

LONDON LUTON AIRPORT

A11060-N21-MP

23 November 2018

ACTUAL 2018 AND FORECAST 2019 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 2018.

LLAOL have also provided BAP with a forecast for 2019. Using this, forecast summer contours have been produced.

The resulting contours for 2018 and 2019 provide part of the information required to comply with Condition 12. Also required is information on the current QC Annual Budget for 2018, 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 2018 contour production methodology has been updated from that used for the 2017 contours. It retains the inclusion of terrain, and the use of the INM software (Version 7.0d), but the validation has been updated. The validation is now based on measured results in 2017 at the fixed noise monitors. User-defined profiles for the most common aircraft have been used, as for the 2017 contours.

This update to the contour prediction methodology is described in the BAP note A11060-N17-DR, dated 9th August 2018. The effect of the update, when tested on the 2018 Q1 night contours, was a small increase in contour area of around 0.5%.

3.0 NOISE CONTOUR RESULTS

The resulting noise contours for 2018 and 2019 are shown in the attached Figures A11060-N21-01 to A11060-N21-04. 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 contour is given in Table 1 (daytime) and Table 2 (night time), and compared with the corresponding area for the 2017 contours.

The modal split for summer 2018 has changed from 2017 with 73% westerly and 27% easterly operations, compared with 83% westerly and 17% easterly in summer 2017. In terms of movements, the daytime movements increased marginally from 32,718 in 2017 to 32,961 in 2018. Night-time movements decreased from 5,592 in 2017 to 4,917 in 2018. At night the majority of the decrease in movements from 2017 to 2018 is due to the action plan restrictions on non-scheduled flights at night. Despite this overall decrease, night time movements by passenger turbofan aircraft increased by around 4%.

Contour Value (dB $L_{Aeq,16h}$)	Contour Area (km ²)		
	2017	2018	2019 (Forecast)
57	19.0	19.4	18.8
60	10.3	10.6	10.2
63	5.9	6.1	5.9
66	3.0	3.1	3.0
69	1.7	1.7	1.7
72	1.0	1.0	1.0

Table 1: Area of Daytime Summer Noise Contours, 2017, 2018 and 2019 (Forecast)

Considering the 57 dB $L_{Aeq,16h}$ daytime noise contour there is a slight increase in area of approximately 2% when comparing the 2018 contour with the 2017 contour. This is attributed to the slight overall increase in daytime movements.

A comparison of 2017, 2018 and 2019 forecast daytime 57 dB $L_{Aeq,16h}$ contours is shown in Figure A11060-N21-05. This shows that the 2017, 2018 and 2019 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)		
	2017	2018	2019 (Forecast)
48	38.7	40.2	42.7
51	22.3	23.0	25.4
54	12.2	12.6	14.1
57	6.3	6.8	7.6
60	3.4	3.7	4.2
63	1.8	1.9	2.1
66	1.1	1.1	1.2
69	0.7	0.7	0.7
72	0.4	0.5	0.4

Table 2: Area of Night Time Summer Noise Contours, 2017, 2018 and 2019 (Forecast)

Considering the 48 dB L_{Aeq,8h} night time noise contour there is an increase in area of approximately 4% when comparing the 2018 contour with the 2017 contour. This is due to the increase in movements by passenger turbofan aircraft.

The 48 dB L_{Aeq,8h} 2019 contour is forecast to grow by 6% compared to the 2018 contour. This is largely due to the forecast 7% increase in night-time movements by unmodernised passenger turbofan aircraft.

A comparison of 2017, 2018 and 2019 forecast night-time 48 dB L_{Aeq,8h} contours is shown in Figure A11060-N21-06. This shows that the 2018 contour is larger than the 2017 contour at the western end near Caddington, but is smaller at the eastern end over Stevenage and to the south of Markyate. This is due to the changes in modal split.

