

# Monthly Noise Monitoring Assessment

Tomingley Gold Mine, June 2021

Prepared for: Tomingley Gold Operations Pty Limited  
June 2021  
MAC160270-2021RP6



# Document Information

## Monthly Noise Monitoring Assessment

### Tomingley Gold Mine, June 2021

Prepared for: Tomingley Gold Operations Pty Limited



Prepared by: Muller Acoustic Consulting Pty Ltd

PO Box 678, Kotara NSW 2289

ABN: 36 602 225 132

P: +61 2 4920 1833

www.mulleracoustic.com

Document ID	Status	Date	Prepared By	Signed	Reviewed By	Signed
MAC160270-2021RP6	Final	17 June 2021	Louis Abell		Oliver Muller	

#### DISCLAIMER

All documents produced by Muller Acoustic Consulting Pty Ltd (MAC) are prepared for a particular client's requirements and are based on a specific scope, circumstances and limitations derived between MAC and the client. Information and/or report(s) prepared by MAC may not be suitable for uses other than the original intended objective. No parties other than the client should use or reproduce any information and/or report(s) without obtaining permission from MAC. Any information and/or documents prepared by MAC is not to be reproduced, presented or reviewed except in full.

**CONTENTS**

1 INTRODUCTION .....5

2 ENVIRONMENTAL PROTECTION LICENSE NOISE LIMITS.....7

3 METHODOLOGY .....9

    3.1 LOCALITY .....9

    3.2 ASSESSMENT METHODOLOGY .....9

4 RESULTS ..... 11

    4.1 ASSESSMENT RESULTS - LOCATION R2..... 11

    4.2 ASSESSMENT RESULTS - LOCATION R3/R29 ..... 12

    4.3 ASSESSMENT RESULTS - LOCATION R4..... 13

    4.4 ASSESSMENT RESULTS - LOCATION R5..... 14

    4.5 ASSESSMENT RESULTS - LOCATION R6..... 15

    4.6 ASSESSMENT RESULTS - LOCATION R23..... 16

5 DISCUSSION ..... 17

    5.1 DISCUSSION OF RESULTS - LOCATION R2 ..... 17

    5.2 DISCUSSION OF RESULTS - LOCATION R3/R29..... 17

    5.3 DISCUSSION OF RESULTS - LOCATION R4 ..... 17

    5.4 DISCUSSION OF RESULTS - LOCATION R5 ..... 17

    5.5 DISCUSSION OF RESULTS - LOCATION R6 ..... 18

    5.6 DISCUSSION OF RESULTS - LOCATION R23 ..... 18

6 COMPARISON OF ATTENDED AND UNATTENDED MONITORING RESULTS ..... 19

7 CONCLUSION ..... 21

APPENDIX A - GLOSSARY OF TERMS

*This page has been intentionally left blank*

# 1 Introduction

Muller Acoustic Consulting Pty Ltd (MAC) has been commissioned by Tomingley Gold Operations Pty Ltd (TGO) to complete a Noise Monitoring Assessment (NMA) for Tomingley Gold Mine (the 'mine'), Tomingley, NSW.

The NMA involved quantifying the noise contribution of the mine by direct attended measurements to determine mining noise emissions so that effective management and controls can be implemented where required. The monitoring has been conducted in accordance with the TGO Noise Management Plan and in general accordance with Conditions L4.2 to L4.7 of the EPL at six representative receiver locations. It is noted that this assessment has been completed as part of an internal noise management initiative and does not form part of the annual noise monitoring program to address conditions of the Environmental Protection License (EPL).

The assessment has been conducted in accordance with the following documents:

- NSW Environment Protection Authority (EPA), Noise Policy for Industry (NPI), 2017;
- Environment Protection Licence EPL 20169 (EPL); and
- Australian Standard AS 1055:2018 - Acoustics - Description and measurement of environmental noise - General Procedures.

A glossary of terms, definitions and abbreviations used in this report is provided in **Appendix A**.

*This page has been intentionally left blank*

## 2 Environmental Protection License Noise Limits

Historic assessments for the mine categorise receivers into Noise Assessment Groups (NAGs). The NAGs were derived based on ambient noise data that controlled receiver RBLs.

**Table 1** reproduces the operational and sleep disturbance noise limits for assessed receivers referenced from the EPL that have been adopted for this NMA and are consistent with historic EPL monitoring locations.

