PROJECT MANAGEMENT PLAN

Noise and Vibration Monitoring Program

Sydney Metro West – Western Tunnelling Package

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Document Details

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Document Authorisation

Senior Environmental Approvals Advisor	**Environment & Sustainability Lead**	**Project Director**
Signature	Signature	Signature
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TABLE OF CONTENTS

Document Details....1
Document Authorisation....1

DOCUMENT CONTROL....3
Revision History....3
Terms and Definitions....4

1 INTRODUCTION....6
1.1 Background....6
1.2 Project location....6
1.3 Purpose....7
1.4 Objectives....7
1.5 Consultation....8
1.6 Endorsement and Approval....8

2 ENVIRONMENTAL REQUIREMENTS....9
2.1 Relevant Legislation and Guidelines....9
2.2 Project Requirements....9
2.3 Environmental Protection Licence....12

3 BASELINE DATA....13

4 GENERAL MONITORING REQUIREMENTS....14
4.1 Cessation of Noise and Vibration Monitoring....15
4.2 Calibration, Quality Assurance and Competency....16
4.3 Out of Hours Work (OOHW)....16

5 NOISE MONITORING....17
5.1 Attended Noise Monitoring....17
5.2 Unattended Noise Monitoring....17
5.3 Noise Monitoring Methodology....18
5.4 Ground-Borne Noise....20
5.5 Plant and Equipment Noise Levels....21

6 VIBRATION MONITORING....22
6.1 Attended Vibration Monitoring....22
6.2 Unattended Vibration Monitoring....22
6.3 Vibration Monitoring Methodology....23

7 MONITORING AND ACTION PROCESS....25

8 TARGET MONITORING LOCATIONS....26

9 NOISE AND VIBRATION REPORTING....28
9.1 AA Monthly Noise and Vibration Reports....28
9.2 Six-Monthly Noise and Vibration Monitoring Report....28

ATTACHMENTS....30
Attachment 1 – Consultation....30

DOCUMENT CONTROL

The current document version number and date of revision are shown in the document footer. All changes made to the Management Plan during its implementation on a live project are to be recorded in the amendment tables below.

Revision History

Revision	Date	Description of changes	Prepared by	Approved by
A	31 January 2022	First Draft	(SLR Consulting)	Director
B	04 April 2022	Addressing Stakeholder Comments	(SLR Consulting)	Director
C	12 May 2022	Addressing Stakeholder Comments	(SLR Consulting)	Director
D	28 July 2022	Addressing Stakeholder Comments	(SLR Consulting)	
E	30 November 2022	Addressing Sydney Metro and the ER Comments	Approvals Manager	Director
F	17 January 2024	Annual Review	Snr Approvals Advisor	Director
G	30 April 2024	Addressing Sydney Metro and the ER Comments	Snr Approvals Advisor	Director
H	12 June 2025	Annual Review	Snr Approvals Advisor	Director
I	14 August 2025	Addressing SM, ER and AA Comments	Snr Approvals Advisor	Director

Terms and Definitions

Term	Definition
AA	Acoustics Advisor
AMM	Additional Mitigation Measure
AVTG	Environmental Noise Management Assessing Vibration: A Technical Guideline
CCS	Community Communication Strategy
CEMF	Construction Environmental Management Framework
CEMP	Construction Environmental Management Plan
CNVMP	Construction Noise and Vibration Management Plan
CNVS	Sydney Metro Construction Noise and Vibration Standard
CoA	Conditions of Approval
CSSI	Critical State Significant Infrastructure
DCCEEW	Department of Climate Change, Energy, the Environment and Water (NSW)
DNVIS	Detailed Noise and Vibration Impact Statement
DPHI	Department of Planning, Housing and Infrastructure (NSW) (Formerly DPE)
EIS	Environmental Impact Statement
EMS	Environmental Management System
EPA	Environment Protection Authority
EPL	Environmental Protection License
EPO	Environmental Performance Outcomes
ER	Environmental Representative
GLC	Gamuda Australia – Laing O'Rourke Consortium
ICNG	NSW Interim Construction Noise Guideline
IS	Infrastructure Sustainability
ISC	Infrastructure Sustainability Council
LGA	Local Government Area
MSF	Maintenance and Stabling Facility
NCA	Noise Catchment Areas
NMI	National Measurement Institute
NML	Noise Management Levels
NVMoP	Noise and Vibration Monitoring Program
OOHW	Out of Hours Works
PPV	Peak Particle Velocity
RBL	Rating Background Level
REMM	Revised Environmental Mitigation Measures
RNP	NSW Road Noise Policy
RTA	Road Trains of Australia

Term	Definition
SM	Sydney Metro
SMW	Sydney Metro West
SOPA	Sydney Olympic Park Authority
SWL	Sound Power Level
TBM	Tunnel Boring Machine
VDV	Vibration Dose Value
WTP	Western Tunnelling Package

1 INTRODUCTION

1.1 Background

Sydney Metro West (SMW) is a new underground railway connecting Greater Parramatta and the Sydney CBD. It will provide fast connections between greater Sydney's two major business centres as well as providing better access to the growing business and entertainment precincts in Olympic Park and Pyrmont, the health and medical research hub at Westmead and the future business and tourism site at The Bays.

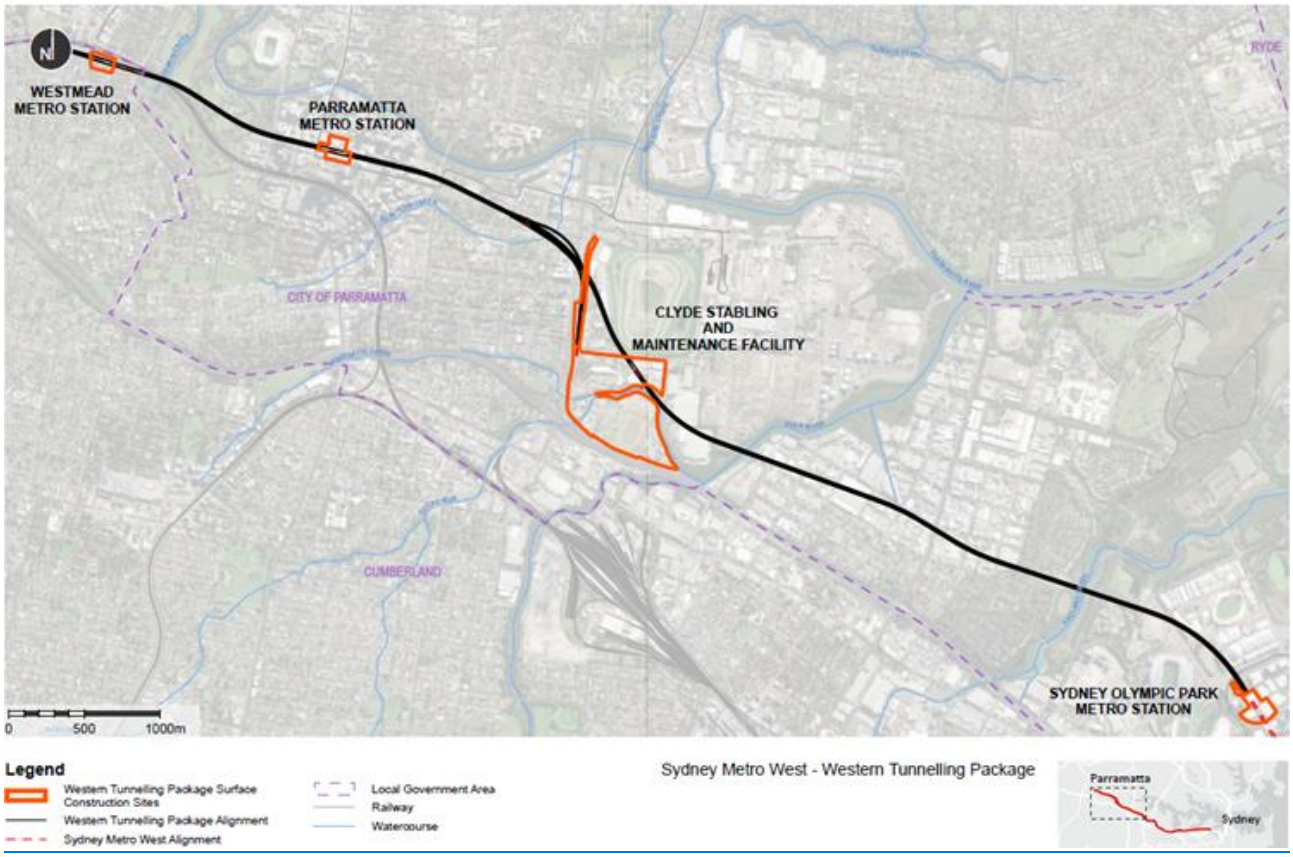
An Environmental Impact Statement (EIS) (Jacobs/Arcadis, 2020) for the Concept and Stage 1 assessed the noise and vibration impacts in response to the Secretary Environmental Assessment Requirements issued by the Department of Planning and Environment (DPE). The Project was approved on 11 March 2021 (SSI 10038).