The 2019 forecast contour is longer than the 2018 contour at the eastern end, but shorter at the western end and slightly wider at the south-western end. These slight changes in shape are due to the relatively higher proportion of easterly operations that occurred in 2018 compared to the long term average.

4.0 SUMMARY

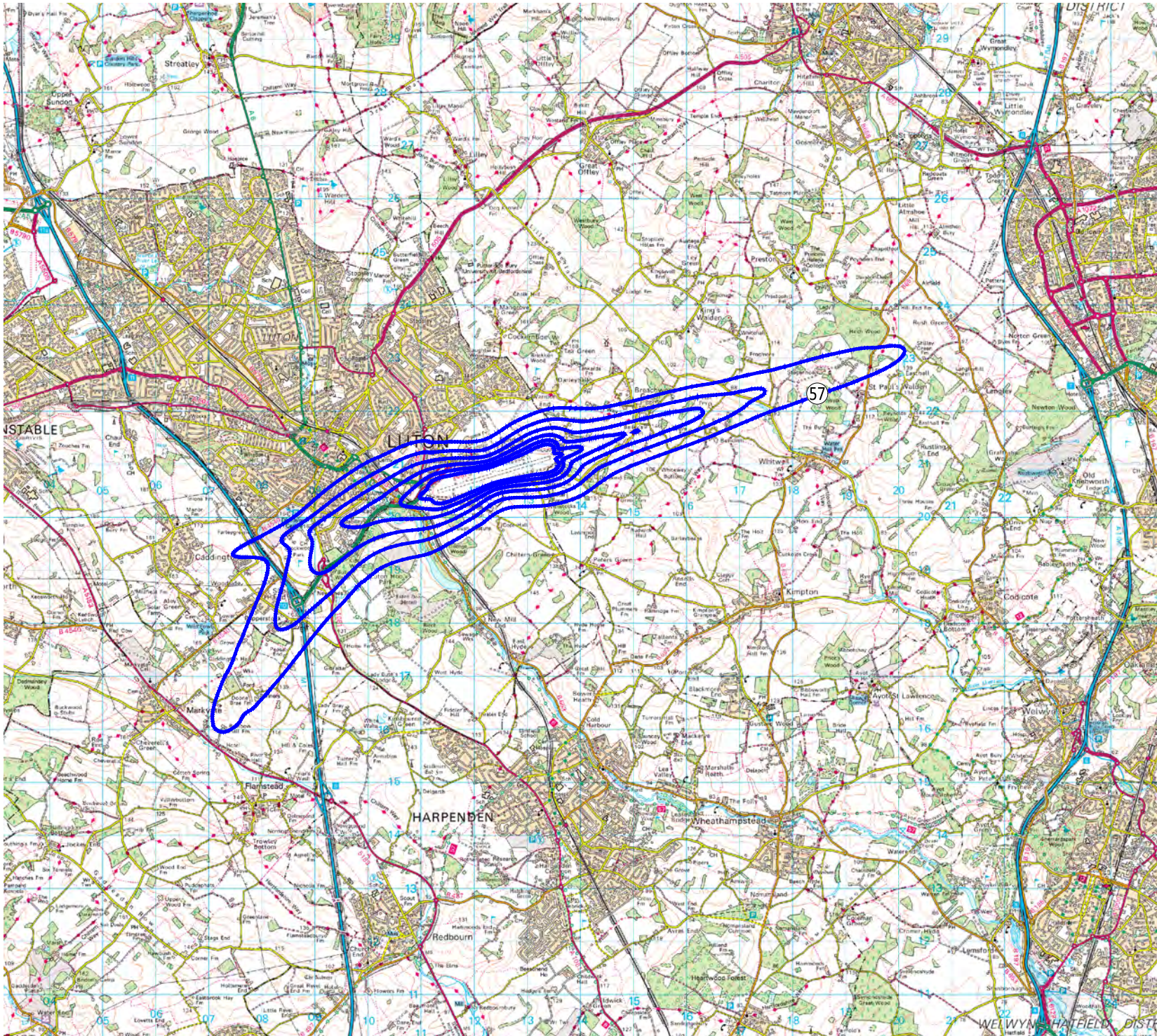
As can be seen in Table 1, the area of the daytime 57 dB $L_{Aeq,16h}$ contour has increased slightly from 2017 to 2018. This is in line with a slight increase in the total number of daytime movements. The resulting 57 dB $L_{Aeq,16h}$ contour for 2018 has an area of 19.4 km², equal to the planning limit of 19.4 km². The 2017 contour area was below the limit, and the 2019 contour area is forecast to decrease from that in 2018 and remain below the limit.

