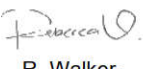
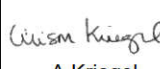

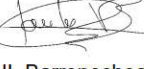
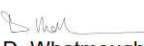


INTERNAL



Noise and Vibration Management Plan EnergyConnect (NSW - Western Section) Stage 1 45860-HSE-PL-D-0005

REV	DATE	GENERAL DESCRIPTION	PREPARED	REVIEWED	VERIFIED	VERIFIED	APPROVED
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K	8/03/2022	Issued for DPIE review	 R. Walker-Edwards	 A.Kriegel	 G. Crighton	 JL.Barrenechea	 D. Whatmough

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Revision History	
Rev.	Detailed Description
A	Issued for internal review
B	Issued for Transgrid review
C	Updated following receipt of Transgrid comments
D	Updated following receipt of Transgrid comments and to address draft Infrastructure Approval (Revision 3 dated 12 August 2021)
E	Updated following Transgrid review and to address the Infrastructure Approval
F	Updated following Transgrid review
G	Updated to address comments from the Environmental Representative
H	Updated to address DPIE comments
J	Updated following receipt of Transgrid comments
K	Updated to address DPIE comments

Key Document Stakeholders
To be communicated with during reviews and revisions of this document

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Abbreviations

Acronym	Definition
AAAC	Association of Australian Acoustical Consultants
Amendment Report	<i>EnergyConnect (NSW – Western Section) Amendment Report</i>
Appendix I of the Amendment Report	<i>EnergyConnect (NSW-Western Section) Addendum noise and vibration impact assessment</i>
AS/NZ	Australian Standard/New Zealand Standard
Base hours	Construction work hours defined in the <i>EnergyConnect (NSW – Western Section) Environmental Impact Statement</i> as seven days per week (Monday to Sunday) between 7am and 7pm
CCS	Community Communication Strategy
CEMP	Construction Environmental Management Plan
CNVG	<i>Construction Noise and Vibration Guideline</i> (Roads and Maritime 2016)
CNVIS	Construction noise and vibration impact statement
Council	Wentworth Shire Council
CSSI	Critical State significant infrastructure
DAWE	Department of Agriculture, Water and the Environment
dB	Decibel
dBA	Decibel (A-weighted)
DEC	(former) Department of Environment and Conservation
DECC	(former) Department of Environment and Climate Change
DECCW	(former) Department of Environment, Climate Change and Water
DPIE or Department	NSW Department of Planning, Industry and Environment
EIS	<i>EnergyConnect (NSW – Western Section) Environmental Impact Statement</i>
EP&A Act	<i>Environmental Planning and Assessment Act 1979</i>
EPA	NSW Environment Protection Authority
EPBC Act	<i>Environment Protection and Biodiversity Conservation Act 1999</i>
EPL	Environment Protection Licence
ER	Environmental Representative
ICNG, the	<i>Interim Construction Noise Guideline</i> (Department of Environment and Climate Change 2009)
NML	Noise management level
NPfl	<i>Noise Policy for Industry</i> (EPA 2017)
NSW	New South Wales
NVMP	Noise and Vibration Management Plan
ONR	Operational Noise Review
OOHW	Out of hours work
OOHW Protocol	Out of Hours Works Protocol
PAD	Potential archaeological deposit
Planning Secretary	Planning Secretary under the EP&A Act, or nominee
POEO Act	<i>Protection of the Environment Operations Act 1997</i>
Project, the	EnergyConnect (NSW – Western Section)
RBL	Rating background level

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Acronym	Definition
Response to DPIE Request for Information	The 'additional information letter dated 10 August 2021' in the definition section of the Infrastructure Approval; document is also titled <i>EnergyConnect (NSW – Western Section) Response to DPIE Request for Information – 7 May 2021 and subsequent discussions</i>
RMMs	Revised mitigation measures
RNP	Road Noise Policy
SA	South Australia
SAP	Sensitive area plans
SecureEnergy	Elecnor and Clough Projects Australia Pty Ltd have formed the SecureEnergy Joint Venture (SecureEnergy). SecureEnergy is the contractor who will be carrying out the project on behalf of Transgrid.
SSI	State significant infrastructure
Submissions Report	<i>EnergyConnect (NSW – Western Section) Submissions Report</i>
Technical Paper 8 of the EIS	Technical Paper 8 of the <i>EnergyConnect (NSW – Western Section) Environmental Impact Statement (Noise and vibration impact assessment)</i>
WMS	Work method statements

1 Introduction

1.1 Context

This Noise and Vibration Management Plan (NVMP or this plan) forms part of the Construction Environmental Management Plan (CEMP) for Stage 1 of EnergyConnect (NSW – Western Section).

This plan has been prepared to address the relevant requirements of the draft Infrastructure Approval (SSI 10040), the *EnergyConnect (NSW – Western Section) Environmental Impact Statement (EIS)*, the *EnergyConnect (NSW – Western Section) Submissions Report* (Submissions Report), the *EnergyConnect (NSW – Western Section) Amendment Report* (Amendment Report) and the additional information letter dated 10 August 2021 (Response to DPIE Request for Information).

1.2 Background

On 29 August 2019 the NSW Minister for Planning and Public Spaces declared EnergyConnect critical State significant infrastructure (CSSI) under the *Environmental Planning and Assessment Act 1979* (EP&A Act) on the basis that it is critical to the State for environmental, economic or social reasons. Within NSW, EnergyConnect is therefore subject to assessment under Part 5, Division 5.2 of the *Environmental Planning and Assessment Act 1979* (EP&A Act).

Transgrid have two environmental planning approval applications for the sections within NSW:

- EnergyConnect (NSW – Western Section) – SA/NSW border to Buronga and Buronga to the NSW/Victorian border (the project); and
- EnergyConnect (NSW – Eastern Section) – Buronga to Wagga Wagga.

A referral under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) was submitted on 27 May 2020. The Australian Department of Agriculture, Water and the Environment (DAWE) determined the project to be a controlled action on 26 June 2020 and thus, it would be assessed using the bilateral assessment process. As such, the project also requires approval from the Australian Minister for the Environment under the EPBC Act.

The EIS was prepared for the project in October 2020 and was placed on public exhibition from 30 October 2020 to 10 December 2020. A total of 20 submissions were received, with 15 from government agencies, three from organisations and two from the public.

The Submissions Report was prepared for the project in response to the submissions and was finalised on 14 April 2021.

Transgrid also prepared a separate Amendment Report to document design changes and additional environmental assessment undertaken since exhibition of the EIS. The Amendment Report describes the updated project for which approval has been sought and was finalised on 14 April 2021.

On 7 May 2021, Department of Planning, Industry and Environment (DPIE or Department) requested additional information (*EnergyConnect (NSW – Western Section) (SSI-10040) Request for Additional Information*) to assist with the assessment of the project. In response Transgrid prepared and provided the Response to DPIE Request for Information, which included revised mitigation measures (RMMs) in Appendix G which are to be applied. The Response to DPIE Request for Information was dated 10 August 2021.

Approval for the project under the EP&A Act was granted by the NSW Minister for Planning and Public Spaces (Infrastructure Approval SSI 10040). Approval for the project under the EPBC Act was granted by the Australian Minister for the Environment.

Transgrid have engaged SecureEnergy, a joint venture between Elecnor and Clough Projects Australia Pty Ltd to design and construct their portion of the EnergyConnect project.

1.3 Staging

Condition E2 allows preparation of plans on a staged basis, with the approval of the Planning Secretary. Where a plan is staged, the scope of works can be carried out without addressing particular requirements of conditions of approval that are not applicable to the particular stage. This NVMP is staged in accordance with condition E2.

On 26 November 2021 the project advised DPIE of the intention to stage construction of the project and sought the Secretary’s approval to prepare and submit any strategy, plan or program required by the Infrastructure Approval on a staged basis. The two proposed stages are as follows:

- Stage 1 – upgrade of the existing substation at Buronga, establishment of the Buronga accommodation camp and construction compound, and use and access of two water supply points off Corbett Avenue, Buronga to supply raw water for construction and potable water for the accommodation camp; and
- Stage 2 – all other construction activities.

On 24 December 2021 the Planning Secretary approved the submission of relevant strategies, plans or programs on this staged basis in accordance with condition E2 of Schedule 2 of the Infrastructure Approval. SecureEnergy will construct the project in accordance with the approved stages identified above and will prepare and submit the CEMP and CEMP Sub-plans (and other relevant strategies, plans or programs - including this NVMP) on a staged basis.

The conditions of the Infrastructure Approval, and the RMMs identified in Appendix G of the Response to DPIE Request for Information, that are relevant to construction noise and vibration are included in Table 2.1 and Table 2.2, respectively. The applicability of each requirement to this NVMP is also addressed in the identified tables.

Stage 1 of construction (covered by this NVMP) is proposed to occur ahead of the main transmission line works in order to expedite the overall delivery program for EnergyConnect. The Department will be notified in writing via the Major Projects portal of the proposed date of commencement of Stage 1 of construction.

The NVMP for Stage 2 will be prepared to prior to commencement of construction of Stage 2. The NVMP for Stage 2 will include details of Stage 2 construction activities and will ensure that the relevant conditions of approval are addressed in relation to those activities. Construction of Stage 2 will not commence until the Planning Secretary is satisfied with the CEMP and CEMP Sub-plans for Stage 2.

The Buronga substation is located on Arumpo Road in Buronga. The existing 220kV substation will be upgraded and expanded to a new 330kV substation on a land parcel adjacent to the existing 220kV substation. Refer to Figure 3.1 for the indicative disturbance area of Stage 1 of construction.

The works forming Stage 1 of construction include, but are not limited to, the activities provided in Table 1.1.

Table 1.1 - Key project components of Stage 1 of construction

Key activity	Description of key activity
Environmental investigations, including biodiversity and heritage protection, salvage and recordings.	These key activities nominated in this stage will have already commenced as part of the pre-construction minor works permitted in accordance with the Infrastructure Approval. The definition of ‘construction’ within the Infrastructure Approval excludes these activities. They will therefore not be subject to the Stage 1 CEMP and CEMP sub-plans.
Other survey work, such as road dilapidation surveys, and surveys of the general alignment and existing utilities.	

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Key activity	Description of key activity
Site establishment at Buronga substation upgrade and expansion site	<p>The main site establishment activities that would be undertaken at Buronga substation upgrade and expansion site include:</p> <ul style="list-style-type: none"> clearing of vegetation within the disturbance area (including scrub, undergrowth and ground vegetation); clearing and removal of topsoils. Topsoil would be stockpiled on site for later reuse; establishing crushing and screening plants (if required), ancillary facilities, including but not limited to offices and amenities, and internal roads; and installing fencing (including fencing around the site where required), signage and security measures as well as any necessary construction environmental management measures such as erosion and sediment controls.
Bulk earthworks at Buronga substation upgrade and expansion site	<p>Bulk earthworks to form the Buronga substation pad which includes placement of around 350,000m³ of rock/gravel/soil from the earthworks material site to allow for the construction of the substation pad in preparation for concrete foundations. Crushing and screening activities may be required in order to meet the engineering requirements. Existing soil that does not meet engineering requirements for the substation pad will be temporary stockpiled.</p>
Site establishment of the Buronga accommodation camp	<p>The main activities that would be undertaken at Buronga construction compound and accommodation camp includes:</p> <ul style="list-style-type: none"> clearing of vegetation within the disturbance area (including scrub, undergrowth and ground vegetation); clearing and removal of topsoils. Topsoil would be stockpiled on site for later reuse; establishing the accommodation camp and associated facilities, including but not limited to site offices, amenities, wastewater treatment plant, power generators, hazardous material and fuel storage area and internal roads;
Site establishment and operation of the Buronga construction compound	<ul style="list-style-type: none"> establishing and operating site offices and other ancillary facilities, including but not limited to and amenities, and internal roads; connections and pre-commissioning of on-site utilities (wastewater treatment plant, electrical power, lighting, etc.) for the construction compound and accommodation camps; and installing temporary fencing, signage and security measures as well as any necessary construction environmental management measures such as erosion and sediment controls, where required.
Access points	<p>The establishment of access points would include:</p> <ul style="list-style-type: none"> establishing vehicle access and egress points including adjustment of roads to ensure safe vehicle movements; and establishing truck wheel wash or rumble grids. <p>The definition of construction within the Infrastructure Approval does not include road upgrades (which includes access points). Road upgrade works are, however, incorporated within the Traffic and Transport Management Plan as required by condition D40 b).</p>
Water supply points – establishment and/or use	<p>A series of water supply points have been identified as suitable connection points to existing water supply pipelines. The proposed water supply points which are to be established and/or used include:</p> <ul style="list-style-type: none"> Alcheringa Drive, Buronga; and Modica Crescent, Buronga.
Utility adjustments and protection	<p>General utility protection and adjustment works, where required, to allow for the Buronga substation expansion and upgrades works to occur, the establishment of the accommodation camp and the establishment and operation of the construction compound.</p>

Some activities nominated in this stage will have already commenced as part of the pre-construction minor works permitted in accordance with the Infrastructure Approval. These works will remain

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excluded from the definition of ‘construction’ and will therefore not be subject to the Stage 1 CEMP and this NVMP.

This NVMP has been prepared specifically for EnergyConnect (NSW – Western Section) Stage 1 of construction and will be implemented for the duration of Stage 1 of construction.

1.4 Environmental management system

The overall environmental management system for the project is described in Section 4 of the CEMP.

This NVMP is a sub-plan that forms part of the CEMP and is also part of the environmental management framework for the project, as described in the CEMP. Figure 1.1 shows the CEMP framework for the project.

Management measures identified in this plan will be incorporated into relevant site-based documents including, but not limited to, site or activity specific work packs or work method statements (WMSs), sensitive area plans (SAPs) or training and awareness material.

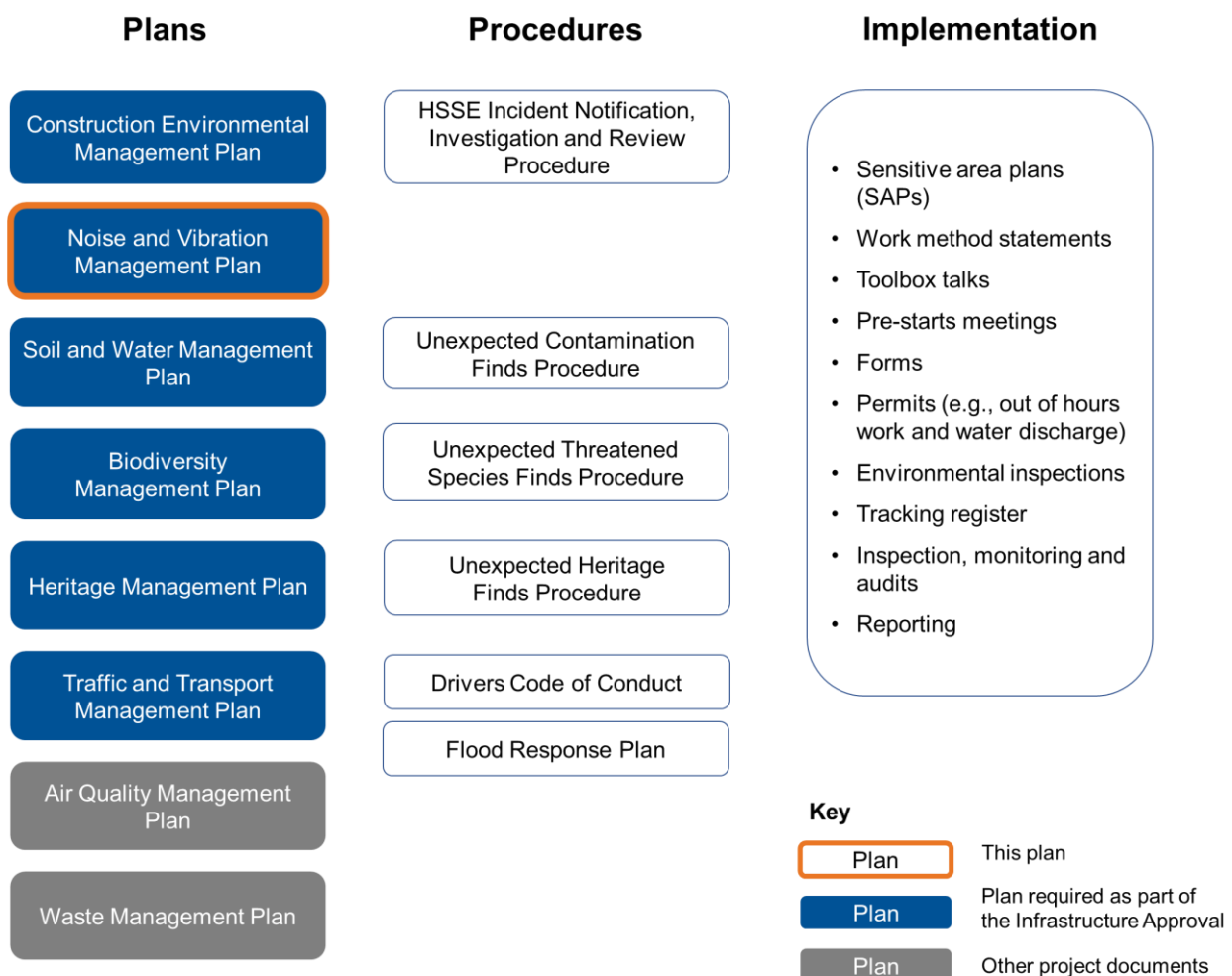


Figure 1.1 - CEMP framework

1.5 Purpose and objective

The purpose of this NVMP is to describe the approach to manage noise and vibration impacts that will be adopted during construction of the project.

The key objective of this plan is to detail management measures and inform site procedures for implementation so that noise and vibration impacts are minimised. To achieve this, the following will be undertaken:

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- implement appropriate measures to address the requirements outlined in the Infrastructure Approval, EIS and Response to DPIE Request for Information;
- implement appropriate measures during construction to minimise potential noise and vibration impacts to sensitive receivers; and
- implement appropriate measures to comply with relevant legislative requirements as described in Section 2.1 of this plan.

As a means of assessing environmental performance, environmental objectives (performance measures), targets (criteria) and performance indicators have been established for the project and are provided within Table 4.2 of the CEMP. All performance measures and indicators are applicable to the project, however, those most relevant to noise and vibration are detailed in Table 1.2.

Table 1.2 - Environmental objectives, targets and performance indicators relevant to noise and vibration

Aspect	Objectives (performance measures)	Targets (criteria)	Performance indicators
Compliance	Implement and comply with the CEMP and associated management plans	<ul style="list-style-type: none"> • Zero non-compliances identified during each compliance audit of CEMP and sub-plans. 	Number of non-compliance arising from each audit.
Engage with stakeholders and the broader community, minimise complaints and respond to any complaints within a suitable timeframe	Disseminate regular project updates and other information to keep the community informed of the project. Record and respond to complaints within a timely manner.	<ul style="list-style-type: none"> • All project updates provided within the timeframes specified within the Community Communication Strategy. • All complaints are reviewed within the timeframes specified within the Community Communication Strategy. 	Timeliness of project updates per project website; and timeliness of complaints response as recorded in the complaints register.
Training and improvement	Provide adequate training to ensure construction activities are undertaken safely and with minimal risk to the environment. Continuously improve environmental performance	<ul style="list-style-type: none"> • Regular environmental training that focuses on the specific project activities and associated environmental risks. • Regular pre-start meetings and toolbox talks in accordance with Section 6. 	Records of inductions, toolbox talks with environmental focus, daily pre-start meetings.

