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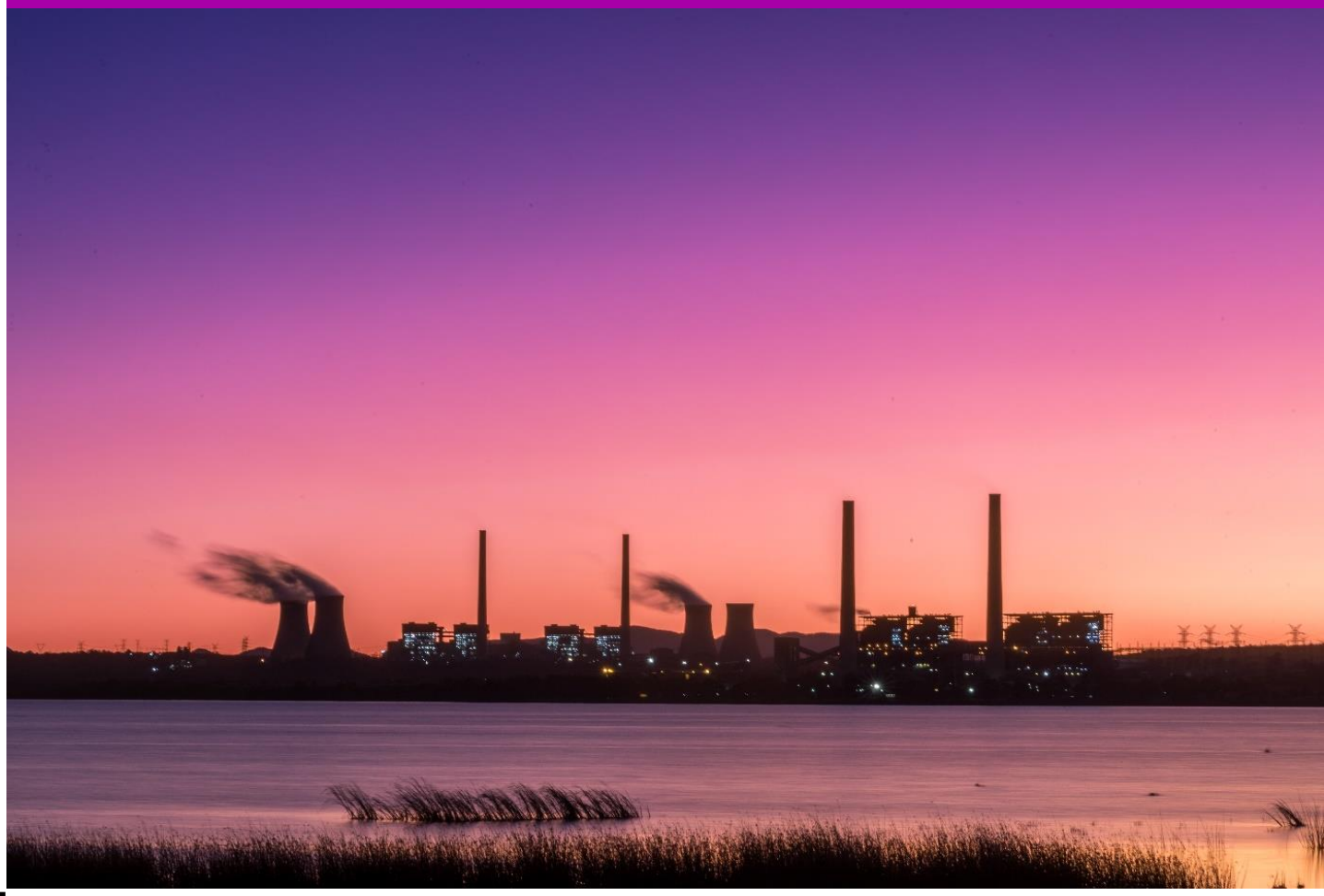
Stage 3 Bayswater Ancillary Works - Noise Management Plan

AGL Macquarie Limited

SSD Post Approval Documentation
8 December 2023



Stage 3 Bayswater Ancillary Works - Noise Management Plan

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Contents

Tables

Figures

Acronyms and abbreviations

Term	Definition
AGLM	AGL Macquarie Pty Limited
Bayswater	Bayswater Power Station
BAW	Bayswater Ancillary Works
CEMP	Construction Environment Management Plan
CNIS	Construction Noise Impact Statement
dB	Decibel
dB (A)	A-weighted decibels
DECC	Department of Environment and Climate Change NSW
DPE	Department of Planning and Environment
EIS	Environmental Impact Statement
EMS	Environmental Management Strategy
EP&A Act	Environmental Planning and Assessment Act 1979
EPA	Environment Protection Authority
EPL	Environment Protection Licence
ICNG	*Interim Construction Noise Guideline 2009*
LBBAWP	Liddell Battery and Bayswater Ancillary Works Project
MW	Megawatt
NEM	National Electricity Market
NML	Noise Management Level
NMP	Noise Management Plan
NPI	Noise Policy for Industry
OOHW	Out of Hours Work
Project	Stage 3 Bayswater Ancillary Works
RBL	Rating Background noise Levels
Road Noise Policy	*NSW Road Noise Policy 2011*
SEARs	Secretary's Environmental Assessment Requirements
SEPP SRD	State Environmental Planning Policy (State and Regional Development) 2011
SSD	State Significant Development

1. Introduction

Jacobs Australia Pty Limited (Jacobs) were commissioned by AGL Macquarie Pty Limited (AGLM) to prepare a Noise Management Plan (NMP) for the Stage 3 Bayswater Ancillary Works (BAW) to be undertaken at Bayswater Power Station (Bayswater) as part of the Liddell Battery and Bayswater Ancillary Works Project (LBBAWP). These works will allow Bayswater to maintain supply to the National Energy Market (NEM) until its planned closure in 2035, and ultimately improve the environmental performance of the plant with no change to coal consumption - with electricity, emissions, and ash generation remaining consistent.

As the LBBAWP is classified as a State Significant Development (SSD) under the *State Environmental Planning Policy (State and Regional Development) 2011* (SEPP SRD). It is subject to Part 4, Division 4.7 of the *Environmental Planning and Assessment Act 1979* (EP&A Act) which requires an Environmental Impact Statement (EIS) to be prepared in accordance with the Secretary's Environmental Assessment Requirements (SEARs).

The LBBAWP EIS was submitted in March 2021. Development consent (SSD 8889679) was issued by the Department of Planning and Environment (DPE) on the 8th of March 2022. The LBBAWP is being undertaken in the staged approach shown in Table 1, approved by DPE on the 18th of October 2022.