Table 2 shows the area of the night time 48 dB $L_{Aeq,8h}$ contour has increased by approximately 4% from 2017 to 2018, largely due to an increase in passenger turbofan aircraft movements. The 2018 contour has an area of 40.2 km², which exceeds the planning limit of 37.2 km². The area of the 48 dB $L_{Aeq,8h}$ contour for 2019 is forecast to increase to an area of 42.7 km².

Mike Pau
for Bickerdike Allen Partners

Nick Williams
Acoustic Consultant

Peter Henson
Partner



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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

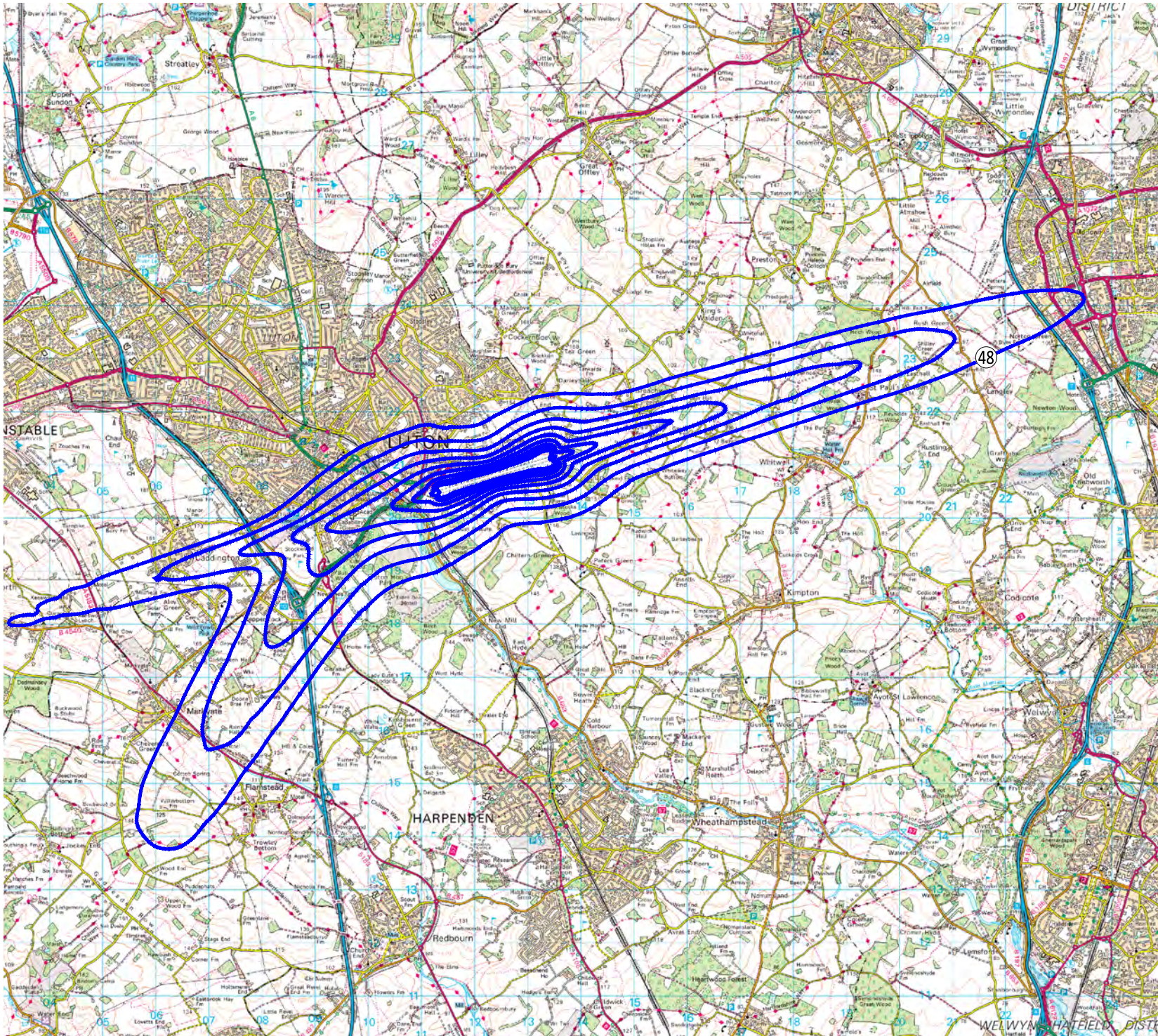
London Luton Airport
 Regular Contouring