Table 1 Noise Limits, dBA					
Noise Assessment Group	Receivers	Day	Evening	Night	
		LAeq(15min)	LAeq(15min)	LAeq(15min)	LA1(1min)
NAG A	R4, R5, R6	35	35	35	45
NAG B	R2	36	35	35	45
NAG C	R3, R29	45	35	35	45
NAG D	R23	43	38	36	45

Note: Refer to figure in Appendix 4 of Project Approval 09-0155 for noise locations. However, these criteria do not apply if the Proponent has an agreement with the relevant owner(s) of these residences / land to generate higher noise levels, and the Proponent has advised the Department of Planning and Infrastructure and EPA in writing of the terms of this agreement.

*This page has been intentionally left blank*



### 3 Methodology

#### 3.1 Locality

TGO is located to the south of the village of Tomingley, NSW. Receivers in the locality surrounding the mine are primarily rural/residential and for consistency the naming conventions for each receiver have been retained from historic noise assessments. The monitoring locations with respect to the mine are presented in the locality plan shown in **Figure 1**.

#### 3.2 Assessment Methodology

The attended noise survey was conducted in general accordance with the procedures described in Australian Standard AS 1055:2018, "Acoustics - Description and Measurement of Environmental Noise" and the EPL. Measurements were carried out using Svantek Type 1, 971 noise analyser between Tuesday 1 June 2021 and Thursday 3 June 2021. The acoustic instrumentation used carries current NATA calibration and complies with AS/NZS IEC 61672.1-2019-Electroacoustics - Sound level meters - Specifications. Calibration of all instrumentation was checked prior to and following measurements. Drift in calibration did not exceed  $\pm 0.5$  dBA.

Both evening and night measurements were of 15 minutes in duration. Where possible, throughout each survey the operator quantified the contribution of each significant noise source. Extraneous noise sources were excluded from the analysis to calculate the  $L_{Aeq}(15min)$  mine noise contribution for comparison against the relevant EPL limit.

Prevailing meteorological conditions for the monitoring period were sourced from TGO's meteorological station and analysed in accordance with Appendix D1 of the NPI to determine the stability category present at the time of each measured sample. This was undertaken to determine applicability of results in accordance with Condition L4.3 of the EPL. Results obtained during non-prevailing meteorological conditions (ie F Class Stability in conjunction with a 2m/s drainage or G Class Stability) are considered not applicable against the EPL criteria.

KEY



MINE SITE BOUNDARY



ASSESSED RECEPTORS



BROOKLANDS UNATTENDED



FIGURE 1 - LOCALITY PLAN AND ASSESSMENT LOCATIONS

TOMINGLEY GOLD MINE EPL NOISE MONITORING

REF: MAC160270

## 4 Results

The monitoring and assessment results are presented in individual tables for each assessment location.

### 4.1 Assessment Results - Location R2

The results of the attended noise measurements at location R2 for the June 2021 survey are summarised in **Table 2** with the relevant EPL limits, the calculated mining noise contribution and prevailing meteorological conditions at the time of each measurement.

**Table 2 Operator-Attended Noise Survey Results – Location R2**

Date	Time (hrs)	Descriptor (dBA re 20 µPa)			EPL Limit	Meteorology <sup>1</sup>	Description and SPL, dBA
		L <sub>Amax</sub>	L <sub>Aeq</sub>	L <sub>A90</sub>			
01/06/2021	21:31 (Evening)	59	34	29	35	WD: ENE WS: 1.2 m/s Stab Class: E	Wind 30-38
							Insects 35-38
							Bird 36-59
							TGO Processing <20-25
TGO Site L <sub>Aeq</sub> (15min) Contribution							25
01/06/2021	23:08 (Night)	54	31	25	35	WD: ENE WS: 0.2m/s Stab Class: E	Bird 50-54
							Wind 28-35
							TGO Processing 25-27
TGO Site L <sub>Aeq</sub> (15min) Contribution							26
02/06/2021	21:40 (Evening)	71	40	34	35	WD: ENE WS: 0.1m/s Stab Class: E	Insects 35-40
							Wind 32-35
							MAC Operator 71
							TGO Processing <20-21
TGO Site L <sub>Aeq</sub> (15min) Contribution							20
02/06/2021	22:00 (Night)	64	35	34	35	WD: ENE WS: 0.2m/s Stab Class: E	Insects 34-37
							Traffic 30-35
							MAC Operator 64
							TGO Processing 25-28
TGO Site L <sub>Aeq</sub> (15min) Contribution							26
03/06/2021	21:39 (Evening)	51	40	33	35	WD: SW WS: 1.5m/s Stab Class: D	Traffic 30-32
							Wind 30-51
							TGO Inaudible
TGO Site L <sub>Aeq</sub> (15min) Contribution							<35
03/06/2021	22:00 (Night)	48	39	34	35	WD: WSW WS: 1.5m/s Stab Class: D	Wind 30-48
							Traffic 32-35
							TGO Inaudible
TGO Site L <sub>Aeq</sub> (15min) Contribution							<35

