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To:	Rio Tinto – Winu Project	**From:**	Matt Moyle
Attention:	Matthew Devlin	**Date:**	19 February 2025
Email:	Matthew.Devlin@riotinto.com	**Pages:**	5 + Appendix A
Our Ref:	24129771-01 Memo Air Field		
Re:	**Winu Project: Aircraft Noise Assessment**		

Lloyd George Acoustics was engaged to prepare a desktop assessment of aircraft noise due to the proposed air field at Rio Tinto, Winu Project.

The study has been undertaken using methodology in accordance with Australian Standard 2021:2015 *Aircraft noise intrusion - Building siting and construction*. Noise modelling software, *SoundPlan Noise 9.0* has been utilised to graphically represent the noise levels from worst-case aircraft. In some cases, precise aircraft were substituted with representative models to align with the Standard (see *Appendix A*).

1. METHODOLOGY

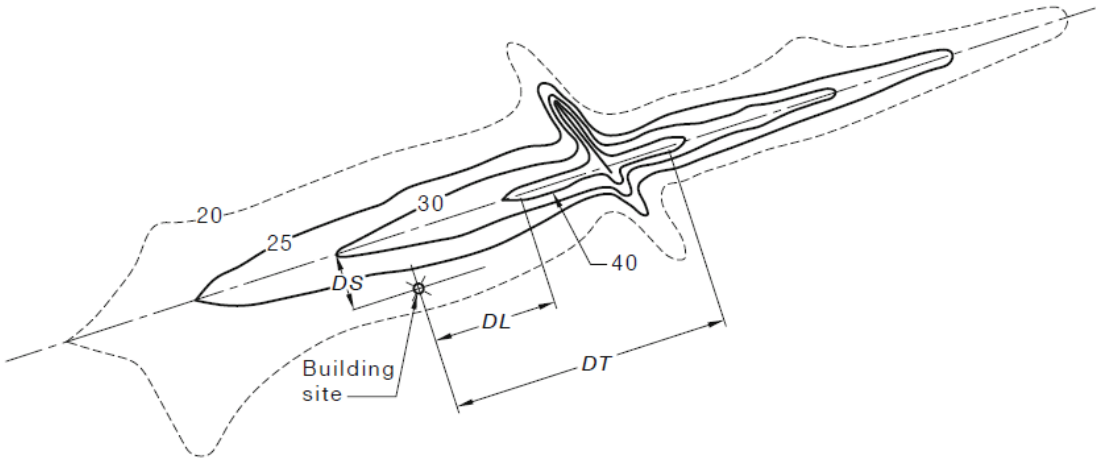
The following Air field noise scenarios were assessed:

- **Scenario 1: Current Operations.** Aircraft Pilatus PC12 and King Air. For the purposes of alignment with AS2021:2015 the Pilatus PC12 was considered similar in noise to the Cessna 208 (refer *Appendix A*).
- **Scenario 2: Intermediate Operations.** Aircraft ATR72 on extended runway. For the purposes of alignment with AS2021:2015 the ATR72 was considered similar in noise to the Dornier 328-100 (refer *Appendix A*).
- **Scenario 3: Mining Operations.** Aircraft Fokker 100, E 190 and Q400 on extended runway. For the purposes of alignment with AS2021:2015 the Fokker 100 was considered most conservative (refer *Appendix A*).

Note that the Standard allows for land height corrections however the study, being high level at this stage, assumes a flat terrain model and straight flight paths for all scenarios. Figure 3.1 of AS 2021:2015 (Overleaf) outlines the input dimensions used in the calculations. Departure (take off) noise is louder than arrival (landing), therefore all modelling has been undertaken assuming departures in either runway directions. Distance DL is not used since this pertains to arrivals/landing noise calculations.

The Standard projects noise up to 20km Centreline distance (DT) and 2.6km Sideline Distance (DS) in each direction. Outside of these distances the noise contour maps will appear “cropped” while in reality the noise levels will continue to decay.

The noise modelling graphically reproduces the aircraft noise calculations within the standard and aligns the noise results with the proposed project airfield.



DIMENSIONS IN ANEF UNITS

FIGURE 3.1 DETERMINATION OF *DS*, *DL* AND *DT* FOR STRAIGHT FLIGHT PATHS

2. RESULTS

Modelled results were overlayed with aerial photography and provided drawings of the proposal including key infrastructure such as Camps, Process Plant and the ROM pad. In addition, each result also includes the surveyed Night Parrot Habitats.

