Appendix 9-5: Ground Noise Modelling Results and Figures

9-5. Ground noise modelling results and figures

9-5.1 Introduction

9-5.1.1 This appendix of the Environmental Impact Assessment Report (EIAR), prepared by Bickerdike Allen Partners LLP (BAP), presents the results of the ground noise modelling. The modelling methodology, including the derivation of the dwelling and population counts, is described in Appendix 9-3.

9-5.2 Assessment scenarios

9-5.2.1 Three scenarios have been included in the air noise assessment, these are:

- Current Receiving Environment (2025)
- 2029 Permitted Operation
- 2029 Proposed Operation

9-5.3 Assessment metrics

9-5.3.1 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)

9-5.4 Assessment results

Figures

9-5.4.1 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 9-5-1 provides a reference to aid finding a specific figure.

Table 9-5-1: Contour figure references – ground noise only

Scenario	Metric and figure reference			
	L_{den}	L_{night}	$L_{Aeq,16h}$	$L_{Aeq,8h}$
Current Receiving Environment	9-5-001	9-5-002	9-5-003	9-5-004
2029 Proposed Operation	9-5-005	9-5-006	9-5-007	9-5-008
2029 Permitted Operation	9-5-009	9-5-010	9-5-011	9-5-012

Contour dwelling and population counts

9-5.4.2 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 two categories:

- Existing dwellings
- Consented dwellings, i.e. those with planning permission that are not yet built

9-5.4.3 An assessment of zoned land was also undertaken. This did not identify any areas which are designated for residential use within the study area.

9-5.4.4 Table 9-5-2 provides a reference to aid finding a specific result. 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 9-5-2: Dwelling and population count table references

Metric	Result item and table reference			
	Existing Dwelling Counts	Consented Dwelling Counts	Existing Population Counts	Consented Population Counts
L_{den}	9-5-3	9-5-7	9-5-11	9-5-15
L_{night}	9-5-4	9-5-8	9-5-12	9-5-16
$L_{Aeq,16h}$	9-5-5	9-5-9	9-5-13	9-5-17
$L_{Aeq,8h}$	9-5-6	9-5-10	9-5-14	9-5-18

Table 9-5-3: Existing dwelling counts, L_{den} metric

Metric Value, dB L_{den}	Scenario and existing dwelling count		
	Current Receiving Environment	2029 Permitted Operation	2029 Proposed Operation
≥ 45	276	478	734
≥ 50	33	33	37
≥ 55	15	16	18
≥ 60	1	1	1
≥ 65	0	0	0
≥ 70	0	0	0
≥ 75	0	0	0

Table 9-5-4: Existing dwelling counts, L_{night} metric

Metric Value, dB L_{night}	Scenario and existing dwelling count		
	Current Receiving Environment	2029 Permitted Operation	2029 Proposed Operation
≥ 40	42	46	49
≥ 45	13	18	21
≥ 50	5	6	6
≥ 55	0	1	1
≥ 60	0	0	0
≥ 65	0	0	0
≥ 70	0	0	0

Table 9-5-5: Existing dwelling counts, $L_{Aeq,16h}$ metric

Metric Value, dB $L_{Aeq,16h}$	Scenario and existing dwelling count		
	Current Receiving Environment	2029 Permitted Operation	2029 Proposed Operation
≥ 51	21	19	21
≥ 54	12	10	13
≥ 57	1	1	1
≥ 60	1	1	1
≥ 63	0	0	0
≥ 66	0	0	0
≥ 69	0	0	0

Table 9-5-6: Existing dwelling counts, $L_{Aeq,8h}$ metric

Metric Value, dB $L_{Aeq,8h}$	Scenario and existing dwelling count		
	Current Receiving Environment	2029 Permitted Operation	2029 Proposed Operation
≥ 45	18	26	28
≥ 48	11	16	16
≥ 51	1	6	6
≥ 54	1	1	1
≥ 57	0	0	0
≥ 60	0	0	0
≥ 63	0	0	0

