LOGOS

Construction Noise and Vibration Management Plan – Addendum

Moorebank Intermodal Precinct – Precinct West South

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Moorebank Intermodal Precinct –Precinct West South

EPBC 2011/6086 Approval

Construction Noise and Vibration Management Plan – Addendum

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Acronyms and Definitions

Acronym / Term	Meaning
Addendum	Construction Environmental Management Plan – Addendum
AS	Australian Standard
CDC	Complying Development Certificate issued by the Certifier under the TISEPP
CEMP	Construction Environmental Management Plan (SSD7709 MPW2)
CNVMP	Construction Noise and Vibration Management Plan
CoA	Conditions of Approval as detailed in the EPBC Act Approval EPBC 2011/6086
CoC	Conditions of Consent as detailed in the EP&A Act Development Consent SSD 5066 (Concept Approval)
Contractor's CLM	Contractor's Community Liaison Manager
Contractor's CM	Contractor's Construction Manager
Contractor's EM	Contractor's Environmental Manager
Contractor's PM	Contractor's Project Manager
Council	Liverpool City Council
CTAMP	Construction Traffic and Access Management Plan (SSD7709 MPW2)
DPIE	Department of Planning, Industry and Environment
EIS	Moorebank Intermodal Terminal Project, Environmental Impact Statement, Parsons Brinckerhoff
Environmental Emergency	Any event that causes or has the potential to cause material harm to the environment. An environmental emergency is a Class 3 incident.
Environmental Incident	An occurrence or set of circumstances that causes or threatens to cause material harm and which may or may not be or cause a non-compliance. Environmental incidents include pollution incidents and environmental emergencies. Environmental incidents may arise from natural (e.g. storm, wind or bushfire) or human factors.
EPBC Act	Environment Protection and Biodiversity Conservation Act 1999
Material harm	Harm that involves actual or potential harm to the health or safety of human beings or to the environment that is not trivial, or results in actual or potential loss or property damage of an amount, or amounts in aggregate, exceeding $10,000, (such loss includes the reasonable costs and expenses that would be incurred in taking all reasonable and practicable measures to prevent, mitigate or make good harm to the environment).
MIP	Moorebank Intermodal Precinct
MPE	Moorebank Precinct East
MPW	Moorebank Precinct West
MPW Stage 2/3	Moorebank Precinct West Stage 2 and Stage 3

Acronym / Term	Meaning
Non-compliance	An occurrence, set of circumstances, or development that results in a non-compliance or is non-compliant with CDC and or EPBC Act Approval (EPBC 2011/6086) Conditions of Approval but is not an incident.
Non-conformance	Observations or actions that are not in strict accordance with the CEMP and the aspect specific sub-plan.
Principal's Representative	The Project Management Team and Environmental Specialists
The Project	The construction of the five warehouses and associated landscaping and infrastructure on the MPW South Site.
Project personnel	All persons listed in Section 2.3 including sub-contractors working on the Project site
Project site / Project footprint	The MPW South Site which includes all areas to be disturbed by the Project during construction
REMM	Revised Environmental Management Measures. These are the management and mitigation measures presented in the MPW Concept Plan Supplementary RtS (August 2017).
SSD	State significant development
TISEPP	State Environmental Planning Policy (Transport and Infrastructure) 2021

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1. Introduction

This Construction Noise and Vibration Management Plan (CNVMP) – Addendum (Addendum) applies to construction activities being undertaken at the Moorebank Precinct West (MPW) South Site, in Moorebank, New South Wales and addresses:

- the relevant conditions of the 2011/6086 Approval issued under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act)
- the relevant conditions of the MPW – Concept and Stage 1 (State significant development (SSD) 5066) Development Consent
- the applicable complying development conditions issued with the Complying Development Certificate (CDC) 230736/01 in accordance with Chapter 6 of the State Environmental Planning Policy (Transport and Infrastructure) 2021 (TISEPP).

The MPW Stage 2 Construction Environmental Management Plan (MPW Stage 2 CEMP) and sub-plans were originally approved by the (then) Department of Planning, Industry and Environment (DPIE) prior to the commencement of construction in accordance with Condition of Consent (CoC) C3 of the MPW Stage 2 (SSD 7709) Development Consent.

The MPW Stage 3 (SSD 10431) Development Consent was issued by the Independent Planning Commission (IPC) on 11 May 2021. CoC B17 required a CEMP to be approved by the Planning Secretary prior to commencement of construction. CoC B19 allows the Applicant to prepare standalone CEMP and relevant sub-plan documents, or update versions of CEMP documents already approved by the Planning Secretary as part of the MPW Stage 2 (SSD 7709) Development Consent. The MPW Stage 2 CEMP and sub-plans were subsequently updated to include the requirements of the MPW Stage 3 SSD 10431 Development Consent and approved by the Planning Secretary.

This Addendum to the MPW Stage 2/Stage 3 CNVMP (MPW S2/S3 CNVMP) has been prepared to apply environmental management measures, where relevant, consistently for the construction of the MPW South Project (the Project). This Addendum forms a sub-plan to the MPW Stage 2 CEMP – Addendum that has been prepared for the Project.

The location of the Project site is shown in Figure 1-1.

The Project involves the construction and operation of five warehouses (‘S1’, ‘S2’, ‘S3’, ‘S5’ and ‘S6’) on the MPW South Site, as well as ancillary works including landscaping and infrastructure.

Figure 1-1 MPW South Site location

1.1. Project Approvals

The Project was approved under both the EPBC Act and EP&A Act. The approvals and consents granted include conditions relevant to construction.

The EPBC 2011/6086 Approval was granted on 27 September 2016 and includes environmental conditions relevant to the management of noise and vibration impacts during construction and relevant to this Addendum. This Addendum has been prepared under CoA 21.

The SSD 5066 Development Consent was granted on 3 June 2016.

CDC 230736/01 for the Project was issued under the TISEPP on 27 February 2024. The CDC included conditions relevant to the construction of the Project and to this Addendum.

The compliance of this Addendum with the relevant conditions of the approvals and consents is detailed in Section 2.1.

1.2. Addendum Purpose and Application

This Addendum has been developed to address the relevant requirements of the approvals and consents. It aims to demonstrate how noise and vibration impacts will be managed during construction of the Project.