Sydney Metro is delivering the Sydney Metro West project via several different packages, including the Western Tunnelling Package (WTP, the Project).

1.2 Project location

The WTP Project location is shown below in Figure 1.

Figure 1: Project Location



1.3 Purpose

This Noise and Vibration Monitoring Program (NVMoP) outlines how Gamuda Australia and Laing O'Rourke Consortium (GLC) proposes to undertake noise and vibration monitoring during construction of the WTP and during the process of site handover following construction completion in accordance with the Contract. This document should be read in conjunction with the WTP Construction Noise and Vibration Management Plan (CNVMP). This NVMoP has been developed to comply with Condition of Approval (CoA) C14. This condition is outlined in Section 2.2.

1.4 Objectives

The objective of this NVMoP is to define, address and implement noise and vibration monitoring requirements and will apply for the duration of construction.

This NVMoP outlines how GLC will comply with and implement the applicable elements of the following documents, collectively referred to herein as the 'Project requirements' for the WTP:

- The CoA (issued on 11 March 2021) which includes the following Modifications:
  - Modification 1 – Amended A11d, C10 and D25 and propose a new Condition A39.1 – approved on 28 July 2021
  - Modification 2 – Relocation and extension of the Rosehill dive structure and realignment of Kay Street and Unwin Street - approved 3 June 2022
  - Modification 3 – Amendment of C-B10, D10, D11, D18, D37, D63 and D66 - approved on 4 July 2022
  - Modification 4 – Amendment to D26 and D122 approved on 23 December 2022.
  - Modification 5 – Additional clearing of mangrove communities required at Clyde Stabling and Maintenance Facility with amendments to D4, D6, D6A and D6B.
  - Modification 6 – Amendments to Conditions of Approval C-B8, A16, A17, A21, A30, D51, D71, D111 and D117.
- The Project EIS, Submissions Report and Amendment Report
- Sydney Metro Construction Environmental Management Framework (CEMF)
- Environmental Protection Licence (EPL) 21676.

The objectives and targets applicable to the Noise and Vibration Management on the Project are outlined in the CNVMP. In addition, the following objectives specifically related to the implementation of the monitoring program will be adopted from the Sydney Metro Construction Noise and Vibration Standard (CNVS):

- Ongoing noise monitoring during construction at sensitive receivers during critical periods (i.e. times when noise emissions are expected to be at their highest - e.g. piling and hammering) to identify and assist in managing high risk noise events
- Monitoring will be undertaken to inform the relevant personnel when the noise or vibration goal has been exceeded so that additional management measures may be implemented
- Regular compliance checks on the noise emissions of all plant and machinery used for the project to:
  - indicate whether noise emissions from plant items were higher than predicted
  - identify defective silencing equipment on the items of plant
  - assist in determining where additional management measures should be implemented.

1.5 Consultation

In accordance with CoA C14(a), this NVMoP has been prepared in consultation with the Environment Protection Authority (EPA), Sydney Olympic Park Authority (SOPA), Parramatta City Council (PCC) and Cumberland City Council (CCC). The details of all information requested by these stakeholders through consultation including copies of all correspondence from those agencies has been included in Attachment 1.

GLC will also facilitate active community consultation and engagement to maintain positive and cooperative relationships with schools, local residents, building owners and occupiers and other members of the community (e.g. Sydney Trains, Parramatta Light Rail and Australian Turf Club) to assist in alleviating concerns and minimising disturbance. Relationships will also facilitate collaboration with regard to OOHW programming and provision of respite as required.

The Project Community Communication Strategy (CCS) details the approach to stakeholder and community engagement in accordance with the Sydney Metro Overarching Community Consultation Strategy. Specific to noise and vibration management, consultation will include periodic notification of work activities and progress and specific notification to potentially impacted community prior to especially noisy activities.

1.6 Endorsement and Approval

In accordance with CoA C18 – CoA 20 this NVMoP was submitted to the Planning Secretary for approval on the 18 May 2022, at least one month before commencement of construction, following endorsement by the Environmental Representative (ER) and the Acoustics Advisor (AA). Approval from the Planning Secretary was received on the 11 July 2022. Construction commenced on the 19 July 2022 following approval of the NVMoP in compliance with CoA 21.

2 ENVIRONMENTAL REQUIREMENTS

2.1 Relevant Legislation and Guidelines

Legislation relevant to this monitoring program includes:

- *Protection of the Environment Operations Act 1997 (POEO Act)*

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

- Sydney Metro Construction Noise and Vibration Standard (CNVS) 2020 v4.3
- Sydney Metro Construction Environmental Management Framework (CEMF) 2020 v4.1
- NSW EPA Approved Methods for Environmental Noise Measurement and Analysis 2002
- NSW Interim Construction Noise Guideline (ICNG), Department of Environment and Climate Change 2009
- NSW Road Noise Policy, Dept. of Environment, Climate Change and Water 2011
- NSW Noise Policy for Industry, Environment Protection Authority 2017
- NSW Assessing Vibration – a technical guideline (AVTG), Department of Environment and Conservation 2006
- Australian Standard 1055:2018 Acoustics – Description and Measurement of Environmental Noise
- Australian Standard AS/NZS 2107:2016 Acoustics - Recommended design sound levels and reverberation times for building interiors
- Australian Standard AS2436-2010 Guide to noise and vibration control on construction, demolition and maintenance sites
- Australian Standard 2659.1 – 1988 Guide to the use of sound measuring equipment – portable sound level meters
- Australian Standard 2775-2004 Mechanical Mounting of Accelerometers
- Australian Standard IEC 61672.1 Electroacoustic – Sound Level Meters – Specifications
- British Standard 7385:1993 Evaluation and measurement of vibration in buildings – Part 2 Guide to damage from ground-borne vibration German Standard DIN4150-3:2016 Vibration in buildings – Part 3: Effects on structures
- ISO 3744:2010 Acoustics - Determination of sound power levels and sound energy levels of noise sources using sound pressure - Engineering methods for an essentially free field over a reflecting plane
- ISO 3746:2010 Acoustics - Determination of sound power levels and sound energy levels of noise sources using sound pressure - Survey method using an enveloping measurement surface over a reflecting plane

2.2 Project Requirements

The Project requirements relevant to the preparation of this NVMoP are identified in Table 1. A document reference is also included to indicate where the requirement is addressed in this NVMoP or other documents. Additional construction noise and vibration project requirements are outlined in the CNVMP.

