CONSTRUCTION AIR QUALITY MANAGEMENT PLAN – STAGE B

A2I | Albury to Illabo

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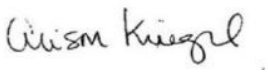
SIGNATURE:		**DATE:**	15/08//2025

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TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

GLOSSARY

TERM	DEFINITION
A2I	Albury to Illabo (the Project)
AAQMS	Ambient air quality monitoring station
AMO	Aeronautical meteorological observing
Approved Methods	Approved Methods for the Modelling and Assessment of Air Pollutants in New South Wales (NSW EPA, 2022)
ARTC	Australian Rail Track Corporation
AWS	Automatic weather station
CAQMP, this Plan	Construction Air Quality Management Plan
CCS	Community Communication Strategy
CEMF	Construction environmental management framework
CEMP	Construction Environmental Management Plan
CMP	Construction monitoring plan
CoA	Condition of Approval
CSSI	Critical State significant infrastructure
CSWMP	Construction Soil and Water Management Plan
DPHI	Department of Planning, Housing and Infrastructure
EAD	Environmental Assessment Documentation that includes: ▪ Inland Rail – Albury to Illabo Environmental Impact Statement (ARTC, August 2022); ▪ Albury to Illabo Response to Submissions (ARTC, November 2023); ▪ Albury to Illabo Preferred Infrastructure Report (ARTC, November 2023); ▪ Albury to Illabo Preferred Infrastructure Report Response to Submissions (ARTC, February 2024); ▪ Inland Rail – Albury to Illabo (SSI-10055) Response to request for additional information – Air Quality Assessment (letter dated 1 May 2024); ▪ Part 1 - Revised Technical Paper 8: Biodiversity Development Assessment Report (WSP, February 2024); ▪ Part 2 - Revised Technical Paper 8: Biodiversity Development Assessment Report (WSP, February 2024); ▪ Albury to Illabo Kemp Street Bridge Enhancement Site Modification (June 2025); ▪ Albury to Illabo Kemp Street Bridge Enhancement Site Modification Clarification (July 2025); ▪ Albury to Illabo Kemp Street Bridge Modification Noise and Vibration Impact Assessment (August 2025).
EIS	Environmental impact statement
EP&A Act	*Environmental Planning and Assessment Act 1979* (NSW)
EPA	Environment Protection Authority

TERM	DEFINITION
ER	Environmental Representative
ESCP	Erosion and sediment control plan
IAQM	UK Institute of Air Quality Management
IR	Inland Rail
ISC	Infrastructure Sustainability Council
km	Kilometres
LGA	Local government areas
m	Metres
MR	Martinus Rail
N2NS P1	Narrabri to North Start Phase 1
NEPC	National Environment Protection Councils
NEPM – AAQ	National Environment Protection Measure for Ambient Air Quality Guidelines
NERDDC	National Energy Research Development and Demonstration Council
NO_x	Oxides of nitrogen
NSW	New South Wales
P2N	Parkes to Narromine
PIR	Preferred Infrastructure Report
PM	Particulate matter
Project, the	Inland Rail – Albury to Illabo project
PSR	Project Scope and Requirements
SEARs	Secretary's environmental assessment requirements
SIMP	Social Impact Management Plan
SMART	Specific, Measurable, Achievable, Realistic and Timely
SSI	State significant infrastructure
SuMP	Sustainability Management Plan
TSP	Total suspended particulates
UMM	Updated mitigation measures

1 INTRODUCTION

1.1 Project overview

Inland Rail is an approximate 1,600 kilometres (km) freight rail network that will connect Melbourne and Brisbane via regional Victoria, New South Wales (NSW) and Queensland. The Inland Rail route would involve using approximately 1,000 km of existing track (with enhancements and upgrades where necessary) and 600 km of new track, passing through 30 local government areas (LGAs). Inland Rail will accommodate double-stacked freight trains up to 1,800 metres (m) long and 6.5 m high.

The Australian Government has confirmed that Inland Rail is an important project to meet Australia's growing freight task, improve road safety and help decarbonise the economy. Inland Rail will enhance our national freight and supply chain capabilities, connecting existing freight routes through rail, roads and ports, and supporting Australian's growth. Inland Rail is being delivered by Australian Rail Track Corporation (ARTC).

Comprising 12 sections, a staged approach is being undertaken to deliver Inland Rail. Each of these projects can be delivered and operated independently with tie-in points to the existing railway. Work south of Parkes has been prioritised, which will enable Inland Rail to initially connect to existing rail networks between Melbourne, Sydney, Perth and Adelaide via Parkes and Narromine. The Parkes to Narromine (P2N) and Narrabri to North Star Phase 1 (N2NS P1) sections are complete.

The project will enable enhancement works to structures and sections of track along 185 km of the existing operational standard-gauge railway in the Albury to Illabo (A2I) section of the Inland Rail program. Enhancement works are required to provide the increased vertical and horizontal clearances required for double-stacked freight trains. Works would include track realignment, lowering and/or modification within the existing rail corridor, modification, removal or replacement of bridge structures (rail, road and/or pedestrian bridges), raising or replacing signal gantries, level-crossing modifications and other associated works.

A detailed project description is provided in Section 4 of the Construction Environmental Management Plan (CEMP).

1.2 Planning context

The Inland Rail – Albury to Illabo project (the project) is declared State significant infrastructure (SSI) and critical State significant infrastructure (CSSI) under Division 5.2 of the *Environmental Planning and Assessment Act 1979* (NSW) (EP&A Act). The project is permissible without development consent and is subject to assessment and approval by the NSW Minister for Planning and Public Spaces.