It provides methods to assess, monitor, manage and mitigate impacts on sensitive receivers by contractors during the construction of the Project, including all sub-contractors and consultant partners.

This Addendum was developed in reference to the following documents, details are provided in Section 5:

- MPW Concept Plan noise impact assessment
- MPW Concept Plan modification noise impact assessment
- MPW Stage 2/3 CEMP
- MPW Stage 2/3 CNVMP
- MPW South CEMP – Addendum
- MPW South (S1/S2/S3/S5/S6) noise and vibration impact assessment.

The most recent approved version of this Addendum will be implemented to manage the potential impacts of the Project on sensitive receivers during construction. Construction will not commence until this Addendum has been submitted to the Minister responsible for the EPBC Act (or delegate).

Construction will be undertaken in accordance with the most recent, approved version of this Addendum.

1.3. Project Delivery Phases

The construction period of the Project is anticipated to be approximately 19 months. Construction works have been divided into delivery phases which are interrelated and may overlap. These are presented in Table 1-1.

Table 1-1 Project Delivery Phase Terminology

Works Activity	Project Delivery Phase
Pre-Construction	Site establishment
Construction	Civil works, utility installation/adjustments + footings installation
	Footings/civil structural elements (building structure)
	Building construction
	Warehouse hardstand finishing works

Construction of elements within the MPW South area outside of the Project works are subject to a separate approval and will be addressed in future updates to this management plan where applicable.

1.4. Construction Program and MPW

The duration and stages of the construction of the Project are detailed in Section 1.3. The final construction program will depend on the market demand for warehouses to be constructed on the project site and will be confirmed prior to construction works starting. The Project construction will overlap with a range of other construction works being undertaken across MPW.

1.5. Objectives and Targets

The objectives and targets for this Addendum are the consistent those detailed in Table 5 of the MPW Stage 2/3 CNVMP.

1.6. Consultation

The *MPW Stage 2/3 CNVMP* Out of Hours Work Protocol was prepared in consultation with stakeholders (Community Consultative Committee) as detailed in Appendix A of the MPW Stage 2/3 CNVMP.

No stakeholder consultation was required for the preparation of this Addendum.

2. Environmental Management

2.1. Legislative Requirements

The regulatory framework for the Project is outlined within the Compliance and Obligations Register (refer to Appendix A of the *MPW South CEMP – Addendum*). This register identifies relevant legislative instruments, their key objectives and relevance to the Project, including legislative and voluntary obligations, permits and licences, standards and guidelines, and relevant CoA and management measures.

2.1.1. Compliance Matrix

The Project is being delivered under approvals and consents granted under the EPBC Act and EP&A Act. These approvals and consents include requirements to be addressed in this Addendum and to be met during the construction of the Project. The conditions specific to the development of this Addendum are detailed in Table 2-1.

Table 2-1 Approvals and consents compliance matrix

CoA/ CoC	Requirement	Section	How Addressed
EPBC 2011/6086 Approval			
6	Sections of the CEMP and OEMP relating to noise and vibration must be prepared by a suitably qualified expert and must: a) be consistent with the Noise and Vibration Provisional Environmental Management Framework (2 July 2014), provided at Appendix O to the finalised EIS b) incorporate all measures 5A to 5T (CEMP only) and 5U to 5AJ (OEMP only) from Table 7.1 of the finalised EIS that are described as 'mandatory' c) explain how all measures 5A to 5T (CEMP only) and 5U to 5AJ (OEMP only) from Table 7.1 of the finalised EIS that are described as 'subject to review' have been addressed be approved by the Minister or a relevant New South Wales regulator.	Table 1-1	This Addendum

CoA/ CoC	Requirement	Section	How Addressed
SSD 5066 Development Consent			
E28	All future Development Applications must provide the timing for construction and operation on both the MPW and MPE sites and provide cumulative assessments for construction and operation on the MPW and MPE sites including, but not limited to: … b) noise and vibration impacts	Complying Development Certificate	Cumulative assessments for construction and operation on MPW and MPE were included and considered during the Complying Development Certificate determination.
Other SSD 5066 Development Consent conditions relating to noise and vibration are not applicable to this plan.			
REMM	**Requirement**	**Section**	**How Addressed**
5A	A construction noise and vibration management plan (CNVMP) (or equivalent) would be developed for construction activities.	N/A	This Addendum.
5B	The appropriateness of the noise and vibration management and mitigation measures in 5C to 5T are to be further investigated as part of the future development applications. These measures, or their replacement measures, are to be implemented through the CNVMP (or equivalent) prior to and during all noise-generating construction works for each of the Project phases.	Section 3.1 Section 3.7	Mitigation and management measures appropriate for the Project are detailed in Section 3.7 They have been identified with consideration of the ICNG, MPW South NVIA, and relevant MPW and MPE noise impact assessments.
5C	Construction activities associated with the Development shall be undertaken during the following standard construction hours:7.00 am to 6.00 pm Mondays to Fridays, inclusive; and 8.00 am to 1.00 pm Saturdays, at no time on Sundays or public holidays. Works may be undertaken outside of standard construction hours, subject to assessment within, and approval of, future development applications.	Section 3.1 Section 3.7 (Table 3-8) – NV9	Construction activities will generally be undertaken during the approved construction hours as outlined in Section 3.1.

CoA/ CoC	Requirement	Section	How Addressed

5D	Construction works outside of the standard construction hours identified in REMM 5C may be undertaken in the following circumstances:
	• construction works that generate noise that is:
	  ○ no more than 5 dB(A) above rating background level at any residence in accordance with the Interim Construction Noise Guideline (Department of Environment and Climate Change, 2009); and
	  ○ no more than the noise management levels specified in Table 3 of the Interim Construction Noise Guideline (Department of Environment and Climate Change, 2009) at other sensitive receivers; or
	• for the delivery of materials required outside these hours by the NSW Police Force or other authorities for safety reasons; or
	• where it is required in an emergency to avoid the loss of lives, property and/or to prevent environmental harm;
	• works approved through an EPL, or
	• works as approved through the out-of-hours work protocol outlined in the CEMP.
		Section 3.1	Where Out of Hours Works (OOHW) are identified as being required these works would be subject to the Out of Hours Works Protocol -Addendum prepared for the Project.

