

LONDON LUTON AIRPORT

A11060-N03-DR

23 November 2017

ACTUAL 2017 AND FORECAST 2018 SUMMER NOISE CONTOURS

1.0 INTRODUCTION

When planning permission was given in 2014 for development at Luton Airport (Application No: 12/01400/FUL) a number of conditions were imposed. Condition 12 requires that daytime and night-time contours are produced on an annual basis, for the previous summer period based on actual ATM data, and for the following summer period based on predicted ATM data. The areas of these contours are to be compared to the limits contained in Condition 12.

London Luton Airport Operations Limited (LLAOL) have retained Bickerdike Allen Partners LLP (BAP) to produce airborne aircraft noise contours for the 92 day summer period based on the actual movements for 2017.

LLAOL have also provided BAP with a forecast for 2018 based on the movements in summer 2017. Using this, forecast summer contours have been produced.

The resulting contours for 2017 and 2018 provide part of the information required to comply with Condition 12. Also required is information on the current QC Annual Budget for 2017, which will be determined once the year is complete.

2.0 CONTOUR PRODUCTION

Aircraft movement data for use in the contour production has been supplied by LLAOL. The contour production methodology is the same as that used for the quarterly night noise contours for 2017. That is, with the inclusion of terrain, the INM software (Version 7.0d) has been used with a validation based on measured results in 2016 at the fixed noise monitors.

The methodology is similar to that used for the 2016 summer contours. The main difference is the validation for 2017, which has been adjusted based on quieter measured noise levels for the Airbus A319 and A320 on departure. The changes to the contour prediction methodology for 2017 are described in the note A11060-N01-NW.

3.0 NOISE CONTOUR RESULTS

The resulting noise contours for 2017 and 2018 are shown in the attached Figures A11060-N03-01 to A11060-N03-04. They are presented at values from 57 to 72 dB $L_{Aeq,16h}$ (daytime) and 48 to 72 dB $L_{Aeq,8h}$ (night time). The area of each noise contour is given in Table 1 (daytime) and Table 2 (night time), and compared with the corresponding values for the 2016 contours.

The modal split for summer 2017 was similar to 2016 with 83% westerly and 17% easterly, compared with 84% westerly and 16% easterly in summer 2016. In terms of movements, the daytime movements increased marginally from 32,584 in 2016 to 32,718 in 2017. Night time movements showed a larger increase, from 4,945 to 5,592. There have been some slight changes in aircraft mix, with the proportion of daytime movements by the Airbus A320 (new engine option) and the Airbus A321 increasing from 2016 to 2017 at the expense of those for the Airbus A319 and Boeing 737-800. At night the majority of the increase in movements from 2016 to 2017 is due to the Airbus A320 (both current and new engine options), while movements by other aircraft types have remained largely similar.

For the 2018 forecast, the average modal split from the 5 preceding years has been used, which results in 75% of movements using runway 26. This has been applied equally to each aircraft type. The forecast is based on the movements in summer 2017 with an increase in commercial movements of 3% in both the daytime and night time periods, and an increase of 1% in GA movements in the daytime period only.

Contour Value (dB $L_{Aeq,16h}$)	Contour Area (km ²)		
	2016	2017	2018 (forecast)
57	19.2	19.0	19.4
60	10.6	10.3	10.5
63	6.2	5.9	6.0
66	3.2	3.0	3.1
69	1.7	1.7	1.7
72	1.0	1.0	1.0

Table 1: Area of Daytime Summer Noise Contours, 2016, 2017 and 2018 (forecast)

Considering the 57 dB $L_{Aeq,16h}$ daytime noise contour there is a decrease in area of approximately 1% when comparing the 2017 contour with the 2016 contour. This is largely due to the updated validation for 2017.

A comparison of 2016, 2017 and 2018 forecast daytime 57 dB $L_{Aeq,16h}$ contours is shown in Figure A11060-N03-05. This shows that the 2016, 2017 and 2018 forecast contours are all very similar, with the slight differences in shape being primarily due to differences in modal split.

