

Appendix K

Noise Impact Assessment

*GreenSPOT Hunter Valley
Recycling Facility*

*Noise Impact Assessment
January 2019*

*Prepared for
RPS Group*

Global 
Acoustics

Noise and Vibration Analysis and Solutions

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GreenSPOT Hunter Valley Recycling Facility

Noise Impact Assessment January 2019

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EXECUTIVE SUMMARY

Global Acoustics was engaged by RPS Group, on behalf of Bettergrow Pty Ltd (Bettergrow), to prepare a noise and vibration impact assessment (NIA) as part of an Environmental Impact Statement (EIS) to accompany an application for State Significant Development (SSD 9418) of the GreenSPOT Hunter Valley Recycling Facility (the site) near Ravensworth, NSW.

Operational Noise

A worst-case noise model of the proposed site operations was developed for the approved hours of operation (6am to 6pm). This model included a number of conservative assumptions including:

- All mobile and fixed plant has been assumed to be operating simultaneously and continuously;
- Acoustic shielding provided by surrounding land-forms has not been considered; and
- Minimum project intrusiveness noise limits outlined in the Noise Policy for Industry (NPfI, 2017) have been adopted.

Predicted operational noise levels were below relevant criteria at the nearest residential receivers to the site. Given the conservative modelling approach, site noise levels at receivers are expected to be significantly lower than those predicted. No operational noise impact is predicted.

Construction Noise

It is anticipated that construction activities will occur in addition to normal operations, during standard construction hours as defined by the Interim Construction Noise Guideline (ICNG, 2009). Using the same assumptions above, a worst-case construction noise model of proposed construction activities in conjunction with normal operations was developed.

Predicted construction noise levels were below relevant construction noise criteria at the nearest residential receivers to the site. In practice, site noise levels at receivers are expected to be significantly lower than those predicted. No construction noise impact is predicted.

Sleep Disturbance

Sleep disturbance has not been assessed as approved hours for construction and operation of site are primarily during the day period.

Road Traffic Noise

The majority of traffic accessing the site will do so directly via Lemington Road and the New England Highway (NEH). With consideration of high traffic volumes on NEH, the predicted increase to existing road traffic noise due to traffic generated by the proposal is approximately 0.1 dB, which is insignificant and would be imperceptible to the human ear. Relative to the high traffic volumes already present on NEH, traffic generated by the proposal should have negligible acoustic impact.

Vibration

No demolition of structures or blasting is proposed. No vibration impact is predicted at residential receivers due to separation distances from the site of typically 7.5 km or more.

Summary

Results of this assessment indicate that noise and vibration generated by site should have no impact on the residential receivers nearest to the site, which are approximately 7.5 kilometres away.

Operational noise, construction noise, sleep disturbance, road traffic noise, and vibration impacts are predicted to comply with relevant criteria at all sensitive receivers.

From an acoustics perspective, the proposed site is considered a good location for an operation of this nature. Compliance with relevant assessment noise level targets is predicted for all activities.

Global Acoustics Pty Ltd

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1 INTRODUCTION

1.1 Background

Global Acoustics was engaged by RPS Group, on behalf of Bettergrow, to prepare a noise and vibration impact assessment as part of an EIS to accompany an application for State Significant Development (SSD 9418) of the GreenSPOT Hunter Valley Recycling Facility (the site) near Ravensworth, NSW. The application seeks to expand the existing operations, including construction of additional infrastructure and increased throughput up to 200,000tpa.

The primary purpose of this assessment is to determine potential noise and vibration impacts at the nearest private residential receptors to the site and to compare impacts with relevant limits. This assessment has been based on plans and information provided by RPS Group.

1.2 Existing Development

The site currently operates in accordance with Development Application (DA140/2016) and Environment Protection License (EPL) No. 7654, which contain no limits pertaining to noise and vibration.

1.3 Proposed Expansion

The site seeks to expand the existing composting facility up to a capacity of 200,000 tpa and sell compost that exceeds the rehabilitation needs of AGL to the wholesale market. The proposal includes the following key components:

- The continued operation of the existing facility in accordance with DA140/2016 as modified;
- Receipt of up to 200,000 tpa of organics;
- Transfer of the composted material to other AGL Macquarie sites such as the Liddell Ash Dam, Liddell Power Station and Bayswater Power Station for use in rehabilitation as per existing approval;
- Sale of a portion of the finished 'compost' to third parties;
- Upgrading of a proportion of the hardstand area and installation of an aerated composting system such as the Mobile Aerated Floor (MAF) (or equivalent) suitable for the management and composting of other organics including a combined FOGO resource stream;
- Completion of the capping of the hardstand area and expansion of leachate dam as approved as part of the Stage 2 development application to facilitate the management and storage of the increase in organic inputs;
- Installation of a single lane weigh bridge approximately 27.5m long;

- Installation of covered hard stand areas for the receipt and blending of incoming organics including FOGO;
- Installation of a dedicated trailer wash bay;
- Installation of two 10,000 litre recycled drill water storage tanks; and
- Installation of a machinery shelter that will allow storage of tools and machinery for servicing.