Note 1: Meteorological data obtained from TGO's on-site weather station or by direct measurement by the operator.

## 4.2 Assessment Results - Location R3/R29

The results of the attended noise measurements at location R3/R29 for the June 2021 survey are summarised in **Table 3** with the relevant EPL limits, the calculated mining noise contribution and prevailing meteorological conditions at the time of each measurement.

**Table 3 Operator-Attended Noise Survey Results – Location R3/R29**

Date	Time (hrs)	Descriptor (dBA re 20 µPa)			EPL Limit	Meteorology <sup>1</sup>	Description and SPL, dBA
		L <sub>Amax</sub>	L <sub>Aeq</sub>	L <sub>A90</sub>			
01/06/2021	20:03 (Evening)	61	47	41	35	WD: NE	Traffic 50-61
						WS: 0.3m/s	Dogs 40-58
						Stab Class: D	TGO Inaudible
TGO Site L <sub>Aeq</sub> (15min) Contribution							<35
01/06/2021	23:31 (Night)	55	44	29	35	WD: ENE	Traffic 30-55
						WS: 0.5m/s	Wind 30-32
						Stab Class: E	TGO Inaudible
TGO Site L <sub>Aeq</sub> (15min) Contribution							<35
02/06/2021	21:04 (Evening)	67	47	40	35	WD: ENE	Traffic 40-67
						WS: 0.2m/s	Dogs <35
						Stab Class: D	Domestic Noise 38-50 TGO Inaudible
TGO Site L <sub>Aeq</sub> (15min) Contribution							<35
02/06/2021	22:23 (Night)	64	44	38	35	WD: ENE	Traffic 33-64
						WS: 0.2m/s	Dogs 30-35
						Stab Class: E	Wind 35-38 TGO Inaudible
TGO Site L <sub>Aeq</sub> (15min) Contribution							<35
03/06/2021	21:13 (Evening)	59	41	34	35	WD: WSW	Traffic 35-59
						WS: 0.5m/s	Wind 30-43
						Stab Class: D	TGO Truck 28-35
TGO Site L <sub>Aeq</sub> (15min) Contribution							32
03/06/2021	22:38 (Night)	51	40	34	35	WD: SW	Traffic 40-51
						WS: 0.5m/s	Wind 34-44
						Stab Class: E	Dogs 40-45 TGO Truck 30-40
TGO Site L <sub>Aeq</sub> (15min) Contribution							34

Note 1: Meteorological data obtained from TGO's on-site weather station or by direct measurement by the operator.

#### 4.3 Assessment Results - Location R4

The results of the attended noise measurements at location R4 for the June 2021 survey are summarised in **Table 4** with the relevant EPL limits, the calculated mining noise contribution and prevailing meteorological conditions at the time of each measurement.