Table 1. LBBAWP Stages

Stage
Stage 1 - Liddell decoupling works
Stage 2 - Liddell battery energy storage system and associated works
Stage 3 - Bayswater Ancillary Works

This Noise Management Plan (NMP) has been developed to address the SDD 8889679 development consent condition C1(e)(i) issued for the LBBAWP by the Planning Secretary for the NSW DPE. This condition requires a subplan to manage the environmental impacts of construction and decommissioning noise.

Relevant conditions are outlined in Table 2.

Table 2. Noise - Consent requirements for SDD 8889679

Consent requirement	Section/reference
C1. Prior to commencing construction, the Applicant must prepare an Environmental Management Strategy for the development to the satisfaction of the Secretary. This strategy must: (e) include: (i) the following subplans: • soil, stormwater, water quality, flood and spoil management; • **construction and decommissioning noise, including an out-of-hours works protocol;** • air quality management; • contamination, including an unexpected finds protocol; • waste management; and • traffic.	This NMP

Consent requirement	Section/reference
B12. The Applicant must: (a) ensure that noise generated by any construction is managed in accordance with the *Interim Construction Noise Guideline (DECC, 2009)*, or its latest version; and (b) take all reasonable and feasible steps to minimise noise from construction and operational activities.	Section 6
B13. All construction work at the premises must be conducted between 7 am and 6 pm Monday to Friday and between 8 am and 1 pm Saturdays and at no time on Sundays and public holidays, unless an out of hours protocol is included within an approved Construction Environment Management Plan or the Planning Secretary agrees otherwise.	Section 6.2.1
B14. The following activities may be carried out outside the recommended construction hours: (a) construction that causes $LAeq_{(15minute)}$ noise levels that are: (i) no more than 5 dB above Rating Background Level at any residence in accordance with the Interim Construction Noise Guideline (DECC, 2009); and (ii) no more than the Noise Management Levels specified in Table 3 of the Interim Construction Noise Guideline (DECC, 2009) at other sensitive land uses; or (b) Decoupling works required to be completed during station outages; or (c) for the delivery of materials required by the police or other authorities for safety reasons; or (d) where it is required in an emergency to avoid the loss of lives, property and/or to prevent environmental harm.	Section 6.2

1.1. Purpose and scope

The purpose of this NMP is to:

- Summarise the potential impacts of construction and decommissioning on the local sound environment as assessed in the LBBAWP EIS (Jacobs, 2021).
- Identify the controls to be implemented to address potential noise impacts resulting from the Project.
- Maintain compliance with the conditions of SSD 8889679, Environmental Protection Licence (EPL) 779, and legislation relating to noise.

The LBBAWP is staged and this NMP specifically addresses the Stage 3 BAW as identified in Section 1.2.1 and described in the EMS (hereafter referred to as "the Project"). The NMP and accompanying EMS for Stage 1 and Stage 2 works are available on the AGLM Website for public reference following DPE approval.

Works undertaken by the Principal Contractor and any appointed sub-contractors must comply with the environmental management measures outlined in Section 6 of this NMP.

1.2. Project overview

AGL Macquarie Pty Limited (AGLM) own and operate the Bayswater power station (Bayswater) which is approved to generate up to 2,740 megawatts (MW), the now retired (April 2023) 2,000 MW Liddell power station (Liddell), the 50 MW Hunter Valley Gas Turbines and associated ancillary infrastructure systems.

AGL has publicly announced its intention to transition towards a low-carbon future and respond to the requirements from the NEM and customers. Bayswater is expected to operate through to 2035 and then is intended to be retired. AGL has committed to closing all coal fired generation assets in its portfolio by 2050.

AGLM is undertaking works that will facilitate the efficient, safe, and reliable continuation of electricity generating works from the Bayswater and Liddell sites through the LBBAWP, of which this Project is a sub-stage. The overarching LBBAWP involves the following:

- **Decoupling Works:** Alternative network connection arrangements for the Liddell 33 Kilovolt (kV) Switching Station that provides electricity to infrastructure required for the ongoing operation of Bayswater and associated ancillary infrastructure and third-party industrial energy users.
- **Liddell Battery (the Battery):** The installation of a grid connected Battery Energy Storage System with capacity of up to 500 MW and 2 GWh.
- **Bayswater Ancillary Works:** Works associated with the ongoing operation of Bayswater which includes (but is not limited to) upgrades to ancillary infrastructure such as pumps, pipelines, conveyor systems, roads and assets to enable maintenance, repairs, replacement, expansion or demolition.
- **Consolidated consents:** A modern consolidated consent for the continued operation of Bayswater through the voluntary surrender and consolidation into this application of various existing development approvals required for the ongoing operation of AGLM assets.

The Project includes Stage 3 BAW works as listed in Section 1.2.1.

1.2.1. Project elements

The purpose of the Stage 3 BAW Project is to respond to the ongoing operational and maintenance requirements of Bayswater, as well align with modern office and site requirements. The proposed works and expected construction staging include:

1. **Shortening of the MA1B Conveyor** as the conveyor is no longer required to transport coal from the Mt Arthur Coal Mine. Works are anticipated to be completed over a 3-month period and involve approximately 25 construction personnel.

   Proposed works would include:

   (a) Construction of a new concrete foundation adjacent to the existing Antiene Check Weigh Bin

   (b) Modification to ancillary power, water and communications infrastructure

   (c) Establishment of spillage control and capture and water management infrastructure

   (d) Removal of redundant conveyor belts and associated conveyor stringer, purlins, idler rollers footing piers, electrical cabling, pull wires and roof sheeting

   (e) Rehabilitation of areas no longer required for operational purposes.

2. **Refurbishment of River Road** including complete surface removal, repairs will be made to the underlying layers (subgrade) and levelling and reconstruction of approximately 3 kilometres (km) of the dual lane River Road from its junction with the Bayswater Access Road to the Bayswater tank farm. Anticipated to be completed over a 2-month period and involve approximately 50 contract personnel. No change expected to scope or footprint of the current roadway. Staging is expected to occur within the construction footprint, with traffic diverted to a single lane when works are to occur (no additional disturbance area).

   Proposed works include:

   (a) Current road surface removal

   (b) Repairs to the underlying layers and levelling

   (c) Construction of the new road surface.

