Project No: 161324

Noise Impact Assessment
Proposed Quarry – Revised Operation Scenarios
Eagleton, NSW

Prepared for:

Eagleton Rock Syndicate Pty Ltd
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September 2017

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1.0 INTRODUCTION

1.1 Background

An Environmental Impact Statement (EIS) for a proposed rock quarry at Eagleton was publicly exhibited from 3 February 2017 to 6 March 2017. The proposed quarry is located on the northern side of Six Mile Road and south of Italia Road approximately 8 km north of Raymond Terrace, NSW.

Government authority, special interest groups and the public made submissions on the exhibited EIS. The New South Wales Department of Planning and Environment (DPE) then requested the proponent, Eagleton Rock Syndicate Pty Limited (ERS), provide a revised acoustic assessment.

Feedback from the agencies and public submissions has resulted in amendments to the proposal for the purpose of minimising environmental impacts, this noise assessment has been commissioned to determine potential noise impacts from the amended project.

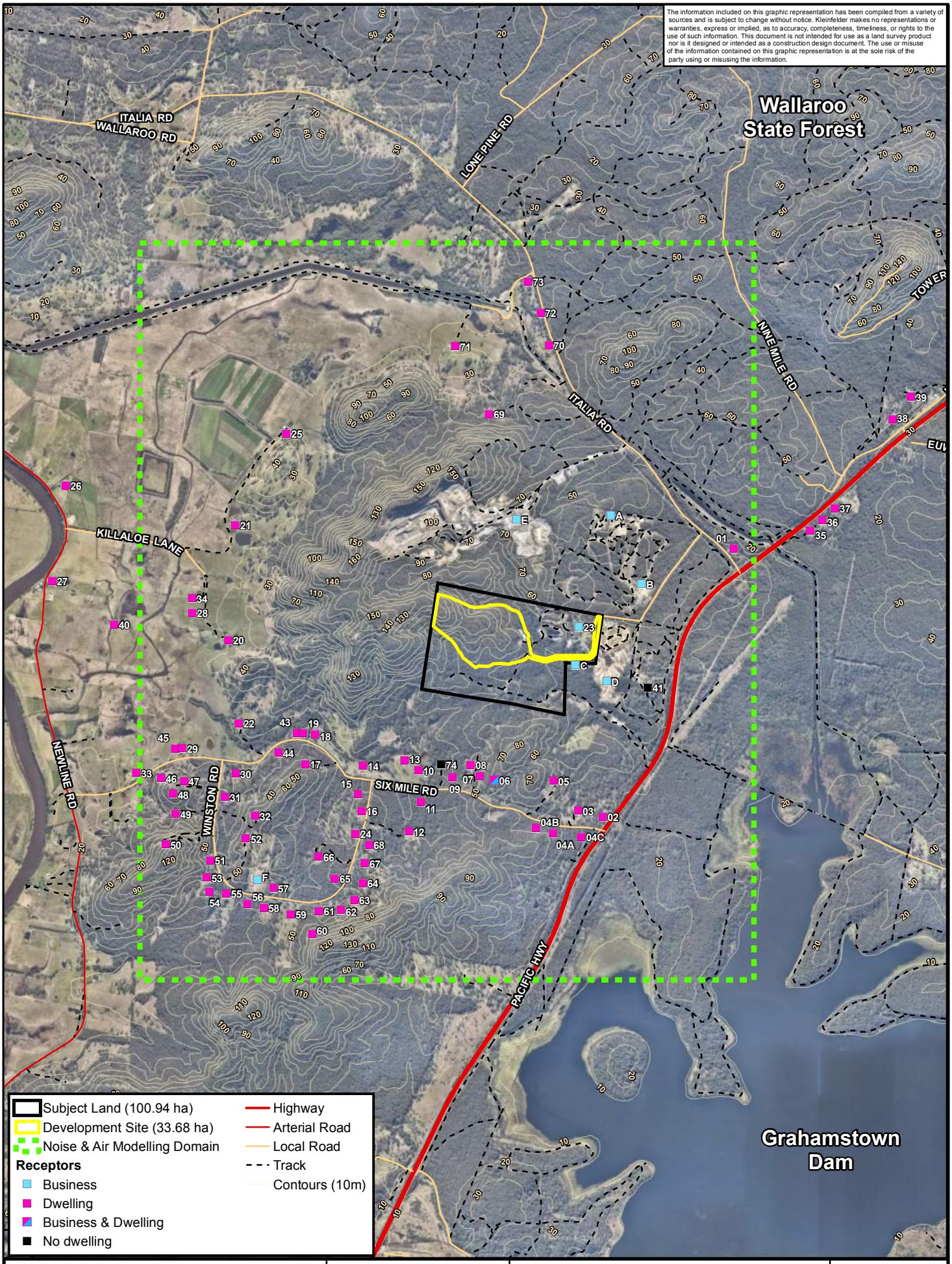
This noise impact assessment has been carried out with reference to the *NSW Industrial Noise Policy* (INP, 2000).

1.2 Receiver Locations

There are 80 receivers that have been mapped around the Project Site. Of these, 68 potential residential receptors and six commercial/ industrial receivers have been included in this noise assessment as identified in **Table 1** and **Figure 1**. Receivers 4B and 4C are mapped to provide indicative noise impacts for potential residential dwellings proposed within the closest area of the Kings Hill development. There are six identified receivers located outside the assessed model domain that are not considered likely to have any potential for noise impacts from the Project, the assessed impact for these receivers is based on the nearest modelled receiver.

Table 1 also includes the project specific and cumulative noise impact criteria established in the acoustic assessment conducted by Global Acoustics (GA2017). The project specific noise criteria are the daytime intrusiveness criteria, established under provisions of the INP. This assessment builds on the GA2017 report and only considers revised daytime operational noise scenarios (as these were considered worst case) as extraction and processing activities will not be conducted prior to 7 am (morning shoulder) or after 6 pm (evening). Cumulative criteria have been conservatively adopted as LAeq(15 minute) levels.

Receiver R4B (indicative of proposed Kings Hill), identified since the previous assessment by GA2017, is approximately the same distance from the Pacific Highway as residence 5, and warrants adoption of the lower noise criteria applicable to receivers more distant from the highway than receivers R1, R2, R3, R4A and R4C.



GDA 1994 MGA Zone 56

0 250 500 1,000 metres

1:40,000

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PROJECT REFERENCE: 20173040

DATE DRAWN: 4/08/2017 13:06 Version 1

DRAWN BY: gjoyce

DATA SOURCE:
Nearmap - 2017
LPI - 2017
OEH - 2016
Forestry Corporation - 2012

Site Location

Eagleton Rock Syndicate Pty Ltd
Stage Plans
Eagleton Quarry
13 Barleigh Ranch Way, Eagleton NSW

FIGURE:

1

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TABLE 1. ASSESSED RECEIVERS				
			Noise criteria dB(A),Leq(15minute)	
Name	Description	ADDRESS	Project	Cumulative
A	MG Car club hill climb track	53 ITALIA ROAD BALICKERA 2324	55	65
B	Circuit Italia	45 ITALIA ROAD BALICKERA 2324	55	65
C	Hunter Valley Paintball	11 BARLEIGH RANCH WAY EAGLETON 2324	55	65
D	MX Central Motor Cross and Speedway Track	7 BARLEIGH RANCH WAY EAGLETON 2324	55	65
E	Boral Seaham Quarry	139 ITALIA ROAD BALICKERA 2324	55	65
F	Quarry Winston Road	176 WINSTON ROAD EAGLETON 2324	55	65
01	Dwelling	16 ITALIA ROAD BALICKERA 2324	49	53
02	Dwelling	6 SIX MILE ROAD EAGLETON 2324	49	53
03	Dwelling	26 SIX MILE ROAD EAGLETON 2324	49	53
04A	Indicative Kings Hill dwelling	35 SIX MILE ROAD KINGS HILL 2324	49	53
04B	Indicative Kings Hill dwelling	35 SIX MILE ROAD KINGS HILL 2324	49	53
04C	Indicative Kings Hill dwelling	35 SIX MILE ROAD KINGS HILL 2324	49	45
05	Dwelling	64 SIX MILE ROAD EAGLETON 2324	41	45
06	Eagleton Ridge Respite Centre / Private	100 SIX MILE ROAD EAGLETON 2324	41	45
07	Dwelling	106 SIX MILE ROAD EAGLETON 2324	41	45
08	Dwelling	112 SIX MILE ROAD EAGLETON 2324	41	45
09	Dwelling	132 SIX MILE ROAD EAGLETON 2324	41	45
10	Dwelling	160 SIX MILE ROAD EAGLETON 2324	41	45
11	Dwelling	149 SIX MILE ROAD EAGLETON 2324	41	45
12	Dwelling	35 WINSTON ROAD EAGLETON 2324	41	45
13	Dwelling	164 SIX MILE ROAD EAGLETON 2324	41	45
14	Dwelling	164 SIX MILE ROAD EAGLETON 2324	41	45
15	Dwelling	213 SIX MILE ROAD EAGLETON 2324	41	45
16	Dwelling	30 WINSTON ROAD EAGLETON 2324	41	45
17	Dwelling	229 SIX MILE ROAD EAGLETON 2324	41	45
18	Dwelling	258 SIX MILE ROAD EAGLETON 2324	41	45
19	Dwelling	264 SIX MILE ROAD EAGLETON 2324	41	45
20	Dwelling	3 KILLALOE LANE EAGLETON 2324	41	45
21	Dwelling	8 KILLALOE LANE EAGLETON 2324	41	45
22	Dwelling	296 SIX MILE ROAD EAGLETON 2324	41	45
23	Port Stephens Gardenland Managers Residence / Project Related	13 BARLEIGH RANCH WAY EAGLETON 2324	N/A	45
24	Dwelling	42 WINSTON ROAD EAGLETON 2324	41	45
25	Dwelling	8 KILLALOE LANE EAGLETON 2324	41	45
26	Dwelling – outside modelled domain	1004 NEWLINE ROAD EAST SEAHAM 2324	41	45
27	Dwelling – outside modelled domain	918 NEWLINE ROAD EAGLETON 2324	41	45
28	Dwelling	3 KILLALOE LANE EAGLETON 2324	41	45
29	Dwelling	364 SIX MILE ROAD EAGLETON 2324	41	45
30	Dwelling	290 WINSTON ROAD EAGLETON 2324	41	45
31	Dwelling	266 WINSTON ROAD EAGLETON 2324	41	45
32	Dwelling	254 WINSTON ROAD EAGLETON 2324	41	45

33	Dwelling – outside modelled domain	410 SIX MILE ROAD EAGLETON 2324	41	45
34	Dwelling	5 KILLALOE LANE EAGLETON 2324	41	45
35	Dwelling – outside modelled domain	3848 PACIFIC HIGHWAY FERODALE 2318	41	45
36	Dwelling – outside modelled domain	3848 PACIFIC HIGHWAY FERODALE 2318	41	45
37	Dwelling – outside modelled domain	3878 PACIFIC HIGHWAY FERODALE 2318	41	45
38	Dwelling – outside modelled domain	5 NINE MILE CREEK ROAD FERODALE 2318	41	45
39	Dwelling – outside modelled domain	17 NINE MILE CREEK ROAD FERODALE 2318	41	45
40	Dwelling – outside modelled domain	3 KILLALOE LANE EAGLETON 2324	41	45
41	No dwelling	3603 PACIFIC HIGHWAY EAGLETON 2324	49	53
43	Dwelling	266 SIX MILE ROAD EAGLETON 2324	41	45
44	Dwelling	299 SIX MILE ROAD EAGLETON 2324	41	45
45	Dwelling	370 SIX MILE ROAD EAGLETON 2324	41	45
46	Dwelling	401 WINSTON ROAD EAGLETON 2324	41	45
47	Dwelling	273 WINSTON ROAD EAGLETON 2324	41	45
48	Dwelling	271 WINSTON ROAD EAGLETON 2324	41	45
49	Dwelling	253 WINSTON ROAD EAGLETON 2324	41	45
50	Dwelling	233 WINSTON ROAD EAGLETON 2324	41	45
51	Dwelling	219 WINSTON ROAD EAGLETON 2324	41	45
52	Dwelling	196 WINSTON ROAD EAGLETON 2324	41	45
53	Dwelling	203 WINSTON ROAD EAGLETON 2324	41	45
54	Dwelling	199 WINSTON ROAD EAGLETON 2324	41	45
55	Dwelling	191 WINSTON ROAD EAGLETON 2324	41	45
56	Dwelling	175 WINSTON ROAD EAGLETON 2324	41	45
57	Dwelling	146 WINSTON ROAD EAGLETON 2324	41	45
58	Dwelling	163 WINSTON ROAD EAGLETON 2324	41	45
59	Dwelling	137 WINSTON ROAD EAGLETON 2324	41	45
60	Dwelling	123 WINSTON ROAD EAGLETON 2324	41	45
61	Dwelling	109 WINSTON ROAD EAGLETON 2324	41	45
62	Dwelling	107 WINSTON ROAD EAGLETON 2324	41	45
63	Dwelling	83 WINSTON ROAD EAGLETON 2324	41	45
64	Dwelling	73 WINSTON ROAD EAGLETON 2324	41	45
65	Dwelling	78 WINSTON ROAD EAGLETON 2324	41	45
66	Dwelling	68 WINSTON ROAD EAGLETON 2324	41	45
67	Dwelling	65 WINSTON ROAD EAGLETON 2324	41	45
68	Dwelling	51 WINSTON ROAD EAGLETON 2324	41	45
69	Dwelling	209B ITALIA ROAD BALICKERA 2324	41	45
70	Dwelling	241 ITALIA ROAD BALICKERA 2324	41	45
71	Dwelling	303 ITALIA ROAD BALICKERA 2324	41	45
72	Dwelling	267 ITALIA ROAD BALICKERA 2324	41	45
73	Dwelling	299 ITALIA ROAD BALICKERA 2324	41	45
74	No dwelling	138 SIX MILE ROAD EAGLETON 2324	41	45

2.0 THE PROPOSAL

2.1 Quarry progress

After site establishment activities and construction of processing plant and dams during the first year, the proposed quarry will commence in the north west and progress to the south east over a period of approximately 24 - 30 years depending on market demand, from commencement to the final landform. The processing plant will be located at an excavated level of RL 45m and will be located on the northern side of a hill that rises to RL 70m. The hill will be largely retained for the life of the quarry as an acoustic barrier and will be excavated to a height of no less than RL 57.5m. In the final year of the quarry this barrier will also be removed to provide a suitable final landform, and supplemented by a temporary barrier. The proposed site plan is shown in **Figure 2**.

This is a significant change from the original proposal in which the southern part of the processing plant was be exposed to the south and 4.8m acoustic bunds were required to achieve the noise criteria (Global Acoustics, 2017 (GA2017)). With the far more extensive natural screening provided by the natural hill, predicted noise levels reduce considerably from those presented in GA2017. The noisiest component of the plant (the jaw crusher) has been moved over 200m north to sit behind the natural screen.

2.2 Haul route

The haul route to and from the Project site would be via Italia Road, a right of way and Barleigh Ranch Way. The initial acoustic assessment of the project by Global Acoustics (GA2017) found no adverse impacts from project-generated traffic for peak haulage rates during maximum extraction activities. Traffic noise impacts are not considered further in this report.

2.3 Operational Times and Employment

The Project will employ up to 10 staff and 10 contractors for the duration of the construction activities and quarry operations. Construction activities have been fully assessed in GA2017.

