HERRING STORER ACOUSTICS

TALISON LITHIUM LTD

PROPOSED EXPANSION
S2 WASTE ROCK LANDFORM

GREENBUSHES

ACOUSTIC ASSESSMENT

JANUARY 2025

OUR REFERENCE: 34035-2-24136-02

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TALISON LITHIUM LTD

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CONTENTS

APPENDICIES

1. INTRODUCTION

Herring Storer Acoustics was commissioned by Talison Lithium Ltd to undertake noise modelling relating to noise emissions from the proposed expansion to the Greenbushes mining operations.

This study has been undertaken to provide preliminary acoustic information to Talison to inform the design teams on the noise requirements for the proposed operations. This information will be used to understand the level of compliance with regulatory criteria for the existing Ministerial variation (Reg 17) for the assigned noise levels for the noise sensitive premises surrounding the operations.

Talison is expanding the Greenbushes Operations in response to market demand, increasing mining of spodumene ore and production of Lithium mineral spodumene concentrate. As part of the expansion additional waste rock landforms (WRL) are required to accommodate waste rock during the life of mine. Talison is currently proposing to construct and additional WRLs S8 (previous proposal) and S2 to the east of TSF 4. This assessment considers the noise impact for multiple scenarios between the current and future operations.

The listing of existing and proposed expansion activities to be considered includes:

- S2 Waste Rock Landforms (S2 WRL) with and without S8 (concurrent and sequential operation, 24/7 and day only operation);
- Supporting infrastructure (roads, stockpiles);
- Existing approved activities constructed and proposed.

The objectives of the acoustic study are to:

- Predict the impacts of noise outside of the proposed Mine Development Envelope (MDE), including the existing and proposed MDE's;
- Separate industry and sensitive land uses;
- Access predicted noise emissions associated with the existing and proposed works at the specified residences;
- Incorporate the cumulative noise emissions for the Greenbushes Mine (i.e. develop a whole of site noise model including existing and expansion activities);
- Assess the cumulative noise emissions against the Regulatory criteria;
- If required, provide advice / recommendations for noise control.

For information, a locality plan showing the various operation areas is shown below in Figure 1.1.

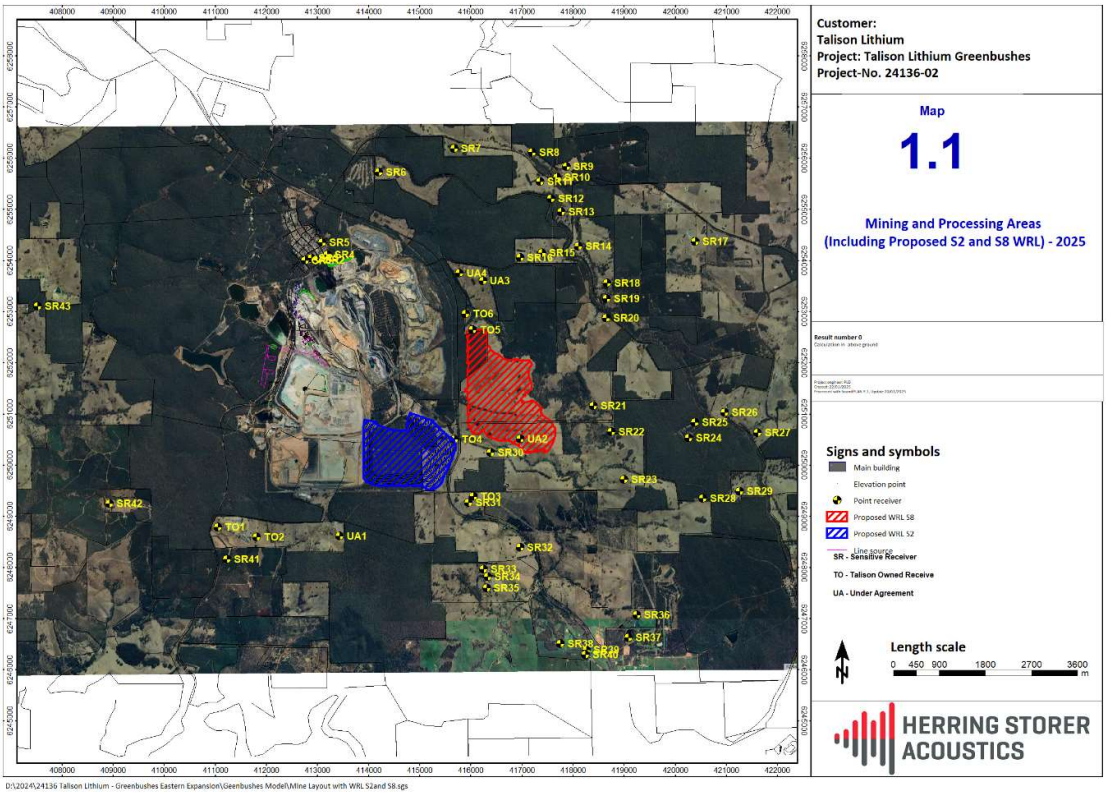


FIGURE 1.1 – GREENBUSHES CURRENT AND PROPOSED OPERATIONAL AREAS

2. SUMMARY

This acoustic study presents a comprehensive analysis of the noise emissions associated with the proposed Waste Rock Landform S2 (S2 WRL) project, assessing compliance with existing noise regulations and projecting impacts on sensitive receptors. Below is a summary of the key findings and considerations from the study:

Current Operations Compliance:

- The existing mining and processing activities comply with the Regulation 17 assigned noise levels of 50 dB(A) for night periods.

Impact of S2 WRL Expansion:

- Noise levels will increase between 1 to 11dB(A) at various receivers due to the S2 WRL project.
- All receivers remain within the Regulation 17 noise limit of 50 dB(A) during the night.

Ownership and Agreements:

- Exceedances at receivers TO4 and UA2 are mitigated by Talison's ownership or agreements with affected parties.

Comparison with Regulation 7:

- If assessed under the stricter Regulation 7 limit of 35 dB(A) for night periods, there would be widespread exceedances across numerous receivers, highlighting the necessity of Regulation 17 inclusion for the proposed operations.

Predictive Modelling and Scenarios:

- Detailed noise modelling for various scenarios identified that 42 of the 53 receivers will experience increased noise levels due to the S2 WRL expansion.
- The increase in noise is dependent on receiver location and proximity to S2 WRL.

Challenges in Noise Management:

- The noise levels associated with S2 WRL cannot be feasibly managed to meet the default Regulation 7 criteria without inclusion in the existing Regulation 17 approval framework.

Recommendations

1. **Incorporation into Regulation 17**:

   To ensure compliance, the S2 WRL project should be included in the current Regulation 17 approval, maintaining the 50 dB(A) night period limit.

2. **Ongoing Monitoring and Mitigation**:

   Regular monitoring should continue to validate compliance and address potential tonal noise characteristics from mobile mining fleets.

3. **Engagement with Affected Parties**:

   Maintain communication with stakeholders, particularly those under agreement, to manage expectations and resolve any noise-related concerns.

The study underscores that while the S2 WRL expansion will lead to noise increases at various receivers, these levels remain manageable under the Regulation 17 framework. The integration of the proposed operations into the existing Regulation 17 approval is essential to ensure compliance and facilitate project expansion within acceptable environmental noise parameters

3. CRITERIA

The Talison Greenbushes Operation operates under Regulation 17 variation of assigned noise level, which was approved in 2009.

The following extract from the Government Gazette No 31, dated Friday 27 February 2015 states the acoustic criteria as allowed under the Regulation 17.

4. Approval

Approval is granted to Talison Lithium Australia to allow the level of noise emitted from the mine site to exceed the standards prescribed under regulations 7 and 11(4)(a)(i) and (6)(a)(i) if —

(a) for noise emissions other than those resulting from blasting, the level of noise emitted from the mine site when received at a premises of a type referred to in column 1 in the Table in Schedule 1, at a time of day referred to in column 2 opposite those premises does not exceed the L_{A10} approved level referred to in column 3 or the LA max approved level set out in column 4 for those premises at that time; and 3

The approved noise levels for noise emission other than blasting, as outlined in the approval are listed in the following Table 3.1:

TABLE 3.1 – APPROVED REG 17 NOISE LEVELS

Premises Receiving Noise	Time of Day	Assigned Level (dB)	
		$L_{A\ 10}$	$L_{A\ max}$
A highly sensitive area	0700 to 1900 hours all days	53	71
	1900 to 2200 hours all days	51	69
	2200 to 0700 hours all days	50	68
A noise sensitive premises other than a highly sensitive area	All hours	60	80
Commercial premises	All hours	60	80
Industrial and Utility Premises	All Hours	65	90

Notes: L_{A10} is the noise level exceeded for 10% of the time.
L_{Amax} is the maximum noise level.

A highly sensitive area, means that area (if any) of noise sensitive premises comprising-

(a) a building, or a part of a building, on the premises that is used for a noise sensitive purpose; and

(b) any other part of the premises within 15 m of that building or that part of the building;

Additional to the above, Part (f) of Clause 8 – Noise Management Plan of the approval also states :

(g) procedures to be adopted by Talison Lithium Australia to minimise tonality, modulation and impulsiveness in noise emissions;

From the approval, we understand that no penalties for characteristics of noise emissions are applicable.

