

Chapter 24
Noise and vibration

ESMERALDA GRAPHITE PROJECT

aarc ENVIRONMENTAL SOLUTIONS
APEM Group

GRAPHINEX

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Glossary, acronyms and abbreviations

Acronym or Abbreviation	Meaning
AARC	AARC Environmental Solutions Pty Ltd
dBA	A-Weighted Decibels
DES	Department of Environment and Science
DESI	Department of Environment, Science and Innovation
EIS	Environmental Impact Statement
EP Act	*Environmental Protection Act 1994*
EP Regulation	Environmental Protection Regulation 2019
EPP (Noise)	Environmental Protection (Noise) Policy 2019
ISO	International Organisation for Standardisation
MLA	Mining Lease Application
TOR	Terms of Reference

24 Noise and vibration

This chapter describes the assessment of potential noise and vibration impacts on the existing environment, with specific regard to receptors surrounding the Graphinex Esmeralda Project (the Project).

To assess the Project's noise and vibration impacts, the following assessment was undertaken:

- Noise and Vibration Impact Assessment (Appendix I), conducted by AARC Environmental Solutions Pty Ltd (AARC).

24.1 Environmental objectives

This chapter has been prepared to enable an assessment of the Project with respect to the environmental objectives stated in the Terms of Reference (TOR), detailed in Section 24.5. With regards to noise and vibration, the Project design and all phases are to:

1) achieve the noise and vibration criteria that have been developed for the project
2) avoid, minimise and/or mitigate adverse noise and vibration impacts to sensitive receptors;
3) protect the environmental values of the acoustic environment; and
4) control background creep in noise as outlined in the Environmental Protection (Noise) Policy 2019.

This chapter also demonstrates that the Project meets one of the two possible performance outcomes as required by Schedule 8 of the EP Regulation, these outcomes are:

- sound from the activity is not audible at a sensitive receptor; and/or
- the release of sound to the environment from the activity is managed so that adverse effects on environmental values, including health and wellbeing and sensitive ecosystems, are prevented or minimised.

24.1.1 Acoustic obligations and criteria

In Queensland, environmental noise is regulated in accordance with the Environmental Protection (Noise) Policy 2019 (EPP (Noise)), developed under the *Environmental Protection Act 1994* (EP Act). The EPP (Noise) identifies environmental values to be enhanced or protected, establishes acoustic quality objectives, and provides a framework for making decisions about the acoustic environment. A number of other relevant Queensland guidelines also support this framework, including:

- 'Environmental Protection Regulation 2019';
- 'Guideline – Model Mining Conditions' (DESI 2024g);
- 'Guideline – Noise and Vibration from Blasting' (DES 2022);
- 'Noise and Vibration – EIS Information Guideline' (DESI 2024h);
- 'Noise Measurement Manual' (DES 2020); and
- 'Application Requirements for Activities with Noise Impacts (DESI 2025).

24.1.2 Environmental Protection (Noise) Policy 2019

The purpose of the Environmental Protection (Noise) Policy 2019 is to achieve the object of the Act in relation to the acoustic environment. The purpose is achieved by providing environmental values, acoustic quality objectives, and a *"framework for making consistent, equitable and informed decisions that relate to the acoustic environment."*

24.1.2.1 Acoustic quality objectives

Acoustic quality objectives are included in Schedule 1 of the EPP (Noise). The objectives for residences and protected areas are presented in Table 24-1.

Table 24-1: Acoustic quality objectives for residences and protected areas

Sensitive receptor	**Time of Day**	**Acoustic quality objectives (measured at the receptor) dBA**		
		$L_{Aeq,adj,1hour}$	**$L_{A10,adj,1hour}$**	**$L_{A1,adj,1hour}$**
Residences (for outdoors)	Daytime and evening	50	55	65
Residences (for indoors)	Daytime and evening	35	40	45
	Night-time	30	35	40

It is preferable not to apply noise criteria at a sensitive receptor based on indoor noise limits, and hence, equivalent outdoor noise limits can be determined based on the typical noise reduction from noise outside a residence to inside a residence.

The EPP (Noise) already includes limits for outdoors, as shown above, but compliance with those outdoor limits will not necessarily result in compliance with the indoor noise limits, as they assume a noise difference of 15 to 20 dBA which is generally not achieved with open windows at a residence.

Noise reductions for the façade of a timber dwelling with open windows are typically reported as 5 to 10 dBA. The DESI Noise and vibration—EIS information guideline (2024b) recommends to *"use an outdoor to indoor attenuation value of 7dB, which is appropriate for typical Queensland buildings with open windows."* Therefore, the indoor noise limits in Table 24-1 can be recalculated as outdoor noise limits as per Table 24-2.

Table 24-2: Calculated outdoor acoustic quality objectives for residences

Sensitive receptor	**Time of Day**	**Acoustic quality objectives (measured at the receptor) dBA**		
		$L_{Aeq,adj,1hour}$	**$L_{A10,adj,1hour}$**	**$L_{A1,adj,1hour}$**
Residences (outdoors)	Daytime and evening	42	47	52
	Night-time	37	42	47

The L_{Aeq} parameter is most commonly applied to new mining projects. It corresponds to the average noise level, and extraneous noise (e.g. from insects, birds, cars) can readily be mathematically removed from the measured levels for assessment purposes. The L_{A1} parameter is also regularly applied, as a way to contain brief high noise level events. With the use of the L_{Aeq} and L_{A1} parameters, it is not considered necessary to also include an L_{A10} limit.

24.1.2.2 Background creep

The EPP (Noise) defines background creep as "*a gradual increase in the total amount of background noise in the area or place"*

There is no prescribed requirement for background creep on the EPP (Noise) currently. Therefore, other legislation and guidelines were used to infer the requirement for background creep, as follows:

- The 2008 version of the EPP (Noise) stipulates that $L_{Aeq,adj,T}$ can be '5 dBA greater than the existing acoustic environment measured by $L_{A90,T}$'.
- The 'Guideline – Model Mining Conditions' (DESI 2024g) stipulates that the minimum background noise level that can be used for calculation is 30 dBA L_{90}.
- The 'Guideline – Prescribing Noise Conditions for Environmental Authorities for Petroleum Activities' (DES 2013) suggests the deemed daytime background noise level to be 35 dBA L_{90}.
- The explanatory notes for the EPP (Noise) state that "*it may be reasonable to allow a greater increase to the background noise in an area or place. That may be the case in an area or place with very low background noise where an activity will increase the background noise levels but only to the extent the environmental values of the area are still protected."*

Combining the above requirements, the noise limits for the background creep can be derived as 35 dBA $L_{Aeq,adj,T}$ at night and 40 dBA $L_{Aeq,adj,T}$ during daytime.

24.1.2.3 Proposed mine noise criteria

It is proposed to adopt a conservative version of the EPP (Noise) derived limits in Table 24-1, which are consistent with other similar mining projects.

The proposed noise criteria are shown below in Table 24-3.

Table 24-3: Proposed Project noise limits

Noise level dBA measured as:	**All days**		
	Day (7am to 6pm)	**Evening (6pm to 10pm)**	**Night (10pm to 7am)**
Sensitive Place - Residences			
$L_{Aeq,adj,15min}$	40	40	35

24.1.3 Low frequency noise

The 'Noise Measurement Manual' (DES 2020) defines low frequency noise as 'noise that has a dominant content less than 200 Hz'. Low frequency noise criteria are as follows:

- a maximum Z-weighted outdoor noise level of 55 dBZ (which approximately corresponds to an indoor limit of 50 dBZ when allowing for a 5 dB façade reduction with open windows); and
- an unbalanced spectrum (i.e. the Z-weighted noise level minus the A-weighted noise level is greater than 15 dB).

Z-weighted noise assumes no adjustment has been made to allow for the frequencies that can be heard by a human ear. A-weighted noise levels is a frequency weighting method that applies to any sound to ensure it corresponds to a level that a human ear can feasibly hear. The A-weighted noise level therefore has more practical applications for assessing impacts on sensitive receptors such as dwellings or towns.

24.1.4 Blasting

Blasting is proposed for this Project, and a blasting assessment was conducted.

Per the 'Guideline – Model Mining Conditions' (DESI 2024g), the blasting noise and vibration criteria are shown in Table 24-4. The criteria are well below the levels at which damages to typical residential-type buildings are

known to occur. It is also noted that vibration can be felt at a much lower level than those that could result in damage to structures, and at lower levels than are included in this table.

Table 24-4: Proposed Project blasting airblast and vibration limits

Blasting noise and vibration limits	**Sensitive place and commercial place criteria**	
	Monday to Friday 7am to 6pm; **Saturday, Sunday and Public Holidays 9am – 6pm**	**Other times**
Airblast overpressure	115 dB (Linear Peak) for 9 out of 10 consecutive blasts and not greater than 120 dB (Linear Peak) at any time	No blasting
Ground vibration	5 mm/second peak particle velocity for 9 out of 10 consecutive blasts and not greater than 10 mm/second peak particle velocity at any time	No blasting

24.1.5 Road and aircraft noise criteria

24.1.5.1 Road noise criteria

Noise emissions from road traffic off the MLA are assessed to a Queensland Department of Transport and Main Roads (DTMR) criterion of 68 dBA $L_{A10(18hour)}$. Priority for treatment of road noise on existing roads is given where there is a:

- sudden increase in traffic volumes (at least double, which corresponds to a 3 dB increase); or
- high percentage of heavy vehicles (greater than 20%), particularly at night.