Airborne Aircraft Noise Contours
 2018 Summer Actual Daytime

DRAWN: MP CHECKED: DR

DATE: November 2018 SCALE: 1:100000@A4

FIGURE No:
 A11060/N21/01



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LEGEND:

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

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**Bickerdike
 Allen
 Partners**
 Architecture
 Acoustics
 Technology

121 Salusbury Road, London, NW6 6RG
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 www.bickerdikeallen.com

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 F: 0207 625 0250

London Luton Airport
 Regular Contouring

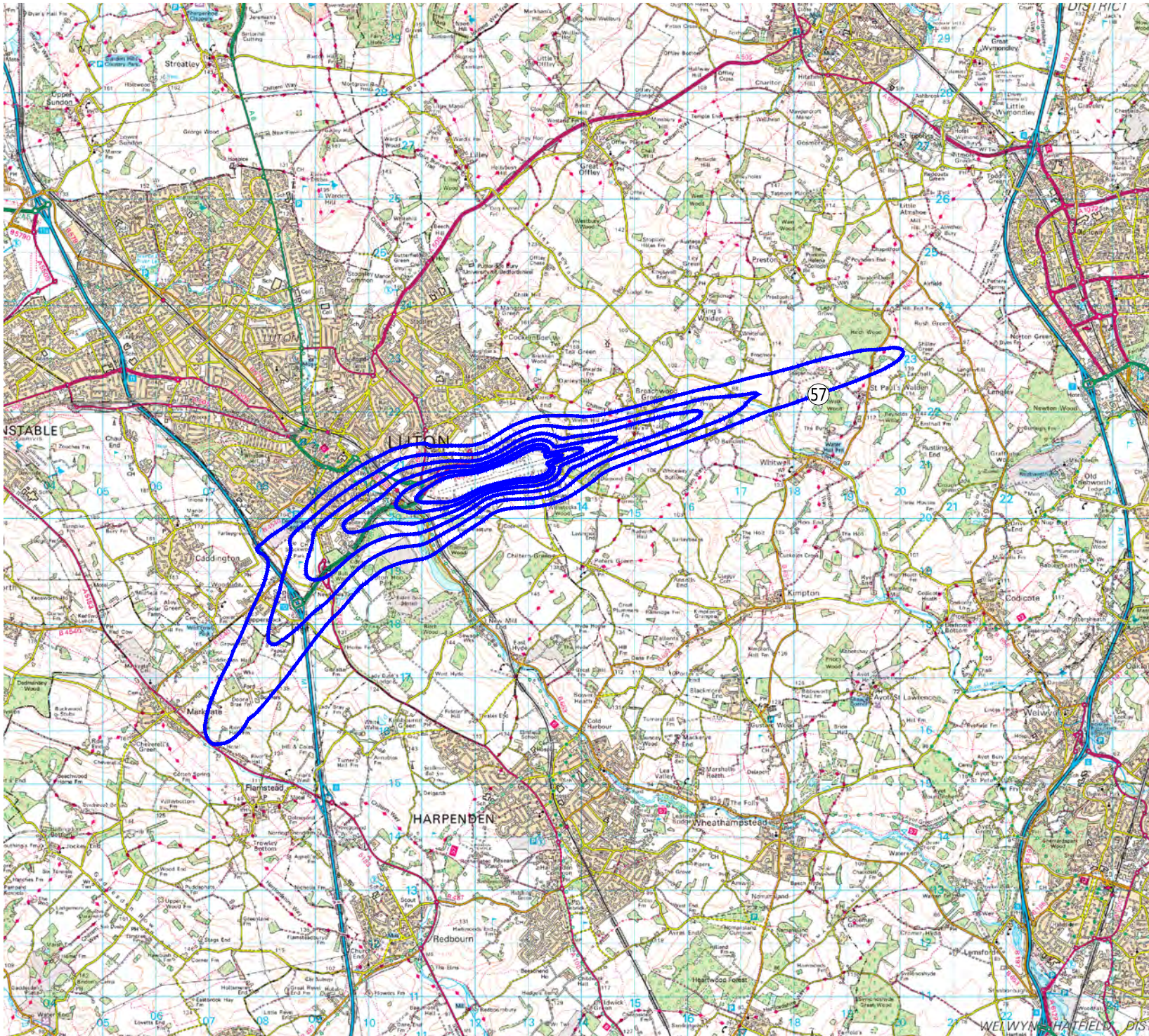
Airborne Aircraft Noise Contours
 2018 Summer Actual Night time