In response, the Department of Planning & Environment (DPE) issued the Planning Secretary's Environmental Assessment Requirements (SEARs). Part of the SEARs requires assessment of noise and vibration as follows:

- **Noise and Vibration** – including:
 - a quantitative assessment of potential demolition, construction, operational and transport noise and vibration impacts in accordance with relevant Environment Protection Authority guidelines
 - details and justification of the proposed noise mitigation and monitoring measures
 - specified times of operation for all phases of the development and for all noise producing activities.

1.4 Surrounding Area

The site is located on a rehabilitated open cut mining pit and is surrounded by five other open cut mines. The nearest Noise Sensitive Receivers (NSR) are located approximately 7.5 kilometres to the south-east in Camberwell. The surrounding area including NSR is shown in Figure 1. The existing site superimposed with the proposed facilities is shown in Figure 2.

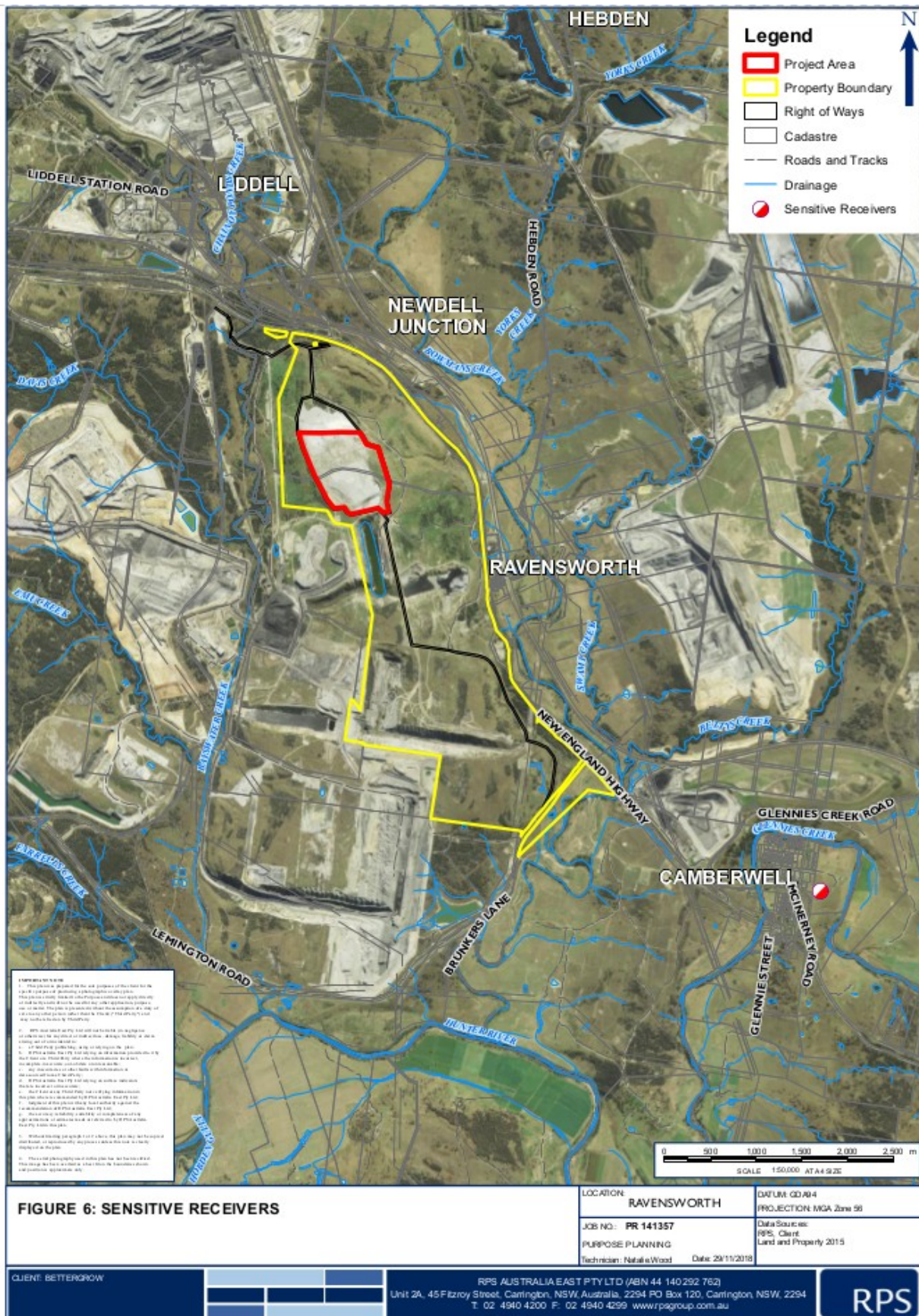


Figure 1: Site and Noise Sensitive Receivers

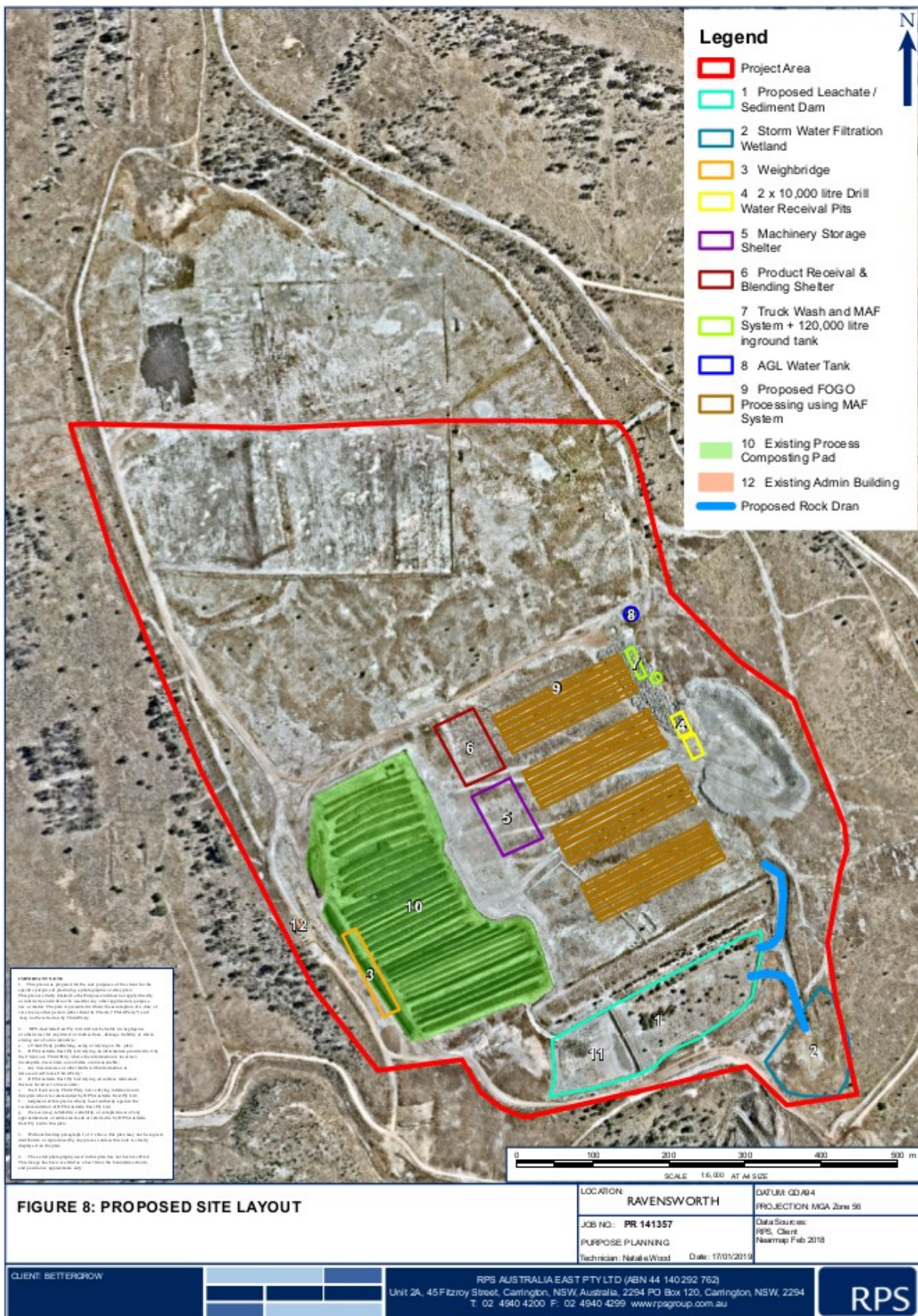


Figure 2: Proposed Site Layout

1.5 Terminology & Abbreviations

Some definitions of terms and abbreviations which may be used in this report are provided in Table 1.1.

