PROJECT MANAGEMENT PLAN

Air Quality Management Plan

Sydney Metro West – Western Tunnelling Package

Issue Date: JULY 2026

Document Details

Document Title	**Air Quality Management Plan**
Project Name	**Sydney Metro West (SMW) – Western Tunnelling Package**
Client	**Sydney Metro**
Contract No.	**00013/13065**
Document Reference No.	**SMWSTWTP-GLO-1NL-NL000-AH-PLN-000001**
Principal Contractor	**Gamuda Engineering (Australia)**
ABN	**36 636 433 522**
Project Address	**2 Unwin Street, Rosehill, NSW 2142**

Document Authorisation

[redacted]	[redacted]	[redacted]
Environmental Manager	**Environment & Sustainability Lead**	**Deputy Project Director**
[redacted]		
Signature	Signature	Signature
16 July 2026	September 2026	September 2026
Date	Date	Date

WHEN PRINTED THIS DOCUMENT IS AN UNCONTROLLED VERSION AND SHOULD BE CHECKED AGAINST THE ELECTRONIC VERSION FOR VALIDITY

TABLE OF CONTENTS

Document Details 2
Document Authorisation 2

DOCUMENT CONTROL 5
Revision History 5
Terms and Definitions 6

1 INTRODUCTION 7
1.1 Project Description 7
1.2 Context 9
1.3 Environmental Management System Overview 9
1.4 Consultation Requirements 9
1.5 Certification and Approval 9

2 PURPOSE AND SCOPE 11
2.1 Purpose 11
2.2 Scope 11

3 OBJECTIVES AND TARGETS 12

4 ENVIRONMENTAL REQUIREMENTS 13
4.1 Legislation and Standards 13
4.2 Approvals, Licenses and Permits 13
4.3 IS Rating Tool Requirements 14
4.3.1 Air Quality Goals 14
4.3.2 Defining exceedances of the Air Quality Targets 15
4.3.3 Trigger Action Response Plan (TARP) 15

5 EXISTING ENVIRONMENT 16
5.1 Background Air Quality 16
5.2 Local Emission Sources 16
5.3 Sensitive Receivers 17

6 ASPECTS AND IMPACTS 18
6.1 Construction Activities 18
6.2 Impacts 18

7 ENVIRONMENTAL MITIGATION AND MANAGEMENT MEASURES 21
7.1 Standard Management and Mitigation Measures 21

8 COMPLIANCE MANAGEMENT 26
8.1 Roles and Responsibilities 26
8.2 Training 27
8.3 Monitoring, Inspections and Reporting 28
8.4 Auditing 31
8.5 Environmental Events and Incidents 31
8.6 Complaints Register 31

9 REVIEW AND IMPROVEMENT 32

WHEN PRINTED THIS DOCUMENT IS AN UNCONTROLLED VERSION AND SHOULD BE CHECKED AGAINST THE ELECTRONIC VERSION FOR VALIDITY

9.1 Continuous Improvement 32
9.2 Document Updates 32
9.3 Distribution 32

ATTACHMENTS 33
Attachment 1 – Compliance Table 33

WHEN PRINTED THIS DOCUMENT IS AN UNCONTROLLED VERSION AND SHOULD BE CHECKED AGAINST THE ELECTRONIC VERSION FOR VALIDITY

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	21/12/2021	Early Works Submission	[redacted]	[redacted]
B	28/02/2022	Revised draft for submission	[redacted]	[redacted]
C	05/04/2022	Revised draft for submission	[redacted]	[redacted]
D	23/02/2023	Yearly review	[redacted]	[redacted]
E	29/05/2023	Revised to address Sydney Metro comments	[redacted]	[redacted]
F	24 November 2023	Inclusion of S.O.P Scope and general update.	[redacted]	[redacted]
G	18 December 2023	Update in response to SM/ER comments	[redacted]	[redacted]
H	23 October 2024	Annual Review	[redacted]	[redacted]
I	2 May 2025	Update to ER/SM Comments	[redacted]	[redacted]
J	16 July 2026	Annual Review – No changes	[redacted]	[redacted]

WHEN PRINTED THIS DOCUMENT IS AN UNCONTROLLED VERSION AND SHOULD BE CHECKED AGAINST THE ELECTRONIC VERSION FOR VALIDITY

Terms and Definitions

Term	Definition
AQMP	Air Quality Management Plan
CEMF	Construction Environmental Management Framework
CEMP	Construction Environmental Management Plan
CCMS	Construction Complaints Management System
CSSI	Critical State Significant Infrastructure
DEC	Department of Environment and Conservation
DCCEEW	Department of Climate Change Energy the Environment and Water
DPHI	Department of Planning Housing and Infrastructure (formerly DPE)
ECM	Environmental Control Maps
EIS	Environmental Impact Statement
EMS	Environmental Management System
EPA	Environmental Protection Authority
EP&A	*Environmental Planning and Assessment Act 1979*
EPL	Environmental Protection License
ER	Environmental Representative
ESCP	Erosion and Sediment Control Plans
GLC	Gamuda Australia – Laing O'Rourke Consortium
ISC	Infrastructure Sustainability Council
MCoA	Ministers' Condition of Approval
MSF	Maintenance and Stabling Facility
NEPM	National Environment Protection (Ambient Air Quality) Measure
PM	Particulate Matter
POEO	*Protection of the Environment Operations Act 1997* (NSW)
REMM	Revised Environmental Mitigation Measures
SOP	Sydney Olympic Park
SSI	State Significant Infrastructure
TBM	Tunnel Boring Machine
TSP	Total suspended particulate matter
UK IAQM	United Kingdom's Institute of Air Quality Management
WTP	Sydney Metro West Western Tunnelling Package Works

WHEN PRINTED THIS DOCUMENT IS AN UNCONTROLLED VERSION AND SHOULD BE CHECKED AGAINST THE ELECTRONIC VERSION FOR VALIDITY

1 INTRODUCTION

1.1 Project Description

The scope of the work being undertaken under the Sydney Metro West Western Tunnelling Package works (WTP) (the Project) includes but is not limited to, the following:

- Westmead Station box excavation, including temporary support, stub tunnels, partially mined station cavern and crossover cavern including permanent lining and support
- Parramatta Station, including excavation of station box and associated support
- Clyde Maintenance and Stabling Facility (MSF), including permanent dive structure, portal, spur running tunnels, spur tunnel junction cavern, bulk earthworks, civil structures, utilities corridor, road crossing and creek diversion
- Rosehill Services Facility, including shaft excavation, permanent lining and lateral support
- A precast segment manufacturing facility at Eastern Creek
- Demolition and site clearance works

  Tunnelling between Sydney Olympic Park (SOP) and Westmead. Tunnelling will be undertaken by placing the tunnel boring machines (TBMs) at the Rosehill Services Facility box and retrieved out at the SOP Station Box and then placed back at the Rosehill Services Facility and retrieved at the Westmead Station Box. Some surface works will be required for site establishment and to facilitate TBM retrieval and relaunching, such as crane set up and plant and material deliveries. Station box works would also be required to facilitate TBM retrieval and re-launching.

