Heathrow

EASTERLY ALTERNATION INFRASTRUCTURE PROJECT

Environmental Impact Assessment
Environmental Statement, Volume III
Appendix 7.7: Combined Air and Ground Noise

Document Reference: 19309-XX-EC-XXX-000040

Heathrow

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1. Introduction

1.1 Overview

1.1.1 This appendix supports the combined aircraft 'air' and 'ground' noise assessment which relates to the operational phase of the Proposed Development and is presented in **Chapter 7: Noise and Vibration, Volume II** of the Environmental Statement.

1.1.2 The Proposed Development is described in detail in **Chapter 3: Description of the Proposed Development, Volume II** of the Environmental Statement and in summary comprises the ground-based infrastructure (such as new taxiways) required to allow regular and scheduled departures on the northern runway in an easterly direction.

1.1.3 This appendix presents figures and tables associated with the combined aircraft 'air' and 'ground' noise assessment.

1.2 Approach and Limitations

1.2.1 The approaches to the modelling of aircraft 'air' and 'ground' noise sources are presented in **Appendix 7.5: Air Noise** and **Appendix 7.6: Ground Noise, Volume III** of the Environmental Statement respectively. The modelling of these sources adopted two separate international standard calculation methodologies. Notably as aircraft 'ground' noise is calculated under downwind conditions in all directions, the contribution to combined aviation noise is likely to be overstated when considered as part of a long-term noise exposure metrics such as $L_{Aeq,16hr}$ and $L_{Aeq,8hr}$.

1.2.2 The combination of these sources has been achieved through the logarithmic addition of each separate source at each receptor and calculation point (in the case of noise contours).

1.2.3 The combination of these sources has been conducted in two ways, mirroring the respective 'air' noise and 'ground' noise approaches. The sources have been combined in terms of noise contours as per the 'air' noise assessment, to facilitate counts of the households and population exposed.

1.2.4 Additionally, the 'air' and 'ground' noise sources have been combined at the discrete receptor groups adopted in the 'ground' noise assessment. The main assessment has focused on combined impacts at these receptors as it is at these locations where the assessment has identified a greater likelihood of additive noise exposure due to the two aircraft sources. This has focussed on receptors where combined levels of 'air' and 'ground' noise sources are around 3 dB higher than just 'air' noise alone. When taking the assumed downwind propagation inherent in the ground noise calculations into account, this outcome is indicative that 'air' and 'ground' noise may result in combined impacts. Where this occurs, receptors have been identified on a case-by-case basis.

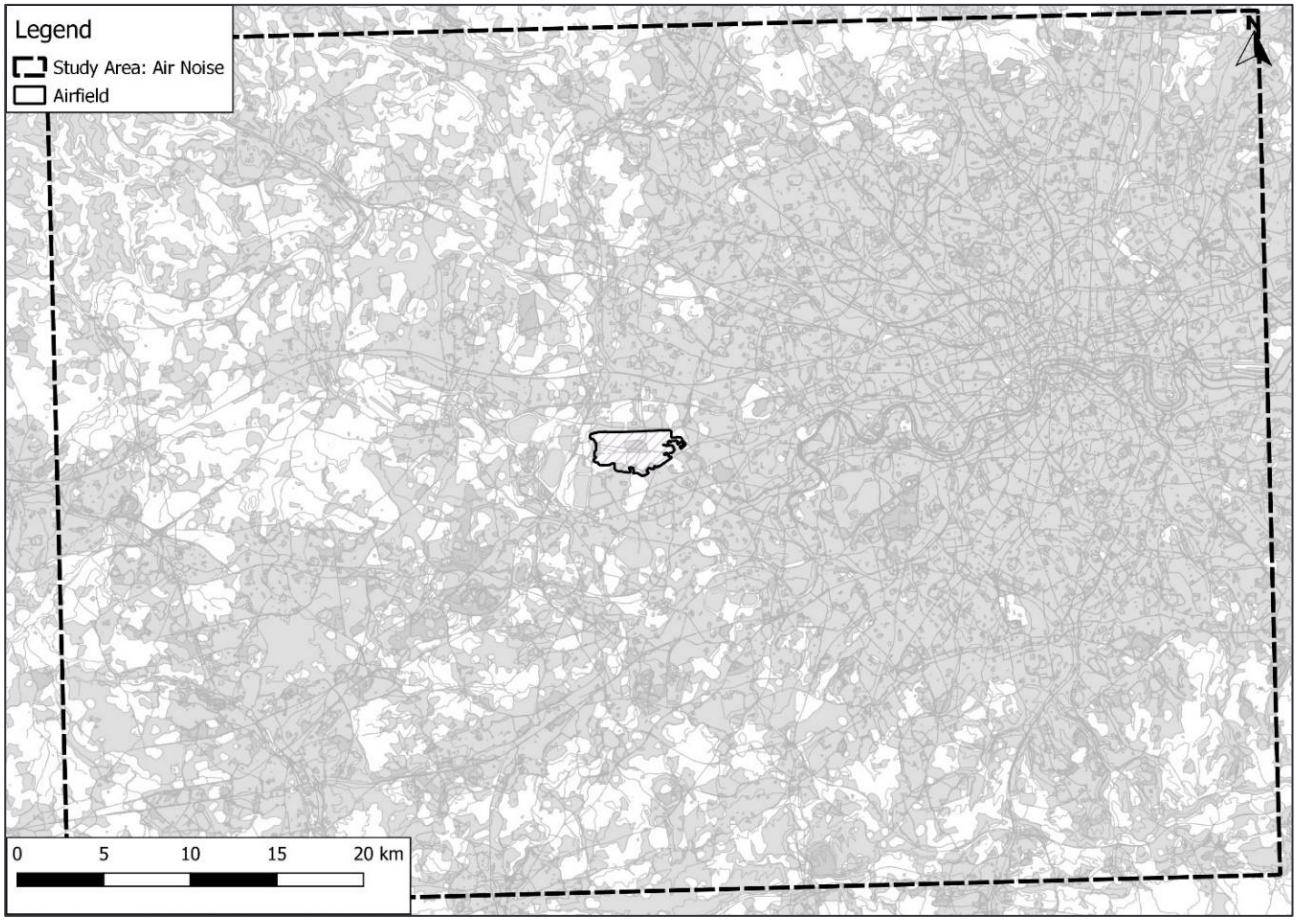
1.3 Study area

1.3.1 As described in the Scoping Report (**Appendix 1.5: Scoping Report, Volume III** of the Environmental Statement), the aircraft 'air' noise study area for the assessment of effects covers is approximately 40 nautical miles west-east, and approximately 20 nautical miles north-south, centred on Heathrow Airport, as presented in **Graphic A7.7.1.** Likewise, the aircraft 'ground' noise study area covers a distance of approximately 1 km from the airfield as presented in **Graphic A7.7.2**.

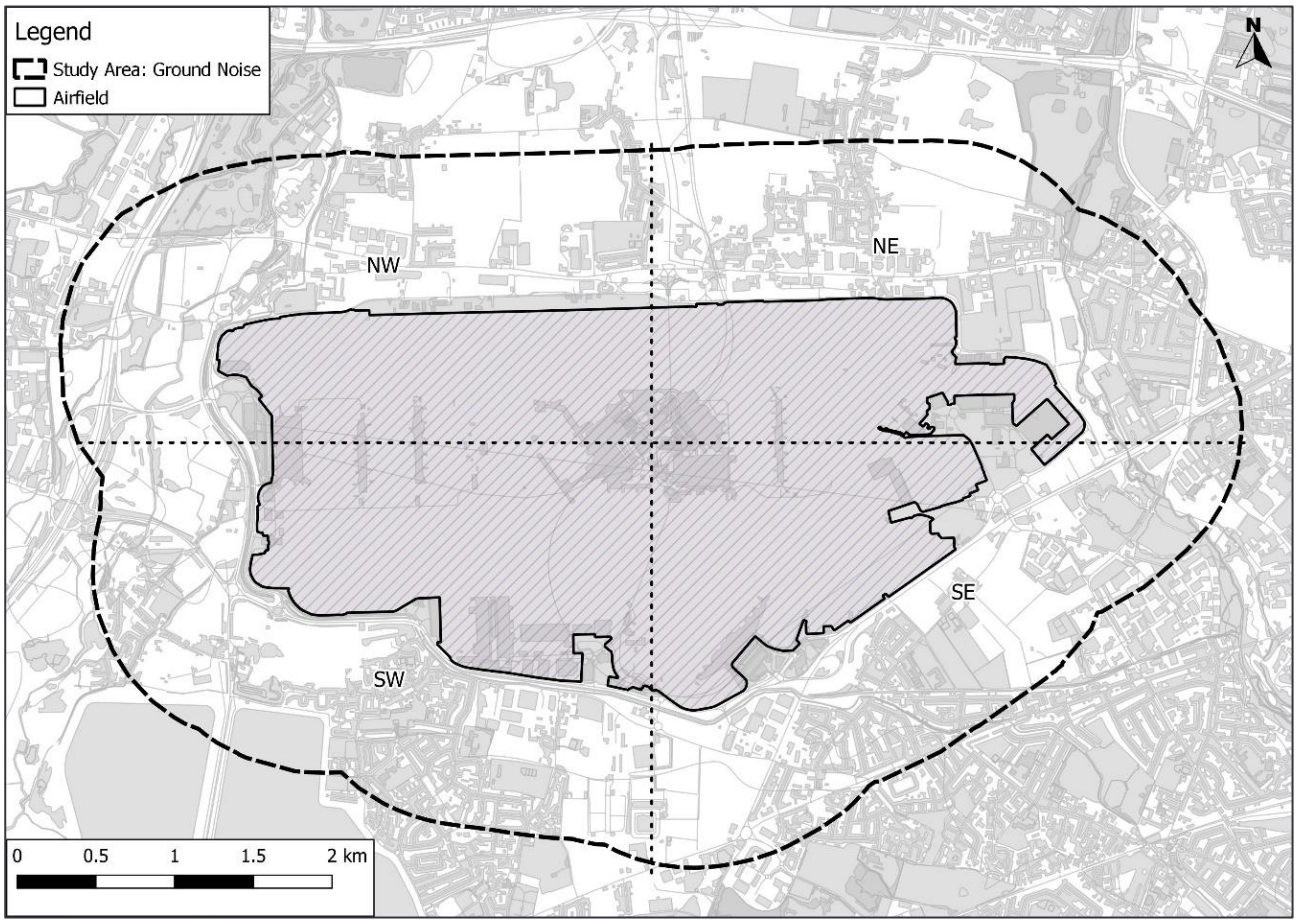
1.3.2 Different study areas have been adopted for the respective sources due to the nature of these sources, where they occur and how noise from these sources propagates. Beyond the ground noise study area, it is expected that 'ground' noise levels would be reduced to such a degree that the combined aviation noise exposure would be informed by 'air' noise alone.

1.3.3 The primary consideration of combined aviation noise has been conducted in respect of the aircraft 'air' noise study area and Primary assessment metrics. A more granular consideration has been conducted for receptors identified within the aircraft 'ground' noise assessment. In both cases the focus has been to determine the degree to which the combination of the two sources has the potential to influence the findings of the 'air' and 'ground' noise assessments.