1.6 Preparation of this plan

In accordance with condition B6 of the Infrastructure Approval, this plan has been prepared and reviewed by a suitably qualified and experienced person. This plan was prepared by Alison Kriegel and reviewed by Rebecca Walker-Edwards and Mattia Tabacchi from Renzo Tonin & Associates.

Mattia Tabacchi is suitably qualified and experienced in the field of noise and vibration. Mattia has over 12 years of experience in environmental and building acoustics including an extensive range of major infrastructure projects in Australia.

1.7 Consultation

1.7.1 Ongoing communication and consultation

SecureEnergy will use a range of tools in accordance with the *Community Communication Strategy* (CCS) (45860-CM-PL-G-1001) to facilitate ongoing consultation and communication with the community and stakeholders (including government agencies where necessary) regarding the project. Communication tools include, but are not limited to, stakeholder briefings, project website, community drop-in sessions via the project’s mobile van, door knocks and project factsheets. Notifications will be issued for, but not limited to following, commencement of construction, significant milestones and changes to the scope of work. Refer to the CCS for further information.

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In accordance with condition E12 a) of the Infrastructure Approval, project documents including the EIS, approved strategies, plans or programs required under the conditions of approval and independent reports will be publicly available on the project website. The project website is <https://www.projectenergyconnect.com.au>. A 24-hour toll-free telephone number (1800 560 577) is also available for any project enquiries. In accordance with condition E12 b) the information will be kept up to date.

1.7.2 Development of this plan and the Out of Hours Works Protocol

In accordance with condition B2 a) and condition D3 of the Infrastructure Approval, this plan and the Out of Hours Works Protocol (OOHW Protocol) have been prepared in consultation with Wentworth Shire Council (Council). This plan and the OOHW Protocol were issued to Council for review and comment. Council advised that they had no comments on the NVMP. Details of all consultation with Council will be submitted to DPIE along with the submission of this management plan.

1.7.3 Negotiated agreements

In accordance with condition D2 c) of the Infrastructure Approval, an agreement with sensitive receivers (owners and occupiers) may be negotiated to carry out works in accordance with the hours and noise limits specified in the agreement.

Where multiple receivers are affected by works, a substantial majority of the receivers must agree to the specified hours and noise limits proposed by the project.

All negotiated agreements will be in writing and will be finalised before the commencement of relevant works.

1.7.4 Consultation with affected receivers regarding mitigation measures

Due to the large separation distances between the work locations associated with Stage 1 and the nearest sensitive receivers (refer to Section 3.1), no exceedances of noise management levels (project noise management levels are identified in Section 4.5) have been predicted for Stage 1 activities (refer to Section 6.2). In the event that additional construction activities are required that may generate noise levels that are likely to exceed the relevant noise management levels at any sensitive receivers, additional noise assessment(s) will be undertaken (refer to Section 7.1). If exceedances are confirmed, consultation with affected receivers will be carried out to understand the affected receiver's preferences for mitigation and management measures as required by RMM NV4.

Previous feedback received during consultation may be applied to subsequent, similar scenarios.

1.7.5 Complaints

Complaints will be managed by the Community and Stakeholder Engagement Team with the use of Consultation Manager database. Complaints will be received via phone calls, emails and letters. Any complaint received is regarded as a high priority and will be recorded, tracked and responded to in accordance with the CCS. Complaints will be investigated and dealt with impartially. The key principles of the complaint management process include:

- acknowledge - SecureEnergy staff should respect the communities' right to voice their concerns. All complaints received should be acknowledged to the complainant either by telephone or in writing;
- resolve - SecureEnergy staff should aim at first contact, resolution for all community concerns. SecureEnergy staff should investigate community concerns in detail before negotiating a resolution. All SecureEnergy staff should use their relevant discretions to achieve a mutually acceptable resolution to complaints;
- escalate - all SecureEnergy staff should aim to escalate the complaint if the community member remains dissatisfied with the investigation and/or resolution offered by their first point of contact

at SecureEnergy. All complaints where community request to speak to a higher-level representative, should also be escalated;

- record - SecureEnergy staff should aim through the Engagement Team at recording all relevant information, on the community account in Consultation Manager System, regarding customer concerns along with details of all discussions had with the community member in the process of investigating and/resolving the complaint. Detailed information on the resolutions offered to address community concerns should also be clearly recorded;
- communicate - SecureEnergy staff should remain in constant touch with the community member while their concerns are being investigated. The community member should be informed of all steps of the investigation and the resulting outcome at appropriate times;
- report - SecureEnergy should report on all complaints received to the SecureEnergy Management Team and Transgrid. The reporting should include information on the number as well as type of complaints being received, the status of these complaints from time to time and the resulting outcomes or resolutions offered to close them;
- feedback - the SecureEnergy Engagement Team should aim at regular and intensive reviews to identify possible trends in the complaints being received. These reviews should be aimed at highlighting improvements required to avoid complaints being repeated;
- action - SecureEnergy should aim at effective implementation of improvements suggested directly by the community or highlighted by complaint trends.

Wherever possible, complaints will be resolved directly between SecureEnergy and the stakeholder. If a complaints management process has been followed and the issue cannot be resolved, dispute resolution will be undertaken in accordance with the CCS. As part of this, a Community Complaints Mediator will be engaged to address any complaint where a member of the public is not satisfied by SecureEnergy's response. The escalated review process will include an assessment of the details of the complaint received, any findings of the investigation undertaken in response to the complaint, and any further matters raised by the complainant.

If a complaint requires referral to senior management and Transgrid, the complainant will be informed of this and the outcome of the review process. DPIE may also request that the Environmental Representative (ER) assist in dispute resolution of community complaints.

All complaints will be provided to the ER and a summary of complaints received, such as a complaints register, will be updated monthly on the project website in accordance with condition E12.

1.8 Submission and approval

Prior to submission to DPIE, the NVMP will be reviewed by the ER to ensure that the plan is consistent with the requirements of the Infrastructure Approval. A written statement to this effect will be prepared and submitted to DPIE. This review will be undertaken in accordance with condition A19 of the Infrastructure Approval.

This NVMP will be submitted to DPIE for review and approval by the Planning Secretary prior to commencing of Stage 1 of construction.

Stage 1 of construction will not commence until the CEMP and all sub-plans required under condition B2, or where staging is proposed the plans required for that stage, have been approved by the Planning Secretary. The approved NVMP will then be implemented for the duration of the Stage 1 construction activities.

1.9 Periodic review

This NVMP will be reviewed at least annually in accordance with Section 1.10 of the CEMP – Updating the CEMP. This includes the review and, if necessary, revision of this Noise and Vibration Management Plan within three months of the following:

- submission of an incident report under condition E6 of the Infrastructure Approval;

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- submission of an audit report under condition E11 of the Infrastructure Approval; or
- any modifications to the Infrastructure Approval.

Any updates to the NVMP will be approved as described in Section 1.10 of the CEMP.

2 Environmental requirements

2.1 Legislation

Legislation relevant to the management of noise and vibration includes:

- *Environmental Planning and Assessment Act 1979* (EP&A Act); and
- *Protection of the Environment Operation Act 1997* (POEO Act).

Relevant provisions of the above legislation are detailed within the register of legal and other requirements included in Appendix A1 of the CEMP. The legislation relevant to noise and vibration is replicated in Appendix D of this NVMP.

2.2 Conditions of Approval

The conditions of the Infrastructure Approval relevant to noise and vibration are presented in Table 2.1. A cross reference is also included to indicate where the condition is addressed within this plan or other project management documents.

Table 2.1 - Conditions of Approval relevant to noise and vibration

Condition no.	Requirement	Where addressed	How addressed						
A1	In meeting the specific performance measures and criteria of this approval, all reasonable and feasible measures must be implemented to prevent, and if prevention is not reasonable and feasible, minimise, any material harm to the environment that may result from the construction, operation, rehabilitation, upgrading or decommissioning of the development.	Section 7	Section 7 identifies the management measures to be implemented to prevent and if prevention is not reasonable and feasible, minimise harm. Additional mitigation measures have been included within the OOHV Protocol in Appendix A.						
B1	Prior to commencing construction, a Construction Environmental Management Plan (CEMP) must be prepared to detail how the performance outcomes, commitments and mitigation measures specified in the EIS will be implemented and achieved during construction to the satisfaction of the Planning Secretary.	Section 2.3 Section 7 The CEMP	The CEMP has been prepared and will be implemented during construction. The CEMP incorporates and responds to relevant conditions of the Infrastructure Approval and RMMs identified in the EIS, Submissions Report, Amendment Report and Response to DPIE Request for Information. Section 2.3 and Section 7 of this NVMP describe how the commitments of the EIS relevant to noise and vibration will be implemented.						
B2	The following CEMP Sub-plans must be prepared in consultation with the relevant government agencies identified for each CEMP Sub-plan in Table 1. Table 1: CEMP Sub-plans	Section 1.7	This NVMP was provided to Wentworth Shire Council for consultation. Council advised that they had no comments on the NVMP.						
	<table border="1"> <thead> <tr> <th></th> <th>Required CEMP Sub-plan</th> <th>Relevant government agencies and stakeholders to be consulted for each CEMP Sub-plan</th> </tr> </thead> <tbody> <tr> <td>(a)</td> <td>Noise and Vibration</td> <td>Council</td> </tr> </tbody> </table>		Required CEMP Sub-plan	Relevant government agencies and stakeholders to be consulted for each CEMP Sub-plan	(a)	Noise and Vibration	Council		
	Required CEMP Sub-plan	Relevant government agencies and stakeholders to be consulted for each CEMP Sub-plan							
(a)	Noise and Vibration	Council							

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Condition no.	Requirement	Where addressed	How addressed
B3	Details of all information requested by an agency to be included in a CEMP Sub-plan as a result of consultation must be provided with the relevant CEMP Sub-Plan.	Section 1.7	This NVMP has been developed in consultation with Wentworth Shire Council. Details of all consultation with Wentworth Shire Council will be submitted to DPIE along with the submission of this NVMP.
B4	Any of the CEMP Sub-plans may be submitted along with, or subsequent to, the submission of the CEMP but in any event prior to commencing construction.	Section 1.8	This NVMP will be submitted as a CEMP Sub-Plan to DPIE for review and approval by the Planning Secretary prior to commencing Stage 1 of construction.
B5	Construction must not commence until the CEMP and all CEMP Sub-plans have been approved by the Planning Secretary. The CEMP and CEMP Sub-plans, as approved by the Planning Secretary, must be implemented for the duration of construction. Where construction of the development is staged, construction of a stage must not commence until the CEMP and sub-plans for that stage have been approved by the Planning Secretary.	Section 1.8	Stage 1 of construction will not commence until the CEMP and all CEMP Sub-plans (including this NVMP), or where staging is proposed and the plans required for that stage, have been approved by the Planning Secretary. The CEMP and CEMP Sub-plans (including this HMP) will be implemented for the duration of construction for Stage 1.
B6	The CEMP and CEMP Sub-plans required under this approval must be prepared by suitably qualified and experienced persons in accordance with relevant guidelines, and include where relevant:	Title page Section 1.6	This NVMP has been jointly prepared by suitably qualified and experienced people and in accordance with relevant guidelines.
	a) a summary of relevant background or baseline data;	Section 3	The existing known noise and vibration environment adjacent to the Stage 1 disturbance area is outlined in Section 3.
	b) details of:		
	(i) the relevant statutory requirements (including any relevant approval or licence conditions);	Section 2 Appendix D	The relevant legislation, conditions, RMMs and guidelines applicable to noise and vibration are outlined in Section 2. Appendix D provides further detail on the relevant legislation applicable to heritage.
	(ii) any relevant limits or performance measures and criteria; and	Section 4 Section 1.5 Section 4.2 of the CEMP – Objectives and targets	Section 4 identifies specific noise and vibration criteria for the project. Further to this, the objectives (performance measures) and targets (criteria) relevant to noise and vibration management are outlined in Section 1.5 of this NVMP. The CEMP also provides project-wide environmental objectives (performance measures) and targets (criteria).
(iii) the specific performance indicators that are proposed to be used to judge the performance of, or guide the implementation of, the	Section 1.5 Section 4.2 of the CEMP –	The performance indicators relevant to noise and vibration management are outlined in Section 1.5 of this NVMP.	

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Condition no.	Requirement	Where addressed	How addressed
	development or any management measures;	Objectives and targets	The CEMP also provides project-wide performance indicators.
	c) any relevant commitments or recommendations identified in the EIS;	Section 2.3	Relevant noise and vibration commitments and recommendations identified in the EIS, known as RMMS, have been outlined in Section 2.3.
	d) a description of the measures to be implemented to comply with the relevant statutory requirements, limits, or performance measures and criteria;	Section 7	Specific noise and vibration related safeguards and management measures to address potential impacts associated with Stage 1 of construction and comply with the relevant statutory requirements, limits and performance measures are outlined in Section 7.
	e) a program to monitor and report on the:		
	(i) impacts and environmental performance of the development (including a table summarising all the monitoring and reporting obligations under the conditions of this approval); and	Section 8, including; Section 8.3 Section 8.4 Section 8.5 Section 0	Monitoring, inspections, auditing and reporting is outlined in Section 8.3 to 6.6 of this HMP.
	(ii) effectiveness of the management measures set out pursuant to paragraph (d);	Section 8	Monitoring of the effectiveness of the management measures is outlined in Section 8 through compliance management.
	f) a contingency plan to manage any unpredicted impacts and their consequences and to ensure that ongoing impacts reduce to levels below relevant impact assessment criteria as quickly as possible;	Section 8.8 Section 8 of the CEMP- Incidents and emergencies Section 10 of the CEMP - Reporting Section 11 of the CEMP – Non-compliance, non-conformance, corrective and preventative action	Section 8.8 outlines a contingency plan in the event that unpredicted impacts are identified. The CEMP also provides additional detail regarding incidents and emergencies, reporting, non-compliance, non-conformance, corrective and preventative actions.
	g) a program to investigate and implement ways to improve the environmental performance of the development over time;	Section 1.9 Section 8 Section 8.9 Section 1.9 of the CEMP – Continuous improvement	Section 8 of this NVMP outlines procedures for compliance management, including details for monitoring, inspections, auditing and reporting. Actions to undertake in the event that monitored noise levels exceed the modelling predictions are identified in Section 8.9 of this NVMP. This NVMP will reviewed at least annually as described in Section 1.9 of this NVMP. The Plan-Do-Check-Act model will be applied to the continuous improvement process, also

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Condition no.	Requirement	Where addressed	How addressed
			outlined in Section 1.9 of the CEMP.
	h) a protocol for managing and reporting any: <ul style="list-style-type: none"> (i) incident, non-compliance or exceedance of any impact assessment criterion and performance criterion; 	Section 8.7 Section 8.8 Section 8.9 Section 8 of the CEMP – Incidents and emergencies Section 10 of the CEMP – Reporting Section 11 of the CEMP – Non-compliance, non-conformance, corrective and preventative action	Section 8.7 and 8.8 describe the procedures for emergencies, incidents and non-compliances, including those related to noise and vibration. Actions to undertake in the event that monitored noise levels exceed the modelling predictions are identified in Section 8.9 of this NVMP. Additional detail for managing incidents and emergencies, non-compliances and non-conformances is included in the CEMP. The protocol for reporting of any incidents, non-compliances or non-conformances is included in Section 10 of the CEMP.
	(ii) complaint; or	Section 1.7.5 Section 8.9 Community Communication Strategy	A summary of the complaints management procedure and reporting of complaints is included in Section 1.7.5 of this NVMP. The procedure for managing and reporting any complaints is described in the <i>Enquiries, Complaint and Dispute Resolution Management Procedure</i> provided in the CCS. The procedure includes a complaints management process which outlines how SecureEnergy will respond to complaints related to the project. In the event of a noise and vibration related complaint, the actions identified in Section 8.9 of this NVMP will be implemented.
	(iii) failure to comply with other statutory requirements;	Section 8.7 Section 8 of the CEMP – Incidents and emergencies Section 10 of the CEMP – Reporting Section 11 of the CEMP – Non-compliance, non-conformance, corrective and preventative action	In the event of failure to comply with statutory requirements, the procedures summarised in Section 8.7 of this NVMP and described in more detail in the CEMP would be followed.
	i) set out the procedures that would be implemented to: <ul style="list-style-type: none"> (i) keep the local community and relevant agencies informed about 	Section 1.7 Community Communication Strategy	The local community and relevant agencies will be kept informed of construction progress and environmental

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Condition no.	Requirement	Where addressed	How addressed
	the construction and environmental performance of the development;		performance through communication tools such as notifications, the project’s mobile van and the project website as summarised in Section 1.7 of this NVMP. Detailed information regarding project communication is found in the CCS.
	(ii) receive, handle, respond to, and record complaints;	Section 1.7 Community Communication Strategy	Section 1.7.5 of this NVMP summarises the complaints management system, which includes a process to manage complaints including receiving, recording, tracking and responding to complaints within a defined timeframe. The complaints management system is described in detail in the CCS.
	(iii) resolve any disputes that may arise;	Section 1.7.5 Community Communication Strategy	Section 1.7.5 of this NVMP describes dispute resolution, which is described in detail in the CCS. Wherever possible, complaints will be resolved directly between SecureEnergy and the stakeholder.
	(iv) respond to any non-compliance;	Section 8.7 Section 10.1 of the CEMP – Reporting non-compliances Section 11 of the CEMP – Non-compliance, non-conformance, corrective and preventative action	Section 8.7 of this NVMP outlines that where a non-compliance has been identified, corrective actions will be developed as required and implemented to address the non-compliance
	(v) respond to emergencies; and	Section 8.7 Section 8.1 of the CEMP – Emergency preparedness and emergency responses	Emergency management and planning including environmental emergencies related to noise and vibration will be undertaken in accordance with the Clough management system and relevant procedures as described in Section 8.7 of this NVMP. Additional detail regarding emergency management is described in the CEMP.
	j) a description of the roles and environmental responsibilities, authority and accountability for all relevant employees, as well as training and awareness; and	Table 7.1 Section 8.1 Section 8.2 Section 4.9 of the CEMP – Roles and responsibilities	Section 8.2 identifies that SecureEnergy’s organisational structure and overall roles and responsibilities are outlined in the CEMP. Specific responsibilities for the implementation of mitigation measures are detailed in Table 7.1 of this NVMP.