Table 1: NVMoP Compliance Matrix

ID	Conditions of Approval	Document Reference
C14	The following Construction Monitoring Programs must be prepared in consultation with the relevant government agencies identified for each to compare actual performance of construction of Stage 1 of the CSSI against the performance predicted in the documents listed in Condition A1 of this schedule or in the CEMP: a) Noise and vibration Monitoring program; consult with EPA, SOPA (in respect of Sydney Olympic Park), Place Management NSW (in respect of The Bays) and Relevant Council(s)	This Document Section 1.5 Attachment 1
C15	Each Construction Monitoring Program must provide: a) details of baseline data available including the period of baseline monitoring; b) details of baseline data to be obtained and when; c) details of all monitoring of the project to be undertaken; d) the parameters of the project to be monitored; e) the frequency of monitoring to be undertaken; f) the location of monitoring; g) the reporting of monitoring results and analysis results against relevant criteria; h) details of the methods that will be used to analyse the monitoring data; i) procedures to identify and implement additional mitigation measures where the results of the monitoring indicated unacceptable project impacts; j) a consideration of SMART principles; and k) any consultation to be undertaken in relation to the monitoring programs; and l) any specific requirements as required by Conditions C16 to C17 of this schedule.	a) Section 3 b) Section 3 c) Section 4,5,6 d) Section 4,5,6 e) Section 4,5,6 f) Section 4,5,6 g) Section 5,6 h) Section 4-8 i) Section 7 j) Section 7 k) Section 1.5, Attachment 1 l) Section 2.2
C16	The Noise and Vibration Construction Monitoring Program and Blasting Construction Monitoring Program must include: a) noise and vibration monitoring determined in consultation with the AA to confirm the best-achievable construction noise and vibration levels with consideration of all reasonable and feasible mitigation and management measures that will be implemented; b) for the purposes of (a), noise monitoring must be undertaken during the day, evening and night-time periods and within the first month of work as well as throughout the construction period and cover the range of activities being undertaken at the sites; and c) a process to undertake real time noise and vibration monitoring. The results of the monitoring must be readily available to the construction team, the Proponent, ER and AA. The Planning Secretary and EPA must be provided with access to the results on request.	Note: blasting not required a) Section 4 b) Section 4 c) Section 4
C18	With the exception of any Construction Monitoring Programs expressly nominated by the Planning Secretary to be endorsed by the ER, all Construction Monitoring Programs must be submitted to the Planning Secretary for approval.	Section 1.6
C19	The Construction Monitoring Programs not requiring the Planning Secretary's approval must obtain the endorsement of the ER as being in accordance with the conditions of approval and all undertakings made in the documents listed in Condition A1 of this schedule. Any of these Construction Monitoring Programs must be submitted to the ER for endorsement at least one (1) month before the commencement of construction or where construction is phased no later than one (1) month before the commencement of that phase.	Section 1.6
C20	Any of the Construction Monitoring Programs which require Planning Secretary approval must be endorsed by the ER and then submitted to the Planning Secretary for approval at least one (1) month before the commencement of construction or where construction is phased no later than one (1) month before the commencement of that phase.	Section 1.6

ID	Conditions of Approval	Document Reference
C21	Unless otherwise agreed with the Planning Secretary, construction must not commence until the Planning Secretary has approved, or the ER has endorsed (whichever is applicable), all of the required Construction Monitoring Programs and all relevant baseline data for the specific construction activity has been collected.	Section 1.6
C22	The Construction Monitoring Programs, as approved by the Planning Secretary or the ER has endorsed (whichever is applicable), including any minor amendments approved by the ER, must be implemented for the duration of construction and for any longer period set out in the monitoring program or specified by the Planning Secretary or the ER (whichever is applicable), whichever is the greater.	Section 4
C23	The results of the Construction Monitoring Programs must be submitted to the Planning Secretary, ER and relevant regulatory agencies, for information in the form of a Construction Monitoring Report at the frequency identified in the relevant Construction Monitoring Program.	Section 9

Requirements of the CEMF, Revised Environmental Mitigation Measures (REMMs) and CNVS relevant to this NVMoP are identified in Table 2. A document reference is also included to indicate where the requirement is addressed in this NVMoP or other documents.

Table 2: CEMF, REMM and CNVS Requirements

Requirement	Conditions	Document Reference
CEMF 3.14	a) Issue specific environmental monitoring will be undertaken as required or as additionally required by any approval, permit or licence conditions. b) The results of any monitoring undertaken as a requirement of a licence or permit that is required to be published will be published on the Principal Contractor's, or a project specific, website within 14 days of obtaining the results.	a) This Document b) Section 9
CEMF 3.16	a) Principal Contractors will maintain appropriate records of the following: i. Site inspections, audits, monitoring, reviews or remedial actions; ii. Documentation as required by performance conditions, approvals, licences and legislation; iii. Modifications to site environmental documentation (eg CEMP, sub-plans and procedures); and iv. Other records as required by this Construction Environmental Management Framework. b) Records must be accessible onsite for the duration of works. c) Additionally records will be retained by the Principal Contractor for a period of no less than 7 years. Records will be made available in a timely manner to Sydney Metro (or their representative) upon request.	a) This Document b) Section 8 c) Section 9
CEMF 8.2	c) Noise and vibration monitoring would be undertaken for construction as specified in the CNVS. d) The following compliance records would be kept by Principal Contractors: i. Records of noise and vibration monitoring results against appropriate NMLs and vibration criteria; and ii. Records of community enquiries and complaints, and the Contractor's response.	c) Section 4,1, d) Section 9
CNVS 6.1	**Plant Noise Auditing, Compliance Evaluation and Reporting** • Noise audits to compare sound power level against values in Section 4.3 of CNVS • For all measurements, the plant or equipment under test would be measured while operating under typical operating conditions	Section 5.5

Requirement	Conditions	Document Reference
	• In the case of an exceedance in Sound Power Levels the item of plant would either be replaced, or the advice of an acoustic consultant would be sought to provide suitable mitigation measures.	
CNVS 6.2	**Noise Monitoring** • Noise monitoring where noise goals predicted to be exceeded • All noise monitoring results would be assessed against the nominated noise goals and compiled into a report to be forwarded to the construction contractor and project manager. • Reporting would be submitted to the construction contractor and project manager within one week of being undertaken or at weekly intervals for continuous monitoring. • All noise monitoring reports would also be made available to the public through a publicly accessible website.	Section 4,1
CNVS 6.3	**Vibration Monitoring** • Vibration monitoring where exceedance of cosmetic damage criteria expected, or where human response exceedance is expected and where concerns raised. • All vibration monitoring results would be assessed against the nominated vibration goals and compiled into a report to be forwarded to the construction contractor and project manager. • Reporting would be submitted to the construction contractor and project manager within one week of being undertaken or at weekly intervals for continuous monitoring. • All vibration monitoring reports would also be made available to the public through the publicly accessible website.	Section 4,0

2.3 Environmental Protection Licence

The Project construction activities are designated as 'Railway activities—railway infrastructure construction' under Schedule 1 of the POEO Act. Scheduled activities under clause 48 of the POEO Act, require an Environmental Protection Licence (EPL) for the premise at which a scheduled activity is carried on.