An environmental impact statement (EIS) was prepared to support ARTC's application for approval of the project in accordance with the requirements of the EP&A Act and the environmental assessment requirements of the Secretary of the (then) NSW Department of Planning, Industry and Environment (the SEARs) (now the Department of Planning, Housing and Infrastructure (DPHI)).

The EIS was placed on public exhibition from 17 August 2022 to 28 September 2022. During the exhibition period, interested stakeholders and members of the community were able to review the EIS online, participate in consultation and engagement activities held by ARTC, and make a written submission to the DPE for consideration in its assessment of the project.

In accordance with section 5.17(6)(b) of the EP&A Act, on 13 April 2023 the Planning Secretary directed ARTC to submit a Preferred Infrastructure Report (PIR) that provides further assessment of traffic and transport, noise and vibration, and air quality impacts. The PIR was also prepared to consider changes to the exhibited project that have arisen as a consequence of these further assessments and related submissions.

A modification report (Kemp Street Bridge Enhancement Site Modification, Inland Rail June 2025) was prepared to revise the replacement road and pedestrian bridge arrangement over the railway line at the Kemp Street bridge enhancement site in Junee to now provide a single combined structure.

1.3 Statutory context and approval

The Inland Rail – Albury to Illabo project was assessed as part of the following documents:

- Inland Rail – Albury to Illabo Environmental Impact Statement (ARTC, August 2022);
- Albury to Illabo Response to Submissions (ARTC, November 2023);
- Albury to Illabo Preferred Infrastructure Report (ARTC, November 2023);
- Albury to Illabo Preferred Infrastructure Report Response to Submissions (ARTC, February 2024);
- Inland Rail – Albury to Illabo (SSI-10055) Response to request for additional information – Air Quality Assessment (letter dated 1 May 2024);

- Part 1 - Revised Technical Paper 8: Biodiversity Development Assessment Report (WSP, February 2024);
- Part 2 - Revised Technical Paper 8: Biodiversity Development Assessment Report (WSP, February 2024);
- Albury to Illabo Kemp Street Bridge Enhancement Site Modification (2025)
- Albury to Illabo Kemp Street Bridge Enhancement Site Modification Clarification (July 2025);
- Albury to Illabo Kemp Street Bridge Modification Noise and Vibration Impact Assessment (August 2025)

Together these documents are referred to as the Environmental Approvals Documentation (EAD).

Approval for the project under the EP&A Act was granted by the Minister for Planning on 8 October 2024. The Modification was approved by the delegate of the NSW Minister for Planning and Public Spaces on 13 August 2025.

1.4 Scope of this Stage B Plan

The scope of this Construction Air Quality Management Plan (CAQMP or this Plan) is to describe how Martinus Rail will manage potential impacts to air quality during Stage B construction of the project.

This Plan addresses the requirements of the EAD including incorporating the relevant updated mitigation measures (UMMs), and Conditions of Approval (CoAs). SMART (Specific, Measurable, Achievable, Realistic and Timely) principles have been considered and applied during the preparation of this Plan which will be implemented for the duration of construction.

This Plan is applicable to all activities during construction of the project, including all areas where physical works will occur or areas that may otherwise be impacted by the Stage B construction works, and under the control of Martinus Rail. All Martinus Rail staff and sub-contractors are required to comply with and operate fully under the requirements of this Plan and related environmental management plans, over the full duration of the Stage B construction program.

CoA B18 requires that this Plan (excluding confidential, private, commercial information or any other information that the Planning Secretary has approved to be excluded) must be published before the relevant work commences and maintained on the project website.

1.4.1 Staging

The Staging Report describes how the construction and operation of the project will be staged in accordance with CoA A9, A10 and A11. A staged approach has been adopted for the project to prioritise critical activities that are reliant upon infrequent and fixed rail possessions. It overall de-risks the construction program for the project, enabling the project to be operational within the timeframe committed to by the NSW Government.

As required by CoA A14 and C16, a Construction Environmental Management Framework (CEMF) has been prepared to be consistent with the Staging Report. The CEMF has been prepared to facilitate the preparation and approval of CEMPs, Sub-plans, and construction monitoring plans (CMPs) during the construction phase of the project. It includes a guide to the general environmental, stakeholder and community management requirements which will be implemented during construction and provides a road map for environmental management documentation.

In accordance with CoA C16, the CEMF must be endorsed by the Environmental Representative (ER) and then submitted to the Planning Secretary (for approval) no later than one (1) month before the lodgement of any CEMP, CEMP Sub-plan, or CMP.

This Plan has been prepared to be consistent with the Staging Report and the CEMF, as required by CoA A11 and A12, as well as C16. This Plan has therefore been prepared to address how Martinus Rail will manage potential air quality impacts during construction of the second stage of the project – Stage B.

Stage B, as described in Section 2.1.3 of the Staging Report will see construction activities commencing in the Wagga Wagga Precinct, as well as at Uranquinty Creek and Billy Hughes bridge. New construction activities such as culvert work, level crossing work and finishing work will also occur. Construction in Stage B will also comprise a continuation of activities started in Stage A and therefore works will be occurring at all enhancement sites during Stage B:

- Murray River bridge;
- Albury Station pedestrian bridge;
- Albury Yard clearances;
- Riverina Highway bridge;
- Billy Hughes bridge;
- Table Top Yard clearances
- Culcairn pedestrian bridge;
- Culcairn Yard clearances;
- Henty Yard clearances

- Yerong Creek Yard clearances
- The Rock Yard clearances;
- Uranquinty Yard clearances;
- Pearson Street bridge;
- Cassidy Parade pedestrian bridge;
- Edmondson Street bridge;
- Wagga Wagga Station pedestrian bridge;
- Wagga Wagga Yard clearances;
- Bomen Yard clearances;
- Harefield Yard clearances;
- Kemp Street bridge;
- Junee pedestrian bridge;
- Junee Yard clearances;
- Olympic Highway underbridge;
- Junee to Illabo clearances.

