

LONDON SOUTHEND AIRPORT

NOISE ACTION PLAN

Adopted by the Secretary of State

4 August 2014

CONTENTS

Section	Page
EXECUTIVE SUMMARY	2
INTRODUCTION	3
STRATEGIC NOISE MAPPING 2011	3
DESCRIPTION OF THE AIRPORT	3
THE AUTHORITY RESPONSIBLE	4
THE LEGAL CONTEXT	4
International and National Regulatory Framework for Aircraft Noise	4
Local Policy Framework	5
EXISTING NOISE LIMITS	6
The Lease	6
Planning Conditions	6
Noise Abatement Procedures	6
SUMMARY OF THE RESULTS OF NOISE MAPPING	6
EVALUATION OF THE ESTIMATED NUMBER OF PEOPLE EXPOSED TO NOISE, IDENTIFICATION OF PROBLEMS AND SITUATIONS THAT NEED TO BE IMPROVED	8
PUBLIC CONSULTATION	10
EXISTING AND FUTURE NOISE REDUCTION MEASURES	11
FINANCIAL INFORMATION	14
EVALUATION	14
EXPECTED OUTCOME	14
APPENDIX A DEFRA Noise Maps	16

EXECUTIVE SUMMARY

This Noise Action Plan has been prepared in accordance with EU directives and DEFRA guidelines. It is the second Noise Action Plan and is based on Noise Mapping for 2011 as required by the guidelines, although the level of activity was significantly lower than 2012 and subsequent years. However, more recent information is included in the Airport's Annual Report.

The Noise Action Plan describes the Airport and notes that it handled 25,470 aircraft movements and 42,439 passengers in 2011. In 2012 it handled 27,715 aircraft movements and 617,000 passengers. The Authority responsible for the Noise Action Plan is London Southend Airport Company Ltd., part of the Stobart Group.

The legal context is described including the international and national regulatory framework for aircraft noise and the local policy framework.

The noise limits (in 2011) are set out as in the lease between Southend-on-Sea Borough Council and the Airport, and in Planning Conditions and a Section 106 agreement. Noise abatement procedures are published in the UK Aeronautical Information Package.

The 2011 Noise Mapping shows the areas within various noise contours and the numbers of people exposed to various noise levels. These areas and numbers have declined since the previous Noise Action Plan based on 2006 data. One noise sensitive premise is identified within the specified contour. The number of complaints in 2011 is noted, although the vast majority of these were from one person.

The draft Noise Action Plan was presented to the Airport Consultative Committee and its comments noted.

The Noise Action Plan sets out existing and future noise reduction measures which, in summary, are as follows:

- Limits on the number of night flights
- A limit on the annual number of flights
- Restrictions on engine testing
- Restrictions on noisier aircraft
- Departure routes
- Runway preference
- A quiet operations policy
- Property purchase and noise insulation grant schemes

Information on the expenditure to date (primarily on noise and track keeping equipment) is provided. Evaluation of the measures takes place through the annual reporting system. The expected outcome describes the number of properties in certain specified noise contours, as set out in the Annual Report.

The Noise Maps are provided at Appendix A.

INTRODUCTION

- 1 This Noise Action Plan has been prepared in accordance with the Environmental Noise (England) Regulations 2006 (as amended) (the “Regulations”). These Regulations transposed the EU Environment Noise Directive (2006/93), known as END, relating to the assessment and management of environmental noise into UK legislation and make the preparation of a Noise Action Plan for a number of different noise sources, including airports, a legal requirement.
- 2 Government, through the Department for Environment, Food and Rural Affairs (DEFRA), issued updated Guidelines in July 2013 to airport operators to explain how to prepare Noise Action Plans. This is the second Noise Action Plan for London Southend Airport and so the process is that described in section 5 of the Guidelines. The Guidelines are detailed and airport operators must have regard to them in drawing up their Noise Action Plans. The sections in this Noise Action Plan follow those suggested in the Guidelines. The Guidelines also outline the requirements for consulting on the draft plans. Consultation on a draft plan has taken place and this draft is now submitted to Government for approval.
- 3 The Guidelines included a timetable for consultation and submission of Noise Action Plans. The noise mapping on which this Noise Action Plan is based is for 2011, at which time the Airport was operating at a significantly lower level of activity than in 2012 and subsequently. The Airport sought a delay in the preparation of the noise mapping but DEFRA ruled that there was no flexibility of timescale allowed in the END. The noise mapping in this Noise Action Plan, while legally compliant, is therefore of value only as a historic record. However, noise contours for 2012 and other noise monitoring information have been published in the Airport's Annual Report.
- 4 The Noise Action Plan is required to include proposed actions in the next five years. In anticipation of adoption in 2014, this is taken to be the period 2014 to 2019.