Table 1.1: TERMINOLOGY & ABBREVIATIONS

Descriptor	Definition
L _A	The A-weighted root mean squared (RMS) noise level at any instant
L _{A10}	The noise level which is exceeded for 10 percent of the time, which is approximately the average of the maximum noise levels
L _{A90}	The level exceeded for 90 percent of the time, which is approximately the average of the minimum noise levels. The L _{A90} level is often referred to as the “background” noise level and is commonly used to determine noise criteria for assessment purposes
L _{Aeq}	The average noise energy during a measurement period
dB(A)	Noise level measurement units are decibels (dB). The “A” weighting scale is used to describe human response to noise
SPL	Sound pressure level (SPL), fluctuations in pressure measured as 10 times a logarithmic scale, the reference pressure being 20 micropascals
SEL	Sound exposure level (SEL), the A-weighted noise energy during a measurement period normalised to one second
ABL	Assessment background level (ABL), the 10 th percentile background noise level for a single period (day, evening or night) of a 24 hour monitoring period
RBL	Rating background level (RBL), the background noise level for a period (day, evening or night) determined from ABL data
Hertz (Hz)	Cycles per second, the frequency of fluctuations in pressure, sound is usually a combination of many frequencies together
VTG	Vertical temperature gradient in degrees Celsius per 100 metres altitude. Estimated from wind speed and sigma theta data
SC	Stability Class. Estimated from wind speed and sigma theta data
Day	This is the period 7:00am to 6:00pm
Evening	This is the period 6:00pm to 10:00pm
Night	This is the period 10:00pm to 7:00am
RMS	Root mean square
VPH	Vehicles per hour; the number of vehicles travelling on a section of road per hour.

2 CRITERIA

2.1 Policies and Guidelines

This NIA was prepared in accordance with relevant NSW technical policies and guidelines including:

- NSW Noise Policy for Industry (NPfI, 2017);
- NSW Interim Construction Noise Guideline (ICNG, 2009);
- NSW Road Noise Policy (RNP, 2011); and
- NSW Assessing Vibration: A Technical Guideline (2006).

2.2 Operational Noise Criteria

In October 2017, the Environment Protection Agency (EPA) issued the NPfI, which superseded the previous Industrial Noise Policy (INP, 2000). The NPfI “sets out the procedure to determine the Project Noise Trigger Levels (PNTL) relevant to a particular industrial development ... The project noise trigger level provides a benchmark or objective for assessing a proposal or site.”

Figure 1 of the NPfI summarises the process for determining a PNTL and has been reproduced below.

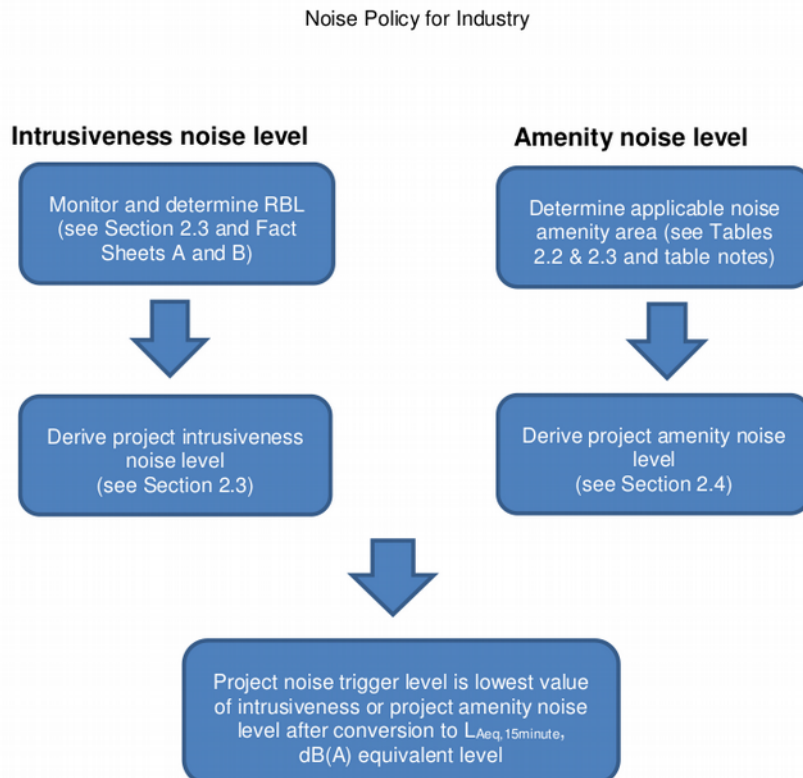


Figure 1: Determining the project noise trigger level. RBL = rating background noise level.