Quarry operations will occur during the following hours:

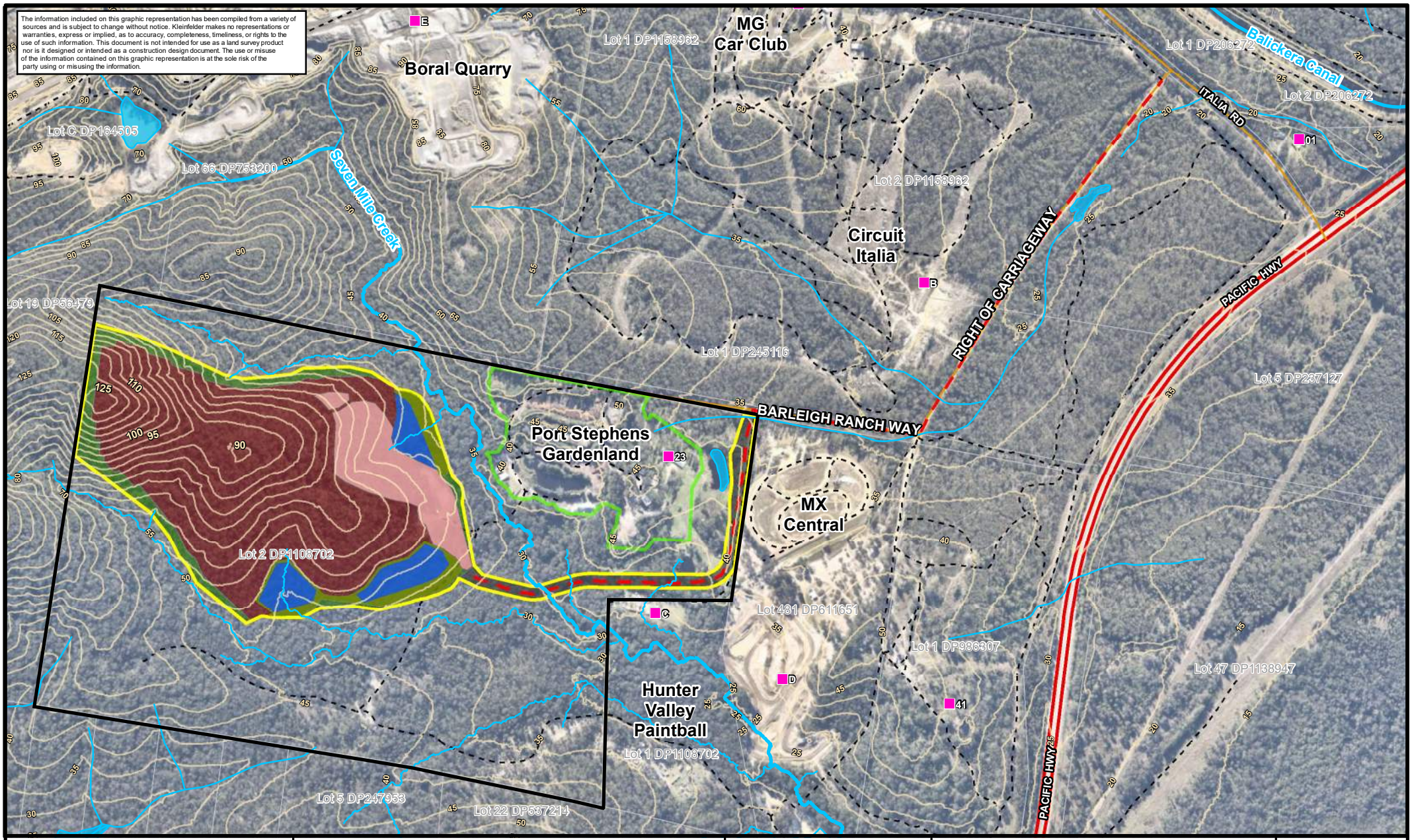
- All extraction and processing activities:
  - 7 am to 6 pm Monday to Friday.
  - 7 am to 4 pm on Saturdays.
- Sales activities only:
  - 5 am to 10 pm Monday to Friday.
  - 5 am to 4 pm on Saturdays.
- No work on Sundays or public holidays with an exception for repair and maintenance of plant and equipment that may occur during these times.

Employees (in light vehicles) will arrive at the quarry approximately 15 minutes before opening (i.e. 4:45 am) to open quarry gates, and will leave approximately 30 minutes after quarry close (i.e. to 10:30 pm).

3.0 DESCRIPTION OF TERMS

Table 2 contains the definitions of commonly used acoustical terms and is presented as an aid to understanding this report.

TABLE 2. DEFINITION OF ACOUSTICAL TERMS	
Term	**Description**
dB(A)	The quantitative measure of sound heard by the human ear, measured by the A-Scale Weighting Network of a sound level meter expressed in decibels (dB).
SPL	Sound Pressure Level. The incremental variation of sound pressure above and below atmospheric pressure and expressed in decibels. The human ear responds to pressure fluctuations, resulting in sound being heard.
STL	Sound Transmission Loss. The ability of a partition to attenuate sound, in dB.
Lw	Sound Power Level radiated by a noise source per unit time re 1pW.
Leq	Equivalent Continuous Noise Level - taking into account the fluctuations of noise over time. The time-varying level is computed to give an equivalent dB(A) level that is equal to the energy content and time period.
L1	Average Peak Noise Level - the level exceeded for 1% of the monitoring period.
L10	Average Maximum Noise Level - the level exceeded for 10% of the monitoring period.
L90	Average Minimum Noise Level - the level exceeded for 90% of the monitoring period and recognised as the Background Noise Level. In this instance, the L90 percentile level is representative of the noise level generated by the surrounds of the residential area.



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PROJECT REFERENCE: 20173040

DATE DRAWN: 8/3/2017 10:26 Version 1

DRAWN BY: bdeane

DATA SOURCE:

Nearmap - 2017
LPI - 2017

Eagleton Quarry
Site Layout

Eagleton Rock Syndicate Pty Ltd
Eagleton Quarry
13 Barleigh Ranch Way, Eagleton NSW

FIGURE:

2

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4.0 ASSESSMENT METHODOLOGY

4.1 Meteorology

An assessment of meteorological conditions in the project area was conducted in GA2015. That analysis has been reviewed and its finding that winds do not require inclusion in an acoustic assessment will be carried over to this assessment.

Several operating activities were defined in GA2017 and several "Modes" were modelled which contained various combinations of the activities. All "morning shoulder" (6:30am – 7am) activities were modelled in GA2017 under moderate temperature inversion conditions and predicted levels were well below the noise criteria at all receivers. The worst case predicted noise levels were for daytime-only activities, specifically Mode2 (extraction processing and sales) in GA2017 and as such these are the scenarios that have been considered in this revised assessment. Mode 1 in GA2017 incorporates the tub grinder and has not been remodelled as the original predicted levels did not exceed the noise criterion at any receiver and also because this activity would only occur over a period of days every several months or even years as the quarry progresses. During these periods, positioning and orientation of the tub ground would be considered so as to minimise impacts on the potentially most impacted receivers, which are generally south of the site.

Proposed processing and extraction activities are 7:00am – 6:00 pm Monday to Friday and 7:00am to 4:00pm Saturdays.

Scheduled maintenance would generally be limited to processing hours. However, in the event of urgent unscheduled maintenance that cannot be completed within this period, maintenance works may need to be undertaken anytime 7 days per week.

Sales activities would be 5:00am to 10pm Monday to Friday and 5am-4pm Saturdays.

4.2 Background Noise

The operational noise criterion of 41 dB(A,Leq(15minute) at the most impacted receivers south of the site is based on the measured daytime background level of 36 dB(A),L90 reported in GA2017. The issue of background noise levels during the morning shoulder period was raised during the review process of the original assessment. GA2017 determined a Rating Background Level (RBL) of 35 dB(A),L90 during the morning shoulder period 5am – 7am and determined a noise criterion of 39 dB(A),Leq(15min) as the average of the day and night time

criteria. The assessment of activities that would occur during this period show predicted levels are well below this criterion at all receivers.