Graphic A7.7.1 Aircraft 'Air' Noise Study Area

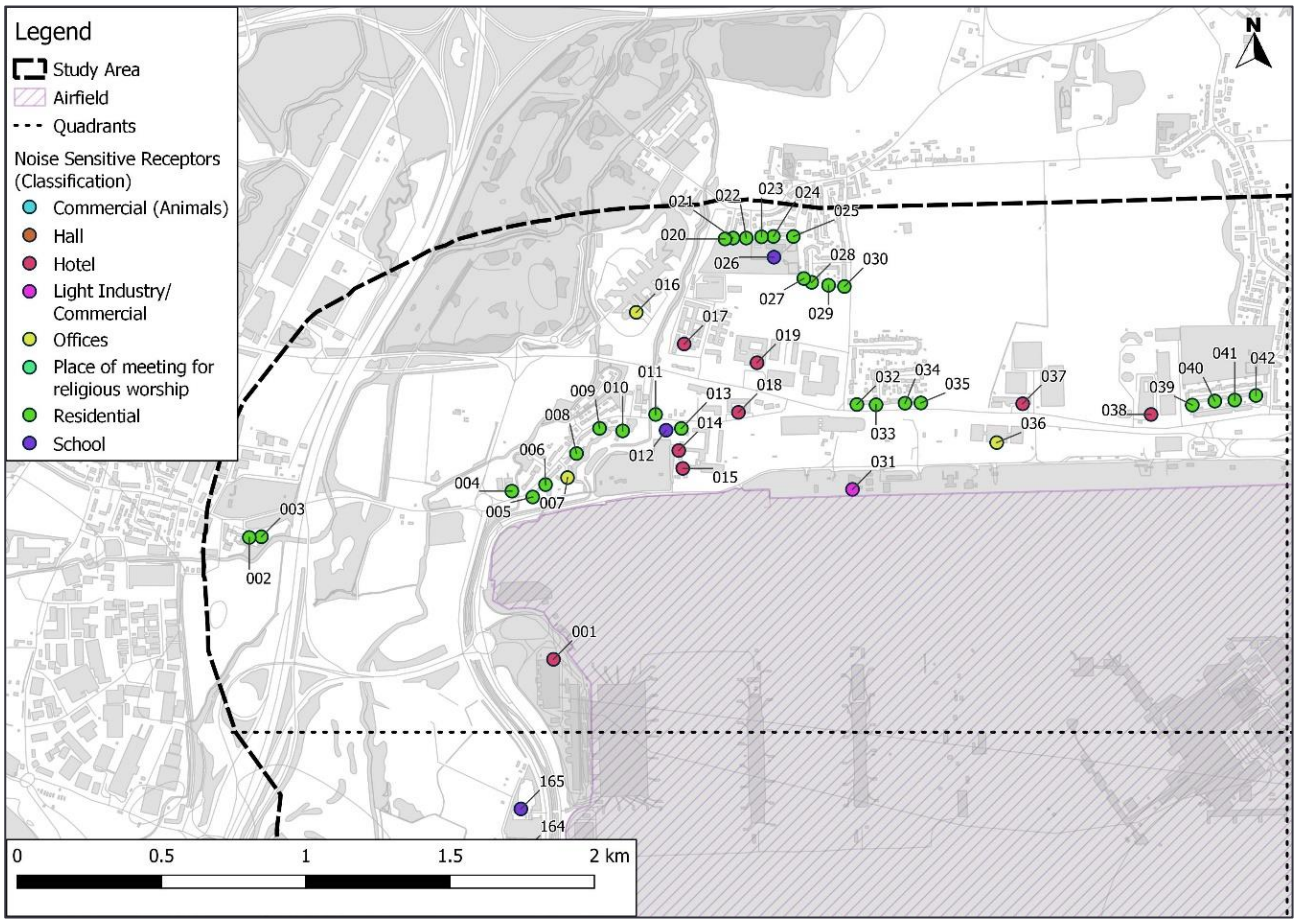


Graphic A7.7.2 Aircraft 'Ground' Noise Study Area

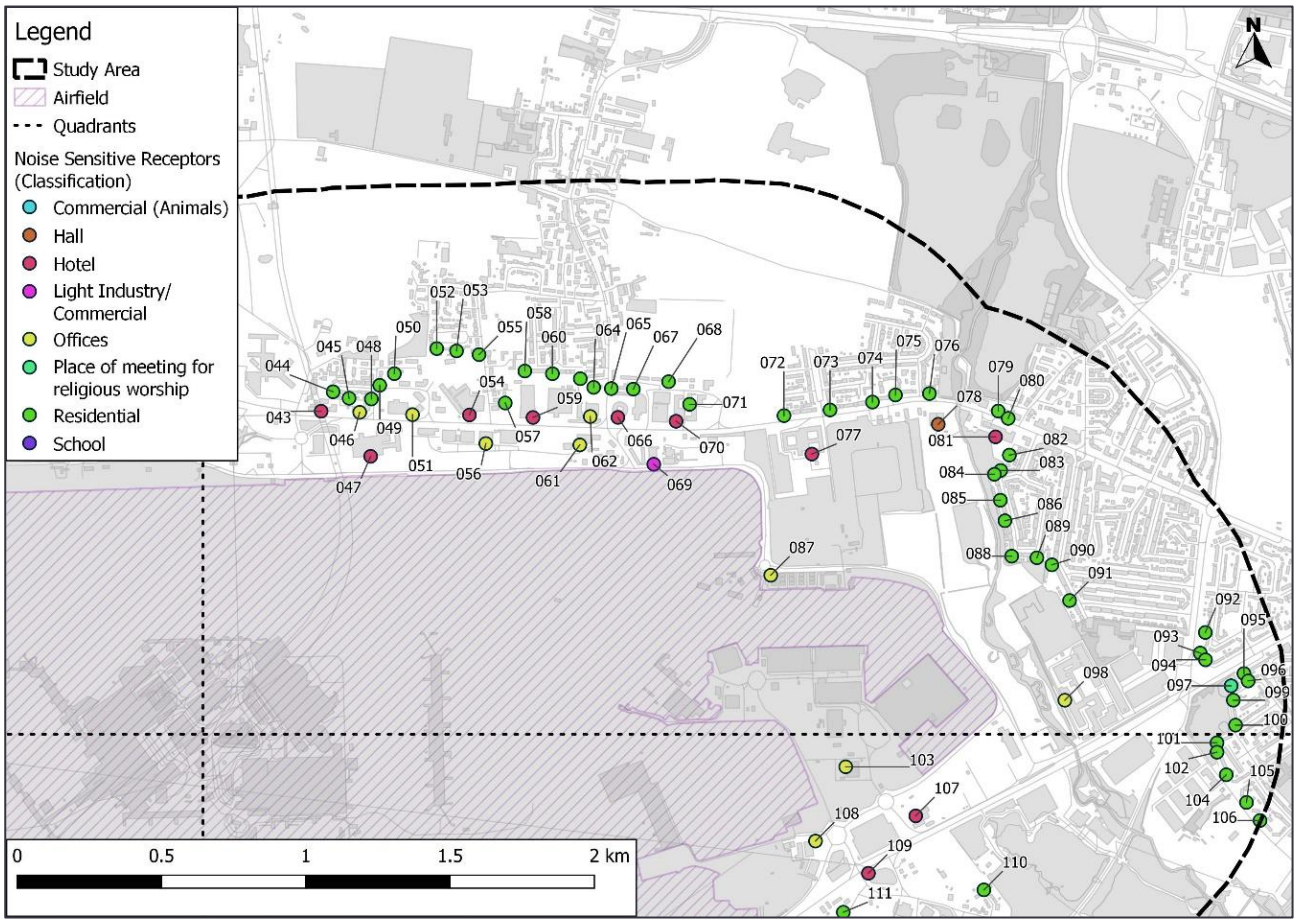


1.3.4 Specific receptor locations have been used based on the discrete receptor groups adopted in the aircraft 'ground' noise assessment. The receptors are identified in **Graphic A7.7.3** to **Graphic A7.7.6.** All NSRs are residential except where reported in **Graphic A7.7.1**. The locations represent key receptor groups around the perimeter of the airfield, which are exposed to the highest levels of aircraft 'ground' noise.

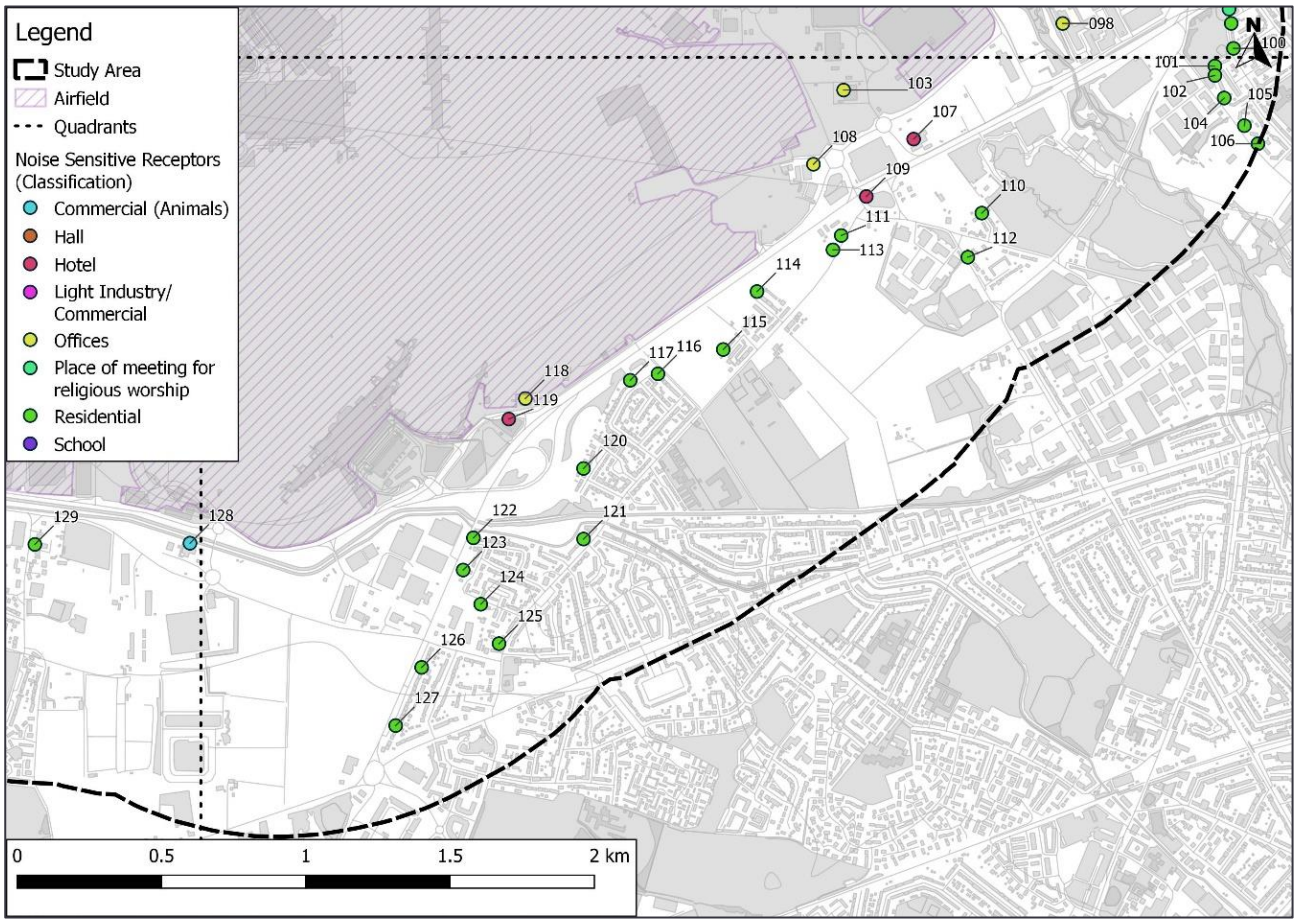
Graphic A7.7.3 Noise Sensitive Receptor Locations (Northwest Quadrant)



Graphic A7.7.4 Noise Sensitive Receptor Locations (Northeast Quadrant)



Graphic A7.7.5 Noise Sensitive Receptor Locations (Southeast Quadrant)



Graphic A7.7.6 Noise Sensitive Receptor Locations (Southwest Quadrant)