WHEN PRINTED THIS DOCUMENT IS AN UNCONTROLLED VERSION AND SHOULD BE CHECKED AGAINST THE ELECTRONIC VERSION FOR VALIDITY

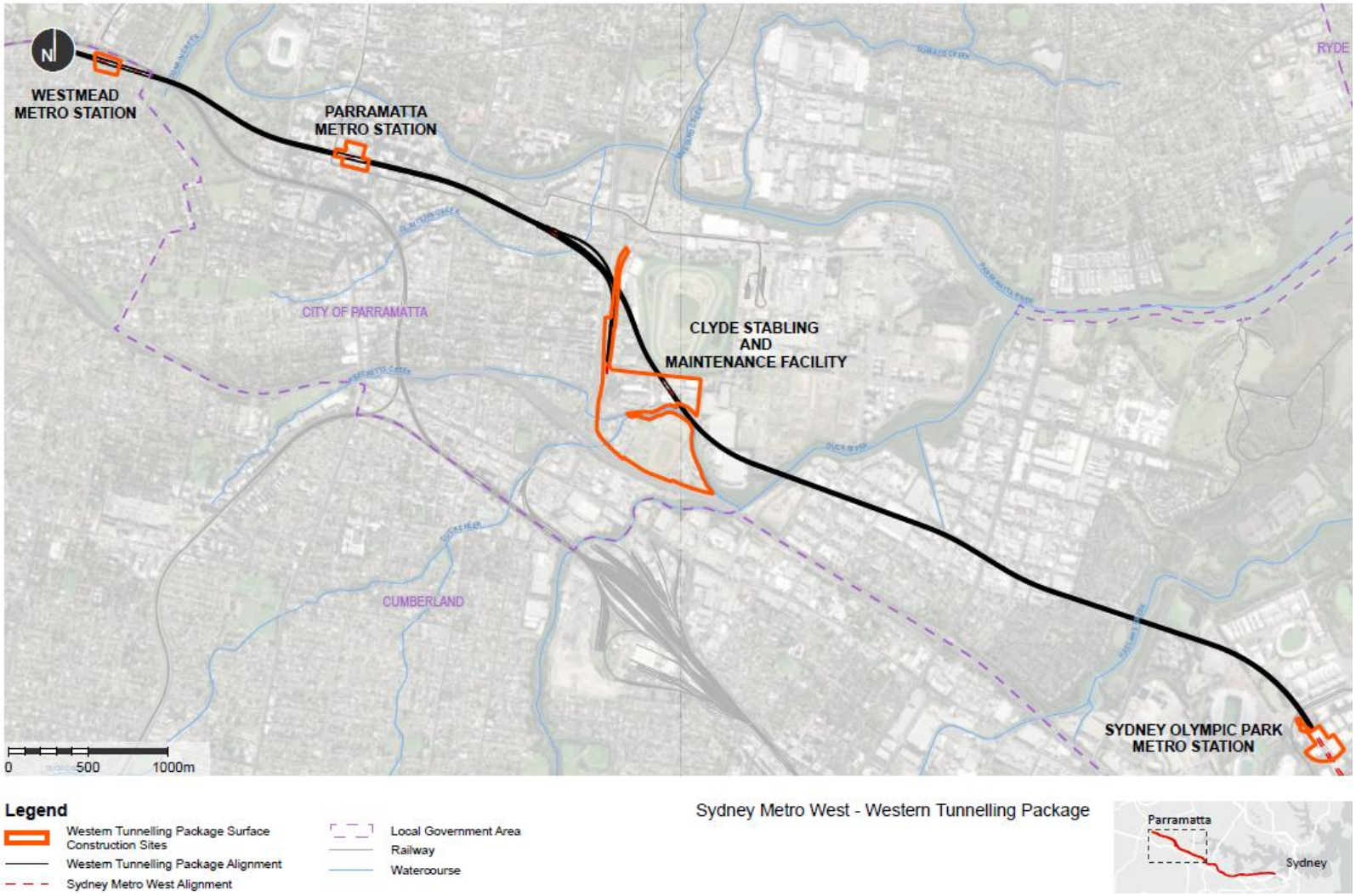

Figure 1: WTP Project Location

WHEN PRINTED THIS DOCUMENT IS AN UNCONTROLLED VERSION AND SHOULD BE CHECKED AGAINST THE ELECTRONIC VERSION FOR VALIDITY

1.2 Context

The Construction Environmental Management Plan (CEMP) and sub-plans have been developed for the delivery of the WTP. It will be delivered by Gamuda Australia Laing O'Rourke Consortium (GLC). This Air Quality Management Plan (AQMP) forms part of the CEMP (SMWSTWTP-GLO-1NL-EV-PLN-000001).

Sydney Metro West – Westmead to The Bays Concept and Stage 1 received planning approval on 11 March 2021 (SSI 10038). The Project comprises the WTP, which is the western portion of Stage 1 of SSI 10038, from Sydney Olympic Park to Westmead. This AQMP has been prepared to address requirements of the Minister's Conditions of Approval (MCoA) and any modifications to the MCoA, Revised Environmental Management Measures (REMMs) listed in the Sydney Metro West – Submissions Report, dated 20 November 2020, the Construction Environmental Management Framework (CEMF) requirements and all applicable legislation as they relate to the Project.

1.3 Environmental Management System Overview

An overview of the Environmental Management System (EMS) is provided in Section 3 of the CEMP.

Key interactions for this sub-plan with other management plans in the EMS include:

- Site Establishment Management Plan
- Waste Management Sub-plan
- Spoil Management Sub-plan
- Flora and Fauna Management Sub-plan
- Soil and Water Quality Management Sub-plan.

1.4 Consultation Requirements

In accordance with MCoA C5, consultation with relevant government agencies is not required for this AQMP.

1.5 Certification and Approval

Sydney Metro West – Westmead to The Bays Concept and Stage 1 was subject to environmental impact assessment under the NSW *Environmental Planning and Assessment Act 1979* (EP&A Act). It was also declared a Critical State Significant Infrastructure (CSSI) by the Minister for Planning & Public Spaces (the Minister).

An Environmental Impact Statement (EIS) has been prepared under Division 5.2 of the EP&A Act and in accordance with Part 3 of Schedule 2 of the Environmental Planning and Assessment Regulation 2000. Following exhibition of the EIS, an Amendment Report and Submissions Report were also prepared. After an assessment was carried out, the Minister determined that the Sydney Metro West – Stage 1 would be approved subject to conditions.

- Modification 1 of the Project Approval, which sought to amend Conditions of Approval A11d, C10 and D25 and propose a new Condition A39.1, was approved on 28 July 2021.
- Modification 2 of the Project Approval, relating to the relocation and extension of the Rosehill dive structure and realignment of Kay Street and Unwin Street, was approved on the 3 June 2022.

- Modification 3 of the Project Approval, to amend Conditions of Approval C-B10, D10, D11, D18, D37, D63 and D66, was approved on the 4 July 2022.
- Modification 4 of the Project Approval, which sought to amend Conditions of Approval D26 and D122, was approved on 23 December 2022.
- Modification 5 of the Project Approval sought an administrative change to the total amount of Plant Community Type 920 (PCT 920) that could be removed, increasing the clearing limit by an additional 0.40 ha. This Modification also sought to amend Conditions of Approval D4, D6 and add D6A and D6B. It was approved on 20 September 2023.
- Modification 6 of the Project approval, to amend Conditions of Approval C-B8, A16, A17, A21, A30, D51, D71, D111 and D117, and was determined on 8 November 2024.

The planning approval (Infrastructure Approval SSI 10038) and related environmental assessment documents are located at: https://www.planningportal.nsw.gov.au/major-projects/project/25631.

This AQMP was endorsed by the ER on 26 April 2022, before being submitted to DPE for information on 4 May 2022 which was no later than one (1) month before the commencement of construction, which occurred on 19 July 2022.

This AQMP, as submitted to the ER, including any minor amendments endorsed by the ER, will be implemented for the duration of construction.

WHEN PRINTED THIS DOCUMENT IS AN UNCONTROLLED VERSION AND SHOULD BE CHECKED AGAINST THE ELECTRONIC VERSION FOR VALIDITY

2 PURPOSE AND SCOPE

2.1 Purpose

The purpose of this AQMP is to describe the air quality management approach that will be employed by Gamuda Australia – Laing O'Rourke Consortium (GLC) employees and its subcontractors during construction of the Project. This sub-plan forms an integral part of the Project CEMP and GLC's EMS. It applies to all works associated with Project works and establishes the environmental management controls to be implemented by GLC employees and its subcontractors.

This AQMP will address the air quality requirements of the:

- Sydney Metro Construction Environmental Management Framework (CEMF)
- Minister for Planning and Public Space's Conditions of Approval for the Project (MCoA)
- Revised Environmental Mitigation Measures (REMM)
- SSI Modifications - Modification 1 Administrative Modification
- SSI Modifications – Modification 2 Clyde Stabling and Maintenance Facility
- SSI Modifications – Modification 3 Administrative Modification
- SSI Modifications – Modification 4 Administrative Modification
- SSI Modifications – Modification 5 Administrative Modification
- SSI Modifications – Modification 6 Administrative Modification
- Infrastructure Sustainability Council (ISC) Infrastructure Sustainability (IS) rating tool.