3. **Formalisation of Waste Storage Area** for hydrocarbons, oils, and greases generated onsite, with a total storage capacity of approximately 20 Kilolitres (kL). This includes environmental controls such as

bunding, runoff management and roofing. A fully containerised / self-bunded solution is proposed to be established in a pre-bunded concrete hard stand area (already existing).

4. **Construction of a small diameter brine concentrator return water pipeline** (approximately 3 km long) to return brine from the brine concentrator decant basin to the brine concentrator. Minimal earth works are expected to be required. Installation of additional HDPE pipe approximately 50 mm diameter. To be laid on earth surface adjacent to existing pipeline (within 1 m of existing pipeline). No additional works outside of pipeline installation are expected. Anticipated to be completed over a 1-month period and to involve approximately 20 contract personnel.

5. **Replacement of the existing emergency power system** with a new system. The new system would include three 415 V diesel generators with two located outside the existing diesel generator building that would connect to the existing 6.6 kV network via 415 V / 6.6 kV step up transformers. The third diesel generator would remain connected to the 1/2 end 415 V diesel generator switchboard via a change-over switch such that power can be supplied from the third diesel generator or via the 6.6 kV network. The existing diesel generator building would have all redundant equipment removed allowing the building to be repurposed. Anticipated to be completed over a 2-month period and to involve approximately 5 contractor personnel.

6. **Formalisation of the contractor area** involving upgrades to the current informal contractor area established between Bayswater turbine hall and coal handling yards including electrical works, earthworks, road grading, sealing, drainage improvements and establishment of carparks and offices for use during maintenance shutdowns.

7. **Installation of auxiliary infrastructure** such as maintenance storage areas, laydown, car parks, security gatehouse upgrades, washdown facilities, car wash, equipment wash, and a drive through hard stand area. These are to be equipped with appropriate civil design, drainage, coal settlement bund, oil water separator and water transfer to contaminated water bund to the east of proposed area. Works associated with security gatehouse, laydown and storage are currently seen as maintenance and upkeep of existing infrastructure.

8. **Establishment of a cultural heritage storage area** for heritage items salvaged during earthworks. This will be a temporary containerised solution available for use as required. It is expected that the containers would be trucked in to site and placed on to a disturbed area on the inner footprint at Bayswater. The storage containers would be removed from site once the cultural heritage items are relocated. This would occur after construction is completed and be carried out in agreement with the RAPs.

9. **Refurbishment of the Administration Building** including redesign and upgrade of workspaces, kitchens and amenities.

   The proposed works include:

   (d) removal of internal walls to create more open plan office space and lunchrooms, effectively repurposing some areas within the existing building

   (e) conversion of an existing toilet into a disabled compliant toilet

   (f) installation of a cabin lift in the existing to improve accessibility, noting that the only means of accessing the first floor currently is via stairs

   (g) replacement of two existing doors with an automatic opening door

   (h) installation of small internal roof electronic beacons to enable assisted office navigation for seeing or hearing-impaired persons

   (i) modification of kitchen spaces to increase accessibility, by lowering fittings and improving cabinetry and

   (j) widening of concrete paths and installation of handrails to enable wheelchair access.

The Social club will be pursued under a stand-alone Development Application at a later stage on a separate parcel of land.

1.3. Site location

The Project is located within the 10,000 hectares (ha) AGLM landholding, which encompasses Bayswater, Liddell, the Ravensworth rehabilitation area, Lake Liddell and surrounding buffer lands. The AGLM landholding is located approximately 15 kilometres (km) south-east of Muswellbrook, 25 km north-west of Singleton, and approximately 165 km west northwest of Sydney in NSW. The location of the AGLM landholding is shown in Figure 1.

The Project footprint is located within and surrounding Bayswater, as shown in Figure 2. Bayswater is accessible from the New England Highway via an interchange with an unnamed east-west access road. The access road is a single carriageway road with one lane in each direction.