5E	During site inductions and toolbox talks, all site workers (including subcontractors and temporary workforce) are to be made aware of the hours of construction and how to apply practical, feasible and reasonable measures to minimise noise and vibration when undertaking construction activities.	Section 3.7 (Table 3-8) – NV6	Toolbox talks and daily pre-start briefings will include site noise and vibration mitigation and management requirements.
5F	Quieter and less vibration-emitting construction methods would be applied where feasible and reasonable. For example, when piling is required, bored piles rather than impact-driven piles would minimise noise and vibration impacts.	Section 3.7 (Table 3-8) – NV4	During construction work, separation between noisy plant items and nearby noise sensitive receptors, onsite noise shielding, and beneficial orientation of fixed plant items would be considered as far as is reasonably practical

CoA/ CoC	Requirement	Section	How Addressed
5G	The construction site would be arranged to minimise noise impacts by locating potentially noisy activities away from the nearest receivers wherever possible.	Section 3.7 (Table 3-8) – NV5	to minimise noise impacts.
5H	Where possible, equipment that emit directional noise would be oriented away from sensitive receptors.	Section 3.7 (Table 3-8) – NV5	
5I	Reversing of vehicles and mobile equipment would be minimised so as to prevent nuisance caused by reversing alarms. This could be achieved through one-way traffic systems and the use of traffic lights which could also limit the use of vehicle horns.	Section 3.7 (Table 3-8) – NV5 Section 4.1 Table 4-1	Due to site constraints it is not practical to achieve a one-way traffic systems, however, where reasonable and practical, tonal alarms will be replaced by squawker type alarms.
5J	Where work is proposed in the vicinity of residences, potentially affected residents would be advised, at least two weeks prior to the commencement of works, of the potential noise and vibration levels and the proposed management measures to control environmental impacts.	Section 3.7 (Table 3-8) – NV2	The community will be informed of construction works via the Project website and in accordance with the Construction Community Communication Strategy. This has been included as mitigation measure NV2.
5K	Whenever possible, loading and unloading areas would be located away from the nearest residences.	Section 3.7 (Table 3-8) – NV6	This will be considered during construction works and compound layout design. Implementation will be verified during site inspections. No rail possession works are required for the MPW South construction activity.
5L	Broadband reversing alarms would be considered instead of tonal reversing alarms, in particular outside standard working hours (such as during night-time rail possession works).	Section 3.7 (Table 3-8) – NV4	
5M	Equipment that is used intermittently would be shut down when not in use for extended periods of time.	Section 3.7 (Table 3-8) – NV5	Implementation of these practices will be included as part of Toolbox talks and daily pre-start briefings. Managing safety risks from overheating would take precedence over application of engine covers.
5N	Where possible, all engine covers would be kept closed while equipment is operating.	Section 3.7 (Table 3-8) – NV4	
5O	Where possible, trucks associated with the work would not be left standing with their engines operating in streets adjacent to or within residential areas.	CTAMP Addendum	N/A - heavy vehicle access routes do not allow access to adjacent residential areas.

CoA/ CoC	Requirement	Section	How Addressed
5Q	The site manager (as appropriate) should provide a community liaison phone number and permanent site contact so that any noise and/or vibration related complaints can be received and addressed in a timely manner. Consultation and cooperation between the site and its neighbors would assist in limiting uncertainty, misconceptions and adverse reactions to noise and vibration.	Section 4.6	A 24-hour Project Info-line and email address or postal address has been set up for the MIP. Complaints may also be received directly from stakeholders to members of the Project team. Complaints will be managed in accordance with the CEMP - Addendum.
5R	Attended noise and ground vibration measurements would be undertaken at monthly intervals in areas within close proximity to sensitive receivers and upon receipt of adverse comment/complaints during the construction program, to confirm that noise and vibration levels at adjacent communities and receptors are consistent with the predictions in this assessment and any approval and/or licence conditions.	Section 4.1	Noise monitoring would be undertaken to verify the noise levels at nearby noise sensitive receivers as detailed in Section 4.1. Due to the large distances, vibration impacts are not anticipated.

CoA/ CoC	Requirement	Section	How Addressed
5S	If noise generating construction works are undertaken outside the standard daytime construction hours and/or measured construction noise levels at nearest residences are greater than 75 dB(A) LAeq, the following additional noise mitigation measures would be considered: • Localised acoustic screens, comprising a solid structure such as plywood fencing to surround noise generating construction plant or work locations. To be effective for ground level noise, the screens would be lined with acoustic absorptive material, at least 2 m in height and installed within 5 m of the noise source. • Dominant noise-generating mechanical plant would be fitted with feasible noise mitigation controls such as exhaust mufflers and engine shrouds. • Respite periods of one hour are recommended for every continuous three-hour period of work; alternatively, daytime works would be scheduled between 9.00 am and 12.00 pm, and between 2.00 pm and 5.00 pm. • Where practical, and when night works are being undertaken, noisy construction work would be undertaken during the less sensitive 6.00 pm to 10.00 pm evening period.	Section 3.7 (Table 3-8) – NV7, NV8	Where OOHW are identified as being required these works would be subject to Out of Hours Works Protocol - Addendum prepared for the Project as per NV9. Where noise emissions from construction works are identified as being above 75 dB(A) $L_{Aeq15minute}$ at nearby residences, at-source mitigation (in addition to respite) will be considered, as per NV7.