2.2 Scope

This sub-plan outlines the mitigation and management measures that GLC will use to address potential air quality impacts during construction of the Project, while complying with relevant approval, statutory and contract requirements.

Specifically, this sub-plan addresses environmental aspects and impacts that relate to:

- Site establishment
- Demolition of existing structures
- Excavation and Earthworks
- Vegetation clearing (including tree removal)
- Tunnelling support activities
- Importing/exporting fill material
- Temporary road and intersection modification / site access
- Operating of vehicles and machinery
- Haulage and Stockpiling
- Disturbance of contaminated soils.
- Concrete sawing

WHEN PRINTED THIS DOCUMENT IS AN UNCONTROLLED VERSION AND SHOULD BE CHECKED AGAINST THE ELECTRONIC VERSION FOR VALIDITY

3 OBJECTIVES AND TARGETS

The key objectives of the AQMP are to ensure that impacts to air quality are minimised and are within the scope permitted by the MCoA. To achieve these objectives, the targets in Table 1 have been established for the management of air quality impacts during the Project construction in line with the IS rating tool requirements.

Table 1: Air quality targets and performance criteria

Objective	Target	Performance Indicators
Minimise gaseous and particulate pollutant emissions from construction activities as far as feasible and reasonable	All best practice/reasonably practicable dust management measures are implemented on site	Weekly inspection checklists, daily environmental surveillance (informal inspection) and plant and equipment pre-start.
Identify and control potential dust and air pollutant sources	No major exceedances of the AQMP environmental control measures for all potential sources of dust and air pollutants during construction and operation of the Project.	Weekly inspection checklists and daily environmental surveillance (informal inspection)
Compliance with the MCoA, REMMs, CEMF requirements and relevant legislation as it applies to the Project	Full compliance	Compliance Reporting
Compliance – permits/licences	Full compliance	Compliance Reporting
Implementation of performance outcomes, commitments and mitigation measures specified in planning approval documents	Full compliance	Compliance Reporting
Meet IS rating tool requirements and objectives in the Sustainability Management Plan	Level 3 for credit Dis-4 ‘Air Quality’, demonstrating monitoring and modelling at appropriate intervals and in response to complaints during construction and operation showing that we have zero exceedances of air emission or air quality goals.	Audits, monitoring data from continuous quantitative monitoring and complaints records

WHEN PRINTED THIS DOCUMENT IS AN UNCONTROLLED VERSION AND SHOULD BE CHECKED AGAINST THE ELECTRONIC VERSION FOR VALIDITY

4 ENVIRONMENTAL REQUIREMENTS

4.1 Legislation and Standards

GLC obligations include satisfying the requirements and complying with the provisions of the relevant legislation, guidelines, and policies, as well as international and Sydney Metro's standards. Details are provided in Table 2.

Table 2: Legislation, standards, policies, and guidelines relevant to the Project

Legislation	*Environmental Planning and Assessment Act 1979* (NSW) *Protection of the Environment Operations Act 1997* (NSW) (POEO Act) *National Greenhouse and Energy Reporting Act 2007* (Cth) *Work Health and Safety Act 2011* (NSW) Protection of the Environment Operations (Clean Air) Regulation 2022 (NSW) (POEO (Clean Air) Regulation)
Standards	AS/NZS ISO 14001:2016 Environmental management systems - Requirements with guidance for use. AS/NZS 3580.1.1:2016 – Methods for sampling and analysis of ambient air – Guide to siting air monitoring equipment. AS/NZS 3580.9.3:2015 Determination of suspended particulate matter – Total suspended particulate matter (TSP) – High volume sampler gravimetric method. AS/NZS 3580.9.6:2015 Determination of suspended particulate matter – PM10 high volume sampler with size selective inlet – Gravimetric method. AS/NZS 3580.10.1-2016 - Methods for sampling and analysis of ambient air – Determination of particulate matter – Deposited matter – Gravimetric method.
Guidelines and Specifications	Approved Methods for the Modelling and Assessment of Air Pollutants in NSW (Department of Environment and Conservation NSW (DEC), 2005) Best Practices Erosion and Sediment Control (IECA, 2008) Managing Urban Stormwater: Soils and Construction, Volume 1 (Landcom 2004) and Volume 2 (NSW Department of Environment and Climate Change (DECC) 2008) (the "Blue Book") National Environment Protection (Ambient Air Quality) Measure 2003 (Cth) National Environment Protection (Diesel Vehicle Emissions) Measure 2001 (Cth)

4.2 Approvals, Licenses and Permits

This AQMP has been developed to satisfy the requirements of MCoA C1. A full list of applicable MCoAs, REMMs, CEMF requirements and EPL condition requirements is provided in Attachment 1. In the Assessment Report for Sydney Metro West - Stage 1, the Department of Planning and Environment considers that EIS has adequately assessed air quality issues and that they can generally be managed through the MCoA, REMMs, CEMF requirements and EPL condition requirements in Attachment 1. Therefore, no further assessment of air quality impacts has been undertaken for this AQMP.

Other legislation relevant to this AQMP is included in Attachment 2 of the CEMP.

4.3 IS Rating Tool Requirements

For the purpose of the Infrastructure Sustainability Council (ISC) Sustainability Rating only – the following Dis-4 credits pertaining to Air Quality Impacts associated with the Project, will be targeted.

Table 3: IS rating tool requirements applicable to air quality management

Credit	IS Rating Tool Requirement
Dis-4 L1	• Measures to minimise adverse impacts to local air quality during construction and operation have been identified and implemented. • Monitoring of air emissions and/or air quality is undertaken at appropriate intervals and in response to complaints during construction
Dis-4 L2	• Requirements for L1 are achieved. • Monitoring and modelling demonstrates no recurring or major exceedances of air emission or air quality goals
Dis-4 L3	• Requirements for L2 are achieved. • Monitoring and modelling demonstrates no exceedances of air emission or air quality goals

4.3.1 Air Quality Goals

The NSW Environment Protection Authority's (EPA) defines impact assessment criteria for PM_{10} and $PM_{2.5}$ in Section 7 of the *Approved Methods for the Modelling and Assessment of Air Pollutants in New South Wales* (NSW EPA 2022). Air quality goals are typically based on nationwide air quality objectives such as the National Environment Protection Measures (NEPM 2003). The dust emission criteria presented in Table 4 will be utilised on the Project and are consistent with the National Environment Protection (Ambient Air Quality) Measure (AAQ NEPM) national reporting standards (Department of the Environment 2016).

The NSW EPA impact assessment criteria for PM_{10} and $PM_{2.5}$ are used to assess the potential impacts on human health of particulate matter concentrations and are applied at the nearest existing or likely future off-site sensitive receptor. The criteria are applicable to the total concentration measured or predicted and will be a product of both construction related and background air quality factors. It should be noted that the impact assessment criteria from the NEPM (2003) are not specific to construction works or activities and are applied consistently across all types of projects in NSW.

Air quality data monitored for the project should be compared against the criteria presented in Table 4 over the 24-hour and annual average periods.

Table 4 WTP dust emission criteria

Pollutant	Averaging Period	Maximum Concentration
Particles as PM_{10}	• 24 - hours • Annual	• 50 µg/m^3 • 25 µg/m^3
Particles as $PM_{2.5}$	• 24 - hours • Annual	• 25 µg/m^3 • 8 µg/m^3

µg/m^3: micrograms per cubic metre; g/m^2/month: gram per square metre per month.

WHEN PRINTED THIS DOCUMENT IS AN UNCONTROLLED VERSION AND SHOULD BE CHECKED AGAINST THE ELECTRONIC VERSION FOR VALIDITY

4.3.2 Defining exceedances of the Air Quality Targets

Based on the scope of works, air quality impacts are only predicted at sites where significant earthworks are being undertaken. Continuous dust monitoring is being undertaken at site boundaries and where possible, near sensitive receivers. The monitoring data obtained through these monitors can be extracted and reviewed by GLC for exceedances. Section 7 includes a suite of mitigation and management measures that will be implemented to avoid or minimise impacts.