The following NSW road noise policy (NSW EPA 2011) criteria will be considered a guide to potential road traffic noise impacts, in conjunction with a minimum road traffic noise level increase of 2 dB:

- Daytime (7am to 10pm): $L_{Aeq(1hour)}$ 55 dBA; and
- Night (10pm to 7am): $L_{Aeq(1hour)}$ 50 dBA.

24.1.5.2 Aircraft noise criteria

Noise emissions from aircraft are proposed to comply with the noise criteria contained in Australian Standard 2021:2015 Acoustics – Aircraft noise intrusion, Building siting and construction (AS2021).

An aircraft noise criterion of 80 dBA (average maximum) was applied for this Project.

24.2 Existing environment

This section details the sensitive receptors, environmental values and infrastructure, and baseline noise and vibration levels relevant to the Project.

24.2.1 Sensitive receptors

The Project is located in a rural area surrounded by grazing land. There are isolated residences in the vicinity of the Project. The closest town is Croydon, which is located approximately 70 km north of the Project.

Sensitive receptors are listed in Schedule 1 of the EPP (Noise) as follows:

- residences (including a building, or part of building, capable of being used as a dwelling);

- library and educational institution (including a school, college and university);
- childcare centre or kindergarten;
- school or playground;
- hospital, surgery or other medical institution;
- commercial and retail activity;
- protected area (see *Nature Conservation Act 1992*) or critical area (means an area identified in a conservation plan under the *Nature Conservation Act 1992*, section 120H as, or as including, a critical habitat or an area of major interest);
- marine park (see *Marine Parks Act 2004*, schedule); and
- park or garden that is open to the public (whether or not on payment of an amount) for use other than for sport or organised entertainment.

According to the model mining conditions (DESI 2024g), "*the terms 'sensitive place' and 'commercial place' … do not include places that are within the boundaries of the mining lease, nor places that are owned or leased by the holder of the authority or its related companies. For example, a mining camp operated by the EA holder would not be a sensitive place."*

The nearest receptors for potential noise, vibration and/or airblast emissions from the Project are listed in Table 24-5 and shown in Figure 24-1. The tabled receptors are the nearest to the Project in their respective directions and have the potential to be impacted by the Project. Receptor 2 (Prospect homestead) is the closest sensitive receptor by a significant margin.

It is noted that the proposed on-site mine camp (R4) is subject to special conditions which limit its applicability for consideration as a sensitive receptor. As per the comment above, based on the model mining conditions (DESI 2024g) this mining camp is not considered a sensitive place. As such, this is not considered in detail within this assessment. Notwithstanding this, it is acknowledged that human health related considerations will be monitored by Graphinex to ensure protection of the health and safety of resident contractors and employees.

Table 24-5: List of nearest receptors and distance from MLA

Receptor ID[1]	Receptor description	Easting (GDA2020, Zone 55)	Northing (GDA2020, Zone 55)	Approximate distance (km) from the Project footprint and direction	Approximate distance (km) from the Project access road and direction
R1 – Esmeralda Homestead	Residential	665762	7914629	33 km east	18 km east
R2 – Prospect Homestead	Residential	631806	7908655	7 km south	5 km south-west
R3 – Homestead	Residential	612870	7910311	16 km south-west	20 km west
R4 - Camp	Mining lease camp	632773	7915899	0.5 km east	0.2 km east

24.2.2 Other receptors

24.2.2.1 Cultural Heritage

The non-indigenous cultural heritage (NICH) report (Converge 2026, Appendix Q) has indicated there are no potential NICH sites. Therefore, no NICH sites exist that could be considered sensitive receptors. Non-indigenous cultural heritage is detailed further in Chapter 12 (Non-Indigenous Cultural Heritage).

The Aboriginal and Torres Islander Strait cultural heritage database and register search report (DSDSATIP 2025) includes a number of search results, however, the nearest cultural heritage site is over 20 km from the pit and 15km from the haul road. The indigenous cultural heritage value assessment is detailed further in Chapter 11 (First Nations Cultural Heritage). Noise and vibration impacts would be insignificant over these distances, given that compliance would be required at a residential receptor located only 5 km from the access road and 7 km from the project footprint. Therefore, no Aboriginal and Torres Islander Strait cultural heritage sites exist that could be considered sensitive receptors.

24.2.2.2 Cattle and native fauna

Adjacent properties include cattle grazing stations and are approximately 3 km from the proposed pit and process plant to the closest boundary. This assumes that the Project will not proceed without the subdivision of the underlying property occurring, as described in Section 8.2.1 of Chapter 8 (Tenure including Native Title). Some areas of disturbance (refer Figure 24-1) are closer, with setback distances of 0.5 km to 1 km from the property boundaries, and the mine haul road is directly adjacent potential cattle grazing properties.

It is not expected that noise impacts onto cattle will cause concern, as cattle grazing frequently occurs near to mining sites in Queensland. Reference is made (Appendix I) to a previous court case proceeding which described a report addressing noise impacts onto cattle. It concluded that cattle are unlikely to be impacted as a result of potential pollutants, including noise, dust, light or variation in water quality associated with an adjacent mine. It was further noted that cattle quickly adjusted to disturbance and did not alter their grazing behaviour because of mining activities or during blasting events.

With respect to noise impacts on native fauna, there are no protected areas or marine parks nearer to the Project than the residential receptors listed in Table 24-5. Therefore, compliance with noise criteria at the listed residential receptors R1 to R3 will result in compliant noise levels for fauna.

24.2.2.3 Other

There are no other receptors located near the mine that could be impacted by noise and/or vibration emissions from the project.

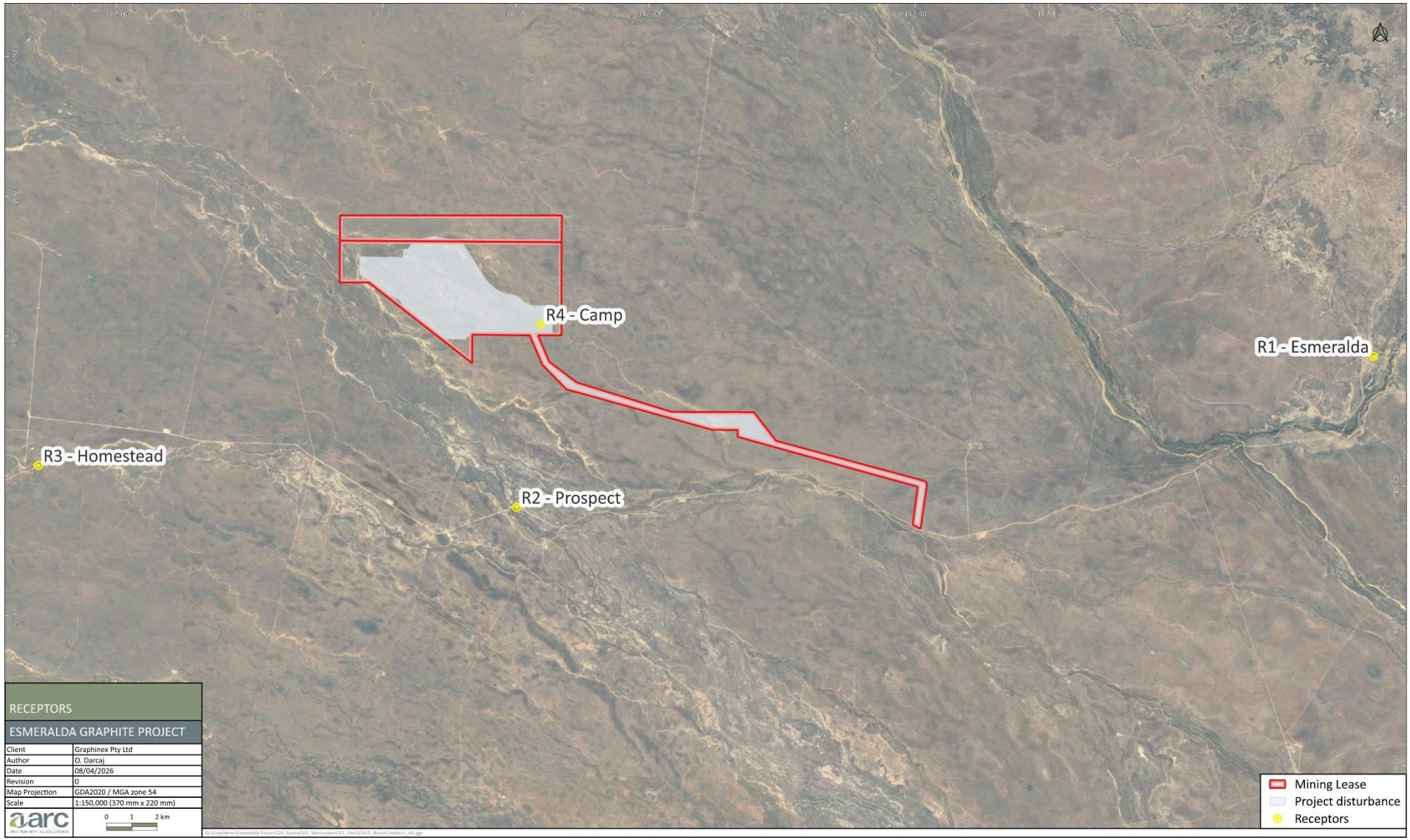


Figure 24-1: Receptors near Project

24.2.3 Baseline noise and vibration levels

The following sections provide information on the baseline noise levels (Section 24.2.3.1) and the baseline vibration levels (Section 24.2.3.2) around the Project site.