Contour Value (dB L _{Aeq,8h})	Contour Area (km ²)		
	2016	2017	2018 (forecast)
48	36.5	38.7	39.6
51	20.7	22.3	22.7
54	11.5	12.2	12.4
57	6.3	6.3	6.4
60	3.3	3.4	3.5
63	1.7	1.8	1.8
66	1.0	1.0	1.1
69	0.6	0.7	0.7
72	0.4	0.4	0.4

Table 2: Area of Night Time Summer Noise Contours, 2016, 2017 and 2018 (forecast)

Considering the 48 dB L_{Aeq,8h} night time noise contour there is an increase in area of approximately 6% when comparing the 2017 contour with the 2016 contour. This is largely due to the 13% increase in movement numbers, although this is partially offset by the updated 2017 validation.

The 48 dB L_{Aeq,8h} 2018 contour is forecast to grow by 2% compared to the 2017 contour. This is largely due to the forecast 3% increase in commercial aircraft movements.

A comparison of 2016, 2017 and 2018 forecast night time 48 dB L_{Aeq,8h} contours is shown in Figure A11060-N03-06. This shows that the 2017 contour is larger than the 2016 contour, particularly at the western end near Caddington. The contour is also slightly larger at the south-western end south of Markyate. The 2017 contour is very similar to the 2016 contour at the eastern end despite the increase in night movements, this is due to the changes in modal split and validation.

The 2018 forecast contour is slightly wider and shorter than the 2017 contour at the eastern end, larger at the western end and slightly shorter at the south-western end, these slight change in shape are due to the change in modal split.

4.0 SUMMARY

As can be seen from in Table 1 the area of the daytime 57 dB $L_{Aeq,16h}$ contour has decreased slightly from 2016 to 2017. This is largely due to the updated 2017 validation based on quieter measured noise levels for the Airbus A319 and A320 on departure. The area of the 57 dB $L_{Aeq,16h}$ contour is forecast to increase slightly between 2017 and 2018. This is largely due to the slight forecast increase in movements. The resulting 57 dB $L_{Aeq,16h}$ contour for 2018 has an area of 19.4 km², equal to the planning limit of 19.4 km², both the 2016 and 2017 contour areas were below the limit.

Table 2 shows the area of the night time 48 dB $L_{Aeq,8h}$ contour has increased by approximately 6% from 2016 to 2017, largely due to the increase in movements. The 2017 contour has an area of 38.7 km², which exceeds the planning limit of 37.2 km². The area of the 48 dB $L_{Aeq,8h}$ contour for 2018 is forecast to increase slightly over 2017 to an area of 39.6 km².