DRAWN: MP CHECKED: DR

DATE: November 2018 SCALE: 1:100000@A4

FIGURE No:

A11060/N21/02



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LEGEND:

Noise Contours,

57 to 72 dB Leq,16h in 3 dB steps

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**Bickerdike
Allen
Partners**
Architecture
Acoustics
Technology

121 Salusbury Road, London, NW6 6RG
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www.bickerdikeallen.com

T: 0207 625 4411
F: 0207 625 0250

London Luton Airport
Regular Contouring

Airborne Aircraft Noise Contours
2019 Summer Forecast Daytime

DRAWN: MP

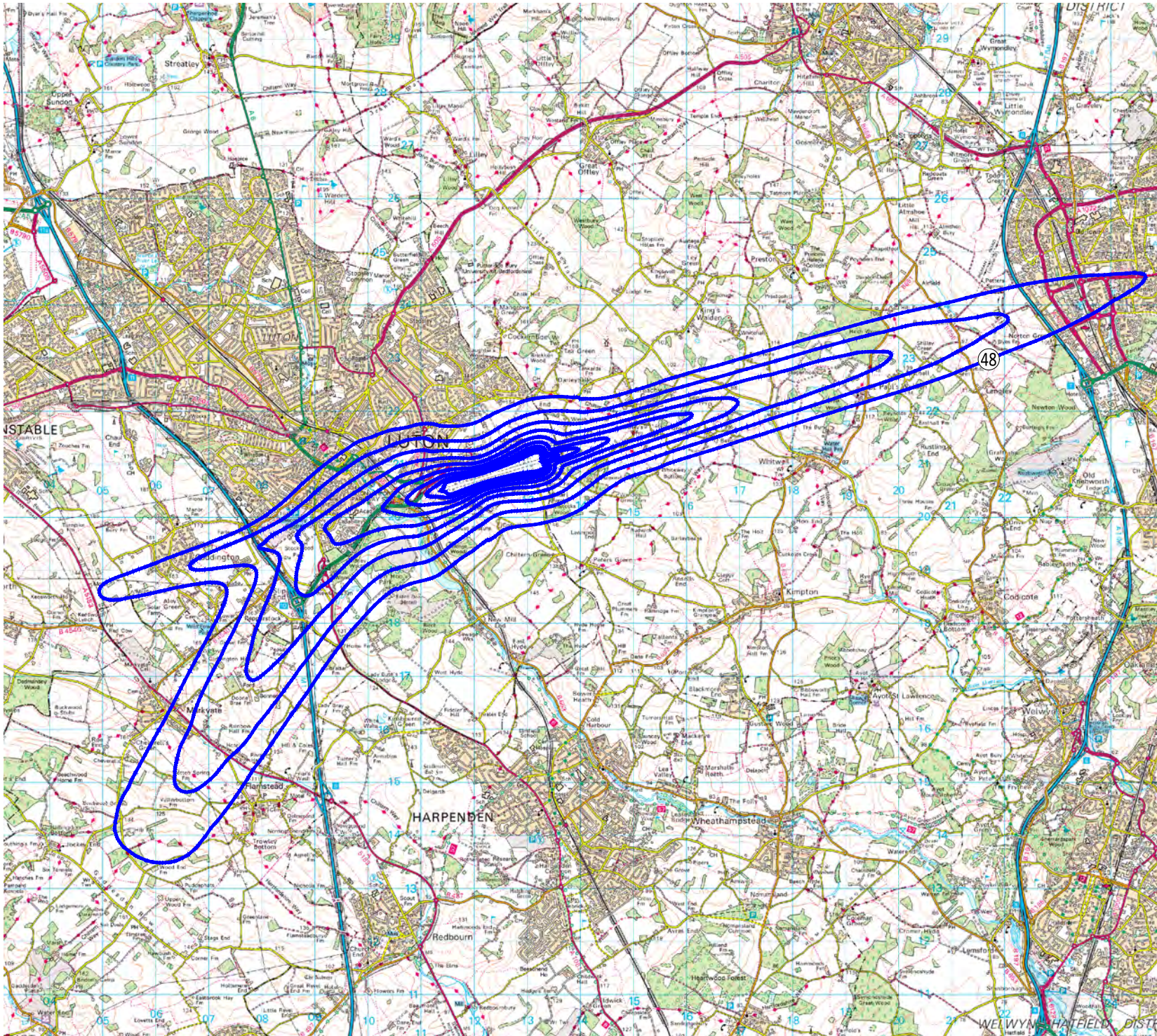
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DATE: November 2018

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FIGURE No:

A11060/N21/03



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LEGEND:

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

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 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