24.2.3.1 Baseline noise levels

The existing noise environment is consistent with the land uses surrounding the Project, which around the area are predominantly rural agricultural land uses, particularly grazing. The existing noise environment at the nearest receptors to the Project (see Table 24-5) is dominated by natural noises (e.g. birds, insects, wind in grass and trees), vehicles, and agricultural activities.

Baseline noise monitoring has been conducted over a 5-day period in November 2025 (spring) at two of the nearest receptors to the Project, being adjacent Receptor 1 (Location A) and Receptor 2 (Location B). The weather was generally fine during the monitoring period, with nil rainfall and limited period of higher wind speeds.

As the measurements were conducted in a warmer part of the year, there was significant contribution of insect noise in the measurement. Therefore, data is presented as-measured with insect noise, and also with high frequency insect noise removed from the data. The latter 'insects removed' data is representative of noise levels during the cooler part of the year, when insects are less prominent.

The average $L_{eq,15min}$ noise levels are shown in Table 24-6.

Table 24-6: Noise logging results – average $L_{Aeq,15min}$ levels

Location ID (Receptor)	**Average noise levels $L_{eq,15min}$ dBA by Period of Day (Values in brackets have high frequency insect noise removed)**		
	Day (7am to 6pm)	**Evening (6pm to 10pm)**	**Night (10pm to 7am)**
A (R1)	40 (39)	37 (30)	33 (28)
B (R2)	41 (40)	39 (33)	33 (29)

The rating background noise levels, calculated using the lowest 10th percentile method in accordance with the DESI "Planning for Noise Control" guideline, are shown in Table 24-7.

Table 24-7: Noise logging results – rating background noise levels

Location ID (Receptor)	**Rating background noise levels $L_{90,15min}$ dBA by Period of Day (Values in brackets have high frequency insect noise removed)**		
	Day (7am to 6pm)	**Evening (6pm to 10pm)**	**Night (10pm to 7am)**
A (R1)	25 (23)	25 (19)	24 (18)
B (R2)	27 (26)	27 (22)	20 (18)

From the above results it is apparent that background L_{90} noise levels were generally very quiet (i.e. up to 28 dBA L_{90}, or up to 26 dBA L_{90} with high frequency noise removed), as would be expected in a remote rural area.

Most noise sources that contributed to the noise levels were intermittent, such as birds, distant traffic and wind, resulting in very low background noise levels when these sources were not producing noise.

Given the similarity between the measured background noise levels at R1 and R2, it would be expected that background noise levels would be similar at R3.

The graphed noise monitoring results in the noise report (Appendix I), show that the L_{90} noise level varies as the wind speed varies. In a quiet, rural area it is expected that wind noise is often a dominant noise source, and thus the noise levels will vary proportionally to wind speed.

Overall, the measurement results indicate the areas are often very quiet, as is typical of a rural environment.

24.2.3.2 Baseline vibration levels

Existing vibration sources around the Project site and sensitive receptors include mobile or fixed plant associated with agricultural activities. Their vibration levels are generally negligible, except at locations which are close to roads or major items of agricultural equipment, typically within 20 m. While site-specific vibration measures have not been taken (as they normally aren't measured as part of baseline work), existing vibration levels are likely to be below 0.1 mm/s except near the agricultural equipment, where higher levels may occur.

24.3 Impact assessment

An impact assessment on noise and vibration was conducted in accordance with the 'Noise and Vibration – EIS Information Guideline' (DESI 2024h), Schedule 1 of the EPP (Noise), and 'Application Requirements for Activities with Noise Impacts' (DESI 2025).

The sources of noise and vibration from the Project are described in Section 24.3.1, and noise and blasting impact assessments are described in Sections 24.3.2 and Section 24.3.3, respectively. An inter and intra-Project cumulative noise and vibration impact assessment is detailed in in Section 24.3.5.

24.3.1 Noise and vibration sources

The Project's noise and vibration sources and their emission levels can vary by the Project phases. Major noise sources are listed in Section 24.3.1.1, and vibration sources (blasting) are described in Section 24.3.1.2.

24.3.1.1 Noise sources

Noise emissions will be highest and longer-lived during the Project's mining operation phase, and lesser during the construction and decommissioning and rehabilitation phases due to the operation equipment used and the nature of the activities. The construction phase will occur in the year prior to the mining operations commencing, for a period of approximately 2 years. The closure phase will include decommissioning and rehabilitation of the facilities onsite, where it will involve a reduced amount of equipment operating.

A list of all noise sources and their associated locations are shown in Table 24-8. The overall and octave band sound power levels for each noise source is shown in Table 24-9. The noise source data for the Project's equipment has been obtained from a combination of several sources, AARC's noise source records, equipment supplier noise specifications, other noise assessment reports, and scientific papers.

Table 24-8: Mining equipment and locations

Equipment	Location and use in noise model
Excavators	Located in pit to dig ore and waste material or located on dumps and TSFs when reclaiming material to place in-pit as part of ongoing rehabilitation. Assumed to operate continuously within the 15-minute assessment period. Assumed not to move substantially within the 15-minute assessment period, and therefore modelled as a point source.
Tracked dozer	Located with the excavators. A fixed location and therefore modelled as a point source.
Haul trucks	Trucks to transport waste, rejects, and ore, and therefore travelling to/from pit, dumps, TSF and ROM. Assumed to operate continuously and to move significantly within the 15-minute assessment period, and therefore modelled as line sources.
Processing plant and generators	Crushing, milling, flotation and concentration plant is located east of the dumps. A fixed location and covering a reasonable area and therefore modelled as an area source. An array of 10 generators has been modelled at this location.

Equipment	Location and use in noise model
Wheel loader	Located either at the processing plant (MIA) to load from the ROM stockpile into the jaw crusher and to load crushed ore into the feed to the primary mill. Assumed to operate continuously. Assumed not to move substantially within the 15-minute assessment period, and therefore modelled as a point source.
Grader, water truck and compactor	To move along all the roads used by haul trucks and other fleet. Assumed to operate continuously and to move significantly within the 15-minute assessment period, and therefore modelled as sources.
Auxiliary plant (small excavator, lighting plant, small construction truck, tyre handler/forklift, mobile crane, fuel/service truck, dewatering pump, light vehicles, crew transport 4WD)	Smaller (lower noise level) plant/vehicles that could be located at the pit, dumps, TSF or MIA areas, and therefore modelled as a collective area source over all these areas.
Road trucks (A-Triple)	To move along all the roads from the MIA to the south-east end of the MLA (a distance of approximately 22 km). Assumed to operate continuously and to move significantly within the 15-minute assessment period, and therefore modelled as a line source.

Table 24-9: Sound power level data for modelled equipment

Item	Source height (m)	Overall and octave band sound power level ($L_{w,eq,15min}$) dBA (per item)								
		Overall	63 Hz	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz	8 kHz
Excavator Komatsu PC2000	3.5	114	99	103	101	111	107	103	100	94
Truck Komatsu HD785	4.0	118	94	104	112	111	110	112	107	106
Wheel loader Komatsu WA480	3.0	113	77	94	104	106	109	105	99	93
Track dozer Komatsu 155	3.0	116	89	104	106	110	113	107	101	97
Water truck Komatsu HD785	4.0	118	94	104	112	111	110	112	107	106
Grader Caterpillar 12	3.0	110	82	99	103	101	104	103	99	89
Compactor SD200	3.0	113	77	94	104	106	109	105	99	93
Road train	2.0	109	83	91	96	101	105	104	97	83
Drill presplit 125mm	2.0	115	83	95	102	107	110	110	107	100
Drill blasthole DTH 165mm	2.0	118	97	102	110	113	113	110	105	94
Processing plant, including generators	5.0	126	98	110	115	120	120	120	113	108
Auxiliary plant	5.0	118	97	103	104	112	113	112	105	98

The equipment modelled has been chosen to most accurately reflect the anticipated mining fleet. However, there is potential for alternate makes and models of equipment to be used in the operating mine. If the equipment model is changed, the sound power level of the alternative model should be reviewed, and if the noise level increases, attenuation may be required. A mine operator may choose to use a different combination of equipment, or use attenuated equipment in a different manner to achieve the same noise level outcomes.

The major determinants of noise impacts over the life of the mining operation are (i) the quantity of equipment used, which is dependent on both the quantity of material handled, and (ii) the location and elevation of equipment noise sources relative to the receptors.

The equipment quanties increase from Year 37 onwards due to the large increase in material to be rehandled. Mine planning indicates that material is rehandled from several different locations, being the TSFs and dumps. Based on a review of this process, four scenarios (1 to 4) have been modelled, which are described in Table 24-10.