This plan applies to the entirety of Stage B.

Construction work during Stage B will generally include:

- Pre-construction activities that have not commenced before the approval of the CEMP;
- Utility works and drainage works;
- Ancillary facility and laydown establishment and operation;
- Traffic management and access, including material haulage;
- Clearing, grubbing and topsoil strip;
- Earthworks including preparation of pads and stockpiling;
- Track work including realignment and lowering;
- Rail bridge works;
- Road and pedestrian bridge works, including demolition;
- Level crossing works;
- Gantry and signalling work;
- Finishing works.

1.5 Interactions with other management plans and strategies

This Plan has the following interrelationships with other management plans and documents:

- The Construction Soil and Water Management Plan (CSWMP) (Appendix B4 of the CEMP) detailing the assessment and monitoring of potential soil and water impacts;
- Community Communication Strategy (CCS) details the procedures and processes for community notification, consultation and complaints management.
- The Sustainability Management Plan (SuMP) which outlines the required sustainability goals and deliverables of the project, and how the Contractor intends to achieve these outputs during design, delivery and operation of the project under the Infrastructure Sustainability Council (ISC) rating system.

2 PURPOSE

2.1 Purpose

The purpose of this Plan is to describe how air quality impacts will be managed during Stage B construction of the project.

2.2 Objectives

The key objective of the CAQMP is to ensure that air quality impacts are managed appropriately throughout the construction of the project. To aid in achieving this objective this CAQMP incorporates the relevant air quality management requirements from the following sources:

- The project EAD;
- Inland Rail – Albury to Illabo Infrastructure Approval CoA (SSI-10055);
- All relevant legislation and other requirements described in Section 3 of this Plan.

In addition to the above, a Social Impact Management Plan (SIMP) has been developed for the project. The SIMP identifies desired outcomes for the project, including 'amenity impacts are minimised through monitoring, engagement and continuous improvement initiatives'. The implementation of this CAQMP supports the desired outcome through the implementation of the identified management measures and monitoring activities.

2.3 Targets

Targets for the management of air quality impacts during the project include:

- Compliance with the relevant legislative requirements, including CoAs and UMMs;
- Provide training in the form of inductions to all project personnel on air quality management procedures before they begin work on site;
- Implement appropriate controls and procedures during construction activities to avoid or minimise potential adverse or inadvertent impacts to air quality;
- Minimise impacts on, and complaints from, the community and stakeholders.

3 ENVIRONMENTAL REQUIREMENTS

3.1 Legislation

Legislation relevant to the implementation of the CAQMP is included in Appendix A1 of the CEMP.

3.2 Guidelines and standards

Guidelines, specifications and policy documents relevant to this plan include:

- National Environment Protection Councils (NEPC) – National Environment Protection Measure (NEPM) for Ambient Air Quality Guidelines;
- AS 3580.1.1-2007 Methods of Sampling Analysis of Ambient Air. Part 1.1 Guide to Siting Air Monitoring Equipment;
- AS 3580.10.1-2003 Methods of Sampling Analysis of Ambient Air. Determination of Particulate Matter – Deposited Matter - Gravimetric Method;
- Approved Methods for the Modelling and Assessment of Air Pollutants in NSW (NSW EPA 2022);
- Air Quality Monitoring Criteria for Deposited Dust (DEC Guideline).

3.3 Minister's Conditions of Approval

The requirements of the CoA relevant to the development of this Plan are shown in Table 1. A cross reference is also included to indicate where the CoA is addressed in this Plan or other project management document.

TABLE 1: COA RELEVANT TO THIS PLAN

No.	Requirement	Where addressed
E1	In addition to the performance outcomes, commitments and mitigation measures specified in the documents listed in Condition A1, all reasonably practicable measures must be implemented to minimise the emission of dust and other air pollutants during the construction and operation of the CSSI.	This Plan Section 6

3.4 Updated Mitigation Measures

The requirements of the UMMs relevant to the development of this Plan are shown in Table 2. A cross reference is also included to indicate where the CoA is addressed in this Plan or other project management document.

TABLE 2: UMMS RELEVANT TO THIS PLAN

No.	Requirement	Where addressed
AQ1	Where visible dust is generated from onsite activities, watering (water cart or water sprays) and/or other appropriate measures will be implemented.	This Plan Section 6

3.5 Air quality criteria

Air quality criteria are used to assess the potential for ambient quality to give rise to adverse health or nuisance effects.

State air quality guidelines specified by the NSW EPA for the relevant pollutants are published in the Approved Methods for the Modelling and Assessment of Air Pollutants in New South Wales (NSW EPA, 2022) ('Approved Methods'). The ground level air quality impact assessment criteria listed in Section 7 of the Approved Methods has been established by NSW EPA to achieve appropriate environmental outcomes and to minimise risks to human health. The criteria have been derived from a range of sources and are the defining ambient air quality criteria for NSW; these are therefore considered to be appropriate for the A2I Project.

For the purpose of the ISC submission and alignment with Dis-4, the Air Quality Criteria described here and below can be classified as the Air Quality Goals. These are project-specific and are also consistent with regulations and planning requirements.

3.6 Particulate matter criteria

The Approved Methods provide air quality criteria based on several pollutant criteria and averaging periods from multiple sources, including the NEPM-AAQ (1998) and National Energy Research Development and Demonstration Council (NERDDC) (1998). Table 3 details the air quality monitoring criteria for construction of the A2I project.