CoA/ CoC	Requirement	Section	How Addressed
5AK	The ambient noise monitoring surveys within Casula, Wattle Grove and Glenfield would be continued throughout the construction and operation of the Project (with annual reporting of noise results up to two years beyond the completion of Full Build). The noise surveys would quantify any potential noise from the Project and identify any trends/changes in the ambient noise environment during the progressive development. The measured noise levels and contribution from the operation of the Project would be continually applied to the detailed design of the Project to ensure it includes appropriate mitigation measures to reduce and control noise during construction and operation. The monitoring data would also include any changes to the ambient noise environment from new or changed developments in the area. In the event of any noise or vibration related complaint or adverse comment from the community, noise and ground vibration levels would be measured at the potentially affected premises, where reasonable and feasible. In accordance with procedures in the CNVMP and ONVMP, the measured noise and/or vibration levels would then be assessed to ascertain if remedial action is required	MPWS 2/3 CNVMP	The requirements of 5AK are addressed by the MPW 2/3 CNVMP.
CDC 230736/01			
14	Construction may be carried out only between 7.00am and 5.00pm Monday to Saturday, unless construction cannot be heard at the nearest residence	Section 3.1	Construction hours are consistent with CDC conditions. Where OOHW are identified as being required these works would be subject to Out of Hours Works Protocol - Addendum prepared for the Project

2.2. Interim Construction Noise Guideline

The aim of the Interim Construction Noise Guideline (ICNG) is to provide guidance on managing construction works to minimise noise, with an emphasis on communication and cooperation with all involved in, or affected by, construction noise.

The ICNG states there is no single approach to minimise noise from all types of construction. The level of effort and sophistication needed to assess impacts and identify ways to minimise noise will be guided by factors such as the duration of works and the extent of the noise. Compliance with Noise Management Levels (NMLs), short-term works or low noise level works will be typically easier to assess and manage.

Section 1.5 of the ICNG identifies the key steps for managing noise impacts from construction. These steps are outlined in Table 2-2 with references to where in this Addendum the requirements have been addressed. This CNVMP - Addendum has been prepared to be consistent with the guidelines contained in the ICNG.

Table 2-2 ICNG Key Requirements

Requirement	Referenced in this CNVMP	How Addressed
Identify sensitive land uses that may be affected	Section 3.3	Residential and non-residential receivers most potentially affected by noise from the construction of the Project have been identified.
Identify hours for the proposed construction works	Section 3.1	Standard construction work hours are proposed for the Project. Any out of hours works would be subject to the Out of Hours Works Protocol – Addendum.
Identify noise impacts at sensitive land uses	Section 3.2	Background noise levels established through noise monitoring at residential receivers for the development of NMLs.
	Table 3-4	NMLs established for residential and non-residential land uses.
	Section 3.6	Construction plant items and associated noise levels established for a number of scenarios. Noise levels at sensitive receivers predicted and compared to NMLs.
Select and apply the best work practices to minimise noise impacts	Section 3.7	Management measures have been identified and developed in consideration of the ICNG, MPW South NVIA, relevant MPW and MPE noise impact assessments.

2.3. Roles and Environmental Responsibilities

Key roles and responsibilities associated with the implementation of this Addendum are detailed in Table 12 of the MPW Stage 2/3 CNVMP.

2.4. Training

Appropriate training and inductions for construction and site personnel will be undertaken in accordance with Section 2.5 of the MPW South CEMP – Addendum. The following noise and vibration specific information will be included within the induction:

- The location of potentially sensitive receptors
- Relevant noise and vibration mitigation measures, including noise screens and temporary barriers where feasible
- Site hours of operation i.e., the permissible hours of work, including deliveries
- A summary of relevant licence and approval conditions
- Any limitations on high noise generating activities
- Construction employee parking areas
- Designated loading / unloading areas and procedures
- Emphasis that there should be no swearing, shouting or loud stereos/radios on site
- Details of the complaints handling procedure
- Details of the environmental incident procedures
- The requirement to limit the clustering of noisy plant / processes
- Communication, including a notification process to inform residents of respite times
- Non-conformance, preventative, and corrective action procedures
- An outline of the consequences of not complying with these measures
- An overview that Toolbox meetings will be undertaken as required covering specific environmental issues and will include noise and vibration control measures where required, including but not limited to:
    - Performing works within approved hours
    - Locating noisy equipment away from sensitive receptors
    - Maintaining plant and equipment to prevent excessive noise
    - Operation of vehicles to minimise noise and vibration impacts, i.e. use of designated haulage routes, use of non-tonal reversing beepers where feasible, and turning off plant, equipment and vehicles when not in use.

Training and/or toolbox talks will also be undertaken as required.

Records of all training and inductions are to be filed in accordance with the document control system outlined in the MPW South CEMP – Addendum.

3. Implementation

3.1. Construction Hours

Construction hours are divided into two scenarios:

- Standard construction hours
- Out of Hours Works (OOHW).

The standard construction hours for the Project are consistent with the conditions of CDC 230736/01 and the TISEPP Part 2 Complying development certificate conditions s14, which are as follows:

- 7:00am to 5:00pm, Monday to Saturday

Standard construction hours are mandatory (except where approved under the OOHW Addendum), limiting construction works to within the specified standard construction hours as much as practicable assists in managing noise or vibration impact. This will limit potentially noisy and vibration causing activities to the daytime, when background noise levels are higher, and by providing respite from construction noise and vibration during the evening, overnight, and on weekends.

The NSW *Interim Construction Noise Guideline* (DECCW, 2009) (ICNG) identifies five categories of work that typically may require works to be undertaken outside of the standard construction hours, consistent with REMM 5D:

1. **The delivery of oversized plant or structures** that police or other authorities determine require special arrangements to transport along public roads
2. **Emergency work** to avoid imminent injury or the loss of life or damage to property, or to prevent environmental harm
3. **Maintenance and repair of public infrastructure** where disruption to essential services and/or considerations of worker safety do not allow work within standard construction hours
4. **Public infrastructure works** that shorten the length of the project and are supported by the affected community
5. Works where a proponent demonstrates and justifies **a need to operate outside the recommended standard construction hours**.

During further construction planning, should OOHW be identified as being required, these works would be conducted in accordance with the Out of Hours Works Protocol – Addendum prepared for the Project. This protocol has been prepared to be consistent with the requirements of TISEPP and recommendations outlined in the ICNG.

Where OOHW are proposed to take place, the works may require an assessment of potential noise and/or vibration impacts. This will include identification of feasible and reasonable mitigation and management measures that would be implemented as part of the construction works, to manage potential noise and vibration impacts on nearby sensitive receivers, with consideration of the applicable NML and time of day.

A summary of the construction hours for the Project are detailed Table 3-1 based upon the above requirements of the ICNG and REMM 5B.