Table 24-10: Noise model scenarios

Scenario	Representative mine year/s	Scenario description and location of noise sources in noise model
1	40 to 42	TSF being rehandled into pit, process plant operating The model includes: • Pit operations: 3 drills, an excvator and a dozer in the pit, and 2 trucks hauling overburden to the southern dump and 3 trucks hauling ore to the ROM. • Dozer on the southern dump. • Excavator removing tailings from the TSF and 12 trucks hauling it to the in-pit dump, with a dozer located in the in-pit dump. • 2 graders, 2 water trucks and a compactor working over all the dirt roads. • Process plant and auxiliary plant operating, and 2 wheel-loaders at the plant and ROM area. • 2 road trains operating between the site and extent of MLA.
2	47	TSF walls being rehandled into pit, process plant operating The model includes: • Excavator and dozer removing TSF walls and 20 trucks hauling it to the in-pit dump, with an excavator and 2 dozers located in the in-pit dump. • 2 graders, 2 water trucks and a compactor working over all the dirt roads. • Process plan and auxiliary plant operating, and 2 wheel loaders at the plant and ROM area. • 2 road trains operating between the site and extent of MLA.
3	48 to 49	East dump being rehandled into pit, process plant operating The model includes: • Excavator and dozer removing eastern dump and 20 trucks hauling it to the in-pit dump, with an excavator and 2 dozers located in the in-pit dump. • 2 graders, 2 water trucks and a compactor working over all the dirt roads. • Process plant and auxiliary plant operating, and 2 wheel-loaders at the plant and ROM area. • 2 road trains operating between the site and extent of MLA.
4	52	South dump being rehandled into pit The model includes: • Excavator and dozer removing southern dump and 20 trucks hauling it to the in-pit dump, with an excavator and 2 dozers located in the in-pit dump. • 2 graders, 2 water trucks and a compactor working over all the dirt roads. • Auxiliary plant operating. • 2 road trains operating between the site and extent of MLA. Note: Conservative assumption, as road trains likely not operating as process plant is no longer processing.

24.3.1.2 Vibration sources

Similar to noise emissions, the Project will have the highest vibration emissions during the mining operation phase when blasting is occurring. Compared to blasting, other vibration sources (e.g. vehicle movements) are insignificant, and are not required to be assessed due to the ease of compliance at receptors.

24.3.2 Noise impact assessment

To assess the impacts of operational noise expected to be generated at the Project site, noise modelling has been conducted for four mine year scenarios of greatest impact.

24.3.2.1 Assessment terminology

Schedule 2 of the EPP (Noise) provides a dictionary of terms relating to acoustics. An overview of terms essential to the technical interpretation of noise in this chapter is provided below, including the indicators used to measure, model, and assess the impacts of noise.

dB(A), dBA	means decibels measured on the 'A' frequency weighting network, a weighting that simulates the response of the human ear, which is more sensitive to mid to high frequency sounds and relatively less sensitive to low frequency sounds. It may also be expressed as dBA without the bracketed A. This is the measurement unit in which noise levels are typically expressed.
dB(Z), dBZ	means the noise level with a zero frequency weighting applied to it over the frequency range of 10 Hz to 20 kHz. It is effectively the same as the dB, dB(L) or dB(Lin) weighted level for the assessment of mine noise.
$L_{Aeq,adj,T}$	means an A-weighted sound pressure level of a continuous steady sound, adjusted for tonal and/or impulsive character, that within a measurement period of duration 'T' has the same mean square sound pressure of a sound that varies with time. The monitored L_{Aeq} noise levels include all sources of noise within the local environment. The predicted L_{Aeq} noise levels only include the calculated Graphinex mining noise contribution.
$L_{Aeq,adj,15min}$	means an A-weighted sound pressure level of a continuous steady sound, adjusted for tonal and/or impulsive character over a measurement period of 15 minutes.
dB (Linear Peak)	means the peak noise level in linear (un-weighted) decibels (dB). This term is used to quantify airblast levels from mine blasting.
Daytime	means the period after 7 am on a day to 6 pm on the day.
Evening	means the period after 6 pm on a day to 10 pm on the day.
Night-time	means the period after 10 pm on a day to 7 am on the next day.

24.3.2.2 Methodology

Noise modelling has been undertaken by AARC using SoundPLAN (version 9.1). The noise modelling program considers the mine and local topography, noise levels and locations of equipment, distance attenuation, ground and air absorption, natural and artificial barriers, and meteorological effects. Predictions under different meteorological conditions and a single typical worst-case meteorological condition were generated using CONCAWE and ISO 9613-2:2024 (ISO 9613) algorithms, respectively.

As the propagation of noise in the outdoor environment can be influenced by local meteorological conditions either in isolation or as a combined weather condition, the SoundPLAN model uses CONCAWE and ISO 9613 algorithms to predict noise levels under five combinations of meteorological conditions, considering temperature, relative humidity, wind speed, wind direction and Pasquill Stability Class.

As shown in Table 24-11, the standard meteorological conditions used for noise modelling are calm (nil wind), downwind, and day and night conditions. Each meteorological condition listed is of what would be expected to be

prevalent in a rural location, and it is expected that higher noise levels will be predicted under night and/or downwind conditions.

Table 24-11: Noise modelling meteorological conditions

Meteorological parameter	**CONCAWE algorithm**				**ISO 9613-2:2024 algorithm**
	Calm – day conditions (experienced in the day, evening and night)	**Downwind-day conditions (experienced in the day, evening and night)**	**Calm – night conditions (mostly experienced in the evening and night)**	**Downwind-night conditions (mostly experienced in the evening and night)**	**Downwind conditions (mostly experienced in the evening and night)**
Temperature (°C)	25	25	10	10	10
Relative Humidity (%)	40	40	70	70	70
Wind Speed (m/s)	Nil	2	Nil	2	ISO 9613
Wind direction	NA	Towards receivers	NA	Towards receivers	Towards receivers
Pasquill Stability Class	D (neutral conditions)	D (neutral conditions)	F (moderately stable condition, which is typical of a moderate temperature inversion)	F (moderately stable condition, which is typical of a moderate temperature inversion)	NA (Moderate temperature inversion)

Mining equipment quantities increase significantly from Year 37 onwards due to the large increase in material to be rehandled. Therefore the model scenarios are all after Year 37. Multiple scenarios have been modelled to reflect the different locations where equipment is located, focussing on equipment locations nearer the sensitive receptors. The four modelled scenarios are as follows:

1) Years 40 to 42: TSF being rehandled into pit, process plant operating;

2) Year 47: TSF walls being rehandled into pit, process plant operating;

3) Years 48-49: East dump being rehandled into pit, process plant operating; and

4) Year 52: South dump being partially rehandled into pit.

24.3.2.3 Noise modelling results

The Project is compliant with the EPP (Noise) acoustic quality objectives and background creep requirements. As shown in Table 24-12, the predicted A-weighted noise levels at residential sensitive receptors are under the acoustic quality objectives listed in Table 24-2, where the daytime noise limit is at 40 dBA and the night-time limit is at 35 dBA. The highest A-weighted noise level is expected to occur at Receptor 2 (Prospect) in Scenario 2, in calm night conditions, at 31 dBA as measured with the CONCAWE algorithm. As the predicted noise levels are under the limits, the Project will be compliant with the acoustic quality objectives.

The extent and magnitude of the predicted noise levels for the highest noise level model scenario (Scenario 2), under different meteorological conditions are spatially shown through Figure 24-2 to Figure 24-6.

Low frequency noise modelling results

The Project is compliant with the low frequency criteria listed in Section 24.1.3. Low frequency noise levels have been calculated for Scenario 2, as the scenario resulting in the highest noise emissions. As shown in Table 24-13, all predicted Z-weighted noise levels for low-frequency noise are below the maximum noise level of 55 dBZ. The highest noise level is predicted to be at Receptor 2 (Prospect), at 50 dBZ when measured with the ISO 9613 algorithm. Therefore, the Project will be compliant with the low frequency noise objective.

