Ricardo Energy & Environment

Manston Airport DCO Application: Review of noise documentation following noise hearing

Report for Thanet District Council, 2nd May 2019

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1 Introduction

1.1 Background and purpose of this report

RiverOak Strategic Partners Ltd proposes the upgrade and reopening of Manston Airport. This proposed development is a Nationally Significant Infrastructure Project (NSIP) under the Planning Act 2008 and therefore requires an application for a Development Consent Order (DCO) which includes an Environmental Statement (ES).

The noise hearing was held on 22nd March 2019. Following this, the Examining Authority has issued questions for the applicant. The applicant, RiverOak Strategic Partners, has since provided their response to these questions and a revised Noise Mitigation Plan.

Ricardo Energy & Environment has been commissioned on behalf of Thanet District Council to provide an assessment of:

- RiverOak Strategic Partners, 29 March 2019, Applicant's Written Summary of Case put Orally – Noise Hearing and associated appendices, Examination Document
- RiverOak Strategic Partners, 29 March 2019, Revised Noise Mitigation Plan (Tracked), Examination Document

The assessment of the above documents has been undertaken by Anderson Acoustics in association with Ricardo Energy & Environment. The findings are provided in section 2 and 3 of this report.

2 Review of applicant response

2.1 Introduction

An assessment has been undertaken to provide a review of the adequacy of the responses submitted by the applicant (RiverOak Strategic Partners, 29 March 2019, Applicant's Written Summary of Case put Orally – Noise Hearing and associated appendices, Examination Document). This assessment is presented in Table 2.1 and includes both an assessment of the robustness of the applicant responses as well as recommendations for Thanet District Council to consider in terms of actions or next steps.

Please note where tables and figures are provided as part of the applicant response or the assessment of applicant response, these are noted within Table 2.1 and provided beneath it.

Table 2.1 Assessment of applicant responses

Request	Applicant response	Assessment of applicant response	Recommendation
1. A list of properties falling within the proposed noise insulation and ventilation scheme for residential properties and a map showing their location;	A list of residential properties eligible for the noise insulation and ventilation scheme are presented in Appendix A of this document, together with Figure 12.21 (of the ES), which shows the location of the eligible residential properties on a map.	The list of residential properties eligible for noise insulation and ventilation is presented in both list and plot form to allow identification of the properties. The list of properties eligible appears to include commercial and industrial properties that would not be eligible for the scheme. The list also includes the Smugglers Leap Park Home estate. These park homes may not be suitable for the application of noise insulation given their construction. It is further noted that the eligibility shown is for contours averaged for both easterly and westerly operations, rather than an actual day of westerly or easterly operation. Using the average mode has the effect of reducing the contours as the noise is spread across the routes in a way that would not necessarily happen in a day of operation at the airport. The eligibility contours should be provided separately for both easterly and westerly operations to derive noise insulation eligibility.	Recommendation: Request a version of the list showing the properties that are eligible and can have noise insulation and ventilation applied. Where there is doubts over the suitability of the property to receive noise insulation this should be flagged and rehousing should be considered. Request westerly and easterly operation contours to be provided and for these revised plans to form the basis of noise insulation and rehousing eligibility.
2. a note on the proportion of the daytime and night-time baseline noise monitoring readings removed due	Appendix 12.4 Baseline Study of the ES [APP-057] includes summary statistics for each long term baseline survey location (LT1 to LT7). In line with best practice noise measurements which occur during precipitation and / or average wind speed greater than 5ms^{-1} have been removed from the baseline sound recordings. The last column in the table is described as 'Periods affected by rain %'. This describes the percentage of measurements where there was	The response clarifies that the baseline measurement periods with wind speed > 5ms-1 have been removed in line with best practice rather than just the "Periods affected by rain %" as indicated by the final table header. The exclusion of the data during periods of rain and wind speeds greater than 5ms^{-1} is agreed as part of best practice.	No further action requested on this matter.