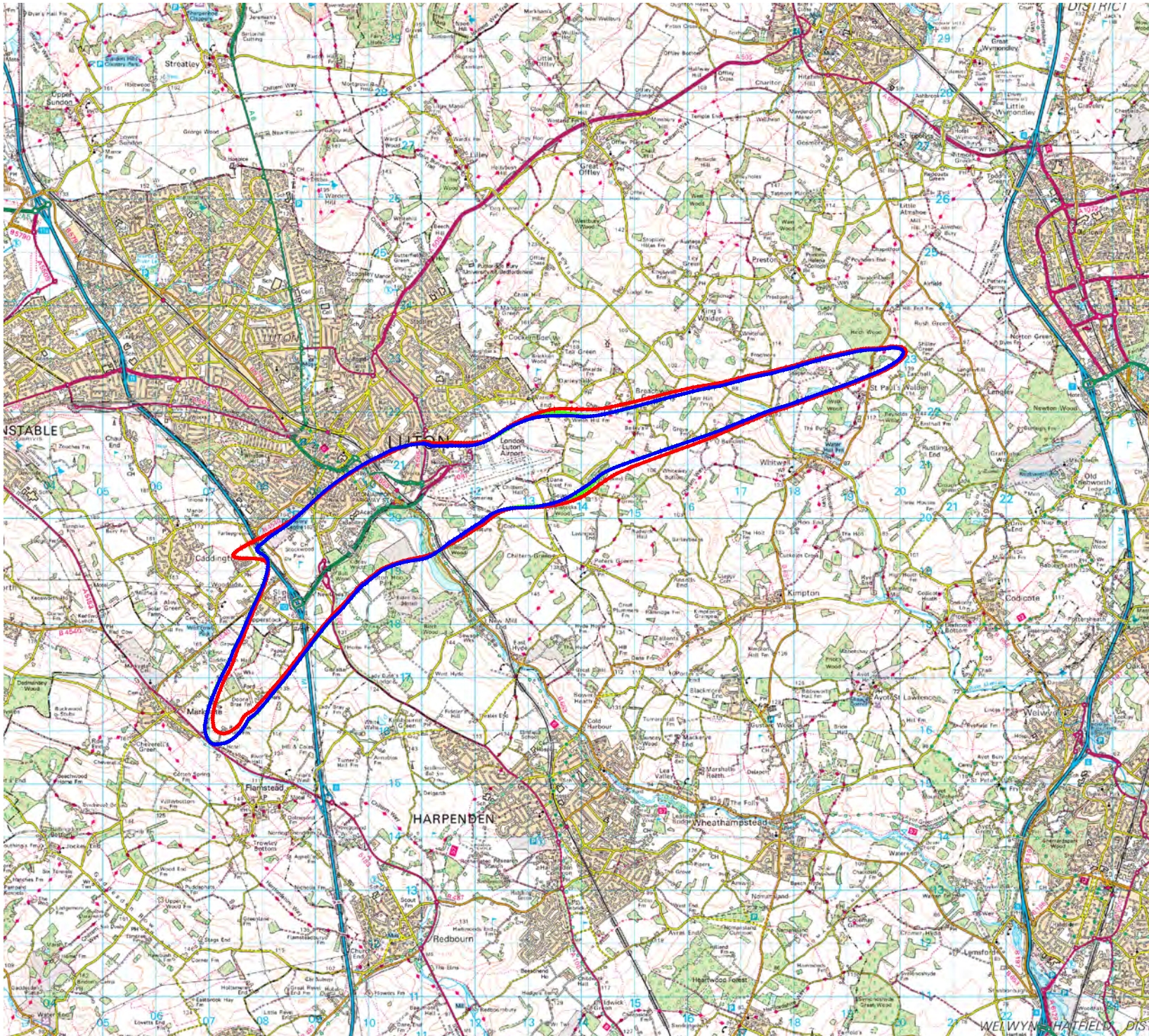
London Luton Airport
 Regular Contouring

Airborne Aircraft Noise Contours
 2019 Summer Forecast Night time

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DATE: November 2018 SCALE: 1:100000@A4

FIGURE No:
 A11060/N21/04



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LEGEND:

- 57 dB LAeq,16h Noise Contours,
- 2017
 - 2018
 - 2019 (Forecast)

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**Bickerdike
Allen
Partners**
Architecture
Acoustics
Technology

121 Salusbury Road, London, NW6 6RG
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F: 0207 625 0250

London Luton Airport
Regular Contouring

Airborne Aircraft Noise Contours
Summer Daytime Comparison
2017, 2018 and 2019 (Forecast)