The following figures and outcomes were generated for each air field scenario:

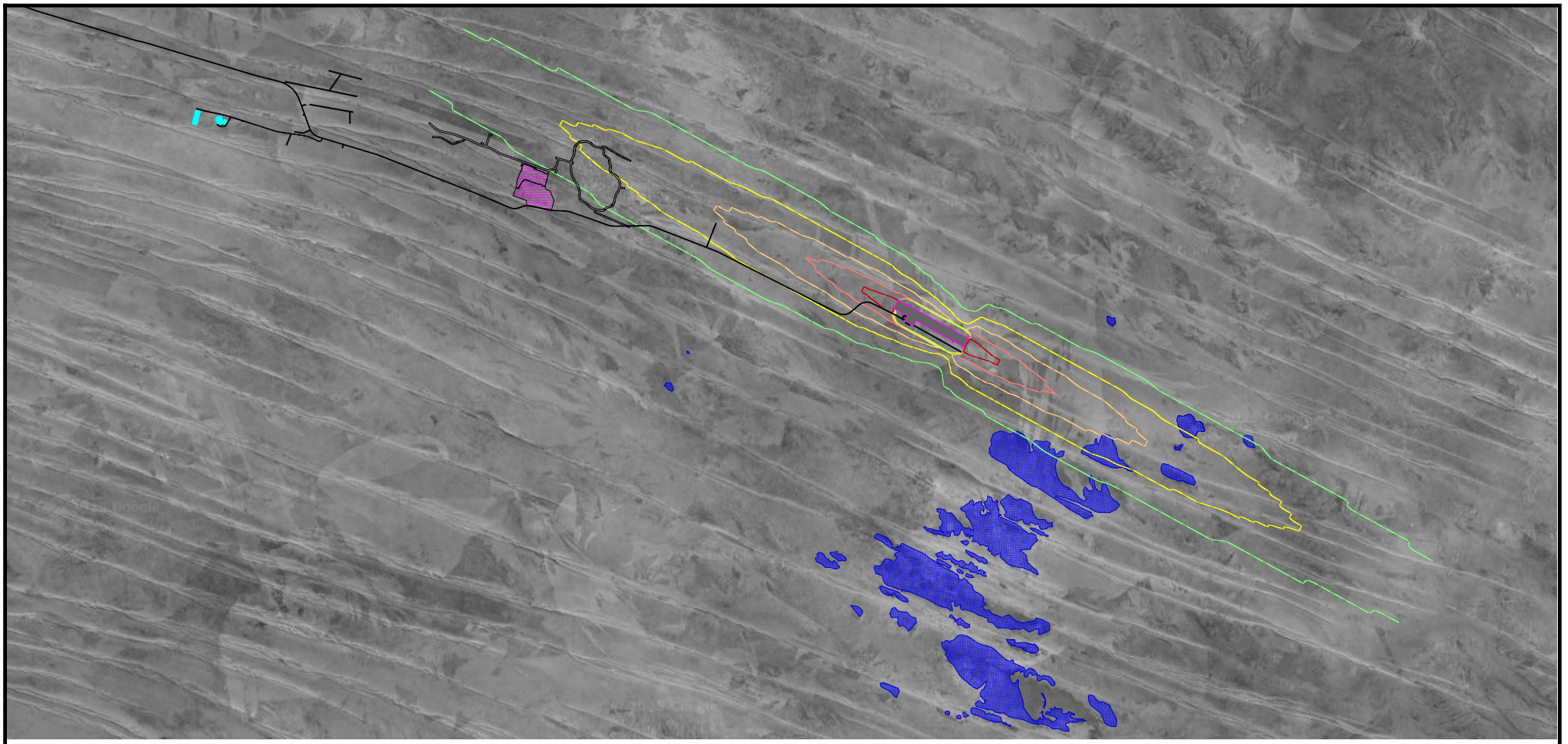
- *Figure A1 - Scenario 1: Current Operations Pilatus PC12;*
  - Night Parrot Habitats expected to lie within 55-65 dB L_{Amax} aircraft noise areas on eastward departures.
- *Figure A2 - Scenario 2: Intermediate Operations ATR72;*
  - Night Parrot Habitats expected to lie within 55-60 dB L_{Amax} aircraft noise areas on eastward departures.
- *Figure A3 - Scenario 3: Mining Operations Fokker 100;*
  - Night Parrot Habitats expected to lie within 55-72 dB L_{Amax} aircraft noise areas on eastward departures.

Note that while the 400m extended runway is considered for Scenarios 2 and 3 it was shown to have a negligible effect on the noise levels overall.

We trust the above advice is satisfactory. Should you require further information, please do not hesitate in contacting us.