Table 3-1 Construction hours

Construction hours	Monday to Saturday	Sunday/ Public holiday
Recommended standard construction hours		
Standard hours	7am to 5pm	No work
Outside recommended standard construction hours		
Out-of-Hours Work (Day)	N/A	7am to 5pm
Out-of-Hours Work (Evening)	5pm to 10pm	5pm to 10pm
Out-of-Hours Work (Night)	10pm to 6am	10pm to 6am
Out-of-Hours Work (Morning shoulder)	6am to 7am	6am to 7am

Notes: 1. See Section 3.1 for further information regarding the establishment of a morning shoulder period

3.2. Existing Environment

Background noise levels in the vicinity of the MIP were established through the completion of long-term background noise monitoring:

Consistent with the approach adopted in the MPWS2/S3 CNVMP for the existing noise environment and the establishment of noise management levels (NML) for the wider Precinct.

The Rating Background Levels (RBLs) at for the surrounding residential receiver areas are presented in Table 3-2.

Table 3-2 Measured rating background levels, dB(A)

NCA	Daytime (7am to 6pm)	Evening (6pm to 10pm)	Night-time (10pm to 6am)	Morning shoulder (6am to 7am)
Casula	41	37	34	40
Glenfield	44	44	37	44 (47)[1]
Wattle Grove	42	37	37	41
Wattle Grove North	36	36	36	36 (43)[1]

NCA	Daytime (7am to 6pm)	Evening (6pm to 10pm)	Night-time (10pm to 6am)	Morning shoulder (6am to 7am)

Notes:
1. For the purposes of determining construction NMLs, where the above morning shoulder period RBL values are typically equal to or higher than the adopted daytime RBL values presented in Table 6, the daytime values have been adopted for this period so the derived NMLs are no higher than those adopted for the daytime, consistent with the approach in EPA Noise Policy for Industry (NPfI) Section 2.3. Actual RBL values are included in brackets.
2. The Day NML (7am-5pm) is based upon the NPfI Daytime period, and the Evening (5pm to 10pm) is based upon the NPfI time period.

3.3. Sensitive receivers

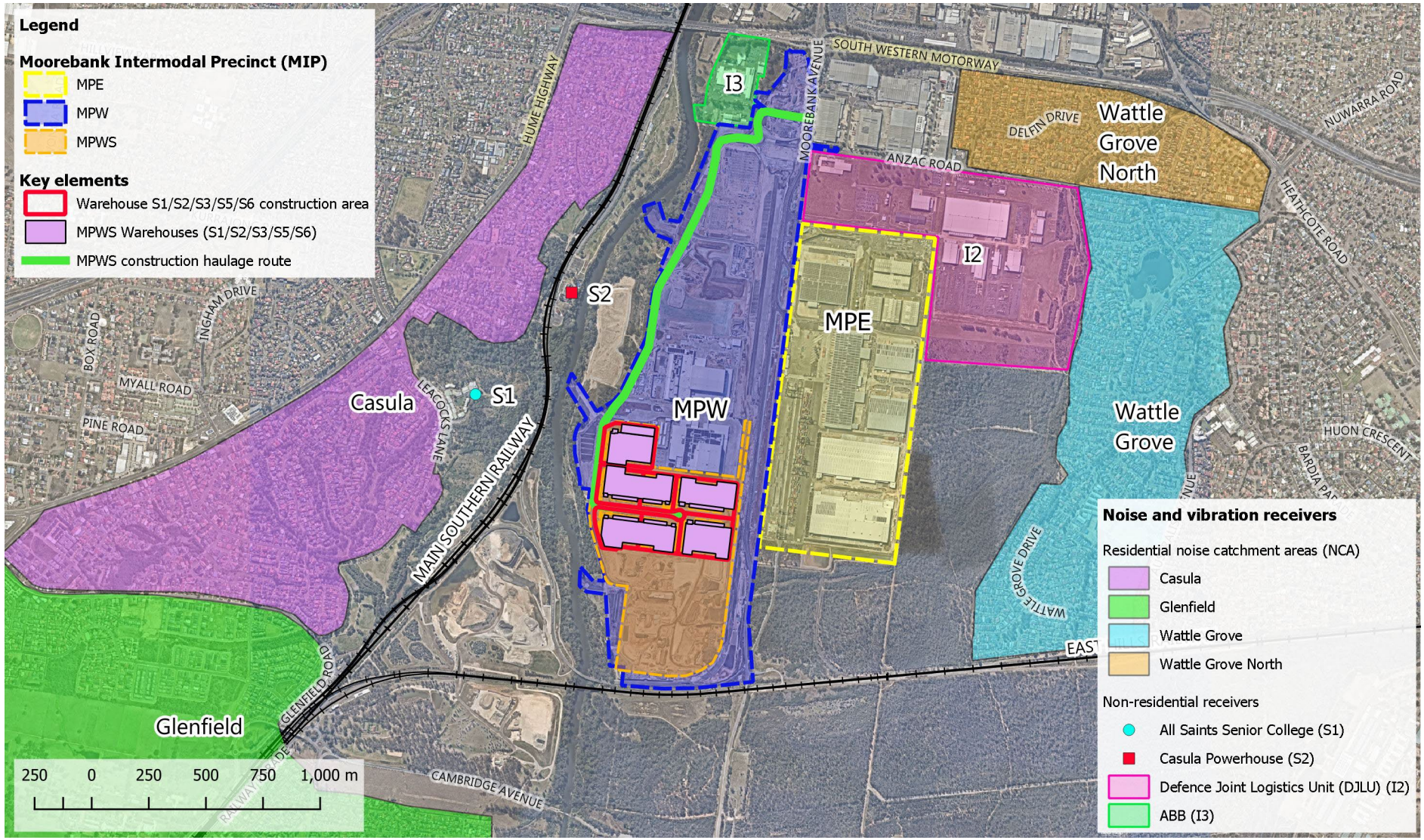
The residential receivers in the vicinity of the Project with the highest potential of being adversely impacted by noise and vibration emissions are located in the suburbs of Casula, Glenfield and Wattle Grove. Additionally, a number of potentially affected non-residential receivers have been identified near the Project site, including All Saints Senior College (S1) and the Casula Powerhouse (S2), both of which are located to the west of the Project site and the Georges River. The nearest industrial receivers consist of Moorebank Precinct East (MPE), ABB and the Defence Joint Logistics Unit (DJLU) as shown in Figure 3-1.