Compliance criteria of particulate matter is related to a maximum 24-hour of PM_{10} concentrations exceeding the micrograms per cubic metre criterion. This is based on the maximum background concentration and the 100th percentile to obtain the total impact average over 24 hours, as described in Section 4.3 Background Air Quality.

Management criteria is based on the UK Institute of Air Quality Management (IAQM) Air Quality Monitoring in the Vicinity of Demolition and Construction sites (2018) and is used as a basis to implement management measures during construction. Consistent with the IAQM 2018 guidance, the measurement of PM_{10} will be prioritised as emissions of dust from construction sites are predominantly in the coarser fractions.

The 1-hour 'short-term' period has been adapted from the IAQM (2018) and although arbitrarily derived significantly greater concentrations than longer term (for example, 24-hour average) air quality compliance criteria, it provides a reference point upon which the construction teams must act immediately to minimise dust emissions. Should the '1-hour' trigger level be breached, it is generally considered that the 24-hour compliance criteria is likely to be breached. Trigger levels will be reviewed, if:

- Complaints are received and verified;
- Dust is observed to be leaving site risking the amenity of the surrounding environment; and
- Other dust monitoring methods indicates frequent exceedances of the relevant criteria attributable to the A2I project.

If any of the trigger levels are observed, the dust control measures will be reviewed and amended by the Martinus Rail construction team and the Martinus Rail Environmental Advisor where required. Management measures are described in Section 6 of this Procedure.

TABLE 3: ADOPTED AIR QUALITY CRITERIA

POLLUTANT	AVERAGING TIME	CRITERIA	MANAGEMENT CRITERIA	SOURCE
PM_{10}	24 hours	50 µg/m^3	38 µg/m^3	NSW EPA, 2022
	1 hour	190 µg/m^3	145 µg/m^3	IAQM, 2018

3.7 Infrastructure Sustainability Council requirements

Both Martinus Rail and Inland Rail are firmly committed to ensuring the projects are designed and constructed with high levels of sustainability integrated throughout the projects. Martinus Rail has developed and will implement a SuMP that is compliant with:

- Project Approvals
- *Inland Rail Sustainability Strategy* (0-0000-900-ESS-00-RP-0003)
- *Specification - Inland Rail Sustainability Requirements – Albury to Parkes* (3-0000-210-ESS-00-SP-0001)
- A2P Enhancement Projects Incentivised Target Cost Deed (ARTC Contract No. 2140-0001)

Martinus Rail will aim to achieve a certified minimum rating of "Excellent" under the ISC Infrastructure Sustainability Technical Manual version 1.2. For further detail, please refer to the SuMP.

The works described in this Procedure will be carried out in accordance with the ISC Technical Manual v1.2 Dis-4 (Air Quality) credit requirements. Detailed Air Quality criteria are outlined in Section 3.5. Table 4 below lists the relevant Infrastructure Sustainability credit requirements and indicates where they are addressed in this plan or references external documents that fulfill the ISC credit criteria. Tracking of progress and compliance against the sustainability targets will be done in collaboration between the sustainability and environmental team(s) and will be audited on a regular basis.

TABLE 4: ISC DIS-4 COMPLIANCE TABLE

BENCHMARK or MUST STATEMENT	ISC Credit	Where addressed
Air Quality (Dis-4)		
Level 1		
Benchmark	Measures to minimise adverse impacts to local air quality during construction and operation have been identified and implemented	▪ Section 6 ▪ Daily site diaries and site inspection records ▪ Monitoring records
Benchmark	Monitoring of air emissions and/or air quality is undertaken at appropriate intervals and in response to complaints during construction	▪ Section 7.2 ▪ Daily site diaries and site inspection records ▪ Monitoring records ▪ Complaints Register / Complaints Management Procedure
Must Statement from v1.2 ISC Technical Manual	Air emission or air quality goals are limits that must not be exceeded or levels that the project aims to keep within.	▪ Section 3.5 ▪ Section 3.6
Level 2		
Benchmark	Monitoring and modelling demonstrates no recurring or major exceedances of air emission or air quality goals	▪ Section 3.5 ▪ Section 3.6 ▪ Section 7.2 ▪ Daily site diaries and site inspection records ▪ Monitoring records
Must Statement from v1.2 ISC Technical Manual	Exceedances are measured air emission or air quality levels above the goals. Recurring exceedances are defined as more than two of a similar type within a 12 month period. Major exceedances are defined as exceeding the air emission or air quality goals by more than 50%.	▪ Section 3.5 ▪ Section 3.6 ▪ Section 7.2 ▪ Daily site diaries and site inspection records ▪ Monitoring records
Level 3		
Benchmark	Monitoring and modelling demonstrates no exceedances of air emission or air quality goals	▪ Section 3.5 ▪ Section 3.6 ▪ Section 7.2 ▪ Daily site diaries and site inspection records ▪ Monitoring records

4 EXISTING ENVIRONMENT

This section summarises the existing air quality conditions within and adjacent to the A2I project, based on information contained in the EAD. The information provided below comprises the baseline data used for the Project.

4.1 Sensitive receivers

Sensitive receivers are locations where people are likely to work or reside; this may include a dwelling, school, hospital, office or recreational areas. Sensitive receivers are located along the proposal site and are concentrated in the main urban centres of Albury, Wagga Wagga and Junee. There are 248 surrounding receivers within 50m of the rail track (across 14 enhancement sites). Of these, 80 are residential.

4.2 Climatic conditions

Local meteorological conditions across the project area are likely to be influenced by varying topography and land use characteristics.