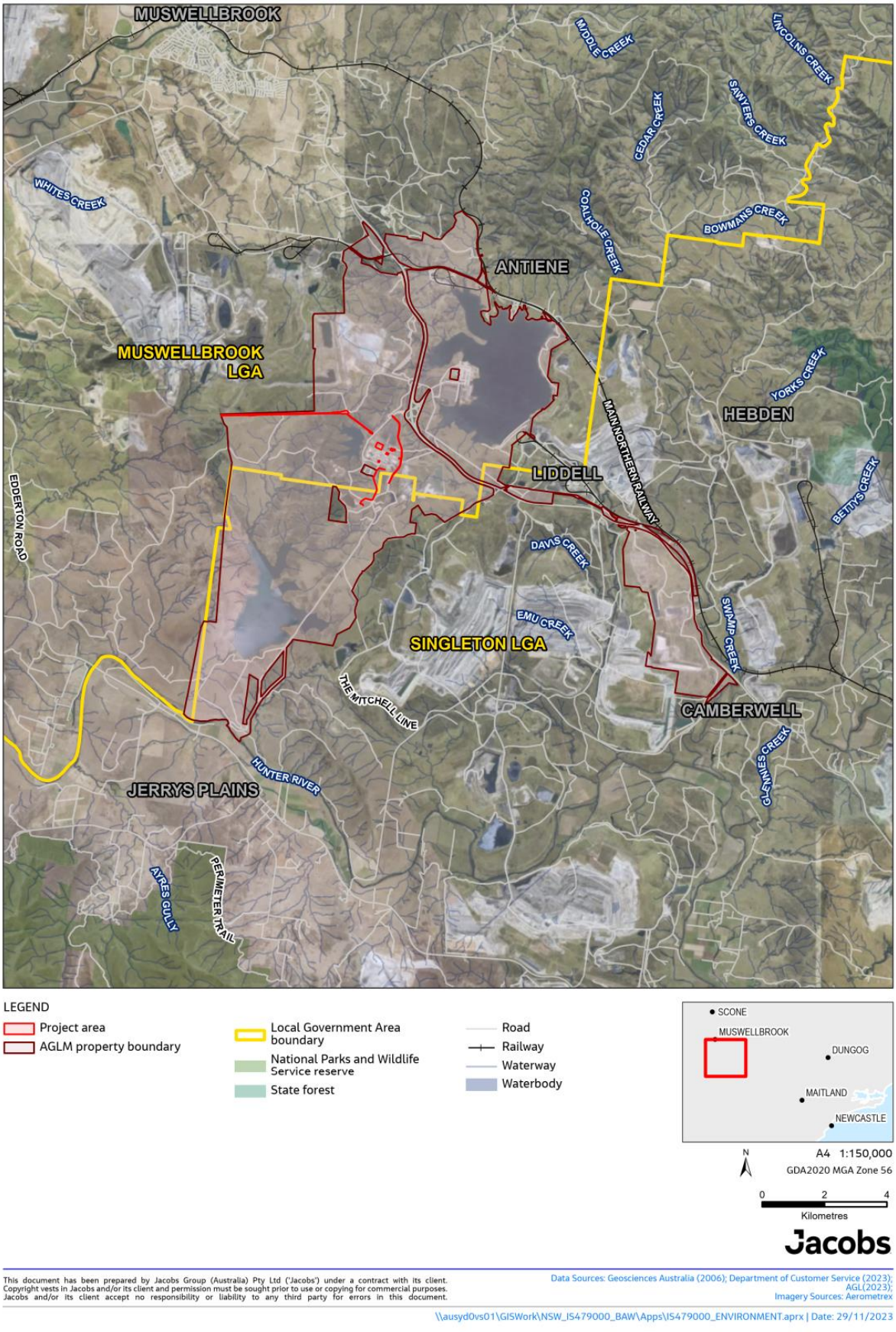

Figure 1. Project location

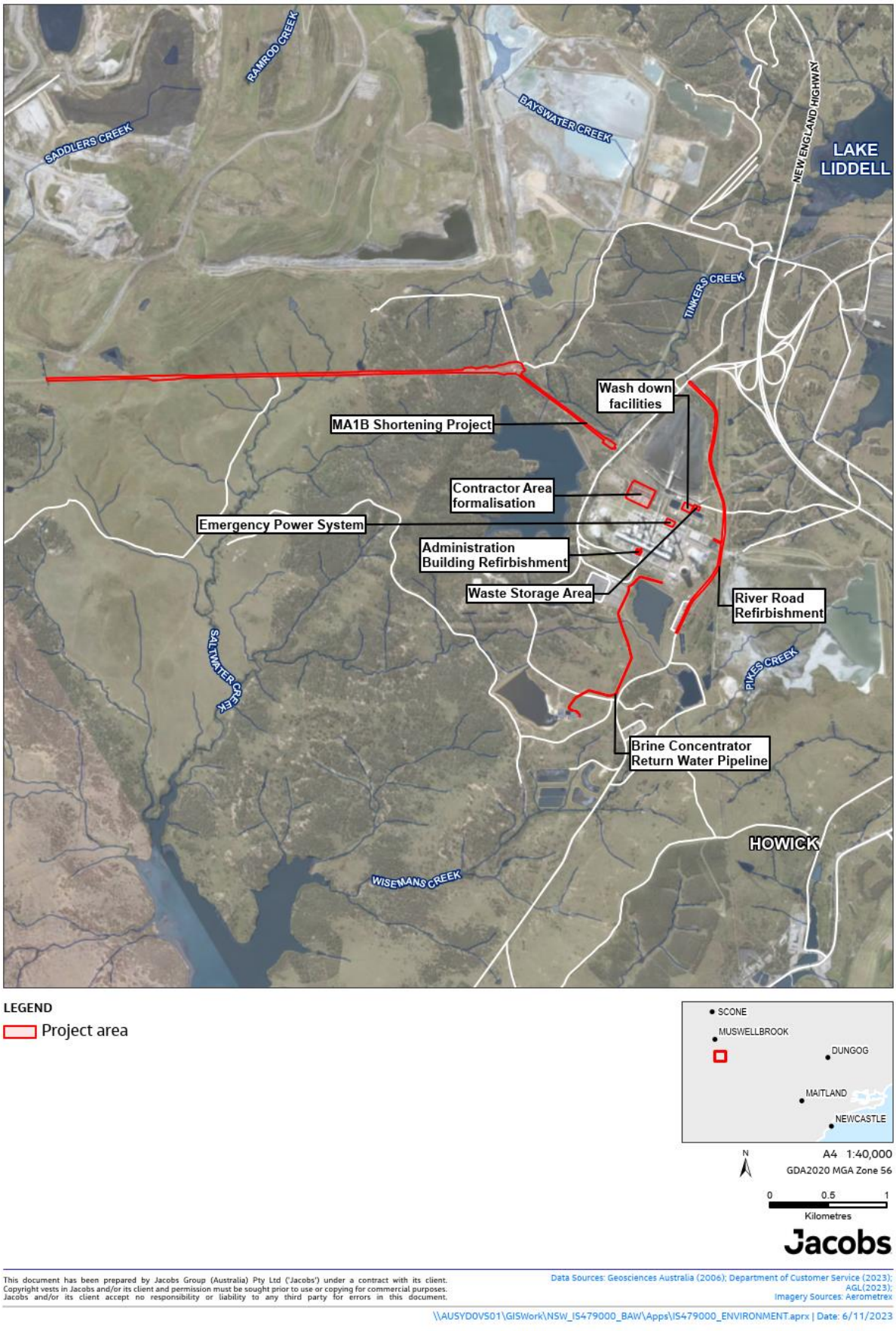

Figure 2. Project area

1.4. Related reports and plans

There are environmental assessments, management plans and monitoring programs for existing and proposed operations within the AGLM landholdings. The following documents are considered related and shall be read in conjunction with this NMP:

- Air Quality, Greenhouse Gas and Noise Management Plan (AGLM-HSE-PLN-009.04) (AGLM, 2020)
- Environmental Monitoring & Reporting Schedule (AGLM-HSE-FRM-008.10.1) (AGLM, 2017)
- Liddell Battery and Bayswater Ancillary Works Project EIS: Appendix H - Noise and Vibration Assessment (Jacobs, 2021)
- Bayswater WOAOW Environmental Management Strategy (Jacobs, 2022)

2. Regulatory requirements

2.1.1. Relevant legislation and conditions

There is no key legislation relevant to managing noise impacts. The Minister's Conditions of Approval for the LBBAWP, relevant to the NMP, are listed in Table 1.

2.1.2. Environmental Protection Licence

Bayswater is operated under Environment Protection Licence (EPL) 779; as such the construction contractor must ensure that all works are conducted in accordance with the conditions of this licence.

The EPL condition regarding mitigation and management of noise from activities carried within the Bayswater premises are listed in Table 3.

Table 3. EPL 779 - Noise management requirements

Noise requirements
M11 Noise monitoring
M11.1 The licensee, following the receipt of a noise related complaint and if required by the EPA, must undertake noise monitoring as required in writing by the EPA.

2.1.3. Additional requirements

Additional noise management requirements established in the EIS are detailed in Table 4.