4. MEASURED NOISE LEVELS

To enable the assessment of noise emissions from the current mining operations, noise level measurements were carried out on the 3rd May 2022.

This noise monitoring was undertaken to confirm the noise levels of the recently commissioned CGP2 Processing Plant and CR2 Crusher system in conjunction with the existing infrastructure of CGP1 Processing and CR1 Crusher, as well as the active mining fleet.

Noise level measurements were conducted using two methods. The first method involved utilising two Ngara loggers recording continuous noise levels at two different locations, being at Crusher 1 and Crusher 2 within the mine operations.

The noise monitors recorded continuous noise levels from 15:00 on the 3rd to 08:00 on the 4th May 2022. The two loggers were set to record continuous noise levels for the assessment period and were time synchronised so that the noise levels at each location were comparable. Monitoring locations are shown in Figure 4.1.

FIGURE 4.1 – FIXED CONTINUOUS MONITORING LOCATIONS

The second method of measurement was short term handheld noise level measurements using a Svan 948 integrated sound level meter.

Measurements were conducted in various locations in both the near and far field to the operating mine site. Near field measurements were used for the purpose of confirming operations of various plant and mobile equipment. Locations 1 to 3 represent the near field measurements therefore are not to be used as a guidance for compliance against the criteria.

The measurement locations are contained in Figure 4.2.

FIGURE 4.2 – OBSERVED NOISE LEVEL MEASUREMENT LOCATIONS

5. MEASURED RESULTS

Based on the analysis of the measured noise levels from the Talison operations, noise levels at various locations have been determined.

The resultant noise levels from hand-held, observed measurements for the period is contained in Table 5.1.

TABLE 5.1 MEASURED NOISE LEVELS L_{A10}dB(A)

Location		Measured L_{A10} Noise Level	Comments
Location 1*	Carpark Crusher 1	66	Rock Fall Audible
Location 2*	Gate 3 - Crusher 2	53	Truck Tipping
Location 3*	Maranup Ford Rd - side track	49	Haul Truck / Rock fall
Location 4	Maranup Ford Rd and Dolerite St	50	Haul Truck / Rock fall
Location 5	Dolerite and Tourmaline St	48	Haul Truck / Rock fall
Location 6	George and Stanifer St	44	Haul Truck movement - general processing
Location 7	Stanifer St near S Western Hwy	39	Haul Truck movement - general processing
Location 8	Catterick Rd	31	Mine Not audible
Location 9	Cemetery	30	Mine Not audible

*Not assessable locations – measured as reference locations for confirmation of crusher operations only.

Results of the continuous noise monitoring have been shown graphically below in Figure 5.1.

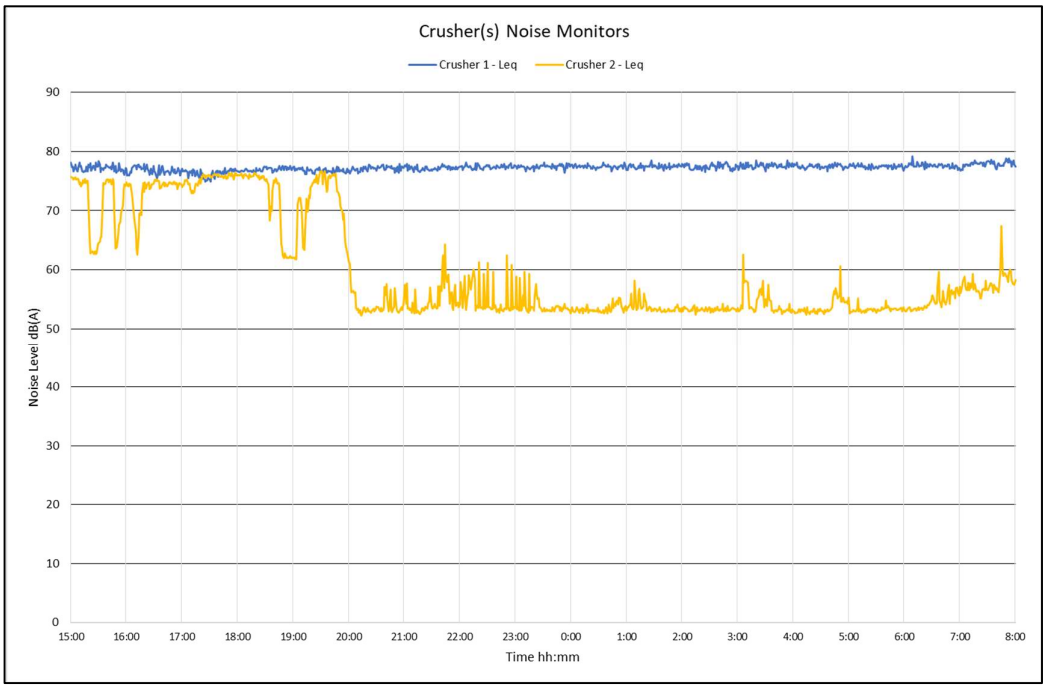


FIGURE 5.1 – CRUSHER MONITOR NOISE LEVELS

Measured noise level at the Locations 4 to 9 have been analysed to establish the presence of annoying characteristics, in particular tonality. Tonality means the presence in the noise emission of tonal characteristics where the difference between —

(a) the A-weighted sound pressure level in any one-third octave band; and
(b) the arithmetic average of the A-weighted sound pressure levels in the 2 adjacent one-third octave bands,

is greater than 3 dB when the sound pressure levels are determined as $L_{Aeq,T}$ levels where the time period T is greater than 10% of the representative assessment period, or greater than 8 dB at any time when the sound pressure levels are determined as $L_{A\ Slow}$ levels.

Therefore, Figure 5.2 details the arithmetic average difference 2 adjacent one third octave bands. If this value is greater than 8 dB then the noise emissions would be considered as containing tonal characteristics.