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Condition no.	Requirement	Where addressed	How addressed
			Training and awareness for all site personnel is outlined in Section 8.1.
	<p>k) a protocol for periodic review of the CEMP and associated Sub-plans and programs.</p>	<p>Section 1.9 Section 1.10 of the CEMP – Updating the CEMP</p>	<p>This NVMP will be reviewed at least annually in accordance with the CEMP.</p>
	<p>The Planning Secretary may waive some of these requirements if they are unnecessary or unwarranted for particular management plans.</p>	<p>Noted</p>	<p>Noted</p>
D1	<p>Road upgrades, construction, upgrading and decommissioning activities may only be undertaken between:</p> <p>a) 7 am to 6 pm Monday to Friday; b) 8 am to 1 pm Saturdays; and c) at no time on Sundays and NSW public holidays;</p> <p>unless the Planning Secretary agrees otherwise.</p>	<p>Section 4.1</p>	<p>The standard construction hours for the project are identified in Section 4.1.</p>
D2	<p>The following construction, upgrading and decommissioning activities may be carried out outside the hours specified in condition D1 above:</p> <p>a) the delivery or dispatch of materials as requested by the NSW Police Force or other public authorities for safety reasons; b) emergency work to avoid the loss of life, property or to prevent material harm to the environment; or c) works carried out in accordance with the hours and noise limits specified in any negotiated agreements with sensitive receivers (owners and occupiers), provided the negotiated agreements are in writing and finalised before the commencement of works.</p>	<p>Section 4.1 Section 1.7.3 Table 7.1 - N11</p>	<p>The permitted variations to the standard construction hours are identified in Section 4.1.</p> <p>Agreements may be sought with sensitive receivers to undertake works in accordance with negotiated hours and noise limits as identified in Section 1.7.3.</p>
D3	<p>An Out-of-Hours Work Protocol must be prepared to identify a process for the consideration, management and approval of works which are outside the hours defined in conditions D1, D2 and D7. The Protocol must be approved by the Planning Secretary before commencing works. The Protocol must:</p> <p>a) be prepared in consultation with Council; b) provide a process for the consideration of out-of-hours works against the relevant noise and vibration criteria, including the determination of low and high-risk activities; c) provide a process for the identification of mitigation measures for potential impacts, including respite periods in consultation with any affected receivers; d) provide a process for the identification of out-of-hours works undertaken by third</p>	<p>Appendix A</p>	<p>An OOHW Protocol has been prepared to satisfy this requirement. It has been prepared in consultation with Wentworth Shire Council and has been included in Appendix A.</p> <p>Council advised that they had no comments on the OOHW Protocol.</p>

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Condition no.	Requirement	Where addressed	How addressed
	<p>parties in the vicinity of the site, and coordination of out-of-hours works with these third parties to achieve respite periods in locations where receivers may be affected by concurrent activities;</p> <p>e) identify an approval process that considers the risk of activities, proposed mitigation, management, and coordination, including where:</p> <ul style="list-style-type: none"> • low risk activities can be undertaken without the approval of the Planning Secretary and with the approval of the ER; and • high risk activities that are approved by the Planning Secretary; and <p>f) identify Department, Council and community notification arrangements for approved out of hours work.</p>		
D4	The Proponent must take all reasonable and feasible steps to minimise the construction, upgrading or decommissioning noise of the development in the locations where the noise is audible to sensitive receivers, including any associated traffic noise.	This NVMP, particularly Section 7	Section 7 provides the management measures to minimise noise impacts on sensitive receivers.
D5	The Proponent must implement mitigation measures:		
	a) to ensure that the noise generated by any construction, upgrading or decommissioning activities is managed in accordance with the requirements for construction 'noise affected' management levels established in accordance with <i>Interim Construction Noise Guideline</i> (DECC, 2009); and	Section 4.5 Section 6.2 Section 7	Construction 'noise affected' management levels are described as project 'noise management levels' throughout this NVMP and have been established in accordance with the ICNG as identified in Section 4.5. In line with the ICNG, where predicted or measured noise levels exceed the noise management level (refer to construction noise impacts in Section 6.2), feasible and reasonable work practices will be identified and implemented, such as those included in Section 7.
	b) with the aim of achieving the road traffic noise assessment criteria for residential land uses from <i>NSW Road Noise Policy</i> (DECCW, 2011).	Section 4.7 Section 6.4 Table 7.1 - N7, N8	The road traffic noise assessment criteria is described in Section 4.7. A consideration of construction road traffic noise is presented in Section 6.4. Measures to minimise the impacts of construction road traffic are identified in Table 7.1.
D6	The Proponent must comply with the following vibration limits:	Section 4.6 Section 6.3	The nominated vibration criteria is described in Section 4.6. No exceedances of the nominated vibration criteria are expected as a result of the
	a) vibration criteria established using the <i>Assessing vibration: a technical guideline</i> (DEC, 2006) (for human exposure);		

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Condition no.	Requirement	Where addressed	How addressed												
	b) BS 7385 Part 2-1993 “Evaluation and measurement for vibration in buildings Part 2” as they are “applicable to Australian conditions”; and c) vibration limits set out in the German Standard DIN 4150-3: Structural Vibration- effects of vibration on structures (for structural damage).		Stage 1 works as described in Section 6.3.												
D7	Blasting may only be carried out on the site between 9 am and 5 pm Monday to Friday and between 9 am to 1 pm on Saturday. No blasting is allowed on Sundays or public holidays.	N/A	Not applicable to Stage 1. No blasting is proposed.												
D8	The Proponent must ensure that any blasting carried out on the site does not exceed the criteria in Table 2. Table 2: Blasting criteria <table border="1" data-bbox="316 786 834 1093"> <thead> <tr> <th>Location</th> <th>Airblast overpressure (dB(Lin Peak))</th> <th>Ground vibration (mm/s)</th> <th>Allowable exceedance</th> </tr> </thead> <tbody> <tr> <td></td> <td>120</td> <td>10</td> <td>0%</td> </tr> <tr> <td>Any non-associated residence</td> <td>115</td> <td>5</td> <td>5% of the total number of blasts or events over a rolling period of 12 months</td> </tr> </tbody> </table>	Location	Airblast overpressure (dB(Lin Peak))	Ground vibration (mm/s)	Allowable exceedance		120	10	0%	Any non-associated residence	115	5	5% of the total number of blasts or events over a rolling period of 12 months	N/A	Not applicable to Stage 1. No blasting is proposed.
Location	Airblast overpressure (dB(Lin Peak))	Ground vibration (mm/s)	Allowable exceedance												
	120	10	0%												
Any non-associated residence	115	5	5% of the total number of blasts or events over a rolling period of 12 months												
D9	The Proponent must implement all reasonable and feasible measures with the aim of ensuring that the noise generated by the operation of the development does not exceed 40 dB(A) LAeq,15min, at the reasonably most affected point of the residence, in accordance with the <i>NSW Noise Policy for Industry</i> (EPA, 2017) at any non-associated residence.	N/A	Not applicable to Stage 1. This condition is relevant to the operational phase of the project.												
D10	Within 12 months of the date of this approval, the Proponent must prepare an Operational Noise Review to confirm noise predictions and control measures that would be implemented for the operation of the development. The Review must: <ul style="list-style-type: none"> a) be prepared by a suitably qualified and experienced person whose appointment has been endorsed by the Planning Secretary; b) be prepared in consultation with the landowner of impacted residences; c) identify receivers predicted to experience noise levels that exceed 40 dB(A) LAeq, 15min at the reasonably most affected point of the residence, determined in accordance with the <i>NSW Noise Policy for Industry</i> (EPA, 2017); d) detail the noise mitigation measures to achieve the noise criteria identified, including the timing of implementation; e) provide evidence of consultation with affected landowners; 	N/A	Not applicable to Stage 1. This condition is relevant to the operational phase of the project.												

Condition no.	Requirement	Where addressed	How addressed
	<p>f) include a consultation strategy to seek feedback from directly affected landowners on the noise mitigation measures; and</p> <p>g) identify procedures for the management of operational noise complaints.</p> <p>The Proponent must implement any identified mitigation measures prior to the commencement of operation.</p>		
D11	<p>Within 6 months of the commencement of operations (or the commencement of operation of a stage, if the development is to be staged), the Proponent must:</p> <p>a) undertake noise monitoring to determine whether the development is complying with the relevant conditions of this approval; and</p> <p>b) submit a copy of the monitoring results to the Department.</p>	N/A	<p>Not applicable to Stage 1.</p> <p>This condition is relevant to the operational phase of the project.</p>
D12	The Proponent must undertake further noise monitoring of the development if required by the Planning Secretary.	N/A	<p>Not applicable to Stage 1.</p> <p>This condition is relevant to the operational phase of the project.</p>
D13	The Noise and Vibration CEMP Sub-Plan required under condition B2 must:		
	a) ensure the requirements in conditions D1 to D12 are complied with;	Refer above for conditions D1 to D12.	<p>Refer above for conditions D1 to D6.</p> <p>Conditions D7 to D8 are not applicable as no blasting is proposed.</p> <p>Conditions D9 to D12 are not applicable as they relate to operational requirements.</p>
	b) include a description of the reasonable and feasible measures that would be implemented to minimise noise and vibration impacts of the development;	Table 7.1	Management and mitigation measures implemented to minimise noise and vibration impacts of the project are included in Section 7, particularly Table 7.1.
	c) include a detailed description of the noise and vibration management system for the development;	This NVMP, particularly Section 7 and Section 8	The noise and vibration management system is described throughout this NVMP, particularly the management and mitigation measures included in Section 7, and the compliance management included in Section 8.
	d) include a protocol for the identification, notification and management of works that exceed the noise management levels; and	<p>Section 7.1</p> <p>Table 7.1</p> <p>Section 8.3</p> <p>Community Communication Strategy</p> <p>Appendix A</p>	<p>A protocol for the management of activities that could result in noise levels that exceed the noise management levels at sensitive receivers is identified in Section 7.1.</p> <p>Notification, as required, will be undertaken in accordance with the Community Communication Strategy.</p>

Condition no.	Requirement	Where addressed	How addressed
			Works would be managed in accordance with the management measures identified in Table 7.1 and monitored as described in Section 8.3. Any works undertaken outside the hours identified in conditions D1, D2 and D7, including those that could exceed the noise management levels, would be undertaken in accordance with the OOHV Protocol in Appendix A.
	e) include a monitoring program that evaluates and reports on the effectiveness of the noise and vibration management system.	Section 8.3 Section 8.4 Section 0	The effectiveness of the management measures identified in Section 7 of this NVMP will be monitored and reported through the program provided in Sections 8.3, 8.4, and 0.

2.3 Revised mitigation measures

The revised mitigation measures (RMMs) are defined in Appendix G of the Response to DPIE Request for Information. The RMMs relevant to noise and vibration management are presented in Table 2.2 below.

A cross reference is also included to indicate where the measure is addressed within this plan or other project management documents. The management measures that will be implemented for the project are provided in Section 5 of this plan.

Table 2.2 - Revised mitigation measures relevant to noise and vibration

Ref	Revised mitigation measures	Application location(s)	Where addressed	How addressed
NV1	An Operational Noise Review will be prepared to confirm the predicted noise impacts from the proposal (based on the final detailed design) and refine the operational mitigation measures that will be implemented so operational noise impacts complies with the proposal noise trigger levels, where feasible and reasonable.	All locations	N/A	This mitigation measure is associated with the operational phase and is therefore not applicable to Stage 1 works.
NV2	Where exceedances of the proposal specific trigger noise levels are predicted, feasible and reasonable operational noise and vibration mitigation measures will be further investigated during detailed design, in consultation with the affected receivers. This may include (in order of priority): <ul style="list-style-type: none"> land use planning and provision of appropriate buffer distances to increase the distance between the final transmission line alignment and the surrounding sensitive receivers and ultimately minimise the number of sensitive receivers within the audible risk noise zones noise control at the noise source 	Transmission line (330kV only)	N/A	This mitigation measure is only applicable to the 330kV transmission line. This measure is therefore not applicable to Stage 1 works.

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Ref	Revised mitigation measures	Application location(s)	Where addressed	How addressed
	<ul style="list-style-type: none"> noise control along the noise transfer path, such as noise barriers noise control at the receiver, such as ‘at property’ treatment to upgrade aspects of the dwellings including the façade or ventilation systems. <p>Additional measures identified through this process will be implemented prior to commencement of operation.</p>			
NV3	<p>Construction methodologies and measures that minimise noise and vibration levels during construction will be investigated during detailed design and implemented where feasible and reasonable.</p>	All locations	This NVMP, particularly Section 7	Measures to minimise noise and vibration levels to be implemented during construction are identified in Section 7 of this NVMP.
	<p>This will be supported through the completion of additional assessments (where construction noise levels are likely to exceed relevant noise management levels) based on the final construction methodology. This will:</p> <ul style="list-style-type: none"> consider the proposed layouts of work areas or construction compounds and accommodation camps the noise and vibration generating activities that will take place assess the predicted noise and vibration levels against the relevant management levels incorporate feasible and reasonable mitigation and management measures in accordance with the ICNG. 	All locations	Section 7.1 Table 7.1 - N5	Where construction noise levels are likely to exceed relevant noise management levels, additional assessments would be undertaken.
NV4	<p>Further engagement and consultation with affected receivers will be carried out to understand their preferences for mitigation and management measures where exceedances of noise management levels are predicted. Based on this consultation, appropriate mitigation and management options will be considered and implemented where feasible and reasonable to minimise the impacts.</p>	All locations	Section 1.7.4 Table 7.1 – N6 Appendix A Community Communication Strategy	<p>Where sensitive receivers are expected to experience noise levels that exceed the noise management levels, consultation will be carried out to understand the affected receiver’s preference for mitigation and management measures.</p> <p>Where this work is undertaken outside of the hours identified in conditions D1, D2 and D7, consultation will be undertaken as described in the OOHV Protocol (Appendix A).</p>

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Ref	Revised mitigation measures	Application location(s)	Where addressed	How addressed
NV5	A Construction Noise and Vibration Management Plan (CNVMP) will be prepared by the construction contractor prior to construction works and will (as a minimum):	All locations	This plan	This NVMP has been prepared to satisfy RMM NV5.
	<ul style="list-style-type: none"> examine feasible and reasonable noise mitigation where management levels are likely to be exceeded 		Table 7.1	Measures to minimise and manage noise and vibration impacts are included in Section 7, particularly Table 7.1.
	<ul style="list-style-type: none"> examine feasible and reasonable noise measures to manage traffic noise impacts on public roads where exceedances above 2 dB are identified at any sensitive receiver 		Table 7.1 - N7	Mitigation measures to minimise noise levels associated with project construction road traffic are included in Table 7.1.
	<ul style="list-style-type: none"> describe associated noise and vibration monitoring programs, as required 		Section 8.3	A monitoring program is described in Section 8.3.
	<ul style="list-style-type: none"> describe proactive and reactive strategies for dealing with any noise complaints 		Section 1.7.1 Section 1.7.5 Table 7.1 - N13 Section 8.7 Community Communication Strategy	Proactive strategies to prevent complaints include notification and consultation with sensitive receivers. Complaints management is undertaken in accordance with the Community Communication Strategy as described in Section 1.7.5. In the event of a noise and vibration related complaint, the actions identified in Section 8.9 of this NVMP will be implemented.
	<ul style="list-style-type: none"> outline community consultation measures including notification requirements. 		Section 1.7 Community Communication Strategy	Consultation and notification to be undertaken is described in Section 1.7.
	This CNVMP will be implemented for the duration of construction.		Section 1.3	This NVMP will be implemented for the duration of Stage 1 of construction.
NV6	An out of hours works (OOHW) protocol will be implemented for all construction activities likely to generate noise levels above the relevant noise management level at any sensitive receiver outside the standard	All locations	Appendix A	An out of hours works protocol has been prepared in line with condition D3 of the

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Ref	Revised mitigation measures	Application location(s)	Where addressed	How addressed
	<p>construction hours defined in Interim Construction Noise Guideline (DECC, 2009). The OOHW protocol and will include:</p> <ul style="list-style-type: none"> • details of what works are required outside standard construction hours • noise management safeguards and other reasonable and feasible mitigation and management measures (including agreement with sensitive receivers), including avoiding or minimising activities or the use of equipment likely to generate the highest noise levels, and implementing respite periods where works are likely to result in NML exceedances for sensitive receivers • community consultation procedures, including letterbox drops, notification protocols, and site contact information for the works • complaints handling procedures. <p>The OOHW protocol would not apply to the operation of the accommodation camps at Buronga and Wentworth.</p>			Infrastructure Approval and is included in Appendix A of this NVMP.
NV7	Where noise intensive equipment is to be used near sensitive receivers and is likely to result in an exceedance of the applicable noise management level, the works will be scheduled during standard construction hours (unless agreements with affected sensitive receivers have been reached).	All locations	Table 7.1 - N11 Appendix A	Where noise intensive equipment will be used near sensitive receivers and is predicted to result in an exceedance of the noise management level, the relevant equipment will be used during standard construction hours, unless agreement is reached with the affected sensitive receivers, or the associated activity is otherwise permitted through condition D2 or D3.
NV8	Where residences or other sensitive receivers/structures are within the minimum working distances for vibration (as identified in Table 17-3 of the EIS):	All locations	Section 6.3	No residences or other sensitive receivers/ structures are within the minimum working distances for vibration as a result of the Stage 1 works.

Ref	Revised mitigation measures	Application location(s)	Where addressed	How addressed
NV9	Temporary batching plants along the transmission line corridor will be positioned to ensure compliance with NMLs at the nearest sensitive receivers.	Transmission line	N/A	Not applicable to Stage 1. No batching plants are proposed as part of the Stage 1 works.
NV10	If blasting is required, a blasting vibration and overpressure assessment will be completed to demonstrate that blasting and associated activities will not exceed noise and vibration limits at residences or other sensitive receivers. Based on outcomes of this assessment, a blast management strategy will be implemented that details how blasting will be carried out in a manner that complies with relevant noise and vibration limits, and notification requirements with landholders.	Blasting	N/A	Not applicable to Stage 1. No blasting is proposed.
LP6	Procedures will be implemented so that potential impacts or conflicts between livestock and construction activities are appropriately managed. Procedures will be developed in consultation with affected landholders will include management of: <ul style="list-style-type: none"> • noise intensive activities during sensitive periods within the livestock production cycle (such as lambing and calving) • vehicle movements and other activities within the vicinity of livestock • movement of stock away from potential stressors created by construction activities. 	Transmission line	Table 7.1 - N9	Landowners using disturbance areas for livestock grazing will be consulted prior to the commencement of works regarding alternatives for the management of their stock during these activities.

2.4 Licences and permits

Subject to the outcomes of geotechnical investigations, crushing and screening may be required. If necessary, an Environment Protection Licence (EPL) will be obtained for the project for the scheduled activity of crushing and screening. The EPL will detail conditions which must be complied with when undertaking the crushing and screening activities. If an EPL is required, any relevant conditions of the EPL will be incorporated into this NVMP as required by the EPL or Infrastructure Approval.

2.5 Guidelines

The main guidelines, specifications and policy documents relevant to this plan include:

- *NSW Interim Construction Noise Guideline* (the ICNG), Department of Environment and Climate Change (DECC) 2009;
- *Noise Policy for Industry*, Environment Protection Authority 2017;
- *NSW Road Noise Policy* (RNP) (DECCW, 2011);
- *NSW Assessing Vibration – a technical guideline*, Department of Environment and Conservation 2006;
- *British Standard BS 6472-2008, 'Evaluation of human exposure to vibration in buildings (1-80Hz);*
- *British Standard 7385: Part 2-1993 'Evaluation and measurement of vibration in buildings';*
- *German Standard DIN4150-2016 Structural vibration Part 3: Effects of vibration on Structures;*

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- *AS/NZS 2107:2016 Acoustics – Recommended design sound levels and reverberation times for building interiors; and*
- *Association of Australian Acoustical Consultants (AAAC): Guideline for Child Care Centre Acoustic Assessment (2013).*

The documents identified above are considered by the project as described and referenced throughout this NVMP.

3 Existing environment

The following section summarises the existing noise and vibration environment within and adjacent to Stage 1 of the project. The key reference documents include:

- Chapter 17 of the EIS;
- Technical Paper 8 of the EIS (Noise and vibration impact assessment) (Technical Paper 8 of the EIS);
- Section 6.10 of the Amendment Report;
- Appendix I of the Amendment Report – Addendum noise and vibration impact assessment; and
- Section 4, Section 9.2 and Appendix F of the Response to DPIE Request for Information.

Existing noise levels within and surrounding the project are influenced by the surrounding agricultural and rural residential land uses as well as local traffic and the operation of the existing Buronga substation.

3.1 Sensitive receivers

The location of the nearest sensitive receivers to the Stage 1 works are listed in Table 3.1 and shown in Figure 3.1.

A revised list of residential receivers for the entire project was provided in Table 4.1 and presented in Appendix C, Figure 17-1 of the Response to DPIE Request for Information. Figure 17-1 of the Response to DPIE Request for Information is reproduced in Appendix B of this NVMP.