Long-term records from the automatic weather stations (AWS) at the Albury Airport AWS and the Wagga Wagga Airport Aeronautical Meteorological Observing (AMO) station were reviewed to understand the meteorological conditions near the project site. Albury Airport AWS is located approximately 1km east, at the southern extent of the project and the Wagga Wagga AMO is located approximately 9km to the south-east, near the northern extent of the project. Both AWS are broadly representative of the local climate given their proximity to the project. The most recent long-term meteorological data collected at the above two weather stations near the project characterises the local climate.

The data indicates that the proposal site experiences warm dry summers, with average maximum temperatures around 33 degrees Celsius. Months in winter are the coldest with an average mean daily maximum temperature of around 13 degrees Celsius. Months through summer and autumn were measured to be the driest, with the lowest average monthly rainfall recorded in January (around 39mm) in Albury and in April (around 32mm) in Wagga Wagga.

Overall, wind speeds are highest during summer (around 3m/s recorded at Albury, and 4.1 m/s recorded at Wagga Wagga), and lowest in winter (around 2 m/s, and 3 m/s at Albury and Wagga, respectively). The most frequent wind condition at Albury is south-easterly followed by westerly. At Wagga Wagga, the most frequent wind direction is easterly followed by east north-easterly.

4.3 Background air quality

Air quality across the project alignment is mainly influenced by rural activities, industrial activities, vehicle emissions, railway operations, power generation, waste management and extraction activities. Dust from paved and unpaved roads, domestic solid and liquid fuel burning in the region also contribute to the local air quality.

Air quality data was sourced from monitoring stations at Albury, Wagga Wagga North and Junee as part of the EAD, this is summarised in Table 5. The air quality impact assessment criterion for each pollutant specified in the Approved Methods is also included.

The data shows that:

- for particulate matter (PM), the 24-hour average criterion (PM_{10} and $PM_{2.5}$) and the annual average criterion ($PM_{2.5}$ only) is exceeded across multiple years at both locations. For PM_{10}, exceedances of the annual average criterion were only observed in Wagga Wagga in 2019 and 2020, these exceedances were strongly influenced by bushfire smoke.
- concentrations of total suspended particulates (TSP) exceeds the impact assessment criterion for all years (2016 to 2020) at the Junee ambient air quality monitoring station (AAQMS).

TABLE 5: SUMMARY OF AMBIENT AIR QUALITY DATA

STATION	POLLUTANT	AVERAGING PERIOD	AIR QUALITY IMPACT ASSESSMENT CRITERIA	YEAR				
				2016	2017	2018	2019	2020
Junee [1]	Total suspended particles (µg/m³)	Annual	90	292	358	1,331	3,523	9,018

STATION	POLLUTANT	AVERAGING PERIOD	AIR QUALITY IMPACT ASSESSMENT CRITERIA	YEAR				
				2016	2017	2018	2019	2020
Albury	PM_{10} (µg/m³)	Maximum 24-hour	50	51	48.8	107.8	222.4	298.3
		Annual	25	14.9	15.6	19.4	23.2	19.7
Wagga Wagga	PM_{10} (µg/m³)	Maximum 24-hour	50	114.7	171.6	127.2	251.7	259.4
		Annual	25	20.7	20.4	26.9	34.7	21.9

1 The Junee air quality monitoring station only measures TSP (DustTrak). It is not a National Environment Protection Measure (NEPM) performance monitoring station and does not conform to Australian Standards. Levels should be viewed as indicative only.

5 CONSTRUCTION IMPACTS ON AIR QUALITY

The IAQM (2024) risk assessment has been adopted to assess, identify risks and recommend appropriate management measures for potential air quality impacts during construction.

The process includes four steps and several criteria including a screening review, risk assessment, development of mitigation measures and residual risk assessment, as shown in Figure 1. This process provides guidance on when monitoring should be implemented during the project. Surrounding receivers will be identified using the Martinus Rail project GIS system