Table 9-5-7: Consented dwelling counts, L_{den} metric

Metric Value, dB L_{den}	Scenario and consented dwelling count		
	Current Receiving Environment	2029 Permitted Operation	2029 Proposed Operation
≥ 45	0	0	1
≥ 50	0	0	0
≥ 55	0	0	0
≥ 60	0	0	0
≥ 65	0	0	0
≥ 70	0	0	0
≥ 75	0	0	0

Table 9-5-8: Consented dwelling counts, L_{night} metric

Metric Value, dB L_{night}	Scenario and consented dwelling count		
	Current Receiving Environment	2029 Permitted Operation	2029 Proposed Operation
≥ 40	0	0	0
≥ 45	0	0	0
≥ 50	0	0	0
≥ 55	0	0	0
≥ 60	0	0	0

Metric Value, dB L_{night}	Scenario and consented dwelling count		
	Current Receiving Environment	2029 Permitted Operation	2029 Proposed Operation
≥ 65	0	0	0
≥ 70	0	0	0

Table 9-5-9: Consented dwelling counts, $L_{Aeq,16h}$ metric

Metric Value, dB $L_{Aeq,16h}$	Scenario and consented dwelling count		
	Current Receiving Environment	2029 Permitted Operation	2029 Proposed Operation
≥ 51	0	0	0
≥ 54	0	0	0
≥ 57	0	0	0
≥ 60	0	0	0
≥ 63	0	0	0
≥ 66	0	0	0
≥ 69	0	0	0

Table 9-5-10: Consented dwelling counts, $L_{Aeq,8h}$ metric

Metric Value, dB $L_{Aeq,8h}$	Scenario and consented dwelling count		
	Current Receiving Environment	2029 Permitted Operation	2029 Proposed Operation
≥ 45	0	0	0
≥ 48	0	0	0
≥ 51	0	0	0
≥ 54	0	0	0
≥ 57	0	0	0
≥ 60	0	0	0
≥ 63	0	0	0

Table 9-5-11: Existing population counts, L_{den} metric

Metric Value, dB L_{den}	Scenario and existing population count		
	Current Receiving Environment	2029 Permitted Operation	2029 Proposed Operation
≥ 45	803	1,392	2,169
≥ 50	73	73	82
≥ 55	26	29	34
≥ 60	3	3	3
≥ 65	0	0	0
≥ 70	0	0	0
≥ 75	0	0	0

Table 9-5-12: Existing population counts, L_{night} metric

Metric Value, dB L_{night}	Scenario and existing population count		
	Current Receiving Environment	2029 Permitted Operation	2029 Proposed Operation
≥ 40	96	108	116
≥ 45	22	34	43
≥ 50	10	13	13
≥ 55	0	3	3
≥ 60	0	0	0
≥ 65	0	0	0
≥ 70	0	0	0

Table 9-5-13: Existing population counts, $L_{Aeq,16h}$ metric

Metric Value, dB $L_{Aeq,16h}$	Scenario and existing population count		
	Current Receiving Environment	2029 Permitted Operation	2029 Proposed Operation
≥ 51	43	37	44
≥ 54	20	20	24
≥ 57	3	3	3
≥ 60	3	3	3
≥ 63	0	0	0
≥ 66	0	0	0
≥ 69	0	0	0

Table 9-5-14: Existing population counts, $L_{Aeq,8h}$ metric

Metric Value, dB $L_{Aeq,8h}$	Scenario and existing population count		
	Current Receiving Environment	2029 Permitted Operation	2029 Proposed Operation
≥ 45	35	56	61
≥ 48	19	29	29
≥ 51	3	13	13
≥ 54	3	3	3
≥ 57	0	0	0
≥ 60	0	0	0
≥ 63	0	0	0

Table 9-5-15: Consented population counts, L_{den} metric

Metric Value, dB L_{den}	Scenario and consented population count		
	Current Receiving Environment	2029 Permitted Operation	2029 Proposed Operation
≥ 45	0	0	4
≥ 50	0	0	0
≥ 55	0	0	0
≥ 60	0	0	0
≥ 65	0	0	0