Table 4. LBBAWP EIS - Noise management requirements

Reference	Management measure	Timing
NV1	The CEMP would identify Project construction activities with the potential to have noise impacts and the controls required to avoid, minimise and mitigate these impacts. The standard techniques for controlling noise impacts during construction are presented in the Interim Construction Noise Guideline (ICNG). During construction relevant standard measures as outlined in Section 6 of the ICNG will be implemented.	Construction

2.2. Standards and guidelines

The guidelines, standards and policies relevant to this NMP include:

- *Interim Construction Noise Guideline, 2009* (NSW) (ICNG)
  - The ICNG promotes a clear understanding of ways to identify and minimise noise from construction works, focusing on all 'feasible' and 'reasonable' work practices to minimise impacts. It is specifically aimed at managing noise from construction works regulated by the Department of Environment and Climate Change NSW (DECC) and is used to assist the DECC in setting statutory conditions in licences and other regulatory instruments.
- *NSW Road Noise Policy, 2011* (NSW) (Road Noise Policy)
  - The Road Noise Policy aims to identify the strategies that address the issue of road traffic noise from: existing roads; new road projects; road redevelopment projects and new traffic-generating developments. It also defines criteria to be used in assessing the impact of such noise.

- *Noise Policy for Industry, 2017* (Noise Policy for Industry)
  - The Noise Policy for Industry sets assessment noise levels, consistent methods, and best practice measures to manage industrial noise based on scientific research regarding noise's health effects.

3. Performance criteria

High-level targets for the ambient sound environment are set for the Project described in Table 5. These are based on legislative requirements (SSD 8889679 and EPL 779) and AGLM's commitment to the continuous improvement of their environmental performance.

Table 5. Noise criteria

Aspect	Target	Indicator	Timeframe
General	All control measures listed in this NMP are to be implemented, as required.	Number of non-conformances with this NMP.	Ongoing
Noise	Noise levels to not exceed the Noise Management Levels (NMLs).	Number of exceedances.	Ongoing
	No community complaints, written warnings or infringement notices are to be received regarding noise.	Number of complaints, written warnings, or infringement notices.	Ongoing
Training & Awareness	All personnel working on behalf of AGLM to complete the Site Induction, which will include environmental awareness components.	Percentage of workforce personnel that have completed the Site Induction prior to beginning work on the Project.	Ongoing
	All relevant personnel working on the Project on behalf of AGLM to attend a CEMP briefing held by the Principal Contractor, and be trained and competent in CEMP requirements.	Percentage of relevant workforce personnel that are trained and competent to enact the CEMP.	Ongoing

3.1. Noise management levels

The ICNG was used to determine construction Noise Management Levels (NMLs) for the Project which act as noise criteria for the construction and decommissioning phase of works, displayed in Table 6. The NMLs are calculated as the Rating Background noise Levels (RBLs) (shown in Section 4.3) plus 10 dB(A) during standard construction hours, and as the RBLs plus 5 dB(A) during non-standard hours.

The ICNG also provides construction NMLs for non-residential land uses to be adopted by the Project. The NML's for these areas are:

- 60 $L_{eq\ 15\ min}$ dB(A) for passible recreation areas, when in use
- 75 $L_{eq\ 15\ min}$ dB(A) for industrial areas, when in use.

Table 6. NMLs for residential receivers

ID	NML ($L_{eq\ 15\ min}$ dB(A))			
	Day (standard hours)	Day (non-standard hours)	Evening	Night
RR01	47	42	41	41
RR02	47	42	41	41
RR03	47	42	41	41
RR04	45	40	35	35
RR05	45	40	35	35
RR06	45	40	35	35

ID	NML ($L_{eq\ 15\ min}$ dB(A))			
	Day (standard hours)	Day (non-standard hours)	Evening	Night
RR07	45	40	35	35
RR08	45	40	35	35
RR09	45	40	35	35
RR10	45	40	35	35
RR11	45	40	31	33
RR12	47	42	41	41
RR13	47	42	41	41
RR14	47	42	41	41
RR15	45	28	31	33

3.2. Sleep disturbance

A sleep disturbance screening criteria of 41 and 40 dB(A) has been elected for the northern and southern residential receiver groups respectively. This criterion has been adopted by the LBBAWP for the construction, decommissioning and operational stages and is not predicted to be exceeded during any construction stage.

Noise monitoring will be undertaken throughout the Project as described in Section 7 to track compliance against the elected sleep disturbance criteria.

3.3. Construction traffic

In accordance with the Road Noise Policy, increases to traffic noise levels as a result of the Project is to be limited to 2 dB(A) for existing residences and other sensitive land uses affected by additional traffic on existing roads generated by land-use developments.

Noise monitoring will be undertaken throughout the Project as described in Section 7 to track compliance against road noise limits.

4. Existing environment

4.1. Background noise environment

The Project is located entirely within the AGLM landholding, with works generally being undertaken near the Bayswater operational area, MA1B Conveyer, and Brine Concentrator Return Water Pipeline. The noise environment surrounding the Project is dominated by industrial activity including mining and power generation, with large-scale infrastructure being the predominant surrounding land use.

The New England Highway runs between Liddell and Bayswater Power Stations, with access from the highway provided by a dedicated road network designed to service the power stations. The Great Northern Railway runs to the east of the AGLM landholding.

4.2. Sensitive receptors

Social infrastructure and sensitive receivers are limited in the locality of the Project, with the nearest sensitive receivers being located in Jerrys Plains, approximately 7km southwest of the MA1B Conveyor, and approximately 8km to the southwest of the Brine Concentrator Return Water Pipeline.

The LBBAWP EIS identified 15 representative residential receiver locations, listed in Table 7. In addition, one recreation and six industrial sensitive receivers were identified, shown in Figure 3.