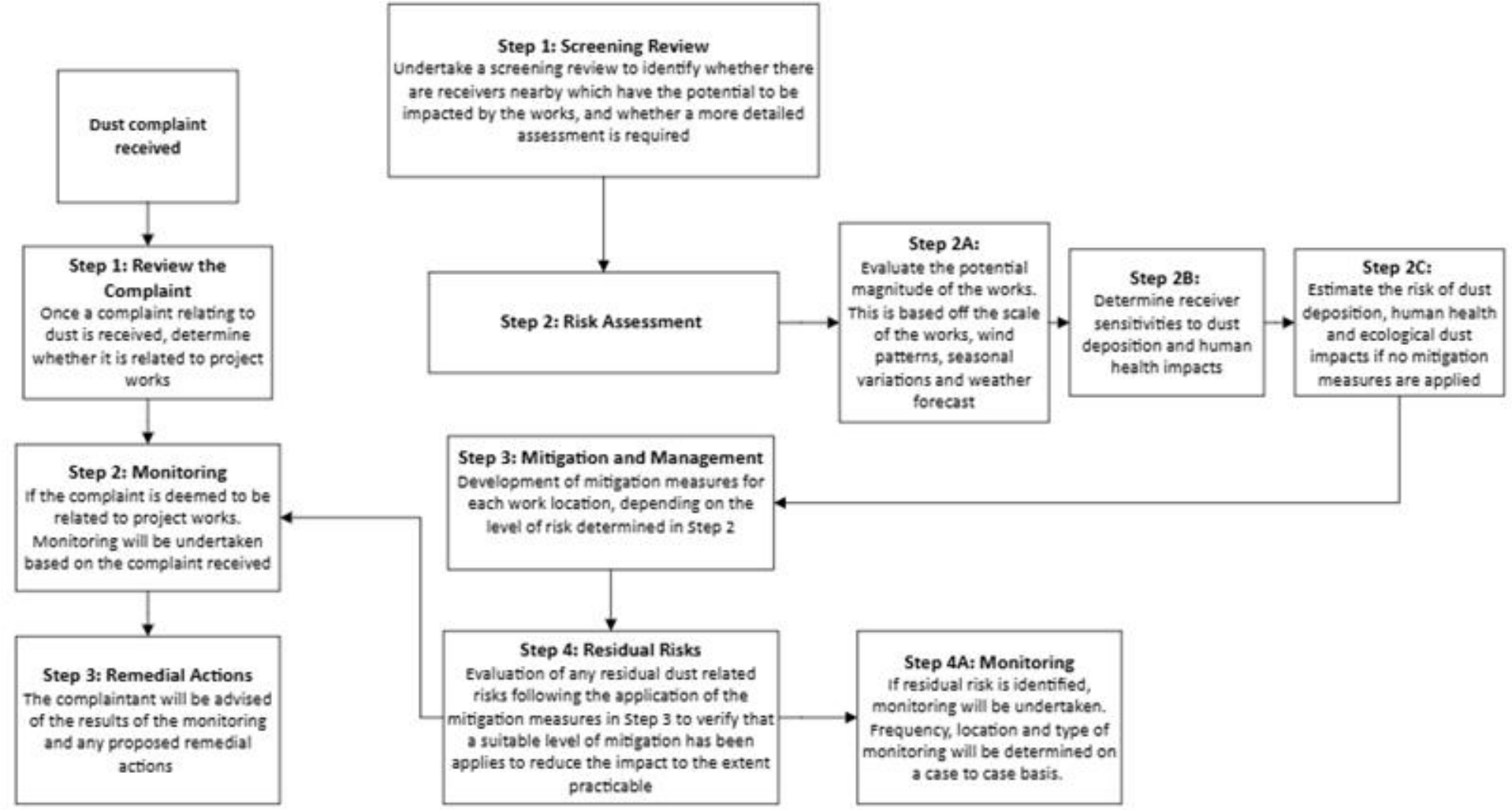

FIGURE 1: RISK ASSESSMENT FOR POTENTIAL AIR QUALITY IMPACTS DURING CONSTRUCTION

Potential construction impacts on air quality will depend on the nature, extent and magnitude of construction activities and their interaction with the natural environment. Potential impacts attributable to construction may occur during site establishment, demolition, earthworks, construction and track out. With site-specific mitigation measures (Table 4) in place, residual impacts would be reduced to a negligible to low risk.

The proposed measures, outlined in Table 6, for controlling dust are expected to be effective in ensuring residual impacts on the receiving environments are low. These are standard measures used on construction sites in NSW. The effectiveness of dust controls would be demonstrated through the risk assessment process shown in Figure 1.

5.1 Construction activities

Construction activities that generate dust and particulates represent the primary air quality-related risk during construction. Key construction activities associated with Stage A and Stage B of the project that could result in dust emissions include:

- Earthworks, particularly during site establishment;
- Installation of construction signage and environmental controls;
- Geotechnical and soil investigations;
- Establishment and operation of ancillary facilities and compounds;
- Demolition activities;
- Vegetation clearing and grubbing;
- Excavation;
- Spray painting of the road for line marking;
- Pavement construction;
- Track construction;
- Landscaping and finishing works;
- Bridge preparation and installation;
- Signalling construction;
- Drainage works;
- Tamping, regulating;
- Topsoil/material handling including stripping, stockpiling, material loading and material haulage;
- Vehicular movements over unpaved surface (including unsealed access roads); and
- Temporary stockpiling which may result in wind erosion of exposed areas.

The settlement of dust may cause nuisance and aesthetic impacts to sensitive receivers located near the project. Finer particles (PM_{10} and $PM_{2.5}$) also have the potential to cause human health impacts if not adequality controlled.

Emissions, other than dust, which may be generated by construction activities include:

- Vehicle and plant exhaust emissions, which may be excessive if vehicles and plant are poorly maintained
- Odours/gases released during:
    - Excavations of organic or contaminated materials
    - During road sealing works
    - Road line marking.

5.2 Factors likely to affect dust generation

In addition to the inherent risks of specific construction activities creating the potential to generate dust, a number of other environmental factors also affect the likelihood to dust emissions. These include the following:

- Wind direction – determines whether dust and suspended particles are transported in the direction of the sensitive receivers
- Wind speed – governs the potential suspension and drift resistance of particles
- Soil type – more erodible soil types have an increased soil or dust erosion potential
- Soil moisture – increased soil moisture reduces soil or dust erosion potential
- Rainfall or dew – rainfall or heavy dew that wets the surface of the soil and reduces the risk of dust generation
- Evaporation – dries out the surface of the soil and leads to increased risk of dust generation
- Exposed surfaces – during construction non-vegetated surfaces will be exposed prior to revegetation, which is a key factor influencing dust emissions.

5.3 Factors likely to affect gaseous emissions

5.3.1 Vehicle emissions

Emissions from vehicles will be associated with the combustion of fuel (diesel and petrol) in construction plant, vehicles and machinery. These sources will generate emissions of particulate matter, CO, oxides of nitrogen (NO_x), SO_2 and trace amounts of non-combustible hydrocarbons. The rates of emission and potential impact on surrounding land uses will depend on the number and power output of the combustion engines, the quality of fuel used, the condition of the engines and the intensity of use.

5.3.2 Fugitive emissions

Fugitive emissions will be expected from fuel and chemicals stored at construction compounds (for example, LPG, diesel, lubricant oils, cleaning chemicals). These emissions are anticipated to be minor and will be readily manageable through the application of standard management and mitigation measures.

