end of British summer time in one year and the start of British Summer Time in the year next following. However, the noise chapter has based its assessments on the 92 day period between 16



June and 15 September. It is not clear if the extended summer period has been taken into account and what impact this has on noise levels and disturbance.

**Future Fleet Mix** - The noise chapter has based its predictions for future scenarios on the fact that the aircraft fleet will change and incorporate quieter aircraft. Whilst this seems logical there is no justification provided for the future fleet mix. Additionally, there does not seem to be any assessment carried out if fleet replacement continues at its current rate and is not updated as quickly as forecast.

**Stands 38 and 39** – The planning application seeks to revise the operation of stands 38 and 39, however there does not seem to be any specific assessment of noise from these two stands in the noise chapter.

**Health Impacts** – The noise chapter has assessed the impacts on annoyance and sleep disturbance, it does not however, seem to have assessed the wider impacts such as cognitive impairment, quality of life, wellbeing and mental health etc. It is suggested that the Director of Public Health is consulted with regards to this aspect.

**Noise Insulation Scheme** – It is acknowledged and welcomed the proposals to enhance and improve the noise insulation scheme. However, before any further comments can be made it would be useful to understand the uptake of the current scheme. Additionally, it would also be useful to have some further data on the specification of the double glazing to be used as well as the ventilation system.

**Wind turbines** – It is understood that the planning application proposes to install a number of wind turbines on the top storey of the multi-storey car park, however there does not seem to be any assessment of the noise impact from these included in the noise chapter.

**Tranquillity/AONB** – The noise chapter has not assessed the impact on tranquil areas, particularly the AONB. Paragraph 180 of the NPPF, 2018 states that:

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

- b) identify and protect tranquil areas which have remained relatively undisturbed by noise and are prized for their recreational and amenity value for this reason; and

However, the Planning Practice Guidance recognises that there are no precise rules for the factors for identifying areas of tranquillity. However, it also notes that an area to be protected for its tranquillity it is likely to be relatively undisturbed by noise from human caused sources that undermine the intrinsic character of the area. Such areas are likely to be already valued for their tranquillity, including the ability to perceive and enjoy the natural soundscape, and are quite likely to be seen as special for other reasons including their landscape. In light of this an assessment of the noise impacts on the AONB is required.