Table 24-12: Predicted A-weighted noise levels at sensitive receptors

Receptor	Predicted A-weighted noise levels									
	Noise Level $L_{Aeq,adj,15min}$ dBA					Exceedance of 40 dBA day and 35 dBA night noise limits				
Met' condition:	CONCAWE Day-calm	CONCAWE Day-downwind	CONCAWE Night-Calm	CONCAWE Night-Downwind	ISO 9613-2:2024	CONCAWE Day-calm	CONCAWE Day-downwind	CONCAWE Night-Calm	CONCAWE Night-Downwind	ISO 9613-2:2024
Scenario 1										
R1 – Esmeralda	0	0	8	2	9	nil	nil	nil	nil	nil
R2 – Prospect	19	25	29	26	28	nil	nil	nil	nil	nil
R3 – Homestead	7	13	18	13	19	nil	nil	nil	nil	nil
Scenario 2										
R1 – Esmeralda	0	2	10	5	9	nil	nil	nil	nil	nil
R2 – Prospect	20	26	31	27	29	nil	nil	nil	nil	nil
R3 – Homestead	9	15	20	16	20	nil	nil	nil	nil	nil
Scenario 3										
R1 – Esmeralda	0	1	9	4	9	nil	nil	nil	nil	nil
R2 – Prospect	18	24	28	25	28	nil	nil	nil	nil	nil
R3 – Homestead	6	12	17	12	19	nil	nil	nil	nil	nil
Scenario 4										
R1 – Esmeralda	0	1	9	4	8	nil	nil	nil	nil	nil
R2 – Prospect	14	20	24	21	27	nil	nil	nil	nil	nil
R3 – Homestead	3	8	13	9	19	nil	nil	nil	nil	nil

Table 24-13: Predicted Z-weighted noise levels at sensitive receptors for low frequency review

Receptor	Predicted Z-weighted noise levels									
	Noise Level $L_{Zeq,adj,15min}$ dBZ					Exceedance of 55 dBZ noise limit				
Met' condition:	**CONCAWE Day-calm**	**CONCAWE Day-downwind**	**CONCAWE Night-Calm**	**CONCAWE Night-Downwind**	**ISO 9613-2:2024**	**CONCAWE Day-calm**	**CONCAWE Day-downwind**	**CONCAWE Night-Calm**	**CONCAWE Night-Downwind**	**ISO 9613-2:2024**
Scenario 2										
R1 – Esmeralda	13	19	27	22	35	nil	nil	nil	nil	nil
R2 – Prospect	37	42	44	42	50	nil	nil	nil	nil	nil
R3 – Homestead	26	32	36	33	44	nil	nil	nil	nil	nil

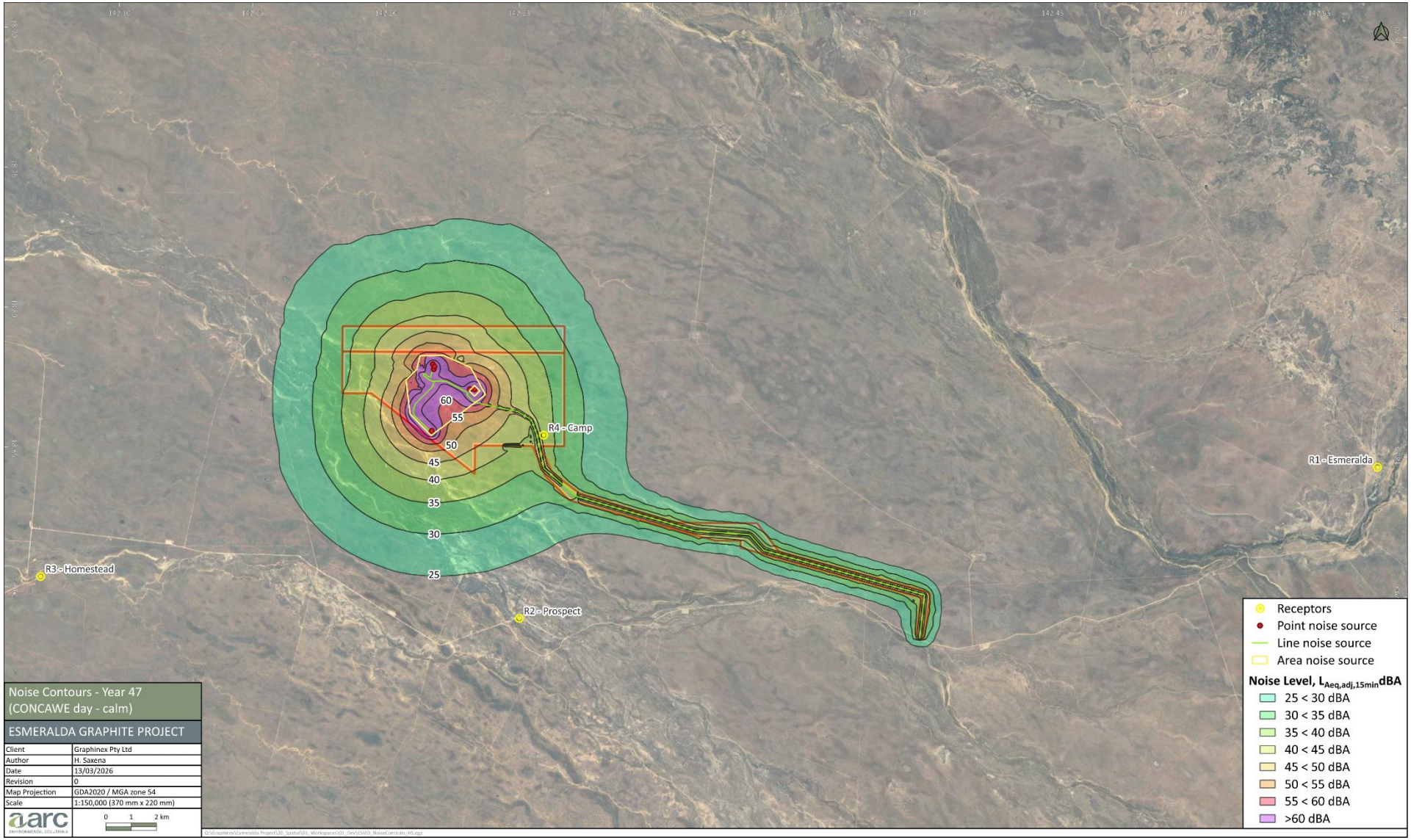


Figure 24-2: Noise contours – Scenario 2, Year 47 (CONCAWE day-calm)

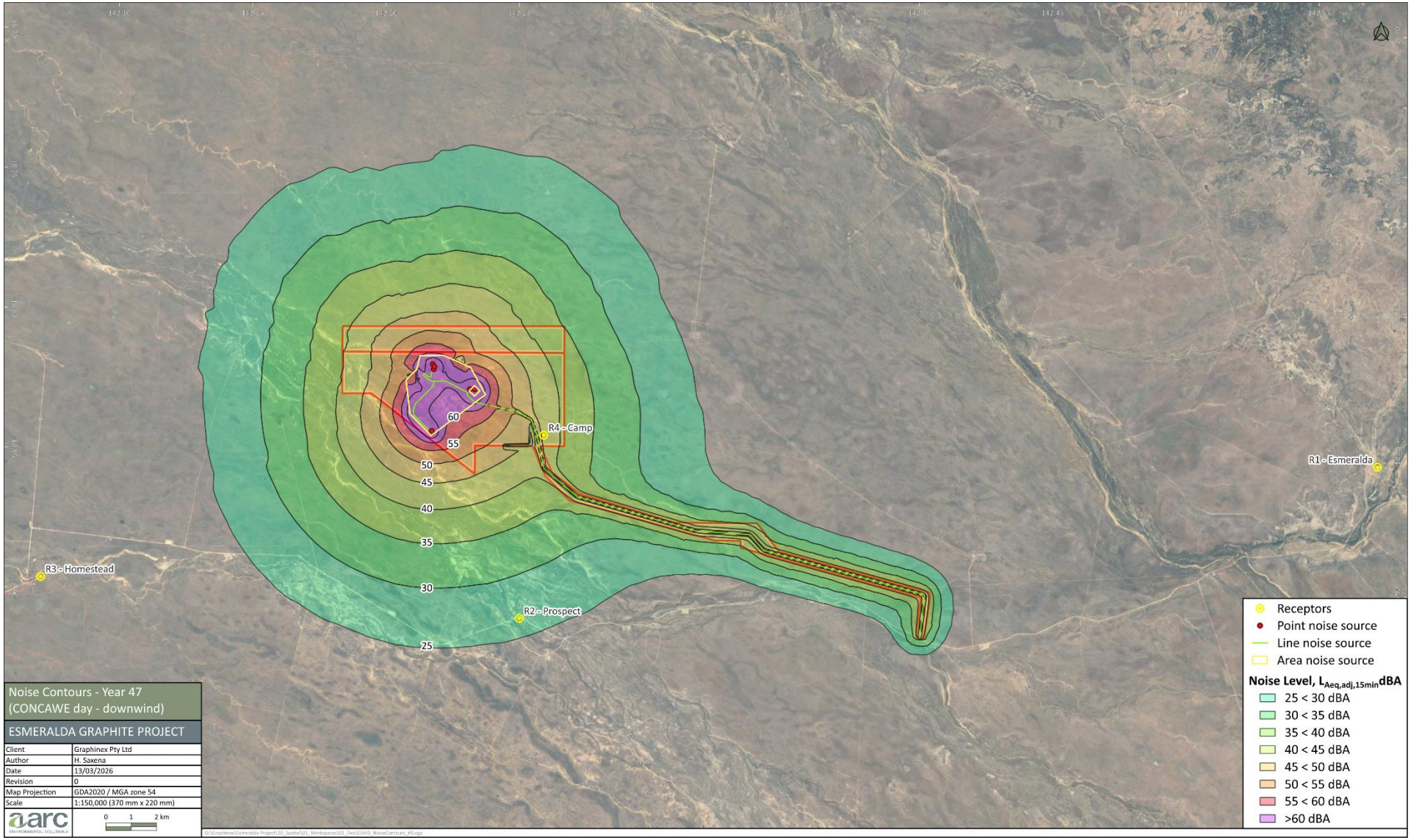


Figure 24-3: Noise contours – Scenario 2, Year 47 (CONCAWE day-downwind)