The project intrusiveness noise level is determined as:

$$L_{Aeq,15\text{minute}} = \text{rating background noise level} + 5 \text{ dB}$$

The applicable amenity area for the site is “Rural” as defined by the NPfI. The project amenity noise level is determined as:

$$\text{Project amenity noise level} = \text{recommended amenity noise level} - 5 \text{ dB}$$

The PNTL is the lower (e.g more stringent) value of the project intrusiveness noise level and project amenity noise level.

The NPfI nominates minimum Rating Background Levels (RBL) and intrusiveness noise levels to be used for areas with low background levels. Background noise monitoring was not conducted as part of this assessment, therefore minimum RBL have been adopted.

Table 2.1 summarises the project intrusiveness and amenity noise levels, the lowest of which is adopted as the PNTL.

Table 2.1: PROJECT NOISE TRIGGER LEVEL, dB(A)

Period	Minimum Assumed RBL	Project Intrusiveness Noise Level L_{Aeq}	Project Amenity Noise Level $L_{Aeq,15\text{min}}$	Project Noise Trigger Level $L_{Aeq,15\text{min}}$
Day	35	40	48	40
Evening	30	35	43	35
Night	30	35	38	35

Notes:

1. Day: 7:00am to 6:00pm ~ Evening: 6:00pm to 10:00pm ~ Night: 10:00pm to 7:00am; and
2. Project Amenity Noise level = recommended amenity noise level - 5 dB. A 3 dB(A) conversion has been made from $L_{Aeq,period}$ to $L_{Aeq,15\text{min}}$.

2.3 Construction Noise Criteria

The ICNG specifically relates to construction, maintenance and renewal activities. The ICNG specifies standard construction hours as:

- Monday to Friday, 7.00 am to 6.00 pm;
- Saturday, 8:00 am to 1:00 pm; and
- No construction work on Sunday and public holidays.

As construction activities are expected to extend beyond 26 weeks, a quantitative assessment approach has been undertaken in accordance with the ICNG. Table 2 of the ICNG sets out management levels for construction noise and has been reproduced:

Table 2: Noise at residences using quantitative assessment

Time of day	Management level L_{Aeq} (15 min) *	How to apply
Recommended standard hours: Monday to Friday 7 am to 6 pm Saturday 8 am to 1 pm No work on Sundays or public holidays	Noise affected RBL + 10 dB	The noise affected level represents the point above which there may be some community reaction to noise. <ul style="list-style-type: none"> Where the predicted or measured L_{Aeq} (15 min) is greater than the noise affected level, the proponent should apply all feasible and reasonable work practices to meet the noise affected level. The proponent should also inform all potentially impacted residents of the nature of works to be carried out, the expected noise levels and duration, as well as contact details.
	Highly noise affected 75 dB(A)	The highly noise affected level represents the point above which there may be strong community reaction to noise. <ul style="list-style-type: none"> Where noise is above this level, the relevant authority (consent, determining or regulatory) may require respite periods by restricting the hours that the very noisy activities can occur, taking into account: <ol style="list-style-type: none"> times identified by the community when they are less sensitive to noise (such as before and after school for works near schools, or mid-morning or mid-afternoon for works near residences) if the community is prepared to accept a longer period of construction in exchange for restrictions on construction times.
Outside recommended standard hours	Noise affected RBL + 5 dB	<ul style="list-style-type: none"> A strong justification would typically be required for works outside the recommended standard hours. The proponent should apply all feasible and reasonable work practices to meet the noise affected level. Where all feasible and reasonable practices have been applied and noise is more than 5 dB(A) above the noise affected level, the proponent should negotiate with the community. For guidance on negotiating agreements see section 7.2.2.

* Noise levels apply at the property boundary that is most exposed to construction noise, and at a height of 1.5 m above ground level. If the property boundary is more than 30 m from the residence, the location for measuring or predicting noise levels is at the most noise-affected point within 30 m of the residence. Noise levels may be higher at upper floors of the noise affected residence.