STRATEGIC NOISE MAPPING 2011

- 5 A Strategic Noise Mapping Report, describing the situation in 2011, was submitted to DEFRA in December 2012.

DESCRIPTION OF THE AIRPORT

- 6 Southend Airport lies immediately to the north of Southend-on-Sea. Rayleigh lies to the west of the airport. Rochford lies to the northeast of the airport site. The Thames estuary lies on the other side of Southend-

on-Sea to the south of the airport site. The runway is aligned southwest-northeast.

- 7 In 2011, all terminal, aprons, cargo buildings and airside facilities were situated on land to the south of the runway with the exception of the maintenance area which is situated on land to the north of the runway. The runway, bearing 06/24, was 1605 m long. A northwest-southeast taxiway crosses the runway and serves all airside facilities. CAA airport statistics show that in 2011 Southend Airport had 25,470 aircraft movements, of which 1,702 were air transport movements and 129 were military, and served 42,439 passengers.
- 8 Details of aircraft operations, including traffic distribution by aircraft type, flight tracks, dispersion, flight profiles and traffic distribution by route for the Base Case are given in the Strategic Noise Mapping Report.
- 9 In 2012 a new terminal and apron was opened near the eastern boundary of the Airport, alongside a new rail station, and the runway has been extended to the south west to give a total length of 1799 m. The terminal has subsequently been extended, with the full extension to open in early 2014. Actual numbers of passengers and aircraft movements for 2011 and 2012, together with the forecasts used in the runway extension planning application are shown in Table 1.

Type	2011 Actual	2012 Actual	2020 Forecast
Passengers	0.042 million	0.617 million	1.97 million
Aircraft movements	25,470	27,715	53,300

Table 1: Actual and Forecast Activity

THE AUTHORITY RESPONSIBLE

- 10 As defined in the Guidelines, the Authority responsible for preparing this Noise Action Plan is London Southend Airport Company Ltd, part of the Stobart Group.

THE LEGAL CONTEXT

International and National Regulatory Framework for Aircraft Noise

- 11 Regulations 18 and 19 of The Environmental Noise (England) Regulations 2006 (as amended) require airports to draw up an action plan and submit it to the Secretary of State.
- 12 The Aviation Policy Framework was published in March 2013, after consultation, and contains a section on noise which includes reference to Noise Action Plans.

- 13 In seeking to minimise the impact of aircraft noise, airports are bound by the Government's regulatory framework, which follows the agreed principles set out by the International Civil Aviation Organisation (ICAO), known as the 'balanced approach'. In summary the 'balanced approach' requires the consideration of the contribution to noise amelioration that can be made by each of the following measures:
- reducing aircraft noise at source;
 - land-use planning;
 - noise abatement operational procedures; and
 - restrictions on the use of the noisiest aircraft.
- 14 When considering the need for operating restrictions, ICAO urges that they are not employed as a first resort and that they are only employed after careful consideration of the benefits to be gained from all other elements of the balanced approach. This is part of the Government's overall 'control, mitigate and compensate' approach. This is comprehensively explained in the Aviation Policy Framework.
- 15 In April 2013, the UK Sustainable Aviation Group launched a Noise Road Map which provides a tool kit for achieving improvements and estimates how the various elements will contribute towards the reduction in noise over the next 30 years. This Noise Road Map includes a number of references to the role of Noise Action Plans.
- 16 The Civil Aviation Act 2006 affords airports the powers to establish and enforce a noise control scheme. The noise control scheme can have wide-ranging powers including limits on the numbers or types of aircraft that are permitted to operate, penalties on those that fail to comply with noise abatement procedures and charging mechanisms to incentivise airlines to operate quieter aircraft types.
- 17 The National Planning Policy Framework (NPPF) was published in March 2012 and replaced a number of guidance notes including Planning Policy Guidance Note 24 – Planning and Noise. However, the NPPF does not include specific guidance on development control in areas affected by aircraft noise and this is now left to local authorities.

Local Policy Framework

- 18 The local policy framework is set out in the Southend-on-Sea Core Strategy, Saved Policies of the Southend Borough Local Plan and Rochford Replacement Local Plan.
- 19 Parts of Southend Airport lie in Rochford District Council and Southend-on-Sea Borough Council and the two local authorities have prepared a Joint Area Action Plan (JAAP) for Southend Airport and Environs. A Preferred Options report was published in February 2009. At the time of

preparing this draft Noise Action Plan, the Councils are preparing the Submission version of the JAAP

- 20 Planning permission for the runway extension and associated developments was granted in May 2010 and was accompanied by a Section 106 agreement. Planning permission for the terminal extension was granted in June 2012 and a further extension was permitted in March 2013.

EXISTING NOISE LIMITS

- 21 Noise at Southend Airport is limited by three regulations: the lease; planning conditions; and noise abatement procedures. Details of the limits imposed by each of these regulations are set out later in this Noise Action Plan under the heading Existing and Future Noise Reduction Measures.