5.3.3 Other odorous emissions

Factors likely to affect odour and gas release during works may include:

- Excavations of organic or contaminated materials
- Asphalting and bitumen sealing works.

5.4 Nature of air quality impacts

Construction activities listed in Section 5.1 have the potential to increase airborne particulate matter and cause nuisance impacts where construction is in close proximity to sensitive receivers.

Potential impacts to air quality that may arise during construction include:

- Temporary increase in air emissions form dust and products of combustion (from equipment operations)
- Temporary increased windborne dust emanating from disturbed/exposed surfaces
- Increased dust and debris arising from haulage of materials during construction
- Odours arising from uncovered contaminated and/or hazardous materials
- Deposition of dust on surfaces where it may cause damage and/or lead to a need for increased cleaning or repair
- Aesthetic effects that arise from visible airborne dust plumes and from deposits of dust on surfaces
- Need for increased maintenance of air filtering systems
- Potential adverse health effects including eye, nose and throat irritation from excessive inhalation of fine particles
- Impacts on residential sensitive receivers, including impacts on living areas, swimming pools and general amenities
- Dust deposition impacts on sensitive agricultural receivers
- Complaints from the public relating to dust or odours.

5.5 Ecological impacts

Construction activities listed in Section 5.1 have the potential to increase airborne particulate matter and cause direct and indirect impacts to biodiversity located within and near the construction boundary, including:

- Dust deposition on plant foliage during construction
- Accidental release of contaminants into the environment that may potentially affect biodiversity
- Impacts on water quality and/or vegetation health from dust deposition

5.6 Cumulative impacts

Cumulative impacts may occur because of the project being delivered concurrently, or consecutively, with other approved projects in the area, however it is noted that the scale of impact is dependent upon timing, location and type of construction activities. It is also considered that although there is the potential for cumulative local dust impacts during construction, with appropriate management measures in place for nearby development cumulative impacts are expected to be low. Air quality impacts are anticipated to be short-term and minor as they will be limited to the construction phase and will be minimised through the implementation of management measures identified in Section 6.

6 MITIGATION MEASURES

All specific practicable measures and requirements to minimise and manage impacts on air quality are outlined in Table 6. Implementation of these environmental mitigation measures will facilitate the effective management of dust and other emissions during construction, and enable compliance with the objectives and targets in Section 2.2 and Section 2.3.

TABLE 6: AIR QUALITY MANAGEMENT AND MITIGATION MEASURES

ID	MITIGATION MEASURE	SOURCE	TIMING	RESPONSIBILITY	DELIVERABLE
AQ1	Develop and implement an air quality monitoring program based on high-risk activities and proximity to sensitive receivers to effectively manage the work activities as works progressively moves along the alignment.	CEMF	Pre-construction/ Construction	Environment Manager	Risk Assessment – Figure 1 Monitoring Records
AQ2	Dust complaints shall be responded to and assessed for further mitigation/monitoring and details provided to IRPL	CEMF	Construction	Environment Manager	Complaints Register Monitoring Records
AQ3	Dust control protocols shall be confirmed through the utilisation of the procedures, checklists, forms and ITPs	CEMF	Construction	Environment Manager Project Delivery Manager	Risk Assessment – Figure 1 Inspection Records
AQ4	Daily weather observations are recorded prior to commencing activities	CEMF	Construction	Environment Manager Project Delivery Manager	Daily Diaries
AQ5	Dust monitoring shall be undertaken, maintained and appropriately calibrated on all dust generating work fronts as determined by the site-specific risk assessment	CEMF	Construction	All Site Personnel	Risk Assessment – Figure 1 Monitoring Records
AQ6	Dust monitoring locations are to be georeferenced/mapped and provided to IRPL upon request. Dust results to be reported monthly.	CEMF	Construction	Relevant Project Personnel Environment Manager Project Delivery Manager	Monitoring Records Monthly Environment Report
AQ7	Spoil/earthworks loads should be covered.	CEMF	Construction	Relevant Project Personnel Environment Manager Project Delivery Manager	ESCP

ID	MITIGATION MEASURE	SOURCE	TIMING	RESPONSIBILITY	DELIVERABLE
AQ8	Construction activities with the potential to generate dust will be modified during unfavourable weather conditions to reduce the potential for dust generation	MR	Construction	Environment Manager Project Delivery Manager	Daily Diaries
AQ9	Appropriate measures to reduce potential dust generation, such as the use of water carts and surface treatments, will be implemented within Project sites as required	MR	Construction	Environment Manager Project Delivery Manager	ESCP
AQ10	Access roads and surfaces within project sites and site accesses will be maintained and managed to reduce dust generation	MR	Construction	Environment Manager Project Delivery Manager	ESCP
AQ11	Storage of materials that have the potential to result in dust generation will be minimised within Project sites	MR	Construction	Environment Manager Project Delivery Manager	ESCP
AQ12	Minimise areas of exposed soil at all times, where possible, to reduce the potential for dust generation	MR	Construction	Environment Manager Project Delivery Manager	ESCP
AQ13	Haul roads will be treated with water carts and monitored during earthworks operations, ceasing works if necessary during high winds where dust controls are not effective	MR	Construction	Project Delivery Manager Supervisors	ESCP Daily Diaries
AQ14	All site personnel must report observations of release of dust from the premises to supervisory staff so that appropriate management measures can be implemented	MR	Construction	All workforce	Induction Daily Diaries
AQ15	Construction plant and equipment will be operated, inspected and maintained to maximise efficiency and comply with relevant emission standards	MR	Construction	Machine operators	Pre-start inspection checklist

7 COMPLIANCE MANAGEMENT

7.1 Training

To ensure that this plan is effectively implemented, all site personnel (including sub-contractors) will undergo site induction training that includes construction air quality management issues prior to construction commencing. The induction training will address element related to air quality management including:

- Relevant legislation;
- The environmental management system;
- Complying with the CoA and UMMs;
- The CEMP;
- Incident response, management and reporting; and
- Specific responsibilities to minimise air quality impacts associated with the works.