As described in the Response to DPIE Request for Information, when a receiver is located greater than approximately 1.5km from a component of the site, the distance is noted as >1.5km. The Response to DPIE Request for Information states no noise or vibration impacts are predicted from the works at this distance or greater.

Sensitive receivers are located greater than 1.5km from the Stage 1 works at Buronga. Sensitive receivers are located in close proximity to the water supply points as described in Table 3.1.

Table 3.1 - Sensitive receivers

Receiver ID	Address	Receiver type	Approximate distance to project boundary
Buronga substation			
R2026	694 Arumpo Road (noise monitoring location (NM1))	Residential dwelling (verified)	>1.5km
R2027	Opp 694 Arumpo Road	Residential dwelling (verified)	>1.5km
R2028	16A Drovers Drive Mallee	Residential dwelling (verified)	>1.5km
R2029	16B Drovers Drive Mallee	Residential dwelling (verified)	>1.5km
Buronga construction compound and accommodation camp			
R2026	694 Arumpo Road	Residential dwelling (verified)	>1.5km
Modica Crescent water supply point			
--	48 Corbett Avenue, Buronga	Residential dwelling	>300m

3.2 Aboriginal heritage

Appendix E of the Amendment Report – *Revised Non-Aboriginal and Aboriginal Cultural Heritage Assessment Report* identifies the location of the recorded Aboriginal heritage features in the vicinity of the project. The potential archaeological deposit (PAD) PEC-W-PAD27 (PAD27) and the artefact

scatter PEC-W-103 are located in close proximity to the Stage 1 works as shown in Figure 3.1. PAD27 is approximately 35m from the Stage 1 disturbance area.

Appendix E of the Amendment Report identified that there is a heightened likelihood of Aboriginal burials associated with the landform at PEC-W-103. Therefore, PEC-W-103 and the associated PAD27 have been included in this NVMP as a conservative approach. Potential vibration impacts on Aboriginal heritage were not identified in either the noise and vibration impact assessments or the above referenced heritage assessment prepared during the assessment phase of the project.

Additional information regarding PAD27 and PEC-W-103 are included in the *Heritage Management Plan* (45860-HSE-PL-D-0009).

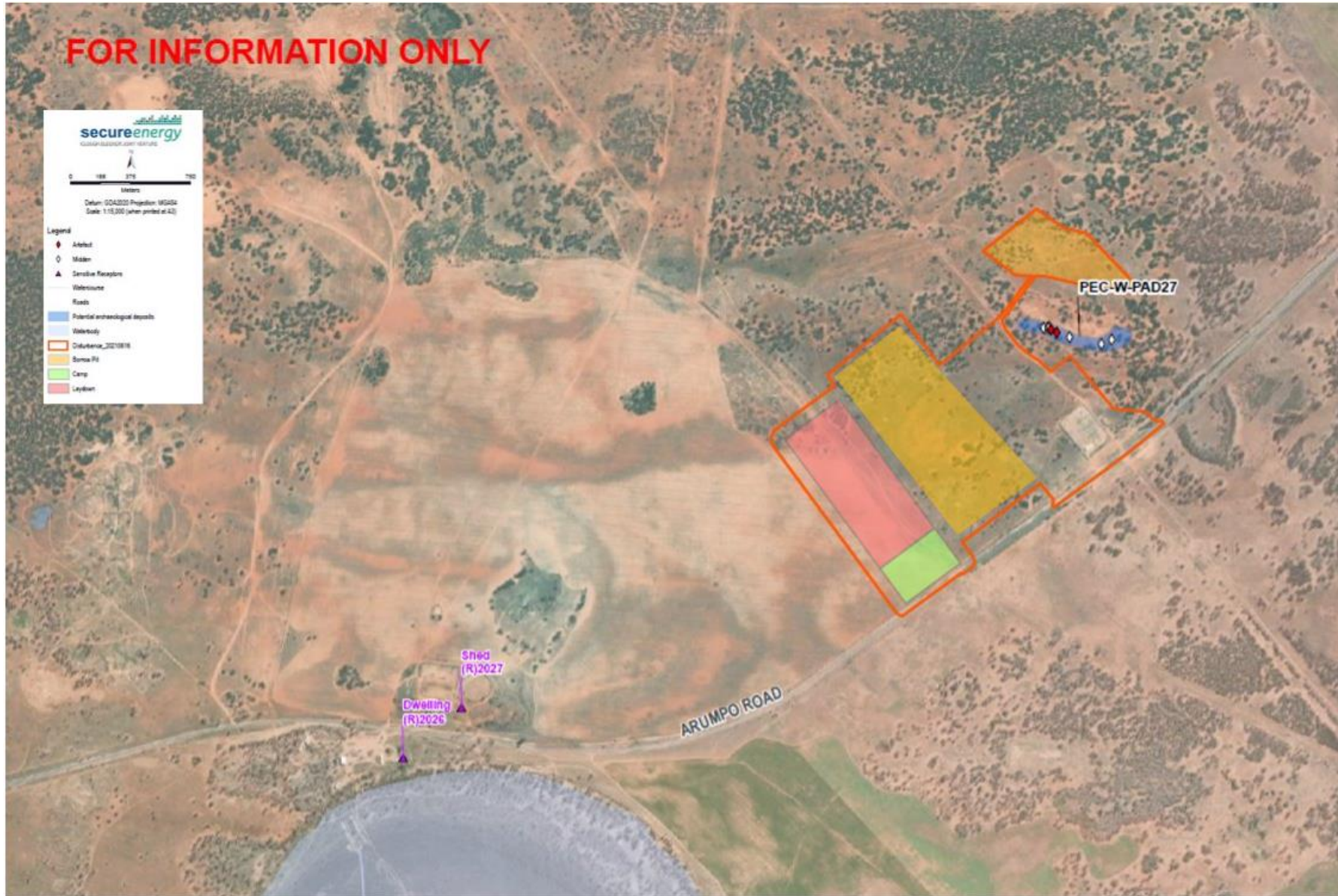


Figure 3.1 - Noise sensitive receivers at Buronga

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3.3 Measured noise levels

Unattended noise monitoring was undertaken at one location during the assessment process undertaken for the EIS. Table 3.2 details the noise levels that were measured during the noise monitoring which occurred between 26 May and 10 June 2020 at 694 Arumpo Road, Wentworth NSW (referred to as noise monitoring location NM1).

The EIS advises that this noise monitoring location was selected as it was considered to be representative of the existing background noise levels that would be experienced across the project.

The main noise sources observed during monitoring included birds, motor vehicles, dogs barking and light wind, which is typical of rural and natural sounds and is expected to be generally consistent across the proposal study area.

Table 3.2 - Unattended noise measurement results at NM1

Measured Noise Level (dBA)					
Rating background level (RBL) dBA			Ambient noise level $L_{Aeq}(15min)$		
Day ⁽¹⁾	Evening ⁽¹⁾	Night ⁽¹⁾	Day ⁽¹⁾	Evening ⁽¹⁾	Night ⁽¹⁾
35 (24) ⁽²⁾	30 (21) ⁽²⁾	30 (22) ⁽²⁾	45	39	34

Notes (as per the EIS):

- (1) Time periods defined as – Day: 7am to 6pm Monday to Saturday, 8am to 6pm Sunday; Evening: 6pm to 10pm; Night: 10pm to 7am Monday to Saturday, 10pm to 8am Sunday
- (2) Where background levels are below the minimum assumed RBLs outlined in the NPfI, they have been adjusted to 35dBA during the day period, and 30dBA during the evening and night periods in accordance with the NPfI

To characterise the existing noise environment, short term (attended) noise measurements was also undertaken at representative locations as summarised in Table 3.3.

Table 3.3 - Attended noise measurement results

ID	Date and Time	Measured Noise Level			Comments
		$L_{A90}(15min)$	$L_{Aeq}(15min)$	L_{Amax}	
NM1 roadside	26/5/2020 4:11 PM	23	58	81	Background: rural noise environment. Sources: Bird noise ~ 33–35 dBA, car pass by ~ 81 dBA, dogs barking, light winds ~ 24–25 dBA
NM1 roadside	26/5/2020 4:30 PM	23	36	55	Background: rural noise environment. Sources: Bird noise ~ 33–35 dBA, car pass by ~ 81 dBA, dogs barking, light winds ~ 24–25 dBA

Background noise levels were observed to be low during the daytime period and dominated by rural and natural sounds. Background noise levels of less than 30dBA were observed during both readings, which were found to be consistent with the findings of the unattended noise monitoring program.

4 Noise and vibration criteria

The EPA recommends management levels and goals when assessing construction noise and vibration. These are outlined in:

- The ICNG (DECC, 2009), and
- *Assessing Vibration: a technical guideline* (DEC, 2006).

Relevant elements of these documents are summarised below.

4.1 Construction hours

4.1.1 Standard construction hours

In accordance with condition D1, and in line with the ICNG standard construction hours, Stage 1 works may only be undertaken between:

- 7am to 6pm – Monday to Friday;
- 8am to 1pm – Saturdays; and
- at no time on Sundays and NSW public holidays;

unless the Planning Secretary agrees otherwise.

4.1.2 Variation to standard construction hours

The following construction, upgrading and decommissioning activities may be carried out outside the hours specific in condition D1:

- the delivery or dispatch of materials as requested by the NSW Police Force or other public authorities for safety reasons;
- emergency work to avoid the loss of life, property or to prevent material harm to the environment; and
- works carried out in accordance with the hours and noise limits specified in any negotiated agreements with sensitive receivers (owners and occupiers), provided the negotiated agreements are in writing and finalised before the commencement of works.

The EIS defined the term **base hours**. Construction work is proposed seven days per week (Monday to Sunday) between 7am and 7pm (base hours).

4.2 Out of hours works protocol

An Out-of-Hours Works (OOHW) Protocol (required in accordance with condition D3) is provided in Appendix A to identify the process for the consideration, management and approval of works to be undertaken outside the hours defined in conditions D1, D2 and D7 of the Infrastructure Approval.

Works that comply with the conditions D1, D2 and D7 are not required to be undertaken in accordance with the processes outlined in the OOHW Protocol.

4.3 Construction noise and assessment objectives

The ICNG provides guidelines for the assessment and management of construction noise. The ICNG focuses on applying a range of work practices to minimise construction noise impacts rather than focusing on achieving numeric noise levels.

The main objectives of the ICNG are to:

- identify and minimise noise from construction works;

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- focus on applying all ‘feasible’ and ‘reasonable’ work practices to minimise construction noise impacts;
- encourage construction during the recommended standard hours only, unless approval is given for works that cannot be undertaken during these hours;
- reduce time spent dealing with complaints at the project implementation stage; and
- provide flexibility in selecting site-specific feasible and reasonable work practices to minimise noise impacts.

4.4 Quantitative noise assessment criteria

Construction noise assessment goals presented in the ICNG are referenced to noise management levels for residential, sensitive land uses and commercial/ industrial premises.

4.4.1 Residential premises

Table 4.1 (reproduced from Table 2 of the ICNG) sets out the external noise management levels for construction noise at residences.

In Table 4.1 the rating background level (RBL) is used when determining the management level. The RBL is the overall single-figure background noise level measured in each relevant assessment period (during or outside the recommended standard hours). The term RBL is described in detail in the *Noise Policy for Industry (NPfI)* (EPA, 2017).

Table 4.1 - External noise at residents using quantitative assessment

Time of day	External Noise Management Level $L_{Aeq(15min)}$ *	How to apply
Recommended standard hours: <ul style="list-style-type: none"> • Monday to Friday 7am to 6pm • Saturday 8am to 1pm • No work on Sundays or public holidays 	Noise affected RBL + 10dB	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 $L_{Aeq(15min)}$ 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 75dBA	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: <ul 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.

Time of day	External Noise Management Level $L_{Aeq(15min)}$ *	How to apply
Outside recommended standard hours	Noise affected RBL + 5dB	<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 5dBA above the noise affected level, the proponent should negotiate with the community.

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

4.4.2 Other land uses (non-residential)

The ICNG provides noise management levels for commercial and industrial premises and ‘other sensitive’ land uses (ICNG, Table 3). The management levels for other noise sensitive receivers not listed in the ICNG, such as hotels, are derived from *AS/NZS 2107:2016 Acoustics – Recommended design sound levels and reverberation times for building interiors* and the Association of Australian Acoustical Consultants (AAAC) *Guideline for Child Care Centre Acoustic Assessment (2013)*. The management levels from AS2107 are the upper range levels to account for the variable and short-term nature of construction noise

Table 4.2 presents noise management levels for other non-residential land uses based on the principle that the characteristic activities for each of these land uses should not be unduly disturbed. The noise management levels apply when the premises are in use during any assessment period.

Internal noise levels are assessed at the centre of the occupied room. External noise levels are assessed at the most affected point within 50m of the area boundary. Where internal noise levels cannot be measured, external noise levels may be used. A conservative estimate of the difference between internal and external noise levels is 10dB for buildings other than residences. Some buildings may achieve greater performance, such as where windows are fixed (that is, cannot be opened).

Table 4.2 - Noise at sensitive land uses (non-residents) using quantitative assessment

Land use	Noise management level ($L_{Aeq(15min)}$)	Where noise management level applies	Assumed façade loss (conservative) (dBA)	External equivalent noise management level ($L_{Aeq(15min)}$)	Reference
Cinema space, theatre, auditorium	35	Internal noise level	20	55	AS2107 ‘maximum’
Hotel (sleeping areas: hotels near minor roads)	35	Internal noise level	20	55	AS2107 ‘maximum’
Classrooms at schools and other educational institutions	45	Internal noise level	10	55	AS2107 ‘maximum’
Childcare centre (sleeping areas)	40	Internal noise level	10	50	AAAC Guideline for Child Care Centre Acoustic Assessment

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Land use	Noise management level ($L_{Aeq(15min)}$)	Where noise management level applies	Assumed façade loss (conservative) (dBA)	External equivalent noise management level ($L_{Aeq(15min)}$)	Reference
Hospital wards and operating theatres	45	Internal noise level	20	65	ICNG
Places of worship	45	Internal noise level	20	65	ICNG
Library (reading areas)	45	Internal noise level	20	65	AS2107 'maximum'
Community centres – municipal buildings	50	Internal noise level	10	60	AS2107 'maximum'
Restaurant, bar (bars and lounges/ restaurant)	50	Internal noise level	20	70	AS2107 'maximum'
Passive recreation (e.g. area used for reading, meditation)	60	External noise level	--	60	ICNG
Active recreation (e.g. sports fields)	65	External noise level	--	65	ICNG
Commercial premises (including offices and retail outlets)	70	External noise level	--	70	ICNG
Industrial premises	75	External noise level	--	75	ICNG

4.4.3 Sleep disturbance criteria

Where construction works are planned to extend over more than two consecutive nights, the potential for works to disturb sleep should be considered. Factors that may be important in assessing the extent of impact on sleep include how often high noise events occur at night, the predicted maximum noise levels, whether there are times when there is a clear change in the noise environment (such as during early morning shoulder periods), and the degree of maximum noise levels above the background noise level.

A night-time sleep disturbance 'screening criterion' noise goal of RBL + 15dB is used to identify the receivers where there is potential for sleep disturbance.

Where the sleep disturbance screening criterion is exceeded, further assessment is conducted to determine whether the 'awakening reaction' level of L_{Amax} 55dBA internal (i.e. 65dBA external assuming an open window or 75dBA external assuming a closed window) would be exceeded and the likely number of these events. The awakening reaction level is the level above which sleep disturbance is considered likely.

4.5 Project noise management levels for residential receivers

The project noise management levels presented in Table 4.3 are based on the existing background noise levels and are determined in accordance with the ICNG.

Table 4.3 - Noise management levels for residential receivers

Location	Rating background level (RBL)			Noise management level				Sleep disturbance L _{A1} (1min)
	L _{A90}			L _{Aeq} (15min)				
	Day (7am – 6pm)	Evening (6pm – 10pm)	Night (10pm – 7am)	Standard Hours ¹ (RBL + 10dB)	Out of hours work (OOHW) ² (RBL + 5dB)			RBL + 15dB
			Day (7am – 6pm)	Day	Evening	Night		
All locations	35 (24) ³	30 (21) ³	30 (22) ³	45	40	35	35	45

Notes:

- (1) ICNG standard construction hours are defined as Monday – Friday: 7am – 6pm, Saturday: 8am – 1pm with no work on Sundays or public holidays.
- (2) Out of hours work time periods are defined as:
 - Day: 7am to 8am Saturday, 1pm to 6pm Saturday and 8am to 6pm on Sunday and public holidays
 - Evening: 6pm to 10pm Monday to Sunday
 - Night: 10pm to 7am Monday to Saturday, 10pm to 8am Sunday
- (3) Where background levels are below the minimum assumed RBLs outlined in the NPfI, they have been adjusted to 35dBA during the day period, and 30dBA during the evening and night periods in accordance with the NPfI.

4.6 Vibration criteria

Effects of ground vibration on buildings resulting from construction may be segregated into the following three categories:

- human exposure – disturbance to building occupants: vibration in which the occupants or users of the building are inconvenienced or possibly disturbed;
- effects on building contents – vibration where the building contents may be affected;
- effects on building structures – vibration in which the integrity of the building or structure itself may be prejudiced.

4.6.1 Human comfort

Vibration criteria relating to human comfort that are applicable to this project are taken from the DEC (2006) document *Assessing Vibration – A Technical Guideline* and include the following.

- continuous vibration – from uninterrupted sources (Table 4.4);
- impulsive vibration – up to three instances of sudden impact eg dropping heavy items, per monitoring period (Table 4.5);
- intermittent vibration – such as from drilling, compacting or activities that would result in continuous vibration if operated continuously (Table 4.6). All proposed vibration intensive activities are considered intermittent.

Table 4.4 - Human comfort - continuous vibration acceleration criteria (m/s²) 1-80Hz

Location	Assessment period	Preferred Values		Maximum Values	
		z-axis	x- and y-axis	z-axis	x- and y-axis
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
		0.04	0.029	0.080	0.058
Workshops	Day or night-time	0.04	0.029	0.080	0.058

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Table 4.5 - Human comfort - impulsive vibration acceleration criteria (m/s²) 1-80Hz

Location	Assessment period	Preferred values		Maximum values	
		z-axis	x- and y-axis	z-axis	x- and y-axis
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

Table 4.6 - Intermittent vibration impacts criteria (m/s^{1.75}) 1-80Hz

Location	Daytime		Night-time	
	Preferred values	Maximum values	Preferred values	Maximum values
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

4.6.2 Structural damage

Two standards by which building damage from construction-induced vibration are commonly assessed include:

- British Standard 7385: Part 2-1993 *Evaluation and measurement for vibration in buildings Part 2: Guide to damage levels from ground borne vibration* (BSI 1993);
- German DIN 4150: Part 3 – 1999 *Effects of Vibration on Structure* (DIN 1999).

The German standard provides the most stringent criteria and will be used in this NVMP. The DIN guideline values for peak particle velocity (mm/s) measured at the foundation of the building are summarised in Table 4.7. The criteria are frequency dependent and specific to particular categories of structure.

Table 4.7 - Structural damage criteria

Type of structure	Peak Component Particle Velocity, mm/s			
	Vibration at the foundation at a frequency of			Vibration of horizontal plane of highest floor at all frequencies
	1Hz to 10Hz	10Hz to 50Hz	50Hz to 100Hz*	
Buildings used for commercial purposes, industrial buildings and buildings of similar design	20	20 to 40	40 to 50	40
Dwellings and buildings of similar design and/or use	5	5 to 15	15 to 20	15
Structures that, because of their sensitivity to vibration, do not correspond to those listed in lines 1 and 2 and are of great intrinsic value (e.g. buildings that are under a preservation order)	3	3 to 8	8 to 10	8

* For frequencies above 100Hz, at least the values specified in this column shall be applied.