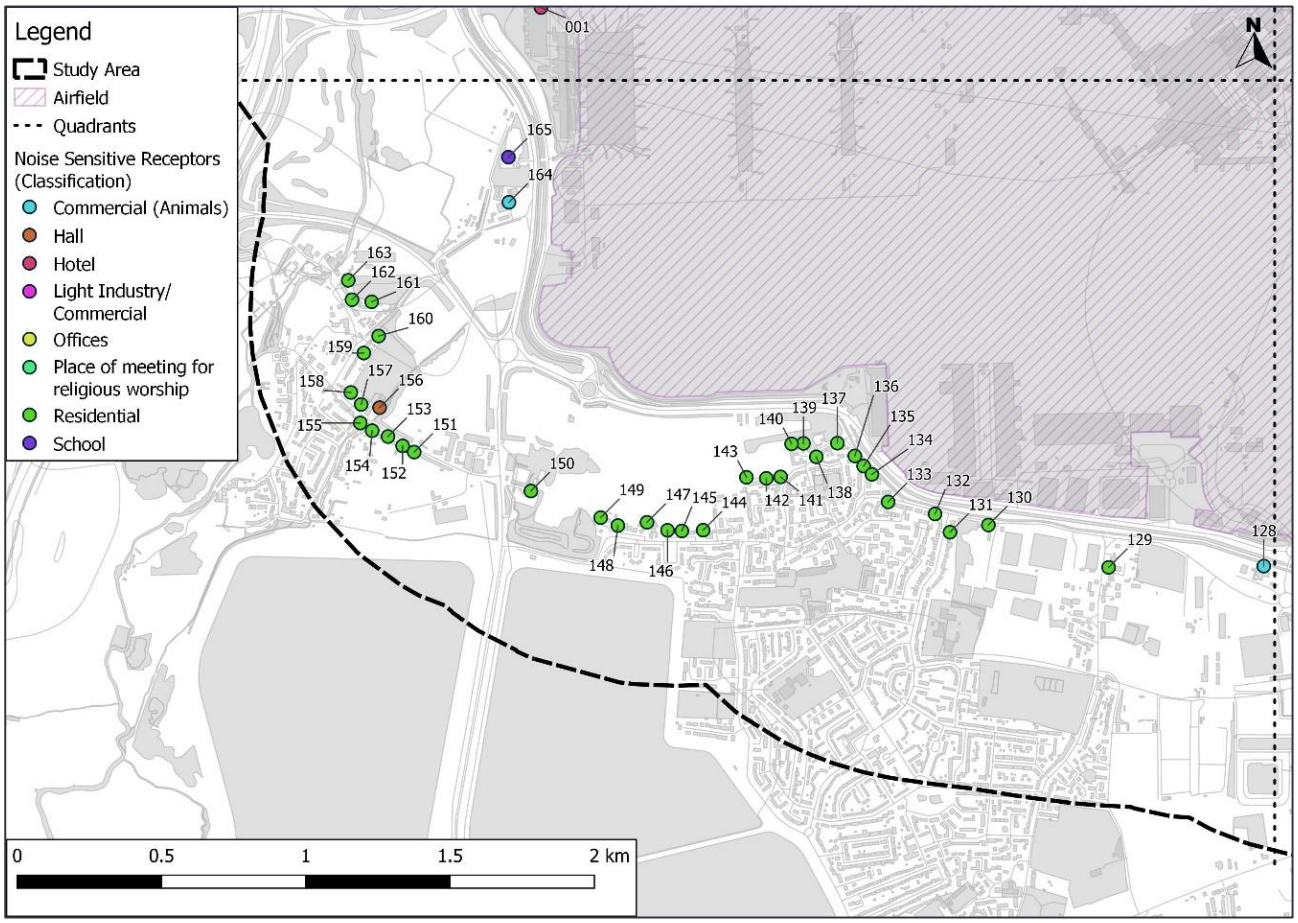


Table A7.7.1 Non-residential noise sensitive receptor locations

Receptor	Area	Primary Use	Notes
Northwest Quadrant			
1	Longford	Hotel	Sofitel
4	Longford	School	Heathrow Special Needs Centre (Equestrian)
7	Longford	Offices	
12	Longford	School	Littlebrook Nursery
14	Longford	Hotel	Thistle Hotel
15	Longford	Hotel	Thistle Hotel
16	Harmondsworth	Offices	
17	Harmondsworth	Hotel	Immigration Detention Centre
18	Longford	Hotel	Premier Inn
19	Harmondsworth	Hotel	Sheraton
26	Harmondsworth	School	Harmondsworth Primary School
31	North Longford	Light industry/ commercial	Car Hire
36	North Longford	Offices	The Compass Centre
37	North Longford	Hotel	Hyatt Place
38	Sipson	Hotel	Staybridge Suites/Holiday Inn
Northeast Quadrant			
43	Harlington	Hotel	Ibis Styles
46	Harlington	Offices	Axis House
47	Harlington	Hotel	Renaissance
51	Harlington	Offices	
54	Harlington	Hotel	Radison Blu
56	Harlington	Offices	
59	Harlington	Hotel	Marriott and Sheraton
61	Harlington	Offices	
62	Harlington	Offices	
66	Harlington	Hotel	Best Western and Marriott
69	Harlington	Light industry/ commercial	Heathrow Engineering and car hire
70	Harlington	Hotel	Ibis
77	Harlington	Hotel	Premier Inn
78	Harlington	Hall	Riverside Venue

Receptor	Area	Primary Use	Notes
81	Hounslow	Hotel	Moxy
87	Hounslow	Office	Eastern Business Park Epsom Square
97	Hounslow	Place of meeting for religious worship	Church of the Good Shepherd
98	Hounslow	Offices	
Southeast Quadrant			
103	Feltham	Offices	
107	Feltham	Hotel	Hilton
108	Feltham	Offices	
109	Feltham	Hotel	Atrium Hotel
118	Feltham	Offices	
119	Feltham	Hotel	Premier Inn, Hilton, Holiday Inn
Southwest Quadrant			
128	Stanwell	Commercial	Animal services/quarantine
156	Stanwell Moor	Hall	Village Hall
164	Stanwell Moor	Commercial	Animal services/quarantine
165	Stanwell Moor	School	Green Corridor at Main Road Nurseries

2. Appraisal

2.1.1 **Table A7.7.10** (**Section 3**) presents the changes in combined 'air' and 'ground' noise for the residential population in 2028 due to the Proposed Development for the $L_{Aeq,16hr}$ and $L_{Aeq,8hr}$ metrics.

2.1.2 **Table A7.7.11** (**Section 3**) presents the corresponding changes for aircraft 'air' noise only. These tables show equivalent trends to the outcomes presented in the aircraft 'air' noise assessment. A comparison is presented in **Table A7.7.2** for the $L_{Aeq,16hr}$ metric, and in **Table A7.7.3** for the $L_{Aeq,8hr}$ metric.

Table A7.7.2 Comparison of daytime noise exposure outcomes for 'air noise and combined 'air and 'ground' noise assessments, LAeq,16hr

Summer Average Daytime Exposure ($L_{Aeq,16hr}$)	Change in Population Exposed in 2028 due to Proposed Development Aircraft 'air' noise	Change in Population Exposed in 2028 due to Proposed Development Combined Aircraft 'air' and 'ground' noise
Removed from LOAEL	-2,800	-2,800
LOAEL to SOAEL	-3,900	-4,100
Greater than SOAEL	+1,100	+1,300
Greater than UAEL	+500	+500

Table A7.7.3 Comparison of night-time noise exposure outcomes for 'air noise and combined 'air and 'ground' noise assessments, $L_{Aeq,8hr}$

Summer Average Night-time Exposure ($L_{Aeq,8hr}$)	Change in Population Exposed in 2028 due to Proposed Development Aircraft 'air' noise	Change in Population Exposed in 2028 due to Proposed Development Combined Aircraft 'air' and 'ground' noise
Removed from LOAEL	-7,900	-6,800
LOAEL to SOAEL	-9,600	-7,900
Greater than SOAEL	+1,700	+1,100
Greater than UAEL	+400	+100

2.1.3 When comparing **Table A7.7.2** and **Table A7.7.3** the greatest impacts of combined 'air' and 'ground' noise exposure is for the night-time period as presented in **Table A7.7.3**.

2.1.4 **Figure 7.7.1-WD** (**Volume IV** of the Environmental Statement) presents differences between combined 'air' and 'ground' noise, and 'air' noise alone. This shows that ground

noise is more likely to influence overall combined 'air' and 'ground' noise locations immediately north and south of the airfield i.e. away from flight paths.

2.1.5 A TAG appraisal has been carried out for combined 'air' and 'ground' noise. This is presented in **Table A7.7.3** which shows that when the two sources are combined, the monetised health outcomes are slightly improved and that the overall effect of the Proposed Development is to improve such outcomes.

Table A7.7.4 Total adverse effects – TAG – Standard mode 2028 – In year monetisation

Health Outcome	Value of change in noise from LOAEL, in £ (positive value reflects a net benefit (i.e. a reduction in noise)	
	Combined 'air' and 'ground' noise	Aircraft 'air' noise
Sleep Disturbance	£310,434	£247,821
Amenity	£544,273	£536,694
AMI	-£44,034	-£44,407
Stroke	£84,381	£83,265
Dementia	£127,601	£125,920
Total	**£1,022,657**	**£949,292**

2.1.6 With respect to changes in daytime combined 'air' and 'ground' noise exposure, **Table A7.7.12** (**Section 3**) shows that in 2028 the Proposed Development would result in more people observing a beneficial change of at least 1 dB as opposed to an adverse change of at least 1 dB. These outcomes are summarised in **Table A7.7.4** with comparison to the equivalent 'air' noise outcomes for daytime exposure, and in **Table A7.7.6** with comparison to the equivalent 'air' noise outcomes for night-time exposure (with reference to **Table A7.7.13** (**Section 3**)).

Table A7.7.5 Changes in daytime noise exposure – comparison of combined 'air' and 'ground' noise and 'air' noise outcomes in 2028 due to the Proposed Development

Outcome	Population	
	Combined 'air' and 'ground' noise	Aircraft 'air' noise
Adverse Change (> 1 dB)	38,600	39,600
Beneficial Change (> 1 dB)	61,100	62,100
Significant Adverse Change	18,400	16,600
Significant Beneficial Change	500	300

2.1.7 **Table A7.7.4** shows that the number of people experiencing a potentially significant adverse change significant beneficial effect in daytime noise exposure in 2028 due to the Proposed Development is higher when combining air and ground noise than for air noise alone.

Table A7.7.6 Changes in night-time noise exposure – comparison of combined 'air' and 'ground' noise and 'air' noise outcomes in 2028 due to the Proposed Development

Outcome	Population	
	Combined 'air' and 'ground' noise	Aircraft 'air' noise
Adverse Change (> 1 dB)	8,700	12,300
Beneficial Change (> 1 dB)	26,500	29,000
Significant Adverse Change	300	300
Significant Beneficial Change	0	300

2.1.8 **Table A7.7.5** shows that when combining air and ground noise the number of people forecast to experience an adverse or beneficial change in night-time noise exposure due to the Proposed Development in 2028 is lower forecast for 'air' noise alone. The combination of 'air' and 'ground' noise also results in the nobody being forecast to receive a potentially significant beneficial change due to the Proposed Development.

Receptors – Daytime

2.1.9 **Table A7.7.14** (**Section 3**) presents calculated summer average daytime combined air and ground noise for each ground noise receptor. **Table A7.7.7** presents the difference between the calculated daytime noise exposure level for combined 'air' and 'ground' noise against 'air' noise alone. Where the differences are more than 3 dB, this indicates a situation where ground noise has the potential to significantly influence overall daytime aviation noise exposure.

Table A7.7.7 Combined Air and Ground Noise compared to Air Noise – Receptor Count, Daytime Exposure

Combined Noise minus 'Air' Noise (dB)	Count of Receptors	
	Without Development	With Development
0	30	36
0.1 to 0.9	77	78
1.0 to 2.0	41	36
2.0 to 3.0	11	10
3.0 to 6.0	5	4
>=6.0	1	1

2.1.10 As shown in **Table A7.7.7** there are six receptors where combined air and ground noise is at least 3 dB higher than air noise. **Table A7.7.16** (**Section 3**) identifies the following receptors where this occurs:

- Receptors 1, 37 and 38 in the north-west quadrant;
- Receptor 43 in the north-east quadrant;

- Receptor 103 in the south-east quadrant; and
- Receptor 128 in the south-west quadrant.

2.1.11 These receptors are non-residential uses.

2.1.12 In the case of Receptors 103 and 128 the impact of the Proposed Development is to reduce overall daytime noise exposure, both for air noise and ground noise. In all other cases the effect of the Proposed Development is a 'negligible' (< 1 dB) increase in overall combined air and ground noise.

Receptors – Night-time

2.1.13 **Table A7.7.17** (**Section 3**) presents calculated summer average night-time combined air and ground noise for each ground noise receptor. **Table A7.7.8** presents the difference between the calculated daytime noise exposure level for combined 'air' and 'ground' noise against 'air' noise alone. Where the differences are more than 3 dB, this indicates a situation where ground noise has the potential to significantly influence overall daytime aviation noise exposure.

Table A7.7.8 Combined Air and Ground Noise compared to Air Noise – Receptor Count, Night-time Exposure

Combined Noise minus 'Air' Noise (dB)	Count of Receptors	
	Without Development	With Development
0	22	23
0.1 to 0.9	35	35
1.0 to 2.0	13	22
2.0 to 3.0	28	25
3.0 to 6.0	55	48
>=6.0	12	12

2.1.14 As shown in **Table A7.7.8** for the night-time period, the number of receptors where combined air and ground noise is at least 3 dB above air noise alone increases due to the Proposed Development.