Table 7. Representative sensitive receptors surrounding LBBAWP

ID	X coordinate	Y coordinate	Direction from LBBAWP	Distance to LBBAWP (m)
RR01	306177	6421554	North	6,300
RR02	316337	6419837	Northeast	7,800
RR03	318041	6411978	East	3,000
RR04	320245	6405818	Southeast	8,000
RR05	316832	6403296	Southeast	8,800
RR06	313729	6403903	Southeast	8,100
RR07	307735	6402915	South	5,300
RR08	302782	6404017	South	1,100
RR09	300275	6406687	Southwest	1,000
RR10	300383	6407252	Southwest	1,100
RR11	295636	6412963	West	6,800
RR12	311493	6418878	Northeast	2,700
RR13	309979	6420335	Northeast	3,500
RR14	309141	6421575	North	4,700
RR15	302022	6404606	South	700

Note: X and Y coordinates are UTM MGA Zone 56

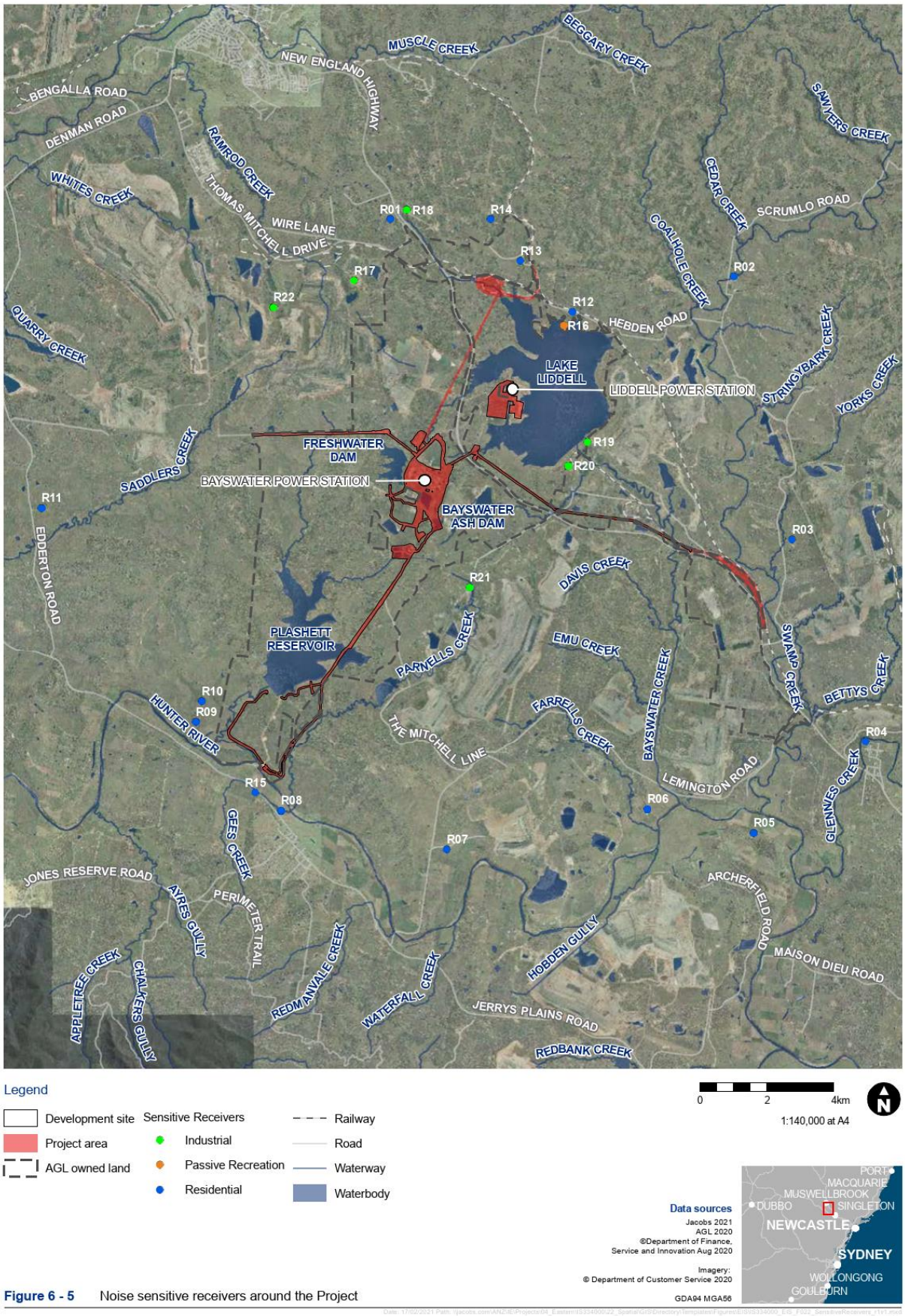

Figure 6 - 5 Noise sensitive receivers around the Project

Figure 3. LBBAWP setting

4.3. Background noise levels

Background noise levels were measured by Jacobs in June 2018 for the Bayswater Turbine Upgrade Project undertaken by AGLM. These measured levels are considered indicative representations of the RBLs in the area surrounding the Project.

The Noise Policy for Industry (NPI) provides minimum assumed RBLs to be applied where measured RBLs are below 35 dB(A) for daytime periods, and 30 dB(A) during evening and night-time periods.

Table 8 presents the measured RBLs for each residential receiver as well as the NPI's minimum RBLs where required (presented in brackets).

Table 8. Adopted RBLs

ID	Measured noise levels (2018) (L_{A90}dB(A))		
	Day (7am to 6pm)	Evening (6pm to 10pm)	Night (10pm to 7am)
RR01	37	36	36
RR02	37	36	36
RR03	37	36	36
RR04	23 (35)	26 (30)	28 (30)
RR05	23 (35)	26 (30)	28 (30)
RR06	23 (35)	26 (30)	28 (30)
RR07	23 (35)	26 (30)	28 (30)
RR08	23 (35)	26 (30)	28 (30)
RR09	23 (35)	26 (30)	28 (30)
RR10	23 (35)	26 (30)	28 (30)
RR11	23 (35)	26 (30)	28 (30)
RR12	37	36	36
RR13	37	36	36
RR14	37	36	36
RR15	23 (35)	26 (30)	28 (30)

5. Noise impacts

Construction activities undertaken for the Project, including the decommissioning of a section of the MA1B Conveyor, will cause noise emissions. Noise impacts may vary greatly depending on the intensity and location of construction activities, the type of equipment used, existing background noise levels, intervening terrain, and prevailing weather conditions.

The dominant source of noise emissions will be plant and equipment including, but not limited to:

- Excavator (tracked)
- Concrete pump
- Concrete truck
- Road truck
- Dump truck
- Flatbed truck
- Asphalt truck
- Light vehicle
- Franna crane
- Mobile crane
- Bobcat
- Backhoe
- Scraper 651
- Front end loader
- Pavement profiler
- Pavement layer
- Smooth drum rollers
- Vibratory roller
- Compactor
- Compressor
- Generator
- Daymaker (lighting tower)
- Water cart
- Welding equipment
- Hand tools

Sensitive receptors are not expected to be exposed to noise levels from the Project that exceed standard hour, evening hour, or night-time NMLs at any stage.