4.3 Modelled Scenarios

The Environmental Noise Model (ENM) software produced by Renzo Tonin Associates (RTA) Technologies was used to calculate noise emission for four scenarios in three operational areas of the proposed quarry.

Scenario 1:

Start of Year 2. Extraction at natural ground level at western extent of extraction area and at RL 85 at a central location. Haulage back to processing area at RL 45m. Truck loading and transport to Italia Road. Quarry configuration and source locations are shown in **Figure 3**.

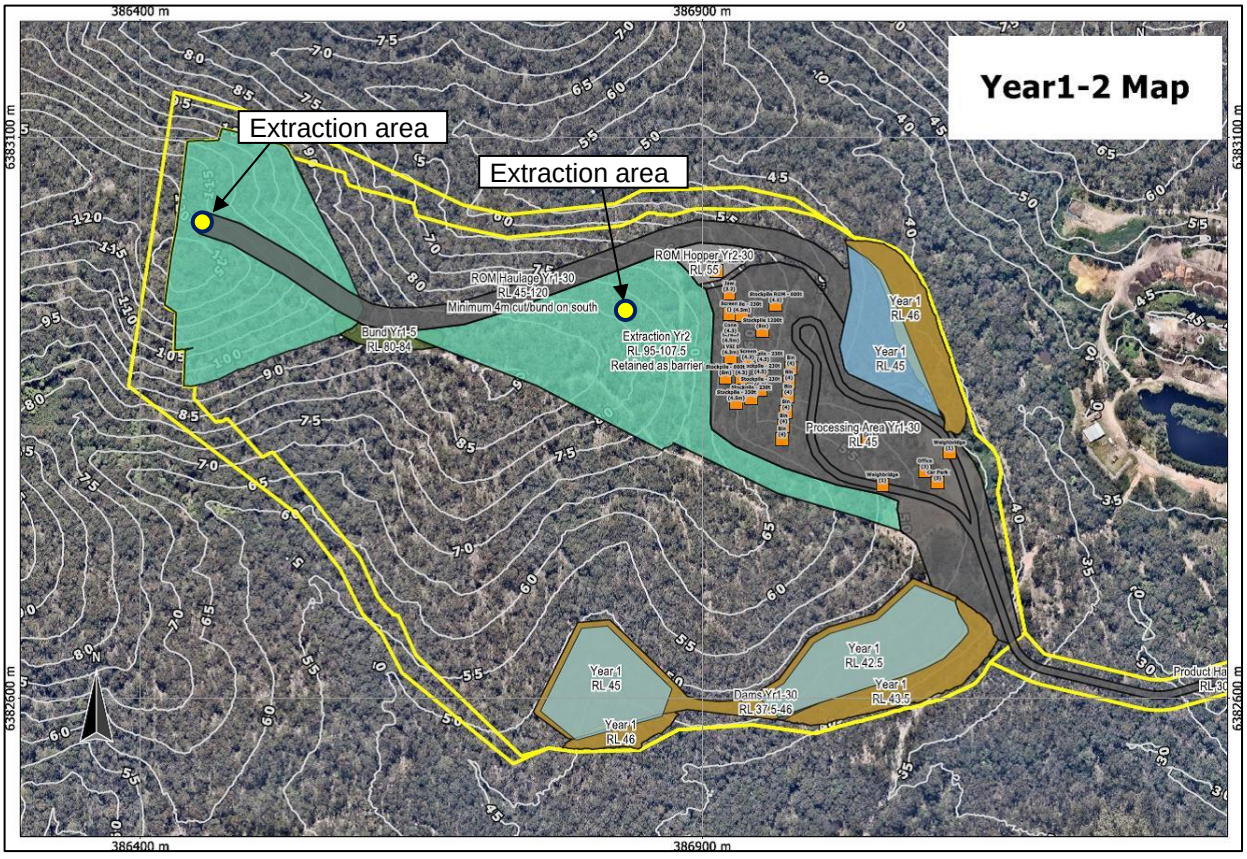


Figure 3. Scenario 1. Proposed Year 2 operations.

Scenario 2:

Year 5. Extraction at RL 82.5m at two locations near western end and near centre of extraction area, behind minimum 5m bench. Haulage back to processing area at RL 45m. Truck loading and transport to Italia Road. Quarry configuration and source locations are shown in **Figure 4**.

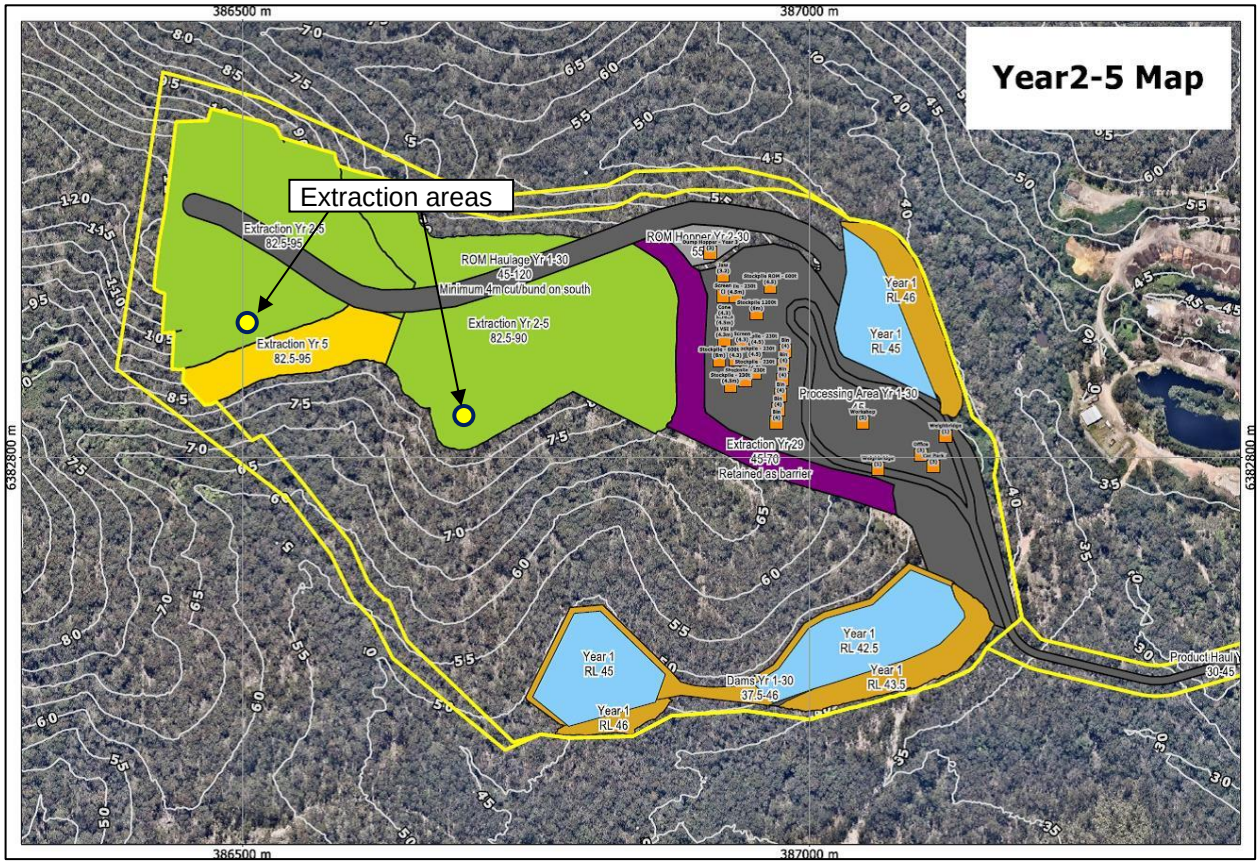


Figure 4. Scenario 2. Proposed Year 5 operations.