The Lease

- 22 Southend Airport is held on a 150 year lease from Southend-on-Sea Borough Council from 1994. The lease was amended in 2012 to include the runway extension.

Planning Conditions

- 23 Planning conditions and a Section 106 agreement apply to a new terminal, permission for which was granted in outline in 1999 and in detail in 2004. However, these conditions have now been incorporated in a new set of conditions which accompany the planning permission granted for the runway extension.

Noise Abatement Procedures

- 24 Noise abatement procedures are published in the UK Aeronautical Information Package (AIP) for Southend Airport.

SUMMARY OF THE RESULTS OF NOISE MAPPING

- 25 The Strategic Noise Mapping report of December 2012 gave the following results based on actual aircraft movements for 2011. The contours are reproduced at Appendix A. The areas within the contours for the following periods are set out in Tables 2 to 6 below. For the 24 hour measure (L_{den}), comparable figures for 2006 are available and are shown in the table.

- L_{den} (24 hour) - Table 2

- L_{day} (12 hour 0700-1900) - Table 3
- L_{evening} (4 hour evening 1900-2300) - Table 4
- L_{Aeq16h} (16 hour daytime 0700-2300) - Table 5
- L_{night} (8 hour night 2300-0700) - Table 6

For the 24 hour period the unit is a L_{Aeq} for the whole 24 hour period but includes weightings depending on when during the 24 hour period the noise occurs. If the noise is during the 12 hour day there is no adjustment, if it is during the evening a weighting of +5 dB(A) is added, and if it is at night a weighting of +10 dB(A) is added. The unit is therefore biased to respond more to noise in the evening, and particularly at night, than during the 12 hour day.

- 26 To compute the noise contours, each period is considered separately and a L_{Aeq} determined for it. The weightings are then added to the evening and night L_{Aeq} s and then the L_{Aeq} s for the three periods are added together taking into account the period durations. In movement terms the effect of the weightings is equivalent to more than trebling the number of movements during the evening and multiplying by ten the number of movements at night.

Contour Level (dB L_{den})	Area of L_{den} Air Noise Contours (km ²)	
	2006	2011
55	3.17	1.7
60	1.18	0.7
65	0.49	0.3
70	0.25	0.1

Table 2: Noise Contour Areas - L_{den} (24h Period): 2006 and 2011

Contour Level (dB L_{day})	Area of L_{day} Air Noise Contours (km ²)
54	2.5
57	1.4
60	0.9
63	0.5
66	0.3
69	0.2

Table 2: Noise Contour Areas - L_{day} (12h Period): 2011

Contour Level (dB L_{evening})	Area of L_{evening} Air Noise Contours (km ²)
54	0.7
57	0.4
60	0.2
63	0.1
66	0.1
69	<0.1

Table 3: Noise Contour Areas - L_{evening} (4h Period): 2011

Contour Level (dB $L_{Aeq,16h}$)	Area of $L_{Aeq,16h}$ Air Noise Contours (km ²)
54	2.1
57	1.2
60	0.7
63	0.5
66	0.3
69	0.2

Table 4: Noise Contour Areas - Daytime (16h Period): 2011

Contour Level (dB L_{night})	Area of L_{night} Air Noise Contours (km ²)
48	0.7
51	0.4
54	0.2
57	0.1
60	0.1

Table 5: Noise Contour Areas - L_{night} (8h Period): 2011

- 27 The only noise sensitive premises within these contours is the Avro Adult Training Centre. The nearest contours for this are set out in Table 7 below. As this is a training establishment only the daytime contours are noted.

Premises	L_{den}	L_{day}	L_{Aeq16h}
Avro Adult Training Centre, Avro Road, SS2 6UX	60	60	57

Table 7: Noise levels at Noise Sensitive Premises 2011

EVALUATION OF THE ESTIMATED NUMBER OF PEOPLE EXPOSED TO NOISE, IDENTIFICATION OF PROBLEMS AND SITUATIONS THAT NEED TO BE IMPROVED

- 28 The number of people exposed to the noise levels identified in the Strategic Noise Mapping report for 2011 has been estimated by DEFRA in Tables 8 to 12 below, compared with the 2006 figures .