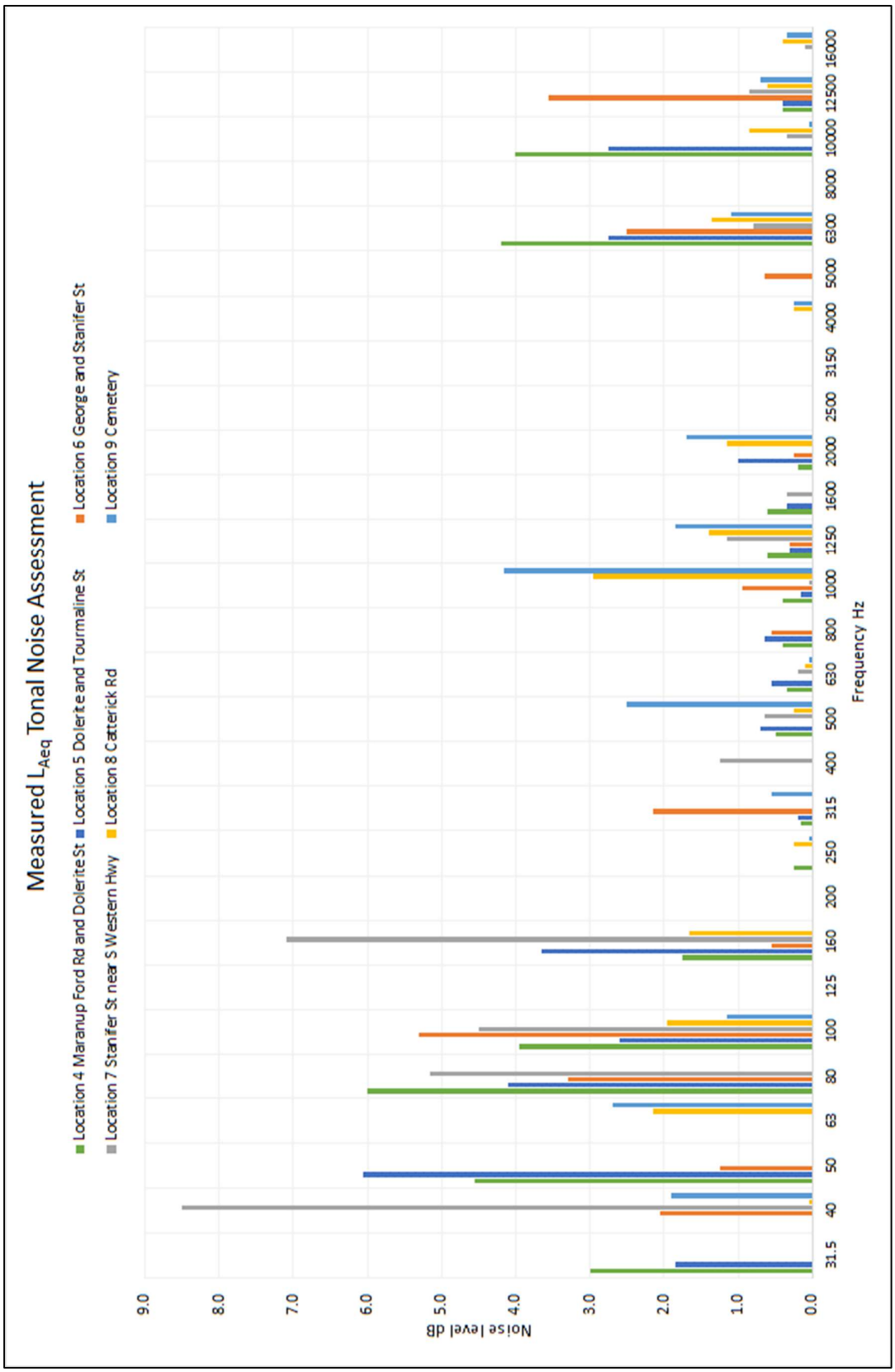


FIGURE 5.2 – TONAL ASSESSMENT

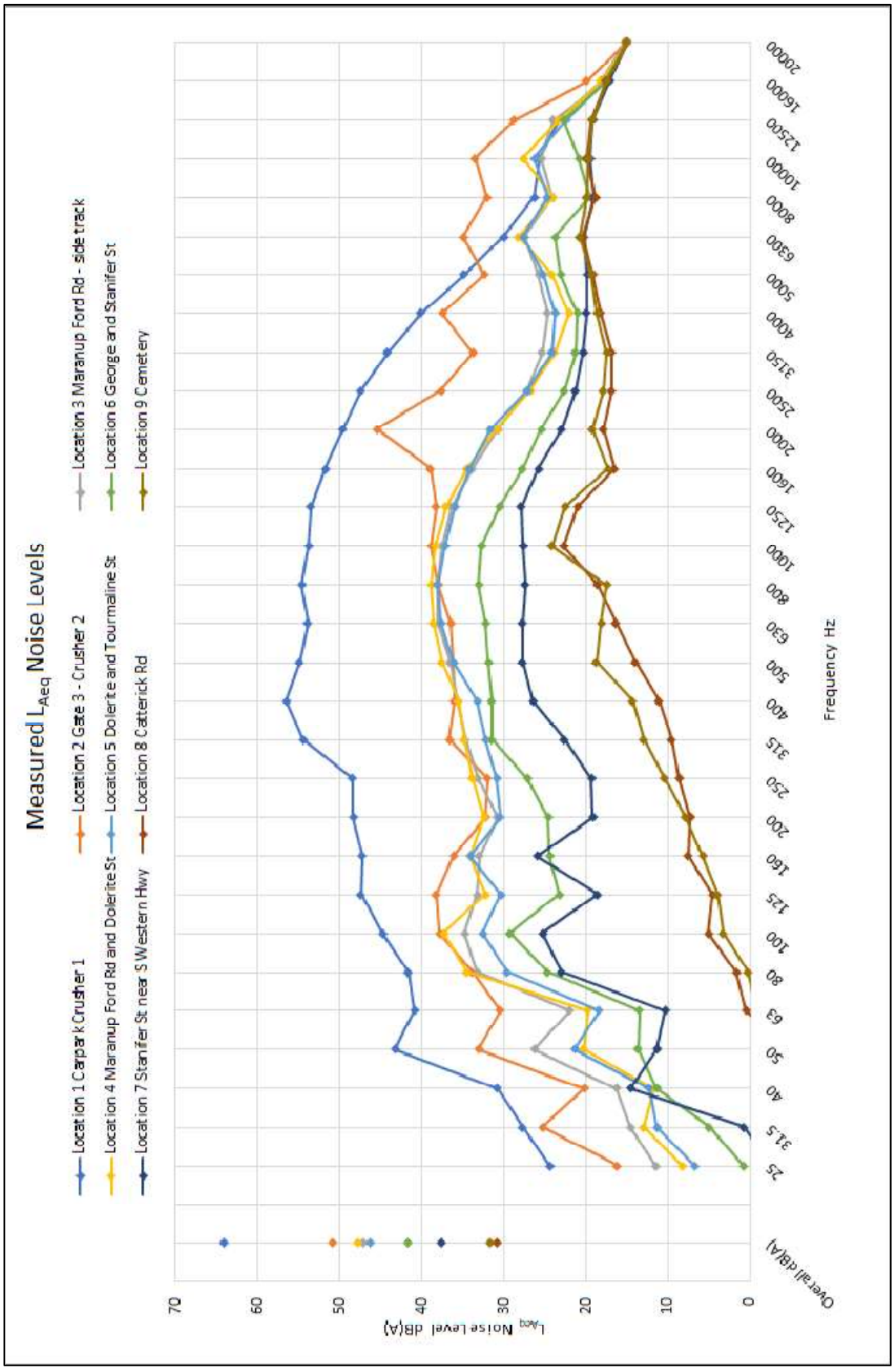


FIGURE 5.3 – COMPARATIVE THIRD OCTAVE NOISE LEVELS

As can be seen in Figure 5.2, there are considerable “tones” in low frequency noise emissions which range between 40 and 160 Hz. Further analysis of the near and far field measured noise levels has been carried out to show a comparison to allow for the identification of the noise source. Figure 5.3 shows an overall comparison of the third octave noise levels.

Analysis of the noise levels shows that the tonal component at 50 and 100Hz is the frequency of concern. Previous measurements and observations of the mining operations determined that the 50 Hz noise emission is related to the CGP1 Crusher and or mill.

It is further noted that the tonal noise emission at 40 Hz which is prevalent at Location 7 is unlikely to be related to mining noise as it is not present at other locations. It is likely to be related to truck noise associated with the South Western Highway.

Assessment of current mining and processing operations shows compliance is being achieved with the regulatory criteria contained in the Regulation 17 variation of the assigned noise level, for which Talison operates under.

Measured noise levels at the nearest noise sensitive premise (Dolerite Street) were 50 dB(A) during the night period. This compares to the criteria within the Regulation 17 variation not to exceed 50 dB(A) during this period.

Analysis of the noise levels at the highly noise sensitive premises show that there is the potential for the noise to contain tonal characteristics. Under the Regulation 17 there is a condition which states “procedures to be adopted by Talison Lithium Australia to minimise tonality, modulation and impulsiveness in noise emissions;” hence, it is recommended that the source of the 50 Hz noise emission is further investigated, with an outlook to provide noise control options.

6. CALCULATED NOISE LEVELS

To determine the noise that would be received at highly noise sensitive receptors from the proposed expansion, modelling of noise emissions was carried out using “SoundPlan”. The results were then used to determine the noise level that would be received at noise sensitive premises within the Town of Greenbushes and surrounding areas. These calculated noise levels were then assessed for compliance with the Regulation 17 Approval. Additionally, using the results of previous noise modelling, the resultant overall noise level was determined, which was also compared to the approved noise levels as stated in the Regulation 17 Approval.

Noise modelling was undertaken as per the scenarios outlined in Table 6.1.

TABLE 6.1 MODELLING SCENARIOS

Area	Scenario 1 - Existing Mining and Processing	Scenario 2 – Proposed S2 WRL Only Final Height (Top of Waste Rock Landform)	Scenario 3 – Cumulative Existing and Proposed Operations (Scenario 1 and Scenario 2 Combined)	Scenario 4 – Addition of S8 WRL to Scenario 3
Proposed S2 WRL	-	6 Haul Trucks, 1 Wheel Dozer	6 Haul Trucks, 1 Wheel Dozer	6 Haul Trucks, 1 Wheel Dozer
Proposed S8 WRL				
Fixed Plant (Processing)	CGP1 Crusher	-	CGP1 Crusher	CGP1 Crusher
	CGP2 Crusher	-	CGP2 Crusher	CGP2 Crusher
	CGP1 Processing Plant	-	CGP1 Processing Plant	CGP1 Processing Plant
	CGP2 Processing Plant	-	CGP2 Processing Plant	CGP2 Processing Plant
	Mine Services Area	-	Mine Services Area	Mine Services Area
Mobile Equipment				
Production Excavators - Hitachi EX3600	1	-	1	1
Production Excavators - Hitachi EX2600	1	-	1	1
Haul Trucks (Cat 785)	14	-	8	8
Haul Trucks (Cat 777)	4	-	4	4
Dozers (Cat D10T2)	3	-	3	3
Wheel Dozer (Cat 854K WD)	1	-	Included at S2 WRL	Included at S2 WRL and S8 WRL
Graders (Cat 16M)	1	-	1	1
Water Carts (Cat 785)	1	-	1	1
Water Carts (Cat 777)	1	-	1	1
Non Production Excavators - Hitachi EX2600	1	-	1	1
Non Production Excavators - Cat 336 c/w RB	1	-	1	1
Non Production Excavators - Cat 336 c/w RB	3	-	3	3
Non Production Excavators - Hitachi EX1200	1	-	1	1
Front End Loaders (ROM) - Cat988K	1	-	1	1
Front End Loaders (ROM) - Cat 992	1	-	1	1
Front End Loaders (ROM) - Cat 992	1	-	1	1
Front End Loaders - (ROM) Cat 992	-	-	-	-

Single point calculations were carried out at the monitoring locations and the reference locations within the Town of Greenbushes and surrounding areas.