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to wind speeds being above 5 mph	precipitation and / or wind speed greater than 5 ms^{-1}. For example, at LT1 28% of measurements during the day (07:00 -23:00) were affected by rain and or wind. These measurements were discarded from the analysis before the baseline noise level for that time period was derived. Similar statistics are provided for the other time periods assessed. The occurrence of wind >5ms^{-1} or precipitation was determined using a weather station mounted at baseline survey location LT3 – Grove House.		
3. a list of UK airports at which the Integrated Noise Model is employed	Three example airports have been identified that used the Integrated Noise Model to develop their current Noise Action Plans (hyperlinks to the action plans are provided): • East Midlands 2019-2023 Noise Action Plan • Luton 2019-2023 Noise Action Plan • Belfast 2013-2018 Noise Action Plan	The Applicant has identified that the Integrated Noise Model (INM) has been used to develop the current Noise Action Plan (NAP) at East Midlands Airport, Luton Airport and Belfast Airport. It is noted that the Belfast 2013 – 2018 NAP for George Best Belfast City Airport has a draft 2019-20124 NAP to replace the 2012 – 2018 NAP and the aircraft noise modelling was conducted by Wood (the Applicant's consultants). It is noted the Federal Aviation Authority now consider INM a legacy aviation environmental modelling tool and was replaced by the Aviation Environmental Design Tool (AEDT) in May 2015. The reason for using the INM was given in the hearing as the modelling was initiated before the release of AEDT. For the purposes of the aircraft noise modelling INM is considered as a suitable model.	No further action requested on this matter.
4. a note on the input and role of CBRE in informing	Response not listed. Found in Appendix 2 1 CBRE have advised that Category 3 persons are those that fall within the 63dB noise contour.	No response is given in Table 2.1 of the Applicants response document. Nevertheless, the response can be found in Appendix 2 of the Applicants response document. The response details that Category 3 persons are those	Update of list of properties following revision of the contours and consideration of

Request	Applicant response	Assessment of applicant response	Recommendation
the determination of the noise contour used to identify Category 3 persons in the Book of Reference [REP3-194]	2 The test applied by CBRE has been diminution of market value due to physical factors (in this case noise) on a fixed valuation date. CBRE has provided guidance on how these factors can influence amenity and give rise to sustainable claims for compensation under Part 1 of the Act. In order to do this, CBRE have made comparisons with Part 1 claims arising from other developments and the likelihood of such sustainable claims being made by those outside of the noise contour. 3 CBRE was guided by the noise specialist team in terms of identifying the property numbers within the contour. This information was then used to fix the zone for assessing potential Category 3 parties arising from aircraft noise, based on the predicted noise levels, which was jointly decided by CBRE and the Applicant.	that fall within the 63dB contour. The appendix details that the CBRE was guided by the noise specialist team in terms of identifying the property numbers within the contour. Once the revised single mode contour maps have been produced the list of properties and Category 3 persons should be revisited. It is not clear if the park homes at Smugglers Leap have been considered with regard to the type of construction and if noise insulation measures can be effectively applied.	suitability of noise insulation for the park homes at Smugglers Leap.
5. combined aircraft and traffic LAeq 16 hour and 8 hour contours if the traffic noise component exceeds screening	We are not aware of any previous Environmental Impact Assessment (EIA) noise assessment where significant effects are determined using combined aircraft and road traffic noise contours. It is widely accepted that people respond differently to noise from different sources. This is illustrated by the evidence presented in the most recent World Health Organisation (WHO) guidance on noise (Environmental Noise Guidelines for the European Region, WHO 2018) which sets out separate source specific guideline values and noise dose-response	The Applicant is unaware of any EIA where significant effects are determined using combined aircraft, and road traffic noise contours. The Applicant further states that the separate source specific guideline values and noise dose-response relations for road and aircraft noise are described in the WHO Guidelines for the European Region 2018. The Applicant further considers that no guidance is provided for assessing the combined effects of exposure to multiple sources. The Applicant considers that conventionally noise from separate sources for airport applications is dealt with separately and is considered not feasible to derive a “cumulative noise impact”.	Request consideration of the cumulative impact of combined development noise levels at receptors through combined predictions and contour maps.

Request	Applicant response	Assessment of applicant response	Recommendation
	relationships for Road, Rail and Aircraft noise. No guidance is provided for assessing the combined effects of exposure to multiple sources of noise. Whilst total noise from multiple sources can be determined, there is no reliable dose-response data to show what the effect of these combined sources of noise is on people. Therefore, it is more appropriate to consider the noise sources separately and determine the overall effect. We are therefore confident that the approach taken in the Environmental Statement (ES) is robust and any revised transport modelling that may be undertaken to confirm significant impacts should adopt a receptor-based approach, rather than a noise contour approach.	ProPG (Professional Practice Guidance on Planning & Noise) provides guidance on the assessment of cumulative noise from transport sources on new residential development. ProPG uses the combined free-field noise level from all transport sources and also commercial noise where the character of the commercial noise is not dominant to provide an initial risk of noise at proposed development sites. The area within the 50 dB $L_{Aeq,8hr}$ contour, which can be found in the Ecology Chapter of the ES (shown in Figure 2.1 included below) and above would be classified as “Medium Risk” and an Acoustic Design Statement would be required to demonstrate how the adverse impacts of noise would be mitigated and minimised and also be required to clearly demonstrate that a significant adverse noise impact is avoided. The IEMA Guidelines for Environmental Noise Impact Assessment recommend that the change in noise levels as well as the absolute noise levels are considered. At present the noise assessments do not consider the total noise level or the total change in noise levels and so the ‘with development’ and the ‘without development’ scenarios are difficult to fully consider. It is noted that without the consideration of the cumulative sources noise of air noise, ground noise, traffic noise and plant noise the predicted significance of the effect may be understated. It is understood the noise assessments of the for the Heathrow expansion DCO are using combined noise impact contours. Note: See Figure 2.1 beneath this Table 2.1.	