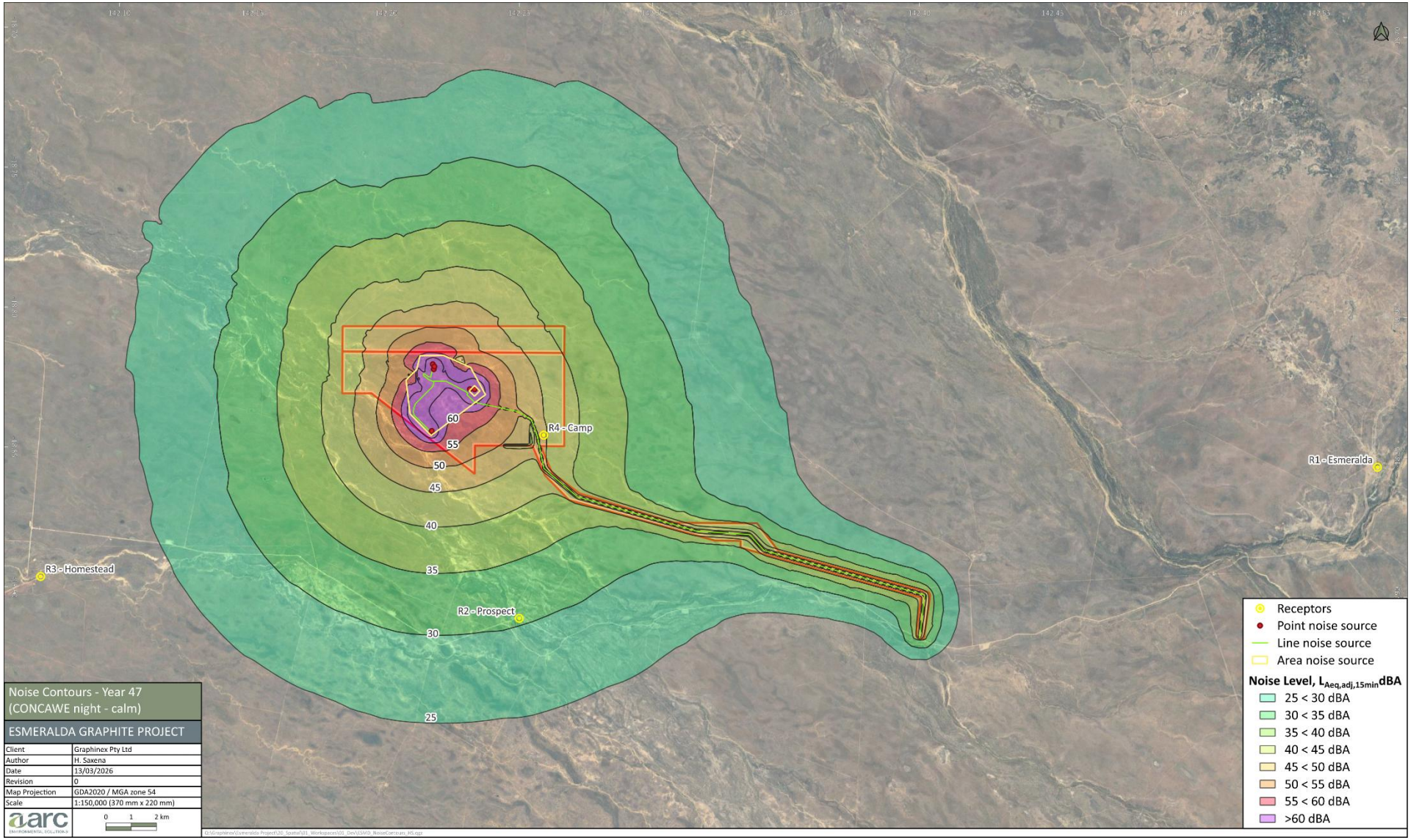


Figure 24-4: Noise contours – Scenario 2, Year 47 (CONCAWE night-calm)

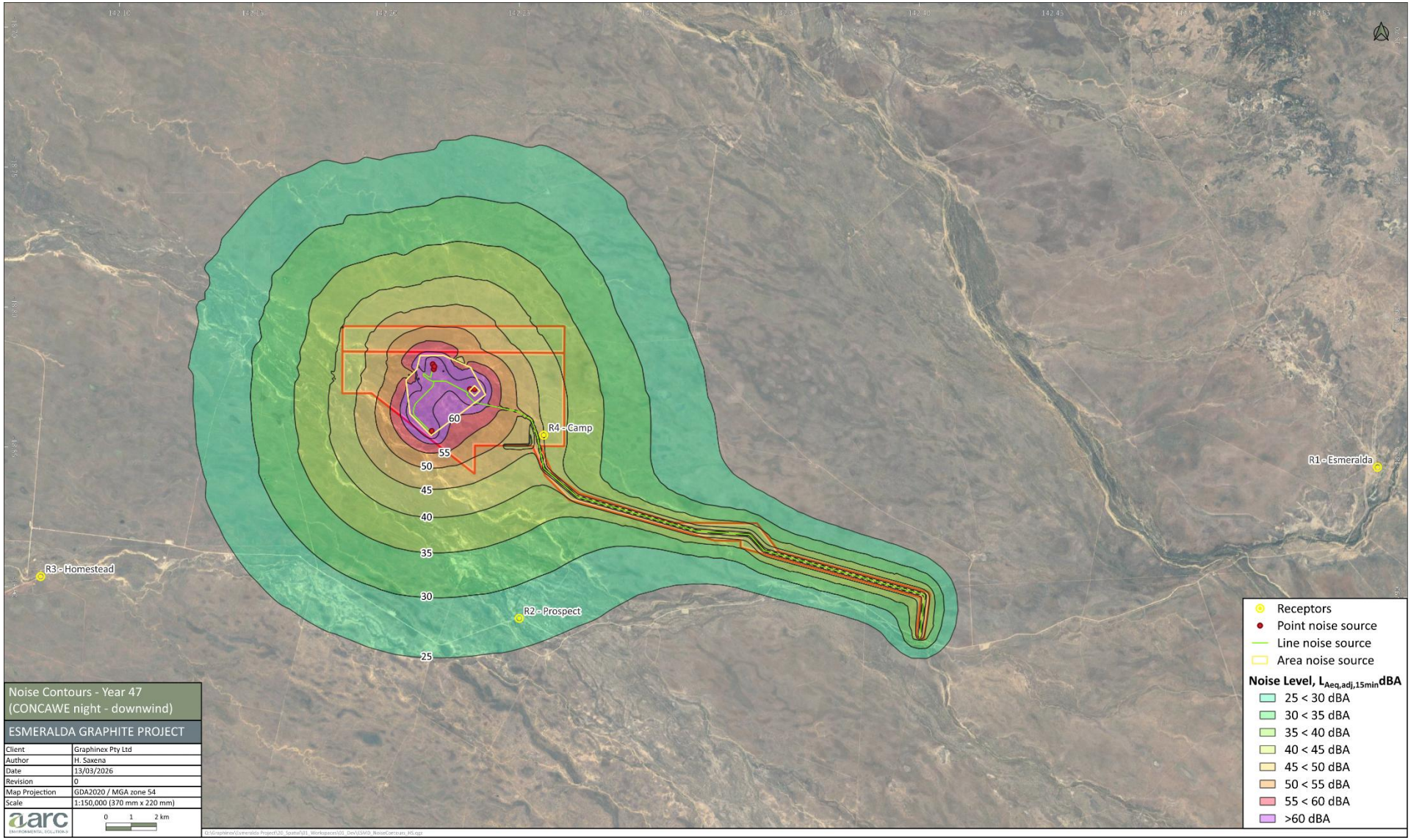


Figure 24-5: Noise contours – Scenario 2, Year 47 (CONCAWE night-downwind)