Table 4 Operator-Attended Noise Survey Results – Location R4							
Date	Time (hrs)	Descriptor (dBA re 20 µPa)			EPL Limit	Meteorology <sup>1</sup>	Description and SPL, dBA
		L <sub>Amax</sub>	L <sub>Aeq</sub>	L <sub>A90</sub>			
01/06/2021	20:55 (Evening)	56	32	26	35	WD: ENE	Traffic 35-40
						WS: 0.3m/s	Birds 30-56
						Stab Class: E	TGO Hum 25-30
TGO Site L <sub>Aeq</sub> (15min) Contribution							28
01/06/2021	22:38 (Night)	50	35	27	35	WD: ENE	Traffic 35-40
						WS: 0.2m/s	Wind <30-50
						Stab Class: E	TGO Hum <30-30
TGO Site L <sub>Aeq</sub> (15min) Contribution							<30
02/06/2021	19:55 (Evening)	67	40	33	35	WD: ENE	Traffic 35-45
						WS: 0.5m/s	Insects 30-40
						Stab Class: E	MAC Operator 67 TGO Inaudible
TGO Site L <sub>Aeq</sub> (15min) Contribution							<35
02/06/2021	23:31 (Night)	64	45	34	35	WD: NE	MAC Operator 64 Traffic 33-35
						WS: 1.5m/s	Insects 25-30
						Stab Class: E	Wind 35-50 TGO Hum <30
TGO Site L <sub>Aeq</sub> (15min) Contribution							<30
03/06/2021	19:58 (Evening)	63	38	32	35	WD: W	Traffic 30-47
						WS: 0.2m/s	Frogs <30
						Stab Class: E	MAC Operator 63 TGO Inaudible
TGO Site L <sub>Aeq</sub> (15min) Contribution							<35
03/06/2021	23:35 (Night)	54	37	31	35	WD: WSW	Traffic 35-38
						WS: 0.2m/s	Wind 35-54
						Stab Class: D	TGO Inaudible
TGO Site L <sub>Aeq</sub> (15min) Contribution							<35

Note 1: Meteorological data obtained from TGO's on-site weather station or by direct measurement by the operator.

#### 4.4 Assessment Results - Location R5

The results of the attended noise measurements at location R5 for the June 2021 survey are summarised in **Table 5** with the relevant EPL limits, the calculated mining noise contribution and prevailing meteorological conditions at the time of each measurement.

Table 5 Operator-Attended Noise Survey Results – Location R5							
Date	Time (hrs)	Descriptor (dBA re 20 µPa)			EPL Limit	Meteorology <sup>1</sup>	Description and SPL, dBA
		L <sub>Amax</sub>	L <sub>Aeq</sub>	L <sub>A90</sub>			
01/06/2021	21:25 (Evening)	81	63	38	35	WD: ENE	Offsite Drill Rig 35-40
						WS: 0.1m/s	Traffic 45-81
						Stab Class: E	TGO Inaudible
TGO Site L <sub>Aeq</sub> (15min) Contribution							<35
02/06/2021	00:11 (Night)	73	56	39	35	WD: E	Offsite Drill Rig 38-47
						WS: 0.1m/s	Traffic 45-73
						Stab Class: E	TGO Inaudible
TGO Site L <sub>Aeq</sub> (15min) Contribution							<35
02/06/2021	19:31 (Evening)	77	61	41	35	WD: ENE	Traffic 31-77
						WS: 1.2m/s	Offsite Drill Rig 36-43
						Stab Class: E	Wind 30-35
TGO Site L <sub>Aeq</sub> (15min) Contribution							<35
02/06/2021	23:53 (Night)	73	54	39	35	WD: NE	Wind 40-46
						WS: 1.5m/s	Traffic 30-73
						Stab Class: E	Offsite Drill Rig 40-43
TGO Site L <sub>Aeq</sub> (15min) Contribution							<35
03/06/2021	19:30 (Evening)	78	61	33	35	WD: W	Traffic 33-78
						WS: 0.1m/s	Insects <30
						Stab Class: E	TGO Inaudible
TGO Site L <sub>Aeq</sub> (15min) Contribution							<35
03/06/2021	23:58 (Night)	76	59	38	35	WD: WSW	Wind 35-40
						WS: 1.5m/s	Traffic 46-76
						Stab Class: D	Dogs 35-38
TGO Site L <sub>Aeq</sub> (15min) Contribution							<35
TGO Site L <sub>Aeq</sub> (15min) Contribution							<35

Note 1: Meteorological data obtained from TGO's on-site weather station or by direct measurement by the operator.

#### 4.5 Assessment Results - Location R6

The results of the attended noise measurements at location R6 for the June 2021 survey are summarised in **Table 6** with the relevant EPL limits, the calculated mining noise contribution and prevailing meteorological conditions at the time of each measurement.