2.1.15 Where combined air and ground noise at least 3 to 6 dB above air noise levels, 55 receptors are identified. The majority of these receptors are non-residential however:

- Receptors 27 – 30, in the north-west quadrant, located Harmondsworth and forecast to experience combined air and ground noise levels of around 50 – 51 dB $L_{Aeq,8hr}$;
- Receptor 32, in the north-west quadrant, located north-east of Longford Village and around 10m set back from the A4 Bath Road, which as such will likely to dominate night-time noise exposure at these receptors;
- Receptor 42 in the north-west quadrant, located on Blunts Avenue to the south of Sipson Village, forecast to experience combined air and ground noise levels of around 56 dB $L_{Aeq,16hr}$. This receptor is eligible for noise insulation under the QNS; and

- Receptor 134 and 136 in the south-west quadrant, located on Riverside Road, Stanwell. These receptors are forecast to experience combined air and ground noise levels of around 56 – 58 dB $L_{Aeq,16hr}$. These receptors are eligible for noise insulation under the QNS.

2.1.16 In all cases, the change in night-time combined air and ground noise due to the Proposed Development is 'negligible' i.e. less than 1 dB.

2.1.17 **Table A7.7.8**, shows that there are 12 receptors where for the night-time period combined air and ground noise is at least 6 dB above air noise levels. Residential receptors include:

- Receptors 33 – 35, in the north-west quadrant, located north-east of Longford Village and around 10m set back from the A4 Bath Road, which as such will likely to dominate night-time noise exposure at these receptors. These receptors are forecast to be exposed to night-time combined air and ground noise exposure of around 59 dB $L_{Aeq,8hr}$ and are eligible for noise insulation under the QNS;
- Receptor 39, in the north-west quadrant, located on Blunts Avenue to the south of Sipson Village, forecast to experience combined air and ground noise levels of around 57 dB $L_{Aeq,16hr}$. This receptor is eligible for noise insulation under the QNS; and
- Receptors 132 and 138, in the south-west quadrant, located on Riverside Road, Stanwell. These receptors are forecast to experience combined air and ground noise levels of around 54 and 59 dB $L_{Aeq,16hr}$ respectively. These receptors are eligible for noise insulation under the QNS.

2.1.18 In all cases, the change in night-time combined air and ground noise due to the Proposed Development is 'negligible' i.e. less than 1 dB.

3. Combined Air and Ground Noise Tables

3.1.1 The noise modelling outputs have been produced as noise maps and noise difference maps, provided in **Volume IV** of the Environmental Statement in support of the combined 'air' and 'ground' noise assessment.

3.1.2 For brevity, the combination of these noise sources is termed 'combined aviation noise'.

3.1.3 The Tables and accompanying Figures (**Volume IV** of the Environmental Statement) are summarised in **Table A7.7.9** below.

3.1.4 Throughout this Appendix, 'without development' and 'with development' scenarios are described as 'WoD' and 'WD' respectively.

Table A7.7.9 Combined Aviation Noise Tables and Figures

Content	Table Number	Figure Number (Volume IV of the Environmental Statement)
Combined Aviation Noise VS Aircraft 'Air' Noise Without Alternation Daytime ($dBL_{Aeq,16h}$) – 79% Westerly / 21% Easterly	**-**	**Figure 7.7.1-WoD**
Combined Aviation Noise VS Aircraft 'Air' Noise With Alternation Daytime ($dBL_{Aeq,16h}$) – 79% Westerly / 21% Easterly	**-**	**Figure 7.7.1-WD**
Changes to exposure due to the Proposed Development in 2028 (combined aviation noise)	**Table A7.7.10**	
Changes to exposure due to the Proposed Development in 2028 (aircraft 'air' noise only)	**Table A7.7.11**	
Combined Aviation Noise Without Alternation Daytime ($dBL_{Aeq,16h}$) – 79% Westerly / 21% Easterly	**Table A7.7.12**	**Figure 7.7.2-WoD**
Combined Aviation Noise With Alternation Daytime ($dBL_{Aeq,16h}$) – 79% Westerly / 21% Easterly		**Figure 7.7.2-WD**
Combined Aviation Noise Without Alternation Night-time ($dBL_{Aeq,8h}$) – 76% Westerly / 24% Easterly	**Table A7.7.13**	**Figure 7.7.3-WoD**
Combined Aviation Noise With Alternation Night-time ($dBL_{Aeq,8h}$) – 76% Westerly / 24% Easterly		**Figure 7.7.3-WD**
Difference Combined Aviation Noise Change Daytime ($dBL_{Aeq,16h}$) – 79% Westerly / 21% Easterly	**Table A7.7.14**	**Figure 7.7.4**
Difference Combined Aviation Noise Change Night-time ($dBL_{Aeq,8h}$) – 76% Westerly / 24% Easterly	**Table A7.7.15**	**Figure 7.7.5**
Combined Air and Ground Noise Exposure at Receptors, Daytime – 79% Westerly / 21% Easterly	**Table A7.7.16**	
Combined Air and Ground Noise Exposure at Receptors, Nighttime – 76% Westerly / 24% Easterly	**Table A7.7.17**	

3.1 Combined aviation noise assessment tables

Table A7.7.10 Changes to exposure due to the Proposed Development in 2028 (combined aviation noise)

	2028 Without Development (baseline)		2028 With Proposed Development (with Easterly Alternation)		Change due to the Proposed Development	
$L_{Aeq,16hr}$ Daytime Exposure – Standard Mode– Population Exposed in 2028 (Thousands)						
	Figure 7.7.2-WoD[1]		**Figure 7.7.2-WD[1]**		**Figure 7.7.4**	
Change in the Number of People above LOAEL					-2.8	
51-54	532.0	916.6	544.7	912.5	12.7	-4.1
54-57	229.0		214.9		-14.1	
57-60	99.3		95.4		-3.9	
60-63	56.3		57.5		+1.2	
63-66	25.8	31.3	26.8	32.6	+1.0	+1.3
66-69	4.7		4.5		-0.2	
>69	0.8		1.3		+0.5	
$L_{Aeq,8hr}$ Night-time Exposure – Standard Mode – Population Exposed in 2028 (Thousands)						
	Figure 7.7.3-WoD[1]		**Figure 7.7.3-WD[1]**		**Figure 7.7.5**	
Change in the Number of People above LOAEL					-6.8	
45-48	350.6	655.4	354.0	647.5	+3.4	-7.9
48–51	173.2		162.0		-11.2	
51–55	131.6		131.5		-0.1	
55-57	25.4	54.8	26.2	55.9	+0.8	+1.1
57-60	25.2		25.2		0.0	
60-63	3.4		3.6		+0.2	
>63	0.8		0.9		+0.1	

[1] 'Without Development' and 'With Development' scenarios are described as 'WoD' and 'WD' respectively.

Table A7.7.11 Changes to exposure due to the Proposed Development in 2028 (aircraft 'air' noise only)

	2028 Without Development (baseline)		2028 With Proposed Development (with Easterly Alternation)		Change due to the Proposed Development	
$L_{Aeq,16hr}$ Daytime Exposure – Standard Mode– Population Exposed in 2028 (Thousands)						
	Figure 7.5.2-WoD[1]		**Figure 7.5.2-WD[1]**		**Figure 7.5.4**	
Change in the Number of People above LOAEL					-2.8	
51-54	532.2	916.7	544.7	912.8	12.5	-3.9
54-57	229.6		215.5		-14.1	
57-60	98.8		95.1		-3.7	
60-63	56.1		57.5		1.4	
63-66	25.8	30.9	26.3	32.0	0.5	+1.1
66-69	4.3		4.4		0.1	
>69	0.8		1.3		0.5	
$L_{Aeq,8hr}$ Night-time Exposure – Standard Mode – Population Exposed in 2028 (Thousands)						
	Figure 7.5.3-WoD[1]		**Figure 7.5.3-WD[1]**		**Figure 7.5.5**	
Change in the Number of People above LOAEL					-7.9	
45-48	351.3	652.3	353.2	642.7	1.9	-9.6
48–51	172.6		161.5		-11.1	
51–55	128.4		128		-0.4	
55-57	24.8	53.3	25	55.0	0.2	+1.7
57-60	24.5		25		0.5	
60-63	3.3		3.9		0.6	
>63	0.7		1.1		0.4	

Table A7.7.12 Dwellings, Population and Area exposed to $L_{Aeq,16hr}$ – Standard mode (combined aviation noise)

Standard Mode, 79%W:21%E, Dwellings & Population (thousands), Area (km^2)						
$L_{Aeq,16hr}$	2028 Without Development			2028 With Development		
Contour	**Dwellings**	**Population**	**Area**	**Dwellings**	**Population**	**Area**
51 dB – 54 dB	227.5	532.0	98.3	231.6	544.7	99.3
54 dB – 57 dB	96.2	229.0	56.1	90.3	214.9	55.8
57 dB – 60 dB	39.5	99.3	30.9	38.1	95.4	31.1
60 dB – 63 dB	20.1	56.3	15.7	20.2	57.5	15.7
63 dB – 66 dB	8.5	25.8	10.5	9.1	26.8	10.8
66 dB – 69 dB	1.7	4.7	4.7	1.6	4.5	4.5
> 69 dB	0.3	0.8	10.0	0.4	1.3	10.0
Objective Annoyance						
> LOAEL	383.3	916.6	201.0	380.2	912.5	201.9
> SOAEL	10.5	31.3	25.2	11.1	32.6	25.3
Total Population	Highly Annoyed (HA, SONA14)	94.0		Highly Annoyed (HA, SONA14)	93.6	

Table A7.7.13 Dwellings, Population and Area exposed to $L_{Aeq,8hr}$ – Standard mode (combined aviation noise)

Standard Mode, 76%W:24%E, Dwellings & Population (thousands), Area (km²)						
$L_{Aeq,8hr}$	2028 Without Development			2028 With Development		
Contour	**Dwellings**	**Population**	**Area**	**Dwellings**	**Population**	**Area**
45 dB – 48 dB	152.4	350.6	53.0	154.2	354.0	52.6
48 dB – 51 dB	74.1	173.2	36.0	69.4	162.0	35.6
51 dB – 55 dB	52.5	131.6	32.8	52.4	131.5	33.2
55 dB – 57 dB	8.8	25.4	7.1	9.1	26.2	7.1
57 dB – 60 dB	8.5	25.2	5.6	8.5	25.2	5.6
60 dB – 63 dB	1.0	3.4	2.6	1.1	3.6	2.5
> 63 dB	0.2	0.8	8.5	0.3	0.9	8.5
Objective Annoyance						
> LOAEL	279.0	655.4	121.8	276.0	647.5	121.5
> SOAEL	18.5	54.8	23.3	19.0	55.9	23.8
Total Population	Highly Sleep Disturbed (HSD, SONA14)	73.7		Highly Sleep Disturbed (HSD, SONA14))	73.1	

Table A7.7.14 Change in 2028 daytime noise exposure due to the Proposed Development – Standard mode (combined aviation noise)

Standard Mode, 79%W:21%E, Population (thousands)											
$L_{Aeq,16hr}$	Reduction in Noise Exposure					No Change	Increase in Exposure				
Exposure With Development	Major > 6	Moderate 3.0 – 5.9	Minor 2.0 – 2.9	Slight 1.0 – 1.9	Negligible 0.1 – 0.9	< 0.1 increase or decrease	Negligible 0.1 – 0.9	Slight 1.0 – 1.9	Minor 2.0 – 2.9	Moderate 3.0 – 5.	Major > 6
51 dB – 54 dB	0.0	0.0	0.0	35.7	33.5	438.1	19.3	3.0	3.0	12.1	0.0
54 dB – 57 dB	0.0	0.0	0.0	21.7	19.3	151.0	17.5	2.5	1.5	1.4	0.0
57 dB – 60 dB	0.0	0.0	0.0	2.6	10.9	59.6	15.5	4.5	1.3	0.9	0.0
60 dB – 63 dB	0.0	0.0	0.0	0.6	7.9	22.3	21.2	3.2	1.3	1.0	0.0
63 dB – 66 dB	0.0	0.0	0.0	0.4	4.9	6.9	11.7	2.7	0.1	0.0	0.0
66 dB – 69 dB	0.0	0.0	0.0	0.1	0.8	0.3	3.1	0.1	0.0	0.0	0.0
> 69 dB	0.0	0.0	0.0	0.0	0.4	0.0	0.9	0.0	0.0	0.0	0.0
Totals	**Total Experience Beneficial Magnitude of Change**						**Total Experiencing Adverse Magnitude of Change**				
	0.0	0.0	0.0	61.1	77.8	678.2	89.3	16.1	7.2	15.4	0.0
	Beneficial Changes (> 1 dB)						**Adverse Changes (> 1 dB)**				
	61.1						38.6				
	Significant Beneficial Change						**Significant Adverse Change**				
	0.5						18.4				