Scenario 3:

Year 30. Extraction at RL 45m near southern extent of extraction area, behind minimum 5m bench. Haulage back to processing area at RL 45m. Truck loading and transport to Italia Road. Quarry configuration and source locations are shown in **Figure 5**.

Scenario 4:

Year 30. Extraction at RL 45m near southern extent of extraction area and drill rig at natural ground level RL 57.5m to provide a worst case. Haulage back to processing area at RL 45m. Truck loading and transport to Italia Road. Quarry configuration and source locations are shown in Figure 5.

In final 6 months of the project the barrier will be removed to create a suitable final landform. This barrier will be substituted with a temporary barrier system design to ensure compliance with the noise criterion. Noting, the design of the barrier system will be based on noise monitoring results during the life of the project. Prior to removal of the barrier a barrier system design will be developed and modelled.

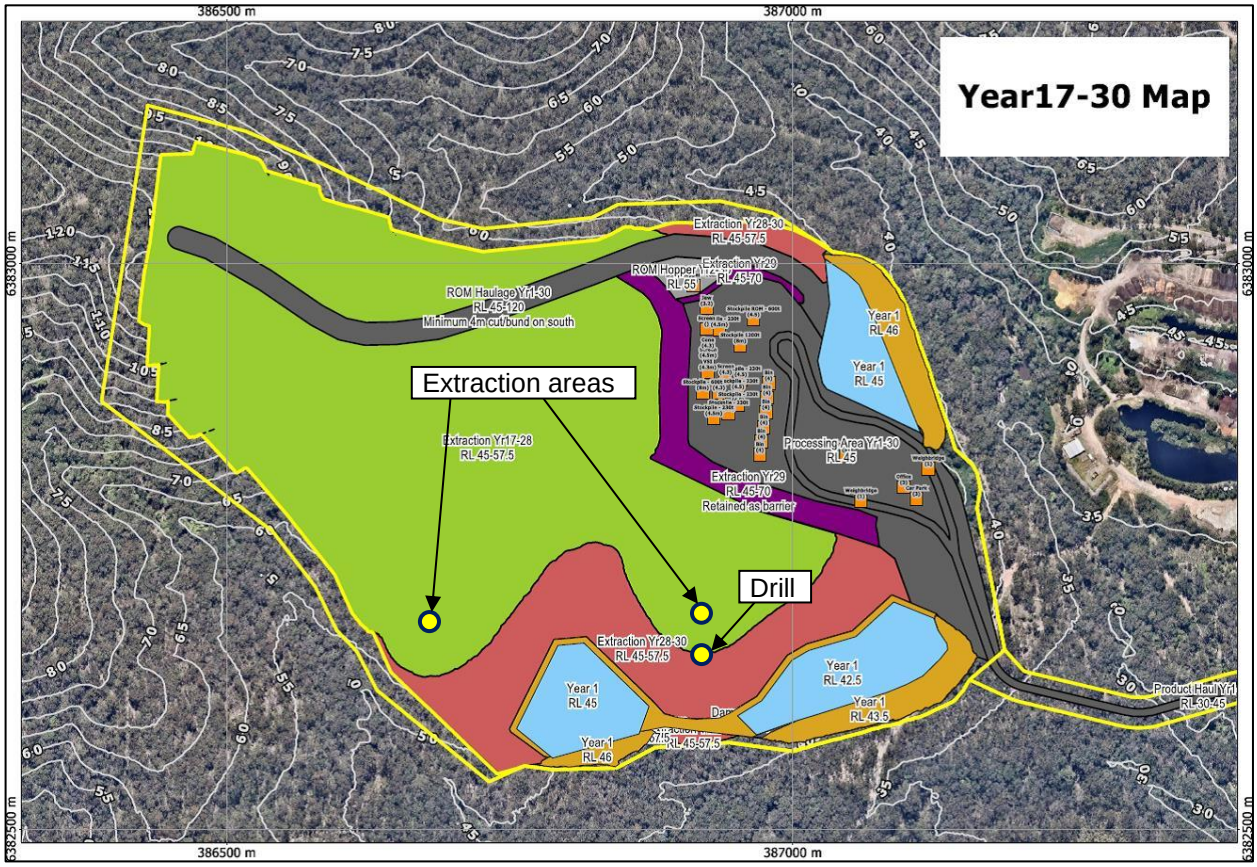


Figure 5. Scenarios 3 and 4. Proposed Year 30 operations.

4.4 Noise Sources

Significant noise generating quarrying extraction and processing equipment is listed in **Table 3**. Acoustic screening provided by roofing structure that is planned for all processing plant has not been considered for conservatism.

Sound power levels for the crushers and impactor include the noise contribution from all associated conveyors and conveyor drives. All construction and land clearing equipment is detailed in the corresponding Table 3.1 of GA2017.

There will be a small rock hammer attached to the jaw crusher but this would be used rarely and as needed to clear a block in the crusher. During its use, the jaw crusher would not be operating and the small rock hammer does not constitute an additional noise source.

TABLE 3. MAJOR NOISE SOURCES AND SOUND POWER LEVELS, Lw dB(A)		
Equipment	**Number Modelled**	**Lw, dB(A)**
Jaw crusher	1	117[1]
Cone crusher	1	117
Impactor	1	117
Screens	2	114
Articulated truck[2]	4	114
Drill	1	113[3]
Sales loader	2	111
30T excavator	1-2	109
Road truck[2]	5	100

[1] Leq of values ranging 113 – 119 dB(A) from various sources.
[2] Modelled as a distribution of points along the entire haul road.
[3] Leq of values ranging 110 – 115 dB(A) from various sources.

5.0 RESULTS AND DISCUSSION

5.1 Operational noise

Predicted noise levels for each modelled operational scenario are shown in **Table 4** discussed below with noise contours presented in **Figures 6-9**.

TABLE 4. Predicted operational noise levels, dB(A),Leq(15minute).						
Number	**Description**	**Criteria, dB(A),$L_{eq(15min)}$**	**Operational scenario**			
			Year 2	**Year 5**	**Year 30**	**Year30B**
1	Dwelling	49	30	30	30	30
2	Dwelling	49	24	24	23	24
3	Dwelling	49	23	23	23	24
04A	Indicative Kings Hill dwelling	49	22	22	22	22
04C	Indicative Kings Hill dwelling	49	22	22	22	22
04B	Indicative Kings Hill dwelling	49	23	23	22	22
5	Dwelling	41	25	25	25	25
6	Eagleton Ridge Respite Centre / Private	41	26	25	30	31
7	Dwelling	41	27	26	31	33
8	Dwelling	41	28	27	33	34
9	Dwelling	41	27	26	32	32
10	Dwelling	41	27	24	27	29
11	Dwelling	41	25	23	27	29
12	Dwelling	41	24	23	26	27
13	Dwelling	41	27	24	26	27
14	Dwelling	41	24	23	23	24
15	Dwelling	41	23	22	23	25
16	Dwelling	41	23	22	23	26