Where an exceedance of the criteria listed Table 4 occurs, an analysis of the monitoring data would occur to identify whether the result was due to the project or otherwise. This may be done using the following methods:

- identify whether the exceedance occurred at all sites or was isolated to one or a few sites.
- review wind speed and wind direction data for the period of exceedance to identify whether dominant winds were blowing from project operations towards the monitoring locations
- using wind data noted above, investigate whether the exceedance may have been the result of any localised activities unrelated to the project (e.g. other construction works)
– review data from other monitoring stations in the Department of Planning and Environment's (DPE) monitoring network (e.g. Parramatta North, Chullora, Macquarie Park, Lindfield) in conjunction with online sources to determine whether a regional event took place causing elevated particulate matter concentrations (e.g. dust storm, bushfire).

4.3.3 Trigger Action Response Plan (TARP)

EMM Consulting provided GLC with an Air Quality Technical memo which details an approach to assessing air quality impacts and non-compliances due to potential and actual exceedances of the air quality targets prescribed in Table 4. This approach is referred to as a Trigger Action Response Plan (TARP), and provides a simple, transparent, and useable reference for the short-term management of air quality at each of the construction sites. An example TARP is presented in Figure 2.

WHEN PRINTED THIS DOCUMENT IS AN UNCONTROLLED VERSION AND SHOULD BE CHECKED AGAINST THE ELECTRONIC VERSION FOR VALIDITY

Alarm level	Action required	Response
Level 1 **Trigger = Monitoring results are below the criteria listed in Table 2.1**	GLC personnel continuously monitoring and observing conditions on site and implementing mitigation and management measures as listed in Table 5 of the AQMP.	Implement measures in line with the current AQMP.
Level 2 **Trigger = 50 µg/m³** Based on *rolling* 1-hour average PM_{10} (e.g., 12 consecutive 5 minute concentrations). Triggered when the reading exceeds the limit consecutively for a period of 2 hours. Alarm *does not repeat* during sustained exceedance.	GLC personnel to coordinate a desktop-based review of wind speed and direction conditions and real-time PM_{10} concentrations recorded at the project monitors to determine upwind-downwind concentration and review current site operations to identify potential source of concentrations.	Should the desktop review identify that the project's operations are the contributing source of concentrations, GLC personnel will organise increased dust management measures specific to the contributing source(s) and consider temporarily modifying operations.
Level 3 **Trigger = 80 µg/m³** Based on *rolling* 1-hour average PM_{10}. Triggered when the reading exceeds the limit consecutively for a period of 2 hours. Alarm *does not repeat* every hour during sustained exceedance.	Following completion of Level 1 actions, GLC personnel to undertake an in-person inspection of likely contributing source of concentrations. Compliance with the 24-hour average PM_{10} air quality criteria will be reviewed for the 24-hour period following a Level 3 trigger event.	If site investigations identify that the project is the contributing source of concentrations, implement additional measures, relocate, or cease dust emitting activities.
Level 4 **Trigger = 200 µg/m³** Based on *rolling* 1-hour average PM_{10}. Triggered when the reading exceeds the limit consecutively for a period of 30 minutes. Alarm *does not repeat* every 30 minutes during sustained exceedance.	Following completion of Level 2 actions, GLC personnel or delegate to undertake an in-person inspection of likely contributing source of concentrations. Compliance with the 24-hour average PM_{10} air quality criteria will be reviewed for the 24-hour period following a Level 4 trigger event.	If site investigations identify that the project is the contributing source of concentrations, cease those activities immediately (as practicable to do so). Determine and implement additional controls and/or relocate activities prior to recommencement.

Figure 2 – Depicts an example of TARP levels, actions, and responses.

5 EXISTING ENVIRONMENT

A description of the existing air quality has been sourced from the Sydney Metro West – Stage 1 EIS.

Long-term monitoring data from the Bureau of Meteorology monitoring station at Parramatta North indicates that the Sydney metropolitan area experiences warm, wet summers, with average maximum temperatures around 28 degrees Celsius. Months through winter are recorded as the driest, with the lowest average monthly rainfall occurring in July. Conditions most likely to be associated with dust generation were measured in Spring, with above average temperature conditions and average or below average rainfall.

5.1 Background Air Quality

Air quality data sourced from monitoring stations at Prospect, Parramatta North, Rozelle and Randwick was summarised in Chapter 23 of the EIS for the years 2014 to 2018. This data included particulate matter (PM_{10} and $PM_{2.5}$), carbon monoxide, nitrogen dioxide and sulphur dioxide, which was assessed using the air quality impact assessment criterion for each pollutant specified in the Approved Methods for the Modelling and Assessment of Air Pollutants in New South Wales (Environment Protection Authority, 2016).

The assessment indicated that air quality around Parramatta and Central Sydney is generally of an acceptable quality. There were occasional occurrences of PM_{10} and $PM_{2.5}$ exceeding the applicable air quality impact assessment criteria, which was due to natural and human-originating events, including dust storms and bushfires.

5.2 Local Emission Sources

Sources of air pollutant emissions in the Sydney region are generally because of:

- Domestic activities (including wood-fire home heaters and lawn mowing)

WHEN PRINTED THIS DOCUMENT IS AN UNCONTROLLED VERSION AND SHOULD BE CHECKED AGAINST THE ELECTRONIC VERSION FOR VALIDITY

- Road traffic and off-road mobile equipment
- Industrial and commercial activities.

The Commonwealth Department of Climate Change, Energy the Environment and Water (DCCEEW) National Pollutant Inventory identifies the following localised sources of air pollution to the Project:

- Petroleum and hydrocarbon distribution facilities at Rosehill/Camellia, Silverwater, and Homebush West
- Waste treatment facilities at Camellia, Silverwater, Clyde, and Homebush Bay
- Manufacturing of construction materials at Rosehill and Camellia
- Food and beverage manufacturing at Lidcombe, Northmead, Camellia, Ermington, and Camperdown
- Other manufacturing or processing facilities at Rydalmere, Silverwater, and Enfield
- Railway maintenance activities at Auburn.

5.3 Sensitive Receivers

The Project will traverse a well-established urban environment that contains a wide range of sensitive receivers including residential properties, community facilities (such as schools, childcare centres, places of worship and medical facilities), recreational areas and commercial and retail premises. A number of these receivers are located immediately adjacent to Stage 1 construction sites. Measures to mitigate the impacts of construction-related air emissions upon those receivers are detailed in Section 7.1.

Section 8.4 and Attachment 8 of the CEMP provides details of the contents of the environmental control maps and their implementation. These ECMs will include sensitive receivers and key air quality / dust controls.

WHEN PRINTED THIS DOCUMENT IS AN UNCONTROLLED VERSION AND SHOULD BE CHECKED AGAINST THE ELECTRONIC VERSION FOR VALIDITY

6 ASPECTS AND IMPACTS

6.1 Construction Activities

The Project will involve a range of construction activities incorporating various heavy machinery, plant and equipment that will operate in several locations across the Project. To assess the level of potential impact on air quality, the broad categories of construction activity likely to have an impact are identified below:

- Site establishment
- Site clearing as approved in the EIS
- Operation of large plant and equipment
- Earthworks
- Temporary road and intersection modification / site access
- Minor utility works and connections
- Removal and trimming of vegetation and trees, including street trees
- Tunnelling excavation
- Tunnel supporting activities:
  - Spoil handling (including on-site truck movements)
  - Construction of acoustic/spoil sheds and other mitigation measures

6.2 Impacts

The potential for impacts on air quality will depend on several factors. Primarily impacts will be dependent on the nature, extent and magnitude of construction activities and their interaction with the natural environment. Activities with the potential to impact on air quality during construction may include:

- Demolition of existing structures
- Clearing of vegetation resulting in exposed ground surfaces potentially resulting in dust generation
- Excavation activities resulting in the generation of dust
- Excavation of contaminated material
- Spoil stockpiling
- Sorting of waste material from demolition
- Loading of spoil and waste material for transport using excavators and other loading equipment
- Use of diesel-powered and petrol-powered vehicles, plant and equipment, resulting in the generation of pollutants including carbon monoxide
- Vehicle movement resulting in increased dust emissions
- Concrete sawing resulting in the generation of concrete dust particles.