Contour Level (dB L_{den})	Number of Dwellings		Number of People	
	2006	2011	2006	2011
≥55	2,100	400	4,800	1,000
≥60	200	<100	400	100
≥65	<50	<100	<100	<100
≥70	0	0	0	0

Table 8: Dwellings and People in Noise Contour Areas - L_{den} (24h Period): 2006 and 2011

Contour Level (dB L _{day})	Number of Dwellings		Number of People	
	2006	2011	2006	2011
≥54	2,500	1,000	5,700	2,200
≥57	950	200	2,200	500
≥60	150	<100	300	200
≥63	<50	<100	<100	<100
≥66	<50	<100	<100	<100
≥69	0	0	0	0

Table 9: Dwellings and People in Noise Contour Areas - L_{day} (12h Period): 2006 and 2011

Contour Level (dB L _{Aeq,4h})	Number of Dwellings		Number of People	
	2006	2011	2006	2011
≥54	350	<100	800	100
≥57	50	<100	100	<100
≥60	50	<100	<100	<100
≥63	0	0	0	0

Table 10: Dwellings and People in Noise Contour Areas - L_{evening} (4h Period): 2006 and 2011

Contour Level (dB L _{Aeq,16h})	Number of Dwellings		Number of People	
	2006	2011	2006	2011
≥54	1,950	700	4,400	1,500
≥57	650	200	1,400	300
≥60	100	<100	200	100
≥63	<50	<100	<100	<100
≥66	<50	<100	<100	<100
≥69	0	0	0	0

Table 11: Dwellings and People in Noise Contour Areas - L_{Aeq,16h} (16h Period): 2006 and 2011

Contour Level (dB L _{Aeq,8h})	Number of Dwellings		Number of People	
	2006	2011	2006	2011
≥48	950	<100	2,200	<100
≥51	150	<100	300	<100
≥54	<50	<100	<100	<100
≥57	<50	0	<100	0
≥60	0	0	0	0

Table 12: Dwellings and People in Noise Contour Areas - L_{night} (8h Period): 2006 and 2011

- 29 The DEFRA Guidance recommends that Airports should consider whether any action is required based on a number of considerations, including the numbers of people within the 69 dB L_{Aeq,16h} contour, any wider considerations from the numbers exposed to noise at different times of the day and night, complaints and issues raised by consultative committees. As noted above, there are no people within the 69 dB L_{Aeq,16h} contour and the numbers in each of the contour levels at various times of the day and night do not give rise to significant levels of complaint.
- 30 For the year relating to the Strategic Noise Mapping (2011), there were 782 complaints relating to aircraft movements at Southend Airport. However, 678 were from one person and, with the agreement of the Consultative Committee, correspondence with this and some other

complainants was suspended. The noise comments procedure was changed in 2012 following feedback from the local community and with the agreement of the Consultative Committee. Noise comments can be made via an online submissions form or in writing and are recorded in a database. An investigation takes place and a response is sent, normally within seven days. A summary of comments and responses is presented in the annual report to the Consultative Committee.

- 31 The DEFRA Guidance does not require acoustic insulation to be offered to households exposed to a particular level of noise, but the Airport operates a scheme to offer sound and thermal insulation to properties within the 63 L_{Aeq16h} contour. As noted in Table 11 above, there were less than 100 such dwellings in 2011. Details of the scheme are set out later in this Action Plan under the heading Existing and Future Noise Reduction Measures.

PUBLIC CONSULTATION

- 32 In accordance with the DEFRA Guidelines, the draft was presented to the Consultative Committee for comment on 20 November 2013. The Consultative Committee raised four points as noted below, together with a response:

- The Committee pointed out the difference in annoyance from various sources. In response, it is noted that the Noise Mapping is based on different metrics for different sources of noise such as aviation, roads and railways.
- The Committee suggested that Continuous Descent Approaches and changes to the point at which the undercarriage is lowered should be considered. In response the Airport has indicated that this will be considered as part of the ongoing dialogue with airlines in the context of the Sustainable Aviation Noise Road Map.
- The Committee noted the particular difference between night and daytime noise. In response, it is noted that the Noise Mapping measures night noise separately from daytime noise and also gives a weighting to night noise in the 24 hour measure. The Action Plan gives specific consideration to night operations using number limits and Quota Counts.
- The Committee asked for information about the difference in shape of the noise contours at each end of the runway. This is explained by the predominant landing and take off patterns which result in longer but thinner contours at the south west end where there are more landings than take offs.

EXISTING AND FUTURE NOISE REDUCTION MEASURES

- 33 The DEFRA Guidance suggests that existing noise reduction measures are reviewed against the Noise Mapping exercise, and proposed future noise reduction measures are noted, in both a five year and long term timescale.
- 34 This Noise Action Plan considers the 2011 noise reduction measures against the 2011 level of activity, and the current noise reduction measures which have been in place since 2012. For the post 2012 Case, the measures are set out in detail in the Section 106 agreement dated 30 April 2010 which accompanied the planning permission for the runway extension, as varied on 20 June 2012. These are summarised in Table 13 below, but the definitive wording of the measures is in the Section 106 agreement. Except where noted, the 2012 measures will all be implemented within a five year timescale, or when the relevant development is completed.