Request	Applicant response	Assessment of applicant response	Recommendation
		Combined noise level predictions at receptor locations should be provided in addition to the noise contours.	
6. a note on the use of the 60 dB LAeq (16 hour) day indicator time contour rather than a 30 minute period/individual indicator noise events in assessing impacts on sensitive schools and community facilities	This query was raised in the noise hearing in the context that UK design guidelines for the upper limit for internal levels in schools (Acoustic design of schools: performance standards - Building bulletin 93) are defined as 30-minute period noise levels whilst, the ES presents screening criteria for schools as LAEQ,16hr. Significant effects on the schools are predicted when the screening criteria is exceeded by 3dB or more. If the airport operates an evenly distributed timetable, the LAEQ,16hr at a given receptor would be equivalent to the LAEQ,16hr. A distorted timetable could result in 30-minute periods throughout the day which are higher or lower than the LAEQ,16hr. Whilst this is possible, we consider that the 16hr metric is an appropriate ES screening criteria that will reliably identify schools which will typically and regularly be exposed to noise levels that could lead to exceedances of guideline values of BB93. The screening criteria adopted in the ES is consistent with other major infrastructure schemes examined and approved by the Secretary of State, such as High Speed 2 Phase 1 and the A14 Huntingdon to Cambridge Improvement Highway Scheme.	The Applicant has provided a note that states that HS2 Phase 1 and the A14 Huntingdon to Cambridge Improvement Highway Scheme did not consider the BB93 metric of $L_{Aeq,30mins}$ and used $L_{Aeq,16hr}$ as the screening criteria. Single mode (westerly and easterly) $L_{Aeq,30mins}$ and $L_{A01,30mins}$ contours would allow the potential impact on schools and outdoor teaching to be assessed. BB93 recommends that at least one area suitable for outdoor teaching activities is below 50 dB $L_{Aeq,30mins}$.	Request single mode $L_{Aeq,30mins}$ and $L_{A01,30mins}$ contours so the effect on schools, in particular the outdoor curriculum, can be considered.

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	Furthermore, we consider that there are sufficient safeguards in place to protect all schools potentially effected by noise from the airport. Paragraph 3.4 of the revised Noise Mitigation Plan [REP4-023 Revised Noise Mitigation Plan] commits to assess the need for mitigation at all schools within the 50dB LAeq,16hr noise contour. This is regardless of whether a significant effect has been identified at the school or not. All schools will have an assessment undertaken which takes into account the design criteria set out in BB93 since, as agreed in principle with Public Health England [paragraphs 4.1.18 and 4.1.19 of the Draft Statement of Common Ground between the Applicant and Public Health England, REP4-008], paragraph 3.2 of the revised Noise Mitigation Plan now makes reference to BB93 in the definition of “reasonable” noise insulation and ventilation for schools: “3.2 For the purposes of this paragraph a reasonable level of noise insulation and ventilation is defined according to the use of the building in question. In the case of schools, “reasonable” in this context means: 3.2.1 taking account of the existing building structure; (a) a level of insulation and ventilation designed to achieve acoustic conditions inside rooms consistent with BB93: acoustic design of schools – performance standards; or		