These locations are indicated on the site plan attached in Appendix A.
The calculations used the following input data:

a) Ground contours.

b) Sound power levels used in the model were based on either file data or acoustic data provided by Talison. The sound power data is summarised in Table 6.3.

c) Standard night period weather conditions.

Weather conditions for the modelling were undertaken using the "Default Conditions for Noise Modelling" as stipulated within the Environmental Protection Authority's "*Draft Guidance for Environmental Noise for Prescribed Premises"* for the night period as listed in Table 6.2.

TABLE 6.2 – WEATHER CONDITIONS

Condition	Night
Temperature	15°C
Relative humidity	50%
Pasquill Stability Class	F
Wind speed	3 m/s*

* From sources, towards receivers.

TABLE 6.3 – SOUND POWER LEVELS

Item of Plant / Equipment	Sound Power Level	dB-weighting
CAT 988G Loader	113	dB(A)
Chem Grade Plant East CGP 1	110	dB(A)
Chem Grade Plant North (Mills) CGP 1	110	dB(A)
Chem Grade Plant South CGP 1	104	dB(A)
Chem Grade Plant West CGP 1	109	dB(A)
Conveyors	100	dB
Conveyor from ROM	100	dB
Dozer	120	dB
Drill Rig	125	dB
Excavator A (ROM)	98	dB(A)
Excavator A (PC1200)	126	dB
Excavator B Pit C2 (PC2000)	126	dB(A)
Extra Transfer	111	dB
Final Product Stockpile Conveyor 3	100	dB
Final Product Transfer Station 1	111	dB
Final Product Transfer Station 2	111	dB
Front End Loader	117	dB
General Plant	118	dB
HMS Screens	117	dB
Primary crushing	127	dB
Processing 2	114	dB
Processing 3	114	dB
Processing Mill	111	dB
Reclaim conveyor to plant	100	dB
Rockbreaker A (ROM)*	119	dB(A)

Item of Plant / Equipment	Sound Power Level	dB-weighting
ROM - FEL	117	dB
Screens	117	dB
Secondary Crushing	113	dB
Stacker	104	dB
Tantalum - East	119	dB
Tantalum - North	119	dB
Tantalum - West	118	dB
Tantalum - Transfer	111	dB
Tech Grade Plant East CGP 1	109	dB(A)
Tech Grade Plant North CPG 1	113	dB(A)
Tech Grade Plant South CGP 1	109	dB(A)
Tech Grade Plant West CPG 1	109	dB(A)
Temporary Crusher	118	dB(A)
Thicknesser 2	116	dB
Transfer Station	111	dB
Truck (777)	116	dB(A)
Truck (785)	116	dB(A)
WHIMS 1 - Processing	114	dB

*Day only operations

In combination with the above mining and processing noise sources, modelling included the Mine Services Area (MSA) which was completed in 2022. Due to the high noise emissions, haul trucks have been modelled as moving around the MSA on the designated roads.

General workshop activities such as grinding, rattle guns etc. have been assumed as being carried out within the workshop structures. Equipment such as exhaust fans, compressors and other plant have been assumed as external noise sources to the buildings.

Noise modelling was undertaken for the various scenarios outlined in Table 6.4 with Figure 6.1 showing the site layout.

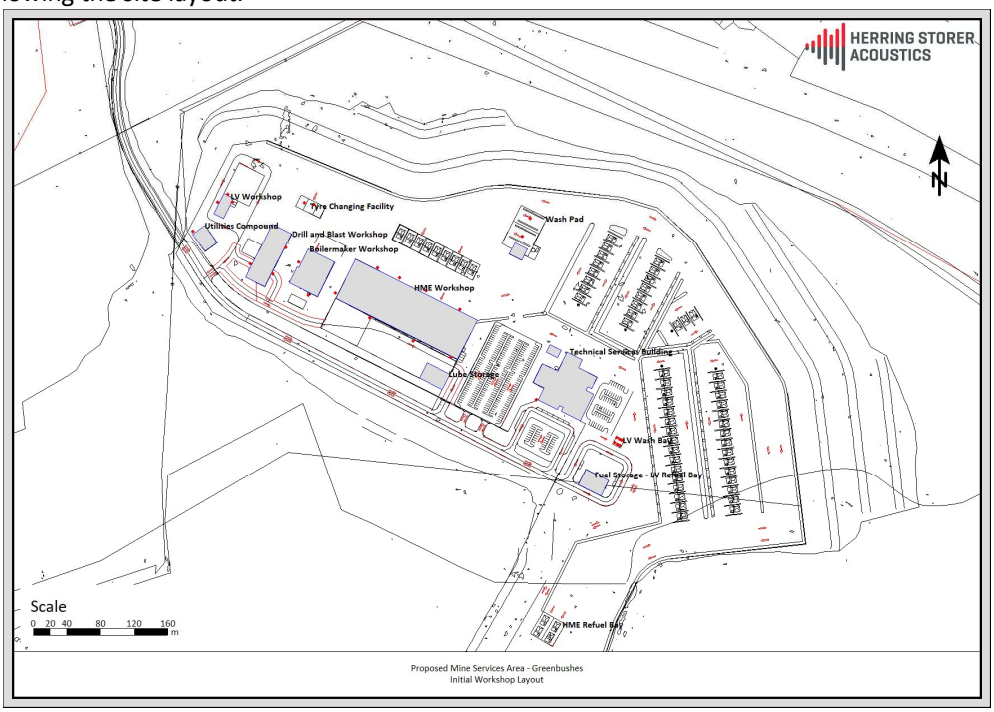


FIGURE 6.1 – MSA LAYOUT

TABLE 6.4 - MSA MODELLING SCENARIOS

Scenario	Area / Building	Internal Equipment	External Equipment
Scenario 1 – Workshop Operations	Utilities Compound	Forklift	Air conditioning, Compressor
	Drill and Blast Workshop	Grinding, Welding, Rattle Gun, Forklift	Air Conditioning, Compressor, Exhaust Fan
	Tyre Change Area	Grinding, Hammering, Forklift	Air Conditioning, Compressor, Exhaust Fan
	LV Workshop	Rattle Gun, Forklift	Air Conditioning, Compressor, Exhaust Fan
	HME Workshop	Grinding, Rattle Gun, Forklift	Air Conditioning, Compressor, Exhaust Fan
	Boiler Making Workshop	Grinding, Welding, Cut Off Saw, Forklift	Air Conditioning, Compressor, Exhaust Fan
	Truck and Drill Washdown Bay	-	High Pressure Wash Tips
	Technical Services	-	Air Conditioning
Scenario 2 – Heavy Vehicle (Haul Truck) Movement around MSA	MSA Park-up Bays and Haul Road Routes	-	CAT 785 Haul Truck

7. RESULTS

Calculated L_{A10} noise levels associated with the various scenarios considered are summarised in following tables.

The noise contour plots for the proposed scenarios are attached in Appendix B. These have been presented for operating conditions, as outlined above.

TABLE 7.1 – CALCULATED L_{A10} NOISE LEVELS dB(A)

Receiver	Scenario 1 - Existing Mining and Processing	Scenario 2 – Proposed S2 WRL Only Final Height (Top of Waste Rock Landform)	Scenario 3 – Cumulative Existing and Proposed Operations (Scenario 1 and Scenario 2 Combined)	Scenario 4 – Addition of S8 WRL to Scenario 3	Increase in Noise Level for S2 WRL Only from Current Operations	Increase in Noise Level for S8 WRL Project from Scenario 3
SR1	49	29	49	49	0	0
SR2	40	20	40	40	0	0
SR3	43	28	43	43	0	0
SR4	46	28	46	46	0	0
SR5	43	28	43	43	0	0
SR6	38	23	38	38	0	0
SR7	34	21	34	35	0	0
SR8	28	20	29	31	1	2
SR9	27	20	28	30	1	2
SR10	28	21	29	31	1	2
SR11	29	22	30	32	1	2
SR12	23	15	24	26	1	2
SR13	30	23	31	33	1	3
SR14	30	24	31	35	1	4
SR15	33	26	34	37	1	3
SR16	35	27	36	38	1	3
SR17	23	18	24	28	1	4
SR18	29	24	30	35	1	5
SR19	30	25	31	36	1	5
SR20	30	26	31	37	1	5
SR21	33	30	35	45	2	11
SR22	31	29	33	43	2	10
SR23	29	28	31	39	2	8
SR24	22	11	22	25	0	2
SR25	25	22	27	31	2	4
SR26	24	20	25	30	1	4
SR27	22	18	24	28	2	4
SR28	24	22	26	31	2	5
SR29	22	19	24	29	2	5
SR30	40	38	42	56	2	14
SR31	39	43	44	46	5	2
SR32	33	35	37	39	4	3
SR33	33	36	38	39	5	2
SR34	24	35	35	37	11	2
SR35	30	34	35	37	5	2
SR36	24	23	27	30	3	3
SR37	24	23	26	29	2	3
SR38	27	26	29	32	2	2
SR39	26	24	28	31	2	2
SR40	26	24	28	30	2	2
SR41	32	30	34	34	2	0
SR42	17	23	24	24	7	0
SR43	27	17	27	28	0	0
TO1	33	31	35	35	2	0
TO2	24	34	34	34	10	0
TO3	40	43	45	47	5	2
TO4	44	32	44	53	0	8
TO5	44	35	44	48	0	4
TO6	43	34	43	46	0	3
UA1	38	41	43	43	5	0
UA2	38	38	41	53	3	12
UA3	39	30	40	42	1	3
UA4	37	31	38	40	1	3

Notes: SR – Noise Sensitive Receiver
TO - Talison Owned Receiver
UA – Under Agreement Receiver

8. ASSESSMENT

To provide a comparison of the current noise emissions to the proposed expansion noise emissions, each scenario presented has been separated to allow for assessment of the existing mining operations (Processing and Mobile Fleet), and the inclusion of the proposed S2 WRL.