The EPL typically regulates the emissions of potentially offensive odours, noise and dust, including the prescribing es noise limits and hours of operation including requirements for monitoring, consultation and complaint management.

The EPL for the project is EPL 21676. A copy can be found on the public register.

3 BASELINE DATA

The existing noise environment was quantified (via measurement) at representative NCAs surrounding the Project site during preparation of the EIS. A summary of the measured ambient and background noise levels (RBLs) are presented in Table 3 below. Individual sensitive receiver locations are identified in Technical Paper 2 of the EIS. NCA locations are outlined in the CNVMP.

Measured noise levels in the vicinity of the Project generally display a diurnal trend with lower levels during the night-time than the daytime and evening periods. This is characteristic of urban and suburban areas, where the ambient noise environment is primarily influenced by road traffic.

Baseline data from the EIS has been reviewed and is representative of ambient noise in the Project area. No further baseline monitoring is proposed prior to commencement of construction of the WTP.

Table 3 Summary of Ambient and Background Noise Levels

Location ID	NCA	RBL (dBA)			Average Noise Level (dBA)		
		Day	Evening	Night	Day	Evening	Night
B.02	NCA01	48	46	41	58	53	51
B.01	NCA02	49	47	37	67	67	62
B.03	NCA03	58	53	43	69	67	62
B.04	NCA04	51	48	41	61	58	57
B.05	NCA05	50	49	45	56	55	53
B.06	NCA06	52	51	44	58	57	55
B.07	NCA07	46	44	41	60	57	55
B.08	NCA08	48	48	46	55	54	52
B.09	NCA09	48	46	41	57	58	53

Note: The assessment periods are the daytime which is 7 am to 6 pm Monday to Saturday and 8 am to 6 pm on Sundays and public holidays, the evening which is 6 pm to 10 pm, and the night-time which is 10 pm to 7 am on Monday to Saturday and 10 pm to 8 am on Sunday and public holidays. Refer the NSW EPA Noise Policy for Industry.

4 GENERAL MONITORING REQUIREMENTS

Monitoring for the Project will be implemented at the commencement of works and at regular intervals throughout construction of the project (i.e. during the day, evening and night-time periods, within the first month of work and throughout the construction period to cover a range of activities being undertaken on site) to quantify the airborne noise, ground-borne noise and vibration levels associated with construction activities. Monitoring will also be required in the event of a complaint being received or at the commencement of new OOHWs where the AMM has identified monitoring.

Where it has been identified that specific construction activities are likely to exceed the relevant noise or vibration goals (as is the case for select project works), noise or vibration monitoring may be conducted at the affected receiver(s) or a nominated representative location (typically the nearest receiver where more than one has been identified). Conversely, where there is no longer a risk of exceeding the relevant noise or vibration goals, monitoring may cease. This would typically occur following substantial construction completion.

Monitoring can be in the form of either unattended logging or operator attended surveys. The purpose of monitoring is to inform the relevant personnel when the noise or vibration goal is being approached so that work methodology or equipment being used can be altered, and / or additional management measures may be implemented. Noise and vibration management levels and screening levels are presented in Section 6 of the CNVMP.

This Construction Monitoring Program, as outlined in CoA C22 must be implemented for the duration of construction and for any longer period set out in the monitoring program or specified by the Planning Secretary, whichever is the greater. With the progression of works and changing risks, the monitoring program may be reviewed and amended accordingly in consultation with SM, the ER and AA (Refer Section 4.1). Any amendments made to the Monitoring Program may be endorsed by the Acoustic Advisor in conjunction with the Environmental Representative in accordance with MCoA A36(h)(iii) and A30(j).

All construction noise and vibration monitoring will be undertaken generally in accordance Section 6 of the CNVS. This outlines the minimum requirements for contractors undertaking monitoring on the Sydney Metro Project. Noise and vibration monitoring requirements will continue to be determined in consultation with the AA to confirm the best-achievable construction noise and vibration levels with consideration of all reasonable and feasible mitigation and management measures that will be implemented.

In accordance with CoA C16 real-time noise and vibration monitoring will be undertaken at locations representative of the nearest and potentially most affect receivers, where installation at these premises is permitted. In the context of vibration monitors, these may also be relocated where vibration intensive works are expected to occur within safe working distances, or if an exceedance of the cosmetic/structural criteria is predicted. Where there is no longer a risk of exceeding noise or vibration management levels, GLC may remove real time noise and vibration monitors.

Real time noise monitors can have noise thresholds established for all periods of the day or vibration thresholds in the context of vibration monitors. Where this threshold is reached, an alert is provided to GLC to help guide GLC's response to events as well as to track ambient noise and or vibration levels. Where installation at the nearest receiver is not possible, alternative, representative worst-case locations would be selected, or they would be positioned at the site boundaries closest to the most affected sensitive receiver. These locations will be used to infer likely impacts at the nearest representative sensitive receiver locations.

As per CoA C16 real time monitoring data will be readily available to the construction team, Sydney Metro, the ER and the AA. Monitoring data will also be made available to the Planning Secretary and EPA on request. Unattended monitoring will continuously measure noise or vibration levels for the duration of the monitoring period, except during device maintenance or down time or where monitoring has been assessed by GLC, in consultation with SM, the ER and AA to be not required based on project risk. Further detail on noise and vibration requirements are outlined below.

4.1 Cessation of Noise and Vibration Monitoring

Where there is nil risk of adverse noise or vibration impacts to sensitive receivers, such as following Substantial Construction Completion of an entire site or parts of, or following GLC entering a caretaker role, GLC may cease monitoring in that area (real time, and or attended monitoring).

Where GLC propose to cease monitoring (attended or unattended), inspections and reporting required as part of this Program, they would utilise a Risk based approach in which these tasks would only cease where GLC has:

- achieved substantial construction completion including
    - the completion of high noise/vibration intensive activities (at the receiver) for all periods of the day,
- where sites (or parts of) are undertaking activities for which do not generate substantial noise or vibration impacts (i.e. NML compliance for evening and nighttime periods), and or
- following GLC entering a Caretaker phase

Where monitoring in any particular area ceases, including the removal of real time monitors, this would be communicated to the AA, ER and SM prior to cessation of monitoring, and be detailed in the relevant Construction Monitoring Report.

Following Substantial construction completion, GLC may also enter a Caretaker mode under the directive of Sydney Metro. This stage would involve GLC adopting a site ‘surveillance’ role and encompass activities which would otherwise be considered low impact works. This may include:

- Implementing a security presence by securing and protecting all areas of the relevant site
- keeping the relevant areas clean, including litter and graffiti removal, and the removal of surplus materials
- operation, replacement of parts and consumables including water treatment plant chemicals and supplies
- providing safe and convenient access to the relevant parts of the site to SM or other personnel authorised by SM.

In the instance considerable noise/vibration intensive activities (at the receiver) are required following the removal of unattended monitors, GLC will investigate the re-deployment of unattended monitors or undertake attended monitoring.

Note: GLC may under their own discretion undertake monitoring/inspections at each site during the Caretaker mode for the purpose of due diligence monitoring. Results from any inspections or monitoring undertaken at these sites would not be used for external reporting or to inform any monitoring reports required as part of the Approved Project.