DRAWN: MP

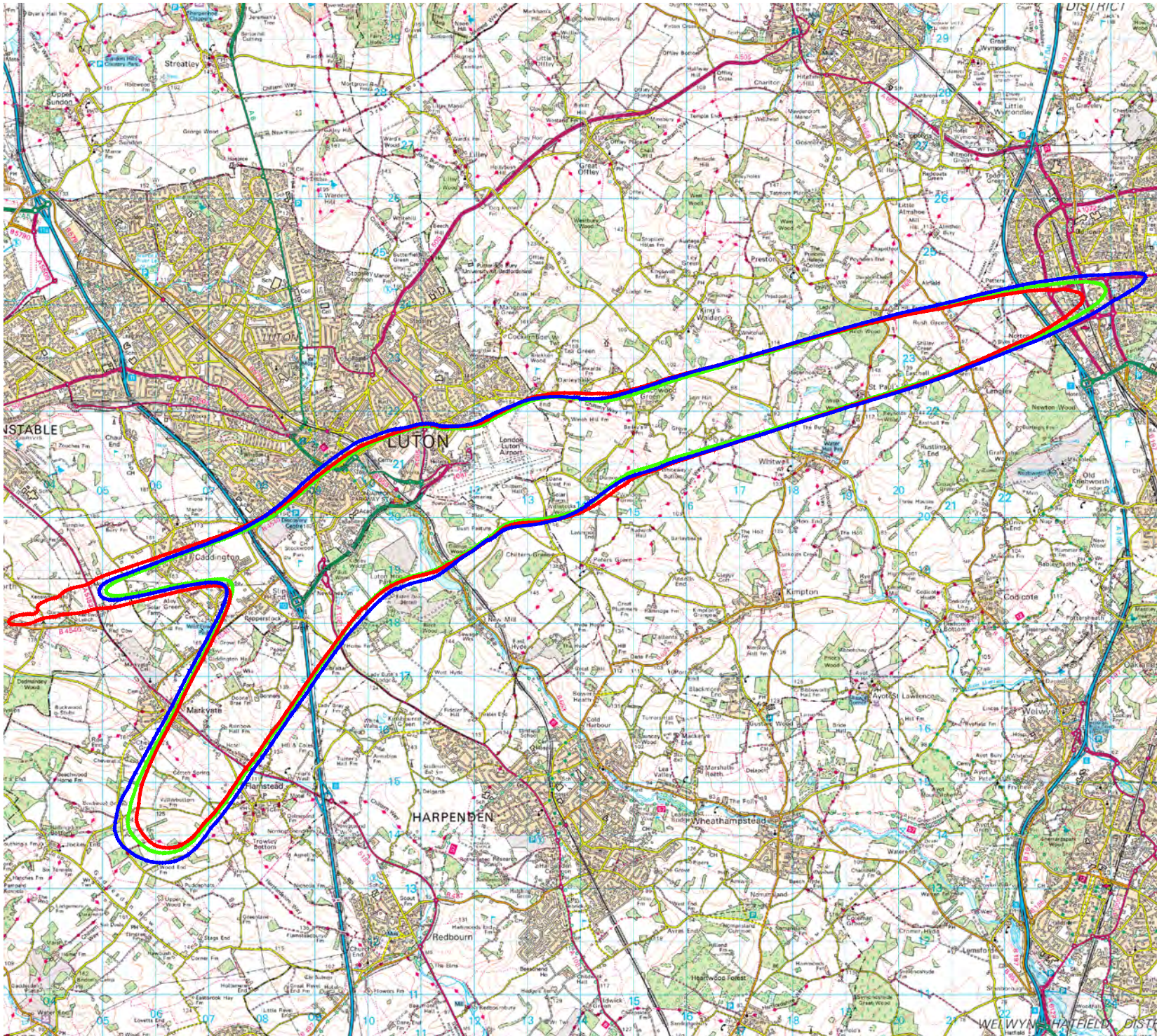
CHECKED: DR

DATE: November 2018

SCALE: 1:100000@A4

FIGURE No:

A11060/N21/05



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LEGEND:

- 48 dB LAeq,8h Noise Contours,
- 2017
 - 2018
 - 2019 (Forecast)

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**Bickerdike
Allen
Partners**
Architecture
Acoustics
Technology

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F: 0207 625 0250

**London Luton Airport
Regular Contouring**

**Airborne Aircraft Noise Contours
Summer Night time Comparison
2017, 2018 and 2019 (Forecast)**

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DATE: November 2018 SCALE: 1:100000@A4

FIGURE No:

A11060/N21/06