When considering the fixed plant processing, and current mining, the appropriate criteria is the assigned noise levels as per the Regulation 17 Ministerial Variation. For the additional S2 WRL, it is not included in the Regulation 17 operations, therefore either it complies with the default Regulation 7 assigned noise level, or it is incorporated into the Ministerial variation, and therefore included under the Greenbushes approval.

For comparison, the assigned noise level for the Regulation 17 variation is 50 dB(A) during the night period, with the assigned noise level for the Regulation 7 being 35 dB(A) during the night period.

Based on the cumulative noise associated with the current and proposed expansion, Table 8.1 details the predicted noise level at each receiver, and compares to the two criteria above.

It is noted that noise levels associated with the fixed plant are unlikely to be technically tonal, however given the nature and level of the mobile mining fleet, there is a likelihood that noise emissions could be tonal dependent on the location of the equipment.

TABLE 8.1 – CALCULATED L_{A10} NOISE LEVELS

Receiver	Scenario 3 – Cumulative Existing and Proposed Operations S2 WRL	Compliance / Exceedance - Regulation 17 50dB(A) Night	Compliance / Exceedance - Regulation 7 35dB(A) Night
SR1	49	Complies	14
SR2	40	Complies	5
SR3	43	Complies	8
SR4	46	Complies	11
SR5	44	Complies	9
SR6	38	Complies	3
SR7	34	Complies	Complies
SR8	29	Complies	Complies
SR9	28	Complies	Complies
SR10	29	Complies	Complies
SR11	30	Complies	Complies
SR12	24	Complies	Complies
SR13	31	Complies	Complies
SR14	31	Complies	Complies
SR15	34	Complies	Complies
SR16	36	Complies	1
SR17	24	Complies	Complies
SR18	30	Complies	Complies
SR19	31	Complies	Complies
SR20	31	Complies	Complies
SR21	35	Complies	Complies
SR22	33	Complies	Complies
SR23	31	Complies	Complies
SR24	22	Complies	Complies
SR25	27	Complies	Complies
SR26	26	Complies	Complies
SR27	24	Complies	Complies
SR28	26	Complies	Complies
SR29	24	Complies	Complies
SR30	42	Complies	7
SR31	44	Complies	9
SR32	37	Complies	2
SR33	38	Complies	3
SR34	35	Complies	0
SR35	35	Complies	0
SR36	27	Complies	Complies
SR37	26	Complies	Complies
SR38	30	Complies	Complies
SR39	28	Complies	Complies
SR40	28	Complies	Complies
SR41	34	Complies	Complies
SR42	24	Complies	Complies
SR43	28	Complies	Complies
TO1	35	Complies	0
TO2	34	Complies	Complies
TO3	45	Complies	10
TO4	44	Complies	9
TO5	44	Complies	9
TO6	43	Complies	8
UA1	43	Complies	8
UA2	41	Complies	6
UA3	40	Complies	5
UA4	38	Complies	3

Notes:

SR – Noise Sensitive Receiver
TO - Talison Owned Receiver
UA – Under Agreement Receiver

9. DISCUSSION

Assessment of current mining and processing operations shows compliance is being achieved with the regulatory criteria contained in the Regulation 17 variation of the assigned noise level, for which Talison operates under.

Predictive noise modelling shows that noise levels for the expansion of the mine, including the S2 WRL, meets the Regulation 17 criteria of 50dB(A) for the night period.

If noise were to be considered under Regulation 7, i.e. 35 dB(A) during the night, there would be significant exceedances at numerous receivers.

As referenced in Table 7.1 the variation in noise level due to the S2 WRL proposal, increases noise at 44 of the 53 Receivers between 1 to 16 dB(A) dependant on the location. To show the increase in noise, Figure 9.1 depicts the graphical representation for individual receivers and the increase in noise level.

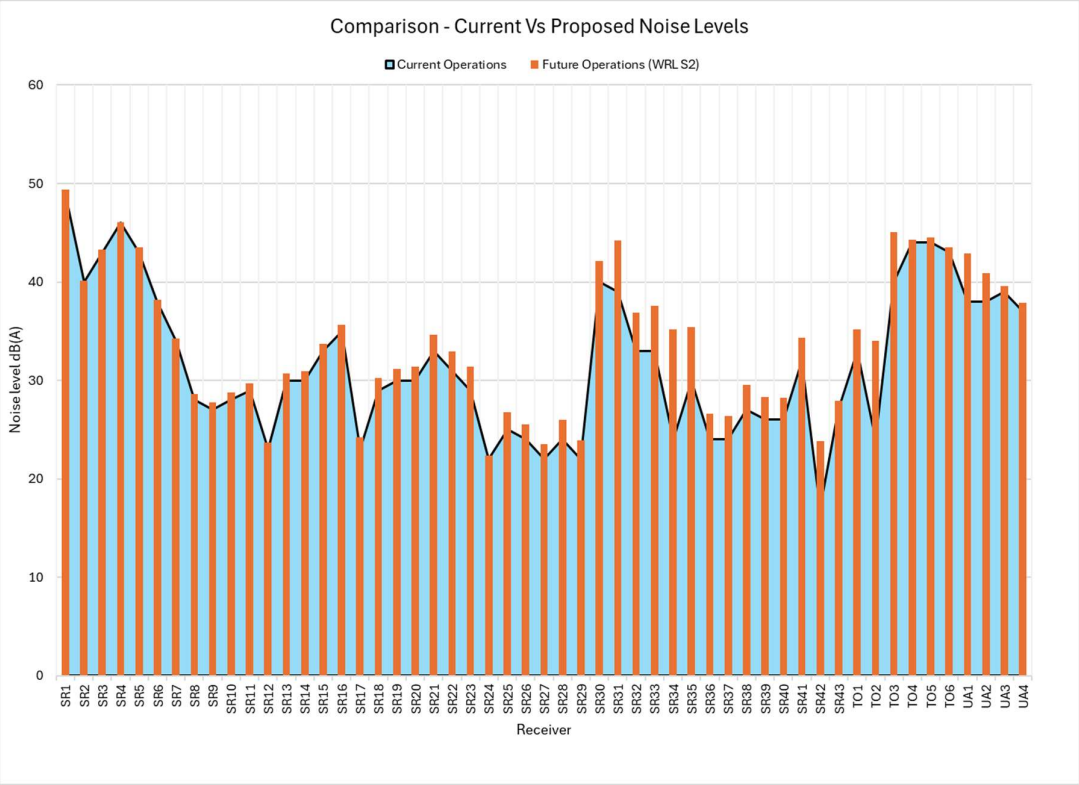


FIGURE 9.1 – INDIVIDUAL RECEVER NOISE LEVEL INCREASE

10. CONCLUSION

The purpose of this acoustic study is to provide preliminary information for the noise levels associated with the S2 WRL project.