Background noise monitoring was not conducted as part of this assessment, therefore minimum RBL from the NPfI have been adopted.

Table 2.2 summarises the management levels for construction noise during and outside recommended standard hours. Only standard hours have been requested for site construction at this time, but may be amended with the written advice of the consent authority or delegate.

Table 2.2: CONSTRUCTION NOISE MANAGEMENT LEVELS, dB(A)

Type of Receiver	RBL	Within Standard Hours $L_{Aeq,15minute}$	Outside Standard Hours $L_{Aeq,15minute}$
Residence	35	45	40

2.4 Sleep Disturbance Criteria

The NPfI requires that that the potential for sleep disturbance from maximum noise level events at residential locations are considered. However, sleep disturbance has not been assessed as approved hours for construction and operation of site are primarily during the day period.

2.5 Road Traffic Noise Criteria

An assessment of additional road traffic associated with the operational activities has been considered. There will be additional vehicle movements resulting from the transport of various inputs and outputs to and from site.

In 2011 the NSW state government department responsible for the environment (the then Department of Environment, Climate Change and Water) released the 'NSW Road Noise Policy' (RNP). The RNP outlines traffic noise criteria applicable to this Development. The policy applies different noise limits dependent upon the road category and type of development/ land use.

The criteria detailed in Table 2.3 are from the RNP are considered the most suitable for the proposed application, with the facility relying on the NEH for access. Direct access to site occurs via Lemington Road, however vehicles travelling to/from site do not pass nearby to any residential receptors between the NEH and the site entrances. Only potential noise impacts for residents along the NEH have been assessed.

Table 2.3: NSW GOVERNMENT TRAFFIC NOISE CRITERIA

Road Category	Type of Project/Land use	Day dB	Night dB
Freeway/arterial/ sub-arterial	Existing residences affected by additional traffic on existing freeways/arterial/sub-arterial roads generated by land use developments	L _{Aeq,15hour} 60 (external)	L _{Aeq,9hour} 55 (external)

A secondary objective of the RNP is to protect against excessive decreases in amenity as the result of a project by applying the relative increase criteria. In assessing feasible and reasonable mitigation measures, an increase of up to 2 dB represents a minor impact that is considered barely perceptible to the average person. A relative increase in road traffic noise levels has been considered in this assessment.

2.6 Vibration Criteria

Vibration criteria in NSW are outlined in the guideline Assessing Vibration: A Technical Guideline, published by the NSW Department of Environment and Conservation (2006).

2.6.1 Construction Vibration

Vibration generated by short term construction works such as vibrating roller compaction and excavation are generally assessed as intermittent activities. When assessing vibration for intermittent activities, the guideline recommends use of the vibration dose value (VDV). The VDV is given by the fourth root of the

integral with respect to time of the fourth power of the acceleration after it has been weighted. This is the root-mean-quad approach.

VDV criteria are included in Table 2.4 of the guideline, and are reproduced below:

Table 2.4 Acceptable vibration dose values for intermittent vibration (m/s^{1.75})

Location	Daytime ¹		Night-time ¹	
	Preferred value	Maximum value	Preferred value	Maximum value
Critical areas ²	0.10	0.20	0.10	0.20
Residences	0.20	0.40	0.13	0.26
Offices, schools, educational institutions and places of worship	0.40	0.80	0.40	0.80
Workshops	0.80	1.60	0.80	1.60

¹ Daytime is 7.00 am to 10.00 pm and night-time is 10.00 pm to 7.00 am.

² Examples include hospital operating theatres and precision laboratories where sensitive operations are occurring. These criteria are only indicative, and there may be a need to assess intermittent values against the continuous or impulsive criteria for critical areas.

Source: BS 6472-1992

2.6.2 Operational Vibration

Operational vibration sources proposed include a windrow turner, trummel, and associated screens. These sources have potential to operate over the course of the day period, and are therefore assessed as continuous vibration sources in accordance with the vibration guideline. This type of vibration is assessed on the basis of weighted RMS acceleration values. Table 2.2 of the vibration guideline is reproduced below as Figure 3.