TABLE 4. Predicted operational noise levels, dB(A),Leq(15minute).						
Number	Description	Criteria, dB(A),$L_{eq(15min)}$	Operational scenario			
			Year 2	Year 5	Year 30	Year30B
17	Dwelling	41	20	20	21	21
18	Dwelling	41	<20	<20	<20	<20
19	Dwelling	41	<20	<20	<20	<20
20	Dwelling	41	<20	<20	<20	<20
21	Dwelling	41	<20	<20	<20	<20
22	Dwelling	41	<20	<20	<20	<20
23	Port Stephens Gardenland Managers Residence / Project Related	N/A	47	47	47	47
24	Dwelling	41	21	23	24	25
25	Dwelling	41	<20	<20	<20	<20
26	Dwelling – outside modelled domain	41	<20	<20	<20	<20
27	Dwelling – outside modelled domain	41	<20	<20	<20	<20
28	Dwelling	41	<20	<20	<20	<20
29	Dwelling	41	<20	<20	<20	<20
30	Dwelling	41	<20	<20	<20	<20
31	Dwelling	41	<20	<20	<20	<20
32	Dwelling	41	<20	<20	<20	<20
33	Dwelling – outside modelled domain	41	<20	<20	<20	<20
34	Dwelling	41	<20	<20	<20	<20
35	Dwelling – outside modelled domain	41	<20	<20	<20	<20
36	Dwelling – outside modelled domain	41	<20	<20	<20	<20
37	Dwelling – outside modelled domain	41	<20	<20	<20	<20
38	Dwelling – outside modelled domain	41	<20	<20	<20	<20
39	Dwelling – outside modelled domain	41	<20	<20	<20	<20
40	Dwelling – outside modelled domain	41	<20	<20	<20	<20
41	No dwelling	49	35	35	35	35
43	Dwelling	41	<20	<20	<20	<20
44	Dwelling	41	<20	<20	<20	<20
45	Dwelling	41	<20	<20	<20	<20
46	Dwelling	41	<20	<20	<20	<20
47	Dwelling	41	<20	<20	<20	<20
48	Dwelling	41	<20	<20	<20	<20
49	Dwelling	41	<20	<20	<20	<20
50	Dwelling	41	<20	<20	<20	<20

TABLE 4. Predicted operational noise levels, dB(A),Leq(15minute).						
Number	Description	Criteria, dB(A),$L_{eq(15min)}$	Operational scenario			
			Year 2	Year 5	Year 30	Year30B
51	Dwelling	41	<20	<20	<20	<20
52	Dwelling	41	<20	<20	<20	<20
53	Dwelling	41	<20	<20	<20	<20
54	Dwelling	41	<20	<20	<20	<20
55	Dwelling	41	<20	<20	<20	<20
56	Dwelling	41	<20	<20	<20	<20
57	Dwelling	41	<20	<20	20	21
58	Dwelling	41	<20	<20	<20	20
59	Dwelling	41	<20	<20	20	20
60	Dwelling	41	<20	<20	20	20
61	Dwelling	41	<20	20	21	22
62	Dwelling	41	<20	20	21	23
63	Dwelling	41	<20	21	22	24
64	Dwelling	41	20	22	22	25
65	Dwelling	41	<20	22	22	24
66	Dwelling	41	<20	22	22	24
67	Dwelling	41	20	22	23	26
68	Dwelling	41	21	23	23	26
69	Dwelling	41	<20	<20	<20	<20
70	Dwelling	41	<20	<20	<20	<20
71	Dwelling	41	<20	<20	<20	<20
72	Dwelling	41	<20	<20	<20	<20
73	Dwelling	41	<20	<20	<20	<20
74	No dwelling	41	27	25	29	30
A	MG Car club hill climb track	55	30	30	29	29
B	Circuit Italia	55	40	40	40	40
C	Hunter Valley Paintball	55	45	45	45	45
D	MX Central Motor Cross and Speedway Track	55	42	42	42	42
E	Boral Seaham Quarry	55	36	35	35	35
F	Quarry Winston Road	55	<20	<20	<20	<20

The worst case predicted Year 30 noise levels of 32-34 dB(A) at Receivers 7-9 in Table 4 are 7-9 dB lower than the corresponding predicted noise levels in GA2017. The major difference between the modelled scenarios in GA2017 and herein is the location of the processing plant, which totals approximately 123 dB(A) and is far louder than the mobile quarrying activities.

Relocation of the processing plant from a relatively exposed location with small 4.8m localised noise barriers to behind a 20m high hill accounts for the additional barrier loss provided for this dominant noise source.

As discussed in Section 4.3 the final 6 months of the project will be subject to the development of an acoustic barrier system designed to maintain compliance with criterion.

5.2 Cumulative noise

A project specific cumulative industrial noise criterion of 45 dB(A),Leq was established in GA2017 for the rural residential receivers distant from the Pacific Highway. Application of the INP would result in a cumulative daytime noise criterion of 50 dB(A) and the approach in GA2017 set 45 dB(A) as the maximum allowable level from the project which, when added to similar noise from a small number of other industries, would not result in the INP criterion of 50 dB(A) being exceeded.

The worst case predicted level over all scenarios and receivers of 34 dB(A) is 11 dB below the project specific maximum allowable cumulative noise contribution of 45 dB(A) established in GA2017. In practical terms, if the total noise from all existing industries were to approach the INP recommended daytime amenity level of 50 dB(A), the addition of up to 34 dB(A) from this project will not result in a perceptible or measurable noise level increase.

With the adjoining Boral quarry project ending in 2035, the progressive extraction of material at the Eagleton quarry would, based on model results, progressively increase the noise level from Boral processing plant by approximately 5 dB over a 17 year period at receivers 6 – 9. The current noise level from Boral is unknown but, given the discussion above, there is no scope for the predicted noise level from the Eagleton quarry to add to noise levels from Boral and result in an exceedance of the cumulative noise criterion.

5.3 Traffic noise

The traffic noise assessment in GA2017 calculated the existing and future daytime noise levels and the future total traffic noise levels including project-generated traffic for the worst impacted receiver R1. The GA2017 results are presented in Table 5 and compared with the night time criterion as it is proposed to conduct product transport between 5am and 7am.

TABLE 5. Night time traffic noise impacts 5-7 am, dB(A),Leq(1hr)

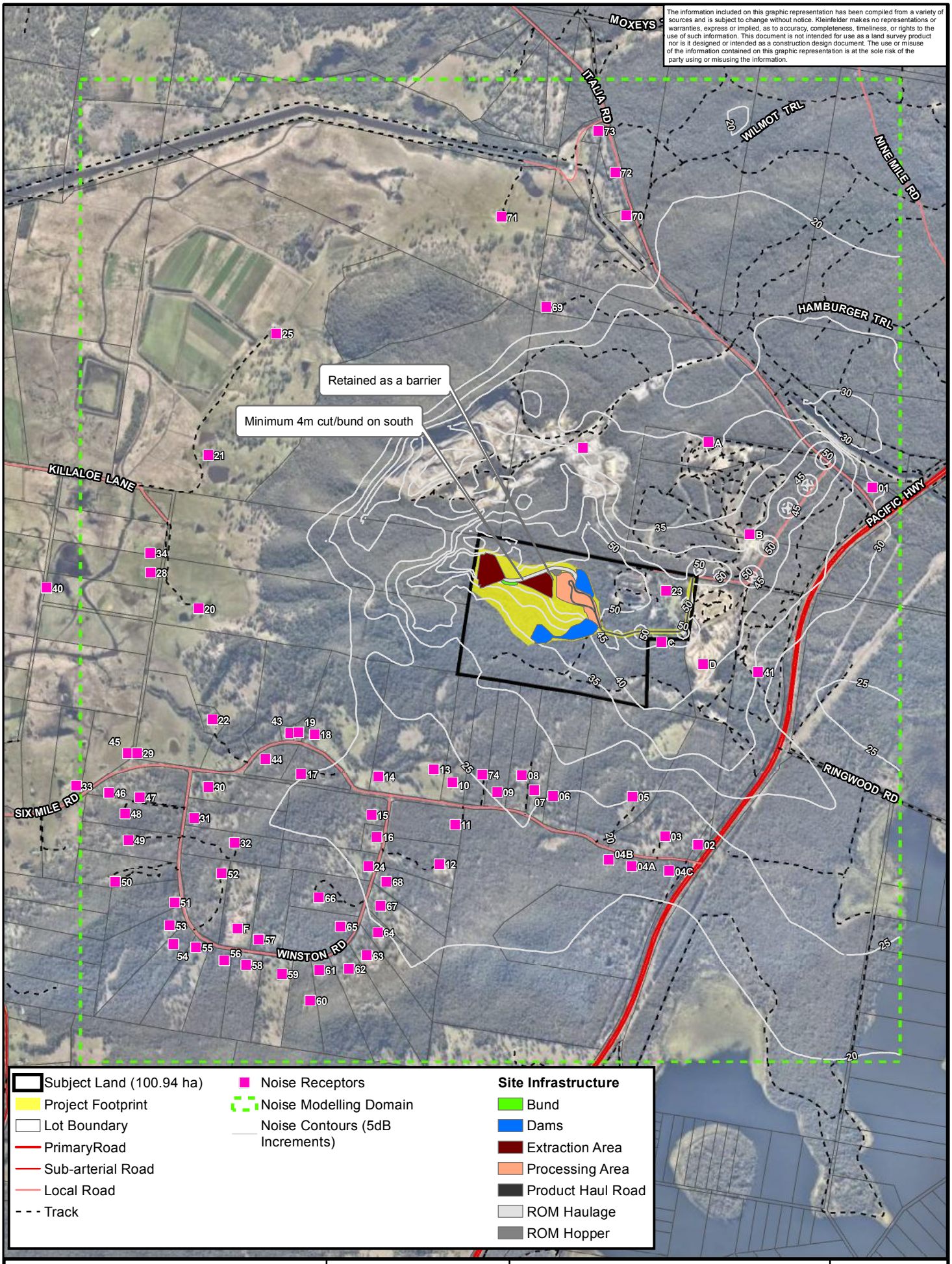
Receiver	Criterion	Existing	Project	TOTAL	Change
R1	55	57	48	58	+1