4.2 Calibration, Quality Assurance and Competency

All attended measurements will be conducted by appropriately trained personnel in the measurement and assessment of construction noise and vibration. They will be familiar with the requirements of the relevant standards and procedures. GLC personnel undertaking monitoring (including but not limited to Environmental Advisors, Site Engineers etc) will be trained on the methodology for undertaking noise and or vibration monitoring prior to undertaking any monitoring on site. Refer to the CEMP for full details on environmental training.

All instruments will be calibrated in accordance with manufacturers specifications or relevant Australian Standards. Records of monitoring equipment calibration will be maintained by GLC throughout delivery of the Project.

Attended noise monitoring would be completed using, at minimum, Class 2 instruments, as per Australian Standard IEC 61672.1.

4.3 Out of Hours Work (OOHW)

Where out-of-hours works (OOHW) are undertaken, noise and vibration monitoring including a visual inspection of the activities may be undertaken as identified by the OOHW Permit, including to:

- Ensure noise and vibration mitigation measures specified in the approved application are appropriately implemented,
- Verify assumptions and model outcomes (as relevant) of the OOHW works (i.e. predicted noise levels), and
- Implement any additional mitigation measures where reasonable and feasible.

Where OOHW monitoring is required, this will be conducted as soon as practicable (e.g. preferably first night) during the approved works and would involve attended monitoring as required and as described in Section 1.

Personnel carrying out monitoring will consider the actual vs proposed equipment in use and confirm proposed physical mitigation measures (such as noise shielding and enclosures) are being implemented in accordance with the OOHW Permit where reasonable and feasible.

Monitoring results will be compared with predicted levels to establish the accuracy of predicted noise models and inform future predictions. Where the need for additional controls is identified, these will be implemented as soon as possible as actions undertaken in response to monitoring results.

5 NOISE MONITORING

5.1 Attended Noise Monitoring

Attended noise measurements will be undertaken at the closest and potentially most affected receiver (for each scenario) identified in the DNVIS from the commencement of construction activities to confirm that the noise levels are consistent with the predictions the DNVIS. Other potentially affected receivers will also be considered as part of the monitoring regime depending on the phase of works.

Noise monitoring will be undertaken on all work phases as detailed in Table 4. Monitoring for the Project will be required at the commencement of works and throughout the Project (i.e. when new construction activities commence) to quantify the airborne noise, ground borne noise and vibration levels associated with construction activities. Monitoring would also be required in the event of a complaint being received and would be conducted at the most affected receiver in accordance with the CNVS and Project Community Communication Strategy (CCS). Where required, consultation with the community will also include arranging access to private property to install monitoring equipment.

Where OOHW is approved and monitoring is required, attended noise measurements will be conducted at the most affected receivers following the general requirements specified in Section 4 and the methodology outlined in Section 5.3. Refer Section 8 for target monitoring locations at each construction site. As discussed in Section 4.1, attended noise monitoring for the purpose of measuring compliance with the planning approval may cease progressively following construction completion and or following GLC entering a Caretaker Mode contract with Sydney Metro. Cessation of monitoring at a site (or parts of) would be discussed in the relevant Construction Monitoring Report.

5.2 Unattended Noise Monitoring

In accordance with CoA C16 real-time noise monitoring are undertaken throughout the project at the most affected receiver locations or at representative locations where site noise level contributions at the nearest sensitive receivers can be monitored.

GLC utilises SiteHive real-time environmental management technology across the Project, capturing data 24/7 at each project site. This includes the use of the innovative SiteHive Hexanode monitoring device, along with all Project noise, dust and vibration data captured for analysis and reporting in the SiteHive platform. The benefits of this include:

- Proactive real-time environmental management ensures potential issues are addressed before they occur, allowing streamlined operations and significant reduction in manual work
- Project teams can access live environmental data from site, wherever they are, allow quick confident decisions to be made, informed by rich data
- Network of SiteHive data across metropolitan areas, including data from EPA & BoM stations, allows trends to be analysed to determine site activity vs ambient conditions
- Transparency and collaboration with stakeholders greatly increased through real-time data sharing, creating a much more productive and positive delivery environment.

The SiteHive Hexanode sound level meter has been tested by the National Measurement Institute (NMI), the division of the Australian Federal Government Department of Industry, Science, Energy & Resources. NMI undertook all required tests outlined in IEC 61672-2, with the Hexanode passing

all precision requirements within the criteria of a class 2 device. Calibration certificates will be provided for each device upon deployment.

Thresholds will be set on the SiteHive monitoring devices that will trigger photographic and audio recordings to verify the source and direction of the noise. This feature, along with observations from attended noise measurements, will be used to support and interpret the unattended noise data and identify noise impacts during construction.

Unattended monitoring will consist of at least one permanent monitor per site for the entirety of the Project. Additional SiteHives will be utilised depending on the programming of construction activities, identified risks of work being undertaken and for complaints investigations at various stages of the Project. Refer Section 8 for target monitoring locations at each construction site.

As discussed in Section 4.1, unattended noise monitoring for the purpose of measuring compliance with the planning approval may be progressively removed from site following substantial construction completion and or following GLC entering a Caretaker contract with Sydney Metro

Where substantial construction completion has been achieved and where high noise intensive activities have ceased (measured at the sensitive receiver), unattended noise monitors would be decommissioned from site, and be discussed in the relevant Construction Monitoring Report.

5.3 Noise Monitoring Methodology

Attended noise measurements will be conducted by an operator using a handheld Type 1 or Type 2 'integrating-averaging' sound level meter, following the guidelines of *Standards Australia AS1055:2018 – Description and Measurement of Environmental Noise*.

A calibration level check will be conducted prior to all measurement rounds. Measurements will be completed with the sound level meter mounted to a tripod (if possible) at 1.2 - 1.5 m above the ground and with a windscreen fitted.

The duration of each community noise measurement sample will be 15 minutes. The site noise level contribution $L_{Aeq(15minute)}$ and L_{Amax} shall be determined in the absence of any influential source not associated with the Project for direct comparison to the relevant criteria.

Noise monitoring will be completed in the free-field (i.e. not within 3 m of any reflective structure or wall, if possible). Where it is not possible to measure more than 3 m from any reflective structure or wall, a reduction of up to 2.5 dB will be applied to the measured ambient and site noise contribution ($L_{Aeq(15\ minutes)}$) to account for the likely increase in noise associated with reflective surfaces.

Noise monitoring will be carefully reviewed during periods where wind speeds exceed 5 m/s at the microphone or during any rain events. Where wind and/or rain adversely affects the noise measurement, attended monitoring would cease and unattended noise monitoring data would be flagged accordingly and excluded from analysis.

Monitoring will be conducted as per the requirements of this NVMoP and with due regard to AS1055; AS61672, AS1259 (or similar) and IEC60942; as relevant to the monitoring being conducted as well as *AS 2659.1-1998 Guide to the use of sound measuring equipment – portable sound level meters*, or any revisions of that standard which may be made by Standards Australia.

All noise samples shall be recorded using the "fast" time response of the sound level meter. Corresponding field notes shall be made for each noise or vibration survey, and the records kept on file.

If monitoring identifies that predicted noise levels are being exceeded, GLC will review construction practices/sequencing and mitigation measures to reduce noise levels, minimise impacts and to enable provision of information on noise levels to surrounding and potentially affected residents should this be required (i.e. on request or following a complaint). Additional mitigation measures may be added as required where feasible and reasonable.