Table 2.2 Preferred and maximum weighted rms values for continuous and impulsive vibration acceleration (m/s²) 1–80 Hz

Location	Assessment period ¹	Preferred values		Maximum values	
		z-axis	x- and y-axes	z-axis	x- and y-axes
Continuous vibration					
Critical areas ²	Day- or night-time	0.0050	0.0036	0.010	0.0072
Residences	Daytime	0.010	0.0071	0.020	0.014
	Night-time	0.007	0.005	0.014	0.010
Offices, schools, educational institutions and places of worship	Day- or night-time	0.020	0.014	0.040	0.028
Workshops	Day- or night-time	0.04	0.029	0.080	0.058
Impulsive vibration					
Critical areas ²	Day- or night-time	0.0050	0.0036	0.010	0.0072
Residences	Daytime	0.30	0.21	0.60	0.42
	Night-time	0.10	0.071	0.20	0.14
Offices, schools, educational institutions and places of worship	Day- or night-time	0.64	0.46	1.28	0.92
Workshops	Day- or night-time	0.64	0.46	1.28	0.92

¹ Daytime is 7.00 am to 10.00 pm and night-time is 10.00 pm to 7.00 am

² Examples include hospital operating theatres and precision laboratories where sensitive operations are occurring. There may be cases where sensitive equipment or delicate tasks require more stringent criteria than the human comfort criteria specified above. Stipulation of such criteria is outside the scope of this policy, and other guidance documents (e.g. relevant standards) should be referred to. Source: BS 6472-1992

Figure 3: Table 2.2 of Assessing Vibration: A Technical Guideline

The nearest residential receivers to the site are approximately 7.5 kilometres to the south-east. Vibration impact should not occur over that distance except in extreme cases (such as large-scale blasting of hard rock). None of the proposed construction works or operations include blasting. Measurable vibration from site is extremely unlikely at residences due to substantial separation distances from the site.

3 METHODOLOGY

3.1 Sound Power Levels

In order to predict potential operational noise impacts, sound power levels of mobile and fixed plant on site were measured in general accordance with, or using a reduced scope of, the following standards: ISO 3744-2010, ISO 6393:2008, and ISO 6395:2008. Sound power results of plant on site are provided in Table 3.1.

Table 3.1: MEASURED SOUND POWER LEVELS, dB

Plant Item	L _W	L _{WA}
Komptech Topturn X55 Windrow Turner	118	112
Volvo L150F Loader	114	102
Greenspot Water Cart	117	109
Generic Water Cart	122	108
Edge TRT 622 Trommel	118	107
Water Tank Pump	118	107

Information regarding specific makes and models of equipment used for construction activities was not available at the time of this assessment. Sound power data for noise sources were typically sourced from the Global Acoustics database of representative equipment. Where possible, sound power data from construction equipment measured at similar facilities was adopted and provided in Table 3.2.

Table 3.2: CONSTRUCTION SOUND POWER LEVELS, dB

Plant Item	L _W	L _{WA}
Road Truck	115	109
CAT D6 Bulldozer	119	114
Excavator (24 tonne)	116	104
Grader	114	108
Roller (7 tonne)	115	110
Front End Loader (33 tonne)	119	110
Road Water Cart	106	100
Crane	114	101

3.2 Operation and Construction Noise Modelling

Noise levels were calculated using DataKustik CadnaA noise modelling software to determine the acoustic impact of site operations and construction at receptor locations (NSR). Standard meteorological and noise-enhancing meteorological conditions have been considered in accordance with Table D1 of the NPfI.

Table D1: Standard and noise-enhancing meteorological conditions.

Meteorological conditions	Meteorological parameters
Standard meteorological conditions	Day/evening/night: stability categories A–D with wind speed up to 0.5 m/s at 10 m AGL.
Noise-enhancing meteorological conditions	Daytime/evening: stability categories A–D with light winds (up to 3 m/s at 10 m AGL). Night-time: stability categories A–D with light winds (up to 3 m/s at 10 m AGL) and/or stability category F with winds up to 2 m/s at 10 m AGL.

Notes: m/s = metres per second; m = metres; AGL = above ground level; where a range of conditions is nominated, the meteorological condition delivering the highest-predicted noise level should be adopted for assessment purposes. However, feasible and reasonable noise limits in consents and licences derived from this process would apply under the full range of meteorological conditions nominated under standard or noise-enhancing conditions as relevant. All wind speeds are referenced to 10 m AGL. Stability categories are based on the Pasquill–Gifford stability classification scheme.

Meteorological effects were calculated using the CONCAWE calculation methodology within the CadnaA software. As a conservative measure, the following assumptions have also been made in the noise model:

- All mobile and fixed plant has been assumed to be operating simultaneously and continuously;
- Acoustic shielding provided by surrounding land-forms has not been considered; and
- Minimum daytime project intrusiveness noise limits outlined in the NPfI have been adopted.