4.6.3 Minimum working distances

The EIS identified minimum working distances for typical items of vibration intensive equipment to minimise potential for vibration related impacts. These are reproduced in Table 4.8.

Where vibration intensive equipment such as vibratory rollers, hydraulic hammers, bored piling rigs or jackhammers are used at a greater distance from sensitive receivers than the specified minimum working distance, there is negligible risk of structural damage or impacts on human comfort. Where recommended minimum working distances are not met, more detailed consideration of potential vibration impacts and the construction approach would occur during detailed design.

Table 4.8 - Minimum working distances for vibration intensive plant

Equipment	Rating/Description	Minimum working distance (m)		
		Human response (DEC, 2006)	Cosmetic damage to non-heritage structures (BSI, 1993)	Damage to heritage structures (DIN 4150-3:1999-02)
Vibratory roller	<50kN (typically 1-2t)	15 to 20	5	11
	<100kN (typically 2-4t)	20	6	13
	<200kN (typically 4-6t)	40	12	15
	<300kN (typically 7-13t)	100	15	30
	>300kN (typically 13-18t)	100	20	40
	>300kN (>18t)	100	25	50
Small hydraulic hammer	300kg – 5 to 12t excavator	7	2	5
Medium hydraulic hammer	900kg – 12 to 18t excavator	23	7	15
Large hydraulic hammer	1600kg – 18 to 34t excavator	73	22	44
Vibratory pile driver	Sheet piles	20	2 to 20	5
Pile boring	≤800mm	N/A	2	5
Jackhammer	Hand held	Avoid contact with structure	1	3

4.7 Construction road traffic noise

Technical Paper 8 of the EIS notes that traffic impacts associated with construction vehicles are assessed using guidance from the *Road Noise Policy* (RNP). The RNP provides guidance on the assessment of noise impacts on sensitive receivers from additional road traffic generated by the proposal operating on a public road network.

The RNP makes a distinction between the assessment of freeway/arterial/sub-arterial roads and local roads. Freeway/arterial/sub-arterial roads are assessed over day (7am to 10pm) and night (10pm to 7am) periods.

Table 4.9 presents a summary of applicable road traffic criteria for residential receivers identified in Table 3 of the RNP.

Table 4.9 - Road traffic noise criteria for receivers on existing roads affected by the additional traffic from the project

Road type	External road traffic noise criteria ¹	
	Day 7am – 10pm	Night 10pm – 7am
Freeway/arterial/sub-arterial roads	60 dBA LAeq(15hour)	55 dBA LAeq(9hour)
Local roads	55 dBA LAeq(1hour)	50 dBA LAeq(1hour)

(1) Façade corrected noise levels

The application notes from the RNP detail the requirements for operation-generated traffic noise as follows:

For existing residences and other sensitive land uses affected by additional traffic on existing roads generated by land use developments, any increase in the total traffic noise level as a result of the development should be limited to 2dB above that of the noise level without the development. This limit applies where the noise level without the development is within 2dB of, or exceeds, the relevant day or night noise assessment criterion.

While no exceedances of RNP noise management levels are predicted, the mitigation management measures detailed within Table 7.1 will be implemented.

4.8 Noise intensive equipment

SecureEnergy considers noise intensive equipment as having a sound power level above 115dBA (refer to Table B.1 of Technical Paper 8 of the EIS). Noise intensive equipment that may be used during Stage 1 works includes:

- piling rig;
- D8 dozer;
- excavator with hammer;
- pneumatic jackhammer; or
- mulcher/chipper.

5 Environmental aspects and impacts

5.1 Construction activities

An environmental aspect is an element of an organisation's activities, products, or services that has or may have an impact on the environment (ISO 14001 Environmental management systems). The relationship of aspects and impacts is one of cause and effect.

The key aspects of Stage 1 that could result in adverse impacts to noise and vibration include the use of noise and/or vibration producing equipment for the following activities:

- vegetation clearing and grubbing activities;
- topsoil stripping;
- topsoil/material handling including stockpiling, material and spoil loading and material and spoil haulage;
- earthworks;
- surface grading and compaction;
- crushing and screening (as required);
- movement of vehicles including light and heavy vehicles;
- establishment of the construction compound and accommodation camp at Buronga; and
- operation of the construction compound at Buronga.

5.2 Impacts

Potential impacts attributable to Stage 1 works might include:

- loss of amenity for residential and non-residential sensitive receivers;
- reputational impacts due to complaints from the public;
- disturbance of Aboriginal heritage items and potential archaeological deposits; and
- disturbance of livestock.

Noise and vibration impacts due to works will be intermittent and transient in nature. Due to the scope of works proposed for Stage 1 construction and the distances to the nearest sensitive receivers, works at Buronga are not expected to exceed the noise management levels at any sensitive receivers (refer Section 6.2) and there is negligible risk of structural damage or impacts on human comfort due to the use of vibration intensive equipment at Buronga (refer Section 6.3).

In the unlikely event that construction noise levels for certain activities could exceed the relevant noise management levels, additional noise assessment(s) will be undertaken in accordance with RMM NV3 (refer Section 7.1).

Further detail of the potential noise and vibration impacts resulting from specific proposed activities from Stage 1 works is provided within Section 6. The environmental management described in Section 7 (particularly the measures in Table 7.1) have been developed to address the potential noise and vibration impacts described here and Section 6.

6 Construction noise and vibration assessment

6.1 Construction activities

Appendix B of Technical Paper 8 of the EIS includes a summary of the construction scenarios and noise levels for plant and equipment that were assessed to predict noise impacts associated with the project.

The scenarios relevant to Stage 1 works that were assessed include:

- Buronga substation construction:
 - enabling works;
 - earthworks and civil construction works;
- construction compounds and accommodation camps:
 - enabling works;
 - enabling works – site establishment;
 - operation of the compound – standard hours; and
 - operation of the compound – outside standard hours.

Additional information regarding the types of activities included in each scenario and assessed equipment is included in Appendix C of this plan.

6.2 Construction noise impacts

Condition D5 a) of the Infrastructure Approval states that noise generated by any construction activities must be managed in accordance with the requirements for construction 'noise affected' management levels established in accordance with the ICNG.

Construction 'noise affected' management levels are described as project 'noise management levels' throughout this NVMP and have been established in accordance with the ICNG as identified in Section 4.5. In line with the ICNG, where predicted or measured noise levels exceed the noise management level, feasible and reasonable work practices will be identified and implemented, such as those included in Section 7.

The information in the following sections describes the potential noise impacts for Stage 1 activities compared to the noise management levels. The information is generally obtained from noise assessments presented in Chapter 17 and Technical Paper 8 of the EIS, Section 6.10 and Appendix I of the Amendment Report and the Response to DPIE Request for Information.

6.2.1 Buronga substation earthworks

Overview

Section 5.2.2 of Technical Paper 8 of the EIS found that construction works at the Buronga substation upgrade and expansion site would comply with relevant noise management levels at the nearest sensitive receivers for all construction work phases, with noise levels predicted to be less than 30dBA at the nearest sensitive receiver.

The Amendment Report included a change to the earthworks material site, with the layout amended to being located to the north-east and north-west of the Buronga substation upgrade and expansion site (refer Figure 6.1).

Subject to geotechnical investigations, a mobile crushing and screening plant may be required and established at the Buronga substation earthworks site. An indicative location for the crushing and screening activities is shown in Figure 6.1.

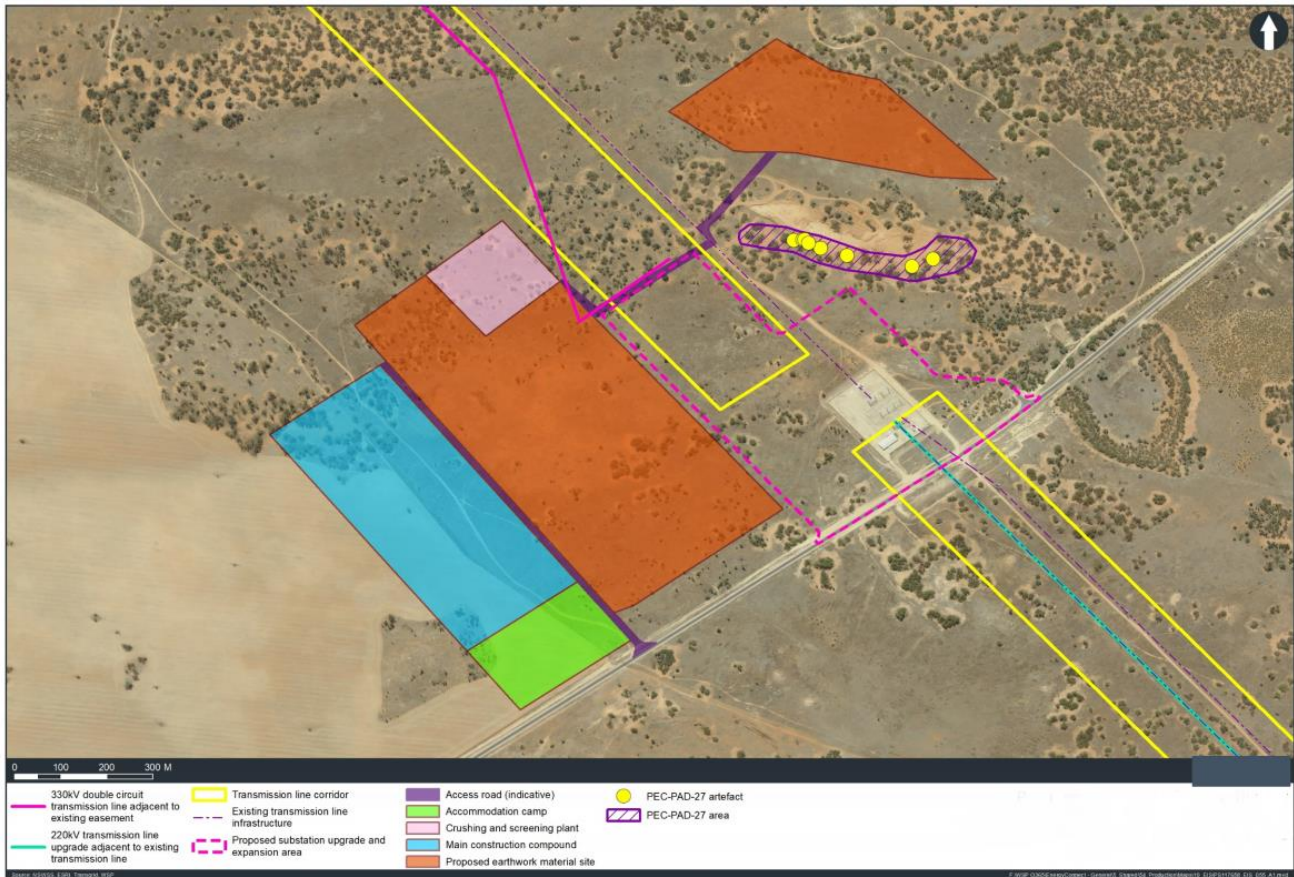


Figure 6.1 - Buronga earthwork material site (orange), construction compound (blue) and accommodation camp (green)

Potential impacts

The Amendment Report identified that the assessment of the earthworks and crushing and screening activities would see a negligible change in impacts to the predicted noise levels at the nearest sensitive receivers compared to the results presented in Section 5.2.2 of Technical Paper 8 of the EIS, which are also presented in Table 6.1. The crushing activities are not expected to exceed the noise management levels at the nearest sensitive receiver where a buffer distance of 500m can be maintained between equipment and that receiver.

All proposed activities associated with Stage 1, including those undertaken outside the ICNG standard construction hours (also defined by condition D1), are anticipated to generate noise levels that would comply with relevant noise management levels at the nearest sensitive receiver, as identified in Table 6.1.

In accordance with condition D3, any works proposed to be undertaken outside the hours defined in conditions D1, D2 and D7 of the Infrastructure Approval, will be undertaken in accordance with the OOHW Protocol included in Appendix A.

Table 6.1 - Predicted noise levels – Buronga substation upgrade and expansion (Source WSP)

Construction work phase	Period ¹	Project NML L _{eq(15min)} dBA ²	Predicted noise level L _{eq(15min)} dBA	Exceedance of project NMLs L _{eq(15min)} dBA	Highly noise affected NML 75dBA or greater L _{eq(15min)}
Enabling works	SH Day	45	Less than 30	-	-
	OOHW D	40	Less than 30	-	-
	OOHW E/N	35	Less than 30	-	-
Earthworks and civil construction works	SH Day	45	Less than 30	-	-
	OOHW D	40	Less than 30	-	-
	OOHW E/N	35	Less than 30	-	-

Note: Exceedance classes – Less than or meets noise management level (NML); NML+1–10 dB; NML+11 – 20 dB; NML+21 dB or more

6.2.2 Buronga construction camp and laydown

The construction compound and accommodation camp sites are located at:

- Buronga;
- Wentworth;
- Anabran South (construction compound only).

This Stage 1 NVMP relates to the establishment and operation of the Buronga construction compound, but only to the establishment of Buronga accommodation camp.

Overview

The nearest receiver to the Buronga construction compound and accommodation camp is located approximately 1.8km from the site boundary.

Potential impacts

The EIS predicted the noise levels due to the Buronga construction compound and camp during standard hours of work and OOHW periods.

Based on the distances to sensitive receivers, no receivers are predicted to experience noise levels above the relevant noise management level due to noise from construction activities associated with the Buronga construction compound and accommodation camp, including those undertaken outside the ICNG standard construction hours (also defined by condition D1). This is demonstrated by the predicted noise levels listed within Table 6.2.

In accordance with condition D3, any works proposed to be undertaken outside the hours defined in conditions D1, D2 and D7 of the Infrastructure Approval, will be undertaken in accordance with the OOHW Protocol included in Appendix A.

Table 6.2 - Predicted noise levels – Buronga construction compound and accommodation camp

Construction work phase	Period ¹	Project NML L _{eq(15min)} dBA ²	Predicted noise level L _{eq(15min)} dBA	Exceedance of project NMLs L _{eq(15min)} dBA	Highly noise affected NML 75dBA or greater L _{eq(15min)}
Enabling works	SH Day	45	Less than 30	-	-
	OOHW D	40	Less than 30	-	-
	OOHW E/N	35	Less than 30	-	-

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Construction work phase	Period ¹	Project NML Leq(15min) dBA ²	Predicted noise level Leq(15min) dBA	Exceedance of project NMLs Leq(15min) dBA	Highly noise affected NML 75dBA or greater Leq(15min)
Enabling works – site establishment	SH Day	45	Less than 30	-	-
	OOHW D	40	Less than 30	-	-
	OOHW E/N	35	Less than 30	-	-
Operation of the compound	SH Day	45	Less than 30	-	-
	OOHW D	40 ³	Less than 30	-	-
	OOHW E/N	35 ³	Less than 30	-	-

Note: Exceedance classes – Less than or meets noise management level (NML); NML+1–10 dB; NML+11 – 20 dB; NML+21 dB or more

6.3 Construction vibration impacts

At sufficient levels, vibration can lead to cosmetic (and possibly structural) building damage and can cause disturbance to occupants. Vibration can also affect sensitive structures, which could include heritage listed buildings. There are no heritage listed buildings in the vicinity of the Stage 1 works.

PAD27 and PEC-W-103 are located approximately 35m from the edge of the Stage 1 works. No vibration criteria for Aboriginal heritage features have been nominated. Necessary management of these features will be developed through the preparation of the Aboriginal Cultural Heritage Strategy required in condition D29 of the Infrastructure Approval and the *Heritage Management Plan (45860-HSE-PL-D-0009)*.

The nearest sensitive receiver to the Buronga substation upgrade and expansion works is approximately 2.3km from the site. The minimum working distances identified in Table 4.8 indicate that where sensitive receivers are in excess of 100m from vibration generating equipment, there is negligible risk of structural damage or impacts on human comfort due to the use of vibration intensive equipment.

Due to the separation distances between the work locations and the nearest sensitive receivers, the risk of vibration impacts due to the Stage 1 works is negligible.

6.4 Construction road traffic noise

6.4.1 Primary access routes

Appendix I of the Amendment Report assessed the road traffic noise impacts for primary access routes from revised road traffic numbers. Indicative vehicle movements for construction of the project were identified in Table 2.5 of Appendix I of the Amendment Report for the Buronga substation upgrade and expansion site (peak vehicle movements of 200 light vehicle and 200 heavy vehicle movements per day) and transmission line works (peak vehicle movements of 300 light vehicle and 200 heavy vehicle movements per day).

Table 2.6 of Appendix I of the Amendment Report presented the construction traffic noise assessment on the primary haulage routes adopting traffic volumes for the transmission line works (being the more conservative assumption for the purpose of the assessment) (these volumes align with the Stage 1 indicative traffic numbers identified in the Traffic Strategy (45860-G-70108-REP-G-00001)). The results presented in Table 2.6 of Appendix I of the Amendment Report identified that the construction road traffic noise levels are predicted to comply with relevant RNP noise criteria (Section 4.7) at all proposal affected roads. As described in the application notes for the RNP, the increase in total traffic noise level should be limited to 2dB above that of the noise level without the development where the noise level is within 2dB of, or exceeds, the relevant day or night noise assessment criterion.

The construction road traffic noise levels for Stage 1 traffic are also predicted to comply with the relevant RNP noise criteria, as the Stage 1 construction traffic would not exceed the assessed traffic volumes.

Table 6.3 - Predicted road traffic noise levels (source Appendix I of the Amendment Report)

Road name and location	RNP classification	RNP noise assessment criterion (dBA) ¹	Predicted noise level		Increase in noise level generated by construction traffic (dB)	Compliant with RNP management level?
			Base traffic (dBA)	Base traffic with construction traffic (dBA)		
Silver City Highway (B79). Ellerslie – between Broken Hill and Wentworth (from Broken Hill to Renmark Road, Wentworth)	Sub-arterial	60	45	50	5.5	Yes
Silver City Highway (B79). Wentworth Town Centre (from Renmark Road, Wentworth to Delta Road in Wentworth)	Sub-arterial	60	55	57	1.6	Yes
Silver City Highway (B79).– between Dareton and Buronga (from Fletchers Lake Road to Corbett Avenue)	Sub-arterial	60	58	60	1.6	Yes ²
Silver City Highway (B79). within Buronga Town Centre (from Corbett Avenue to Sturt Highway)	Sub-arterial	60	59	59	0.8	Yes ²
Sturt Highway (A20) George Chaffey Bridge – between Mildura and Silver City Highway, Buronga	Sub-arterial	60	64	65	0.4	Yes ²
Sturt Highway (A20) within Buronga (between Silver City Highway and Knights Road in Gol Gol)	Sub-arterial	60	56	57	1.5	Yes

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Road name and location	RNP classification	RNP noise assessment criterion (dBA) ¹	Predicted noise level		Increase in noise level generated by construction traffic (dB)	Compliant with RNP management level?
			Base traffic (dBA)	Base traffic with construction traffic (dBA)		
Arumpo Road (north of Mourquong Road, Mourquong)	Sub-arterial	60	47	53	5.5	Yes
Renmark Road	Sub-arterial	60	38	49	11.0	Yes

Notes:

- (1) Day criterion: 7am – 10pm
- (2) The increase in noise level generated by construction traffic is limited to not more than 2dB above the existing/base traffic noise levels where the existing/base levels are within 2dB of, or exceed the relevant day noise assessment criterion.