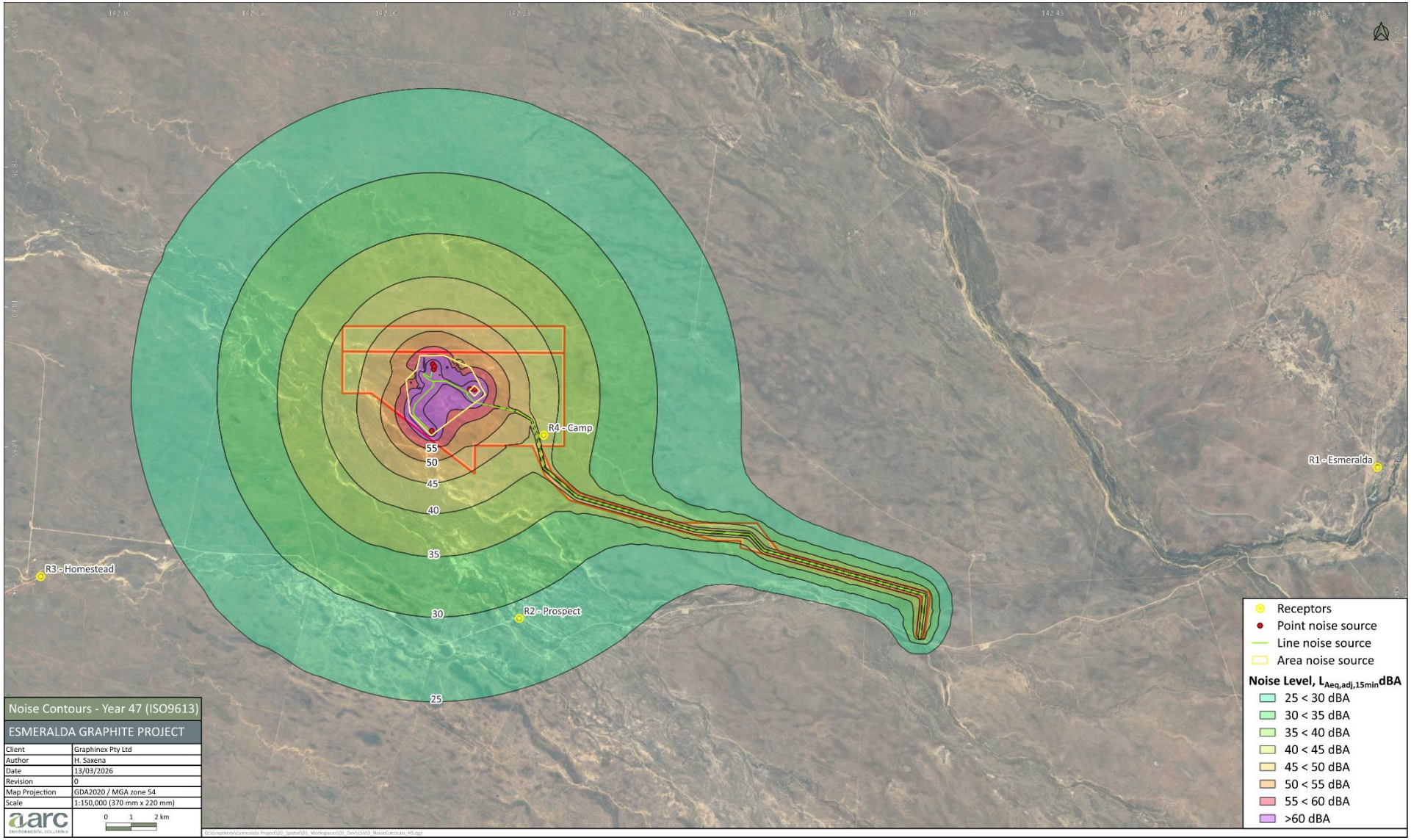


Figure 24-6: Noise contours – Scenario 2, Year 47 (ISO 9613-2:2024)

24.3.2.4 Upset conditions

An assessment of upset conditions was not conducted given that the upset conditions are not expected to pose a risk for additional noise impact. The additional noise impact is not expected due to the following reasons:

1) Although an increased noise level for a malfunctioned equipment may occur, the overall effect on noise emissions from the whole site would likely be minor.

2) When equipment malfunctions, it will be quickly taken out of operation, and subsequent adverse noise impacts are not expected to occur. In addition, all equipment will be maintained routinely, and malfunctions that increase noise levels are expected to be rare.

3) In the case of severe weather conditions, mining activities would be reduced or stopped, which would result in lower noise emission levels.

4) While strong winds blowing away from the mine would have a lowering effect on sensitive receptors, strong winds blowing from the direction of the mine towards sensitive receivers could increase the mining noise levels. Nevertheless, in both cases, the likely increase in the background noise levels would significantly mask any such mining noises. Moreover, the noise modelling assessment considered the worst-case scenario of low to moderate, rather than strong, wind speeds.

24.3.2.5 Summary of potential impact

An assessment of predicted noise emissions has established that noise levels comply with the proposed noise limits. It is noted that mine noise levels can be audible in rural areas at lower noise levels than the proposed noise limits. Therefore, compliance with the proposed noise limits does not necessarily indicate predicted mine noise levels will be inaudible. Compliance with the noise limits confirms that the Project is compliant with the EPP (Noise) acoustic quality objectives and background creep requirements, from which the limits were determined.

No noise sensitive ecosystems are present nearer to the Project than residential sensitive receptors. Therefore the activities are appropriately managed so that adverse effects on environmental values, including health and wellbeing and sensitive ecosystems, are prevented or minimised (as per Schedule 8 of the EP Regulation).

Compliance with the proposed noise limits, protection of environmental noise values and the proposed implementation of a Noise Management Plan, establishes that the Project is compatible with approved land uses in the project footprint and surrounding area.

24.3.3 Road and aircraft noise assessment

The Project will utilise a fly-in fly-out (FIFO) workforce for the mine, arriving by aircraft landing within the MLA. Therefore, FIFO and shuttle bus trips will not be generated on the external road network. The remaining vehicle movements are relatively limited and are assessed in the following section. Noise from aircraft transporting the FIFO workforce is detailed further in this section.

According to the transport assessment (Burchills 2026), the construction, operation and decommissioning phases will operate with two (2) daily workforce rosters. The workforce will operate over a 12-hour shift per roster, for five (5) days on and two (2) days off. It is understood that roster changeover will occur every 14 days. The timing of shift change is unknown at this time, however, the transport assessment (Burchills 2026) utilises a full shift change in both the AM and PM peak hours to complete a conservative assessment (on the high side).

24.3.3.1 Road traffic noise assessment

Traffic data was derived from the EIS transport assessment (Burchills 2026), which demonstrated that the Project contribution to road traffic is minor with a maximum of 62 vehicle trips per day, and that heavy vehicles are the dominant vehicle. Heavy vehicles would also be the dominant noise source.

Road traffic noise levels have been calculated using two approaches, with the reported noise levels being the higher of the two. The calculated road traffic noise levels, including the effect of the Project; and the noise level increase due to the Project across construction and operational phases; are listed in Table 24-14.

Table 24-14: Road traffic noise levels

Road	**Road condition**	**Speed limit (km/h)**	**2027 traffic noise level including Project (increase due to project) $L_{A10,18hr}$ at 10 metres dBA**	**2027 traffic noise increase due to Project Construction phase / Operational phase $L_{Aeq,1hr}$ dBA**
CRITERIA			Limit 68 dBA	Guide 2 dBA
Flinders Highway A6	Sealed	110	64 (1)	1 / 1
Larsen Street	Sealed	60	65 (1)	1 / 1
Goldring Street	Sealed	60	64 (1)	2 / 1
Crawford Street	Sealed	50	68 (0)	1 / 0
Richmond-Croydon Road	Sealed	100	60 (3)	4 / 3
		80	60 (4)	4 / 3
Esmeralda Prospect Road	Gravel	100	62 (4)	4 / 3
Proposed Mine Access	Gravel	100	62 (4)	4 / 3

The future road traffic noise levels, including Project traffic, comply with the DTMR noise limit of 68 dBA $L_{A10(18hour)}$ at distances as close as 10m from the side of the roads due to the low traffic numbers (refer Table 24-14). This criterion is therefore not exceeded by the Project as dwellings are setback more than 10 m from affected roads.

Assessment of future traffic noise levels against the NSW noise criteria, proposed as a noise level guide, concluded that road traffic noise levels are acceptable. It was determined (refer Table 24-14) that hourly average road traffic noise level increases are higher (3 to 4 dBA) at dwellings adjacent Richmond-Croydon Road, Esmeralda Prospect Road, and Proposed Mine Access, but analysis contained in the noise report (Appendix I) determined that due to the relatively low traffic volumes and dwelling setbacks, the road traffic noise levels remain acceptable.

Overall, the road traffic noise levels are considered compliant. Further details of the calculation can be found in Appendix I, Noise and Vibration Impact Assessment, Section 7.

24.3.3.2 Aircraft noise assessment

Approximately 95% of Project staff are expected to arrive by air (FIFO) due to the remoteness of the site, and therefore an airstrip has been included in the Project. The airstrip is located adjacent the mine access road. The expected largest plane type is a Dash 8-300, which has a capacity of approximately 50 to 56 passengers, and up to 4 flights could be expected per day.

The airstrip is proposed to be used during the construction, operation, and decommissioning phases of the Project. Aircraft noise levels have been calculated based on distances to receptors, calculated as per AS2021,

and the tabulated Dash 8-300 noise levels from AS2021. Further details of the calculation can be found in Appendix I, Noise and Vibration Impact Assessment, Section 7. The tabulated aircraft noise calculations are as follows.

Table 24-15: Aircraft noise level calculations

Receptor	Distances from airstrip to receptors, m			Aircraft noise level, average L_{max}, dBA	
	Landing	Take-off	Sideline	Landing	Take-off
R1	27,000	28,200	9,000	29	31
R2	2,300	3,500	5,000	32	40
R3	21,000	22,200	8,000	30	32

The highest calculated maximum aircraft noise level is 40 dBA L_{max} at Receptor R2 for aircraft taking off. This noise level is well below the 80 dBA maximum criterion conservatively proposed for the airstrip, as determined from AS2021. Even allowing for flight path or aircraft type variations, the aircraft noise levels will be compliant with the 80 dBA maximum criterion.

24.3.4 Blasting impact assessment

The only significant source of vibration on the Project site is from blasting in the open-cut pit (10 km from the nearest sensitive receptor), and therefore a blasting impact assessment has been undertaken. Blasting is expected to occur a maximum of twice per week.