Table A7.7.15 Change in 2028 night-time noise exposure due to the Proposed Development – Standard mode (combined aviation noise)

Standard Mode, 76%W:24%E, Population (thousands)											
$L_{Aeq,8hr}$	Reduction in Noise Exposure					No Change	Increase in Exposure				
Exposure With Development	Major > 6	Moderate 3.0 – 5.9	Minor 2.0 – 2.9	Slight 1.0 – 1.9	Negligible 0.1 – 0.9	< 0.1 increase or decrease	Negligible 0.1 – 0.9	Slight 1.0 – 1.9	Minor 2.0 – 2.9	Moderate 3.0 – 5.9	Major > 6
45 – 48 dB	0.0	0.0	0.0	17.2	19.3	304.3	10.9	2.2	0.0	0.0	0.0
48 – 51 dB	0.0	0.0	0.0	8.6	9.2	132.1	9.0	3.0	0.0	0.0	0.0
51 – 55 dB	0.0	0.0	0.0	0.7	4.2	107.2	16.2	3.2	0.0	0.0	0.0
55 – 57 dB	0.0	0.0	0.0	0.0	0.9	22.5	2.5	0.2	0.0	0.0	0.0
57 – 60 dB	0.0	0.0	0.0	0.0	0.9	21.6	2.7	0.0	0.0	0.0	0.0
60 – 63 dB	0.0	0.0	0.0	0.0	0.1	1.2	2.1	0.1	0.0	0.0	0.0
> 63 dB	0.0	0.0	0.0	0.0	0.3	0.1	0.6	0.0	0.0	0.0	0.0
Totals	**Total Experience Beneficial Magnitude of Change**						**Total Experiencing Adverse Magnitude of Change**				
	0.0	0.0	0.0	26.6	34.9	589.0	44.0	8.8	0.0	0.0	0.0
	Beneficial Changes (> 1 dB)						**Adverse Changes (> 1 dB)**				
	26.5						8.7				
	Significant Beneficial Change						**Significant Beneficial Change**				
	0.0						0.3				

Table A7.7.16 Combined Air and Ground Noise Exposure at Receptors, Daytime – Standard mode

Receptor	Receptor Type	Noise Levels (dB, $L_{Aeq,16hr}$)										
		Ground Noise			Air Noise			Combined Air and Ground Noise			Combined Air and Ground Noise minus Air Noise	
		2028 WoD	2028 WD	Change	2028 WoD	2028 WD	Change	2028 WoD	2028 WD	Change	2028 WoD	2028 WD
North-West Quadrant Receptors												
1	Non-residential	67.7	68.6	0.9	67.2	67.3	0.1	70.5	71.0	0.5	3.7	3.3
2		31.6	37.5	5.9	69.5	68.5	-0.9	69.5	68.5	-0.9	0.0	0.0
3		41.2	44.6	3.4	69.5	68.5	-0.9	69.5	68.6	-0.9	0.0	0.0
4		55.7	56.6	0.9	68.8	68.6	-0.2	69.0	68.9	-0.1	0.3	0.2
5		56	57.3	1.3	70.8	70.4	-0.3	70.9	70.6	-0.3	0.2	0.1
6		54	55.5	1.5	69.0	68.9	0.0	69.1	69.1	0.0	0.2	0.1
7	Non-residential	59.6	58.4	-1.2	69.2	69.5	0.3	69.6	69.8	0.2	0.3	0.5
8		58.8	57.9	-0.9	67.4	67.8	0.4	68.0	68.2	0.2	0.4	0.6
9		57.7	56	-1.7	65.8	66.2	0.4	66.4	66.6	0.2	0.4	0.6
10		58.8	56.7	-2.1	65.9	66.4	0.5	66.6	66.8	0.2	0.4	0.8
11		58	56.7	-1.3	65.9	66.5	0.6	66.6	67.0	0.4	0.4	0.6
12	Non-residential	60.4	58.9	-1.5	65.9	66.5	0.6	67.0	67.2	0.2	0.7	1.1
13		56.7	57.3	0.6	66.0	66.6	0.6	66.5	67.1	0.6	0.5	0.5

Receptor	Receptor Type	Noise Levels (dB, $L_{Aeq,16hr}$)										
		Ground Noise			Air Noise			Combined Air and Ground Noise			Combined Air and Ground Noise minus Air Noise	
		2028 WoD	2028 WD	Change	2028 WoD	2028 WD	Change	2028 WoD	2028 WD	Change	2028 WoD	2028 WD
14	Non-residential	54.5	57.6	3.1	67.9	68.8	0.9	68.1	69.1	1.0	0.3	0.2
15	Non-residential	62.7	63.6	0.9	70.1	71.5	1.4	70.8	72.2	1.4	0.6	0.7
16	Non-residential	53.5	54.2	0.7	59.9	60.2	0.3	60.8	61.2	0.4	1.0	0.9
17	Non-residential	55.7	56.3	0.6	61.1	61.5	0.4	62.2	62.6	0.4	1.2	1.1
18	Non-residential	61	61.3	0.3	66.0	66.6	0.5	67.2	67.7	0.5	1.1	1.2
19	Non-residential	56.8	57	0.2	62.4	62.8	0.4	63.5	63.9	0.4	1.0	1.0
20		45.9	47	1.1	57.2	57.6	0.4	57.5	58.0	0.4	0.4	0.3
21		45.9	47	1.1	57.0	57.4	0.4	57.4	57.8	0.4	0.4	0.3
22		46.2	47.2	1	57.0	57.4	0.4	57.4	57.8	0.4	0.4	0.3
23		46.2	47	0.8	56.9	57.2	0.4	57.2	57.6	0.4	0.4	0.4
24		45.1	45.9	0.8	56.9	57.2	0.4	57.1	57.6	0.4	0.3	0.3
25		47	47.7	0.7	56.7	57.0	0.4	57.1	57.5	0.4	0.5	0.4
26	Non-residential	48.2	48.9	0.7	56.9	57.2	0.4	57.4	57.8	0.4	0.6	0.6
27		49.4	50	0.6	57.8	58.1	0.4	58.4	58.8	0.4	0.6	0.6

Receptor	Receptor Type	Noise Levels (dB, $L_{Aeq,16hr}$)										
		Ground Noise			Air Noise			Combined Air and Ground Noise			Combined Air and Ground Noise minus Air Noise	
		2028 WoD	2028 WD	Change	2028 WoD	2028 WD	Change	2028 WoD	2028 WD	Change	2028 WoD	2028 WD
28		50.3	50.8	0.5	57.8	58.1	0.4	58.5	58.9	0.4	0.7	0.7
29		50.6	51	0.4	57.5	57.9	0.3	58.3	58.7	0.3	0.8	0.8
30		51	51.4	0.4	57.5	57.9	0.3	58.4	58.8	0.3	0.9	0.9
31	Non-residential	66.3	66.4	0.1	71.4	71.9	0.5	72.6	73.0	0.4	1.1	1.2
32		57.7	57.9	0.2	63.7	64.0	0.3	64.6	64.9	0.3	1.0	1.0
33		60.1	60.2	0.1	63.4	63.7	0.3	65.1	65.3	0.3	1.6	1.7
34		61.1	61.2	0.1	63.2	63.5	0.3	65.3	65.5	0.2	2.0	2.1
35		61	61.1	0.1	63.2	63.5	0.3	65.2	65.5	0.2	2.0	2.1
36	Non-residential	63.9	63.9	0	67.5	67.9	0.3	69.1	69.3	0.2	1.5	1.6
37	Non-residential	61.5	61.5	0	61.5	61.9	0.4	64.5	64.7	0.2	2.8	3.0
38	Non-residential	62.9	62.8	-0.1	61.7	62.5	0.8	65.3	65.7	0.3	3.2	3.7
39		58.7	58.6	-0.1	59.2	60.3	1.1	62.0	62.6	0.6	2.2	2.8
40		50.7	50.5	-0.2	59.2	60.3	1.1	59.8	60.8	1.0	0.4	0.6
41		48.6	48.5	-0.1	59.4	60.6	1.3	59.7	60.9	1.2	0.3	0.4
42		58.6	58.2	-0.4	59.6	61.1	1.4	62.2	62.9	0.7	1.8	2.5

Receptor	Receptor Type	Noise Levels (dB, $L_{Aeq,16hr}$)										
		Ground Noise			Air Noise			Combined Air and Ground Noise			Combined Air and Ground Noise minus Air Noise	
		2028 WoD	2028 WD	Change	2028 WoD	2028 WD	Change	2028 WoD	2028 WD	Change	2028 WoD	2028 WD
North-East Quadrant Receptors												
43	Non-residential	61.6	61.2	-0.4	61.6	63.2	1.6	64.6	65.3	0.7	2.1	3.0
44		54	53.7	-0.3	61.6	63.2	1.6	62.3	63.7	1.4	0.5	0.7
45		55.7	55.3	-0.4	62.0	63.6	1.6	62.9	64.2	1.3	0.6	0.9
46	Non-residential	59.1	58.7	-0.4	64.8	66.3	1.5	65.8	67.0	1.1	0.7	1.0
47	Non-residential	64.9	64.4	-0.5	68.8	70.0	1.2	70.3	71.1	0.8	1.1	1.5
48		55.5	55.2	-0.3	62.4	64.0	1.6	63.2	64.5	1.3	0.5	0.8
49		55	54.6	-0.4	62.4	64.0	1.6	63.1	64.4	1.3	0.5	0.7
50		53.6	53.2	-0.4	60.3	61.9	1.6	61.1	62.4	1.3	0.6	0.8
51	Non-residential	61.3	60.9	-0.4	65.6	66.9	1.4	67.0	67.9	1.0	1.0	1.4
52		54.9	54.6	-0.3	59.2	60.7	1.5	60.5	61.6	1.1	1.0	1.4
53		53.7	53.6	-0.1	59.4	61.0	1.5	60.5	61.7	1.2	0.7	1.0
54	Non-residential	56.1	55.9	-0.2	66.5	67.7	1.2	66.9	68.0	1.1	0.3	0.4
55		55	54.8	-0.2	61.3	62.8	1.5	62.2	63.4	1.2	0.6	0.9

Receptor	Receptor Type	Noise Levels (dB, $L_{Aeq,16hr}$)										
		Ground Noise			Air Noise			Combined Air and Ground Noise			Combined Air and Ground Noise minus Air Noise	
		2028 WoD	2028 WD	Change	2028 WoD	2028 WD	Change	2028 WoD	2028 WD	Change	2028 WoD	2028 WD
56	Non-residential	64	63.8	-0.2	71.2	71.9	0.7	71.9	72.5	0.6	0.6	0.8
57		58.6	58.5	-0.1	64.0	65.3	1.3	65.1	66.1	1.0	0.8	1.1
58		47.6	47.3	-0.3	61.8	63.2	1.4	61.9	63.3	1.4	0.1	0.2
59	Non-residential	63.1	63	-0.1	67.4	68.4	1.0	68.8	69.5	0.7	1.1	1.4
60		50.4	50.2	-0.2	61.8	63.2	1.4	62.1	63.4	1.4	0.2	0.3
61	Non-residential	65.3	65.2	-0.1	71.5	72.1	0.6	72.5	72.9	0.5	0.8	0.9
62	Non-residential	58.6	58.4	-0.2	67.2	68.2	1.0	67.7	68.6	0.9	0.4	0.6
63		52	51.9	-0.1	61.4	63.0	1.6	61.9	63.3	1.4	0.3	0.5
64		54.2	53.9	-0.3	63.9	65.3	1.3	64.4	65.6	1.2	0.3	0.4
65		54.5	54.4	-0.1	63.3	64.8	1.5	63.8	65.2	1.4	0.4	0.5
66	Non-residential	63.1	63	-0.1	66.2	67.4	1.2	67.9	68.7	0.8	1.3	1.7
67		55.5	55.5	0	62.5	64.3	1.7	63.3	64.8	1.5	0.5	0.8
68		54.7	54.7	0	59.7	61.9	2.2	60.9	62.7	1.8	0.8	1.2
69	Non-residential	66.5	66.4	-0.1	67.1	68.5	1.4	69.8	70.6	0.8	2.1	2.7