Consistent with the *MPW Stage 2/3 CNVMP*, a summary of the approximate distance to the nearest residential receiver in the surrounding noise catchment areas (NCAs) is provided in Table 3-3. The locations of the NCAs or receivers, are shown in Table 3-3 Noise sensitive receivers and approximate distance from MPWS and the Proposal.

Table 3-3 Noise sensitive receivers and approximate distance from MPWS and the Proposal

Sensitive receiver (Noise Catchment Area (NCA) or Receiver ID)	Receiver type	Approximate distance from MPWS, metres
Residential receivers		
Casula	Residential	530
Glenfield		1,300
Wattle Grove		1,100
Wattle Grove North		1,700
Non-residential receivers		
All Saints Senior College (S1)	Educational	630
Casula Powerhouse (S2)		620
Defence Joint Logistics Unit (DJLU) (I2)	Industrial	1,050
ABB (I3)		1,400

Figure 3-1 Sensitive Receivers *(Imagery: Nearmap 2023)*



3.4. Construction noise management levels

Section 4.3 of the MPW Stage 2*/3* CNVMP outlines the applicable noise management levels (NMLs), and the derivation of them for both residential and non-residential receivers.

This includes NMLs for both standard construction hours and for out of hours works – as well as screening levels for sleep disturbance impacts.

Table 3-4 presents a summary of NMLs from the MPW Stage 2/3 CNVMP that are applicable to the Project during standard construction hours.

Table 3-4 Summary of NMLs for Standard Construction Hours, $L_{Aeq\ 15minute}$, dB(A)

Receivers	**Applicable Noise Management Levels**[1]
Wattle Grove	52
Wattle Grove North	46
Casula	51
Glenfield	54
S1, S2	55[2]
, I2, I3	75[2]

Notes:
1. Standard construction hours noise management levels are based upon the daytime rating background level in accordance with the NPfI daytime period.
2. Only Applicable when in use.

Notes

Should construction works occur outside of standard hours, noise impacts should be assessed against the NMLs presented in Table 3-5.

Table 3-5 Construction Noise Management Levels by OOHW Period, $L_{Aeq\ 15minute}$, dB(A)

Receiver	**OOHW 1** **6am – 7am** **(Mon – Sat)**	**OOHW 2** **5pm – 10pm**[1] **(Mon – Sat)**	**OOHW 3** **10pm – 6am** **(Mon – Sat)**
Wattle Grove	46	42	42
Wattle Grove North	41	41	41
Casula	45	42	39
Glenfield	49	49	42

S1, S2	55[2]	55[2]	55[2]
I1, I2, I3	75[2]	75[2]	75[2]

Notes:
1. Notes: Standard construction hours noise management levels are based upon the daytime rating background level in accordance with the NPfI daytime period.
2. Only Applicable when in use.

The applicable NMLs for other surrounding sensitive receivers, as stipulated in the ICNG, are presented in Table 3-6. Receiver types identified for these are consistent with those established in the EIS.

Table 3-6 Noise Management Levels at Other Noise Sensitive Land Uses

Land Use	**NML** **LAeq, 15 min$_{ute}$ dB(A)**	**Where NML Applies**
Classrooms at schools and other educational institutions	45	Internal noise level
Industrial premises	75	External noise level

For sensitive receivers S1 and S2, assuming that the building structures would typically provide a minimum of 10 dB(A) reduction from external noise levels to internal noise levels with windows open, the external NML for S1 and S2 are set to 10 dB(A) above the internal NML.

Consistent with the process outlined within the MPW Stage 2/3 CNVMP, to assess the likelihood of sleep disturbance, an initial screening level of $L_{Amax} < L_{A90(15min)} +$ 15 dB(A) is used. Where the screening levels are predicted to be exceeded during construction planning, the process as per the CNVMP is to be followed.

Based on the above and the measured night-time RBLs for each residential receiver area, the applicable initial screening levels are presented in Table 3-7.

Table 3-7 Sleep disturbance screening levels (residences)

Residential noise catchment	**Initial Screening Level, L_{Amax}, dB(A)**	
	Night **(10pm to 6am)**	**OOHW 1** **(6am to 7am)**
Wattle Grove	37 + 15= 52	41 + 15 = 56
Wattle Grove North	36 + 15 = 51	36 + 15 = 51
Casula	34 + 15 = 49	40 + 15 = 55

Glenfield	37 + 15 = 52	44 + 15 = 59

3.5. Construction vibration objectives

Construction vibration is associated with three main types of impact:

- disturbance to building occupants
- potential damage to buildings
- potential damage to sensitive equipment in a building.

Generally, if disturbance to building occupants is controlled, there is limited potential for structural damage to buildings.

The vibration management levels that are applicable to the Project are consistent with those detailed in the MPW Stage 2/3 CNVMP.

For most MPW South construction activities involving short term vibration sources such as rock breakers, vibratory rollers, excavators and the like, the predominant vibration energy occurs at frequencies greater than 10 Hz (and usually in the 20 Hz to 100 Hz range). On this basis, a conservative vibration damage screening level per receiver type is given below:

- Buildings used for commercial purposes, industrial buildings and buildings of similar design: 20 mm/s
- Dwellings and buildings of similar design and/or occupancy: 5 mm/s
- Pipework and infrastructure: 50 mm/s.

Due to the large distances, off site vibration impacts are not expected.

Where construction vibration levels are identified as potentially above these screening levels, further investigation is required, as detailed in Section 5.1.5 and Table 37 of the MPW Stage 2/3 CNVMP.

3.6. Aspects, Impacts and Risks

Section 1.2 of the MPW South CEMP – Addendum describes the Project, including construction activities, construction hours and ancillary construction activities.

Section 3.1 and Appendix B of the MPW South CEMP – Addendum details the aspects, impacts and risks associated with the construction of the Project.

The Noise and vibration impact assessment - MPW South S1/S2/S3/S5/S6 Renzo Tonin & Associates Nov 2023 (NVIA) presents the likely noise levels from the construction works for the Project.