This sub-plan outlines the mitigation and management measures that GLC will use to address potential air quality impacts during construction of the Project, while complying with relevant approval, statutory and contract requirements.

The environmental aspects and potential impacts specific to Project construction are summarised in Table 4.

WHEN PRINTED THIS DOCUMENT IS AN UNCONTROLLED VERSION AND SHOULD BE CHECKED AGAINST THE ELECTRONIC VERSION FOR VALIDITY

Table 5: Aspects and impacts relevant to air quality

Aspects	Impacts
Site establishment activities, including clearing of vegetation and demolition of existing structures	Dust generation due to: • Vegetation clearance, clearing and grubbing • Stockpiling of topsoil and mulched vegetation • Demolition of buildings and associated infrastructure (asbestos is not addressed in this sub-plan) • Wind erosion of exposed surfaces and stockpiles • Wheel-generated dust from vehicular traffic on unsealed roads and works site access points. Particulate matter ($PM_{2.5}$/PM_{10}) generation due to: • Operation of construction vehicles, plant, and equipment • Dust generation activities set out above.
Excavation activities	Dust generation due to: • Drilling and piling • Operation of excavators, front end loaders, bulldozers, dump trucks and other plant on exposed surfaces • Loading/unloading trucks with spoil and aggregate (including dust generation from within the acoustic/spoil sheds) • Wind erosion of exposed surfaces and stockpiles • Wheel-generated dust from vehicular traffic on unsealed roads and work site access points. Particulate matter ($PM_{2.5}$/PM_{10}) generation due to: • Operation of construction vehicles and plant • Dust generation activities set out above. Odour generation from: • Exposed contaminated material or soils (refer to Attachment 5 of the Soil and Water Management Sub-plan for the Unexpected Contaminated Land and Asbestos Finds Procedure)
Spoil and waste stockpiling, handling, and haulage	Dust generation due to: • Spoil stockpiles • Spoil and waste haulage (uncovered loads) • Wheel-generated dust from heavy vehicle movements around construction sites and along haulage routes • Sorting of waste material from demolition works • Operation of excavators, front end loaders, bulldozers, dump trucks and other plant on exposed surfaces • Loading/unloading trucks with spoil and aggregate Particulate matter ($PM_{2.5}$/PM_{10}) generation due to: • Operation of construction vehicles and plant • Dust generating activities set out above.

WHEN PRINTED THIS DOCUMENT IS AN UNCONTROLLED VERSION AND SHOULD BE CHECKED AGAINST THE ELECTRONIC VERSION FOR VALIDITY

Aspects	Impacts
	The potential for dust related impacts due to spoil handling at each of the tunnel/station box sites will be reduced as most of the spoil handling will occur within acoustic/spoil sheds. Measures to further minimise generation of dust and particulate matter within acoustic/spoil sheds include haul road sweeping, dust suppression measures such as water carts and misters, and the closure of roller doors where appropriate.
Use of plant, vehicles, and equipment	Generation of pollutants from: ● Use of diesel-powered and petrol-powered vehicles, plant and equipment, including idling vehicles and transportation vehicles. Dust generation (wheel generated) from: ● Construction vehicles ● Construction equipment, generators, and other plant. Particulate matter ($PM_{2.5}$/PM_{10}) generation due to: ● Operation of construction vehicles and plant, including idling vehicles and poorly maintained equipment ● Dust generating activities set out above. Odour generation from: ● Emissions from stationary plant or equipment All vehicles used on site, for transporting materials to or from site, or for any other activities associated with the Project, would be maintained to avoid the emission of excessive air impurities in accordance with Part 5.8 of the POEO Act and the POEO (Clean Air) Regulation.
Concrete sawing	Dust generation from: ● Construction equipment, generators, and other plant used for concrete sawing ● Movement of construction vehicles. Particulate matter ($PM_{2.5}$/PM_{10}) generation due to: ● Operation of construction vehicles and plant, including idling vehicles and poorly maintained equipment ● Dust generating activities set out above.

WHEN PRINTED THIS DOCUMENT IS AN UNCONTROLLED VERSION AND SHOULD BE CHECKED AGAINST THE ELECTRONIC VERSION FOR VALIDITY

7 ENVIRONMENTAL MITIGATION AND MANAGEMENT MEASURES

Measures to manage air quality impacts and reduce the risk of impact to construction workers and sensitive receivers will be implemented throughout the Project. Elimination of the hazard is the first preference of control, followed by engineering, then administrative controls. These measures will be documented in specific procedures, erosion and sediment control plans and site layout plans.

7.1 Standard Management and Mitigation Measures

Specific measures and requirements to meet the objectives of this sub-plan and to manage impacts on air quality are outlined in Table 5.

These measures have been developed in line with the requirements in the EIS. As a minimum, the following will be incorporated at each construction site and documented on the Environmental Controls Map in Attachment 8 of the CEMP, where applicable.

WHEN PRINTED THIS DOCUMENT IS AN UNCONTROLLED VERSION AND SHOULD BE CHECKED AGAINST THE ELECTRONIC VERSION FOR VALIDITY

Table 6: Environmental Mitigation and Management Measures

Item	Mitigation and management measures and Project site requirements	Responsibility	Timing	Reference
SEA – Senior Environmental Advisor, EA – Environmental Advisor, CM – Construction Manager, SS – Site Supervisor, TM – Traffic Manager				
1.	All site staff, including subcontractors must attend an induction which details mitigation measures relevant to this AQMP. Air quality management will be further communicated in toolbox talks and prestart briefings. The ECMs will include mitigation measures for air quality.	SS/EA	During construction	MCoA D1, CEMF 13.1a (i)
2.	Training will be provided to relevant personnel, including relevant sub-contractors on air quality requirements from this plan through site inductions, toolbox talks and/or targeted training sessions.	SS/EA/SEA	During construction	MCoA D1, CEMF 13.1a (i)
3.	The following best-practice dust management measures are to be implemented during all construction works: • Regularly wet-down exposed and disturbed areas including stockpiles, especially during dry weather • Adjust the intensity of activities based on measured and or observed dust levels and weather forecasts • Minimise the volume of materials stockpiled and position stockpiles away from surrounding receivers • Regularly inspect dust emissions and apply additional controls as required • Consider all relevant measures listed in the UK IAQM corresponding to the highest level of risk determined around each construction site	EA/CM/SS	Pre-construction / During construction	MCoA D1, REMM AQ1, CEMF 13.1a (i)
4.	Plant and equipment will be maintained in a proper and efficient manner., including regular maintenance checks which may be undertaken as an additional measure.	SS/CM	During construction	MCoA D1, REMM AQ2
5.	Visual inspections will be undertaken for emissions from plant and equipment as part of pre-acceptance checks.	SS/CM	During construction	MCoA D1, REMM AQ2, CEMF 13.2b (ii)
6.	The following best-practice odour management measures would be implemented during relevant construction works:	EA/CM/SS	Pre-construction / During construction	MCoA D1, REMM AQ3, CEMF 13.1 (i)

