

Note

Title	Noise Review		
Project	Luton Airport 19mppa ES		
Reference	271E.NT1.1	Author(s)	VC
Date	19 July 2021	Reviewer	TS

1.0 Summary

1.1 In Memo VC 20-05/M1-0 dated 21 February 2021 (hereafter referred to Memo 1), I reviewed Noise Chapter 8 of the ES. It accompanied the LLAOL application to vary existing Conditions 8 and 10, required to increase the permitted number of passengers by 1mppa to a maximum 19mppa. I noted there were several matters requiring further information and/or careful consideration in determining whether noise is a reason for refusing the application.

1.2 Following a Regulation 25 request by Luton Borough Council, Wood Group issued an update to Volume 2 of the ES, including revisions to Chapter 8 dated May 2021. I have reviewed the revised document, and consider that the following concerns have largely been addressed:

- The requested variation for Condition 10 was not temporary, as the original ES identified that the application sought to increase both the short term (ST) limits for the period up to 2028 and the more restrictive long term (LT) limits applicable post 2028. My concern was whether, on this basis, the proposals were strictly in line with current government policy. This has been addressed by extending the time frame of the analysis post 2028 and demonstrating that noise levels are expected to continue to reduce and that an increase in the LT limits is not in fact required. This does, however, come at the cost of the affected communities having to wait longer for the benefits of the associated lower noise levels.
- Mitigation in the form of enhanced sound insulation is proposed as a response to significant adverse effects, and the assessment identifies the number of properties expected to qualify for this based on noise exposure levels. Reference is no longer made to limits on the funding available to treat these properties.
- Clarification on the noise model has been provided.
- The structure of Noise Chapter 8 has been modified and is now somewhat easier to follow, although there are some points that remain to be clarified.

1.3 This does not alter the overall findings with respect to noise impact, and attention is drawn to the following issues:

- If permitted, the application is forecast to give rise to significant adverse noise effects at 1,877 dwellings by virtue of night-time noise level increases of more than 1dB arising in locations exposed to average noise above the SOAEL (55dB L_{Aeq,8h}). This is not, in itself, a reason for refusal subject to appropriate mitigation being provided. However, it is indicative of the scale of noise effects associated with this application.
- The application relies on aircraft operations through to year 2031 to achieve the originally agreed Condition 10 LT noise limits, thereby complying with government

policy. Therefore, 2031 is a relevant assessment year. The ES Chapter would be more informative if all tabulated information for noise levels, noise effects, operating numbers etc. for each assessment year were to be extended to include 2031.

- The year-on-year operating forecasts used for the noise modelling seem to take no account of the effects of the Covid pandemic. It is not credible that operating numbers used for noise modelling in 2019, 2021 and 2022 are the same. We were due to get an updated Appendix 3A clearly setting out the aviation movements in the 92-day summer period used for the updated noise modelling, but that has not been provided.
- There are still question marks regarding the noise data used for the A321Neo. Further details of the data used to validate the A321Neo modelled noise should be published or included in the revised noise chapter. Realistic and reasonable aircraft noise levels should be used to determine the extent of the noise contour limits so that there is no question of those limits being adhered to.

1.4 The following sections provide more detail on these and other aspects of the noise case.

2.0 Condition 10

2.1 For the reasons set out in Memo 1, the government expects airports, especially major airports like Luton, to commit to lower community noise levels over time even as the number of operations increases. The current wording of Condition 10 encapsulates this imperative by committing LLAOL to a reduction in the area of the 57dB $L_{Aeq,16h}$ contour by the time the current permitted capacity of 18mppa is reached (originally forecast to be 2028).

2.2 Furthermore, Condition 10 in its current form sets the benchmark against which noise impacts arising from any subsequent changes in operation, for which planning consent may be required, shall be assessed. To comply with current government policy, those applications should be accompanied by a commitment to a further reduction in the permitted noise contour limit.

2.3 The original application failed this test as it sought noise contour limits for 19mppa which were larger, in perpetuity, than those currently in place for 18mppa. The revised application resolves this by committing to continue to reduce noise levels so that the original 2028 contour limits are achieved by 2031. This amounts to a 3-year delay in achieving the originally agreed condition, and the longer time horizon over which the affected communities will experience higher noise levels than originally (2012) forecast should be noted.

2.4 While this is not an unexpected outcome given the effects of the Covid 19 pandemic on the airline industry, as identified in Section 3.2 below, the noise modelling does not factor in the much lower noise levels for the period that the pandemic materially depressed operating numbers.