Duncan Rogers

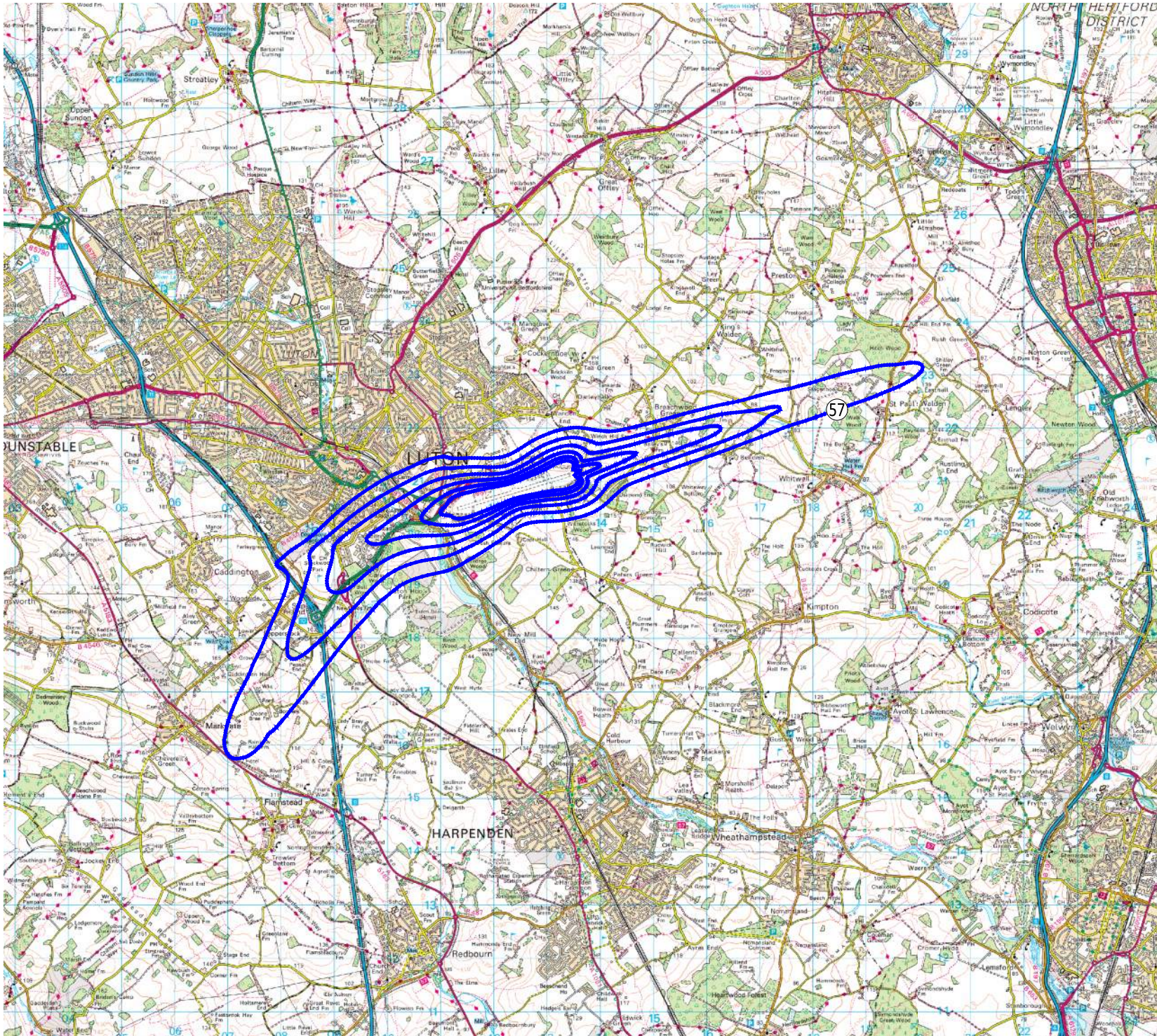
for Bickerdike Allen Partners

Nick Williams

Acoustic Consultant

Peter Henson

Partner



This drawing contains Ordnance Survey data © Crown Copyright and database right 2017.

LEGEND:

- Noise Contours,
57 to 72 dB LAeq,16h in 3 dB steps

REVISIONS

**Bickerdike
Allen
Partners**
Architecture
Acoustics
Technology

121 Salusbury Road, London, NW6 6RG
Email: mail@bickerdikeallen.com T: 0207 625 4411
www.bickerdikeallen.com F: 0207 625 0250