5.1. Sleep disturbance

Noise during the night has the potential to disturb people's sleep patterns. Noise levels are not predicted to exceed sleep disturbance criterion, listed in Section 3.2, during the construction of the Project. Further, no overnight works are expected to be required for the Project. However, if required, works will be undertaken in accordance with the AGLM Out of Hours Work Policy detailed in Section 6.2 to minimise noise impacts to sensitive receivers.

5.2. Construction traffic

The Project will result in additional traffic movements, which could cause vehicle-related noise emissions. During construction of the BAW, as described in the EIS, the predicted peak additional traffic flow is expected to be up to approximately 200 light vehicle movements per day and 100 heavy vehicle movements per day.

Noise levels of combined additional traffic generated by the LBBAWP and WOAOW have been quantitatively assessed. Worst-case estimations of the construction phase would be within the criterion of 2.0dB(A) above existing average daily traffic noise, increasing noise levels by approximately 0.4 dB(A) during standard hours.

6. Noise control measures

Control measures for potential noise impacts associated with the Project are described in Table 9.

These measures are to be undertaken to ensure construction and decommissioning noise levels remain below NMLs standard mitigation measures. With the exception of NMP1, these are derived from the standard mitigation measures contained within the Construction Noise and Vibration Guideline (RMS, 2016).

Table 9. Environmental management measures - noise

Reference	Management measure	Timing	Responsibility
NMP1	All construction personnel shall be instructed through the site-specific induction or toolbox with regards to the importance of minimising noise emissions during construction and decommissioning activities.	Prior to and during construction	Principal Contractor
NMP2	Wherever possible and safe, limit works to standard hours of construction.	During construction	Principal Contractor
NMP3	Where available and practicable select low-noise plant and equipment. Ensure equipment mufflers operate in a proper and efficient manner.	Prior to and during construction	Principal Contractor
NMP4	Where possible, use quieter and less vibration emitting construction methods.	During construction	Principal Contractor
NMP5	Only have necessary equipment on-site and turn equipment off when not in use.	During construction	Principal Contractor
NMP6	Complete routine monitoring to evaluate construction noise levels and evaluate whether the mitigation measures in place are adequate or require revision.	During construction	Principal Contractor
NMP7	Vehicle movements, including deliveries outside standard hours, should be minimised and avoided where possible.	During construction	Principal Contractor
NMP8	Plant and equipment is to be well maintained and where possible, fitted with silencing devices.	Prior to and during construction	Principal Contractor
NMP9	Use only the necessary size and powered equipment for tasks.	During construction	Principal Contractor
NMP10	Implement training to induct staff on noise sensitivities.	Prior to and during construction	Principal Contractor
NMP11	Where possible, consider the application of less intrusive alternatives to reverse beepers such as 'squawker' or 'broadband' alarms.	During construction	Principal Contractor
NMP13	Plan traffic flow, parking and loading/unloading areas to minimise reversing movements where the work area allows.	Prior to and during construction	Principal Contractor
NMP14	Where possible, limit the duration of noisy activities at each location.	During construction	Principal Contractor

Reference	Management measure	Timing	Responsibility
NMP15	Where possible, scheduling works to occur at different times of the day to prevent multiple noisy activities from taking place at the same time.	During construction	Principal Contractor
NMP16	Where possible, scheduling works to take place at different locations on site to prevent noisy activities from taking place near one another which will limit the amplification of the noise.	Prior to and during construction	Principal Contractor

6.1. Construction Noise Impact Statements (CNIS)

Where works are expected to not meet the NMLs outlined in Section 3.1, a Construction Noise Impact Statement (CNIS) should be undertaken. This will be used to inform and direct noise management for the works undertaken as part of the Project.

Each CNIS should:

- Detail the scope of works covered by the CNIS
- Detail the nearest noise sensitive receivers
- Provide justification for any Out of Hours Work, if required
- Provide the noise objectives and criteria
- Detail the predicted noise impacts
- Provide appropriate noise management measures and monitoring requirement.

6.2. Out of Hours Work (OOHW)

Ordinary hours of work are described in SSD 8889679 consent condition B13 (see Table 2 and Section 6.2.1). Outside of these hours, certain works have been permitted to occur. To prevent unnecessary impact on nearby sensitive receivers, where Out of Hours Work (OOHW) occurs it will be undertaken with this OOHW Protocol.

6.2.1. Construction hours

Most construction and decommissioning works will be undertaken during standard construction hours, which are defined as:

- 7:00am to 6:00 pm Monday to Friday, inclusive
- 8:00 am to 1:00 pm on Saturday
- At no time on Sunday or Public Holidays

However, the following activities may be carried out outside the recommended construction hours in accordance with the SDD 8889679 condition B14:

B14. The following activities may be carried out outside the recommended construction hours:

(k) construction that causes $L_{Aeq(15minute)}$ noise levels that are:

(i) no more than 5 dB above Rating Background Level at any residence in accordance with the Interim Construction Noise Guideline (DECC, 2009); and

(ii) no more than the Noise Management Levels specified in Table 3 of the Interim Construction Noise Guideline (DECC, 2009) at other sensitive land uses; or

(l) Decoupling works required to be completed during station outages; or

(m) for the delivery of materials required by the police or other authorities for safety reasons; or

(n) where it is required in an emergency to avoid the loss of lives, property and/or to prevent environmental harm.

6.2.2. Justification of OOHW

All proposed OOHW, outside of those listed in condition B14, require a full justification as to why the works are required to be undertaken outside standard construction hours. There are several reasons why works can be undertaken out of hours and these include, but are not limited to:

- Ensuring the safety of construction personnel
- Ensuring public safety
- Minimising disruption to road network users/ pedestrian during deliveries.

6.2.3. OOHW application and approval

Prior to undertaking OOHW activities an OOHW Application Form will be detailed for submission to the EPA, requesting the required hours for works to be undertaken. Where the OOHW is not listed and approved as per SSD 8889679 Consent Condition B14 a Construction Noise Impact Statement (CNIS) is to be prepared to determine the potential noise impacts posed by the works and submitted as evidence.

6.2.4. Application of mitigation measures

When the OOHW Application has been reviewed and approved by the EPA any specific conditions that relate to the OOHW are to be:

- Actioned for implementation (such as any additional notification to the community)
- Tool-boxed to relevant workforce and site personnel before each shift to introduce/reinforce works restrictions, management measures and expected workforce behaviour
- Implemented during works and monitored by the Principal Contractor.

6.2.5. OOHW community notifications

Notification to relevant impacted receivers will be provided between 5 and 14 days prior to OOHW taking place. Additional community notification may be undertaken where directed by the EPA.