Receptor	Receptor Type	Noise Levels (dB, $L_{Aeq,16hr}$)										
		Ground Noise			Air Noise			Combined Air and Ground Noise			Combined Air and Ground Noise minus Air Noise	
		2028 WoD	2028 WD	Change	2028 WoD	2028 WD	Change	2028 WoD	2028 WD	Change	2028 WoD	2028 WD
70	Non-residential	60.4	60.4	0	62.7	65.0	2.3	64.7	66.3	1.6	1.3	2.0
71		45.6	45.6	0	59.5	62.5	2.9	59.7	62.6	2.9	0.1	0.2
72		58.5	58.4	-0.1	59.6	63.1	3.5	62.1	64.4	2.3	1.3	2.5
73		53.5	53.4	-0.1	57.6	61.4	3.7	59.1	62.0	2.9	0.6	1.4
74		50.7	50.7	0	57.8	61.4	3.5	58.6	61.7	3.1	0.4	0.8
75		51.4	51.4	0	58.0	61.4	3.4	58.9	61.8	3.0	0.4	0.9
76		50.3	50.3	0	58.2	61.4	3.3	58.8	61.7	2.9	0.3	0.7
77	Non-residential	56.1	56.1	0	62.7	65.2	2.5	63.6	65.7	2.1	0.5	0.9
78	Non-residential	50.9	50.9	0	60.7	63.2	2.6	61.1	63.5	2.4	0.2	0.4
79		47.2	47.3	0.1	58.6	61.5	2.9	58.9	61.6	2.8	0.2	0.3
80		45.1	45.1	0	61.1	63.2	2.1	61.3	63.3	2.0	0.1	0.1
81	Non-residential	50.7	50.7	0	61.0	63.2	2.2	61.4	63.5	2.1	0.2	0.4
82		49	49	0	63.9	65.3	1.4	64.0	65.4	1.3	0.1	0.1
83		48.4	48.4	0	67.7	68.5	0.7	67.8	68.5	0.7	0.0	0.1
84		51.1	51.1	0	67.7	68.5	0.7	67.8	68.6	0.7	0.1	0.1

Receptor	Receptor Type	Noise Levels (dB, $L_{Aeq,16hr}$)										
		Ground Noise			Air Noise			Combined Air and Ground Noise			Combined Air and Ground Noise minus Air Noise	
		2028 WoD	2028 WD	Change	2028 WoD	2028 WD	Change	2028 WoD	2028 WD	Change	2028 WoD	2028 WD
85		50.7	50.7	0	70.7	71.1	0.4	70.7	71.1	0.4	0.0	0.0
86		51.3	51.3	0	70.2	70.6	0.4	70.2	70.6	0.4	0.1	0.1
87	Non-residential	62.9	63	0.1	64.1	66.4	2.3	66.6	68.0	1.5	1.6	2.4
88		52.1	52.1	0	63.9	65.3	1.4	64.2	65.5	1.3	0.2	0.3
89		51.1	51.1	0	63.9	65.2	1.3	64.1	65.4	1.3	0.2	0.2
90		48.9	48.9	0	63.9	65.2	1.3	64.1	65.3	1.3	0.1	0.1
91		49.4	49.4	0	61.8	63.5	1.7	62.0	63.6	1.6	0.2	0.2
92		43.7	43.7	0	60.8	62.0	1.2	60.9	62.1	1.2	0.1	0.1
93		40.1	40	-0.1	60.1	61.4	1.3	60.1	61.4	1.2	0.0	0.0
94		40.5	40.5	0	60.3	61.4	1.1	60.3	61.4	1.1	0.0	0.0
95		39.7	39.7	0	60.4	61.1	0.7	60.4	61.1	0.7	0.0	0.0
95		39.7	39.7	0	60.4	61.1	0.7	60.4	61.1	0.7	0.0	0.0
96		38.8	38.8	0	60.4	61.1	0.7	60.4	61.1	0.7	0.0	0.0
97	Non-residential	40.7	40.7	0	60.3	61.1	0.8	60.3	61.1	0.8	0.0	0.0
98	Non-residential	52.5	52.5	0	60.2	60.6	0.4	60.9	61.2	0.3	0.6	0.7
99		42.2	42.2	0	60.6	61.0	0.4	60.7	61.1	0.4	0.1	0.1

Receptor	Receptor Type	Noise Levels (dB, $L_{Aeq,16hr}$)										
		Ground Noise			Air Noise			Combined Air and Ground Noise			Combined Air and Ground Noise minus Air Noise	
		2028 WoD	2028 WD	Change	2028 WoD	2028 WD	Change	2028 WoD	2028 WD	Change	2028 WoD	2028 WD
100		40	40.1	0.1	60.7	61.0	0.4	60.7	61.1	0.4	0.0	0.0
South-East Quadrant Receptors												
101		41.1	41.1	0	61.2	61.2	0.0	61.2	61.2	0.0	0.0	0.0
102		40.8	40.8	0	61.2	61.2	0.0	61.2	61.2	0.0	0.0	0.0
103	Non-residential	62.3	62.2	-0.1	62.2	61.1	-1.1	65.3	64.7	-0.6	3.6	3.0
104		38.7	38.7	0	61.9	61.6	-0.3	61.9	61.6	-0.3	0.0	0.0
105		38	38.1	0.1	62.8	62.4	-0.4	62.8	62.4	-0.4	0.0	0.0
106		37	37	0	64.1	63.6	-0.5	64.1	63.6	-0.5	0.0	0.0
107	Non-residential	57.2	57.2	0	65.0	63.6	-1.5	65.7	64.5	-1.2	0.9	0.7
108	Non-residential	60.3	60.3	0	65.2	63.6	-1.7	66.4	65.2	-1.2	1.7	1.2
109	Non-residential	57	57.1	0.1	66.8	65.4	-1.4	67.3	66.0	-1.3	0.6	0.4
110		47.1	47.1	0	69.0	68.3	-0.7	69.0	68.3	-0.7	0.0	0.0
111		51.2	51.3	0.1	73.1	72.7	-0.5	73.2	72.7	-0.5	0.0	0.0
112		47.2	47.3	0.1	69.9	69.2	-0.7	69.9	69.2	-0.7	0.0	0.0
113		56.2	56.3	0.1	73.1	72.7	-0.5	73.2	72.8	-0.5	0.1	0.1

Receptor	Receptor Type	Noise Levels (dB, $L_{Aeq,16hr}$)										
		Ground Noise			Air Noise			Combined Air and Ground Noise			Combined Air and Ground Noise minus Air Noise	
		2028 WoD	2028 WD	Change	2028 WoD	2028 WD	Change	2028 WoD	2028 WD	Change	2028 WoD	2028 WD
114		60.5	60.6	0.1	68.6	67.0	-1.5	69.2	67.9	-1.3	0.9	0.6
115		60.6	60.7	0.1	64.8	62.8	-2.0	66.2	64.9	-1.3	2.1	1.4
116		61.6	61.7	0.1	64.3	62.8	-1.5	66.2	65.3	-0.9	2.5	1.9
117		59.2	59.3	0.1	64.9	63.6	-1.3	66.0	65.0	-1.0	1.4	1.0
118	Non-residential	64.3	64.3	0	66.3	65.3	-0.9	68.4	67.8	-0.5	2.5	2.1
119	Non-residential	63.4	63.5	0.1	64.0	62.9	-1.0	66.7	66.2	-0.5	3.3	2.7
120		56.8	56.9	0.1	60.4	59.3	-1.1	62.0	61.3	-0.7	2.0	1.6
121		52.2	52.3	0.1	58.0	57.0	-1.0	59.0	58.3	-0.8	1.3	1.0
122		53.8	53.9	0.1	57.8	56.9	-0.9	59.2	58.6	-0.6	1.8	1.5
123		50.2	50.3	0.1	56.8	55.9	-0.8	57.6	57.0	-0.7	1.0	0.9
124		50.3	50.3	0	55.1	54.3	-0.7	56.3	55.8	-0.5	1.4	1.2
125		47.5	47.5	0	54.4	53.7	-0.7	55.2	54.6	-0.6	0.9	0.8
126		50.6	50.6	0	53.1	52.5	-0.6	55.1	54.7	-0.4	2.2	1.9
127		48.8	48.8	0	51.9	51.4	-0.6	53.7	53.3	-0.4	1.9	1.7
South-West Quadrant Receptors												
128	Non-residential	60.1	60	-0.1	54.6	54.0	-0.6	61.2	61.0	-0.2	7.0	6.6

Receptor	Receptor Type	Noise Levels (dB, $L_{Aeq,16hr}$)										
		Ground Noise			Air Noise			Combined Air and Ground Noise			Combined Air and Ground Noise minus Air Noise	
		2028 WoD	2028 WD	Change	2028 WoD	2028 WD	Change	2028 WoD	2028 WD	Change	2028 WoD	2028 WD
129		48.3	48.4	0.1	53.9	53.5	-0.4	54.9	54.7	-0.3	1.2	1.1
130		53.5	53.3	-0.2	57.6	57.3	-0.3	59.1	58.7	-0.3	1.5	1.4
131		52.7	52.5	-0.2	58.1	57.8	-0.3	59.2	58.9	-0.3	1.1	1.1
132		55.7	55.4	-0.3	58.6	58.3	-0.3	60.4	60.1	-0.3	1.8	1.8
133		56.8	56.6	-0.2	61.0	60.7	-0.3	62.4	62.1	-0.3	1.4	1.4
134		59.5	59.6	0.1	62.8	62.4	-0.4	64.5	64.2	-0.2	1.8	1.7
135		59	59	0	62.8	62.4	-0.4	64.3	64.0	-0.3	1.6	1.5
136		58.8	58.9	0.1	63.2	62.8	-0.4	64.5	64.3	-0.3	1.5	1.4
137		61.3	60.7	-0.6	65.1	64.7	-0.4	66.6	66.2	-0.5	1.4	1.5
138		61.4	60.8	-0.6	63.5	63.1	-0.4	65.6	65.1	-0.5	2.0	2.1
139		60.8	60.3	-0.5	65.8	65.3	-0.5	67.0	66.5	-0.5	1.2	1.2
140		61.8	61.1	-0.7	65.8	65.3	-0.5	67.2	66.7	-0.5	1.4	1.5
141		59	58.4	-0.6	63.8	63.4	-0.4	65.1	64.6	-0.5	1.2	1.2
142		59.1	58.5	-0.6	64.1	63.6	-0.5	65.3	64.8	-0.5	1.2	1.2
143		58.9	58.5	-0.4	64.2	63.8	-0.4	65.3	64.9	-0.4	1.1	1.1
144		55	54.3	-0.7	61.2	60.8	-0.4	62.1	61.7	-0.4	0.9	0.9
145		55.2	54.5	-0.7	61.3	61.0	-0.3	62.2	61.8	-0.4	0.9	1.0
146		53.6	53.1	-0.5	61.3	61.0	-0.3	62.0	61.6	-0.3	0.7	0.7

Receptor	Receptor Type	Noise Levels (dB, $L_{Aeq,16hr}$)										
		Ground Noise			Air Noise			Combined Air and Ground Noise			Combined Air and Ground Noise minus Air Noise	
		2028 WoD	2028 WD	Change	2028 WoD	2028 WD	Change	2028 WoD	2028 WD	Change	2028 WoD	2028 WD
147		54.2	53.4	-0.8	61.3	61.0	-0.3	62.1	61.7	-0.4	0.7	0.8
148		53	52	-1	61.4	61.2	-0.2	62.0	61.7	-0.3	0.5	0.6
149		53.1	52.2	-0.9	61.5	61.3	-0.2	62.1	61.8	-0.3	0.5	0.6
150		54.1	53.2	-0.9	62.7	62.7	0.0	63.3	63.1	-0.2	0.5	0.6
151		49.7	49	-0.7	63.8	63.9	0.1	64.0	64.0	0.1	0.1	0.2
152		50.1	49.2	-0.9	65.2	65.3	0.1	65.3	65.4	0.1	0.1	0.1
153		50.1	49.2	-0.9	65.1	65.2	0.1	65.2	65.3	0.1	0.1	0.1
154		49.5	48.5	-1	65.1	65.2	0.1	65.2	65.3	0.1	0.1	0.1
155		48.3	47.3	-1	65.0	65.2	0.2	65.1	65.2	0.1	0.1	0.1
156	Non-residential	50.3	49.4	-0.9	66.4	66.6	0.2	66.5	66.6	0.2	0.1	0.1
157		50	49.2	-0.8	66.2	66.5	0.3	66.3	66.5	0.2	0.1	0.1
158		49.4	48.6	-0.8	67.3	67.7	0.4	67.4	67.7	0.3	0.1	0.1
159		50.2	49.6	-0.6	68.2	68.8	0.6	68.3	68.9	0.6	0.1	0.1
160		50.9	50.2	-0.7	68.4	69.0	0.6	68.5	69.1	0.6	0.1	0.1
161		51.2	50.7	-0.5	68.9	69.9	1.0	69.0	69.9	0.9	0.1	0.1
162		50.2	49.9	-0.3	68.6	69.5	0.9	68.6	69.6	0.9	0.0	0.1
163		50.8	50.2	-0.6	68.6	69.5	0.9	68.6	69.6	0.9	0.1	0.1