WHEN PRINTED THIS DOCUMENT IS AN UNCONTROLLED VERSION AND SHOULD BE CHECKED AGAINST THE ELECTRONIC VERSION FOR VALIDITY

Item	Mitigation and management measures and Project site requirements	Responsibility	Timing	Reference
SEA – Senior Environmental Advisor, EA – Environmental Advisor, CM – Construction Manager, SS – Site Supervisor, TM – Traffic Manager				
	• The extent of opened and disturbed contaminated soil at any given time would be minimised • Temporary coverings or odour supressing agents would be applied to excavated areas where appropriate • Regular monitoring would be conducted during excavation to verify that no offensive odours are being detected beyond the site boundary			
7.	The site induction will include information on site speed limits to ensure all personnel obey the speed limit when operating heavy machinery and vehicles to reduce the extent of dust generated by vehicle movements.	SS/CM/TM	During construction	MCoA D1
8.	All access roads will be maintained and managed to minimise the generation of dust, including regular wet-down in dry weather, where needed.	SS/CM	During construction	MCoA D1, CEMF 13.1a (i)
9.	Pesticides will not be applied during windy conditions when the use of pesticides may affect non-targeted areas or become a human health concern.	CM/SS	During construction	MCoA D1
10.	Weekly site inspections would include scope to ensure environmental controls to minimise dust are in place at all compound sites	SEA/CM/SS	Pre-construction / During construction	MCoA D1, CEMF 13.1a (i)
11.	Use of acoustic/spoil shed for some construction activities to minimise dust impacts.	SEA/CM	Pre-construction	MCoA D1, CEMF 13.1a (i)
12.	Engine idling will be minimised while plant is stationery and engines to be switched off when not being used.	CM/SS	During construction	MCoA D1
13.	Suitable dust suppression and/or collection techniques will be used during cutting, grinding or sawing activities likely to generate dust in close proximity to sensitive receivers.	EA/CM/SS	Pre-construction / During construction	MCoA D1, CEMF 13.1a (i)
14.	All potentially hazardous material will be identified and removed from buildings in an appropriate manner prior to the commencement of and/or	EA/CM/SS	Pre-construction / During construction	MCoA D1, CEMF 13.1a (i)

WHEN PRINTED THIS DOCUMENT IS AN UNCONTROLLED VERSION AND SHOULD BE CHECKED AGAINST THE ELECTRONIC VERSION FOR VALIDITY

Item	Mitigation and management measures and Project site requirements	Responsibility	Timing	Reference
SEA – Senior Environmental Advisor, EA – Environmental Advisor, CM – Construction Manager, SS – Site Supervisor, TM – Traffic Manager				
	progressively during demolition and in accordance with all relevant codes of practice.			
15.	Wheel wash or rumble grids would be considered for installation at access/egress points of all construction sites during site establishment activities to prevent the tracking of soils and sediments on hard surfaces outside of construction sites.	SEA/CM	Pre-construction	MCoA D1
16.	Where feasible and reasonable, install all vehicles, plant and equipment with catalytic converters, diesel particulate filters (DPF) or equivalent devices to limit air pollution impacts.	CM/SS	During construction	MCoA D1 PS 3.4.3(a)(iii)
17.	All stockpiles will be managed in accordance with Managing Urban Stormwater: Soils and construction (Landcom, 2004; “the Blue Book”)	EA/CM/SS	During construction	MCoA D1, CEMF 13.1a (i)
18.	Dust extraction and filtration systems will be installed for tunnel excavation works and deep excavation with limited surface exposure.	SEA/CM	Pre-construction / During construction	MCoA D1, REMM AQ1, (iv)
19.	Weather conditions will be monitored daily, including weather forecasts and onsite observations. If weather conditions are not suitable for dust-generating activities, including during strong winds, all dust-generating activities will stop, or where practicable, modified to minimise air quality impacts.	EA/CM/SS	During construction	MCoA D1, CEMF 13.2b (i)
20.	Stockpiles will be covered, where practicable.	EA/CM/SS	Pre-construction / During construction	MCoA D1, CEMF 13.1a (i)
21.	Heavy vehicles used for spoil haulage will have appropriate covering to minimise movement of dust.	CM/SS	During construction	MCoA D1, CEMF 13.1a (i)
22.	Wet dust-suppression methods will be considered when using excavators, including misting fans and sprays.	EA/CM/SS	During construction	MCoA D1, CEMF 13.1a (i)
23.	Water suppression will be used for active earthwork areas, stockpiles, unsurfaced haul roads and loads of soil being transported to reduce wind-blown dust emissions.	EA/CM/SS	During construction	MCoA D1, Best practice

WHEN PRINTED THIS DOCUMENT IS AN UNCONTROLLED VERSION AND SHOULD BE CHECKED AGAINST THE ELECTRONIC VERSION FOR VALIDITY

Item	Mitigation and management measures and Project site requirements	Responsibility	Timing	Reference
SEA – Senior Environmental Advisor, EA – Environmental Advisor, CM – Construction Manager, SS – Site Supervisor, TM – Traffic Manager				
24.	Opportunities will be investigated for incorporating emission controls within the acoustic/spoil sheds, including dust extraction and filtration systems.	SEA/CM	During construction	MCoA D1
25.	Qualitative dust monitoring will be undertaken daily by monitoring weather conditions and visually inspecting work site, plant and vehicles for uncontrolled dust generation.	EA/SS	During construction	MCoA D1, CEMF 13.2b (iii)
26.	All dust generated within the tunnels will be collected at the face via mechanical means (e.g., scrubber or dust box), due to a positive pressure ventilation system. Clean air will travel through the length of the tunnel to which point it reaches the tunnel portal and escapes.	SEA/CM	During construction	MCoA D1

WHEN PRINTED THIS DOCUMENT IS AN UNCONTROLLED VERSION AND SHOULD BE CHECKED AGAINST THE ELECTRONIC VERSION FOR VALIDITY

8 COMPLIANCE MANAGEMENT

8.1 Roles and Responsibilities

The GLC Project Team's organisational structure and overall roles and responsibilities are outlined in Section 7 of the CEMP. Key roles with regards to the management of air quality are identified in Table 7.

Table 7: Roles and responsibilities

Role	Authority and Responsibility
Environmental and Sustainability Lead (or delegate)	• Develop and implement the AQMP • Oversee air quality monitoring in accordance with this sub-plan • Oversee the keeping of all environmental records • In consultation with the Project Director and Construction Director, oversee the investigation and reporting of environmental incidents arising from air quality impacts • Regularly engage with the key stakeholders and other interface contractors to achieve environmental alignment.
Stakeholder and Community Engagement Manager	• Manages key stakeholder relationships, including in relation to any air quality impacts throughout construction • Provision of strategic advice to the leadership team • Identify and mitigate reputational risks, including any relating to air quality impacts • Accountable for crisis and incident communications
Senior Environmental/Approvals Advisor	• Oversee compliance tracking and reporting • Lead inspections with the ER, Sydney Metro, or other stakeholders • Engage suitably qualified consultants to support implementation of this sub-plan • Complete reporting (refer to Section 8.3) • Prepare ECMs to outline the controls in this sub-plan relevant to each work activity • Respond to environmental incidents and non-conformances
Environmental Advisor	• Deliver toolbox / prestart presentation (or other specific training) to inform work crews of the controls documented in the ECMs • Complete inspections and monitoring, particularly of No-Go zones and site clearing limits (refer to Section 8.3) • Prepare,\ install and maintain environmental controls in accordance with ESCPs and ECMs, including clear delineation of site boundaries • Attend inspections with the ER, Sydney Metro, or other stakeholders • Implement corrective actions raised during environmental inspections in agreed timeframes

WHEN PRINTED THIS DOCUMENT IS AN UNCONTROLLED VERSION AND SHOULD BE CHECKED AGAINST THE ELECTRONIC VERSION FOR VALIDITY

Role	Authority and Responsibility
	• Notify the Environmental Representative any observed impacts on air quality.
Construction Manager	• Ensures compliance with this AQMP, procedures and ECMs • Work collaboratively with environment teams to ensure the mitigation and management measures in this AQMP are integrated into construction works • Ensure that air quality impacts are always considered in forward planning and scheduling
Site Supervisor	• Install and maintain environmental controls in accordance with ESCPs and ECMs, including clear delineation of site boundaries and protection of No-Go Zones • Attend inspections with the Environmental Representative, Sydney Metro, or other stakeholders as requested. • Implement corrective actions raised during environmental inspections in agreed timeframes • Notify the Environmental Advisor of any observed impacts on air quality, including vegetation removal and stockpile management etc.
All personnel	• Notify Site Supervisor of any observed impacts on air quality.

8.2 Training

The general project induction will include a component on air quality management to ensure that personnel understand the potential impacts from construction and the proposed mitigation measures.

The site induction training will address elements related to air quality management including:

- Existence and requirements of this AQMP
- Site layout
- Dust suppression
- Stockpile management
- The location of potentially sensitive receivers
- Works that can and cannot be carried out depending on the weather
- Speed limits for site access roads
- Details of the complaints handling procedure
- Details of the environmental incident procedures
- Relevant legislation
- Roles and responsibilities for air quality management.