Regards,

Matt Moyle



Winu Project Air field - Rio Tinto
Scenario 1: Current Operations - PC12 Aircraft

Noise Level Contours Based on AS2021 Aircraft Departure in both directions

SoundPlan v9.0

12 Feb 2025

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Scale 1: 200000

0 1 2 4 6 8 km

Figure A1

Signs and symbols

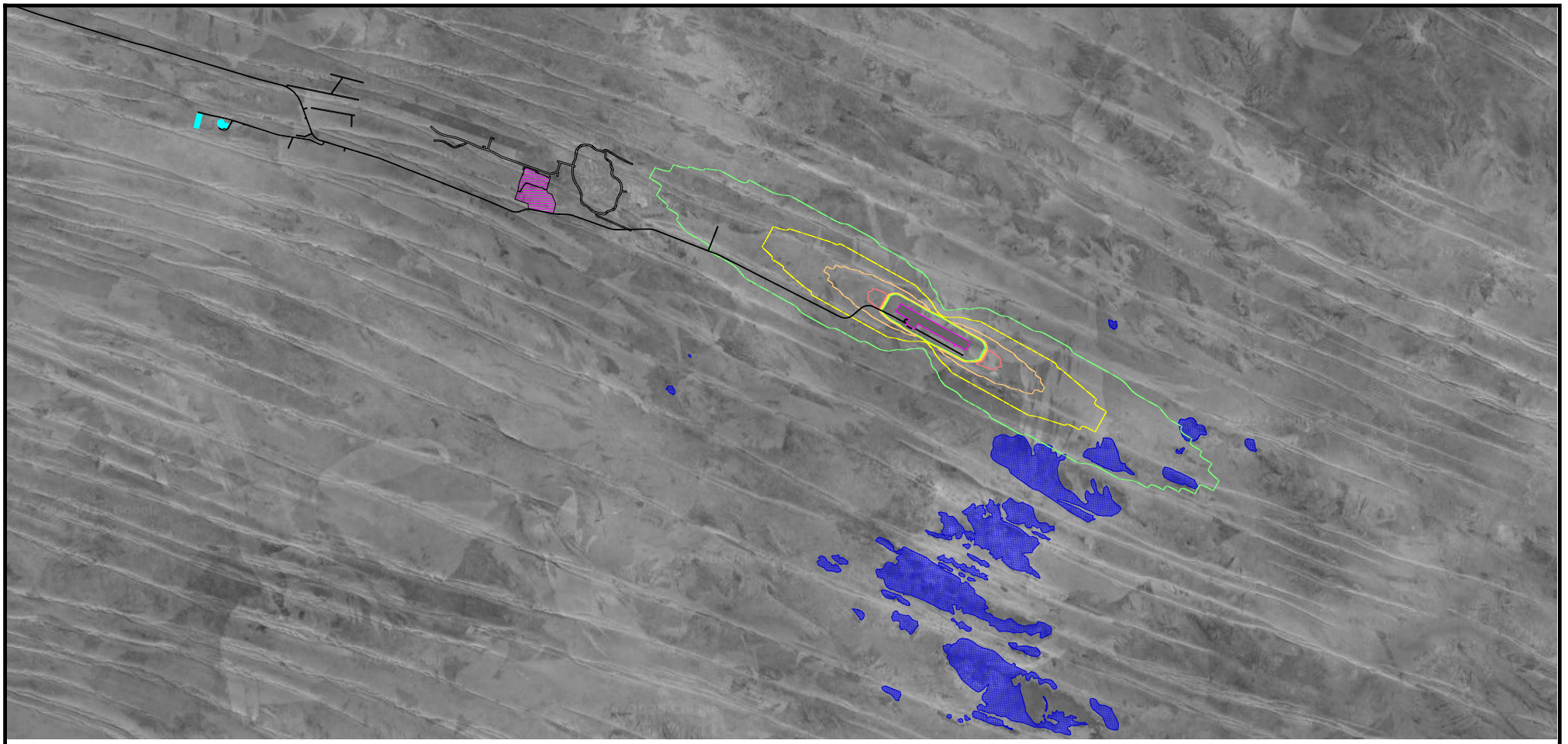
- Air Strip
- Access Roads
- Worker Camp
- ROM/Process Plant
- Night Parrot Habitats

N

Noise levels
L_{max} dB(A)

- = 55
- = 60
- = 65
- = 70
- = 75

AS 2021:2015



Winu Project Air field - Rio Tinto
Scenario 2: Intermediate Operations - ATR72 Aircraft