Receptor	Receptor Type	Noise Levels (dB, $L_{Aeq,16hr}$)										
		Ground Noise			Air Noise			Combined Air and Ground Noise			Combined Air and Ground Noise minus Air Noise	
		2028 WoD	2028 WD	Change	2028 WoD	2028 WD	Change	2028 WoD	2028 WD	Change	2028 WoD	2028 WD
164	Non-residential	61	61	0	67.1	67.2	0.1	68.1	68.2	0.1	0.9	1.0
165	Non-residential	57.9	57.7	-0.2	65.1	65.2	0.1	65.9	65.9	0.0	0.7	0.8

Table A7.7.17 Combined Air and Ground Noise Exposure at Receptors, Night-time – Standard mode

Receptor	Receptor Type	Noise Levels (dB, $L_{Aeq,8hr}$)										
		Ground Noise			Air Noise			Combined Air and Ground Noise			Combined Air and Ground Noise minus Air Noise	
		2028 WoD	2028 WD	Change	2028 WoD	2028 WD	Change	2028 WoD	2028 WD	Change	2028 WoD	2028 WD
North-West Quadrant Receptors												
1	Non-residential	66.3	66.8	0.5	55.9	55.9	0.0	66.7	67.1	0.5	10.8	11.3
2		28.7	32.6	3.9	60.7	59.7	-1.0	60.7	59.7	-1.0	0.0	0.0
3		38.6	41	2.4	60.7	59.7	-1.0	60.7	59.7	-1.0	0.0	0.1
4		53	52.5	-0.5	57.7	57.4	-0.3	59.0	58.6	-0.4	1.3	1.2
5		53.1	53.1	0	60.4	59.9	-0.6	61.2	60.7	-0.5	0.7	0.8
6		51	51.2	0.2	57.8	57.7	-0.2	58.7	58.5	-0.1	0.8	0.9
7	Non-residential	56.5	54.2	-2.3	58.0	58.2	0.2	60.3	59.6	-0.7	2.3	1.5
8		55.8	53.7	-2.1	56.1	56.4	0.3	58.9	58.3	-0.7	2.9	1.9
9		54.8	52.2	-2.6	54.4	54.8	0.4	57.6	56.7	-0.9	3.2	1.9
10		56.1	53.1	-3	54.4	55.0	0.5	58.4	57.1	-1.2	3.9	2.2
11		55.3	53.3	-2	54.5	55.1	0.6	57.9	57.3	-0.6	3.4	2.2
12	Non-residential	57.4	55.5	-1.9	54.5	55.1	0.6	59.2	58.3	-0.9	4.7	3.2
13		53.7	53.8	0.1	54.6	55.2	0.6	57.2	57.6	0.4	2.6	2.4

Receptor	Receptor Type	Noise Levels (dB, $L_{Aeq,8hr}$)										
		Ground Noise			Air Noise			Combined Air and Ground Noise			Combined Air and Ground Noise minus Air Noise	
		2028 WoD	2028 WD	Change	2028 WoD	2028 WD	Change	2028 WoD	2028 WD	Change	2028 WoD	2028 WD
14	Non-residential	51	52.5	1.5	56.5	57.4	0.9	57.6	58.6	1.0	1.1	1.2
15	Non-residential	59.9	60.2	0.3	58.6	60.1	1.5	62.3	63.2	0.8	3.7	3.1
16	Non-residential	50.7	50.7	0	48.6	48.9	0.3	52.8	52.9	0.1	4.2	4.0
17	Non-residential	53	53.1	0.1	49.8	50.2	0.4	54.7	54.9	0.2	4.9	4.7
18	Non-residential	58.3	58.3	0	54.7	55.2	0.5	59.9	60.0	0.2	5.1	4.8
19	Non-residential	54.2	54.2	0	51.3	51.6	0.4	56.0	56.1	0.1	4.7	4.5
20		43.6	43.9	0.3	46.1	46.4	0.4	48.0	48.4	0.3	1.9	1.9
21		43.6	43.9	0.3	45.9	46.3	0.4	47.9	48.3	0.3	2.0	2.0
22		44	44.3	0.3	45.9	46.3	0.4	48.1	48.4	0.3	2.1	2.1
23		44	44.2	0.2	45.8	46.2	0.3	48.0	48.3	0.3	2.2	2.1
24		43	43.1	0.1	45.8	46.2	0.3	47.6	47.9	0.3	1.8	1.7
25		45.1	45.2	0.1	45.7	46.0	0.3	48.4	48.6	0.2	2.7	2.6
26	Non-residential	46	46.1	0.1	45.8	46.2	0.3	48.9	49.1	0.2	3.1	3.0
27		47.2	47.2	0	46.8	47.1	0.3	50.0	50.2	0.1	3.2	3.1

Receptor	Receptor Type	Noise Levels (dB, $L_{Aeq,8hr}$)										
		Ground Noise			Air Noise			Combined Air and Ground Noise			Combined Air and Ground Noise minus Air Noise	
		2028 WoD	2028 WD	Change	2028 WoD	2028 WD	Change	2028 WoD	2028 WD	Change	2028 WoD	2028 WD
28		48	48.1	0.1	46.8	47.1	0.3	50.4	50.6	0.2	3.7	3.5
29		48.3	48.3	0	46.6	46.9	0.3	50.5	50.7	0.1	3.9	3.8
30		48.7	48.6	-0.1	46.6	46.9	0.3	50.8	50.8	0.1	4.2	4.0
31	Non-residential	63.9	63.9	0	60.5	60.9	0.4	65.5	65.7	0.1	5.1	4.8
32		54.9	54.8	-0.1	52.7	53.0	0.3	57.0	57.0	0.0	4.2	4.0
33		57.7	57.6	-0.1	52.6	52.8	0.2	58.9	58.8	0.0	6.3	6.0
34		58.4	58.4	0	52.4	52.6	0.2	59.4	59.4	0.0	7.0	6.8
35		58.5	58.4	-0.1	52.4	52.6	0.2	59.4	59.4	0.0	7.1	6.8
36	Non-residential	61	60.9	-0.1	56.9	57.1	0.2	62.4	62.4	0.0	5.5	5.3
37	Non-residential	58.5	58.3	-0.2	50.8	51.1	0.3	59.2	59.1	-0.1	8.4	8.0
38	Non-residential	59.9	59.6	-0.3	50.6	51.5	0.8	60.4	60.2	-0.2	9.8	8.8
39		55.7	55.5	-0.2	48.3	49.5	1.2	56.4	56.5	0.0	8.1	7.0
40		48.3	48	-0.3	48.3	49.5	1.2	51.3	51.8	0.5	3.0	2.3
41		46	45.7	-0.3	48.6	50.0	1.3	50.5	51.3	0.8	1.9	1.4
42		55.2	54.8	-0.4	49.0	50.5	1.5	56.1	56.2	0.0	7.1	5.7

Receptor	Receptor Type	Noise Levels (dB, $L_{Aeq,8hr}$)										
		Ground Noise			Air Noise			Combined Air and Ground Noise			Combined Air and Ground Noise minus Air Noise	
		2028 WoD	2028 WD	Change	2028 WoD	2028 WD	Change	2028 WoD	2028 WD	Change	2028 WoD	2028 WD
North-East Quadrant Receptors												
43	Non-residential	58.3	57.7	-0.6	51.4	52.9	1.5	59.1	58.9	-0.2	7.7	6.0
44		51	50.5	-0.5	51.4	52.9	1.5	54.2	54.9	0.7	2.8	2.0
45		51.8	51.2	-0.6	51.8	53.3	1.5	54.8	55.4	0.6	3.0	2.1
46	Non-residential	55.7	55.1	-0.6	54.6	56.0	1.3	58.2	58.6	0.4	3.6	2.6
47	Non-residential	61.6	60.8	-0.8	58.7	59.7	1.0	63.4	63.3	-0.1	4.7	3.6
48		52.1	51.7	-0.4	52.1	53.6	1.5	55.1	55.8	0.6	3.0	2.2
49		51.5	51	-0.5	52.1	53.6	1.5	54.8	55.5	0.7	2.7	1.9
50		49.9	49.4	-0.5	50.0	51.5	1.5	52.9	53.6	0.6	3.0	2.1
51	Non-residential	57.7	57.2	-0.5	55.3	56.5	1.2	59.7	59.9	0.2	4.4	3.4
52		51.3	50.8	-0.5	48.7	50.2	1.5	53.2	53.5	0.3	4.5	3.3
53		48.9	48.6	-0.3	48.8	50.3	1.5	51.9	52.6	0.7	3.0	2.2
54	Non-residential	51.8	51.4	-0.4	56.0	57.0	1.1	57.4	58.1	0.7	1.4	1.0
55		50.4	50	-0.4	50.7	52.2	1.4	53.6	54.2	0.7	2.8	2.1

Receptor	Receptor Type	Noise Levels (dB, $L_{Aeq,8hr}$)										
		Ground Noise			Air Noise			Combined Air and Ground Noise			Combined Air and Ground Noise minus Air Noise	
		2028 WoD	2028 WD	Change	2028 WoD	2028 WD	Change	2028 WoD	2028 WD	Change	2028 WoD	2028 WD
56	Non-residential	59.8	59.3	-0.5	60.4	61.1	0.6	63.1	63.3	0.2	2.7	2.2
57		52	51.8	-0.2	53.3	54.6	1.3	55.7	56.4	0.7	2.4	1.8
58		43.3	42.9	-0.4	50.9	52.4	1.4	51.6	52.8	1.2	0.7	0.5
59	Non-residential	57.7	57.4	-0.3	56.5	57.5	1.0	60.2	60.4	0.3	3.7	3.0
60		46.6	46.2	-0.4	50.8	52.3	1.5	52.2	53.3	1.0	1.4	1.0
61	Non-residential	59.5	59.2	-0.3	60.2	60.8	0.6	62.9	63.1	0.2	2.7	2.3
62	Non-residential	54.2	53.8	-0.4	56.0	57.1	1.0	58.2	58.7	0.5	2.2	1.7
63		46.3	45.9	-0.4	50.5	52.1	1.6	51.9	53.0	1.1	1.4	0.9
64		50.3	49.8	-0.5	52.9	54.2	1.4	54.8	55.6	0.8	1.9	1.3
65		48.9	48.6	-0.3	52.3	53.9	1.5	54.0	55.0	1.0	1.6	1.1
66	Non-residential	56.6	56.4	-0.2	55.2	56.4	1.2	59.0	59.4	0.4	3.7	3.0
67		49.7	49.3	-0.4	51.8	53.5	1.7	53.9	54.9	1.0	2.1	1.4
68		48	47.7	-0.3	49.2	51.2	2.0	51.7	52.8	1.2	2.4	1.6
69	Non-residential	59.6	59.2	-0.4	57.0	58.1	1.1	61.5	61.7	0.2	4.5	3.6

Receptor	Receptor Type	Noise Levels (dB, $L_{Aeq,8hr}$)										
		Ground Noise			Air Noise			Combined Air and Ground Noise			Combined Air and Ground Noise minus Air Noise	
		2028 WoD	2028 WD	Change	2028 WoD	2028 WD	Change	2028 WoD	2028 WD	Change	2028 WoD	2028 WD
70	Non-residential	53.4	53.1	-0.3	53.0	54.7	1.7	56.2	57.0	0.8	3.2	2.3
71		39.3	39	-0.3	50.1	52.3	2.2	50.4	52.5	2.0	0.3	0.2
72		52	51.7	-0.3	52.7	54.3	1.5	55.4	56.2	0.8	2.7	1.9
73		47.3	47	-0.3	50.4	52.2	1.7	52.2	53.3	1.2	1.7	1.2
74		44.4	44.4	0	50.8	52.3	1.5	51.7	53.0	1.3	0.9	0.7
75		44.7	44.5	-0.2	51.0	52.4	1.4	51.9	53.1	1.1	0.9	0.6
76		43.2	43.1	-0.1	51.3	52.5	1.3	51.9	53.0	1.1	0.6	0.5
77	Non-residential	50.4	50.3	-0.1	56.5	57.4	0.8	57.5	58.1	0.7	1.0	0.8
78	Non-residential	44.4	44.3	-0.1	54.2	55.1	0.9	54.6	55.4	0.8	0.4	0.4
79		39	38.9	-0.1	51.8	52.8	1.0	52.0	53.0	1.0	0.2	0.2
80		36.2	36	-0.2	54.8	55.4	0.6	54.8	55.4	0.6	0.1	0.0
81	Non-residential	43.7	43.6	-0.1	54.6	55.3	0.7	54.9	55.6	0.6	0.3	0.3
82		42.5	42.4	-0.1	57.8	58.2	0.4	58.0	58.3	0.4	0.1	0.1
83		40.4	40.1	-0.3	61.8	62.0	0.2	61.9	62.1	0.2	0.0	0.0
84		43.8	43.6	-0.2	61.8	62.0	0.2	61.9	62.1	0.2	0.1	0.1

