14C. Ground Noise Modelling Results and Figures

14C.1 Introduction

14C.1.1 This replacement appendix of the Environmental Impact Assessment Report (EIAR), prepared by Bickerdike Allen Partners LLP (BAP), presents the results of the aircraft ground noise modelling. The modelling methodology is described in replacement Appendix 14B.

14C.2 Assessment Scenarios

14C.2.1 The following scenarios have been included in the ground noise assessment:

- 2018
- 2025 Permitted
- 2025 Proposed
- 2035 Permitted
- 2035 Proposed

14C.3 Assessment Metrics

14C.3.1 For each assessment scenario the following metrics have been assessed:

- L_{den}, the average annual 24-hour noise level with a 5 dB penalty applied during the evening (19:00-23:00) and a 10 dB penalty applied during the night (23:00-07:00)
- L_{night}, the average annual noise level at night (23:00-07:00)
- $L_{Aeq,16h}$, the average summer noise level during the 16-hour day (07:00-23:00)
- $L_{Aeq,8h}$, the average summer noise level during the night (23:00-07:00)

14C.3.2 $L_{Aeq,1h}$, the average annual noise level during the specified hour, has also been assessed for scenarios in 2025.

14C.3.3 Summer in the above list refers to the 92-day period between 16 June and 15 September inclusive. This typically corresponds to the busiest period of the year.

14C.4 Assessment Results

Figures

14C.4.1 For each assessment scenario and metric, the results are first presented in a series of figures, showing contours on an Ordnance Survey Ireland base map. Table 14C-1 provides a reference to aid finding a specific figure.

Table 14C-1: Contour Figure References

Scenario	Metric and Figure Reference			
	L_{den}	L_{night}	$L_{Aeq,16h}$	$L_{Aeq,8h}$
2018	14C-1	14C-2	14C-3	14C-4
2025 Permitted	14C-5	14C-6	14C-7	14C-8
2025 Proposed	14C-9	14C-10	14C-11	14C-12
2035 Permitted	14C-13	14C-14	14C-15	14C-16
2035 Proposed	14C-17	14C-18	14C-19	14C-20

Contour Dwelling and Population Counts

14C.4.2 For each assessment scenario and metric, the tables below present the number of dwellings and people within each contour. The dwelling and population counts are presented in terms of existing dwellings.

14C.4.3 Also considered were permitted dwellings, i.e. those with planning permission that are not yet built, and zoned dwellings, i.e. those that are expected to be built in areas zoned for residential development, however there were none of these in any of the assessed contours.

14C.4.4 All of the counts below are cumulative, i.e. the people within a 60 dB contour would also be counted as within the corresponding 50 dB contour. Table 14C-2 provides a reference to aid finding a specific result.

Table 14C-2: Contour Dwelling and Population Count Table References

Metric	Result Item and Table Reference			
	Existing Dwelling Counts	**Permitted Dwelling Counts**	**Existing Population Counts**	**Permitted Population Counts**
L_{den}	Table 14C-3	Table 14C-7	Table 14C-11	Table 14C-15
L_{night}	Table 14C-4	Table 14C-8	Table 14C-12	Table 14C-16
$L_{Aeq,16h}$	Table 14C-5	Table 14C-9	Table 14C-13	Table 14C-17
$L_{Aeq,8h}$	Table 14C-6	Table 14C-10	Table 14C-14	Table 14C-18

Table 14C-3: Existing Dwelling Counts, L_{den} Metric

Metric Value, dB L_{den}	Scenario and Existing Dwelling Count				
	2018	2025 Permitted	2025 Proposed	2035 Permitted	2035 Proposed
≥ 45	65	158	519	158	532
≥ 50	21	26	33	26	33
≥ 55	9	10	17	10	17
≥ 60	1	1	1	1	1
≥ 65	0	0	0	0	0
≥ 70	0	0	0	0	0
≥ 75	65	158	519	158	532

Table 14C-4: Existing Dwelling Counts, L_{night} Metric

Metric Value, dB L_{night}	Scenario and Existing Dwelling Count				
	2018	2025 Permitted	2025 Proposed	2035 Permitted	2035 Proposed
≥ 40	35	26	51	26	51
≥ 45	10	9	20	9	20
≥ 50	2	1	7	1	7
≥ 55	0	0	1	0	1
≥ 60	0	0	0	0	0
≥ 65	0	0	0	0	0
≥ 70	35	26	51	26	51

Table 14C-5: Existing Dwelling Counts, $L_{Aeq,16h}$ Metric

Metric Value, dB $L_{Aeq,16h}$	Scenario and Existing Dwelling Count				
	2018	2025 Permitted	2025 Proposed	2035 Permitted	2035 Proposed
≥ 51	10	19	19	19	19
≥ 54	5	11	11	11	11
≥ 57	1	1	1	1	1
≥ 60	1	1	1	1	1
≥ 63	0	0	0	0	0
≥ 66	0	0	0	0	0
≥ 69	0	0	0	0	0