Targeted training in the form of toolbox talks or tailored training sessions will also be provided to personnel with a key role in air quality management. Specific training may include:

- Obligations and specific responsibilities under the Project MCoA including dust suppression practices to minimise impacts on sensitive receivers
- Responsibilities pertaining to air quality management under the POEO Act, POEO (Clean Air) Regulation and this sub-plan

WHEN PRINTED THIS DOCUMENT IS AN UNCONTROLLED VERSION AND SHOULD BE CHECKED AGAINST THE ELECTRONIC VERSION FOR VALIDITY

- Identification of construction activities with potential to generate air pollution and dust emissions.

Specific training will be provided to personnel likely to work within or in proximity (<50 m) to sensitive receivers. Where required, toolbox /pre-start talks will also include dust suppression methods and air quality management.

Further details regarding inductions and training are outlined in Section 9 of the CEMP.

8.3 Monitoring, Inspections and Reporting

Monitoring, inspection, and reporting requirements are outlined in Table 8.

Additional requirements and responsibilities in relation to monitoring and inspections more broadly are documented in the CEMP.

WHEN PRINTED THIS DOCUMENT IS AN UNCONTROLLED VERSION AND SHOULD BE CHECKED AGAINST THE ELECTRONIC VERSION FOR VALIDITY

Table 8: Inspection, monitoring and reporting requirements

Type of Inspection	Frequency	Standards	Reporting	Responsibility
Qualitative				
Weekly inspections	Once a week during environmental inspections	Weekly inspections will include inspection of the environmental controls and mitigation measures outlined in Section 7.	Weekly environmental inspection report	Environmental Advisor
Daily inspections	Once a day walk through the construction site	Daily walk through of the construction site to ensure all dust controls are being implemented effectively and to identify potential air quality impacts. Observations may include notetaking in relation to: • Idling vehicles and equipment • Uncontrolled dust generating activities • Exposed stockpiles or storage areas • Mud tracking off-site • Any continuous, visible vehicle/plant/equipment emissions for longer than 10 seconds (POEO (Clean Air) Regulation). Notes to be taken subject to site activities and risk.	Daily diary	Site Supervisor
Weather monitoring	Daily	Prevailing wind conditions and weather forecast from Bureau of Meteorology to be reviewed daily, and notifications to be triggered where extreme weather is forecast, including: • Winds >25km/hr • Rain >20mm per day	High risk weather notifications/records	Environmental Advisor
Visual dust monitoring	Daily	Daily visual monitoring of potential particulate matter and/or dust generation due to operation of construction vehicles, plant, and equipment, and dust generation activities listed in Table 5.	Weekly environmental Inspection report	Environmental Advisor

WHEN PRINTED THIS DOCUMENT IS AN UNCONTROLLED VERSION AND SHOULD BE CHECKED AGAINST THE ELECTRONIC VERSION FOR VALIDITY

Type of Inspection	Frequency	Standards	Reporting	Responsibility
Odour monitoring	As required by the EPL, or in response to complaints.	Olfactory monitoring of potential odour generation from exposed contaminated material, water, or soils, or generally associated with hydrocarbons, or emissions from stationary plant or equipment. No detectable odours and gases (e.g., inspections of freshly disturbed areas, open stockpiles, water treatment plants, waste skips).	As required by the EPL.	Environmental Advisor
Vehicle emissions	Prior to arriving on site. Throughout construction.	Monitoring of plant and construction vehicles to ensure they have appropriate emission controls and are being maintained correctly. This will be undertaken through weekly visual inspection and vehicle pre-start check (e.g. Plant Assessor).	Vehicle Inspection checklist	Mechanical Team
Continuous dust monitoring				
Dust Monitoring	In response to complaints	Continuous dust monitoring (PM_{10} and $PM_{2.5}$) is being undertaken at site boundaries near sensitive receivers for dust generating activities The Environmental team would consult the Sustainability team regarding air quality monitor changes, including any relocations and or decommissioning. If a complaint is received, an investigation would be undertaken into the cause and impact. i.e. inspections or reviewing monitoring data. Mitigation measures will be implemented to reduce further impacts as needed.	NA	Environmental Advisor / Sustainability Team

WHEN PRINTED THIS DOCUMENT IS AN UNCONTROLLED VERSION AND SHOULD BE CHECKED AGAINST THE ELECTRONIC VERSION FOR VALIDITY

Specific reports prepared in response to air quality monitoring will capture detail including, but not limited, to:

- Records of compliance with the MCoA, REMMs, CEMF requirements and management measures in this AQMP
- Details of any required air quality monitoring data, including records of exceedances
- Detail of any corrective actions if required and confirmation of successful implementation
- Records of any management measures implemented as a result of adverse, windy weather conditions.
- Records of air quality and dust inspections undertaken.

8.4 Auditing

The Project will be audited at planned intervals to provide information on whether the Project:

- Is meeting its compliance obligations.
- Conforms to this sub-plan.
- Effectively implements and maintains this Sub-plan.

The approach to internal and independent audits, including auditing schedule, is outlined further in the CEMP.

8.5 Environmental Events and Incidents

Management of environmental incidents is detailed in Section 12.2 of the CEMP.

Examples of events as they relate to air quality may typically include:

- Excessive exhaust fumes from broken or unmaintained vehicles and equipment.
- Generation and dispersion of dust during uncontrolled construction activities
- Odour from particulate matter when excavating contaminated material leaves the site boundaries.

8.6 Complaints Register

All complaints made by the community and stakeholders will be managed in accordance with the Sydney Metro's requirements, the Overarching Community Communication Strategy, including the Sydney Metro Construction Complaints Management System (CCMS) (2021), as well as relevant MCoAs (B1 – B6). Further details on the complaints register can be found in the Project CEMP (SMWSTWTP-GLO-1NL-EV-PLN-000001), Section 10.

WHEN PRINTED THIS DOCUMENT IS AN UNCONTROLLED VERSION AND SHOULD BE CHECKED AGAINST THE ELECTRONIC VERSION FOR VALIDITY

9 REVIEW AND IMPROVEMENT

9.1 Continuous Improvement

The Project Management Team will review the status and adequacy of the EMS including the CEMP and CEMP Sub-plans. The objective of the review will be to ensure that it meets current Sydney Metro and GLC requirements as well as relevant environmental standards.

Continuous improvement of this AQMP will be achieved by the ongoing evaluation of environmental management performance against environmental policies, objectives, and targets for the purpose of identifying opportunities for improvement.

The continuous improvement process will be designed to:

- Identify areas of opportunity for improvement of environmental management and performance
- Determine the cause or causes of non-conformances and deficiencies.
- Develop and implement a plan of corrective and preventative action to address any nonconformances and deficiencies.
- Verify the effectiveness of the corrective and preventative actions.
- Document any changes in procedures resulting from process improvement.
- Make comparisons with objectives and targets.

In order to ensure continual improvement and prevent recurring issues, this sub-plan will be reviewed in response to:

- Corrective actions arising from non-conformance, incidents, or audits.
- Opportunity for improvement in environmental management performance which may be identified by the project team, ER or Sydney Metro
- Changes to the Gamuda Australia EMS.

Review of this sub-plan will occur annually as a minimum, or as needed in consultation with Sydney Metro and the ER. A copy of the updated plan and changes will be distributed to all relevant stakeholders in accordance with the approved document control procedure as outlined in the CEMP.

9.2 Document Updates

The processes described above may result in the need to update or revise this sub-plan. This will occur annually as a minimum, or as needed, and may only be approved by the Environment and Sustainability Lead, or delegate. Where minor amendments are required to this AQMP, the revised document will be issued to the ER for review and endorsement in accordance with MCoA A30(j).

9.3 Distribution

The approved AQMP will be published on the GLC website within one week of being approved in accordance with MCoA B11 and be made publicly available for a minimum of 24 months following the completion of all phases of construction.

The document is uncontrolled when printed.

ATTACHMENTS

Attachment 1 – Compliance Table

The MCoA, REMMs, CEMF requirements and EPL requirements that relate to this AQMP are detailed in the following tables.