Although compliant with the RNP criteria, there would be a general increase in the noise contribution from construction vehicles along all assessed roads. Increases in noise levels are predicted to be generally limited to below 2 dB with the exception of Silver City Highway, Arumpo Road and Renmark Road, which are expected to experience increases of 5.5dB, 5.5dB and 11.0dB respectively (Table 2.6 of Appendix I of the Amendment Report). The assessment is considered to be conservative using peak hour volumes and peak vehicle movements. Actual traffic movements would fluctuate over the course of the day according to the construction program.

By implementing the mitigation measures outlined within Table 7.1, further noise impacts associated with construction road traffic will be minimised.

6.4.2 Secondary access routes and water supply routes

Further to this, Appendix F to the Response to DPIE Request for Information presented a high-level screening assessment to estimate noise level contributions from construction-related traffic on water supply access routes as existing traffic volumes on the identified routes are unavailable. This assessment found that construction traffic volumes alone were predicted to comply with the relevant RNP noise criteria at the nearest identified sensitive receiver along each proposed route. The estimated noise level contribution and the relevant RNP criteria for Stage 1 water supply points is presented in Table 6.4. Construction traffic volumes are assumed to be above the 2dB relative increase on all proposed routes.

Predicted road traffic noise levels and associated increases will occur during the day-time period and any noise impacts associated with construction-related traffic would be temporary. Mitigation measures outlined within Table 7.1 will be implemented to reduce the potential noise impacts of construction related traffic movements.

Table 6.4 - High risk assessment of construction related traffic noise levels – water supply routes (Source: Table 3 of Appendix F to the Response to DPIE Request for Information)

Location	Affected roads	Maximum and typical (daily) movements	Duration	Nearest residential receiver(s) (estimated)	Estimated noise level contribution from construction traffic (dBA)	RNP criteria (dBA)
Alcheringa Road, Buronga	Alcheringa Road Corbett Avenue	HV max ¹ = 40 HV typ ² = 30	Stage 1	Around five residential receivers along the road. Nearest around 15m from street frontage.	52 L _{Aeq} (1hour)	55 L _{Aeq} (1hour) (local roads)
Modica Crescent	Alcheringa Road	HV max = 4 HV typ = 2	Stage 1	Around three residential receivers along the route with	52 ³ L _{Aeq} (1hour)	55 L _{Aeq} (1hour) (local roads)

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Location	Affected roads	Maximum and typical (daily) movements	Duration	Nearest residential receiver(s) (estimated)	Estimated noise level contribution from construction traffic (dBA)	RNP criteria (dBA)
	Corbett Avenue Modica Crescent			frontage along the route. Nearest receiver around 15m from street frontage.		

Notes:

- (1) HV max = Maximum daily heavy vehicle movements
- (2) HV typ = Typical daily heavy vehicle movements.
- (3) Estimated noise contribution for Modica Crescent water supply route is based on the assessment undertaken for Alcheringa Road water supply route as the majority of the route is shared. The actual noise level is not expected to exceed the 52dBA estimate, as the estimate was based on 40 heavy vehicles (not 4 heavy vehicles, as required for Modica Crescent water supply point).

7 Environmental management

SecureEnergy will take all reasonable and feasible steps to minimise the construction, upgrading or decommissioning noise of the development in the locations where the noise is audible to sensitive receivers, including any associated traffic noise.

7.1 Exceedances of noise management levels – protocol for management

As described in Section 6.2.1 and Section 6.2.2 above, the assessment of potential noise impacts carried out in the EIS and the Amendment Report indicated that noise generated by the Stage 1 works would be unlikely to exceed the relevant noise management levels at any sensitive receivers at any time.

If construction activities are identified that could generate noise levels that are likely to exceed the relevant noise management levels at any sensitive receivers, additional noise assessment(s) will be undertaken in accordance with RMM NV3.

Additional noise assessments will:

- consider the location of the proposed activities;
- consider the noise and vibration generating activities that will take place;
- assess the predicted noise and vibration levels against the relevant management levels; and
- identify feasible and reasonable mitigation and management measures in accordance with the ICNG.

These noise assessments may be undertaken through the construction noise and vibration management tool developed for use on the project, or as a construction noise and vibration impact statement (CNVIS).

The construction noise and vibration management tool incorporates specific work areas and equipment for each activity to calculate the potential noise and vibration impacts. The tool can also estimate whether and which sensitive receivers are within minimum working distances from the proposed construction activities.

Additional noise assessments undertaken for the project will be document controlled separately from this NVMP.

Where exceedances of noise management levels are predicted, residents/sensitive receivers will be notified of construction activities that are likely to affect their noise and vibration amenity in accordance with Section 9 of the *Community Communication Strategy* (45860-CM-PL-G-1001).

This proactive communication will include:

- the types of activities to be undertaken;
- the timing of activities including expected start and finish;
- the location of activities;
- details of the community information line and how to make an enquiry and/or complaint.

Notification of OOHW will occur in accordance with the notification requirements of the *Out of Hours Works Protocol* (45860-HSE-PR-D-0001).

Where exceedances of noise management levels are predicted, consultation with affected receivers (e.g. individual meetings) will also occur in accordance with management measure N6 to understand their preferences for mitigation and management measures. Based on this consultation, appropriate mitigation and management options will be considered and implemented to minimise the impacts.

SecureEnergy will use a range of tools to communicate with the community and stakeholders such as community and stakeholder notifications, email, community drop-in sessions and door knocks.

Works that potentially exceed the noise management levels will be undertaken in accordance with the relevant measures identified in Table 7.1, and any additional measures that are identified through the additional noise assessments described above. Monitoring will be undertaken as described in Section 8.3.

7.2 Management measures

A range of environmental requirements and mitigation measures are identified in the EIS, the Response to DPIE Request for Information and the Infrastructure Approval. Safeguards and management measures will be implemented to minimise or manage impacts to noise and vibration as required by RMM NV3 and condition D4.

Specific safeguards and management measures that will be implemented to address noise and vibration impacts associated with Stage 1 of the project are identified in Table 7.1.

Table 7.1 - Noise and vibration management measures (N)

ID	Measurement/Requirement	When to implement	Responsibility	Source document
General				
N1	Training and awareness programs will be delivered to project personnel, including relevant sub-contractors on noise and vibration requirements (including operating hours) through inductions, toolboxes and targeted training.	Pre-construction and construction	Environmental Advisor, Environmental Manager, Health, Safety, Security and Environment team	Good practice
N2	The location of known Aboriginal heritage items and potential archaeological deposits (PADs) in the vicinity of the project will be shown on sensitive area plans and their location communicated to site personnel prior to the commencement of works in the area.	Pre-construction and construction	Environmental Advisor, Supervisors	Good practice Condition D34
N3	Vibration impacts near PEC-W-103/PAD27 will be minimised where possible.	Pre-construction and construction	Supervisors, Construction Manager, Environmental Advisor	Good practice Condition D31
Construction noise				
N4	Plant and equipment used on site will maintained in a proper and efficient condition and operated in a proper and efficient manner.	Pre-construction and construction	Supervisors, Health, Safety, Security and Environment team	Condition A12 POEO Act
N5	Where construction noise levels are likely to exceed relevant noise management levels, additional noise assessments will occur to identify feasible and reasonable mitigation and management measures in accordance with the ICNG.	Detailed design and construction	Environmental Manager, Environmental Advisor	RMM NV3
N6	Where exceedances of noise management levels are predicted, consultation with affected receivers (e.g. individual meetings) will occur to understand their preferences for mitigation and management measures. Based on this consultation, appropriate mitigation and management options will be considered and implemented to minimise the impacts.	Detailed design and construction	Engagement Manager, Environmental Manager	RMM NV4

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ID	Measurement/Requirement	When to implement	Responsibility	Source document
N7	<p>To minimise noise levels associated with project construction road traffic:</p> <ul style="list-style-type: none"> a driver's code of conduct will be developed and implemented (refer to <i>Traffic and Transport Management Plan</i> (45860-HSE-PL-D-0004)); horns will be used for emergency or safety reasons only; heavy vehicle parking, idling and queuing on public roads will be discouraged (except where permitted, e.g. water supply points); all heavy and light vehicles associated with the project will travel to and from site via the routes nominated in the <i>Traffic and Transport Management Plan</i> (45860-HSE-PL-D-0004), unless otherwise approved by the Planning Secretary; and vehicles movements will be scheduled during daytime periods where practical. <p>These mitigation measures will be implemented with the aim of achieving the road traffic noise assessment criteria for residential land uses from the <i>Road Noise Policy</i> (DECCW, 2011).</p>	Pre-construction and construction	Supervisors, Construction Manager, Environmental Manager, Engagement Manager, all project-related vehicle drivers	RMM NV5 Condition D7 b) Condition D4
N8	<p>In accordance with the Stage 1 Traffic Strategy, the following mitigation measures will be implemented to manage potential exceedances of construction traffic noise:</p> <ul style="list-style-type: none"> driver training in concurrence with the <i>Driver's Code of Conduct</i> (45860-HSE-PR-H-1009); ensuring the proposed peak period heavy movements along the water supply routes are not exceeded; and minimising traffic movements by ensuring full loads. 	Pre-construction and construction	Environmental Manager, Construction Manager	Condition D40 Condition D4
N9	Landowners using disturbance areas for livestock grazing will be consulted prior to the commencement of works regarding alternatives for the management of their stock during these activities.	Pre-construction and construction	Land and Property Access Manager	RMM LP6
Working hours				
N10	Any works outside of the hours defined in condition D1, D2 and D7 will be undertaken in accordance with the Out of Hours Work Protocol in Appendix A.	Construction	Supervisors, Construction Manager, Environmental Manager	RMM NV6 Condition D3
N11	<p>Works may be undertaken in accordance with the hours and noise limits specified in negotiated agreements with affected sensitive receivers.</p> <p>Where multiple receivers are affected by works, a substantial majority of the receivers must agree to the specified hours and noise limits proposed by the project.</p> <p>Negotiated agreements must be in writing and finalised prior to the relevant works.</p>	Pre-construction and Construction	Supervisors, Environmental Manager, Engagement Manager	Condition D2 c)

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ID	Measurement/Requirement	When to implement	Responsibility	Source document
N12	Where noise intensive equipment will be used near sensitive receivers and is predicted to result in an exceedance of the noise management level, the relevant equipment will be used during standard construction hours, unless agreement is reached with the affected sensitive receivers, or the associated activity is otherwise permitted through condition D2 or D3.	Construction	Supervisors, Construction Manager, Environmental Manager	RMM NV7
Consultation and complaints management				
N13	Where exceedances of noise management levels are predicted, residents/sensitive receivers will be notified of construction activities that are likely to affect their noise and vibration amenity in accordance with the <i>Community Communication Strategy (45860-CM-PL-G-1001)</i> . This proactive communication will include: <ul style="list-style-type: none"> • the types of activities to be undertaken; • the timing of activities including expected start and finish; • the location of activities; • details of the community information line and how to make an enquiry and/or complaint. 	Construction	Engagement Manager	RMM NV5
N14	All complaints received will be managed in accordance with the <i>Community Communication Strategy (45860-CM-PL-G-1001)</i> .	Construction	Engagement Manager	RMM NV5
Monitoring and reporting				
N15	Noise and vibration monitoring will be undertaken in accordance with Section 8.1.	Construction	Environmental Manager, Environmental Advisor	RMM NV5
N16	If noise monitoring indicates that mitigation measures are not fully effective, or if noise complaints are received during construction, a review of noise mitigation measures will be undertaken to determine if additional noise mitigation controls are required.	Construction	Supervisors, Construction Manager, Environmental Manager, Environmental Advisor	RMM NV5

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8 Compliance management

8.1 Training and awareness

All site personnel will undergo the SecureEnergy site induction prior to the personnel participating in on-site construction activities. The induction training addresses elements related to noise and vibration management including, but not limited to:

- complying with the conditions of the Infrastructure Approval;
- the environmental management system, including the CEMP;
- sensitive receivers in close proximity to project locations;
- management measures that are necessary to comply with to minimise and manage potential impacts to those sensitive receivers; and
- the *Out of Hours Works Protocol* (45860-HSE-PR-D-0001).

Targeted training in the form of toolbox talks or specific training will also be delivered to personnel with a key role in noise and vibration management. Examples of training topics include:

- vibration awareness in the vicinity of Aboriginal heritage features; and
- noise monitoring.

Records of training, including attendance, will be retained by SecureEnergy.

8.2 Roles and responsibilities

SecureEnergy's organisational structure and overall roles and responsibilities are outlined in Section 4 of the CEMP.

The project environmental management structure incorporates the following site personnel:

- Environmental Manager responsible for overall management of the CEMP and CEMP sub-plans; and
- Environmental Advisors to assist in implementing and monitoring measures in the CEMP and CEMP sub-plans.

SecureEnergy's Project Director, in consultation with functional managers, will ensure that appropriate resources are available to effectively manage the implementation of the CEMP and CEMP sub-plans during delivery of the project. All SecureEnergy staff, subcontractors and visitors are required to operate in accordance with this NVMP and related environmental management plans during construction.

Specialist consultants and subcontractors will be engaged for environmental support roles, as required, such as noise and vibration specialists for noise modelling (as required) and ongoing advice throughout construction.

Specific responsibilities for the implementation of mitigation measures are detailed in Section 7 of this NVMP.

8.3 Monitoring

The impacts and environmental performance of the project relevant to noise and vibration, and the effectiveness of the management measures identified in Section 7 will be monitored through the proposed monitoring program in Table 8.1.

Table 8.1 - Monitoring program

Item	Scope	Frequency	Equipment	Responsibility	Records/ reporting
Commencement of new activity	At the commencement of a new activity or location where exceedances of the noise management levels are predicted to occur at the most affected receiver.	Commencement of activities predicted to exceed noise management levels	Hand held calibrated noise monitor	Environmental Advisor	Noise monitoring records
Commencement of OOHW activities	At the commencement of a new OOHW activities or location where exceedances of the noise management levels are predicted to occur at the most affected receiver.	Commencement of OOHW activities predicted to exceed noise management levels	Hand held calibrated noise monitor	Environmental Advisor	Noise monitoring records
Complaint-based monitoring	Where complaints are received, noise monitoring may be undertaken at sensitive receivers to determine if the actual construction noise generated exceeds the predicted 'worst case' construction noise levels identified in this plan.	As required	Hand held calibrated noise monitor	Environmental Manager, Environmental Advisor	Noise monitoring records
Weekly inspections	Inspection of the environmental controls and implementation of the noise and vibration mitigation measures outlined in Table 7.1.	Weekly	Not applicable	Environmental Advisor Supervisors	Weekly Environmental Inspection Checklist

8.4 Inspections

Weekly inspections will be performed by the Environmental Manager (or delegate) and documented in a weekly environmental checklist. The inspections will check the implementation and effectiveness of the management measures identified in Section 7 and the environmental performance of the project relevant to noise and vibration. Visual inspection of any noise controls, e.g. hoarding or noise barriers will be undertaken.

8.5 Auditing

No noise specific audits are identified in the Infrastructure Approval or the RMMs.

Audits will be undertaken to assess the effectiveness of the management measures and overall compliance with this plan, and other relevant approvals, licences and guidelines. Audit requirements are detailed in Section 9.3 of the CEMP.

Independent audits will be undertaken in accordance with the *Independent Audit Post Approval Requirements (2020)*.

8.6 Reporting

Reporting which will be undertaken in accordance with the NVMP is summarised within Table 8.2.

Table 8.2 - Reporting program

Item	Scope	Frequency	Responsibility	Recipient
Monitoring reporting	Monitoring reports will include the results of monitoring undertaken during the reporting period and an assessment of the effectiveness of the noise and vibration management system. Monitoring reports will be prepared six-monthly. Reporting of noise and vibration matters on the project website in accordance with condition E12.	Six-monthly	Environmental Manager	ER Transgrid Public (via project website)
Audit reports	Independent audits undertaken in accordance with the Infrastructure Approval will include audits of noise and vibration management measures (based on the Independent Auditor's program). Audit reports will be prepared. Further detail in relation to auditing is provided within Section 9.3 of the CEMP.	Independent audit will be undertaken within 12 weeks from the commencement of construction and then at intervals, no greater than 26 weeks from the date of the initial Independent Audit or as otherwise agreed by the Secretary.	Environmental Manager / Independent Auditor	ER Transgrid DPIE

8.7 Emergencies, incidents and non-compliances

8.7.1 Emergencies

Emergency management and planning including any emergencies related to noise and vibration will be undertaken in accordance with the Clough management system and relevant procedures. Emergencies will be managed through Clough three-tiered management system approach. Depending on the severity of the emergency, emergencies will be managed in accordance with the following:

- Level 1 – on-site emergencies will be in accordance with the *Project Specific Emergency Preparedness and Response Plan (45860-HSE-PL-G-1015)*;
- Level 2 – emergency situations where response exceeds the capacity of site resources incidents will be coordinated by the Incident Coordination Team; and
- Level 3 – an emergency situation where the incident has the potential to, or has impacted, the business in terms of, reputation, and commercial liability. Incidents will be supported by the Major Incident Management Team.

Emergencies will be responded to in accordance with the level of the emergency (listed above). For each level of emergency, the situation will be assessed, the site support requirements will be established and notification will occur. A Level 1 emergency will result in activation of the *Project Specific Emergency Preparedness and Response Plan (45860-HSE-PL-G-1015)*. A Level 2 emergency will result in activation of the Incident Coordination Team, and a Level 3 emergency will result in activation of the Incident Management Team.

Refer to Section 8.1 of the CEMP – Emergency preparedness and emergency response for further details.

8.7.2 Environmental incidents

Environmental incidents, including incidents related to noise and vibration will be managed as described in Section 8.2 of the CEMP – Environmental incidents and the Incident, Notification and Investigation Procedure Flowchart provided in Appendix A4 of the CEMP. All site personnel are authorised to suspend a work activity that is likely to cause or actually causing or contributing to an incident. A supervisor/manager may request additional staff be deployed to the site to provide additional capacity or capability to manage the incident.

Incident reporting is described in Section 8.3 of the CEMP – Incident notification and reporting.

All environmental incidents that occur on the project, regardless of how minor, must be reported to a supervisor by personnel involved or witnesses to the incident immediately after the incident occurs. The Environmental Manager will be notified immediately of any environmental incident. Transgrid will be notified of incidents and near misses immediately. Formal, documented reporting of incidents will be completed, and will be submitted to Transgrid in accordance with requirements under the Contract. The Environmental Representative will also be included on all incident notifications.

For incidents which are reportable to DPIE, notification will occur to DPIE via the Major Projects website immediately after becoming aware that an incident has occurred. A written notification will then be provided to DPIE via the Major Projects website within seven days after becoming aware of the incident. Refer to Section 8.3.1 of the CEMP - Incident notification and reporting in accordance with the Infrastructure Approval for further details requirements of the notification.

8.7.3 Non-compliances

Where a non-compliance with the Infrastructure Approval has been identified, including those relevant to noise and vibration, corrective actions will be developed as required and implemented to address the non-compliance that occurred.

Reporting of non-compliances will be undertaken as described in Section 10.1 of the CEMP – Reporting non-compliances. The Planning Secretary will be notified in writing via the Major Projects website within seven days after Transgrid becomes aware of any non-compliance. The written non-compliance notifications will contain the requirements set out in condition E8 of the Infrastructure Approval and will include details such as:

- the non-compliance;
- the reasons for the non-compliance (if known); and
- what actions have been taken, or will be taken, to address the non-compliance.

Refer to Section 10.1.1 of the CEMP - Reporting non-compliances in accordance with the Infrastructure Approval for further details requirements of the notification.

A non-compliance which has been notified as an incident does not need to also be notified as a non-compliance.

Failure to comply with other statutory requirements such as the EPBC Act Approval will be reported in accordance with Section 10.1.2 of the CEMP. Any other reporting will occur in accordance with Section 10.1.3 of the CEMP.