Targeted training in the form of toolbox talks or specific training will also be delivered, as required, to personnel with a key role in air quality management or those undertaking an activity with a high risk of environmental impact

Daily pre-start meetings conducted by the Martinus Rail Foreman/Site Supervisor will inform the site workforce of any environmental issues relevant to air quality management that could potentially be impacted by, or impact on, the day's activities.

Further details regarding staff induction and training are outlined in Section 6 of the CEMP.

7.2 Inspection and monitoring

7.2.1 Inspections

Air quality will be visually monitored daily by site supervisors and weekly during the Environment and Sustainability Inspection. In addition, daily weather reports will be assessed to identify predicted windy conditions. Site inspections will be recorded in Site Supervisor Daily Diaries. Monitoring will include:

- Visible sources of dust and emissions
- Implementation and effectiveness of all dust controls
- Weather forecast will be checked daily to allow for proactive dust management actions
- Implementation of dust mitigation measures for effectiveness.

Weather forecasts and observations will be accessed and communicated through pre-starts and other tools. Plant pre-starts and inspections will be conducted and recorded to ensure that the plant is in good working order, and to ensure that there are no continuous visible emissions for longer than 10 seconds.

Site inspections will be recorded (along with actions and issues observed) and actioned appropriately within agreed timeframes. These inspections will be recorded as part of the Weekly Environmental Inspection Checklist and will also be used as a record of activities and observations related to air quality.

7.2.2 Monitoring

Additional air quality monitoring such as real-time monitoring will be undertaken based on the risk assessment process in Figure 1. This monitoring is expected for high risk activities such as excavation and demolition work.

Any exceedances of the air quality criteria listed in Table 3 will be investigated by the Martinus Rail Environment Manager (or suitable delegate) to determine the validity of the results and adjust management practices where required. The results and any exceedances and associated corrective measures will be reported to IR via the monthly report.

Any complaints will be managed in accordance with the Martinus Rail and IR Complaints Management Procedure which is detailed in the Community Communication Strategy.

7.2.3 Auditing

Audits (both internal and external) will be undertaken to assess the effectiveness of air quality management measures, compliance with this plan, conditions of approval and other relevant approvals, licenses and guidelines. Audit requirements are detailed in Section 9 of the CEMP.

7.2.4 Reporting and identified records

Reporting requirements and responsibilities are documented in Section 10 of the CEMP. Additionally, in the event of an incident or non-compliance, the Planning Secretary will be notified in writing of the findings of the review conducted by the project relating to the incident or non-compliance.

The project will maintain accurate records substantiating all construction activities associated with the project or relevant to the conditions of approval, including measures taken to implement this plan. Records will be made available to the Planning Secretary upon request, within the timeframe nominated in the request.

8 REVIEW AND IMPROVEMENT

8.1 Continuous improvement

Continuous improvement of this plan 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.

Issues requiring management during construction (including cumulative impacts), as identified through ongoing environmental risk analysis, will be managed through SMART principles.

The continuous improvement process will be designed to:

- Identify areas of opportunity for improvement of environmental management and performance;
- Identify environmental risks not already included in the risk register;
- Determine the cause or causes of non-conformances and deficiencies;
- Develop and implement a plan of corrective and preventative action to address any non-conformances 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.

Martinus Rail will be responsible for ensuring that project environmental risks are identified and included in the risk register and appropriate mitigation measures implemented throughout the construction of the project, as part of the continuous improvement process.

This continuous risk analysis approach will ensure prompt identification of new risks and ensure efficient mitigation through implementation of appropriate management measures, as outlined in Section 6.

8.2 Update and amendment

The processes described in Section 10 of the CEMP may result in the need to update or revise this Procedure.

Any revisions to this plan will be in accordance with the process outlined in Section 10.4 of the CEMP and reviewed and approved as described in Section 3.3.1 of the CEMP. A copy of the updated plan and changes will be distributed to all relevant stakeholders in accordance with the approved document control procedure.

APPENDIX A

PSR and CEMF requirements

PSR and CEMF requirements are internal requirements beyond the Infrastructure Approval. These have been included for internal quality control purposes and do not form part of management plan.

TABLE A1-A: INTERNAL PSRS AND CEMF REQUIREMENTS APPLICABLE TO THIS PLAN

No.	Requirement	Where addressed
PSR Appendix C Section 6.1.3 g)	The key environmental risk areas which the Contractor shall consider in development of the Construction Environmental Management Plan include, but are not limited to: g) air quality;	This plan
PSR Appendix C Section 8.8 e)	Without limiting clause 14.1(b) of the Deed, the Contractor shall keep the Site clean, tidy and free of rubbish and surplus material throughout the duration of the Project, including: e) ensuring that: i. dust emissions from Site are kept to a minimum and prevented from affecting areas outside the Site, tenanted and public areas and existing improvements. Should dust affect areas outside of the Site, the Contractor is liable for all costs, direct and indirect, related to the cleaning of the area and the rectification of damage caused by the dust; and	This plan Section 6 Noted.
	ii. dust control measures are implemented for external Works including access roads, storage areas, landscape work, excavations and the like; and"	Section 6
PSR Appendix F Section 6.1.31	The Contactor shall provide all documents and other information which are necessary to enable ARTC to comply with any obligations it may have under the relevant Act in respect of the NPI, or which ARTC (acting reasonably) may request in connection with the NPI.	Relevant information to be provided as required

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