The NVIA outcome summary recommended that a feasible and reasonable approach towards noise mitigation measures be applied to reduce noise levels as much as possible to mitigate the impact from construction noise.

3.7. Mitigation and Management Measures

Management measures prescribed by this Addendum aim to avoid and minimise impacts on sensitive receivers. Management measures to be implemented prior to, during and after construction are detailed in Table 3-8. These measures are consistent with those identified within the MPW Stage 2/3 CNVMP where relevant and applicable to the construction of the Project.

The mitigation and management measures are consistent with the intent and recommendations of the ICNG for best-practice techniques to be developed for managing construction noise and vibration and implementing feasible and reasonable mitigation measures.

Table 3-8 Management measures

ID	Management Measure	Timing	Responsibility	Reference
NV1	The approved hours of work, the name of the site/project manager, the responsible managing company, its address and 24-hour contact phone number for any inquiries, including construction/noise complaints will be displayed at the site, typically near site entrance points.	Pre-construction and during construction	Contractor's Community Liaison Manager (CLM)	Best practice
NV2	Notification of potentially affected people and the relevant Council about construction commencement, out-of-hours works, and high noise works will occur in accordance with the Construction Community Communication Strategy and will detail the following at least 14 days prior to commencement of relevant works; • Nature of the construction stages • Hours of work • Duration of noisier activities • Measures to minimise noise impacts • The Project website, information and response lines, email distribution list and any applicable community-based forums will also be utilised for this purpose.	Pre-construction and during construction	Contractor's CLM	REMM 5J
NV3	In the event of any noise or vibration related complaint or adverse comment from the community, noise and ground vibration levels (as relevant) will be investigated. Remedial action will be implemented where feasible and reasonable. The procedures for managing complaints will be provided within the Construction Community Communication Strategy.	Construction	Contractor's Construction Manager (CM)	REMM 5Q REMM 5R Section 4.6
NV4	Where feasible and reasonable, plant and equipment will be selected, operated and maintained to minimise noise and vibration, including; • Select plant and equipment based on least noise and vibration emission levels • Use of low vibration generating equipment/vibration dampeners or alternative construction methodology where necessary • Use of noise source controls, such as the use of residential class mufflers (where feasible), to reduce noise from all plant and equipment including excavators and trucks	During construction	Contractor's EM Site Supervisor	REMM 5F, 5L, 5N, Best practice

ID	Management Measure	Timing	Responsibility	Reference
	• Maintenance, repair or replacement of plant and equipment if it becomes noisy • Use of quietest suitable and available construction equipment • Use of silenced generators and compressors • Ensuring road plates are properly installed and maintained • Use of non-tonal movement alarms in place of reversing beepers, or alternatives such as reversing cameras and proximity alarms, unless tonal alarms are considered to be required for safety purposes. All plant and equipment used at the site or to monitor the performance of the development will be; • maintained in a proper and efficient condition • operated with all engine covers and hatches closed as instructed by the manufacturer • operated in a proper and efficient manner.			
NV5	Where feasible and reasonable, the following work practices will be adopted to minimise noise and vibration; • Where practical, undertake the noisiest works during standard hours • Avoid simultaneous operation of noisy plant • Maximise the offset distance between noisy plant and adjacent sensitive receptors • Throttle down or switch off plant when not in use • Examine and implement where feasible and reasonable, alternative work practices that generate less noise • All drivers and operators will adhere to speed limits and other signposted instructions • Noise-emitting plant to be directed away from sensitive receivers, or behind barriers where reasonable and practicable to do so • “Clustering" of noisy plant or processes will be limited • Adhere to the safe working distances identified in the MPW 2/3 CNVMP for vibration	During construction	Contractor’s EM Site Supervisor	REMM 5C, 5G, 5H, 5I, 5M, 5O

ID	Management Measure	Timing	Responsibility	Reference
	intensive plant • Arrange the work site to minimise the use of movement alarms on vehicles and mobile plant • Where there are no overriding project constraints, program works so as to not affect any sensitive receiver for more than a total of six nights in any four-week period • Avoid dropping materials from a height, dropping or dragging road plates • Talk to workers about noise from the works and how it can be reduced • Use radios and stereos indoors rather than outdoors • Contact potentially noise-affected receivers at the earliest possible time before any site high-noise work begins • Inform potentially noise-affected receivers about the nature of the construction stages and the duration of high-noise activities • Keep staff who receive complaints informed regarding current and upcoming works and the relevant contacts for these works • Handle complaints in a prompt and responsive manner			
NV6	Construction vehicles will be operated to minimise any construction noise impacts from the construction site. To achieve this the following will occur; • Toolbox talks for drivers and operators • No use of compression brakes on the site or on nearby roads • Loading and unloading of materials/deliveries will occur as far as possible from receptors • Fitting of delivery vehicles with straps rather than chains for unloading, wherever feasible and reasonable • Make delivery personnel and truck drivers aware of approved haulage routes and access in and out of the construction site • Issue pre-determined delivery times to suppliers • Contracts will include provisions to deal with any unsatisfactory noise performance for specific vehicles and/or operators and require the use of non-tonal reversing	During construction	Contractor's EM Site Supervisor	REMM 5E, 5K, 5O

ID	Management Measure	Timing	Responsibility	Reference
	alarms • The Truck Drivers Protocol presented in the CTAMP Addendum must be adhered to.			
NV7	If measured construction noise levels at nearest residences are greater than 75 dB(A) $L_{Aeq\ 15minute}$, the following additional noise mitigation measures will be considered; (a) Localised acoustic screens (to be appropriately designed/installed as per acoustic consultant direction) (b) Respite periods of one hour are recommended for every continuous three-hour period of work; alternatively, daytime works will be scheduled between 9.00 am and 12.00 pm, and between 2.00 pm and 5.00 pm.	During construction	Contractor's EM Site Supervisor	REMM 5S
NV8	If noise generating construction works are undertaken outside the standard construction hours, the following additional noise mitigation measures will be considered; (a) Localised acoustic screens (to be appropriately designed/installed as per acoustic consultant direction) (b) Dominant noise-generating mechanical plant will be fitted with feasible noise mitigation controls such as exhaust mufflers and engine shrouds (c) When night works are required to be undertaken, schedule where practicable noisy construction work to be undertaken during the less sensitive 6.00 pm to 10.00 pm evening period.	During construction	Contractor's EM Site Supervisor	REMM 5S
NV9	All general construction works, and activity will be scheduled to occur during the following periods, unless authorised as out-of-hours works or as otherwise specified in an environment protection licence; • 7:00am to 5:00pm Mondays to Saturday, inclusive • at no time on Sundays or public holidays.	During construction	Contractor's EM Site Supervisor	TISEPP CDC Condition 14
NV10	Construction vehicles (including concrete agitator trucks) are not to arrive at the site or surrounding residential precincts outside of the construction hours of work outlined in NV9, except for works undertaken in accordance with an OOHW Protocol.	During construction	Contractor's EM Site Supervisor	REMM 5C