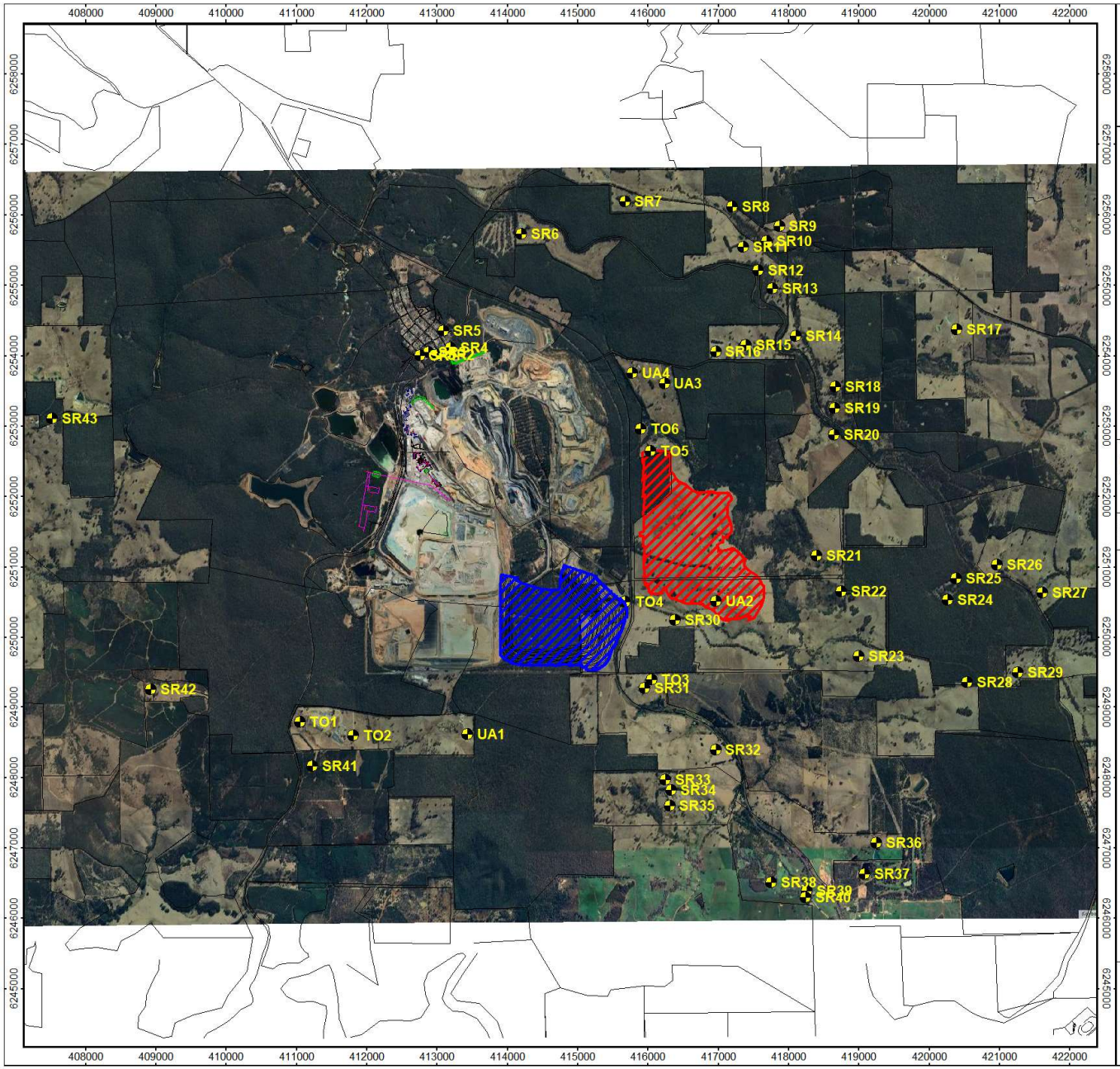
The current operations comply with the criteria for which the Greenbushes mine operates under, namely the Regulation 17 Ministerial variation, being an assigned noise level of 50 dB(A) during the most critical periods of night.

The proposed expansion of the S2 WRL project will increase noise levels between 1 to 11 dB(A) dependent on the location of the receiver in relation to S2 WRL. If the noise levels were considered under the current approved Regulation 17 assigned noise level, the noise level would comply at all noise sensitive receivers.

Based on the modelling and location of the S2 WRL project, the noise levels would be difficult to manage to a point where compliance is achieved with the base assigned noise levels in Regulation 7. Therefore, the proposed operations are required to be incorporated into the current Regulation 17 approval, where the assigned noise level is 50 dB(A) during the night period.

APPENDIX A

LOCATION MAPS / REFERENCE LOCATIONS



Customer:
Talison Lithium
Project: Talison Lithium Greenbushes
Project-No. 24136-02

Map

A1

Mining and Processing Areas (Including Proposed S2 and S8 WRL) - 2025

Result number 0
Calculation in above ground

Project engineer: PLD
Created: 22/01/2025
Processed with SoundPLAN 9.1, Update 20/01/2025

Signs and symbols

- Main building
- Elevation point
- Point receiver
- Proposed WRL S8
- Proposed WRL S2
- Line source