3.0 Significant Adverse Effects

3.1 Scale

3.1.1 As noted in Memo 1, table 8.22 of Noise Chapter 8 summarises the finding set out in preceding Tables 8.20 and 8.21 which each identify the change in noise level in 1dB noise exposure bands. For the night period, years 2021, 2022, 2023 and 2024 are identified as giving rise to a significant adverse effect due to a number of dwellings experiencing a change of more 1dB while exposed to noise levels above the SOAEL (55dB $L_{Aeq,8h}$). According to the ES noise analysis, the highest number (1,877) occurs in years 2021 and 2022, but the likelihood of this must be queried in light of the comments in the third bullet point of 1.3 above

3.1.2 By 2028, no significant adverse effects are forecast to occur at night, but we can make no judgment as to the situation in 2025, 2026 or 2027 as no data are provided. It is reasonable to assume that such affects are likely to occur in at least one of these years, in which case the full extent of significant adverse effects cannot be determined from the ES. Para. 8.6.3 of the revised noise chapter suggests that details of these effects are not required as they are likely to be similar to, but lower than, 2024. However, numbers are required in order to ensure that the roll out of any sound insulation scheme is done so within a timeline that ensures significant adverse effects are fully mitigated.

3.1.3 It should be noted that by 2028 no significant adverse effects are forecast to arise. This is because noise level differences compared to what is permitted by existing Condition 10 (using the LT contour limit) are less than 1dB. There will still be 1,385 dwelling exposed to noise levels above the SOAEL, an increase of 373 over what would arise should existing Condition 10 be retained. This increase ties in with the application to extend the LT night 48dB contour limit from 31.6 to 35.5km² by this year.

3.1.4 Since comparable data are not provided for the year 2031, when noise levels will have reduced to the point that the original Condition LT noise contour limits will be met, it is not possible to identify how many properties will still be exposed to noise levels above the SOAEL. The revised ES includes Appendix 8H, in which BAP demonstrate that the extent of the 55dB L_{Aeq,16h} daytime and 48dB L_{Aeq,8h} night-time noise contours will not exceed the LT limits in 2031, but no details are provided of the number of dwellings within the respective SOAEL contours.

3.1.5 I do not accept the statement in para. 8.4.8 of revised Chapter 8 that no further assessment is required for 2031 as it does not form part of the 'with scheme' scenario. If the applicant is relying on noise levels in this year to demonstrate compliance with policy, it is a relevant year of assessment and further data should be provided.

3.2 Timing

3.2.1 All the above is predicated on forecast movements for the study years matching the actual operations, and on this point some clarification is required.

3.2.2 Annual movement figures for each assessment year are not given, but Appendix 8B sets out the daytime and night-time movements for the summer 92-day noise assessment period (presumably used in the BAP model), notwithstanding some confusing column titles, my reading of the total numbers (day and night) year on year is:

Table 3.1

Scenario	2021	2022	2023	2024	2021
18mppa	39,522	39,700	40,000	39,522	39,522
19mppa	39,612	-	-	40,338	39,851

3.2.3 These numbers can be contrasted to those set out in Table 3.3 of the original ES, as follows:

Table 3.3 92-Day Peak Period Air Transport Movements 2019 to 2028*

92-day peak period	18 mppa						19 mppa	
	2019 ATMs	2020 ATMs	2021 ATMs	2022 ATMs	2023 ATMs	2024 ATMs	2024 ATMs	2028 ATMs
Daytime	34,124	34,124	34,391	34,706	35,003	34,391	34,989	34,848
Night-time	5,398	5,398	5,131	4,994	4,997	5,131	5,349	5,003
Daily total	39,522	39,522	39,522	39,700	40,000	39,522	40,338	39,851

*'92-day peak period' ATMs: the 92-day period within which the highest number of ATMs occurs.

3.2.4 Clearly, the unchanging total number of movements from 2019 to 2021 does not appear to reflect the actual situation brought about by Covid 19, whereby UK air transport operating numbers for 2020 were decimated and down by over 60% compared to those that occurred in 2019.

3.2.5 Therefore, the figures in revised noise appendix 8B need to be confirmed as being realistic and relevant to the current analysis given the still prevailing effects of Covid 19. The 3-year delay in being able to achieve the original LT noise contour limits, now 2031 as opposed to 2028, is considered reasonable given the effects of covid, but the claimed operating numbers used in the noise model do not. Further clarity is required on this issue so that the timescale over which the forecast changes in movements and noise levels can be defined with confidence. People exposed to significant adverse noise effects should reasonably know when they are likely to occur, when they are likely to be highest and the rate at which they will abate.

3.3 Cause

3.3.1 In my review of the original ES noise chapter, it was noted that the underlying reason for the higher night noise levels and more extensive noise contours for 19mppa vs. 18mppa could be the modified noise levels used for modernised aircraft. Departure noise levels were not materially lower than previously assumed, but it seemed clear that arrival noise levels would be slightly higher. It has been confirmed by Wood that the main reason for the more extensive noise contours is the amendment to corrections to modernised aircraft based on measured levels.

3.3.2 Assumptions about modernised aircraft noise were made in 2012 based on the approximation that modernised aircraft would generally be 3dB quieter than those they replace. This was updated in the original 19mppa ES Chapter 8 which based the corrections largely on certification data and limited in operation noise measurements for the modernised aircraft. The revised Chapter 8 uses different corrections again, ones that are considered more realistic of in-operation noise given that they are derived from measurements of noise from a limited number of modernised aircraft operating in the UK in recent years.