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	(b) where existing conditions already exceed acoustic conditions defined in BB93, a level of insulation and ventilation designed, as a minimum, to maintain existing acoustic conditions inside classrooms. (c) alternative ventilation which avoids overheating in classrooms."		
7. a note on 'dose-response curves' and where the onset of annoyance from aviation noise begins to occur	Annoyance is a commonly used indicator to measure the quality of life impact of environmental noise exposure on communities around airports. Annoyance responses from social surveys together with noise exposure data are used to determine exposure-response relationships (ERFs). For annoyance, ERFs are usually expressed the percentage of the population highly annoyed (%HA) by a noise source at a given level. In 2017 the WHO completed a systematic review of the evidence surrounding the different health determinants of noise, including annoyance. The review informed the recommendations set out in WHO's 2018 guidance on noise (Environmental Noise Guidelines for the European Region, WHO 2018). Figure 13 of this guidance presents Exposure response Functions (ERFs) from 12 aircraft noise studies. (It is important to note that the noise metric on the y-axis is Lden not LAEQ,16hr. A common conversion between the two metrics is LAEQ,16hr = Lden - 2dB).	The Applicant has provided a note on the annoyance indicator summarising current research and policy. It is noted that the CAA's 2014 Survey of Noise Attitudes (SoNA) sampled populations living near airports. These studies are made on populations habituated to aircraft noise and with Manston Airport not having operated in the past 5 years the population around Manston should not be considered as habituated to aircraft noise. In consequence, the annoyance for the population around Manston airport is likely to be greater than indicated by the SoNA study.	Request consideration of onset of annoyance in populations not habituated to aircraft noise.

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	There is a large variation in the ERFs between the studies, however, a clear relationship between increasing annoyance with increasing noise level can be seen. WHO undertook a regression analysis of the data in all studies to generate an ERF. This is shown as a black line in the figure. *[Note: see figure provided beneath this Table 2.1.]* It is important to note that WHO's most recent guidance provides guidance on the onset of effects. It does not define limit values, nor does it set "effect levels" (LOAEL, SOAEL UAEL etc). The WHO Environmental Guidelines for the European Region (2018) state that "data and exposure–response curves derived in a local context should be applied whenever possible to assess the specific relationship between noise and annoyance in a given situation". This is acknowledged by Government in their draft aviation strategy who make the following statement on the WHO 2018 guidance: "3.106 There is also evidence that the public is becoming more sensitive to aircraft noise, to a greater extent than noise from other transport sources, and that there are health costs associated from exposure to this noise. The government is considering the recent new environmental noise guidelines for the European region published by the World Health Organisation (WHO).73 It agrees with the		

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	ambition to reduce noise and to minimise adverse health effects, but it wants policy to be underpinned by the most robust evidence on these effects, including the total cost of action and recent UK specific evidence which the WHO report did not assess." Since the EIA for Manston Airport commenced, government has set LOAEL values for aircraft noise in its Response to consultation on noise policy in 2017: "2.70 The government acknowledges the evidence from recent research which shows that sensitivity to aircraft noise has increased, with the same percentage of people reporting to be highly annoyed at a level of 54 dB LAeq 16hr as occurred at 57 dB LAeq 16 hr in the past. The research also showed that some adverse effects of annoyance can be seen to occur down to 51dB LAeq. 2.71 Taking account of this and other evidence on the link between exposure to noise from all sources and chronic health outcomes, we will adopt the risk based approach proposed in our consultation so that airspace decisions are made in line with the latest evidence and consistent with current guidance from the World Health Organisation. 2.72 So that the potential adverse effects of an airspace change can be properly assessed, for the purpose of informing decisions on airspace design and use, we will set a LOAEL at 51 dB		

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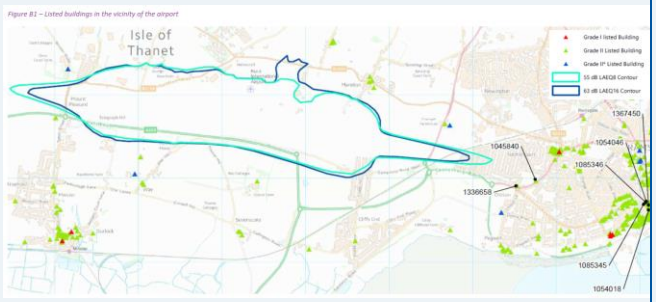
	LAeq 16 hr for daytime, and based on feedback and further discussion with CAA we are making one minor change to the LOAEL night metric to be 45dB LAeq 8hr rather than Lnight to be consistent with the daytime metric. These metrics will ensure that the total adverse effects on people can be assessed and airspace options compared. They will also ensure airspace decisions are consistent with the objectives of the overall policy to avoid significant adverse impacts and minimise adverse impacts." The "recent research" referenced is the CAA's 2014 Survey of Noise Attitudes (SoNA 2014). SoNA 2014 sampled populations living near nine airports in England (Birmingham; East Midlands; Gatwick; Heathrow; London City; Luton; Manchester; Newcastle; and Stansted), with 77% of the sample living around Heathrow airport. The ERF derived from the SoNA study is presented below . *[Note: see the table provided beneath this Table 2.1.]*		
8. a breakdown of the components of the overall cost estimate	A breakdown of the components of the overall cost estimate for the Revised Noise Mitigation Plan is provided as Appendix C.	The Applicant has provided a cost breakdown of the £5.6 million provision in the Noise Mitigation Plan (NMP). Within this total there is £2,750,000 allocated for noise insulation and ventilation, including for some properties in "Smugglers Leap Caravan Site". No mention is made if it is feasible to install the noise insulation and ventilation to a	Request further information from the Applicant on how effective noise insulation and ventilation will be on park homes and if noise