2011	Post 2012
Night defined as 0000 (Midnight) to 0600	Night defined as 2300 to 0630 local time
Night flying between 2359 and 0600 is limited to certain numbers of particular types of aircraft which, in summary, means that up to 915 aircraft movements are permitted per month, with a daily limit of 46.	<p>a. Only 120 Aircraft Movements (“the Monthly Quota”) shall be permitted during Night Time Hours (2300-0630hrs local time) in any one calendar month, subject to the provisions set out in (b) - (d) below.</p> <p>b. Delayed and diverted aircraft movements are excluded from the Monthly Quota.</p> <p>c. No aircraft with a noise level exceeding QC1¹ nor any helicopter shall take off or land during Night Time Hours unless they are emergency flights, military flights, Government business flights, police flights or flights of QC exempt aircraft (none of such flights shall be included in the Monthly Quota).</p> <p>d. No passenger flights may be scheduled to arrive or depart during Night Time Hours, <u>except</u> that up to a maximum of 90 passenger flights in any one calendar month may be scheduled to arrive between 23:00 and 23:30 local time, such flights to be included in the Monthly Quota.</p> <p>Note: An Aircraft Movement is defined as an aircraft (whether fixed wing or rotary) taking-off or landing at an airport. One arrival and one departure are counted as two movements.</p>
No limit on aircraft movement numbers	<p>a. Total aircraft movement numbers to be capped at 53,300 per annum, excluding emergency flights, military flights, Government business flights or police flights.</p> <p>b. Total aircraft movements by Boeing 737-300 aircraft shall not exceed 2,150 per annum.</p> <p>c. The total number of dedicated cargo aircraft movements to be limited to 5,330 per annum, or 10% of the total number of aircraft movements, whichever is the lesser.</p>
Engine testing permitted 0800-2000 (jets), 0800-2100 (propeller).	Engine testing permitted 0800-2000 (Mon-Sat), 0900-1800(Sundays).
No controls on noisier aircraft	No aircraft with a noise level exceeding QC2 shall take off or land at any time, unless they are emergency flights, military flights, Government business flights or police flights, maintenance flights or diversions. QC4 aircraft using the airport for maintenance may land or take off only during the Day Time (0630-2300 hrs) and the total QC4 aircraft movements will be limited to 60 per annum.

Table 13 (part 1): 2011 and Post 2012 Noise Reduction Measures

Note 1: QC = Quota Count, is a system of allocating a noise value to individual aircraft types. Examples are A319 = QC0.5, B737 = QC1, B727 = QC4.

2011	Post 2012
<p>Aircraft departure routes:</p> <p>a. On departure from either runway all propeller driven aircraft must climb straight ahead to at least 600 ft aal before turning. On departure from Runway 24 propeller driven aircraft requiring a left turn shall, after passing on 600 ft aal, maintain a track of 190° to the north bank of the River Thames, or until Detling DME 13 nm or less, before turning onto the required track.</p> <p>b. Jet aircraft departing from either runway shall climb straight ahead to a minimum height of 1000 ft aal before turning.</p> <p>c. Between the hours of 2300 and 0700 (winter), 2200-0600 (summer), aircraft with a MTWA exceeding 5700 kg on departure from Runway 24 must climb straight ahead to a minimum height of 1500 ft before turning left or right.</p>	<p>On take off aircraft weighing over 5.7 tonnes (Maximum take off weight (MTOW)) will be required to maintain a runway heading and climb to at least 1,500 feet before they may turn at 2.5nm Distance Measuring Equipment (DME) when taking off to the SW (runway 24 departure) or at 1.0nm DME when taking off to the NE (runway 06 departure). Other than to maintain safety or in exceptional circumstances, this procedure shall be followed in all cases</p>
<p>No runway preference</p>	<p>At night (2300-0630hrs local) the airport will introduce a runway preference arrangement for aircraft to operate to and from the North East. Where wind conditions allow and it is safe to do so, aircraft will land from the North East (on runway 24) and take off to the North East (on runway 06). This will ensure that flying activity will minimise any nuisance to densely populated areas during night hours. During the Day Time (0630-2300 hrs) the airport will operate a runway preference arrangement, where aircraft will land from the North East (on runway 24) and take off to the North East (on runway 06), where movement volumes allow. In addition fewer than 50% of all aircraft movements will be over the South West. This will reduce the impact of aircraft movements over the densely populated areas of Leigh-on-Sea and Eastwood. The level of aircraft movements will be based on a 12 month rolling monitoring period to allow for adverse weather conditions. This will ensure that flying activity will minimise any nuisance to densely populated areas during Day Time hours.</p>

Table 13 (part 2): 2011 and Post 2012 Noise Reduction Measures

2011	Post 2012
No noise and track keeping monitoring system.	The airport will introduce a Quiet Operations Policy which includes the appointment of a Noise Manager and the implementation of a noise monitoring system .
No Property Purchase or Noise Insulation Grant Schemes.	The airport shall introduce <ul style="list-style-type: none"> • a Property Purchase Scheme - providing for the offering to purchase properties affected by both high levels of noise (69dB_{L_{Aeq}} over the period 0700-2300hrs or more); and • a Noise Insulation Grant Scheme - offering to pay 100% of the cost of installing secondary double glazing or 50% of the cost of installing primary double glazing to any residential property which suffers from both a medium to high level of noise (63dB_{L_{Aeq}} over the period 0700-2300hrs or more).