Given the conservative modelling approach, site noise levels at receivers are expected to be significantly lower than those predicted.

4 RESULTS

4.1 Operational Noise

Table 4.1 presents operational model predictions for neutral and enhancing atmospheric conditions.

Table 4.1: PREDICTED $L_{Aeq,15minute}$ GENERATED BY SITE AGAINST PROJECT NOISE TRIGGER LEVELS

Receptors	Period	Wind Speed m/s	Wind Direction ¹	Stability Class	Predicted Site L_{Aeq} dB	PNTL L_{Aeq} dB ²	Potential Exceedance
Camberwell	7am – 6pm	0.0	-	D	23	40	Nil
Camberwell	7am – 6pm	3.0	Source to Receiver	D	27	40	Nil
Camberwell	6am – 7am	2.0	Source to Receiver	F	27	35	Nil

Notes:

1. Source to receiver winds have been considered for all receptors as a conservative measure in accordance with the NPfI. "-" in this column denotes calm conditions and therefore no wind direction; and
2. The minimum L_{Aeq} project intrusiveness noise level outlined in the NPfI for the relevant period has been adopted for all NSR.

These levels represent worst-case impact for continuously operating noise sources. No exceedances of the PNTL are predicted.

4.2 Construction Noise

Table 4.2 presents construction noise model predictions for neutral and enhancing atmospheric conditions.

Table 4.2: PREDICTED $L_{Aeq,15minute}$ GENERATED BY SITE AGAINST CONSTRUCTION NOISE MANAGEMENT LEVELS

Receptors	Period	Wind Speed m/s	Wind Direction ¹	Stability Class	Predicted Site L_{Aeq} dB	Management L_{Aeq} dB ²	Potential Exceedance
Camberwell	7am – 6pm	0.0	-	D	25	45	Nil
Camberwell	7am – 6pm	3.0	Source to Receiver	D	30	45	Nil

Notes:

1. Source to receiver winds have been considered for all receptors as a conservative measure in accordance with the NPfI. "-" in this column denotes calm conditions and therefore no wind direction; and
2. Minimum RBL outlined in the NPfI for the day period has been adopted for all NSR.

These levels represent worst-case impact for construction activities on site in conjunction with continuous operations. No exceedances of the construction management level are predicted.

4.3 Road Traffic Noise

Road traffic noise associated with construction and expanded operations has been considered in this report. It is anticipated that worst-case traffic movement generated from increased operations would be 146 vehicle movements per day. Construction activities on site are predicted to generate up to 10 additional vehicle movements per day.

Existing traffic volume data from the Roads and Maritime Services count station (ID 6156) north of Singleton indicates the average daily traffic volume of the NEH to be 13,293 vehicles per day. An increase of 146 vehicles movements per day represents a < 1 % increase of overall traffic volume on the NEH. This equates to a 0.1 dB increase in traffic noise, which is insignificant and would be imperceptible to the human ear. Relative to the high traffic volumes already present on NEH, traffic generated by the proposal should have negligible acoustic impact.

5 DISCUSSION

Results in Table 4.1 and Table 4.2 show that worst-case L_{Aeq} noise levels generated by site would be at least 8 dB(A) below the minimum PNTL outlined in the NPfI during the morning shoulder period from 6am to 7am. At all other times, operational and construction L_{Aeq} noise levels were predicted to be 13 dB(A) or more below relevant noise criteria. Given the conservative modelling approach, site noise levels at receivers are expected to be significantly lower than those predicted.

In practical terms, the total measured sound power of all operational mobile and fixed plant on site combined is approximately equivalent to a single 300 tonne rear dump truck typically deployed at an open cut coal mine. There are five open cut coal mines closer to or the same distance to Camberwell village as the site. Noise from the site is expected to be imperceptible at NSR due to higher noise levels generated by local mines and the NEH, plus additional shielding provided by predominantly day-only operations and source to receiver geographic landforms.

Vibration impacts from proposed construction and operational activities on site are negligible, considering the extremely large distance to receptors.

Road traffic noise impacts are also insignificant, resulting in a 0.1 dB increase in traffic noise from the NEH.

6 SUMMARY

A noise and vibration impact assessment has been undertaken as part of an EIS to accompany the application for State Significant Development (SSD 9418). This assessment considered impacts from operational noise, construction noise, sleep disturbance, road traffic noise, and vibration, all of which are predicted to be insignificant.

Operational noise, construction noise, sleep disturbance, road traffic noise, and vibration impacts are predicted to comply with relevant criteria at all receptors.

Global Acoustics Pty Ltd