Request	Applicant response	Assessment of applicant response	Recommendation
for the Revised Noise Mitigation Plan [REP4-022] including an assessment of the measures needed to be undertaken at the Smugglers Leap residential caravan park		park home, or if relocation will be given if the noise installation and ventilation does not give suitable performance to the park homes. It is noted that £5,000 relocation allowance has been made available for 8 properties. This does not consider if the noise insulation and ventilation can be effectively applied to the park homes at Smugglers Leap or if they will need to be relocated.	mitigation and ventilation cannot be suitably applied consideration for relocation will be made. For clarity further clarification on the 8 properties where a relocation allowance has been made available is sought from the Applicant.
9. a note clarifying the operation in practice of Section 7 of the Revised Noise Mitigation Plan [REP4-022] including the form and frequency of monitoring reports on	No response given in main document but updated section 7 of revised NMP provides the information.	The Applicant has not provided a response in the main response document. Nevertheless, inspection of the NMP shows that the Applicant has committed to producing quarterly reports detailing complaints and any monitored noise level breaches and off-track flights.	No further action requested.

Request	Applicant response	Assessment of applicant response	Recommendation
infringements and on late arrivals			
10. an estimate of the possible number of late running passenger and freight flights that could land between 2300-0600 in a year	No response given.	The Applicant has not provided a response in the main response document. Nevertheless, inspection of Appendix 3 shows the Applicant has provided details of Ryanair summer 2019 arrivals after 22:00 but this does not provide the requested information.	A response to the request should be provided that covers all passenger and freight flights. It is of particular concern that no response has been provided on the potential freight flights at night.
11. a list of the QC2 and QC4 aircraft used in the assessment for the quota count	The following table lists QC2 and QC4 aircraft from the forecast. *[Note: see table provided beneath this Table 2.1).*	The Applicant has provided a list of the QC2 and QC4 aircraft from the forecast. The QC4 aircraft is a Boeing 747-400. It is understood the Applicant seeks to have a QC4 limit at night. The Applicant states there will be no departures at night so it is unclear why QC4 are to be allowed when other airports such as Heathrow have introduced a QC2 limit at night.	Request note on why a QC4 limits are required instead of a QC2 limit.
12. a note on Basner, 2006 assessment of additional wakenings being based on observations at an existing operational	We acknowledge that the Basner 2006 study (Aircraft noise effects on sleep: Application of the results of a large polysomnographic field study. The Journal of the Acoustical Society of America 119, 2772 (2006) was based on residents already exposed to aircraft noise. The study investigated 61 residents in the vicinity of Cologne / Bonn airport over 9 nights. It is the most comprehensive study on aircraft noise awakenings to date. As acknowledged by Public	The Applicant provides a response stating that it is considered unlikely that an equivalent study at a new airport would alter the conclusions of the ES. The Applicant also considers that between the assessment years (Year 2 and Year 20) the population would become habituated to the night flights. The Applicant states that "*In Year 20 the number of events was significantly below the threshold for triggering additional awakenings*". The Applicant does not seem to have considered the potential for awakenings	Request further information from the Applicant on how many awakenings there would be across the population overflow at night, rather than the potential for awakenings in an individual.