For each monitoring event, the following information will be recorded in an event-based Noise Monitoring Report:

- Date and time of measurements,
- Name of person undertaking the measurements,
- Type and model number of instruments
- Sample times, measurement time intervals and time of day
- Map of area showing measurement location relative to the source location and sensitive receivers
- Measurement location details and number of measurements at each location
- Construction activities including key plant/equipment present.
- Notes regarding construction/non-construction related noise sources heard throughout each monitoring event
- Meteorological conditions such as wind speed, temperature, precipitation, and cloud cover for example.

All noise monitoring results would be assessed against the nominated noise goals and exceedances will be investigated. All noise monitoring results are available on SiteHive and specific reports can be downloaded as required. Any additional monitoring from external consultants (e.g. SLR) will be compiled into a report to be submitted to GLC. Reporting would be submitted to GLC within one week of being undertaken or at weekly intervals for continuous monitoring, if required.

All noise monitoring results would be compiled into the 6-monthly monitoring report which will be made available to the public through the Project website in compliance with CoA B11.

Provisions, Safeguards and Monitoring Contingencies (Concurrent Works)

The purpose of this monitoring contingency is consistent with that of the overall NVMoP: it will inform the relevant personnel if the noise management levels are being approached (or exceeded) so that the work methodology or equipment being used can be altered, and / or additional management measures e implemented. This will assist to reduce emissions and avoid/minimise any impacts (or future increase in impact to those addressed by this NVMoP) so that the surrounding community and broader acoustics environment are safeguarded against further nuisance, or temporary reduction in amenity.

As recommended by the DNVIS and addressed as commitments in the CNVMP, noise monitoring will occur as per the requirements and specification presented in this NVMoP.

This monitoring will already occur for specific WTP construction activities that are likely to exceed the relevant noise management levels, as per the AMM requirements, and in the form of either unattended monitoring or operator attended measurements.

Monitoring considers all WTP work occurring at the time “i.e. concurrent works” so that the overall site noise level contribution is established before further evaluation. Should circumstances arise during the works that the potential for increased air-borne noise emissions is identified, or valid complaints are received on this regard; additional noise monitoring will occur.

5.4 Ground-Borne Noise

The highest levels of ground-borne noise are expected to occur due to construction activities involving TBMs, hydraulic hammers / rock breakers and road headers. Where ground-borne noise generating activities are identified to occur within the safe working distances or where impacts at receivers are predicted in the DNVIS, noise monitoring in the community will be undertaken to verify the noise level contribution from ground-borne noise generating activities.

Ground-borne noise monitoring will be undertaken in the most affected habitable room of the residence or other sensitive building and will be conducted in conjunction with vibration measurements whenever practicable.

Ground-borne noise monitoring will be recorded over 15-minute sample intervals, where every 15 minutes the data is to be processed statistically and recorded. The minimum range of noise metrics to be recorded for later analysis and reporting include the following A-weighted noise levels: L_{A90}, L_{Aeq} and L_{Amax}.

Measurements taken inside buildings should be at least one metre from walls or other reflective surface, and about 1.5 metres from windows, where such instrument siting is possible.

Where available, the room selected for noise monitoring should be well shielded from airborne noise intrusions, such as road traffic noise to allow the ground-borne noise to dominate over non-construction generated airborne noise.

There may be instances where the resident does not allow access to monitor in the most suitable habitable room. In these instances, GLC will endeavour to monitor at the next most suitable room or location, noting this in the monitoring form.

Where permitted, audio recordings supported by ground borne-noise monitoring data will be used to infer construction noise impacts and the presence of any extraneous noise. Access to undertake these monitoring events however, will be dependent on receivers providing consent to their premises. Where the resident or receiver will not allow audio recordings, attended noise monitoring will be offered where appropriate.

Measurements will be carried out by an appropriately trained and competent person in the measurement and assessment of construction noise and vibration.

Where ground-borne noise monitoring is not possible / permitted, estimates of ground-borne noise will be determined from vibration measurements, alternative representative locations may be selected .

Provisions, Safeguards and Monitoring Contingencies (Ground-borne Noise)

The purpose of this ground-borne noise monitoring contingency is consistent with that of the overall program documented in this NVMoP: it will inform the relevant personnel if the management levels are being approached (or exceeded) so that the work methodology or equipment being used can be altered, and / or additional management measures may be implemented. This will assist to reduce emissions and avoid/minimise impacts so that the surrounding community and broader acoustics environment are safeguarded against further nuisance, or temporary reduction in amenity.

Should circumstances arise during the works where the potential for increased ground-borne noise emissions is identified, or valid complaints are received in this regard; noise monitoring will occur. The processes for measuring and evaluating the measured data presented in this NVMoP will be

adhered to. Specific to ground-borne noise, internal noise measurements i.e. inside the affected receivers property will occur, where access is granted.

Ground-borne noise monitoring will enable the site noise level to be established in the absence of any influential source not associated with the WTP Project, and comparison to the predicted values of the relevant DNVIS and management levels presented in the CNVMP.

5.5 Plant and Equipment Noise Levels

All permanent and significant noise generating items of plant, that are suspected (by the site staff, ER, AA or Environmental Manager) of having an exceedance of the maximum allowable plant sound power levels listed in the CNVS, would have noise audits conducted in accordance with requirements detailed Section 6.1 of the CNVS.

The purpose of these audits is to validate that individual item of plant and equipment fall within the Sound Power Level ranges identified in the CNVS.

Where required, plant and equipment would be measured while operating under typical conditions. If this is not practical, it may be appropriate to conduct a stationary test at high idle. In the case of a sound power level exceeding the values identified in the CNVS the item of plant would either be replaced, or the advice of an acoustic consultant would be sought to provide suitable mitigation measures.

A register of measured sound power levels for each item of plant would be kept for reference where future noise audits are conducted. The register would be reviewed progressively.

6 VIBRATION MONITORING

6.1 Attended Vibration Monitoring

Attended vibration measurements are required at the commencement of vibration generating activities to confirm that vibration levels satisfy the criteria for that vibration generating activity. Vibration monitoring will be undertaken at the potentially most affected receiver identified in the DNVIS. Refer Section 8 for target monitoring locations at each construction site.

Where there is potential for exceedances of the criteria further vibration site investigations would be undertaken to determine the site-specific safe working distances for that vibration generating activity.

Additionally, attended vibration monitoring will be required at any receiver in response to a complaint relating to vibration which may arise at any stage during the construction work.

As discussed in Section 4.1, attended vibration may cease progressively following substantial construction completion and or following GLC entering a Caretaker Services contract with Sydney Metro. Cessation of monitoring at a site (or parts of) would be discussed in the relevant Construction Monitoring Report.

6.2 Unattended Vibration Monitoring

Unattended continuous vibration monitoring with alarms (i.e. audible/visible, SMS/email) would be conducted at the nearest sensitive receivers whenever vibration generating activities need to take place inside the applicable safe-working distances.

In accordance with CoA C16 real-time vibration monitoring will be undertaken throughout the Project at the most affected receiver/structure locations or at representative locations where site vibration level contributions at the nearest sensitive receivers/structures can be monitored.

Where there is potential for levels to exceed criteria, further vibration site law investigations will be undertaken to determine the site-specific safe working distances for that vibration generating activity.

If site specific safe working distances are established, continuous unattended vibration monitoring will be conducted at the nearest sensitive receivers whenever vibration generating activities need to take place inside the calculated site specific safe-working distances.

The implementation of all noise and vibration mitigation measures will be monitored regularly throughout the works and audited as per the CEMP audit cycle. Where vibration levels are measured and verified to be compliant, no further vibration monitoring would be undertaken, unless for example complaints for human comfort are received.