3.3.3 Details of the noise levels used for modernised aircraft are set out in Table 3 of the BAP noise modelling report attached to the noise chapter as Appendix 8C. The less optimistic noise corrections applicable to the A320 Neo and B737 MAX compared to those assumed in the 2012 modelling that generated the original noise contours, and therefore the agreed contour limits, can be clearly seen. Notably, there are two sets of corrections proposed for the A321 Neo, with those applying to the short-term contour limit modelling being far more optimistic than those used for all other modelling. The reasons are explained in the BAP document, although they are academic given that the existing ST contour limit to which they apply is being superseded by a proposed new ST contour limit generated using more realistic corrections based on measurement.

3.3.4 There are still questions regarding the noise data used for the A321Neo. Section 4.3 of the 2021 first quarter noise monitoring report indicates that the A321Neo is the noisiest of the aircraft regularly operating at Luton: they are around 2dB noisier on arrival but up to 5dB noisier on departure than the A320Neo. The A320Neo is, in turn about as noisy as its predecessor the A320

on arrival and about 3dB quieter on departure. It is not possible to make a similar comparison for the A321Neo, as data for its older sibling are not given, but the graph shows that this modernised aircraft type is still noisier than any other modernised or older variant aircraft operating in reasonable numbers at Luton.

3.3.5 In my view, it would be beneficial for the data that are used to validate the A321Neo modelled noise to be published or included in the revised noise chapter. It is extremely important that realistic and reasonable aircraft noise levels are being used to determine the extent of the noise contour limits. If they are, for whatever reason, unduly optimistic, LLOAL will find it difficult to meet the modified, albeit temporary, limits it is now seeking and LBC may well find themselves having to deal with yet another breach of condition in the not-too-distant future.

4.0 Mitigation

4.1 Policy

In Memo 1, I noted that government policy and guidance require that significant adverse effects are avoided as they are undesirable, and that the planning process should be used to achieve this goal. For this application, therefore, it would be wholly reasonable for the planning process to require mitigation that avoids significant adverse effects from occurring at all to prevent it from being a reason for denying consent.

4.2 Proposed Scheme

4.2.1 The terms of the mitigation scheme proposed to address the issue of exposure to noise above SOAEL are set out in revised ES Chapter 8, section 8.14. the matters of fact, that I do not dispute, are unchanged:

- There will be 1,908 dwellings exposed to night noise levels above SOAEL in the year of worst noise effects (2022);
- The 1,184 dwellings so exposed to daytime noise are wholly contained within the night-time figure;
- There are an additional 724 dwellings exposed to night noise levels above SOAEL resulting from the 19mppa condition as compared to the existing ST noise contour limit condition.

4.2.2 There are large numbers of properties requiring mitigation and, if it is to address the problem at hand, that mitigation should be in place in advance of the significant adverse effect arising.

4.2.3 As previously noted, I am aware that there are various practical matters to consider including the likely rate of uptake of offers of mitigation being less than 100%, the rate at which additional mitigation can be installed at affected dwellings and the fact that some eligible dwellings may already have benefitted from funds toward enhanced sound insulation.

4.2.4 I therefore recommend that any condition or S. 106 Agreement applied to any consent for this application ensures that the airport commits to delivery of a sound insulation scheme that delivers the required mitigation. Matters of community engagement, timing and funding of works, together with prioritisation to ensure that any property that qualifies for, and applies for, enhanced sound insulation is treated in time to mitigate the forecast significant noise effect.

5.0 Noise Modelling

So far as the noise modelling undertaken by BAP is concerned, there remain two matters on which further information or clarification would be beneficial:

- Modernised aircraft: as noted in section 3.3 above, further information justifying the noise levels for A321Neo would enhance confidence in the noise forecasts.
- 2031: since it is established that the LT noise contours limits will be achieved three years after 2028, further details including the number of dwellings within the respective SOAEL contours should be provided for the year 2031.

6.0 Content of Noise Chapter

6.1 Assessment Cases

A revised description of the assessment cases is set out in para. 8.8.4. It makes the approach to analysis a little clearer than in the original ES, although some readers might still find it confusing.

6.2 Tabulated Information Cases

Corrections have been made to the titling of many of the tables used in the revised chapter and appendices. Regarding the content of the tables, I have the following comments:

- Since the application relies on aircraft operations through to year 2031 to achieve the originally agreed Condition 10 LT noise limits, thereby complying with government policy, it is my view that 2031 is a relevant assessment year. All tabulated information for noise levels, noise effects, operating numbers etc. for each assessment year should be extended to include 2031.
- Tables 8.10 to 8.21 aim to set out the detail of how the significance of noise effects is evaluated. I previously pointed out that the information provided does not enable a clear distinction between noise effects that are positive or adverse. There is one column covering noise changes between -0.9 and +0.9 dB, and while it is accepted that this covers a range that might be considered a negligible change, it would be more conventional to clearly distinguish between changes that are -ve, thereby indicating a betterment, and those which are +ve and thereby indicating a worsening. Wood have declined to modify how this information is presented.