Request	Applicant response	Assessment of applicant response	Recommendation
airport where the surrounding population have to an extent become habituated to night flights	Health England [paragraphs 4.1.15 of the Draft Statement of Common Ground between the Applicant and Public Health England REP4-008] the data still under-pins the most recent WHO guidelines on sleep disturbance (Environmental Noise Guidelines for the European Region: A Systematic Review on Environmental Noise and Effects on Sleep). Similar studies have not been undertaken for new airports. Our study of additional awakenings was undertaken in Year 2 and Year 20. In Year 20, the surrounding population will have become habituated to aircraft noise. In Year 20 the number of events was significantly below the threshold for triggering additional awakenings. In Year 2, the forecast aircraft movements are much lower. In Year 2 paragraph 12.7.56 of the ES [APP-033,034,035] stated that “N-above contours demonstrate that residential properties in the vicinity of the Proposed Development will be exposed to up to one aircraft noise event in excess of 80 dB LASmax on an average night “. This is a very low number of noise events. Because of this, and whilst the Basner research is based on people already exposed to aircraft noise, it is considered unlikely that an equivalent study for a new airport would alter the conclusions of the ES for the opening, even if such a study was available. It should also be noted that the ban on scheduled night flights between 23:00 and 06:00	across the population overflown and appears to be only considering an awakening in an individual.	

Request	Applicant response	Assessment of applicant response	Recommendation
	will mean that typically flights will be limited to the hour between 06:00 and 07:00 which is a less sensitive part of the night period.		
13. a list of locally or nationally listed buildings falling within the proposed noise insulation and ventilation scheme	Figure B1 in Appendix B of this document identifies listed buildings in relation to the noise insulation and ventilation scheme contour for Manston Airport. The figure demonstrates that there are no listed buildings within the noise insulation and ventilation scheme eligibility contours. During the noise hearings, the ExA made reference to listed buildings at Nethercourt Estate and Liverpool Lawn. The applicant can confirm that these buildings do not fall inside the noise insulation and ventilation scheme contour. Listed buildings at the Nethercourt Estate comprise two Grade II listed gate lodges to the former Nethercourt Park (Figure B1 1045840 Upper Lodge and 1336658 Lower Lodge). Liverpool Lawn is within the centre of Ramsgate and comprises Georgian terraced houses focused around a central lawn. There are a number of Grade II listed building entries, many of which comprise multiple properties. These comprise 1054018 (Figure B1), Nos 1-19 inclusive, with railed areas; 1085345 (Figure B1) 20, 21 and 22, Liverpool Lawn; 1085346 (Figure B1) 24-33, Liverpool Lawn; 1367450 (Figure B1) Liverpool House, Liverpool Villa, Nos 34 and 35 and railings; and 1054046 (Figure B1) Grace Cottage.	The Applicant states that there are no listed buildings within the noise insulation and ventilation scheme eligibility contours. The contours provided are the 63dB $L_{Aeq,16hour}$ and 55 dB $L_{Aeq,8hr}$ night contours and repeated below in Figure 1.2. These contours show the residential eligibility criteria. It is not clear if Listed Buildings with a community purpose such as St Lawrence Church or Ramsgate Library are within the 60 dB $L_{Aeq,16hr}$ contour area as this is not shown. It is also considered the eligibility should be based on the westerly or easterly operations rather than the average across operations. Please see assessment of request point 1. Figure 1.2 Applicants Noise Eligibility Contour and Listed Buildings 	The Applicant is to provide details of Listed buildings that considers the updated contour plans referenced under point 1 and / or the 60 dB $L_{Aeq,16hr}$ or $L_{Aeq,30mins}$ (in the case of schools) contour maps referenced in the previous column.

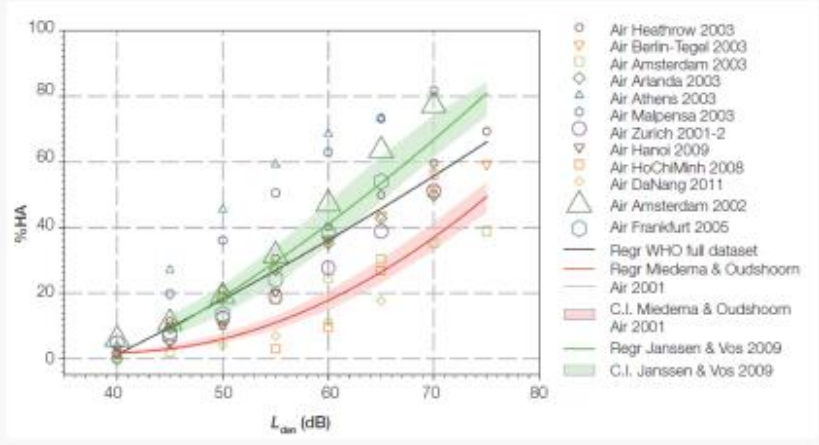
Request	Applicant response	Assessment of applicant response	Recommendation
	There are further Grade II listed buildings immediately to the north-east at Adelaide Terrace and to the south at Prospect Terrace.		
14. a third revision to the Noise Mitigation Plan including inter alia clarification of structures and procedures of the Community Consultative Committee	A revised version of the Noise Mitigation Plan has been submitted.	The review is presented in section 3 of this technical note.	Please see section 3 request.
15. an expression of the commitment made that there would be no night time construction working during the works to bring the airport back	No Response	The Applicant does not appear to have submitted a response.	A response to the request should be provided by the Applicant.