Noise Level Contours Based on AS2021 Aircraft Departure in both directions

SoundPlan v9.0

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Scale 1: 200000

0 1 2 4 6 8 km

Figure A2

Signs and symbols

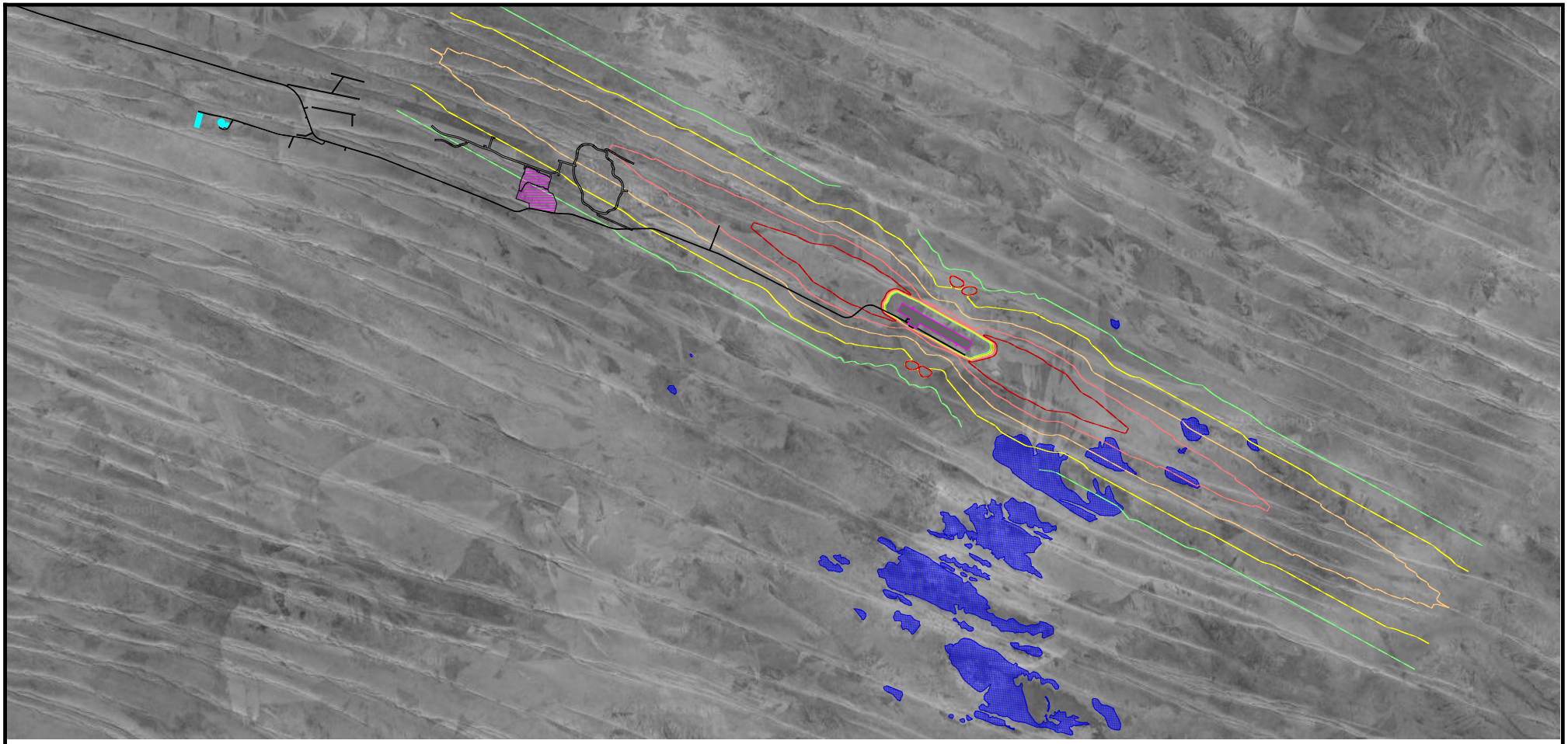
- Air Strip
- Access Roads
- Worker Camp
- ROM/Process Plant
- Night Parrot Habitats

N

Noise levels
L_{max} dB(A)

- = 55
- = 60
- = 65
- = 70
- = 75

AS 2021:2015



Winu Project Air field - Rio Tinto
Scenario 3: Mining Operations - Fokker 100 Aircraft

Noise Level Contours Based on AS2021 Aircraft Departure in both directions

SoundPlan v9.0

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Scale 1: 200000

0 1 2 4 6 8 km

Figure A3

Signs and symbols

- Air Strip
- Access Roads
- Worker Camp
- ROM/Process Plant
- Night Parrot Habitats

N

Noise levels
L_{max} dB(A)

- = 55
- = 60
- = 65
- = 70
- = 75

AS 2021:2015

Appendix A – AS2021:2015 Table 3.1(B)