Table 13 (part 3): 2011 and Post 2012 Noise Reduction Measures

FINANCIAL INFORMATION

- 35 There was no expenditure relating to the Noise Insulation Grant Scheme during 2012. Qualifying property owners have been contacted but to date only one has expressed an interest but the works have not been completed, although £300 has been spent on surveying the property in 2013. Expenditure will continue in the next five years depending on the rate of take up of the Scheme and any changes resulting from changes in the number of dwellings within the contours.
- 36 £114,000 has been invested in noise and track monitoring equipment with an ongoing annual maintenance cost of £18,000.

EVALUATION

- 37 Monitoring of individual aircraft tracks and noise now takes place using the noise and track keeping systems. Evaluation of the measures takes place by annual reports to the Consultative Committee, including noise complaint reports, the first of which was published in May 2013.

EXPECTED OUTCOME

- 38 The 2013 Annual Report noted above includes a section on noise which includes 2012 noise contours. The report notes that there were no properties in the 69 dB L_{Aeq16h} contour and 17 properties in the 63 dB L_{Aeq16h} contour which qualify for the Sound and Thermal Insulation Scheme. The 2012 57 dB L_{Aeq16h} contour is shown which is larger than the equivalent 2011 contour (as would be expected with the increase in aircraft movements between 2011 and 2012) but similar to that for 2006.

The contours will be re-evaluated every two years as required by the Section 106 Agreement and the Property Acquisition and Sound and Thermal Insulation Schemes will be aligned with any changes to the contours.

APPENDIX A

DEFRA Noise Maps

Map 1: Noise Contour Areas - L_{den} (24h Period): 2011

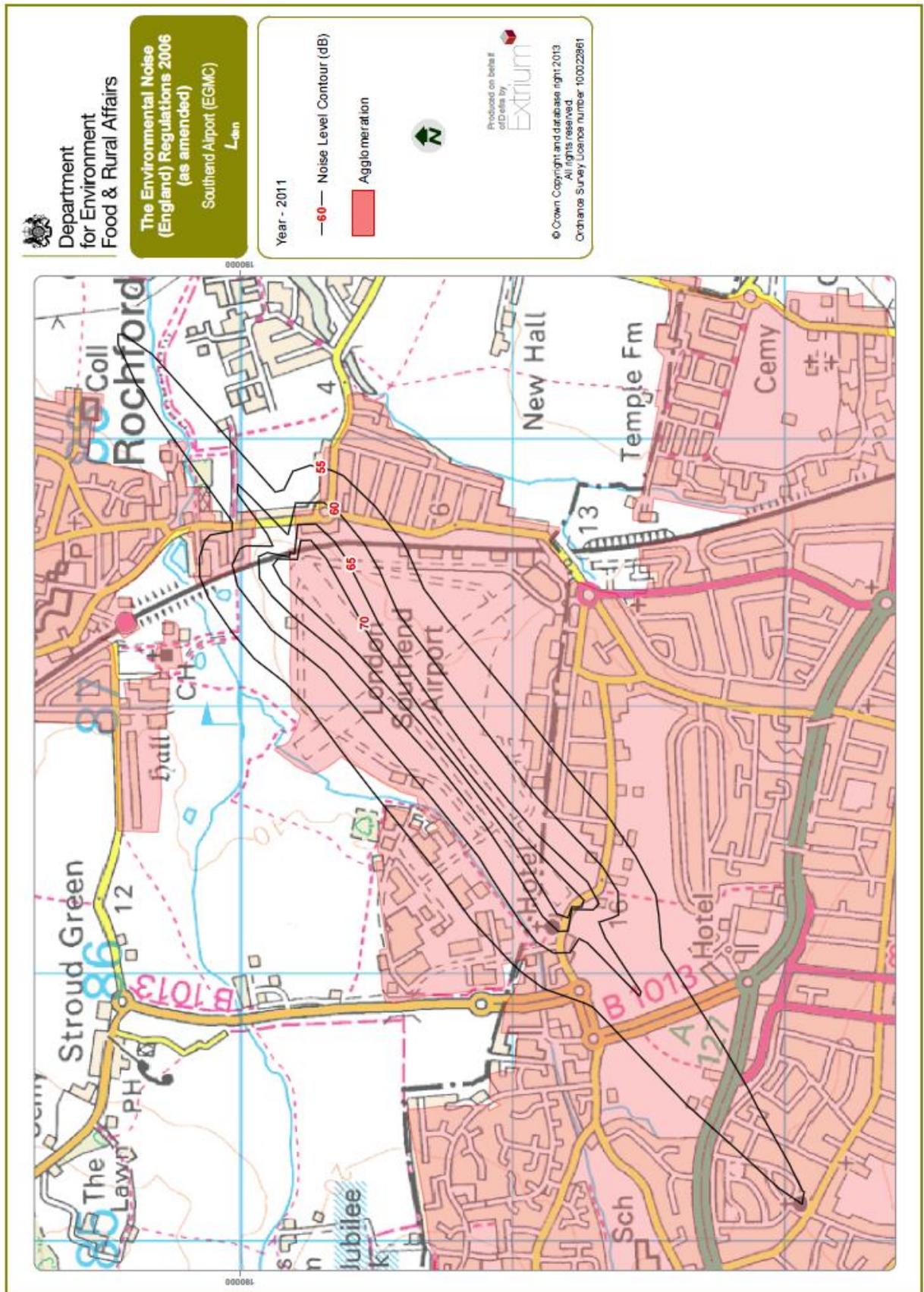
Map 2: Noise Contour Areas - L_{day} (12h Period): 2011