As discussed in Section 4.1, unattended vibration monitors may be progressively decommissioned from site(‘s) following substantial construction completion and or following GLC entering a Caretaker mode with Sydney Metro.

Where substantial construction completion has been achieved and where high vibration intensive activities have ceased (measured at the sensitive receiver), unattended vibration monitors would be decommissioned from site and be discussed in the relevant Construction Monitoring Report.

6.3 Vibration Monitoring Methodology

Vibration Monitoring would be undertaken at the nearest affected receiver under the following circumstances:

- Where it is anticipated that an item of plant will exceed the cosmetic damage criteria presented in the CNVMP,
- Where it is anticipated that an item of plant will exceed the human response/ground borne noise criteria and concerns have been raised regarding potential vibration impacts (by GLC, members of the public, or other receivers for example).
- When vibration intensive activities are required to occur within safe working distances e.g. vibratory compaction, sheet piling and demolition,

Any vibration monitoring must be undertaken in accordance with the technical guidance provided in the *Environmental Noise Management Assessing Vibration: A Technical Guideline (AVTG)* (DECC, 2006). All vibration monitoring results may be assessed and reported against the acceptable values of human exposure to vibration set out in AVTG, the CNVS and the CNVMP.

All vibration monitoring will be undertaken with due regard to and in accordance with the requirements of the CNVS, AVTG and ICNG using a calibrated vibration logger.

Where activities are identified to include risk that levels may exceed structural damage criteria, attended vibration monitoring will be conducted, with measured values to be observed during the first 30 minutes of works (and/or worst-case situation) to ensure structural damage criteria are not exceeded.

Monitoring will be undertaken using tri-axial geophones or accelerometers, which measure vibration as velocity and/or acceleration in three axes.

The device will be set to continuously record vibration levels (PPV data in mm/s) at sample intervals (e.g. 5 second, 15 second or 1 minute) appropriate to the activity. Where possible, the device will also be set to record Vibration Dose Values (VDV, m/s $^{1.75}$).

Vibration Dose Values (VDV, m/s $^{1.75}$) are reliant on:

1. the duration of vibration events and
2. the component frequency (in Hz) associated with the vibration being generated.

Where the monitoring device cannot determine VDV, the VDV will be estimated and evaluated regularly during the early stages of the activity and monitoring period. Based on the estimated VDVs, a PPV trigger level will be established during these early stages to inform the real time management of vibration (e.g. alternate construction methods or respite).

For each monitoring event, the following information will be recorded:

- Date and time of measurements,
- Name of person undertaking the measurements,
- Type and model number of instruments
- Sample times, measurement time intervals and time of day
- Map of area showing measurement location, source location and sensitive receivers
- Measurement location details and number of measurements at each location
- Construction activities and conditions of the equipment under investigation

All vibration monitoring results would be assessed against the nominated vibration goals and exceedances will be investigated. Any additional monitoring from external consultant (e.g. SLR) will be compiled into a report to be submitted to GLC Environment Manager. Reporting would be submitted to GLC within one week of being undertaken or at weekly intervals for continuous

monitoring, if required. All vibration monitoring results would be compiled into the 6-monthly monitoring report which will be made available to the public through the website in compliance with CoA B11.

6.3.1 Heritage Structures

To date, building condition surveys undertaken have not identified any heritage listed building on the WTP Project alignment, to be structurally unsound. On this basis, the British Standard for Vibration Management Levels (BS 7385) applies. This standard stipulates the following criteria:

- Reinforced or framed structures (Industrial and heavy commercial buildings):
  - 50mm/s at 4 Hz and above.
- Un-reinforced or light framed structures (Residential or light commercial type of buildings):
  - 15mm/s at 5 Hz, increasing to 20mm/s at 15Hz
  - 20mm/s at 15Hz, increasing to 50mm/s at 40Hz

In the instance a heritage building, or structure is found to be structurally unsound, a more conservative cosmetic damage criteria of 2.5mm/s peak component particle velocity would be applied (DIN 4150 Standard).

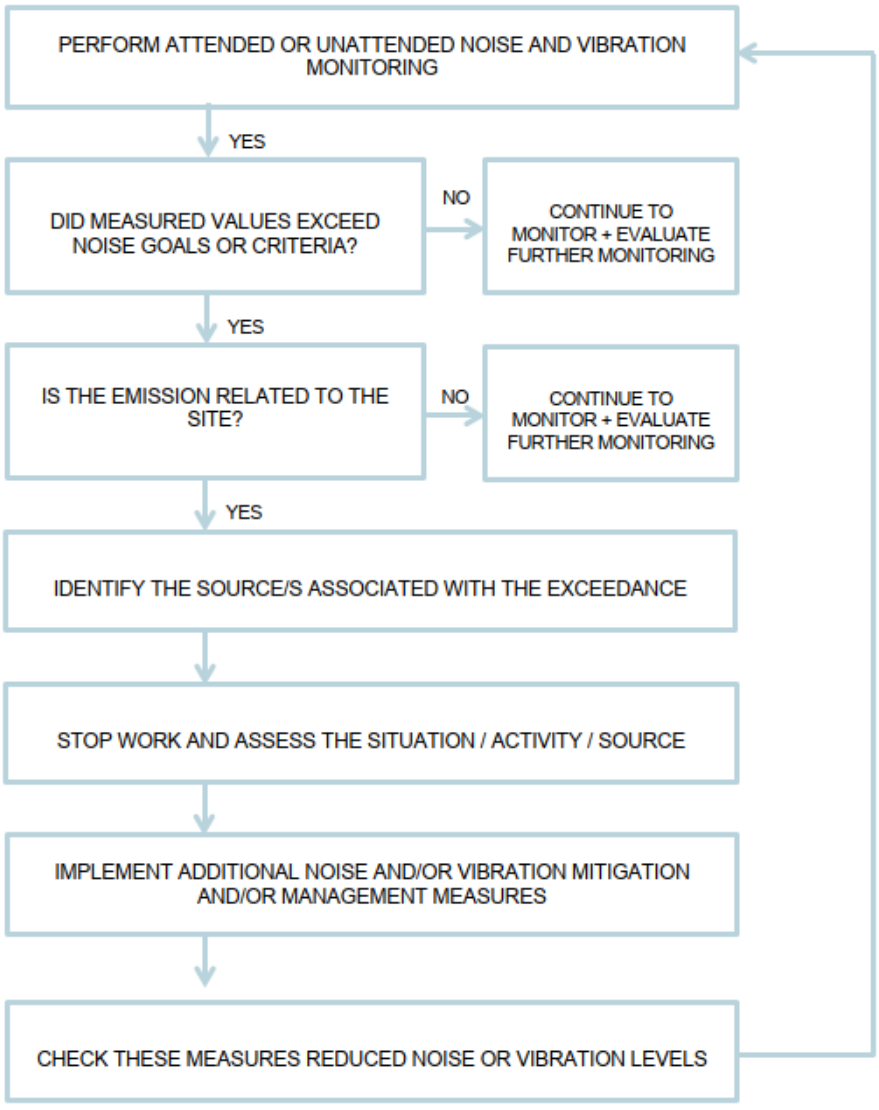
In accordance with CoA D47, GLC will seek the advice of a heritage specialist on methods and locations for installing equipment used for vibration, movement and noise monitoring of heritage-listed structures.

7 MONITORING AND ACTION PROCESS

Actions to mitigate or manage noise or vibration emissions will be considered as per the measures described in the CNVMP and the overall monitoring process identified in Figure 2 below. The Environment Manager / Site Supervisor will be responsible for implementing the Monitoring and Action Protocol outlined below.