The noise contribution of 48 dB(A) from project-related traffic is well below the 55 dB(A) criterion and the change of +1 dB in total traffic noise is less than the 2 dB increase allowed under the RNP.

5.4 Monitoring

Monitoring would ideally be undertaken on commencement of each distinct construction activity and annually during operations at Receptors 1, 5, 8 and 14 subject to agreement with the land owners. As shown by the noise contours in Figures 6-9, these are representative of the most impacted receiver groups. Additional monitoring would be undertaken at other receptors if required to resolve or investigate complaints, or if requested by the EPA.

Monitoring frequency and duration should be minimum 15 minutes during the morning shoulder and day periods at Receivers 5, 8 and 14 to determine compliance with the LAeq(15minute) site noise emission criteria. Monitoring at Receiver 1 would occur for one hour prior to 7am to determine compliance with the LAeq(1 hour) off-site traffic noise criterion.



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Noise Contours for Scenario 1 (Year 2)

Eagleton Rock Syndicate Pty Ltd
Noise Impact Assessment
Eagleton Quarry
13 Barleigh Ranch Way, Eagleton NSW

FIGURE:

6

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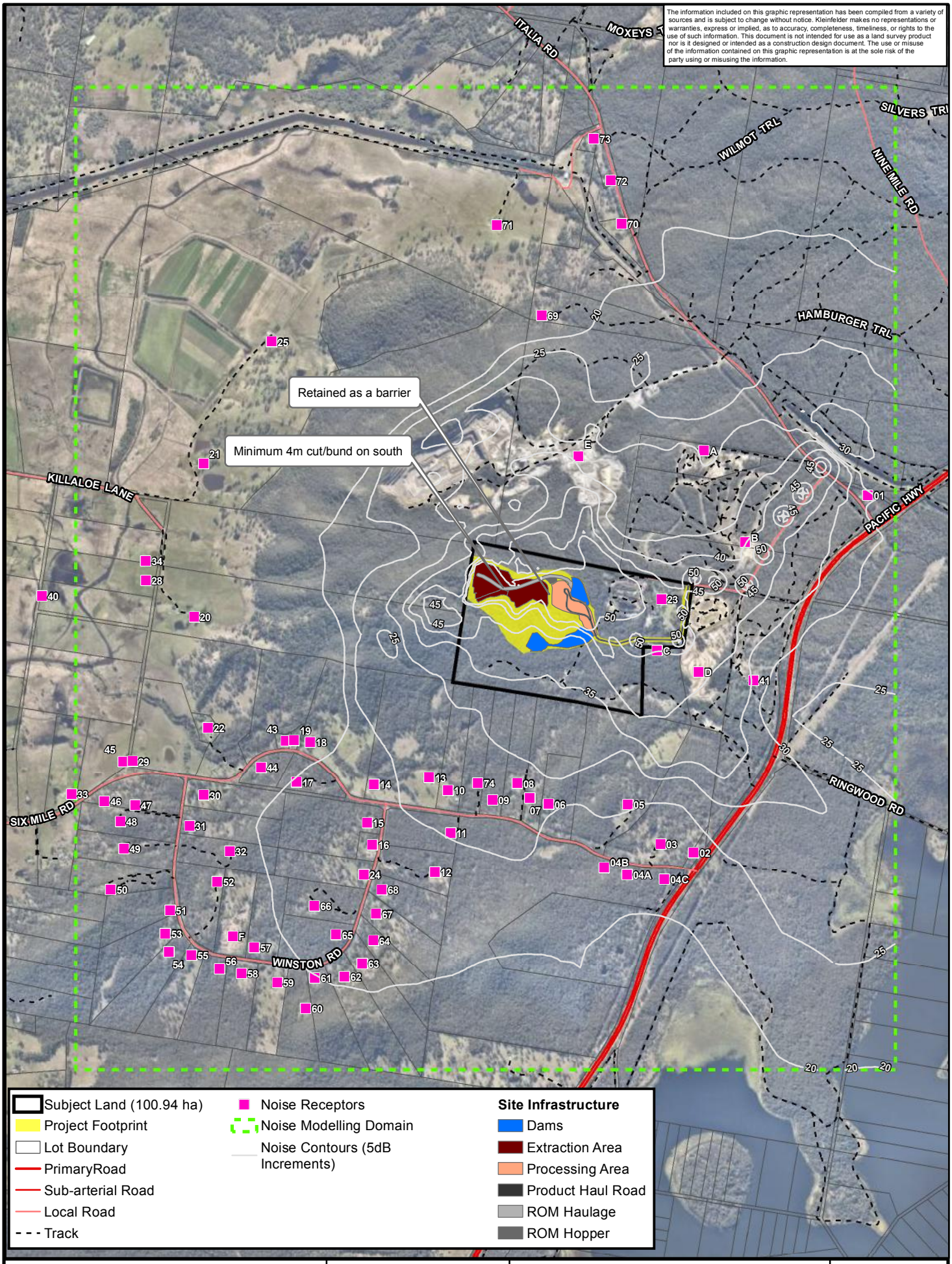

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DATA SOURCE:
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LPI - 2017

Noise Contours for Scenario 2 (Year 5)

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FIGURE:

7

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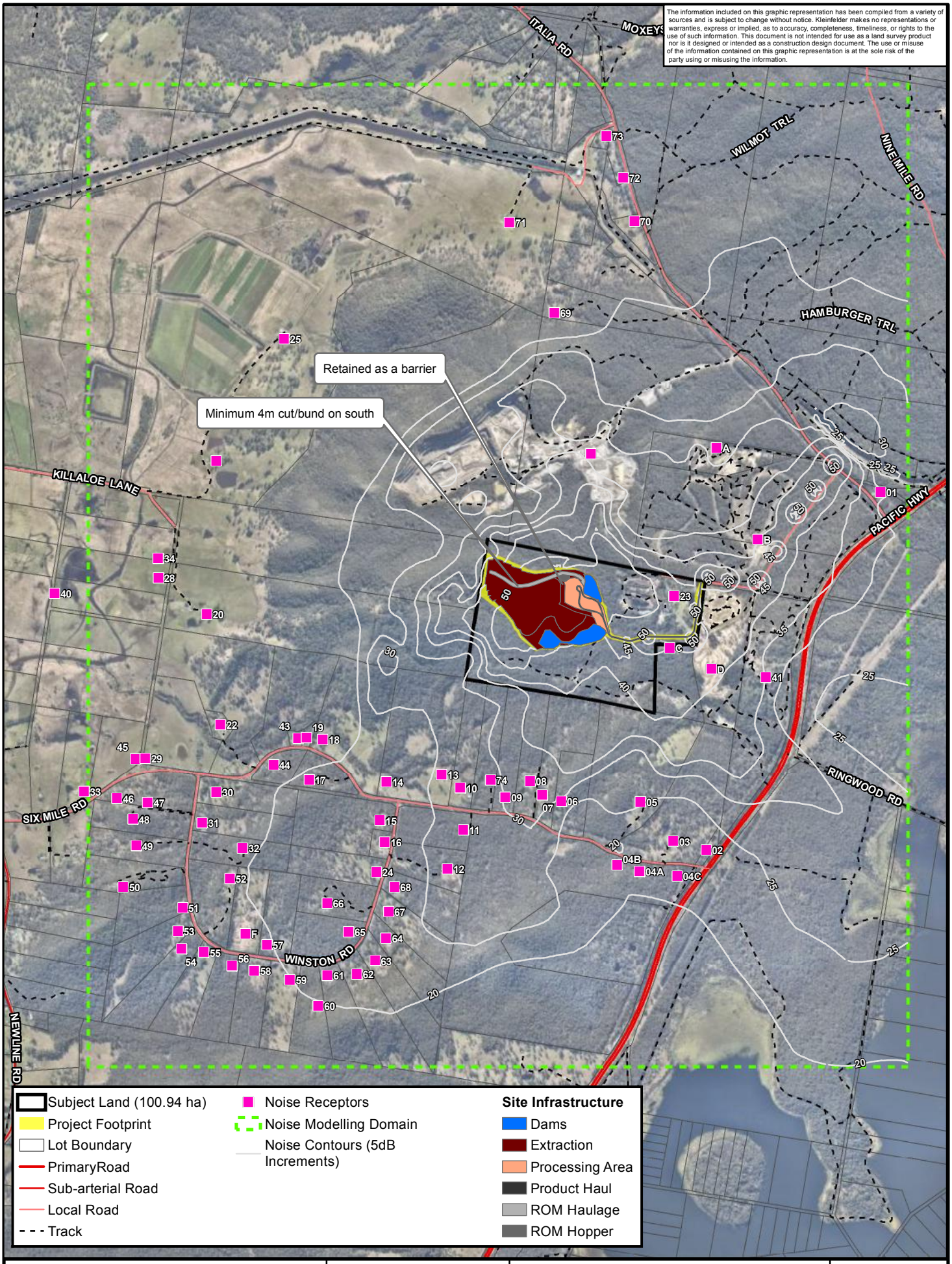

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LPI - 2017

Noise Contours for Scenario 3 (Year 30)

Eagleton Rock Syndicate Pty Ltd
Noise Impact Assessment
Eagleton Quarry
13 Barleigh Ranch Way, Eagleton NSW

FIGURE:

8

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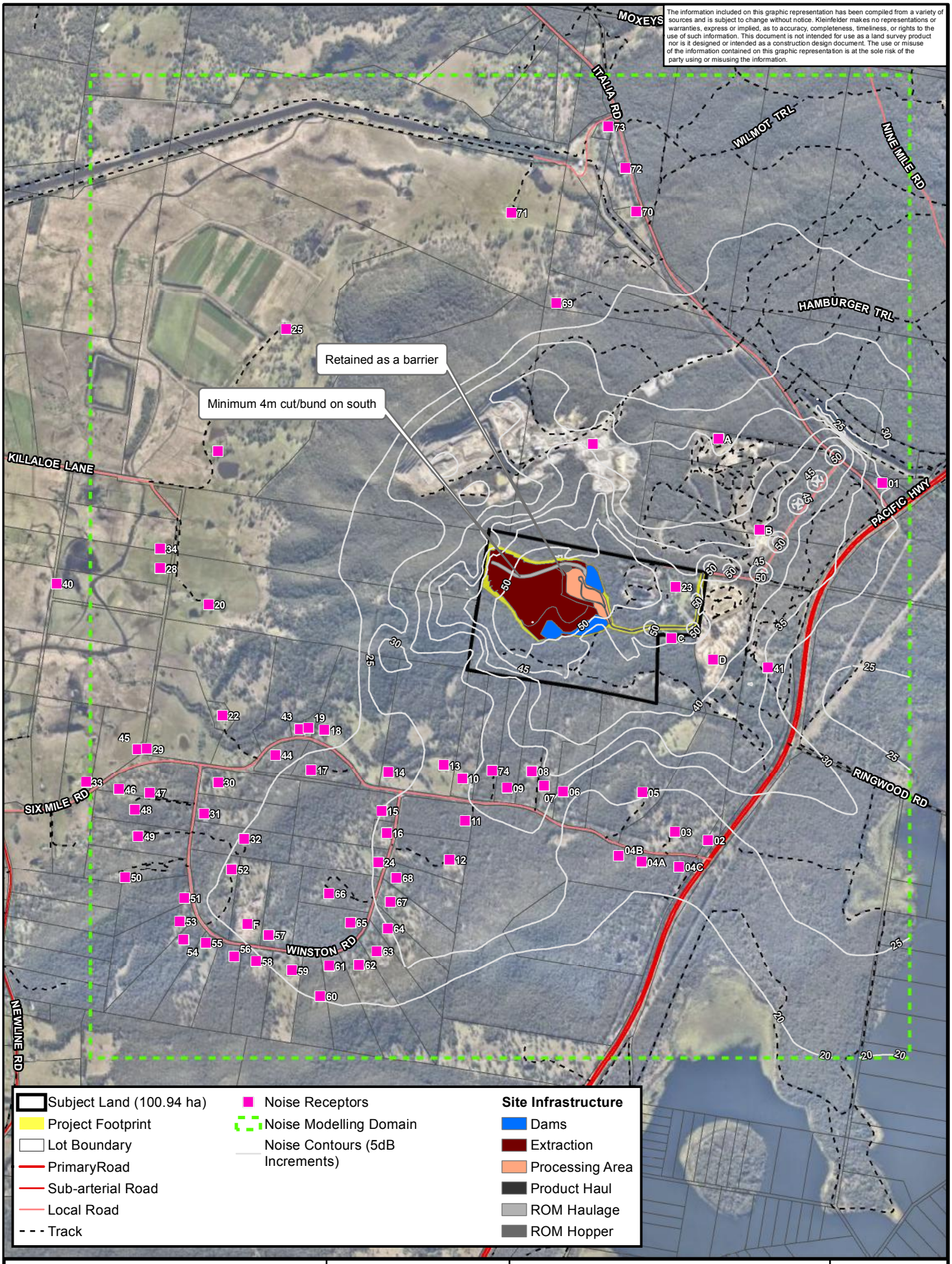

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DATA SOURCE:
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LPI - 2017

Noise Contours for Scenario 4 (Year 30)

Eagleton Rock Syndicate Pty Ltd
Noise Impact Assessment
Eagleton Quarry
13 Barleigh Ranch Way, Eagleton NSW

FIGURE:

9

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6.0 SUMMARY

A reassessment of noise impacts from a proposed rock quarry off Italia Road Eagleton. The study has found the following:

- No exceedances of operational noise criteria.
- Significantly reduced noise levels due to relocation of processing plant behind a substantial natural barrier and at greater distance from residences than previous acoustic assessment.

The progression of the project is predicted to result in up to 5 dB noise increase from the Boral quarry over a 17 year period at receivers 6 – 9. Such a slow increase would not be noticeable, but as these receivers are most exposed to noise from both quarries, the noise monitoring program for the project should report on both individual site and cumulative noise levels, where possible.

The original acoustic assessment (Global Acoustics, January 2017) found no exceedances of construction, vibration or traffic noise criteria.

On the basis of the results of this assessment, we advise that the project could operate within any reasonable noise and vibration criteria as may be included in a project approval.