Map 3: Noise Contour Areas - $L_{evening}$ (4h Period): 2011

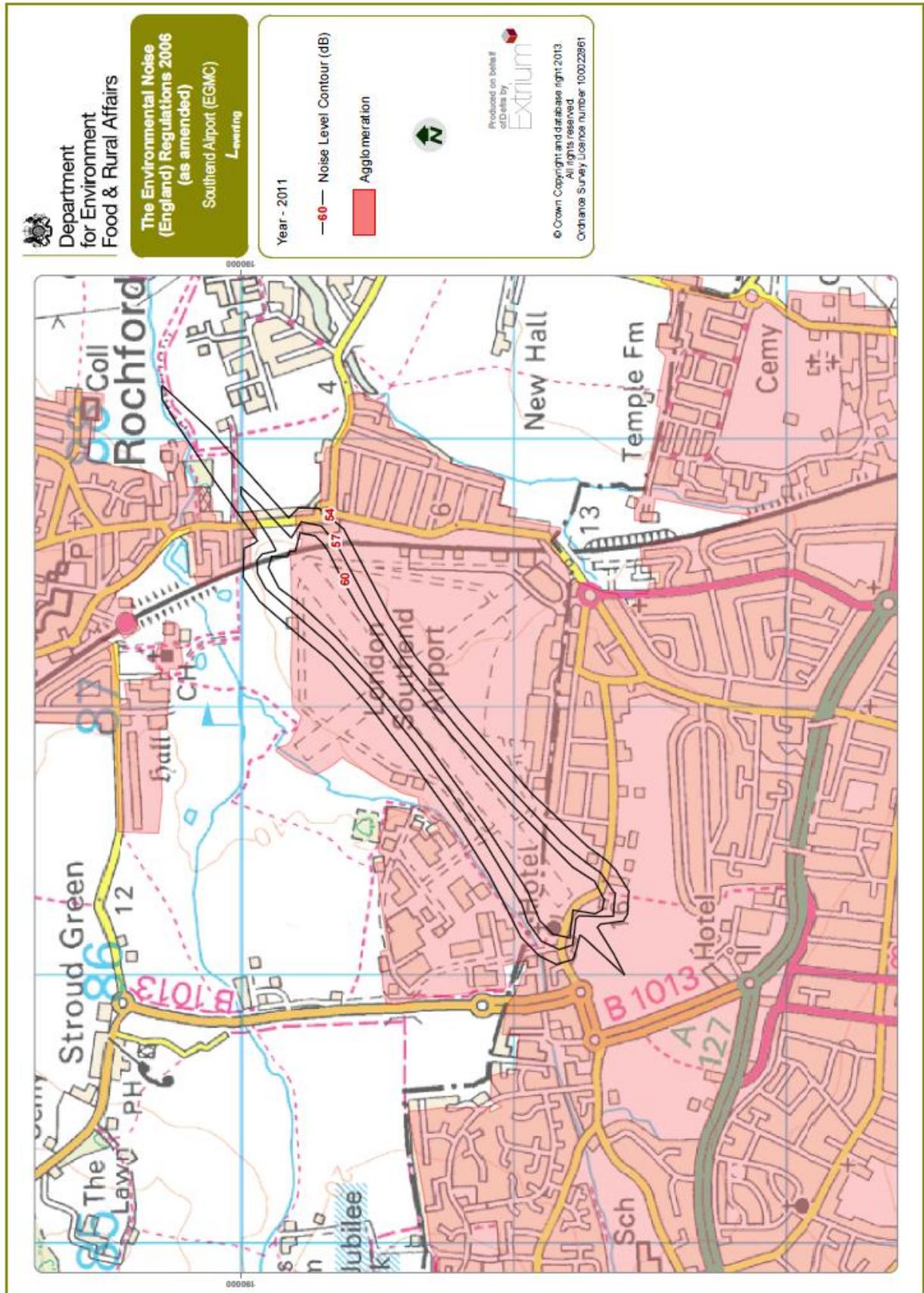
Map 4: Noise Contour Areas - L_{Aeq16h} (16h Period): 2011