Where a non-compliance has been identified, the non-compliance will be reviewed by the Environmental Manager to determine the reason for the non-compliance, and what corrective actions have, or will be taken, to address the non-compliance. Preventative actions will be developed as required and implemented to minimise the potential for recurrence.

Section 11 of the CEMP – Non-compliance, non-conformance, corrective and preventative action describes the process for non-compliance management.

8.8 Contingency plan

Although the project has been assessed through the environmental impact assessment process and potential impacts identified, unpredicted impacts may occur as the project progresses. In the event that unexpected impacts are identified, the action or cause will be categorised and as required will be managed as:

- an emergency or environmental incident in accordance with Section 8 of the CEMP – Incidents and emergencies; and/or
- a non-compliance or non-conformance in accordance with Section 11 of the CEMP – Non-compliance, non-conformance, corrective and preventative action.

Reporting of the unpredicted impacts would be in line with the above processes and as described in Section 10 of the CEMP – Reporting.

Corrective and preventative actions may be generated from a number of sources, including but not limited to incidents, audits and management reviews. The actions will be managed in accordance with the Clough management system to ensure that the required actions are tracked and closed out in a timely manner. The completion of the required actions will be recorded, and will include details on the source of the action (e.g. audit, inspection or other), the action required, target close out date, actual close out date and the person responsible.

Through the identification of corrective and/or preventative actions through the above processes, the following steps will occur as relevant:

- a) determine the relevant impact assessment criterion/criteria, below which the impact should be reduced, consistent with the requirements of this NVMP;
- b) identify options to reduce the unexpected impacts to below the relevant criterion/criteria and appropriate timeframe for implementation;
- c) implement the selected measure(s) to reduce the unexpected impacts; and
- d) identify and implement an appropriate monitoring program to determine the effectiveness of the selected measure(s) to reduce the unexpected impact.

If the above monitoring program identifies that the unexpected impacts have not been reduced to below the nominated criterion/criteria, items b) to d) of the contingency process will be repeated.

8.9 Continuous improvement

A continuous improvement process is described in Section 1.9 of the CEMP and is based on a Plan-Do-Check-Act model. The Plan-Do-Check-Act model outlines the following:

- Plan stage outlines the environmental objectives and the process to achieve the results;
- Do stage focuses on the implementation of the EMS;
- Check stage comprises ongoing monitoring of the environmental management performance against the environmental objectives, for the purpose of identifying opportunities for improvement; and
- Act stage - undertaking the required actions in order to achieve the environmental objectives.

Where monitored construction noise levels are found to be above modelling predictions or in response to complaints associated with noise and vibration impacts, the following actions will be undertaken:

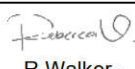


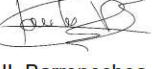
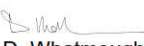
- confirm the monitored levels are due to project works;
- determine if the exceedance is due to an uncharacteristically loud piece of equipment;
- confirm that the actual activity being undertaken is the same as the modelled scenario on which the predictions are based;
- review feasible and reasonable mitigation measures that were applied and revise if necessary, which may include reducing plant size, modifying time of works, utilising alternative construction methodology; and
- communicate lessons learnt, as required, to relevant personnel.

Appendix A - Out of hours works protocol

INTERNAL



Out of Hours Works Protocol EnergyConnect (NSW - Western Section) 45860-HSE-PR-D-0001

REV	DATE	GENERAL DESCRIPTION	PREPARED	REVIEWED	VERIFIED	VERIFIED	APPROVED
D	13/10/2021	Issued for Transgrid review	A. Kriegel	R. Walker-Edwards	G. Crighton	JL.Barrenechea	D. Whatmough
E	22/11/2021	Issued for Transgrid review	A. Kriegel	R. Walker-Edwards	G. Crighton	JL.Barrenechea	D. Whatmough
F	7/12/2021	Issued for DPIE review	A. Kriegel	R. Walker-Edwards/ Mattia Tabacchi	G. Crighton	JL.Barrenechea	D. Whatmough
G	2/02/2022	Issued for DPIE review	K.Nestmann/ M.Lee	R. Walker-Edwards	G. Crighton	JL.Barrenechea	D. Whatmough
H	8/03/2022	Issued for DPIE review	 R.Walker-Edwards	 A.Kriegel	 G. Crighton	 JL.Barrenechea	 D. Whatmough

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Revision History	
Rev.	Detailed Description
A	Issued for internal review
B	Issued for Transgrid review
C	Issued for Transgrid review and to address draft Infrastructure Approval (Revision 4 dated 25 August 2021)
D	Issued for Transgrid review and to address the Infrastructure Approval
E	Issued for Transgrid review
F	Issued to address ER comments, for ER endorsement and for DPIE review
G	Issued to address DPIE comments
H	Revised to address DPIE comments

Key Document Stakeholders
To be communicated with during reviews and revisions of this document

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1 Introduction

This Out of Hours Works Protocol (OOHW Protocol or protocol) supports the Noise and Vibration Management Plan (NVMP), which forms part of the Construction Environment Management Plan (CEMP) for EnergyConnect (NSW – Western Section).

This OOHW Protocol has been prepared to address condition D3 of the Infrastructure Approval (SSI 10040) and revised mitigation measure (RMM) NV6 identified in Appendix G of the additional information letter dated 10 August 2021 (Response to DPIE Request for Information).

In accordance with condition D3 of the Infrastructure Approval, this OOHW Protocol has been prepared in consultation with Wentworth Shire Council and will be approved by the Planning Secretary prior to works being undertaken outside the hours defined in condition D1, D2 and D7.

No blasting is proposed for the project, and therefore condition D7 is not considered for the rest of the protocol. In the event that blasting is proposed, this OOHW Protocol will be updated appropriately to consider condition D7.

This OOHW Protocol is applicable to works that are proposed outside the hours defined in condition D1 and D2. Works that comply with hours defined in conditions D1 and D2 are not required to be undertaken in accordance with the processes outlined in this Protocol.

Subject to the outcomes of geotechnical investigations, crushing and screening may be required for the project. In the event that an Environment Protection Licence is issued for the project for the scheduled activity of crushing and screening and the licence contains conditions that relate to noise generating activities outside standard construction hours, this OOHW Protocol will be updated to reflect the applicable conditions.

2 Construction hours

2.1 Standard construction hours

In accordance with condition D1, and in line with the ICNG standard construction hours, road upgrades, construction, upgrading and decommissioning activities may only be undertaken between:

- 7am to 6pm – Monday to Friday;
- 8am to 1pm – Saturdays; and
- at no time on Sundays and NSW public holidays;

unless the Planning Secretary agrees otherwise.

2.2 Variation to standard construction hours

The following construction, upgrading and decommissioning activities may be carried out outside the hours specified in condition D1:

- the delivery or dispatch of materials as requested by the NSW Police Force or other public authorities for safety reasons;
- emergency work to avoid the loss of life, property or to prevent material harm to the environment; or
- works carried out in accordance with the hours and noise limits specified in any negotiated agreements with sensitive receivers (owners and occupiers), provided the negotiated agreements are in writing and finalised before the commencement of works.

Any other planned works which are proposed to occur outside of the hours detailed within condition D1 and D2 must be undertaken in accordance with this OOHW Protocol, or in accordance with the *Environmental Planning and Assessment (COVID-19 Development – Infrastructure Construction Work Days No. 2) Order 2020*.

2.2.1 Ministerial Order – COVID-19 Infrastructure Construction Work Days

In December 2020, the Minister for Planning and Public Spaces made the *Environmental Planning and Assessment (COVID-19 Development – Infrastructure Construction Work Days No. 2) Order 2020* (Order).

The Order states that carrying out work on a Saturday, Sunday or public holiday can occur provided that:

- (a) the work is subject to an approval (ie an Infrastructure Approval);
- (b) all conditions of the Infrastructure Approval are complied with other than any condition that restricts the hours of work on a Saturday, Sunday or public holiday; and
- (c) for work or operation on a Saturday, Sunday or public holiday-
 - (i) comply with the conditions of the approval that restrict the hours of work or operation on any other day as if the conditions applied to work or operation on a Saturday, Sunday or public holiday; and
 - (ii) not involve the carrying out of rock breaking, rock hammering, sheet piling, pile driving or similar activities during the hours of work or operation that would not be permitted but for this Order; and
 - (iii) take all feasible and reasonable measures to minimise noise.

The Order is currently in force until 31 March 2022 and may be updated in future. The project is to work to the conditions of any updates as (and if) they are issued.

3 OOHW process

3.1 Justification

Generally, works are considered justified as OOHW:

- to sustain the operational integrity of the electricity network or other services/utilities (e.g. water, gas, sewerage, drainage) and to minimise potential services/utilities disruptions;
- to promote the safety of construction personnel and/or the general public;
- to sustain the operational integrity of the road network or to promote the safety of road users where proposed works are in the vicinity of a main road;
- where works are required to be completed continuously (over a longer period than the ICNG standard construction day); and
- where works do not result in impacts to noise affected and vibration affected sensitive receivers (i.e. compliant with the noise management levels and vibration criteria as outlined in Section 4 of the NVMP).

Construction activities that are likely to be required to occur outside of standard construction hours provided within Table 3.1.

Table 3.1 – Indicative list of construction activities likely to be required outside of standard construction hours

Stage	Stage 1	Stage 2
Construction activities	<p>Construction activities which are likely to be required to occur outside of standard construction hours during Stage 1 include:</p> <ul style="list-style-type: none"> • vegetation clearing and grubbing activities; • topsoil stripping; • topsoil/material handling including stockpiling, material and spoil loading and material and spoil haulage; • earthworks; • surface grading and compaction; • crushing and screening (as required); • movement of vehicles including light and heavy vehicles; • establishment of the construction compound and accommodation camp at Buronga; and • operation of the construction compound at Buronga. 	<p>Construction activities which are likely to be required to occur outside of standard construction hours during Stage 2 include:</p> <ul style="list-style-type: none"> • vegetation clearing and grubbing activities; • topsoil stripping; • topsoil/material handling including stockpiling, material and spoil loading and material and spoil haulage; • earthworks; • surface grading and compaction; • operating plant and equipment, including crushing and screening (as required); • tower assembly, erection and stringing; • movement of vehicles including light and heavy vehicles; • establishment of the construction compound and accommodation camp at Wentworth; • operation of the construction compounds; • commissioning / energisation; and • rehabilitation and decommissioning.

The justification of the proposed OOHW activities will be identified in the OOHW permit as identified in Section 3.2. The OOHW is considered to be justified if it is compliant with the noise management levels.

3.2 OOHW permit

For the proposed OOHW, the following process will be implemented:

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1. OOHW permit prepared by the team/engineers requesting the works that summarises the activities, equipment required, location and duration and justifies why the activities are needed outside standard construction hours.
2. The OOHW permit will be submitted to the Environment Team, who will undertake a noise assessment for the OOHW (or review the assessment, if this has been completed as part of Step 1).
3. Where exceedances of noise management levels are predicted, the Community and Stakeholder Engagement Team (or delegates) will undertake consultation with potentially affected receivers to understand their preferences for noise mitigation and management measures (RMM NV4, condition D3 c). Previous feedback on preferences for mitigation and management measures may be applied to subsequent, similar scenarios.

Where noise intensive equipment will be used near sensitive receivers and is predicted to result in an exceedance of the noise management level, the relevant equipment will be used during standard construction hours, unless agreement is reached with the affected receiver (RMM NV7) or the associated activity is otherwise permitted through condition D2 or D3 (in accordance with this OOHW Protocol).

4. The Environment Team will determine the appropriate mitigation measures based on the predicted noise level and duration of works, and determine the appropriate risk level (refer to Section 6.1).
5. The OOHW permit will be submitted to the appropriate party for review and approval (refer to Section 6.2).
6. The OOHW permit will be assessed and approved or not approved.
7. If approved, community consultation and notification will be undertaken as required, in accordance with the *Community Communication Strategy* (45860-CM-PL-G-1001) and OOHW will proceed.

OOHW permits may be issued for extended periods of time where the risk of amenity impacts due to noise and vibration are negligible and/or where similar activities will be undertaken for an extended period of time. OOHW permits may also be issued on an area basis (rather than an activity basis) for project areas and locations where there is minimal risk of noise impacts due to the absence of noise sensitive receivers. The approval process for OOHW is identified in Section 6.

3.3 Coordination of third party OOHW

To identify and coordinate any OOHW undertaken by third parties in the vicinity of the project site, where sensitive receivers would be noise affected by the SecureEnergy works, the following will occur:

- SecureEnergy to use best endeavours to identify other potential OOHW in the vicinity of the proposed SecureEnergy OOHW. This may include OOHW undertaken by third parties (e.g. utility providers, road authorities), other State significant infrastructure or State significant development projects.
- SecureEnergy to provide as much notice as possible regarding proposed OOHW to any other parties.
- SecureEnergy to communicate with any other parties. If there are multiple OOHW proposed in the same vicinity and sensitive receivers would be noise affected, the proposed OOHW will be reviewed to determine respite periods.
- In the event that the OOHW proposed by all parties cannot be coordinated to provide appropriate respite for noise affected receivers, the following will occur:
 - further communication with third party regarding their proposed works;
 - consultation with affected receivers regarding negotiated agreements (condition D2 c);

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- modification or rescheduling proposed OOHW; or
- consideration of additional respite or mitigation.

It is noted that other parties may have their own procedures in place regarding out of hours works. This procedure may need to be altered on a case-by-case basis to consider external influences.

4 OOHW assessment

4.1 Noise assessment

A construction noise assessment will be undertaken to consider proposed works outside of the hours defined in conditions D1 and D2 of the Infrastructure Approval. Assessments are most likely to be undertaken through a construction noise tool or as location and activity-specific construction noise and vibration impact statements (CNVIS).

The construction noise tool will enable the prediction and assessment of potential noise impacts resulting from proposed OOHW in specific work areas. The prediction tool provides assistance in identifying noise impacts on sensitive receivers, based on the specific work areas and types of machinery operating in the work area. The tool will identify the potentially noise affected sensitive receivers, the magnitude of any predicted exceedance of relevant noise management levels and any additional mitigation measures required.

The results of the assessment(s) will be used to determine the requirements for actions in accordance with this OOHW Protocol (refer Appendix A).

4.2 Noise intensive equipment

SecureEnergy considers noise intensive equipment as having a sound power level above 115dBA (refer to Table B.1 of Technical Paper 8 of the EIS). Noise intensive equipment includes:

- piling rig;
- D8 dozer;
- excavator with hammer;
- pneumatic jackhammer; or
- mulcher/chipper.

Where noise intensive equipment will be used near sensitive receivers and is predicted to result in an exceedance of the relevant noise management level, the relevant equipment will be used during standard construction hours, unless agreement is reached with the affected sensitive receivers (RMM NV7), or associated activity is otherwise permitted through condition D2 or D3.

4.3 Vibration

Where vibration intensive activities are proposed during the OOHW, these will be assessed for compliance with minimum working distances for human comfort and structural damage identified in Section 4.6.3 of the NVMP.

5 OOHW management and mitigation measures

The results of the noise assessment process described in Section 4.1 will be used to determine the most appropriate reasonable and feasible management measures from the NVMP and any additional measures that might be required. Where exceedances of the noise management levels are expected, mitigation measures identified in Table 5.2 will be implemented for the OOHW period 1 and OOHW period 2 visually represented in Table 5.1.

ICNG standard construction hours and the nominated OOHW periods are represented in Table 5.1.

Table 5.1 - ICNG standard construction hours and OOHW periods

Day	12am	1am	2am	3am	4am	5am	6am	7am	8am	9am	10am	11am	12pm	1pm	2pm	3pm	4pm	5pm	6pm	7pm	8pm	9pm	10pm	11pm
Monday																								
Tuesday																								
Wednesday		OOHW period 2							ICNG standard construction hours											OOHW period 1				
Thursday		OOHW period 2							ICNG standard construction hours											OOHW period 1				
Friday																								
Saturday																								
Sunday/PH																								

Notes:

PH = public holiday; ICNG standard construction hours = white; OOHW period 1 = grey; OOHW period 2 = blue

The mitigation measures below are in line with the measures described in Section 8.1.2 of Technical Paper 8 of the EIS. The application of the mitigation measures is dependent on the predicted noise levels and on the specific time period as identified in Table 5.2. The nominated mitigation measures are:

- **Notification (N):** the notification may consist of a letterbox drop (or equivalent) detailing work activities, time periods over which these will occur, impacts and mitigation measures. Notifications will be provided a minimum of five (5) working days prior to the start of works. Given that the affected sensitive receivers are also likely to be affected landholders for the project, phone call and email will be favoured for these notifications;
- **Respite period 1 (R1):** where out-of-hours construction noise in OOHW period 1 is limited to no more than three consecutive evenings per week;
- **Respite period 2 (R2):** where out-of-hours construction noise in OOHW period 2 is limited to two consecutive nights; and
- **Duration respite (DR):** respite periods may be counterproductive in reducing the impact on the community for longer duration projects. In these instances, where it can be agreed upon by affected residents, it may be beneficial to increase the work duration, number of evenings or nights worked through duration respite so that the project can be completed more quickly. The project will engage with affected receivers to determine support for duration respite. Where possible, negotiated agreements permitted in accordance with condition D2 c) are the preferred project approach in lieu of duration respite.

Table 5.2 - Mitigation measures for implementation during OOHW

	dBA above NML	Mitigation measures	Mitigation measure detail(s)
OOHW period 1 ¹	0	--	--
	>0 to <5	--	--
	≥5	N, R1, DR	Respite period 1: evening construction noise shall be limited to no more than three (3) consecutive evenings per week except where there is a duration respite.
OOHW period 2 ²	0	--	--
	>0 to <5	N	--
	≥5	N, R1, R2, DR	Respite period 2: night construction noise shall be limited to two (2) consecutive nights per week and should be limited to six nights per month except for where there is a duration respite. Where possible, high noise generating works shall be completed before 11pm.

Notes:

N = Notification, DR = Duration respite (where feasible), R1 = Respite period 1, R2 = Respite period 2

(1) OOHW period 1: Mon-Fri (6pm – 10pm), Sat (7am – 8am; 1pm – 10pm), Sun/Pub Hol (8am – 6pm)

(2) OOHW period 2: Mon – Fri (10pm – 7am), Sat (10pm – 8am), Sun/Pub Hol (6pm – 7am)

The mitigation measures and the recommended restrictions in consecutive evenings/nights are applicable per affected receiver. For example, works may be undertaken three consecutive evenings in one location, and then move to a different location with distinct receivers for another three evenings, and so on.

6 Approval process

6.1 Risk level

The following section outlines the assessment criteria to determine risk level of the proposed out of hours works. The risk category considers both the predicted noise impact relative to the appropriate noise management level and the duration of works. Low risk activities do not exceed the criteria described in Table 6.1. If, after the implementation of management measures, the proposed activities exceed the criteria described in Table 6.1, the OOHW are considered to be high risk.

Table 6.1 - OOHW risk limitations

	dBA above NML	Risk limitations
Negligible risk		
OOHW period 1 ¹	0	Predicted noise levels must be below or equal to the noise management levels.
OOHW period 2 ²		
Low risk		
OOHW period 1	>0 to <5	--
	≥5	OOHW may be undertaken during any OOHW day periods ³ and not more than three consecutive evening periods in a week.
OOHW period 2	>0 to <5	--
	≥5	OOHW limited to not more than two consecutive night periods in a week and limited to six nights per month. Noise intensive equipment will be used during standard construction hours, unless necessary. Where noise intensive equipment is required outside of standard construction hours, all endeavours shall be made to complete use of noise intensive equipment by 11pm.
High risk		
OOHW period 1	≥5	OOHW that are undertaken for more than three consecutive evening periods in a week.
OOHW period 2	≥5	OOHW that are undertaken for more than two consecutive night periods in a week, or more than six nights in a month.