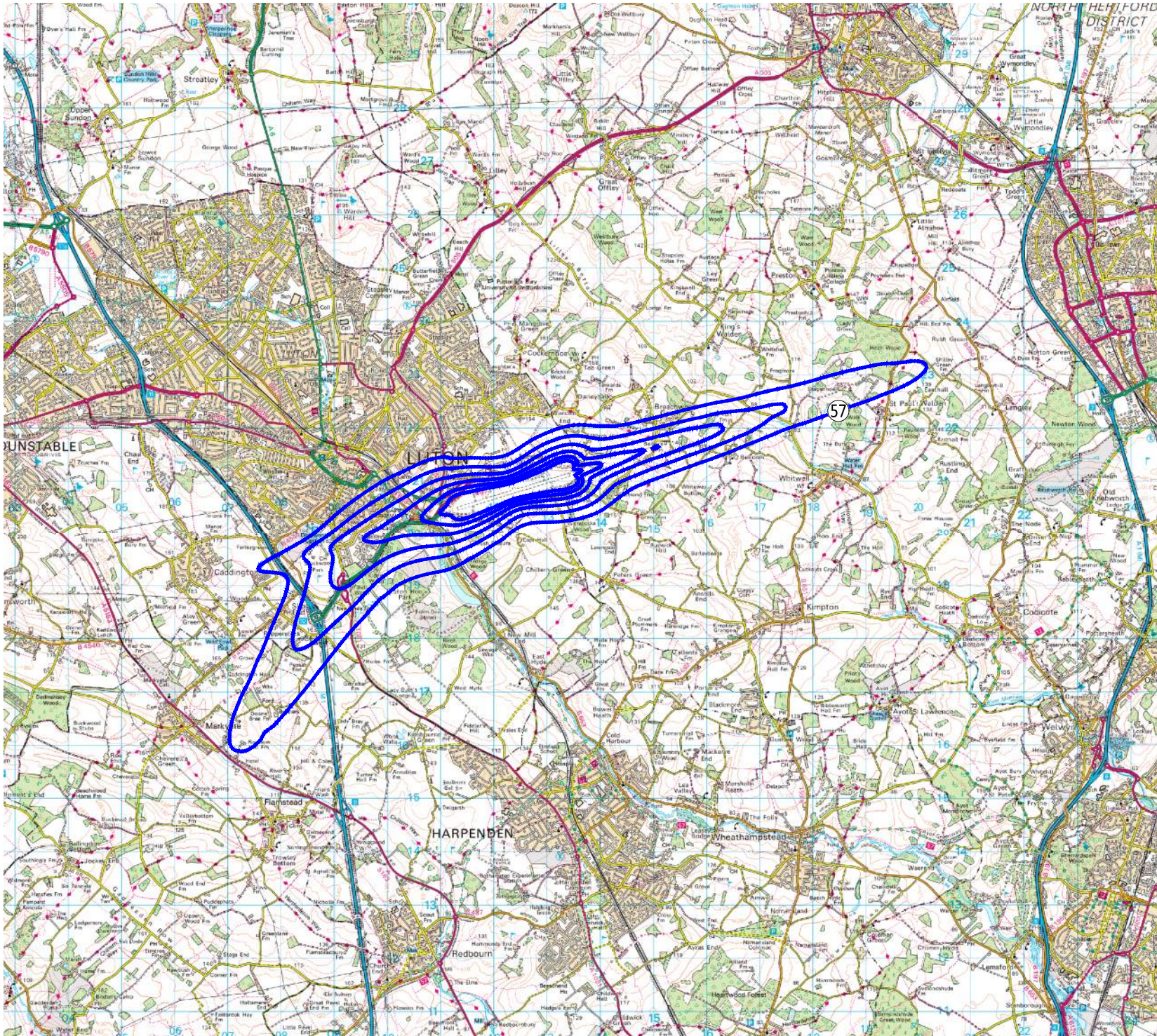
London Luton Airport
Regular Contouring

Airborne Aircraft Noise Contours
2017 Summer Actual Daytime

DRAWN: DR CHECKED: DC

DATE: November 2017 SCALE: 1:100000@A4

FIGURE No:
A11060/N03/01



This drawing contains Ordnance Survey data © Crown Copyright and database right 2017.

LEGEND:

- Noise Contours, 57 to 72 dB LAeq,16h in 3 dB steps

REVISIONS

**Bickerdike
Allen
Partners**
Architecture
Acoustics
Technology

121 Salusbury Road, London, NW6 6RG
Email: mail@bickerdikeallen.com T: 0207 625 4411
www.bickerdikeallen.com F: 0207 625 0250