Map 5: Noise Contour Areas - L_{night} (8h Period): 2011

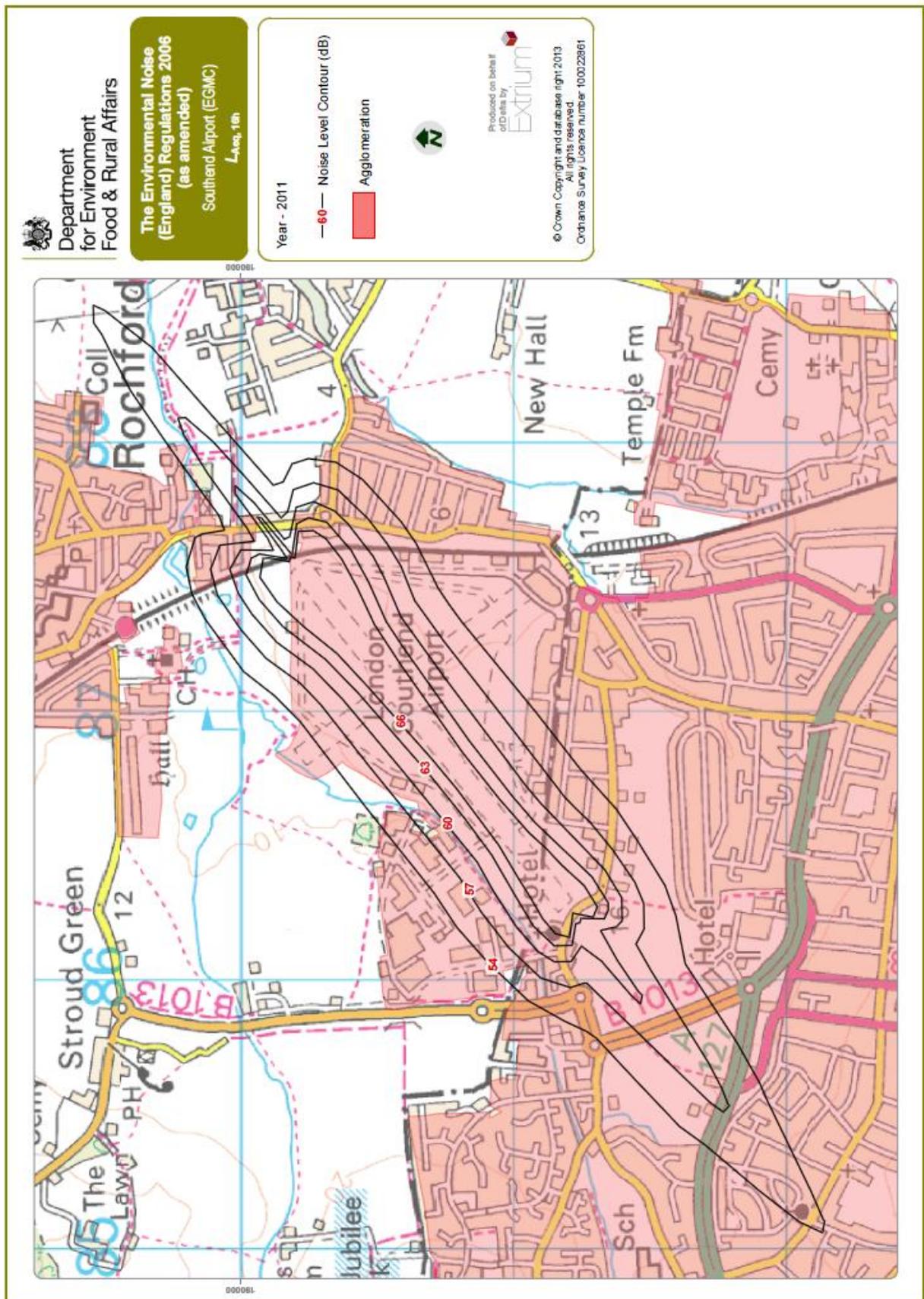
Map 1: Noise Contour Areas - L_{den} (24h Period): 2011



Map 3: Noise Contour Areas - Levening (4h Period): 2011



Map 4: Noise Contour Areas - L_{Aeq16h} (16h Period): 2011



Map 5: Noise Contour Areas - L_{night} (8h Period): 2011