24.3.4.1 Methodology

Airblast and vibration calculations were undertaken in accordance with Australian Standard 2187.2 – 2006 'Explosives – Storage and Use – Part 2: Use of Explosives'. Further details of the calculation can be found in Appendix I, Noise and Vibration Impact Assessment, Section 8.

Blasting calculations were undertaken with a proposed maximum blast size of 200 kg, and with a higher blast size of 1000 kg to demonstrate the sensitivity of calculations.

24.3.4.2 Blasting modelling results

Airblast

The Project will be compliant with the airblast limits suggested by the 'Guideline – Model Mining Conditions' (DESI 2024g). Airblast levels are below the airblast limits of 115 and 120 dB (Linear Peak) at a distance of 3 to 4 km. The nearest receptor (R2) is approximately 10 km from the mine pit, at which point the airblast levels are well below the airblast limits.

Further details on the modelled results can be found in Appendix I, Noise and Vibration Impact Assessment, Section 8.2.3.

Ground vibration

The Project will be compliant with the vibration limits suggested by the 'Guideline – Model Mining Conditions' (DESI 2024g). Vibration levels are below the vibration limits of 5 and 10 mm/s at a distance of 1 to 2 km. The nearest receptor (R2) is approximately 10 km from the mine pit, at which point the vibration levels are well below the vibration limits.

Further details on the modelled results can be found in Appendix I, Noise and Vibration Impact Assessment, Section 8.2.4.

24.3.5 Cumulative noise and vibration impact

All Project noise impacts have been assessed on an intra-project cumulative basis, considering all potential contributing factors to noise emissions from Project operations.

On an inter-project cumulative basis, it is noted that the Project is far from other significant projects or mines, with the closest mine (Croydon gold mines, currently a historical mine and potential future mine) located approximately 70 km to the north of the Project site. Given the significant distance, the cumulative noise and vibration impact from multiple mines are negligible for all of the modelled scenarios. Hence, it is considered that there will not be any cumulative noise and vibration impacts on any environmental values or sensitive receptors.

The wider region (including the township of Croydon) also supports other projects of smaller scale and intensity, including agriculture and limited housing development, however these projects are not expected to contribute significantly to noise or vibration impacts.

24.4 Management and mitigation measures

The noise management hierarchy set out in the EPP (Noise) requires that for an activity involving noise that affects, or may affect, an environmental value, to the extent that it is reasonable to do so, noise management must be dealt with in the following order of preference:

1) avoid the noise generation (e.g. locate an industrial activity in an area that is not near a sensitive receptor);
2) minimise the noise in the following order:
    a) orientate an activity to minimise the noise (e.g. face the part of an activity that makes noise away from a sensitive receptor); then
    b) use the best available technology to minimise the noise; and
3) manage the noise (e.g. use heavy machinery only during business hours).

The Project proposed to adopt a conservative version of the EPP (Noise) derived limits in Schedule 1, which are consistent with other similar mining projects. The proposed noise criteria are shown below in Table 24-16.

Table 24-16: Proposed Project noise limits

Noise level dBA measured as:	**All days**		
	Day (7am to 6pm)	**Evening (6pm to 10pm)**	**Night (10pm to 7am)**
Sensitive Place - Residences			
$L_{Aeq,adj,15min}$	40	40	35

The proposed blasting airblast and vibration criteria are shown below in Table 24-17.

Table 24-17: Proposed Project blasting limits

Blasting noise and vibration limits	Sensitive place and commercial place criteria	
	Monday to Friday 7am to 6pm; **Saturday, Sunday and Public Holidays 9am – 6pm**	**Other times**
Airblast overpressure	115 dB (Linear peak) for 9 out of 10 consecutive blasts and not greater than 120 dB (Linear peak) at any time	No blasting
Ground vibration	5 mm/second peak particle velocity for 9 out of 10 consecutive blasts and not greater than 10 mm/second peak particle velocity at any time	No blasting

Noise and vibration mitigation measures are not expected to be required for the Project to meet the proposed compliance limits, given the noise and vibration impact assessment results in Section 24.3.2. Indeed, the noise impact assessment predicted noise compliance without adopting mitigations, under various adverse meteorological conditions, even under multiple worst-case scenarios (i.e. highest emissions and closest mining activities to sensitive receptors). Similarly, the vibration assessment predicted compliance without mitigations, due to the large distance between the Project's mining activities and sensitive receptors. The Project's noise and vibration emissions are therefore considered to be compatible with the existing grazing land use of the surrounding region. Accordingly, regular or continuous noise and vibration monitoring is not considered necessary for the Project.

Notwithstanding full noise compliance, a Noise Management Plan (NMP) has been developed (Appendix AG), to manage potential impacts in consideration of the acoustic quality objectives outlined in the EPP (Noise) and the noise limits present in Table 24-16. The NMP considers existing and potential land uses in surrounding areas and demonstrates how acoustic quality objectives limits will be monitored and audited and establishes corrective actions that would be adopted, should any future noise or vibration issues unexpectedly arise. The NMP will be finalised prior to Project construction and be implemented for all phases of the Project.

The NMP addresses the following:

- A process to enable Graphinex to receive and promptly respond to any community noise or vibration complaints. Should a non-vexatious complaint be received, the Project will investigate the noise and/or vibration, and if it is mine-related, complaint monitoring and investigation will be undertaken. Any noise and/or vibration exceedances will result in a review and implementation of noise and/or vibration management and mitigation measures.
- The process to enable the mine to promptly respond to noise exceedances, should monitoring determine such an occurrence.
- Noise monitoring will be undertaken in the event of receipt of a noise complaint and will be undertaken in accordance with the latest version of the 'Noise Measurement Manual' (DES 2020) and relevant Australian Standards. Noise monitoring will record one-third octave band noise levels and audio samples to remove extraneous noise (e.g. farm activities, dogs, insects, high wind speeds) from the data. Additionally, weather data (i.e. wind direction and speed, rainfall, temperature and humidity) will be measured and reported with the noise data. Outcomes of noise monitoring will determine the required corrective actions.
- Although noise and vibration modelling results indicate that noise and/or vibration exceedance is very unlikely and that noise or mitigation measures are not required, the NMP provides for future potential management and mitigation measures, such as:
    a) management of mining equipment locations, such as operating at lower elevation or shielded areas;
    b) reducing the number of equipment in operation;
    c) attenuation of equipment;
    d) construction of bund walls; and/or

e) noise and/or vibration monitoring, including the monitoring of background creep, to ascertain the effectiveness of any noise and/or vibration control measures.

24.5 TOR Reconciliation table

Terms of reference - Content requirements of the EIS		EIS Section
Section 24 - Noise and vibration		
24.1	The following guidance is relevant for the assessment of noise and vibration: (a) Queensland Government, Noise and vibration – EIS information guideline, ESR/2020/5305 (b) Queensland Government, Guideline – Application requirements for activities with noise impacts, ESR/2015/1838.	Section 24.1
Noise and vibration - Existing environment		
24.2	Identify and map the location of any sensitive places and environmental values of the project footprint and surrounding areas that may be impacted by noise emissions or vibrations from the project.	Section 24.2.1 Section 24.2.2 Figure 24-1
24.3	Describe the existing background noise within the project footprint, including noise and vibration sources. The data must be collected in accordance with quality-assured, best practice methodologies and as per the Noise Measurement Manual.	Section 24.2.3
Noise and vibration - Impact assessment		
24.4	Identify and quantify the noise and vibration sources emitted from the project (point and general emission sources). Describe whether the sources will be continuous, intermittent, fluctuating, vibrating or impulsive.	Section 24.3.1 Section 24.3.3
24.5	Tabulate the noise and vibration objectives applicable to the noise and vibration emissions from the project.	Table 24-3 Table 24-4 Section 24.1.5
24.6	Detail the potential impacts of noise and vibration emissions from the project on environmental values and sensitive places, including identifying any exceedances of the acoustic quality criteria. The assessment must address low-frequency (<200 Hz) noise emissions.	Section 24.3.2.3 Section 24.3.3
24.7	If the project involves blasting, describe the locations, frequency and expected size of blasts, and predict the noise levels, air blast overpressure, and ground vibration that would result from the blasts.	Section 24.3.4
24.8	Detail the compatibility of noise and vibration impacts from the project on existing and approved land uses in the project footprint and surrounding area.	Section 24.3.2.5 Section 24.3.3
24.9	Demonstrate how the project will meet the environmental objectives and performance outcomes relevant to noise in Schedule 8 of the EP Regulation.	Section 24.3.2.5 Section 24.3.3
Noise and vibration - Mitigation measures		
24.10	Describe the mitigation measures that will be applied to the project to:	-
	(a) achieve the noise and vibration criteria that have been developed for the project	Section 24.4
	(b) avoid, minimise and/or mitigate adverse noise and vibration impacts to sensitive receptors	Section 24.4

Terms of reference - Content requirements of the EIS		EIS Section
	(c) protect the environmental values of the acoustic environment	Section 24.4
	(d) control background creep in noise as outlined in the Environmental Protection (Noise) Policy 2019.	Section 24.4
24.11	Describe the monitoring and auditing processes to achieve the noise and vibration criteria developed for the project.	Section 24.4
24.12	Describe the process for corrective actions to address any exceedance of the noise and vibration criteria.	Section 24.4