ID	Management Measure	Timing	Responsibility	Reference
NV11	Where feasible and reasonable, non-tonal movement alarms will be used in place of tonal reversing alarms on site plant and equipment required for construction activities.	During construction	Contractor's EM Site Supervisor	REMM 5L
NV12	As part of construction planning, mitigation and management measures should be considered and implemented where feasible and reasonable where there is potential for the noise management levels to be exceeded by the construction works either for individual warehouse construction works or cumulatively between other warehouse construction works or other MPE and MPW construction.	During construction	Contractor's EM Site Supervisor	REMM 5F, 5G
NV13	As part of construction planning, to mitigate and manage cumulative noise impacts between other MPW South warehouse constructions and/or other MPW construction works, the following controls are to be implemented where feasible and reasonable; • Coordinating work between construction sites to manage cumulative noise impacts, where feasible and reasonable. An example would be to ensure that where multiple sites are undertaking noise intensive works, and these construction works could occur concurrently on multiple construction sites in proximity to the same noise sensitive receivers, these impacts are to be managed with consideration of both projects (ie. ensure that works do not occur during designated respite periods). • Consideration of community feedback [ie. community consultation committee (CCC), precinct complaint line] to gauge key noise impacts and issues and identify any unknown impacts from concurrent or consecutive sets of constructions works. • Consideration of cumulative construction noise impacts during the development of noise mitigation and management measures for the worksites, including coordination between construction projects, where reasonable and feasible (ie. consideration of respite periods provided by other projects, so that timetables between projects don't result in other projects or the Proposal impacting the same noise sensitive receivers during designated periods of respite).	During construction	Contractor's EM Site Supervisor	REMM 5F, 5G

4. Monitoring and Review

4.1. Environmental Monitoring

Monitoring, including site inspections, will be undertaken in accordance with Sections 4.1 and 4.2 of the MPW South CEMP – Addendum. Noise and vibration monitoring procedures will be in accordance with Section 5, MPW Stage 2/3 CNVMP.

Monitoring required to determine the effectiveness of management measures required by this Addendum is outlined in Table 4-1.

Table 4-1 Monitoring activities

Monitoring activity	Frequency	Responsibility	Requirement
Attended noise measurements of significant plant items (Table 30 MPW Stage 2/3 CNVMP) to confirm noise emission align to predicted levels for these activities.	<28 days after mobilisation.	Contractors EM	REMM 5F REMM 5I NV6
Attended community noise monitoring	In response to complaints	Contractors EM	REMM 5R NV3
	Verify OOHW noise levels	Contractors EM	5D
Inspection of construction activities / noise sources / noise minimisation practices	During Construction	Contractors EM	REMM 5I REMM 5M REMM 5N REMM 5O

4.2. Environmental Auditing and Reporting

Auditing and reporting will be undertaken in accordance with Sections 4.3 and 4.6 of the MPW South CEMP – Addendum.

4.3. Review and Improvement

Review and improvement of this Addendum will be undertaken in accordance with Section 4 of the MPW South CEMP – Addendum. Continuous improvement will be achieved by the ongoing evaluation of environmental management performance and effectiveness of this Addendum against environmental policies, objectives and targets.

Revisions of this Addendum will be undertaken in accordance with Section 1.1.4 of the MPW South CEMP – Addendum.

4.4. Incidents

In the event of a safety or environmental incident, or unpredicted impacts relating to the management of noise and vibration, it is the responsibility of all personnel to report to the Site Supervisor.

All environmental incidents will be managed and reported in accordance with Section 2.8 of the MPW South CEMP – Addendum.

4.5. Non-Compliance and Non-Conformance

It is the responsibility of all site personnel to report non-compliances and non-conformances to the Site Supervisor and/or the Contractor's Environmental Manager. Non-compliances and non-conformances will be managed in accordance with Section 4.4 of the MPW South CEMP – Addendum.

4.6. Complaints

Complaints handling will be undertaken in accordance with Section 2.6 of the MPW South CEMP – Addendum.

5. References

1. Wilkinson Murray, 2013, *SIMTA Noise Assessment – Concept Plan* (MPE Concept Plan), Report No. 12186-C, Version C, 2 August 2013
2. SLR, 2015, Moorebank Intermodal Terminal, *Revised Project Report - Noise and Vibration Impact Assessment* (MPW Concept Plan), Report No. 620.10816 R2, 27 April 2015, Revision 0
3. Wilkinson Murray, 2016, *MPW Concept Plan Modification Noise and Vibration Impact Assessment*, Report No. 15324-MO, Version B, 8 June 2016
4. Renzo Tonin & Associates, 2021, *Moorebank Precinct West Stage 2 / Stage 3 - Construction Noise and Vibration Management Plan*, TJ741-06F02 MPWS2 MPWS3 CNVMP (r16), dated 14 December 2021.
5. Aspect Environmental, MPW Stage 2 CEMP and Stage 3, Revision R, dated 21/12/2022.
6. Aspect Environmental, MPW South CEMP – Addendum, Revision 2, dated 28/02/2024.
7. Renzo Tonin & Associates, 2021, *Moorebank Precinct West – Noise and vibration impact assessment – MPW South (S1/S2/S3/S5/S6)*, TM306-18F04 MPW S1 S2 S5 (S3 S6) CDC NVIA (r3), dated 14 November 2023.