This process follows SMART principles in that the actions are Specific and Measurable, the outcomes are Achievable and Realistic, and all steps are time-focussed.

Figure 2: Monitoring and Action Protocol



8 TARGET MONITORING LOCATIONS

A summary of the indicative WTP Noise and Vibration monitoring points are given below in Table 4. The location of the unattended monitors however may be shifted to reflect locations of the most affected sensitive receiver for a given activity. This would typically occur in response to changes in construction and or complaints.

Table 4: Indicative WTP Noise and Vibration monitoring program summary. A = attended, U = unattended.

Construction Site	Target Locations Attended (A)or Unattended (U)	Frequency
Westmead	• 152 Hawkesbury Rd, Westmead (A) (U) • 26-30 Bailey St, Westmead (A) • 2 Hassall St, Westmead (A) (U)	• At the commencement of new construction activities • During OOHW • Where triggered by AMM requirements
Parramatta	• 43 George St, Parramatta (A) (U) • 64 Macquarie St, Parramatta (A) • 78 Macquarie St, Parramatta (U) • Roxy Theatre - 69 George St, Parramatta (A) • Kia Ora (heritage property) (A) • Horse Parapet (heritage property) (A)	• At the commencement of new construction activities • Where triggered by AMM requirements
Clyde Dive	• 3 Weston St, Rosehill (A) • 88 James Ruse Dr, Rosehill (A) • 120 James Ruse Dr, Rosehill (A) • Rosehill Gardens Racecourse (Stables) (A) (U) • Former RTA Depot (heritage property) (A)	• At the commencement of new construction activities • During OOHW • Where triggered by AMM requirements
Rosehill	• 35-43 Penelope Lucas Ln, Rosehill (A) • Rosehill Gardens Racecourse (Stables) (A)	• At the commencement of new construction activities • During OOHW • Where triggered by AMM requirements
Clyde Maintenance and Stabling Facility	• 35-43 Penelope Lucas Ln, Rosehill (A) • Rosehill Gardens Racecourse (Stables) (A) (U)	• At the commencement of new construction activities • During OOHW • Where triggered by AMM requirements
Sydney Olympic Park	• 10 Herb Elliott Ave, Sydney Olympic Park (A)	• At the commencement of new construction activities • Where triggered by AMM requirements

Attended vibration measurements will also be required at the commencement of vibration generating activities in close proximity to the following receivers to confirm that vibration levels satisfy the sensitive equipment VC-A criterion:

- Sun Doctors Skin Cancer Clinics Parramatta - 239 Church St, Parramatta
- Orthodontics Sydney Wide - 35 Smith St, Parramatta

9 NOISE AND VIBRATION REPORTING

9.1 AA Monthly Noise and Vibration Reports

All noise and vibration monitoring results will be assessed against the nominated goals. GLC will cooperate with the AA in line with the requirements of MCoA C34 (a-c) including access to noise and vibration monitoring activities, the Complaints Register, as well as provision of all noise and vibration documents requiring review. The AA may use this information to produce the monthly Noise and Vibration Report as required by A36 (v).

9.2 Six-Monthly Noise and Vibration Monitoring Report

Individual Noise and vibration reports (as detailed within Sections 5.3 and 6.3) will be produced to demonstrate compliance with noise and vibration project objectives and will be prepared in accordance with the CNVS. These individual reports will form the foundation and provide support for the final Six-Monthly Construction Monitoring Report. The Monitoring report will include, as a minimum, a description of the monitoring parameters, frequency, location and analyses in line with the relevant requirements of MCoA C15. It would also include the following (where relevant):

- Description of construction activities undertaken during the reporting period.
- A description of the parameters to be monitored, including locations.
- The results of monitoring at each monitoring location, including a comparison with the consent conditions or relevant noise management objectives
- Noise and Vibration monitoring results summary together with notes describing any vibration intensive activities (if applicable)
- Discussions or notes on instances where observed noise or vibration measurements exceeded the applicable criteria (if available)
- Recommendations relating to improving management of noise/vibration impacts and or the Noise and Vibration Monitoring Program.

GLC will submit the Six-monthly N/V Construction Monitoring Report (NVMR) for information to the Secretary, ER and the EPA within 60 business days following completion of the monitoring period in accordance with MCoA C23. This includes the time needed to obtain Endorsement from the AA in accordance with MCoA A36(e), following which submission to the relevant stakeholders can occur. Reporting requirements associated with the NVMoP for the Project are presented in Table 5.

Table 5: Reporting Requirements and Schedule

Schedule (During Construction)	Requirements	Submission Timeline	Reference
Monitoring reports - Within one week / weekly or as required	Monitoring reports from external consultant would be submitted to the GLC Environment Manager within one week or at weekly intervals for continuous monitoring. Information from external consultants will be used to inform the six-monthly monitoring reports mentioned below.	Reports provided one week after the monitoring event to GLC (In the context of external consultants). To be used to inform the six-monthly monitoring reports.	CNVS Section 6.3

Schedule (During Construction)	Requirements	Submission Timeline	Reference
Construction Noise and Vibration monitoring Reports (every six months)	GLC data summary reports presenting tabulated monitoring data collected during the reporting period and highlighting performance criteria exceedances. Applicable management responses will be documented.	The six-monthly monitoring report will be provided to the relevant authorities within 60 business days in accordance with MCoA C23. This also includes the time needed to obtain AA Endorsement under MCoA A36(e)	CNVS Section 6.2 CoA C23 CoA A36(e)

GLC combine all three Six-Monthly Construction Monitoring reports (e.g. Groundwater, Noise and Vibration and Surface Water) for similar reporting periods into a single Construction Monitoring Report prior to uploading to the project website.

In line with CoA B11(e), a copy of the combined Construction Monitoring Report (which includes the Six-Monthly noise and vibration report) will be published on the project website within a week following submission of the last Construction Monitoring Report to the relevant regulatory agencies as required by MCoA C23 (Typically the Groundwater Monitoring Report).

Where the Project EPL has additional requirements for monitoring or reporting results, these will be added to the Monitoring Program once available, in accordance with the process for updating documents as described in the CEMP.

ATTACHMENTS

Attachment 1 – Consultation

Engagement Log

Stakeholder	Date of Engagement/ Attempted Engagement	Date of Any Follow-Up Engagement
EPA	8 April 2022	2 May 2022
SOPA	8 April 2022	27 April 2022 (no comments)
CCC	8 April 2022	Comments received on the 13 May following 21 day consultation period (no concern raised)
PCC	8 April 2022	Comments received on the 5 May 2022 following 21 day consultation period (no comments)

Comments Register

Stakeholder	Comment Raised	GLC Response	Where Addressed
EPA	The EPA generally does not review, approve or endorse monitoring plans, as the role of the EPA is to set objectives for environmental protection and management and not to be directly involved in the development of strategies to comply with such objectives.	Noted.	N/A
Cumberland City Council	Council has reviewed the terms of Noise & Vibration Management Plan as well as the Noise & Vibration Monitoring Program. Following the review of these documents Council observed that the proposed works will be controlled through and Environmental Protection License (EPL) with the EPA. Council notes that there is a comprehensive complaints mechanism to assist the public and there are proposed conditions for the EPL. Therefore, there are no other concerns to be raised at this time.	Noted	N/A

Comments Register – Outstanding Issues

Stakeholder	Comment Raised	GLC Response	Proposed Action
N/A	N/A	N/A	N/A