Request	Applicant response	Assessment of applicant response	Recommendation
into operation, including a definition of 'night time' including a statement as to whether this includes start up and close down times and construction traffic movements and where this commitment may be secured			
16. Consider a tailored mitigation scheme (Note – this Request does not appear on the ExA note of the documentation to be	The Aviation Policy Framework States the following regarding tailored noise insulation and compensation: "3.40 Any potential proposals for new nationally significant airport development projects following any Government decision on future recommendation(s) from the Airports Commission would need to consider tailored compensation schemes where appropriate…." The correct interpretation of the above statement is that there is no single 'off the shelf' noise mitigation scheme that could be applied to	The Applicant has provided a response that states that the NMP and the noise insultation and ventilation scheme has been tailored to individual circumstances. It is generally agreed that the NMP provides a tailored mitigation scheme. Part of the response may, however, not be correct. The statement "*The provision of noise insulation will avoid the significant adverse effects of those newly exposed to noise inside their homes as a result of the opening of Manston Airport, covering the cost of insulation and ventilation*" assumes that the noise insulation and ventilation will be effective enough on all homes, this, however, may not be the case for example the park homes. The statement would	The NMP is considered as a tailored mitigation scheme. Further consideration of the mitigation scheme is presented in section 2 of this report.

Request	Applicant response	Assessment of applicant response	Recommendation
provided at Deadline 5).	all UK airports; any noise mitigation scheme needs to be tailored to the circumstances of the individual airport. Therefore, in the case of Manston Airport, the noise insulation and ventilation scheme has been tailored to individual circumstances in the following ways: • Noise insulation is offered for night time noise as well as daytime noise. Night time noise has been a major concern for stakeholders and raised throughout consultation on the scheme; • The provision of noise insulation will avoid the significant adverse effects of those newly exposed to noise inside their homes as a result of the opening of Manston Airport, covering the cost of insulation and ventilation; • The plan seeks to ensure that the scheme is proactive in that preferred contractors will be appointed to manage and carry out the works, rather than leaving this to property owners; • Where impacts that cannot be mitigated directly or do not fall within the noise insulation and ventilation contour, a separate community trust fund has been established to provide compensatory measures to be determined through consultation and to be administered by a community consultative committee.	also assume that £10,000 compensation will be sufficient for all properties and it is contended that may not be the case and purchase and relocation may be required.	

Request	Applicant response	Assessment of applicant response	Recommendation
	• A community consultative committee with an independent chair will be established to oversee the implementation of the Noise Mitigation Plan. • A school's liaison committee will be established; and • The effectiveness of the scheme will be monitored by the Community Consultative Committee. Further details of the scheme can be found in the Noise Mitigation Plan; however, it is certainly the case that compensation is tailored and that the commitments within the Noise Mitigation Plan go beyond the minimum Aviation Policy recommendation to offer "financial assistance towards insulation" to properties exposed to noise levels above 63dB LAEQ,16hr.		

The figure below is part of the applicant response for request 7.



The table below is part of the applicant response for request 7:

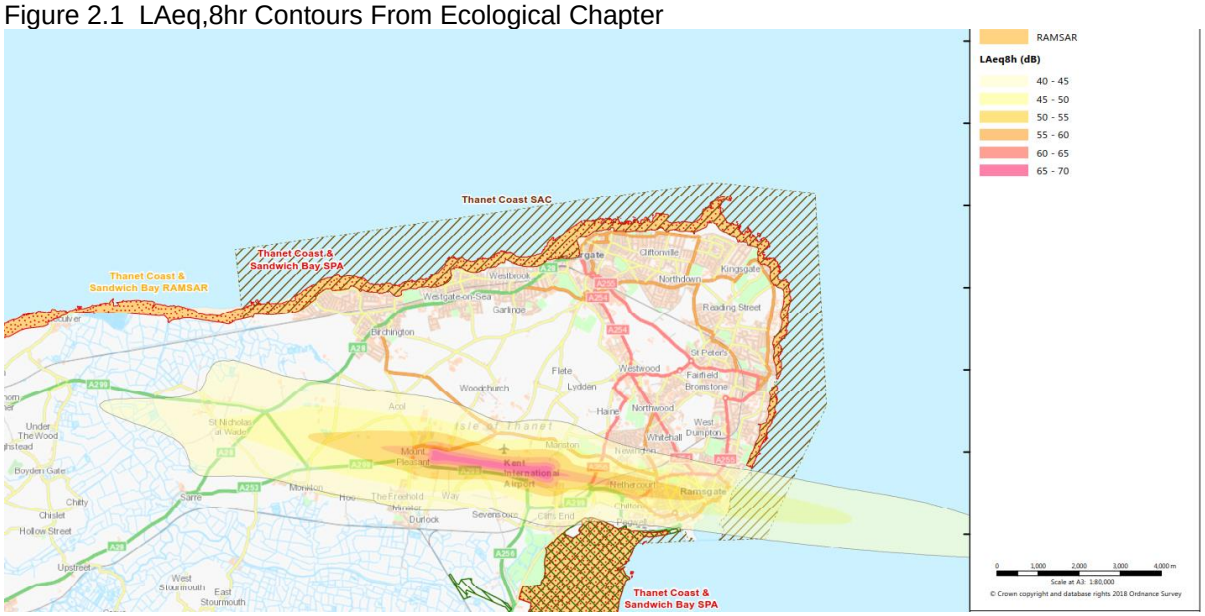
Average summer day noise exposure, $L_{Aeq,\ 16h\ (dB)}$	% highly annoyed
	SoNA 2014
51	7%
54	9%
57	13%
60	17%
63	23%
66	31%
69	39%

The table below is part of the applicant response for request 11:

Approach		Departure	
IATA Code	Aircraft model	IATA Code	Aircraft model
QC 2			
744	Boeing 747-400	76V	Airbus A330-200
		77X	Lockheed L-100 Hercules
		748	Boeing 747-800
		76Y	Boeing 767-400
		332	Boeing 767-300
		LOH	Boeing 777-200
QC 4			
N/A		744	Boeing 747-400

The figure below is figure 2.1 and is part of the assessment of applicant response for request 5:

Figure 2.1 LAeq,8hr Contours From Ecological Chapter



3 Review of revised noise mitigation plan

3.1 Introduction

This section provides comment on the changes to the Noise Mitigation Plan (RiverOak Strategic Partners, 29 March 2019, Revised Noise Mitigation Plan (Tracked), Examination Document) which was revised following the noise specific hearing.

The changes include:

- Emphasis on the ventilation as part of the noise insulation scheme.
- Confirmation that aircraft with a quota count of 8 and 16 cannot take off or land between 2300 and 0700.
- Confirmation that the annual quota applies during the hours of 2300 and 0700.
- Confirmation that an aircraft is deemed to have taken off or landed during the night time period by the appropriate air traffic controller unit as airborne or landed.
- Confirmation that for the relocation settlement all potentially affected dwellings will be valued within twelve months of the making of the Manston Airport DCO.
- Notification of occupiers of properties potentially eligible for the noise insulation and ventilation scheme and for the purchase and relocation assistance scheme.
- Reports on complaints received and the response to the complaints.
- Reports on breaches of mandated noise levels and off-track flights, including fines and levies paid into the Community Trust Fund.
- Confirmation there will be no open field testing of jet engines between 2300 and 0700.
- Daytime open field testing will take place in the airfield itself and in areas used by aircraft in normal operations.

3.2 Noise Mitigation Plan Assessment of Changes

The Noise Mitigation Plan was updated to take into account some of the questions asked and requests made at the noise issue specific hearing. The emphasis of the inclusion of ventilation within the noise insulation scheme is welcomed. It is also welcomed that the notification of potential eligibility will be made to the property occupier and that the Applicant will manage the installation of noise insulation and ventilation.

3.3 Noise Mitigation Plan Recommendations

It is recommended the Noise Mitigation Plan is updated for the following:

- Noise insulation and rehousing to be based on separate westerly and easterly contours that are likely to represent actual noise exposure on a particular summer day rather than a notional average of the two.
- QC2 limit for night time movements.
- Demarked engine test area to be set out in a plan attached with the DCO and that this is located away from noise sensitive receptors and at a location agreed with the Local Authority.
- Details on how effective noise insulation and ventilation will be on park homes and if noise mitigation and ventilation cannot be suitably applied that consideration for relocation will be made.

- Request single mode $L_{Aeq,30mins}$ and $L_{A01,30mins}$ contours so the effect on schools, in particular the outdoor curriculum, can be considered.

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