Table 6 Operator-Attended Noise Survey Results – Location R6							
Date	Time (hrs)	Descriptor (dBA re 20 µPa)			EPL Limit	Meteorology <sup>1</sup>	Description and SPL, dBA
		L <sub>Amax</sub>	L <sub>Aeq</sub>	L <sub>A90</sub>			
01/06/2021	21:55 (Evening)	48	35	30	35	WD: ENE WS: 0.1m/s Stab Class: E	Dogs 31-48
							Insect <30
							Traffic 30-44
							TGO Hum 25-33
TGO Site L <sub>Aeq</sub> (15min) Contribution							31
01/06/2021	22:11 (Night)	47	33	30	35	WD: ENE WS: 0.4m/s Stab Class: E	Insects 25-30
							Traffic 30-44
							Birds 32-47
							TGO Hum 28-32
TGO Site L <sub>Aeq</sub> (15min) Contribution							30
02/06/2021	20:22 (Evening)	61	40	38	35	WD: ENE WS: 0.1m/s Stab Class: E	Insects 35-40
							Traffic 25-30
							MAC Operator 61
							TGO Hum 26-32
TGO Site L <sub>Aeq</sub> (15min) Contribution							30
02/06/2021	23:04 (Night)	67	41	38	35	WD: ENE WS: 0.8m/s Stab Class: E	MAC Operator 67
							Wind 30-35
							Traffic 35-42
							TGO Hum 30-33
TGO Site L <sub>Aeq</sub> (15min) Contribution							32
03/06/2021	20:26 (Evening)	53	36	26	35	WD: WSW WS: 0.3m/s Stab Class: D	Dogs 35-40
							Wind 30-33
							TGO Inaudible
TGO Site L <sub>Aeq</sub> (15min) Contribution							<35
03/06/2021	23:06 (Night)	55	40	36	35	WD: WSW WS: 1.8m/s Stab Class: D	Wind 38-55
							Traffic 34-36
							Livestock 38-42
							TGO Inaudible
TGO Site L <sub>Aeq</sub> (15min) Contribution							<35

Note 1: Meteorological data obtained from TGO's on-site weather station or by direct measurement by the operator.

#### 4.6 Assessment Results - Location R23

The results of the attended noise measurements at location R23 for the June 2021 survey are summarised in **Table 7** with the relevant EPL limits, the calculated mining noise contribution and prevailing meteorological conditions at the time of each measurement.

Table 7 Operator-Attended Noise Survey Results – Location R23							
Date	Time (hrs)	Descriptor (dBA re 20 µPa)			EPL Limit	Meteorology <sup>1</sup>	Description and SPL, dBA
		L <sub>Amax</sub>	L <sub>Aeq</sub>	L <sub>A90</sub>			
01/06/2021	20:25 (Evening)	82	63	41	35	WD: ENE	Traffic 50-82
						WS: 0.1m/s	TGO Inaudible
						Stab Class: E	
TGO Site L <sub>Aeq</sub> (15min) Contribution							<35
01/06/2021	23:39 (Night)	85	61	24	35	WD: ENE	Traffic 30-85
						WS: 0.3m/s	Wind 30-32
						Stab Class: E	TGO Inaudible
TGO Site L <sub>Aeq</sub> (15min) Contribution							<35
02/06/2021	20:45 (Evening)	86	66	33	38	WD: ENE	Traffic 40-86
						WS: 0.1m/s	Dogs 40-43
						Stab Class: E	TGO Inaudible
TGO Site L <sub>Aeq</sub> (15min) Contribution							<35
02/06/2021	22:39 (Night)	85	65	25	36	WD: ENE	Traffic 30-85
						WS: 0.5m/s	Wind <30
						Stab Class: E	TGO Inaudible
TGO Site L <sub>Aeq</sub> (15min) Contribution							<35
03/06/2021	20:54 (Evening)	86	67	41	38	WD: SW	Traffic 40-86
						WS: 0.3m/s	TGO Hum 28-30
						Stab Class: D	
TGO Site L <sub>Aeq</sub> (15min) Contribution							29
03/06/2021	22:23 (Night)	80	57	38	30	WD: WSW	Wind 32-35
						WS: 0.8m/s	Traffic 35-80
						Stab Class: D	TGO Hum 26-33
TGO Site L <sub>Aeq</sub> (15min) Contribution							30

Note 1: Meteorological data obtained from TGO's on-site weather station or by direct measurement by the operator.



## 5 Discussion

### 5.1 Discussion of Results - Location R2

Monitoring between Tuesday 1 June 2021 and Thursday 3 June 2021 identified that TGO processing was audible during four measurements at location R2. The estimated mining contribution remained below 35dBA, therefore the relevant noise limit of 35dB LAeq(15min) was satisfied. Extraneous sources such as traffic, wind, insects and birds were audible during the survey periods.