SR - Sensitive Receiver

TO - Talison Owned Receive

UA - Under Agreement

N

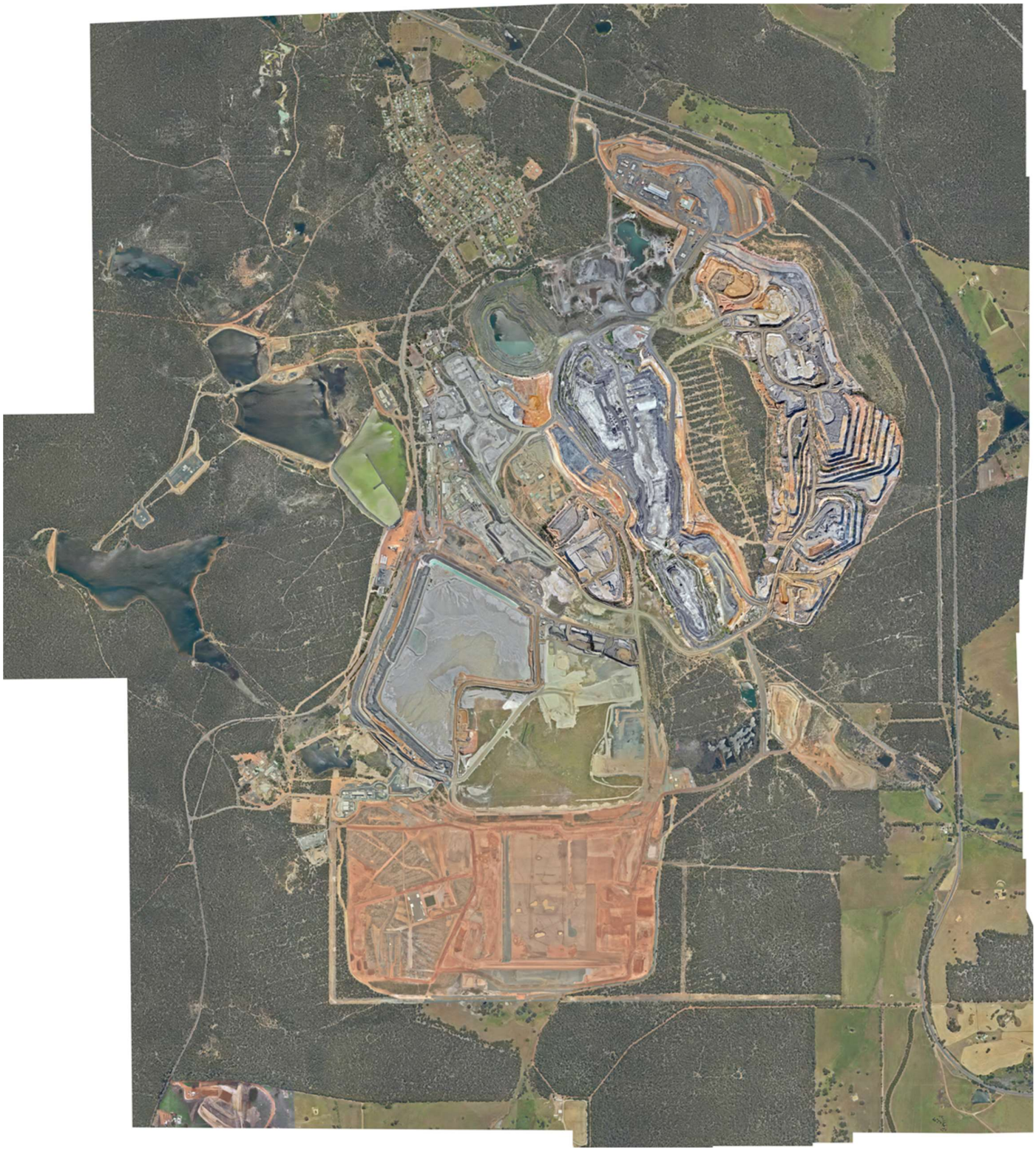
Length scale

0 450 900 1800 2700 3600 m

HERRING STORER ACOUSTICS

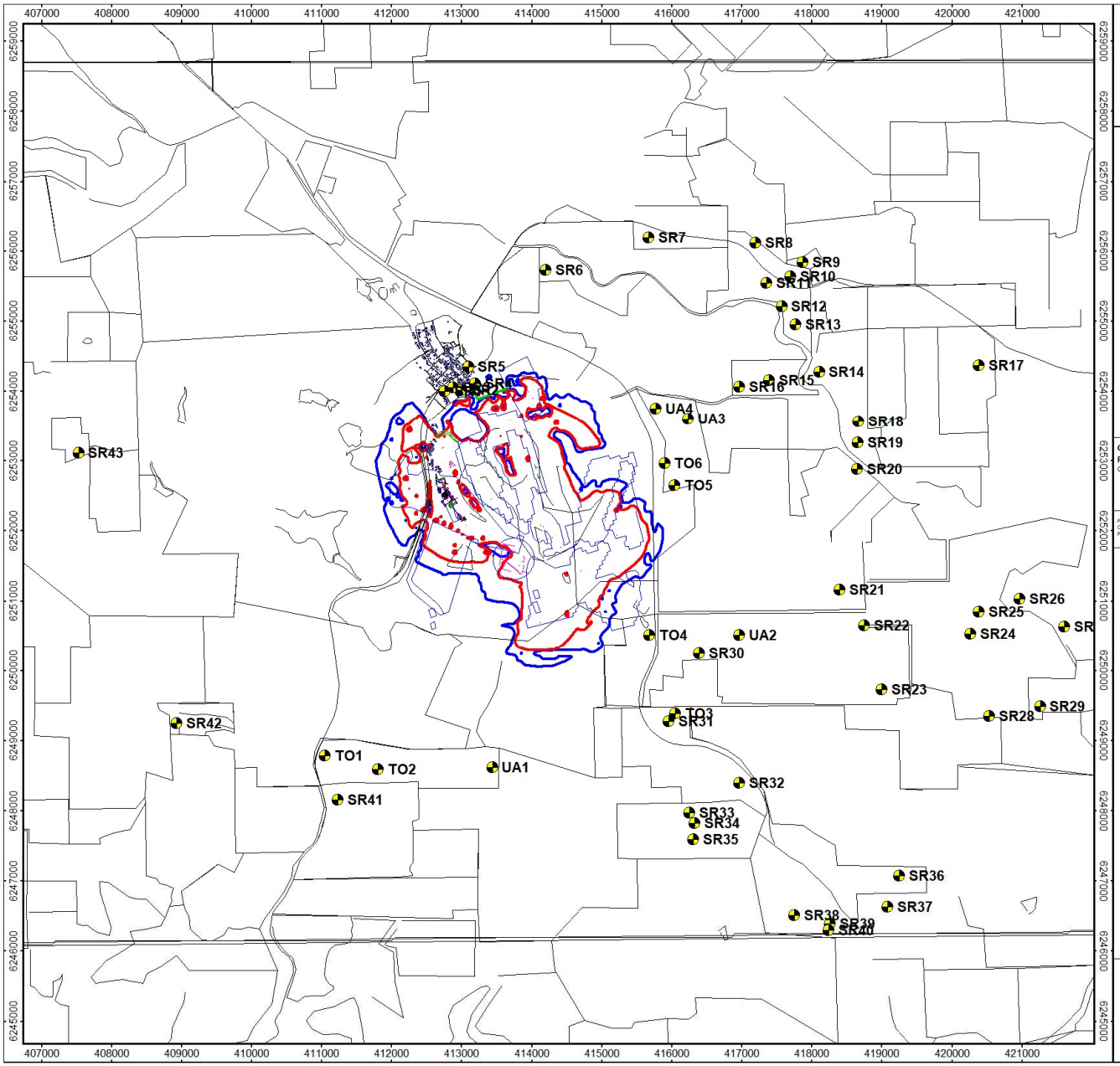
D:\2024\24136 Talison Lithium - Greenbushes Eastern Expansion\Geenbushes Model\Mine Layout with WRL S2and S8.sgs

FIGURE A2 – CURRENT GREENBUSHES OPERATIONS



APPENDIX B

NOISE CONTOURS PLOTS



D:\2024\24136 Talison Lithium - Greenbushes Eastern Expansion\Geenbushes Model\Processing and Mining June 2024 Pre Eastern Expansion 35 dBA.sgs

Customer:
Talison Lithium
Project: Talison Lithium Greenbushes
Project-No. 24136

Map

S1

Scenario 1 -Current Mining and Processing

Current Processing and Mining June 2024 - Comparison Prior to Eastern ExpansionGNM
Result number 90
Calculation in 1.5 m above ground

Project engineer: PLD
Created: 7/01/2025
Processed with SoundPLAN 9.1, Update 19/12/2024

Levels LA10
in dB(A)

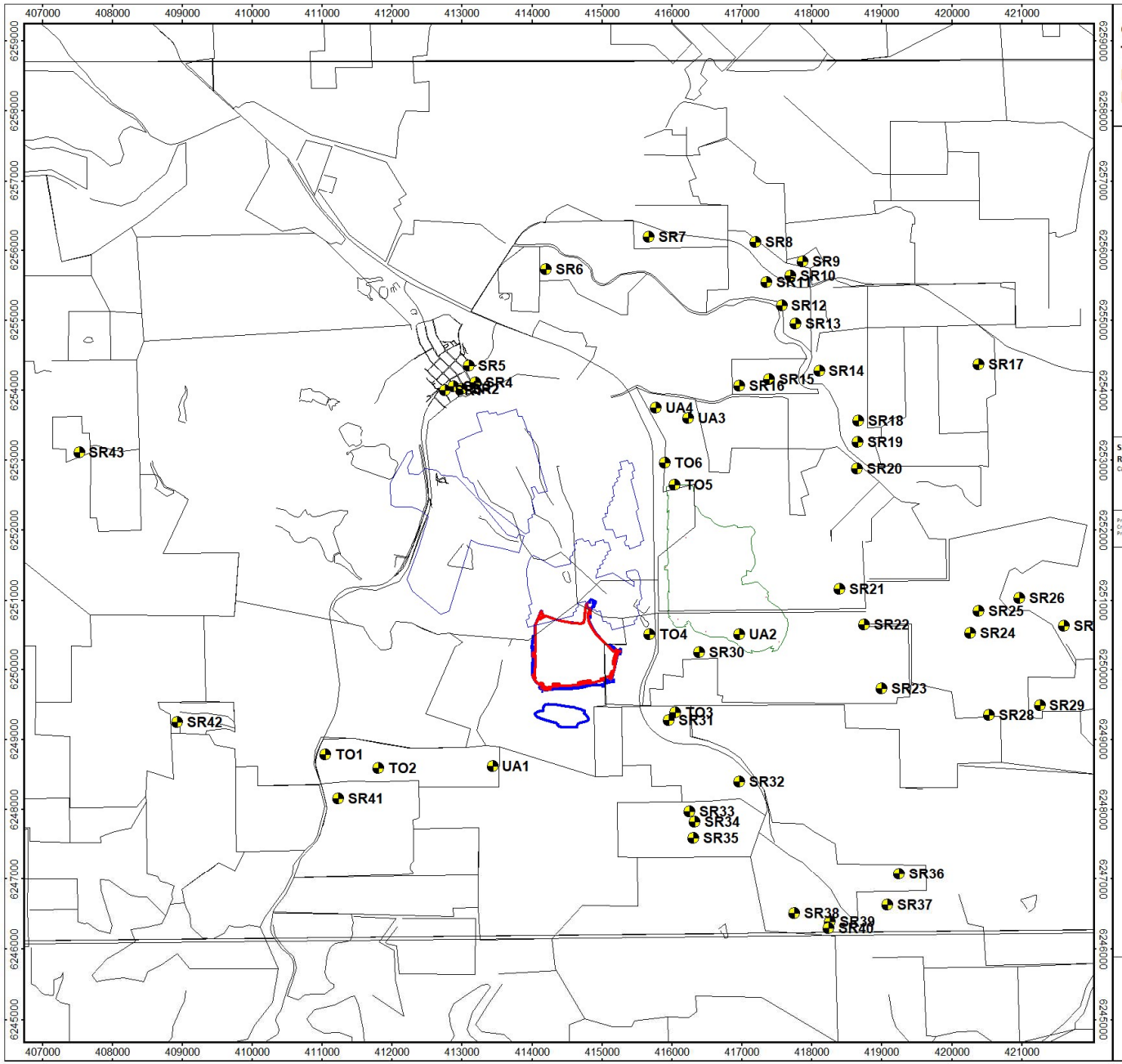
= 50 Complies Night Period
= 53 Complies Day Period

Main building
Point receiver

SR - Noise Sensitive Receiver
TO - Talison Owned Receiver
UA - Under Agreement

Length scale
0 450 900 1800 2700 3600 m

HERRING STORER ACOUSTICS



Customer:
Talison Lithium
Project: Talison Lithium Greenbushes
Project-No. 24136

Map

S2

Scenario 2 - Proposed S2 WRL
Highest Noise Level Final Height

S2 WRD Stage 3 Jan 2025 No S8 WRD GNM
Result number 100
Calculation in 1.5 m above ground

Project engineer: PLD
Created: 22/01/2025
Processed with SoundPLAN 9.1, Update 20/01/2025

Levels LA10
in dB(A)