6.2.6. OOHW monitoring

Attended noise monitoring is to be undertaken, at representative stages of the activity or work, to verify that noise levels resulting from OOHW are in accordance with the outcomes of the OOHW CNIS (if required). Noise monitoring should follow the procedures outlined in this NMP.

6.3. Community notifications

Community notifications will be used to inform potentially impacted receivers of potential noise impacts. Impacted receivers will be notified at least five days prior to the commencement of any works associated with an activity that may be perceived as having potential to exceed NMLs during standard construction hours or

OOHW and/or prior to any OOHW commencing. This excludes activities specified in Development Consent Conditions B14.

Activities may be perceived as having potential to exceed the NMLs due to unexpected changes in the type or amount of plant / equipment used, or changes to the Project schedule (e.g. multiple activities being undertaken in the same location at the same time, amplifying noise levels). Noise levels are not anticipated to exceed the NMLs.

The notification will be via letter-box drop and will provide details of the:

- Proposed work
- Construction period and construction hours
- Contact information for proposal management staff
- Complaint and incident reporting
- How to obtain further information.

6.4. Training

Construction workers who attend the Project site may be required to undergo training and awareness programs regarding noise impacts and management, and the importance adhering to noise restrictions during construction activities. Compulsory training will be determined by AGLM and will be developed and delivered by the Principal Contractor. Training delivered by the Principal Contractor will be subject to approval and auditing by AGLM to ensure it aligns with AGL induction requirements and fulfils the conditions of SSD 8889679.

- Delivery of training may include: Work Inductions
- Toolbox Talks
- Meetings lead by the Environment Team
- Posters and educational items.

Training should detail:

- The contents of this NMP
- Legislation and legislative requirements pertaining to noise impacts and management
- Nearby sensitive locations
- Complaint and enquiry reporting
- Management measures listed in the EIS and this NMP
- Specific responsibilities regarding the mitigation measures.

Training will be undertaken in accordance with Section 7.4 of the Stage 3 Bayswater Ancillary Works EMS.

7. Noise monitoring

Noise monitoring will be undertaken throughout the construction and decommissioning phases of the Project, with results compared to predicted impacts and elected noise criteria. Where monitoring has found noise impacts to be above the relevant criteria, the following actions will be undertaken:

- Stop any work that has been identified as the cause of the criteria exceedance
- Determine if any non-project noise sources may be causing the criteria exceedance
- Determine if a particular piece of equipment is the cause of the criteria exceedance, and if any options exist to mitigate or replace the equipment
- Adopt any other mitigation or management measures where reasonable and feasible to reduce noise
- Review the work practices undertaken against the NMP
- Adopt any lessons learnt into future modelling, mitigation actions and training.

Both attended and unattended noise monitoring may be undertaken throughout the Project. Instances where attended noise monitoring will be required include:

- At the commencement of activities where it has been identified that verification monitoring is required, such as confirming that noise levels are consistent with those predicted and to confirm the effectiveness of mitigation
- In response to a complaint received regarding construction noise (where determined appropriate)
- Where there is a change in methodology that may result in an increase in noise levels
- As directed by the EPA
- As required by a CNIS
- As required by an OOHW Protocol
- Ongoing, case-by-case spot checks for noise intensive plant and equipment will be undertaken throughout construction to ensure compliance with the noise levels.

7.1. Noise monitoring parameters

Attended noise measurements will be undertaken to the following parameters:

- Sample Period: 15 minutes
- Frequency Weighting: A-Weighting
- Time Constant: Fast (125 milliseconds)

Attended noise monitoring will be undertaken in 15-minute sampling intervals, repeated until a representative 15-minute period, free of extraneous noise has been obtained.

If required, unattended noise monitoring will be performed to record at 15-minute sampling intervals.

As a minimum, L_{Aeq}, L_{Amax}, and L_{A90} A-weighted noise levels should be recorded.

Concurrent unattended noise measurements may also be completed to verify noise Project noise contributions during off-site monitoring, to delineate noise from the Project, and from other nearby sources.

7.2. Quality assurance

Noise monitoring will be undertaken by suitably trained and competent personnel, who are experienced in undertaking noise measurements.

Noise monitoring equipment used will be at least Type 2 instruments and calibrated in accordance with manufacturer specifications and/or relevant Australian Standards. Records of equipment laboratory calibration will be maintained by AGLM and the Principal Contractor throughout the delivery of the Project. The calibration of the monitoring equipment will be checked in the field before and after the noise measurement period.

Noise measures while winds are greater than 5m/s at ground level or 3m/s at a height on10m, or while rainfall is present should be discarded, in line with the monitoring requirements of the Noise Policy for Industry (EPA, 2017).

Noise monitoring will be undertaken and recorded in accordance with the relevant noise measurement requirements in the reference standards and documents in 2.2. Monitoring records will be retained throughout the delivery of the Project by the Principal Contractor. Noise monitoring records will record:

- Name of person undertaking the measurement
- Date and time of measurement, length of measurement and any measurement time intervals
- Type and model number of monitoring instrumentation
- Results of field calibration checks
- Measurement location details and number of measurements at each location
- Weather conditions during measurements
- Operation and activities of the noise sources under investigation
- Estimated contribution of the Project's activities and
- Noise due to other extraneous and environmental sources (e.g. traffic, aircraft, trains, dogs barking, insects).

8. Compliance management

8.1. Roles and responsibilities

Roles and responsibilities for AGLM and the Principal Contractor are outlined in Section 7.3 of the Stage 3 Bayswater Ancillary Works EMS.

8.2. Inspections

Inspections of the Project site will occur as outlined in Section 7.6 of the Stage 3 Bayswater Ancillary Works EMS.

8.3. Incidents and complaints

Incident management will be managed in accordance with the process outlined in Section 7.5 of the Stage 3 Bayswater Ancillary Works EMS.

Complaints and enquiries will be managed in accordance with the process outlined in Section 6.3 of the Stage 3 Bayswater Ancillary Works EMS.

8.4. Document review and update

All strategies, management plans, and programs that are a produced to meet the SSD 8889679 development consent requirements will be regularly reviewed as part of a continual improvement process to ensure they remain current and relevant to the Project.

It is a requirement of the EMS that the associated plans, studies and strategies are reviewed and updated within three months of the following events, including:

- The submission of an environmental incident report
- The submission of an audit report
- The approval of any modification to the conditions of the development consent
- A direction of the DPE Planning Secretary.

Document and records management for the Project is described in Section 7 of the Stage 3 Bayswater Ancillary Works EMS.