### 5.2 Discussion of Results - Location R3/R29

Monitoring between Tuesday 1 June 2021 and Thursday 3 June 2021 identified that TGO was audible during two measurements at location R3. The estimated mining contribution remained below 35dBA, therefore, the relevant noise limit of 35dB LAeq(15min) was satisfied. Extraneous sources such as traffic, dogs barking and wind were audible during the measurements.

### 5.3 Discussion of Results - Location R4

Monitoring between Tuesday 1 June 2021 and Thursday 3 June 2021 identified that TGO was inaudible during three measurements at location R4. The estimated mining contribution remained below 35dBA, therefore, the relevant noise limit of 35dB LAeq(15min) was satisfied. Extraneous sources such as traffic, insects, birds, and wind were audible during the measurements.

### 5.4 Discussion of Results - Location R5

Monitoring between Tuesday 1 June 2021 and Thursday 3 June 2021 identified that TGO was inaudible during all measurements at location R5. The estimated mining contribution remained below 35dBA, therefore the relevant noise limit of 35dB LAeq(15min) was satisfied. Extraneous sources such as wind, insects, offsite drill rig, and dogs barking were audible during the measurements.

## 5.5 Discussion of Results - Location R6

Monitoring between Tuesday 1 June 2021 and Thursday 3 June 2021 identified that TGO was audible during four measurements at location R6. The estimated mining contribution remained below 35dBA, therefore the relevant noise limit of 35dB LAeq(15min) was satisfied. Extraneous sources such as traffic, wind, dogs barking and MAC operator noise were audible during the measurements.

## 5.6 Discussion of Results - Location R23

Monitoring between Tuesday 1 June 2021 and Thursday 3 June 2021 identified that TGO was audible during two measurements at location R23. The estimated mining contribution remained below 35dBA, therefore the relevant noise limit of 38dB LAeq(15min) for evening and 36dB LAeq(15min) for night was satisfied. Extraneous sources such as traffic, dogs barking and wind were audible during the measurements.

## 6 Comparison of Attended and Unattended Monitoring Results

To address Condition 6 of Schedule 3 of the Project Approval, a program to calibrate and validate the real-time noise monitoring results with the attended monitoring results has been completed.

The validation compares monthly attended monitoring results against the closest assessed unattended monitoring location. Currently, TGO has an unattended real-time monitoring terminal installed at the Brooklands property (nearest to R23). **Figure 1** identifies the location of the monitor with respect to the attended monitoring locations. It is noted that the Brooklands unattended monitor is situated 600m west of the attended noise monitoring location R23, therefore, background (LA90) noise levels are significantly lower due to offset distance to highway traffic.

Historically, a comparison of mine noise contributions between attended and unattended noise monitoring demonstrates a general consistency between attended and unattended results. It was noted that wind, insects, birds, and highway traffic noise influenced measured noise levels for this assessment. Furthermore, for June 2021, results remained below the relevant criteria for both attended and unattended locations.

**Table 8** provides a summary comparison of results between the attended and unattended noise surveys for R23.

**Table 8 Comparison of Attended and Unattended Results – R23**

Assessment Type	Time (hrs)	Descriptor (dBA re 20 µPa)			Criteria	Mine Noise Contribution	Meteorology <sup>1</sup>	Description and SPL, dBA
		L <sub>Amax</sub>	L <sub>Aeq</sub>	L <sub>A90</sub>				
<b>Tuesday 1 June 2021</b>								
Attended	20:25	82	63	41	38	<35	WD: ENE WS: 0.1m/s	Traffic 40-82 TGO Inaudible
Unattended	20:30	56	45	35	38	<35	Stab Class: E	
Attended	23:39	85	61	24	36	<35	WD: ENE WS: 0.3m/s	Traffic 36-85 Wind 30-32
Unattended	23:45	61	46	28	36	<35	Stab Class: E	TGO Inaudible
<b>Wednesday 2 June 2021</b>								
Attended	20:45	86	66	33	38	<35	WD: ENE WS: 0.1m/s	Traffic 40-86 Dogs 33-36
Unattended	20:45	56	44	35	38	<35	Stab Class: E	TGO Inaudible
Attended	22:39	85	65	25	36	<35	WD: ENE WS: 0.5m/s	Traffic 40-85 Wind <30
Unattended	22:45	60	46	27	36	<35	Stab Class: E	TGO Inaudible
<b>Thursday 3 June 2021</b>								
Attended	20:54	86	67	41	86	<35	WD: SW WS: 0.3m/s	Traffic 40-86 TGO Hum 28-30
Unattended	21:00	51	38	35	38	<35	Stab Class: D	
Attended	22:23	80	57	38	36	<35	WD: WSW WS: 0.8m/s	Wind 32-35 Traffic 35-80
Unattended	22:30	50	37	34	36	<35	Stab Class: D	TGO Hum 26-33