Notes:

(1) Mon-Fri (6pm – 10pm), Sat (7am – 8am; 1pm – 10pm), Sun/Pub Hol (8am – 6pm)

(2) Mon – Fri (10pm – 7am), Sat (10pm – 8am), Sun/Pub Hol (6pm – 7am)

(3) Sat (7am – 8am; 1pm-6pm), Sun/Pub Hol (8am – 6pm)

In instances where OOHW will be undertaken in both an evening period and a night period, the limitations for consecutive days for the OOHW period 2 will be implemented.

The low risk limitations identified in Table 6.1 are applicable per affected receiver. For example, low risk OOHW may be approved for three consecutive evenings in one location, and approved for the next three consecutive evenings (or overlapping evenings) in a distinct location with distinct receivers.

6.2 Approval pathway

An approval process that considers the risk of the proposed out of hours work activities has been identified in Table 6.2 in accordance with condition D3 e).

Table 6.2 - OOHW approval pathway

Risk level	Approval pathway
Negligible	SecureEnergy Environmental Manager
Low	Environmental Representative

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Risk level	Approval pathway
High	Planning Secretary

Once the risk level (refer Section 6.1) has been determined, considering the noise assessment and duration of proposed works, the OOHW permit and supporting assessment will be provided to the relevant approval authority.

The Environmental Representative has the authority to approve OOHW assessed to be low risk as described in Section 6.1, while the Planning Secretary will be required to approve any OOHW assessed to be high risk. If, during the assessment process, the Environmental Representative is of the opinion that the proposed works do not meet the low risk criteria described in Section 6.1, the Environmental Representative will inform SecureEnergy of this opinion. The proposed works may be revised, or the permit will be provided to the Planning Secretary for assessment.

Once reviewed, the OOHW permit may be approved or not approved through the approval pathway. If not approved, the proposed works may be modified and resubmitted in line with the flow chart presented in Appendix A.

If approved, the OOHW may be undertaken in accordance with the OOHW permit and any identified mitigation measures.

7 OOHW stakeholder consultation and communication

The Community and Stakeholder Engagement Team will use a range of communication tools to provide clear, effective and timely information to the predicted affected sensitive receivers and stakeholders. The method of communication will be selected based on the type of works, potential impacts and individual receiver.

7.1 Notification

Where required in the additional mitigation measures identified in Table 5.2, affected receivers will be notified of upcoming OOHW activities at least five working days prior to the start of works. Notification details are described in Section 5.

Notification will also be provided to Wentworth Shire Council and Department of Planning, Industry and Environment (DPIE) via email prior to the commencement of relevant works.

In the event of unexpected OOHW (emergency or other) the Environmental Manager and Engagement Manager (or delegates) will be contacted. SecureEnergy will use best endeavours to notify all noise and/or vibration affected sensitive land user(s) of the likely impact and duration of those work. Wentworth Shire Council and DPIE will also be notified of any unexpected OOHW.

7.2 Consultation

All consultation will be undertaken in accordance with the *Community Communication Strategy* (45860-CM-PL-G-1001), which includes a description of communication tools such as letterbox drops, phone calls and emails.

Where exceedances of noise management levels are predicted during OOHW, consultation will be undertaken with affected receivers to understand their preferences for mitigation and management measures (in accordance with RMM NV4 and condition D3 c). The results of this consultation may be applied in similar subsequent OOHW activities.

Where agreements are reached with the potentially noise affected sensitive receivers regarding OOHW the proposed work can proceed without an OOHW permit (in accordance condition D2 c)).

8 OOHW compliance management

8.1 Monitoring

Noise monitoring will be undertaken in accordance with Section 8.3 of the NVMP to confirm actual noise levels do not exceed predicted noise levels. Noise monitoring will be undertaken in the following scenarios:

- at the commencement of new OOHW activities that are predicted to exceed the noise management level at sensitive receivers; and
- in response to complaints received as a result of OOHW construction activities.

8.2 Continual improvement

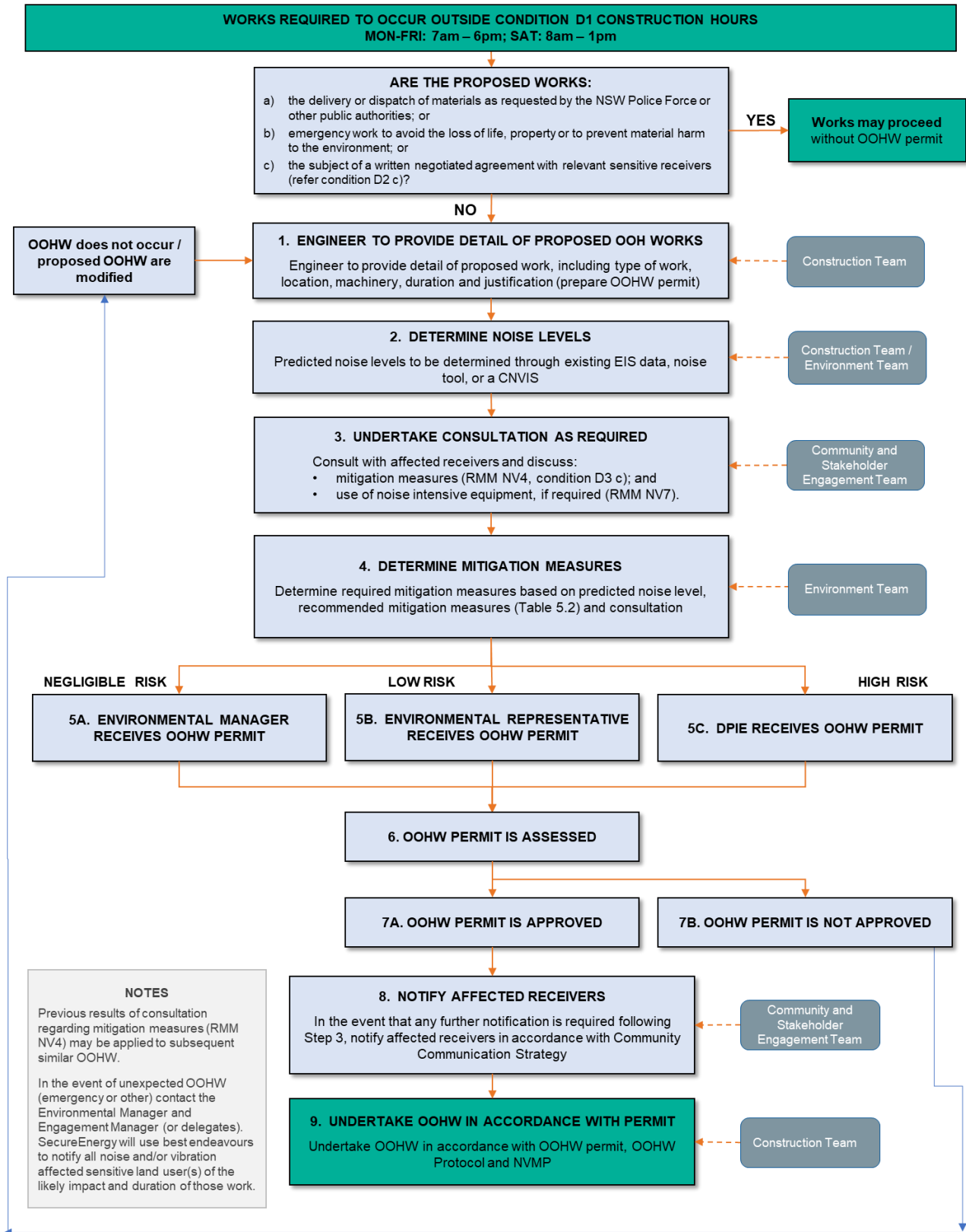
Where monitored construction noise levels are found to be above modelling predictions or in response to complaints, the process described in Section 8.9 of the NVMP will be implemented, which includes:

- confirm the monitored levels are due to project works;
- determine if the exceedance is due to an uncharacteristically loud piece of equipment;
- confirm that the actual activity being undertaken is the same as the modelled scenario on which the predictions are based;
- review feasible and reasonable mitigation measures that were applied and revise if necessary, which may include reducing plant size, modifying time of works, utilising alternative construction methodology; and
- communicate lessons learnt, as required, to relevant personnel.

Section 1.7.5 of the NVMP outlines the complaints management process. The key principles of the complaint management process will be implemented for OOHW, as outlined in the NVMP.

Appendix A – Out of hours works protocol flow chart

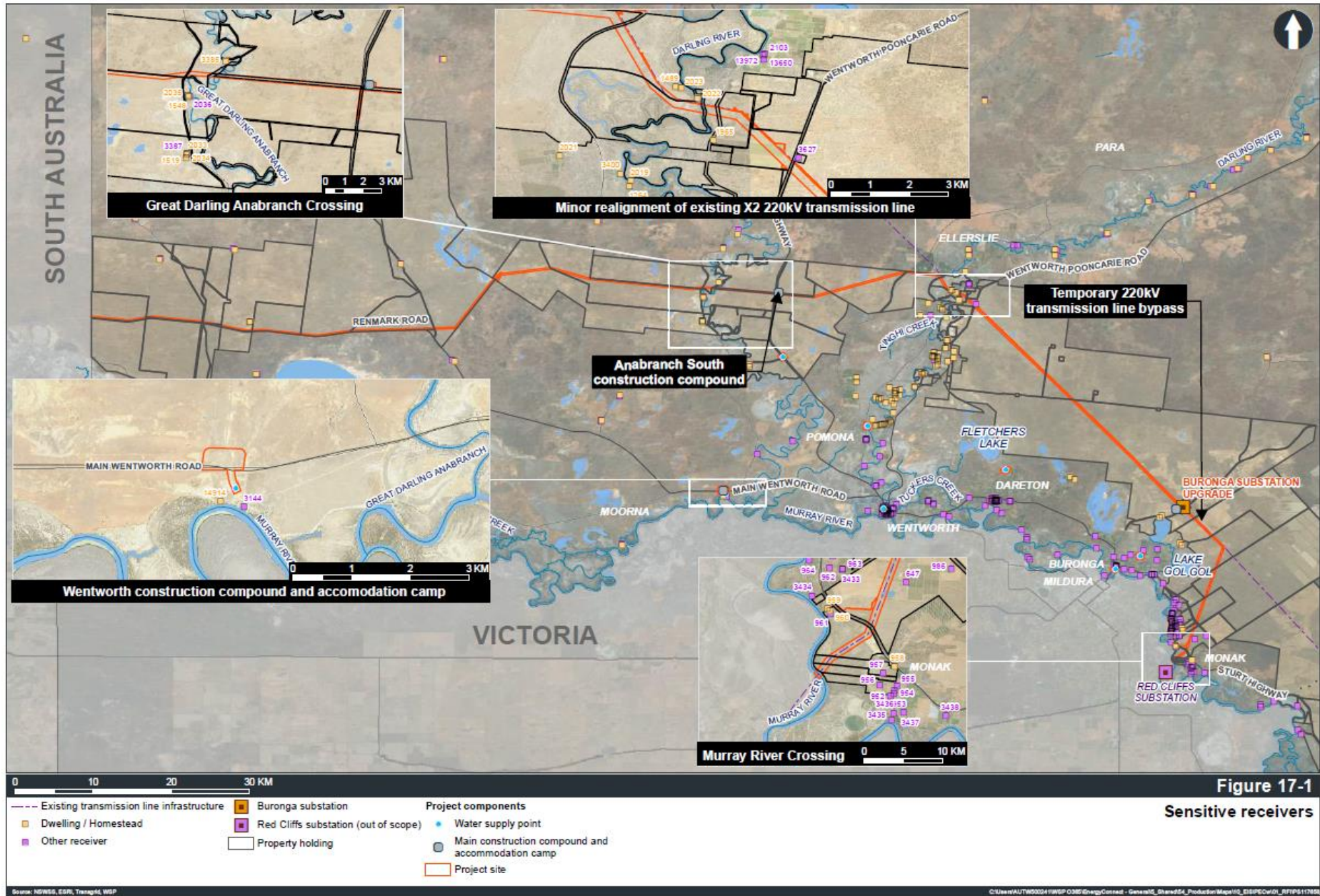
Noise Management Procedure
OUT OF HOURS WORK PROCEDURE



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Appendix B - Sensitive receivers

(source: Figure 17-1 of the Response to DPIE Request for Information)



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Appendix C - Construction scenarios and noise levels for plant and equipment

Table C.1 Construction scenarios and associated plant and equipment – Buronga substation construction (source: Appendix B-1 in Technical Paper 8 of the EIS)

STAGE	SCENARIO	ACTIVITY EXPLANATION	EQUIPMENT	NO OF PLANT PER 15 MINUTE PERIOD	INDIVIDUAL EQUIPMENT MAXIMUM L_{EQ} SOUND POWER LEVEL dBA
1	Enabling works	Works include:	Flatbed Hi - Ab truck	1	107
		— dilapidation surveys	Watercart	1	107
		— road surveys	Geotech boring rig (Geotech only)	1	112
		— tower/easement survey and LiDAR	Light vehicles	2	88
		— flora/fauna/heritage surveys			
		— geotechnical investigations			
2	Earthworks and Civil Construction Works	Site establishment, substation bench, footings and civil infrastructure (drainage/utilities)	Flatbed Hi - Ab truck	1	107
			Concrete agitator	0.5	109
			Concrete pump	0.5	102
		— clearing grubbing	Bob cat	1	104
		— vegetation removal	10-15 tonne roller	1	109
		— strip topsoil	Watercart	1	107
		— major earthworks fill using site won (borrow pit) material and imported fill	Piling rig	0.5	116
			CAT 140M grader	0.5	113
			D8 Dozer	0.5	116
		— potential stabilisation of material insitu.	30-45 tonne excavator	1	110
			20 tonne excavator	1	110
		— installation of utilities infrastructure (drainage, conduit runs)	12-15 tonne excavator	1	104
			7-10 tonne excavator	1	104
			5 tonne excavator	1	100
		— footings and foundations for equipment (piled and reinforced concrete (RC))	Excavator with hammer	0.5	119
			12-15 tonne franna crane	0.5	98
			15-25 tonne franna crane	0.5	98
			70 tonne crane	0.5	113
		— building installation	>200 tonne crane	0.5	113
		— spray seals, surfacing, white lining, barrier installation	Scraper	2	110
	Backhoe	1	111		
— access road installation	Pneumatic jackhammer	0.5	115		
— security fence install	Dumper truck	2	110		
	Elevated working platforms	0.5	98		
	Chainsaw	3	114		
	Mulcher/Chipper	2	116		

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Table C.2 Construction scenarios and associated plant and equipment – main construction compounds and accommodation camps (Source: Appendix B-1 of Technical Paper 8 of the EIS)

STAGE	SCENARIO	ACTIVITY EXPLANATION	EQUIPMENT	NO OF PLANT PER 15 MINUTE PERIOD	INDIVIDUAL EQUIPMENT MAXIMUM L _{EQ} SOUND POWER LEVEL dBA
1a	Enabling works	Works include:	Flatbed Hi - Ab truck	1	107
		— dilapidation surveys	Watercart	1	107
		— road surveys	Geotech boring rig (Geotech only)	1	112
		— tower/easement survey and LiDAR	Light vehicles	2	88
		— flora/fauna/heritage surveys			
		— geotechnical investigations			
1b	Enabling works – site establishment	Establishment of the compound/laydown:	Flatbed Hi - Ab truck	1	107
			Concrete agitator	0.5	109
		— clearing grubbing	Concrete pump	0.5	102
		— vegetation removal	Bob cat	1	104
		— taking deliveries	10-15 tonne roller	1	109
		— earthworks to establish hardstand	Watercart	1	107
		— installation of utilities infrastructure (drainage, conduit runs, sewerage)	CAT 140M grader	0.5	113
			D8 Dozer	0.5	116
		— installation of site/accommodation sheds	30-45 tonne excavator	1	110
			20 tonne excavator	1	110
		— installation of roofs and walkways	12-15 tonne excavator	1	104
			7-10 tonne excavator	1	104
		— spray seals, white lining, barrier installation	5 tonne excavator	1	100
			Excavator with hammer	0.5	119
		— installation of workshops, containers, canopies	12-15 tonne franna crane	0.5	98
			15-20 tonne franna crane	0.5	98
		— furnishing and utilities connections	70 tonne crane	0.2	113
			Backhoe	1	111
			Pneumatic jackhammer	0.5	115
			Dumper truck	2	110
	Elevated working platforms	0.5	98		
	Chainsaw	0.1	114		
	Mulcher/Chipper	0.1	116		

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STAGE	SCENARIO	ACTIVITY EXPLANATION	EQUIPMENT	NO OF PLANT PER 15 MINUTE PERIOD	INDIVIDUAL EQUIPMENT MAXIMUM L _{EQ} SOUND POWER LEVEL dBA
2a	Operation of the compound – standard hours	Activities include:	Front end loader	1	91
		— office works	Excavator (tracked) 35t		
		— staff/worker meetings/briefings	Road truck	1	110
		— material handling	Light vehicles	1	108
		— logistics (loading/unloading trucks)	Power generator	1	88
— taking deliveries	Concrete batching plant	1	103		
— de-stuffing/re-distribution of materials					
— staff training					
— maintenance					
2b	Operation of the compound – outside standard hours	As above Saturday and Sundays As above but following the OOHW protocol for night works			

Appendix D - Relevant legislation

Legislation/ Regulations	Aspect	Reference	Requirement	Applicability	Responsibility
<i>Environmental Planning and Assessment Act 1979</i> (EP&A Act)	All	Section 5.5	A determining authority has the duty to fully consider the environmental impact (including Aboriginal or non-Aboriginal heritage) of an activity and is required to 'take into account the fullest extent possible all matters affecting, or likely to affect the environment' arising from the proposal.	<p>The <i>EnergyConnect (NSW - Western Section) - Environmental Impact Statement</i> was submitted to Department of Planning, Industry and Environment in October 2020 and publicly exhibited between 26 September 2019 and 10 December 2020.</p> <p>On 14 April 2021, the response to submissions was finalised in the <i>EnergyConnect (NSW - Western Section) – Submissions Report</i>.</p> <p>A separate <i>EnergyConnect (NSW - Western Section) – Amendment Report</i>, to document design changes and additional environmental assessment undertaken, was also finalised on 14 April 2021.</p> <p>Transgrid prepared and provided a memorandum titled <i>EnergyConnect (NSW – Western Section) Response to DPIE Request for Information – 7 May 2021 and subsequent discussions to DPIE</i> on the 10 August 2021 in response to DPIE requested additional information (EnergyConnect (NSW – Western Section) (SSI-10040) Request for Additional Information).</p>	Transgrid
		Section 5.19	Approval of the Minister required to carry out critical State significant infrastructure (CSSI). Comply with the conditions of the Infrastructure Approval and generally in accordance with the revised mitigation measures from the Response to DPIE Request for Information.	<p>The project requires approval from the NSW Minister for Planning and Public Spaces under Division 5.2, Part 5 of the EP&A Act.</p> <p>The project was assessed as above.</p> <p>Approval for EnergyConnect (NSW - Western Section) was granted by the Minister for Planning and Public Spaces.</p>	Transgrid
<i>Protection of the Environment Operations Act 1997</i> (POEO Act)	Plant maintenance and operation	Section 139	Do not operate plant if it emits noise caused by failure to maintain or operate the plan in a proper and efficient manner.	Yes, the relevant management measures have been incorporated within the Noise and Vibration Management Plan.	SecureEnergy

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