Table 14C-6: Existing Dwelling Counts, $L_{Aeq,8h}$ Metric

Metric Value, dB $L_{Aeq,8h}$	Scenario and Existing Dwelling Count				
	2018	2025 Permitted	2025 Proposed	2035 Permitted	2035 Proposed
≥ 45	12	10	24	10	24
≥ 48	9	5	15	5	15
≥ 51	2	1	5	1	5
≥ 54	1	0	1	0	1
≥ 57	0	0	0	0	0
≥ 60	0	0	0	0	0
≥ 63	0	0	0	0	0

Table 14C-7: Existing Population Counts, L_{den} Metric

Metric Value, dB L_{den}	Scenario and Existing Population Count				
	2018	2025 Permitted	2025 Proposed	2035 Permitted	2035 Proposed
≥ 45	171	472	1,541	472	1,583
≥ 50	59	74	91	74	91
≥ 55	29	32	51	32	51
≥ 60	3	3	3	3	3
≥ 65	0	0	0	0	0
≥ 70	0	0	0	0	0
≥ 75	171	472	1,541	472	1,583

Table 14C-8: Existing Population Counts, L_{night} Metric

Metric Value, dB L_{night}	Scenario and Existing Population Count				
	2018	2025 Permitted	2025 Proposed	2035 Permitted	2035 Proposed
≥ 40	94	74	133	74	133
≥ 45	31	29	57	29	57
≥ 50	6	3	22	3	22
≥ 55	0	0	3	0	3
≥ 60	0	0	0	0	0
≥ 65	0	0	0	0	0
≥ 70	94	74	133	74	133

Table 14C-9: Existing Population Counts, $L_{Aeq,16h}$ Metric

Metric Value, dB $L_{Aeq,16h}$	Scenario and Existing Population Count				
	2018	2025 Permitted	2025 Proposed	2035 Permitted	2035 Proposed
≥ 51	31	57	57	57	57
≥ 54	16	32	32	32	32
≥ 57	3	3	3	3	3
≥ 60	3	3	3	3	3
≥ 63	0	0	0	0	0
≥ 66	0	0	0	0	0
≥ 69	0	0	0	0	0

Table 14C-10: Existing Population Counts, $L_{Aeq,8h}$ Metric

Metric Value, dB $L_{Aeq,8h}$	Scenario and Existing Population Count				
	2018	2025 Permitted	2025 Proposed	2035 Permitted	2035 Proposed
≥ 45	37	31	68	31	68
≥ 48	29	16	44	16	44
≥ 51	6	3	16	3	16
≥ 54	3	0	3	0	3
≥ 57	0	0	0	0	0
≥ 60	0	0	0	0	0
≥ 63	0	0	0	0	0

Community Building Counts

14C.4.5 For each assessment scenario and metric, the following community buildings have been assessed:

- Education Buildings
- Residential Healthcare Facilities
- Religious Buildings

14C.4.6 The assessment found no community buildings within any of the contours assessed, for all scenarios and metrics.

Night-time $L_{Aeq,1h}$ Noise Levels at Representative Locations

14C.4.7 For each Scenario, in the Assessment Year 2025, the tables below present the hourly $L_{Aeq,1h}$ noise levels at representative locations for the hours during the night (23:00 to 07:00). The locations are described in replacement Chapter 14 and can be seen in Figure 14-3. Detailed modelling has not been carried out for these hourly metrics, they are instead based on the average annual night, L_{night}, while accounting for the proportion of aircraft movements and runway usage occurring in the specified hour.

Table 14C-11: $L_{Aeq,1h}$ Noise Levels Table References

Scenario	Table Reference
2025 Permitted	Table 14C-33
2025 Proposed	Table 14C-34

Table 14C-12: Noise Levels at Representative Locations ($L_{Aeq,1h}$) – 2025 Permitted Scenario

Ref. No.	Location	Hour and $L_{Aeq,1h}$ Noise Level (dB)							
		23-00	00-01	01-02	02-03	03-04	04-05	05-06	06-07
GR01	Ridgewood	31	27	30	0	27	33	37	37
GR02	The Baskins	24	20	23	0	20	25	30	29
GR03	Mayeston Hall	29	25	28	0	25	31	35	35
GR04	St. Margret's	27	23	26	0	23	29	33	33

Note – noise levels rounded to nearest whole number.

Table 14C-13: Noise Levels at Representative Locations ($L_{Aeq,1h}$) – 2025 Proposed Scenario

Ref. No.	Location	Hour and $L_{Aeq,1h}$ Noise Level (dB)							
		23-00	00-01	01-02	02-03	03-04	04-05	05-06	06-07
GR01	Ridgewood	42	36	33	27	29	36	35	43
GR02	The Baskins	31	29	26	20	21	28	28	33
GR03	Mayeston Hall	37	34	31	25	27	34	33	39
GR04	St. Margret's	35	32	29	23	25	32	31	36

Note – noise levels rounded to nearest whole number.