= 50 Complies Night Period
= 53 Complies Day Period

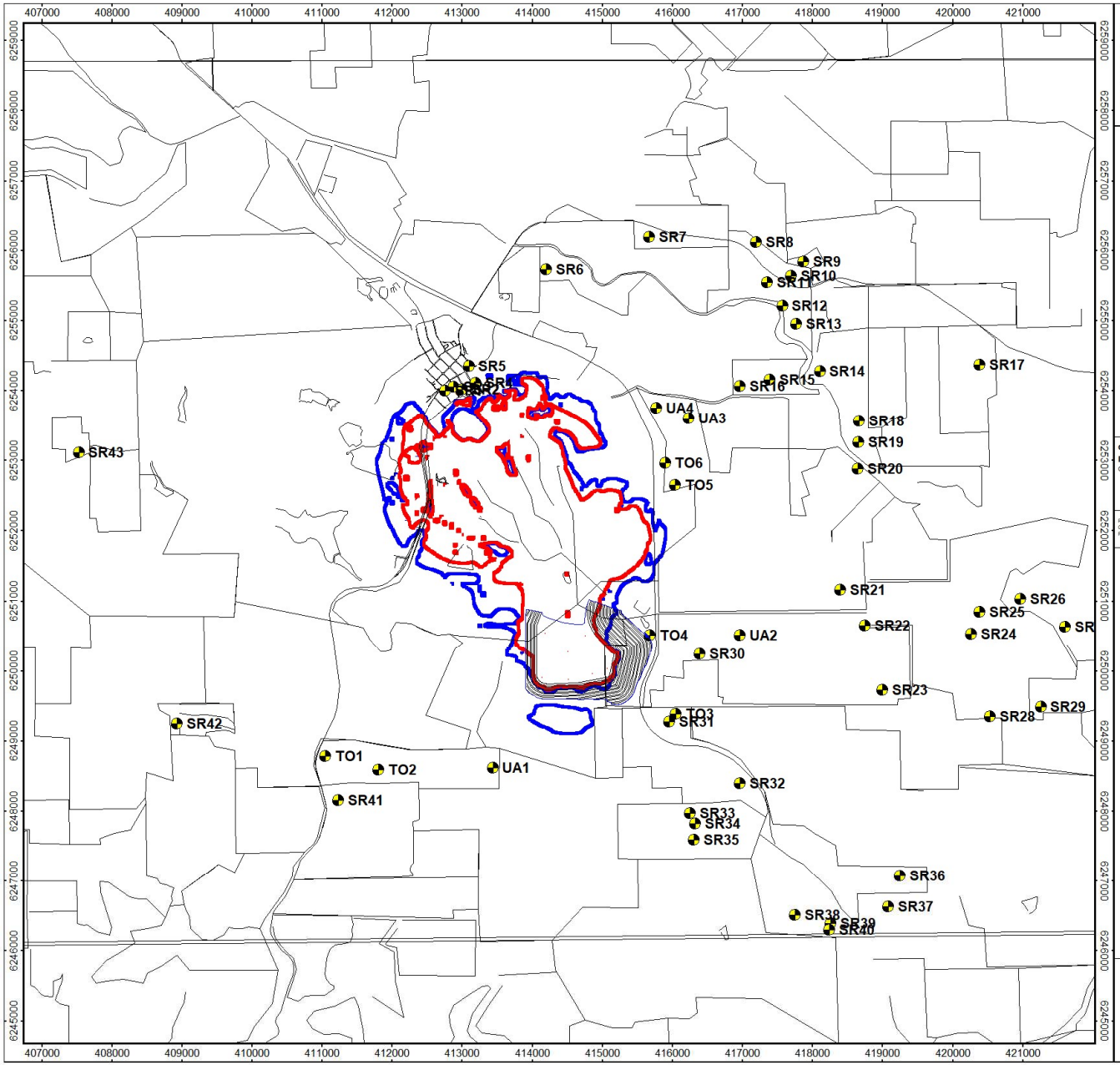
Main building
Point receiver

SR - Noise Sensitive Receiver
TO - Talison Owned Receiver
UA - Under Agreement

Length scale
0 450 900 1800 2700 3600 m

HERRING STORER ACOUSTICS

D:\2024\24136 Talison Lithium - Greenbushes Eastern Expansion\Geenbushes Model\S2 WRD Only no mining Jan 2025 Night max ground to final.sgs



Customer:
Talison Lithium
Project: Talison Lithium Greenbushes
Project-No. 24136

Map

S3

Scenario 3 - Cumulative Noise - Processing, Mining and Proposed S2 WRL

GNM(90,1) ++ GNM(100,1);
Result number 0
Calculation in 1.5 m above ground

Project engineer: PLD
Created: 22/01/2025
Processed with SoundPLAN 9.1, Update 20/01/2025

Levels LA10
in dB(A)

= 50 Complies Night Period
= 53 Complies Day Period

Main building
Point receiver

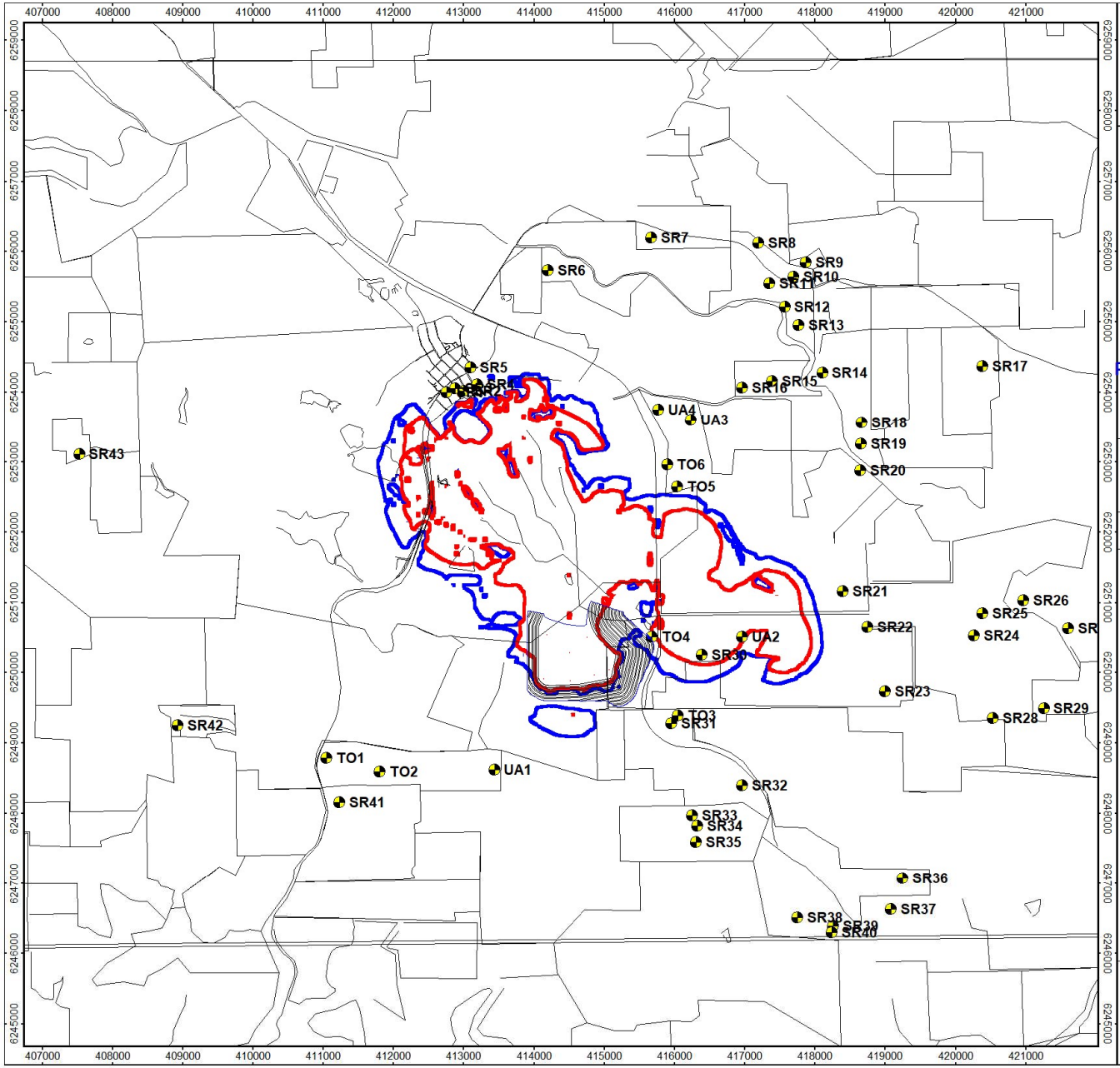
SR - Noise Sensitive Receiver
TO - Talison Owned Receiver
UA - Under Agreement

N

Length scale
0 450 900 1800 2700 3600 m

HERRING STORER ACOUSTICS

D:\2024\24136 Talison Lithium - Greenbushes Eastern Expansion\Geenbushes Model\Processing and Mining and WRL S2 Jan 2025.sgs



Customer:
Talison Lithium
Project: Talison Lithium Greenbushes
Project-No. 24136

Map

S4

Scenario 4 - Cumulative Noise - Processing, Mining and Proposed S2 and S8 WRL

GNM(90,1) ++ GNM(100,1) ++ GNM(87,1);
Result number 0
Calculation in 1.5 m above ground

Project engineer: PLD
Created: 22/01/2025
Processed with SoundPLAN 9.1, Update 25/02/2025

Levels LA10
in dB(A)

= 50 Complies Night Period
= 53 Complies Day Period

Main building
Point receiver

SR - Noise Sensitive Receiver
TO - Talison Owned Receiver
UA - Under Agreement

N

Length scale
0 450 900 1800 2700 3600 m

HERRING STORER ACOUSTICS

D:\2024\24136 Talison Lithium - Greenbushes Eastern Expansion\Geenbushes Model\Processing and Mining and WRL S2 Jan 2025.sgs