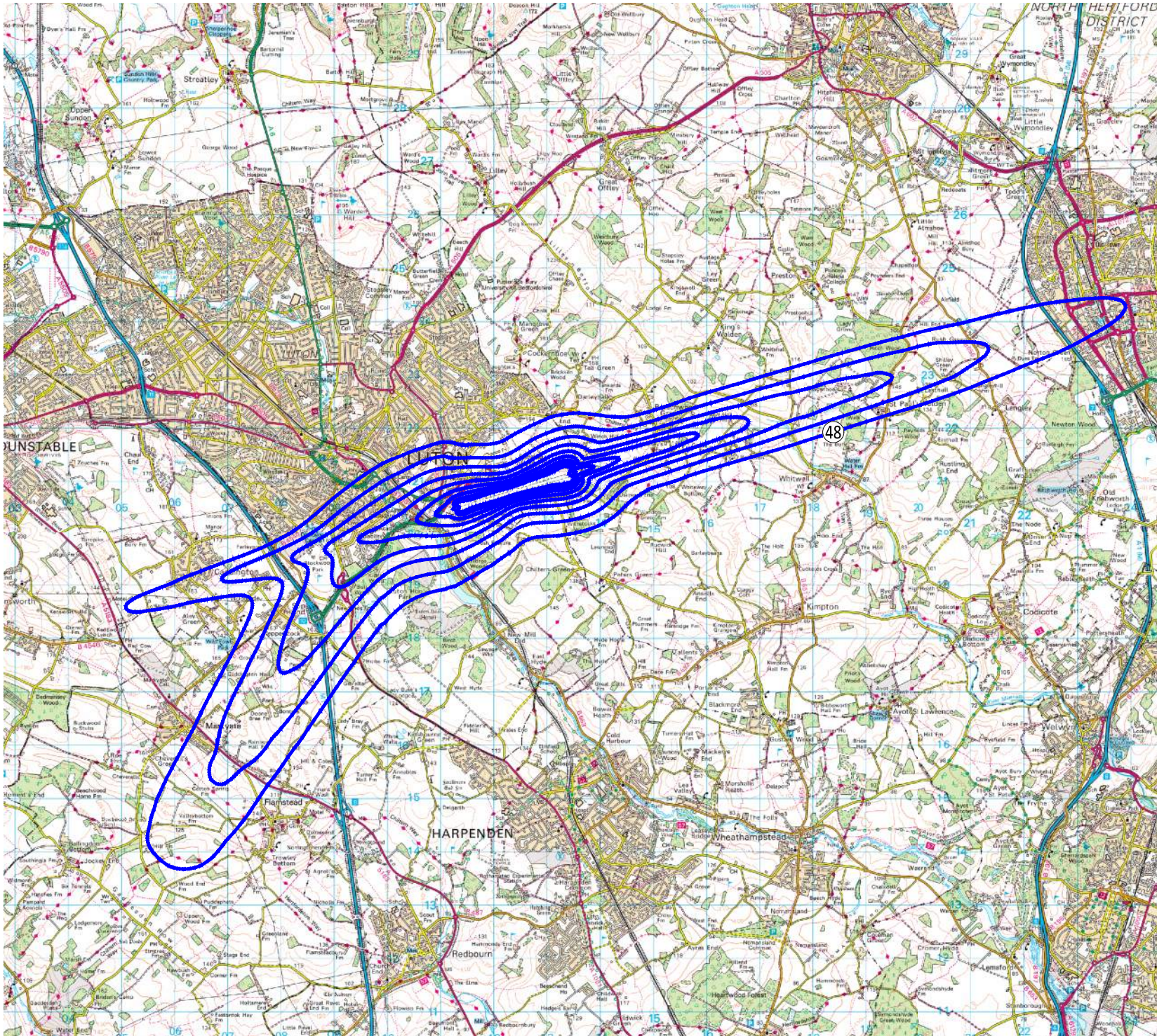
London Luton Airport
Regular Contouring

Airborne Aircraft Noise Contours
2018 Summer Forecast Daytime

DRAWN: DR CHECKED: DC

DATE: November 2017 SCALE: 1:100000@A4

FIGURE No: A11060/N03/02



This drawing contains Ordnance Survey data © Crown Copyright and database right 2017.

LEGEND:

— Noise Contours,
48 to 72 dB LAeq,8h in 3 dB steps

REVISIONS

**Bickerdike
Allen
Partners**
Architecture
Acoustics
Technology

121 Salusbury Road, London, NW6 6RG
Email: mail@bickerdikeallen.com T: 0207 625 4411
www.bickerdikeallen.com F: 0207 625 0250