Note 1: Meteorological data obtained from TGO's on-site weather station or by direct measurement by the operator.

## 7 Conclusion

Muller Acoustic Consulting Pty Ltd (MAC) has completed a Noise Monitoring Assessment on behalf of Tomingley Gold Operations (TGO). The assessment was completed to provide monthly monitoring data so that TGO can actively quantify and manage site noise emissions.

Attended monitoring conducted between Tuesday 1 June 2021 and Thursday 3 June 2021 identified that TGO mine noise was occasionally audible during the measurement period at five locations R2, R3, R4, R6 and R23. TGO remained inaudible at the remaining one monitoring location (R5) during the measurement periods. A review of monitoring data and operator attended observations determined that TGO contributions did not exceed relevant limits during applicable meteorological conditions.

*This page has been intentionally left blank*

# Appendix A - Glossary of Terms

Several technical terms have been used in this report and are explained in **Table A1**.

Table A1 Glossary of Terms	
Term	Description
1/3 Octave	Single octave bands divided into three parts
Octave	A division of the frequency range into bands, the upper frequency limit of each band being twice the lower frequency limit.
ABL	Assessment Background Level (ABL) is defined in the NPI as a single figure background level for each assessment period (day, evening and night). It is the tenth percentile of the measured L90 statistical noise levels.
Ambient Noise	The noise associated with a given environment. Typically a composite of sounds from many sources located both near and far where no particular sound is dominant.
A Weighting	A standard weighting of the audible frequencies designed to reflect the response of the human ear to noise.
dBA	Noise is measured in units called decibels (dB). There are several scales for describing noise, the most common being the 'A-weighted' scale. This attempts to closely approximate the frequency response of the human ear.
dB(Z)	Decibels Linear or decibels Z-weighted.
Hertz (Hz)	The measure of frequency of sound wave oscillations per second - 1 oscillation per second equals 1 hertz.
LA10	A noise level which is exceeded 10 % of the time. It is approximately equivalent to the average of maximum noise levels.
LA90	Commonly referred to as the background noise, this is the level exceeded 90 % of the time.
LAeq	The summation of noise over a selected period of time. It is the energy average noise from a source, and is the equivalent continuous sound pressure level over a given period.
LAmx	The maximum root mean squared (rms) sound pressure level received at the microphone during a measuring interval.
RBL	The Rating Background Level (RBL) is an overall single figure background level representing each assessment period over the whole monitoring period. The RBL is used to determine the intrusiveness criteria for noise assessment purposes and is the median of the ABL's.
Sound power level (SWL)	<p>This is a measure of the total power radiated by a source. The sound power of a source is a fundamental location of the source and is independent of the surrounding environment. Or a measure of the energy emitted from a source as sound and is given by :</p> $= 10 \cdot \log_{10} (W/W_0)$ <p>Where : W is the sound power in watts and W<sub>0</sub> is the sound reference power at 10-12 watts.</p>



Table A2 provides a list of common noise sources and their typical sound level.

**Table A2 Common Noise Sources and Their Typical Sound Pressure Levels (SPL), dBA**

Source	Typical Sound Level
Threshold of pain	140
Jet engine	130
Hydraulic hammer	120
Chainsaw	110
Industrial workshop	100
Lawn-mower (operator position)	90
Heavy traffic (footpath)	80
Elevated speech	70
Typical conversation	60
Ambient suburban environment	40
Ambient rural environment	30
Bedroom (night with windows closed)	20
Threshold of hearing	0

**Figure A1 – Human Perception of Sound**



Muller Acoustic Consulting Pty Ltd

PO Box 678, Kotara NSW 2289

ABN: 36 602 225 132

Ph: +61 2 4920 1833

[www.mulleracoustic.com](http://www.mulleracoustic.com)