TABLE 3.1(B)

SELECTION OF AIRCRAFT NOISE LEVEL TABLES—NON-JET FIXED-WING AIRCRAFT

Manufacturer	Model	Table for noise information	
		Number	Representative aircraft
Aero Commander	500-U	3.51	Beech BARON 58P
Aero Commander	690-A	3.51	Beech BARON 58P
Air Tractor	AT-400	3.56	Generic 1-engine VP prop
Air Tractor	AT-502	3.55	Generic 1-engine FP prop
Air Tractor	AT-602	3.56	Generic 1-engine VP prop
Air Tractor	AT-802A	3.56	Generic 1-engine VP prop
Avions de Transport Regional	ATR72-212A	3.45	Dornier 328-100
Beech	1900D	3.37	Beech 1900D
Beech	58	3.51	Beech BARON 58P
Beech	76	3.51	Beech BARON 58P
Beech	B100	3.51	Beech BARON 58P
Beech	B200C	3.42	Cessna CONQUEST II
Beech	B300	3.44	Dornier 228-202
Beech	B50	3.51	Beech BARON 58P
Beech	B60	3.58	Piper PA-31
Beech	C90	3.42	Cessna CONQUEST II
Beech	D95A	3.51	Beech BARON 58P
Bombardier	DHC-8-202	3.40	Bombardier Dash 8-300
Bombardier	DHC-8-315	3.40	Bombardier Dash 8-300
Bombardier	DHC-8-402	3.40	Bombardier Dash 8-300
Cessna	172N	3.52	Cessna 172R
Cessna	182S	3.53	Cessna 182H
Cessna	208B	3.41	Cessna 208
Cessna	210E	3.54	Cessna 206H
Cessna	210N	3.54	Cessna 206H
Cessna	310R	3.54	Cessna 206H
Cessna	337B	3.51	Beech BARON 58P
Cessna	402C	3.51	Beech BARON 58P
Cessna	404	3.51	Beech BARON 58P
Cessna	421B	3.51	Beech BARON 58P
Cessna	425	3.42	Cessna CONQUEST II
Cessna	441	3.42	Cessna CONQUEST II
Cessna	U206F	3.54	Cessna 206H
Constructiones Aeronauticas	C-212-CC	3.45	Dornier 328-100
Convair	340	3.43	Convair 580
De Havilland	DHC-6 SERIES 300	3.38	Bombardier Dash 6

(continued)

Appendix A – AS2021:2015 Table 3.1(B)

TABLE 3.1(B) (*continued*)

Manufacturer	Model	Table for noise information	
		Number	Representative aircraft
De Havilland	DHC-8-102	3.39	Bombardier Dash 8-100
Diamond	DA 42	3.51	Beech BARON 58P
Dornier	328-100	3.45	Dornier 328-100
Dornier	DO 228-202 K	3.44	Dornier 228-202
Embraer	EMB-110P1	3.38	Bombardier Dash 6
Embraer	EMB-120 ER	3.46	Embraer 120 ER
Fairchild	SA226-TC	3.38	Bombardier Dash 6
Fairchild	SA227-DC	3.38	Bombardier Dash 6
Fokker	F27 MK 50	3.47	Hawker Siddeley HS748
Gippsland Aeronautics	GA10	3.55	Generic 1-engine FP prop
Gippsland Aeronautics	GA-8	3.55	Generic 1-engine FP prop
Grob	G520T	3.55	Generic 1-engine FP prop
Gulfstream	695-A	3.44	Dornier 228-202
Jetstream	3206	3.37	Beech 1900D
Jetstream	4101	3.27	Dassault Falcon 20
Mitsubishi Aircraft	MU-2B-20	3.42	Cessna CONQUEST II
Pilatus	PC-12/47E	3.41	Cessna 208
Piper	PA-28R-201	3.57	Piper PA-28
Piper	PA-31-350	3.58	Piper PA-31
Piper	PA-31T	3.58	Piper PA-31
Piper	PA-32-300	3.48	Piper PA-42
Piper	PA-34-200T	3.51	Beech BARON 58P
Piper	PA-36-285	3.51	Beech BARON 58P
Piper	PA-38-112	3.55	Generic 1-engine FP prop
Piper	PA-42-1000	3.48	Piper PA-42
Piper	PA-44-180	3.51	Beech BARON 58P
Piper	PA-46-310P	3.56	Generic 1-engine VP prop
Piper	PA-60-600	3.51	Beech BARON 58P
S.A.A.B.	340B	3.49	Saab 340
Short Bros	SD3-30	3.50	Short 330