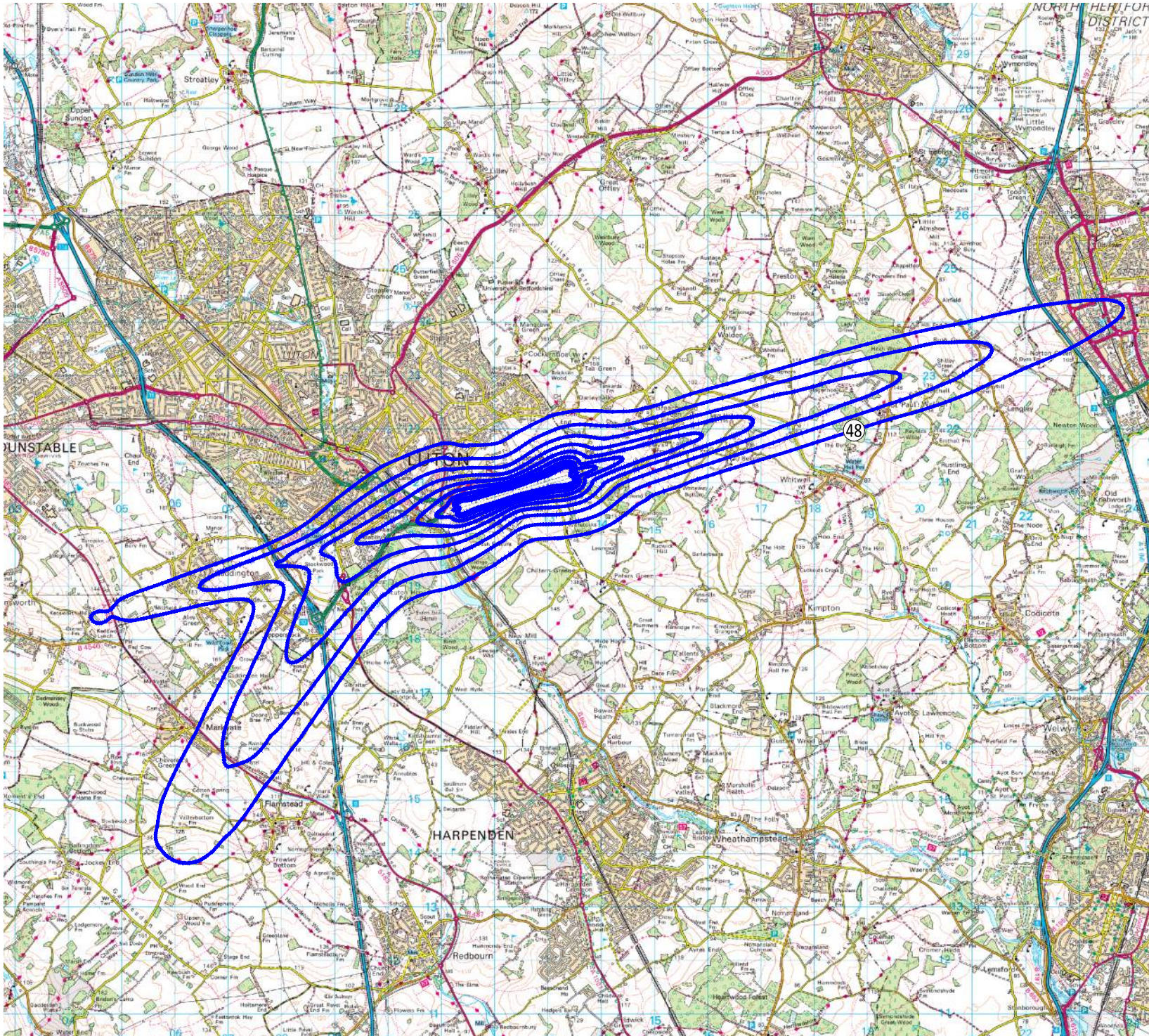
London Luton Airport
Regular Contouring

Airborne Aircraft Noise Contours
2017 Summer Actual Night time

DRAWN: DR CHECKED: DC

DATE: November 2017 SCALE: 1:100000@A4

FIGURE No:
A11060/N03/03



This drawing contains Ordnance Survey data © Crown Copyright and database right 2017.

LEGEND:

— Noise Contours,
48 to 72 dB LAeq,8h in 3 dB steps

REVISIONS

**Bickerdike
Allen
Partners**
Architecture
Acoustics
Technology

121 Salusbury Road, London, NW6 6RG
Email: mail@bickerdikeallen.com
www.bickerdikeallen.com

T: 0207 625 4411
F: 0207 625 0250

London Luton Airport
Regular Contouring

Airborne Aircraft Noise Contours
2018 Summer Forecast Night time

DRAWN: DR

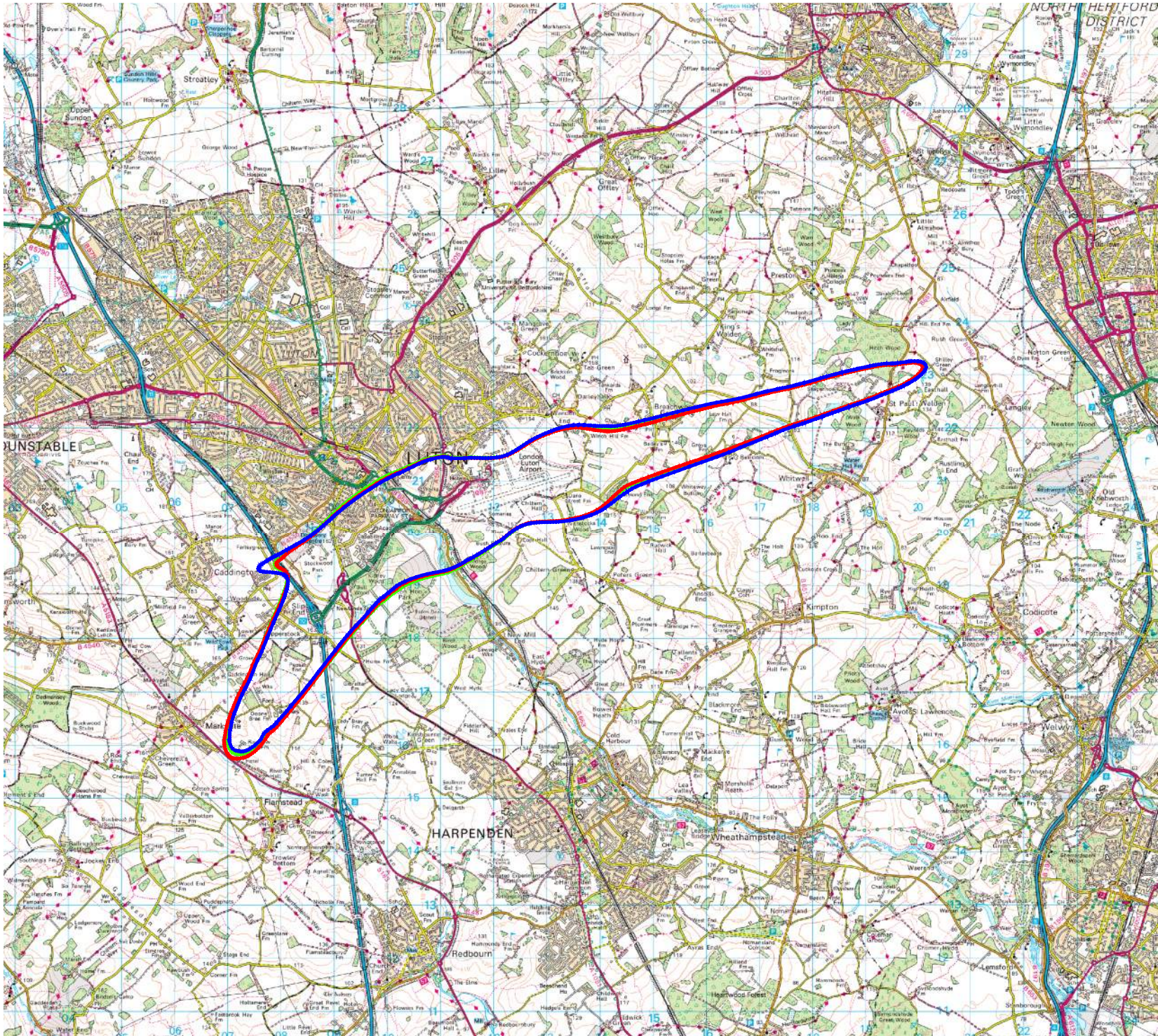
CHECKED: DC

DATE: November 2017

SCALE: 1:100000@A4

FIGURE No:

A11060/N03/04



This drawing contains Ordnance Survey data © Crown Copyright and database right 2017.

LEGEND:

- 2016, 57 dB LAeq,16h Contour
- 2017, 57 dB LAeq,16h Contour
- 2018, 57 dB LAeq,16h Contour