Conditions of Approval

ID	Conditions of Approval	Document Reference
A2	Stage 1 of the CSSI must only be carried out in accordance with all procedures, commitments, preventative actions, performance criteria and mitigation measures set out in the documents listed in Condition A1 of this schedule unless otherwise specified in, or required under, this approval.	CEMP
C1	Construction Environmental Management Plans (CEMPs) and CEMP Sub-plans must be prepared in accordance with the Construction Environmental Management Framework (CEMF) included in the documents listed in Condition A1 of this schedule to detail how the performance outcomes, commitments and mitigation measures specified in the documents listed in Condition A1 of this schedule will be implemented and achieved during construction.	CEMP and this document
C6	The CEMP Sub-plans must state how:	
	(a) the environmental performance outcomes identified in the documents listed in Condition A1 of this schedule will be achieved;	This document
	(b) the mitigation measures identified in the documents listed in Condition A1 of this schedule will be implemented;	This document
	(c) the relevant conditions of this approval will be complied with; and	This document
	(d) issues requiring management during construction (including cumulative impacts), as identified through ongoing environmental risk analysis, will be managed through SMART principles.	Section 6, Section 7 and the CEMP
C7	With the exception of any **CEMP Sub-plans** expressly nominated by the Planning Secretary to be endorsed by the ER, all **CEMP Sub-plans** must be submitted to the Planning Secretary for approval.	Section 1.5

WHEN PRINTED THIS DOCUMENT IS AN UNCONTROLLED VERSION AND SHOULD BE CHECKED AGAINST THE ELECTRONIC VERSION FOR VALIDITY

ID	Conditions of Approval	Document Reference
C8	The **CEMP Sub-plans** 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 relevant undertakings made in the documents listed in **Condition A1** of this schedule. Any of these **CEMP Sub-plans** must be submitted to the **ER** with, or subsequent to, the submission of the **CEMP** but in any event, no later than one (1) month before construction or where construction is phased no later than one (1) month before the commencement of that phase.	Section 1.5
C9	Any of the **CEMP Sub-plans** to be approved by the Planning Secretary must be submitted to the Planning Secretary with, or subsequent to, the submission of the **CEMP** but in any event, no later than one (1) month before construction or where construction is phased no later than one (1) month before the commencement of that phase.	Section 1.5
C10	Construction must not commence until the **CEMP** and all **CEMP Sub-plans** have been approved by the Planning Secretary or endorsed by the **ER** (whichever is applicable), unless otherwise agreed by the Planning Secretary. The **CEMP** and **CEMP Sub-plans**, as approved by the Planning Secretary or endorsed by the **ER** (whichever is applicable), including any minor amendments approved by the **ER**, must be implemented for the duration of construction. Where construction of Stage 1 of the CSSI is phased, construction of a phase must not commence until the **CEMP** and **CEMP Sub-plans** for that phase have been approved by the Planning Secretary or certified by the **ER** upon nomination by the Planning Secretary (whichever is applicable).	Section 1.5
D1	All reasonably practicable measures must be implemented to minimise the emission of dust and other air pollutants during construction.	Section 7.1

Revised Environmental Management Measures

ID	Revised Environmental Mitigation Measure	Document Reference
AQ1	The following best-practice dust management measures would be implemented during all construction works: ● Regularly wet-down exposed and disturbed areas including stockpiles, especially during dry weather ● Adjust the intensity of activities based on measured and observed dust levels and weather forecasts ● Minimise the amount of materials stockpiled and position stockpiles away from surrounding receivers	Section 7.1

ID	Revised Environmental Mitigation Measure	Document Reference
	• Regularly inspect dust emissions and apply additional controls as required. • Consider all relevant measures listed in the UK IAQM corresponding to the highest level of risk determined around each Stage 1 construction site.	
AQ2	Plant and equipment would be maintained in a proper and efficient manner. Visual inspections of emissions from plant would be carried out as part of pre-acceptance checks.	Section 7.1
AQ3	The following best-practice odour management measures would be implemented during relevant construction works: • The extent of opened and disturbed contaminated soil at any given time would be minimised. • Temporary coverings or odour supressing agents would be applied to excavated areas where appropriate. • Regular monitoring would be conducted during excavation to verify that no offensive odours are being detected beyond the site boundary	Section 7.1

Construction Environmental Management Framework

ID	CEMF requirement	Document Reference
13.1a	i. Minimise gaseous and particulate pollutant emissions from construction activities as far as reasonably practicable.	Section 7.1
	ii. Identify and control potential dust and air pollutant sources.	Section 6 and Section 7.1
13.2a	i. The air quality mitigation measures as detailed in the environmental approval documentation.	Section 7.1
	ii. The requirements of any approval and applicable licence conditions.	Section 7.1
	iii. Site plans or maps indicating locations of sensitive receivers and key air quality/dust controls.	CEMP

WHEN PRINTED THIS DOCUMENT IS AN UNCONTROLLED VERSION AND SHOULD BE CHECKED AGAINST THE ELECTRONIC VERSION FOR VALIDITY

ID	CEMF requirement		Document Reference
	iv.	The responsibilities of key project personnel with respect to the implementation of the plan.	Section 8.1
	v.	Air quality and dust monitoring requirements.	Section 8.3
	vi.	Compliance record generation and management.	Section 8.3
13.2b	i.	Meteorological conditions will be monitored, and appropriate responses will be organised and undertaken periodically by the Principal Contractor.	Section 8.3
	ii.	Regular visual monitoring of dust generation from work zones.	Section 8.3
	iii.	Monitoring emissions from plant and construction vehicles to ensure they have appropriate emission controls and are being maintained correctly.	Section 8.3
13.2c	i.	Records of any meteorological condition monitoring.	Section 8.3
	ii.	Records of any management measures implemented as a result of adverse, windy weather conditions.	Section 8.3
	iii.	Records of air quality and dust inspections undertaken.	Section 8.3

Environment 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 and dust.

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

The AQMP will address the following EPL requirements:

WHEN PRINTED THIS DOCUMENT IS AN UNCONTROLLED VERSION AND SHOULD BE CHECKED AGAINST THE ELECTRONIC VERSION FOR VALIDITY

ID	EPL Condition	Document Reference
L6.1	No condition in this licence identifies a potentially offensive odour for the purposes of section 129 of the Protection of the Environment Operations Act 1997.	-
O2.1	All plant and equipment installed at the premises or used in connection with the licensed activity: a) must be maintained in a proper and efficient condition; and b) must be operated in a proper and efficient manner.	Section 7.1
O3.1	All activities occurring at the premises must be carried out in a manner that will minimise the generation and prevent the emission of air pollution from the premises, as much as is reasonably practicable.	Section 7.1
O3.2	The premises must be maintained in a condition which minimises the generation and prevents the emission of air pollution from the premises, as much as is reasonably practicable.	Section 7.1
O3.3	The licensee must implement all reasonable and feasible measures to demonstrate compliance with condition O3.1 and O3.2.	Section 7.1
O3.4	Trucks entering and leaving the premises that are carrying loads of material with the potential to generate dust must be covered at all times, except during loading and unloading.	Section 7.1
M6.1	The licensee must keep a legible record of all complaints made to the licensee or any employee or agent of the licensee in relation to pollution arising from any activity to which this licence applies.	Section 8.6
M6.2	The record must include details of the following: a) the date and time of the complaint; b) the method by which the complaint was made; c) any personal details of the complainant which were provided by the complainant or, if no such details were provided, a note to that effect; d) the nature of the complaint; e) the action taken by the licensee in relation to the complaint, including any follow-up contact with the complainant; and f) if no action was taken by the licensee, the reasons why no action was taken.	Section 8.6
M6.3	The record of a complaint must be kept for at least 4 years after the complaint was made.	Section 8.6
M6.4	The record must be produced to any authorised officer of the EPA who asks to see them.	Section 8.6

WHEN PRINTED THIS DOCUMENT IS AN UNCONTROLLED VERSION AND SHOULD BE CHECKED AGAINST THE ELECTRONIC VERSION FOR VALIDITY