Receptor	Receptor Type	Noise Levels (dB, $L_{Aeq,8hr}$)										
		Ground Noise			Air Noise			Combined Air and Ground Noise			Combined Air and Ground Noise minus Air Noise	
		2028 WoD	2028 WD	Change	2028 WoD	2028 WD	Change	2028 WoD	2028 WD	Change	2028 WoD	2028 WD
85		44	44	0	64.7	64.8	0.1	64.7	64.8	0.1	0.0	0.0
86		44.6	44.6	0	64.2	64.3	0.1	64.2	64.4	0.1	0.0	0.0
87	Non-residential	58.2	58.3	0.1	57.7	58.6	0.8	61.0	61.5	0.5	3.3	2.9
88		45.4	45.4	0	57.7	58.2	0.5	58.0	58.4	0.4	0.2	0.2
89		44.5	44.5	0	57.7	58.1	0.4	57.9	58.3	0.4	0.2	0.2
90		42.8	42.7	-0.1	57.7	58.1	0.4	57.8	58.3	0.4	0.1	0.1
91		42.7	42.7	0	55.0	55.7	0.7	55.2	55.9	0.7	0.2	0.2
92		37.7	37.8	0.1	53.1	53.8	0.7	53.2	53.9	0.7	0.1	0.1
93		34.5	34.6	0.1	51.8	52.7	0.9	51.9	52.8	0.9	0.1	0.1
94		34.5	34.5	0	51.9	52.8	0.9	52.0	52.8	0.8	0.1	0.1
95		32.2	32.3	0.1	51.5	52.3	0.8	51.5	52.3	0.8	0.1	0.0
96		31.1	31.2	0.1	51.5	52.3	0.8	51.5	52.3	0.8	0.0	0.0
97	Non-residential	33.9	34	0.1	51.4	52.2	0.9	51.4	52.3	0.8	0.1	0.1
98	Non-residential	43.4	43.5	0.1	51.0	51.6	0.6	51.7	52.2	0.6	0.7	0.6
99		35.4	35.5	0.1	51.5	52.2	0.7	51.6	52.3	0.7	0.1	0.1
100		31.9	32	0.1	51.6	52.2	0.7	51.6	52.3	0.7	0.0	0.0

Receptor	Receptor Type	Noise Levels (dB, $L_{Aeq,8hr}$)										
		Ground Noise			Air Noise			Combined Air and Ground Noise			Combined Air and Ground Noise minus Air Noise	
		2028 WoD	2028 WD	Change	2028 WoD	2028 WD	Change	2028 WoD	2028 WD	Change	2028 WoD	2028 WD
South-East Quadrant Receptors												
101		33.8	33.8	0	52.2	52.6	0.5	52.2	52.7	0.5	0.1	0.1
102		33.4	33.5	0.1	52.2	52.6	0.5	52.2	52.7	0.5	0.1	0.1
103	Non-residential	51.5	51.4	-0.1	52.6	51.9	-0.6	55.1	54.7	-0.4	2.5	2.8
104		29.9	30	0.1	53.3	53.5	0.2	53.3	53.5	0.2	0.0	0.0
105		28.8	28.9	0.1	54.9	55.0	0.1	55.0	55.0	0.1	0.0	0.0
106		27.5	27.6	0.1	57.0	56.9	0.0	57.0	56.9	0.0	0.0	0.0
107	Non-residential	47.6	47.6	0	56.3	55.7	-0.6	56.9	56.3	-0.6	0.5	0.6
108	Non-residential	51.4	51.4	0	56.1	55.2	-0.9	57.4	56.7	-0.6	1.3	1.5
109	Non-residential	49.5	49.7	0.2	58.8	58.3	-0.5	59.3	58.8	-0.5	0.5	0.6
110		36.6	36.8	0.2	62.7	62.5	-0.2	62.7	62.5	-0.2	0.0	0.0
111		45	45.2	0.2	67.3	67.2	-0.1	67.3	67.2	-0.1	0.0	0.0
112		38.4	38.6	0.2	63.7	63.6	-0.2	63.8	63.6	-0.2	0.0	0.0
113		49.3	49.6	0.3	67.3	67.2	-0.1	67.4	67.3	-0.1	0.1	0.1
114		54.5	54.8	0.3	60.7	60.1	-0.6	61.6	61.2	-0.4	0.9	1.1

Receptor	Receptor Type	Noise Levels (dB, $L_{Aeq,8hr}$)										
		Ground Noise			Air Noise			Combined Air and Ground Noise			Combined Air and Ground Noise minus Air Noise	
		2028 WoD	2028 WD	Change	2028 WoD	2028 WD	Change	2028 WoD	2028 WD	Change	2028 WoD	2028 WD
115		54.9	55	0.1	55.1	53.8	-1.3	58.0	57.5	-0.6	2.9	3.6
116		56.1	56.1	0	53.9	52.6	-1.3	58.2	57.7	-0.4	4.2	5.1
117		53.9	54	0.1	54.3	53.1	-1.2	57.1	56.6	-0.5	2.8	3.5
118	Non-residential	58	58.2	0.2	55.6	54.7	-0.9	60.0	59.8	-0.2	4.4	5.1
119	Non-residential	57.6	57.8	0.2	53.5	52.5	-1.0	59.0	58.9	-0.1	5.6	6.4
120		51.5	51.7	0.2	49.8	48.7	-1.1	53.7	53.5	-0.3	4.0	4.8
121		47	47.2	0.2	47.4	46.4	-1.0	50.2	49.8	-0.4	2.8	3.4
122		49	49.1	0.1	47.3	46.4	-0.9	51.2	51.0	-0.3	3.9	4.6
123		45.2	45.3	0.1	46.3	45.5	-0.8	48.8	48.4	-0.4	2.5	2.9
124		45.6	45.7	0.1	44.6	43.9	-0.7	48.1	47.9	-0.2	3.5	4.0
125		42.1	42.2	0.1	43.9	43.2	-0.7	46.1	45.7	-0.4	2.2	2.6
126		46.2	46.3	0.1	42.7	42.1	-0.6	47.8	47.7	-0.1	5.1	5.6
127		44.8	44.8	0	41.4	40.9	-0.5	46.4	46.3	-0.2	5.0	5.4
South-West Quadrant Receptors												
128	Non-residential	56.2	56.3	0.1	44.2	43.8	-0.5	56.5	56.5	0.1	12.2	12.8
129		45	45.1	0.1	43.3	43.0	-0.3	47.2	47.2	-0.1	3.9	4.2

Receptor	Receptor Type	Noise Levels (dB, $L_{Aeq,8hr}$)										
		Ground Noise			Air Noise			Combined Air and Ground Noise			Combined Air and Ground Noise minus Air Noise	
		2028 WoD	2028 WD	Change	2028 WoD	2028 WD	Change	2028 WoD	2028 WD	Change	2028 WoD	2028 WD
130		50.4	50.4	0	46.9	46.6	-0.3	52.0	51.9	-0.1	5.1	5.3
131		49.8	49.8	0	47.3	47.0	-0.3	51.7	51.6	-0.1	4.4	4.6
132		52.7	52.7	0	47.7	47.5	-0.3	53.9	53.8	-0.1	6.2	6.4
133		53	53	0	50.0	49.7	-0.3	54.8	54.7	-0.1	4.7	4.9
134		54.8	54.9	0.1	51.8	51.5	-0.3	56.6	56.5	0.0	4.8	5.1
135		55.2	55.2	0	51.8	51.5	-0.3	56.8	56.7	-0.1	5.0	5.3
136		55.9	56	0.1	52.1	51.8	-0.3	57.4	57.4	0.0	5.3	5.6
137		57.8	57.7	-0.1	54.0	53.7	-0.4	59.3	59.2	-0.2	5.3	5.5
138		58.4	58.3	-0.1	52.4	52.0	-0.4	59.4	59.2	-0.2	7.0	7.2
139		57.6	57.5	-0.1	54.6	54.1	-0.5	59.4	59.1	-0.2	4.8	5.0
140		58.4	58.3	-0.1	54.6	54.1	-0.5	59.9	59.7	-0.2	5.3	5.6
141		55.9	55.8	-0.1	52.7	52.3	-0.4	57.6	57.4	-0.2	4.9	5.1
142		55.9	55.8	-0.1	52.9	52.4	-0.4	57.6	57.4	-0.2	4.8	5.0
143		56	55.9	-0.1	52.9	52.5	-0.4	57.7	57.5	-0.2	4.8	5.0
144		51.9	51.7	-0.2	49.9	49.6	-0.3	54.0	53.8	-0.3	4.1	4.2
145		52.2	52	-0.2	50.0	49.7	-0.3	54.2	54.0	-0.2	4.2	4.3
146		50.8	50.8	0	50.0	49.7	-0.3	53.4	53.3	-0.1	3.4	3.6
147		51	50.8	-0.2	50.0	49.8	-0.3	53.6	53.3	-0.2	3.5	3.5

Receptor	Receptor Type	Noise Levels (dB, $L_{Aeq,8hr}$)										
		Ground Noise			Air Noise			Combined Air and Ground Noise			Combined Air and Ground Noise minus Air Noise	
		2028 WoD	2028 WD	Change	2028 WoD	2028 WD	Change	2028 WoD	2028 WD	Change	2028 WoD	2028 WD
148		49.5	49.3	-0.2	50.1	49.9	-0.2	52.8	52.6	-0.2	2.7	2.7
149		49.5	49.3	-0.2	50.1	49.9	-0.2	52.8	52.6	-0.2	2.7	2.7
150		50.4	50	-0.4	51.3	51.3	0.0	53.9	53.7	-0.2	2.6	2.4
151		46.1	45.8	-0.3	52.3	52.5	0.2	53.2	53.3	0.1	0.9	0.8
152		46.9	46.6	-0.3	53.7	53.9	0.3	54.5	54.7	0.2	0.8	0.7
153		46.8	46.5	-0.3	53.6	53.9	0.3	54.4	54.6	0.2	0.8	0.7
154		46.1	45.8	-0.3	53.6	53.9	0.3	54.3	54.5	0.2	0.7	0.6
155		44.8	44.4	-0.4	53.5	53.8	0.3	54.1	54.3	0.2	0.5	0.5
156	Non-residential	47	46.7	-0.3	54.9	55.3	0.4	55.6	55.9	0.3	0.6	0.6
157		46.8	46.5	-0.3	54.9	55.3	0.4	55.5	55.8	0.3	0.6	0.5
158		46.1	45.8	-0.3	56.2	56.8	0.6	56.6	57.1	0.5	0.4	0.3
159		47.2	47	-0.2	57.8	58.8	0.9	58.2	59.0	0.9	0.4	0.3
160		47.8	47.5	-0.3	58.0	58.8	0.9	58.4	59.2	0.8	0.4	0.3
161		48	47.9	-0.1	59.4	60.6	1.2	59.7	60.8	1.1	0.3	0.2
162		47.1	47	-0.1	59.1	60.3	1.2	59.3	60.5	1.1	0.3	0.2
163		47	46.8	-0.2	59.1	60.3	1.2	59.3	60.5	1.1	0.3	0.2
164	Non-residential	56.9	57	0.1	55.7	55.9	0.2	59.3	59.5	0.2	3.7	3.6

Receptor	Receptor Type	Noise Levels (dB, $L_{Aeq,8hr}$)										
		Ground Noise			Air Noise			Combined Air and Ground Noise			Combined Air and Ground Noise minus Air Noise	
		2028 WoD	2028 WD	Change	2028 WoD	2028 WD	Change	2028 WoD	2028 WD	Change	2028 WoD	2028 WD
165	Non-residential	56	56	0	53.7	53.8	0.1	58.0	58.1	0.0	4.3	4.2