Metric Value, dB L_{den}	Scenario and consented population count		
	Current Receiving Environment	2029 Permitted Operation	2029 Proposed Operation
≥ 70	0	0	0
≥ 75	0	0	0

Table 9-5-16: Consented population counts, L_{night} metric

Metric Value, dB L_{night}	Scenario and consented population count		
	Current Receiving Environment	2029 Permitted Operation	2029 Proposed Operation
≥ 40	0	0	0
≥ 45	0	0	0
≥ 50	0	0	0
≥ 55	0	0	0
≥ 60	0	0	0
≥ 65	0	0	0
≥ 70	0	0	0

Table 9-5-17: Consented population counts, $L_{Aeq,16h}$ metric

Metric Value, dB $L_{Aeq,16h}$	Scenario and consented population count		
	Current Receiving Environment	2029 Permitted Operation	2029 Proposed Operation
≥ 51	0	0	0
≥ 54	0	0	0
≥ 57	0	0	0
≥ 60	0	0	0
≥ 63	0	0	0
≥ 66	0	0	0
≥ 69	0	0	0

Table 9-5-18: Consented population counts, $L_{Aeq,8h}$ metric

Metric Value, dB $L_{Aeq,8h}$	Scenario and consented population count		
	Current Receiving Environment	2029 Permitted Operation	2029 Proposed Operation
≥ 45	0	0	0
≥ 48	0	0	0
≥ 51	0	0	0
≥ 54	0	0	0
≥ 57	0	0	0
≥ 60	0	0	0
≥ 63	0	0	0

Community building counts

9-5.4.5 For each assessment scenario and metric, the tables below present the number of community buildings within each contour. The following community buildings have been assessed:

- Education buildings
- Residential healthcare facilities
- Religious buildings

9-5.4.6 Not all metrics will be relevant for all receptors, e.g. education buildings are not typically noise-sensitive at night, however full results have been presented for completeness.

9-5.4.7 The assessment found no education or healthcare buildings within any of the contours assessed, for all scenarios and metrics.

9-5.4.8 All of the counts below are cumulative, i.e. the buildings within a 60 dB contour would also be counted as within the corresponding 50 dB contour.

Table 9-5-19: Religious building counts, L_{den} metric

Metric Value, dB L_{den}	Scenario and religious building count		
	Current Receiving Environment	2029 Permitted Operation	2029 Proposed Operation
≥ 45	1	1	1
≥ 50	1	1	1
≥ 55	0	0	0
≥ 60	0	0	0
≥ 65	0	0	0
≥ 70	0	0	0
≥ 75	0	0	0

Table 9-5-20: Religious building counts, L_{night} metric

Metric Value, dB L_{night}	Scenario and religious building count		
	Current Receiving Environment	2029 Permitted Operation	2029 Proposed Operation
≥ 40	1	1	1
≥ 45	0	0	0
≥ 50	0	0	0
≥ 55	0	0	0
≥ 60	0	0	0
≥ 65	0	0	0
≥ 70	0	0	0

Table 9-5-21: Religious building counts, $L_{Aeq,16h}$ metric

Metric Value, dB $L_{Aeq,16h}$	Scenario and religious building count		
	Current Receiving Environment	2029 Permitted Operation	2029 Proposed Operation
≥ 51	1	0	0
≥ 54	0	0	0
≥ 57	0	0	0
≥ 60	0	0	0
≥ 63	0	0	0
≥ 66	0	0	0
≥ 69	0	0	0

Table 9-5-22: Religious building counts, $L_{Aeq,8h}$ metric

Metric Value, dB $L_{Aeq,8h}$	Scenario and religious building count		
	Current Receiving Environment	2029 Permitted Operation	2029 Proposed Operation
≥ 45	0	1	1
≥ 48	0	0	0
≥ 51	0	0	0
≥ 54	0	0	0
≥ 57	0	0	0
≥ 60	0	0	0
≥ 63	0	0	0