REVISIONS

**Bickerdike
Allen
Partners**
Architecture
Acoustics
Technology

121 Salusbury Road, London, NW6 6RG
Email: mail@bickerdikeallen.com
www.bickerdikeallen.com

T: 0207 625 4411
F: 0207 625 0250

London Luton Airport
Regular Contouring

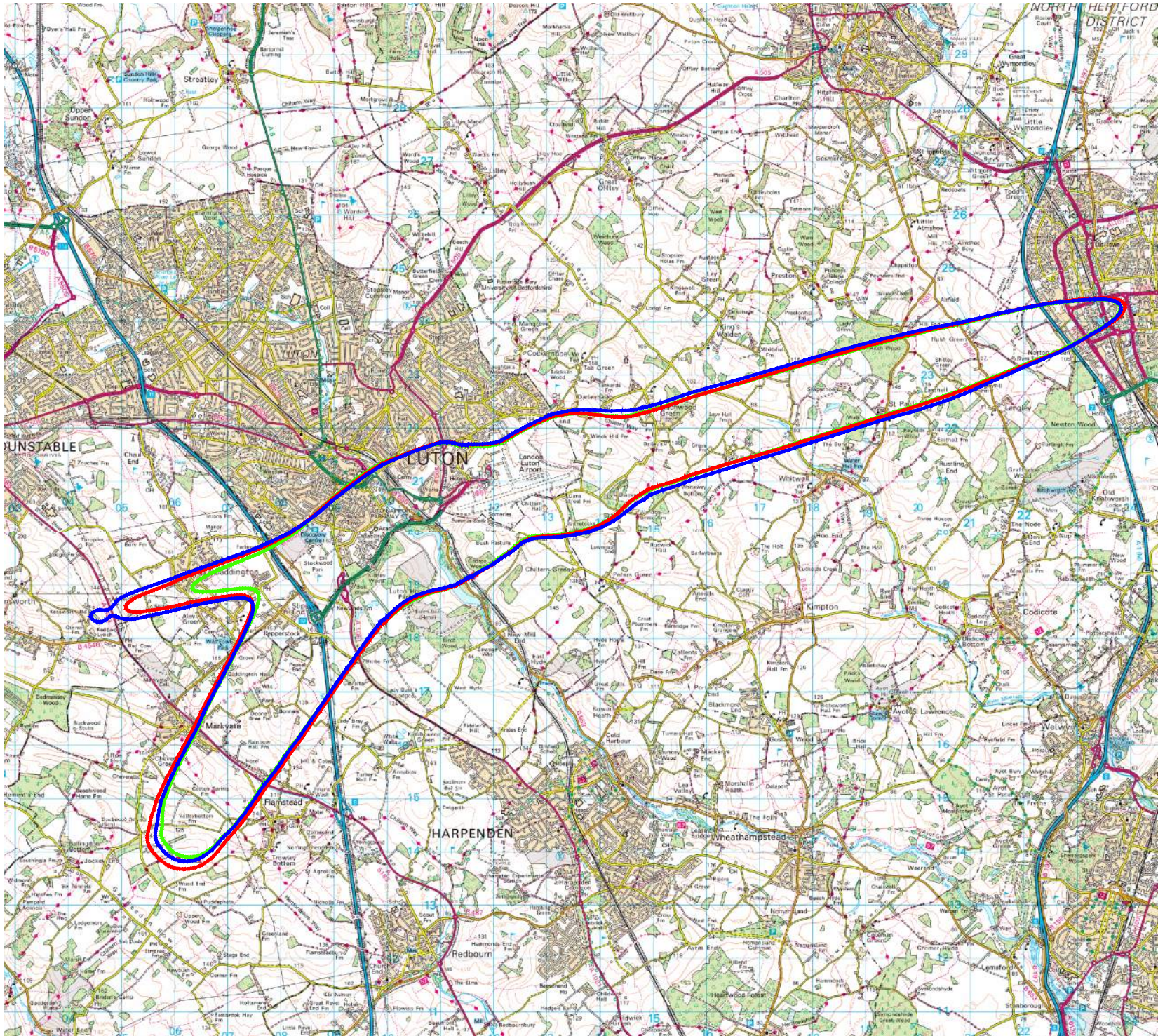
Airborne Aircraft Noise Contours
Summer Daytime Comparison
2016, 2017 and 2018 (Forecast)

DRAWN: DR CHECKED: DC

DATE: November 2017 SCALE: 1:100000@A4

FIGURE No:

A11060/N03/05



This drawing contains Ordnance Survey data © Crown Copyright and database right 2017.

LEGEND:

- 2016, 48 dB LAeq,8h Contour
- 2017, 48 dB LAeq,8h Contour
- 2018, 48 dB LAeq,8h Contour

REVISIONS

**Bickerdike
Allen
Partners**
Architecture
Acoustics
Technology

121 Salusbury Road, London, NW6 6RG
Email: mail@bickerdikeallen.com T: 0207 625 4411
www.bickerdikeallen.com F: 0207 625 0250

**London Luton Airport
Regular Contouring**

**Airborne Aircraft Noise Contours
Summer Night time Comparison
2016, 2017 and 2018 (Forecast)**

DRAWN: DR CHECKED: DC

DATE: November 2017 SCALE: 1:100000@A4

FIGURE No: A11060/N03/06