JOHN HOLLAND

INLAND RAIL
ILLABO TO STOCKINBINGAL PROJECT

Air Quality Management Plan

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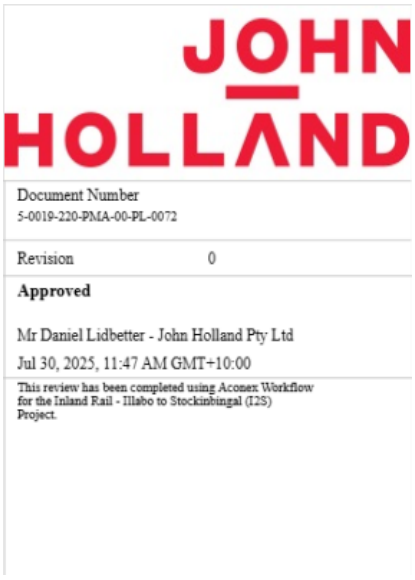
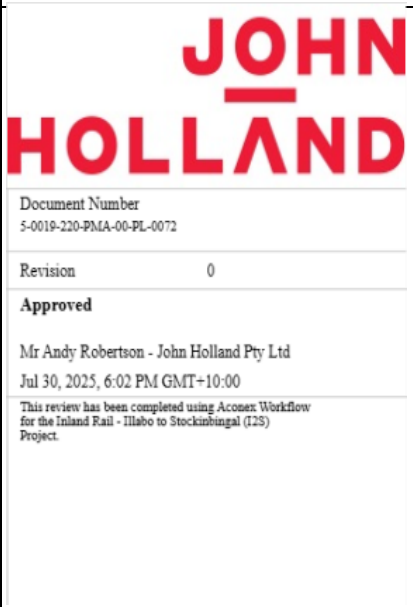
Signature **Date**		

Revision History

REVISION	DATE ISSUED	DESCRIPTION
A	25/10/2024	Issued for Review
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1 Revisions and Distribution

1.1 Revisions

Draft issues of this document are identified as Revision A, B, C etc. Following acceptance by the document approver, the first finalised revision will be Revision 0. Subsequent revisions will have an increase of “1” in the revision number (1, 2, 3 etc.).

1.2 Distribution

The controlled master version of this document is available for distribution as appropriate and maintained on the document management system being used on the project. All circulated hard copies of this document are deemed to be uncontrolled.

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2 References, Definitions and Abbreviations

2.1 Definitions and Abbreviations

Definitions and abbreviations to be applied to this Air Quality Management Plan are listed in Table 2-1.

Table 2-1 Definitions and Abbreviations relevant to this Air Quality Management Sub-Plan

Term / Abbreviation	Definition / Expanded text
AAQMS	Ambient air quality monitoring station
ACT	Australian Capital Territory
Air NEPM	*National Environment Protection (Ambient Air Quality) Measure*
Air Toxics NEPM	*National Environment Protection (Air Toxics) Measure*
ARTC	Australian Rail Track Corporation
AWS	Automatic Weather Station
BMSP	Biodiversity Management Sub-Plan
BoM	Bureau of Meteorology
CCS	Community Communication Strategy
CEMP	Construction Environmental Management Plan
CoA	Conditions of Approval
CO	Carbon monoxide
Construction	Includes work required to construct the CSSI as defined in the documents listed in Condition A1, including commissioning trials of equipment and temporary use of any part of the CSSI, but excluding low impact work which is carried out or completed prior to approval of the CEMP
CSSI	Critical State Significant Infrastructure, as generally described in Schedule 1 (of the Conditions of Approval), the carrying out of which is approved under the terms of the Conditions of Approval.
DCCEEW	Department of Climate Change, Energy, the Environment and Water
Dust deposition	The removal of particles by dry deposition through gravity, impaction and diffusion or wet deposition in or below clouds.
DPHI	NSW Department of Planning, Housing and Infrastructure, formerly NSW Department of Planning and Environment (DPE)
EIS	The Environmental Impact Statement referred to in Condition A1 submitted to the Planning Secretary seeking approval to carry out the CSSI described in it, as revised if required by the Planning Secretary under the EP&A Act, and including any additional information provided by the Proponent in support of the application for approval of the CSSI
EMS	Environmental Management System
Environment	Includes all aspects of the surroundings of humans, whether affecting any human as an individual or in his or her social groupings.

Term / Abbreviation	Definition / Expanded text
Environmental Assessment Documentation	• Inland Rail – Illabo to Stockinbingal Environmental Impact Statement (ARTC 2022) • Illabo to Stockinbingal Project Response to Submissions (ARTC 2023) • Response to Submissions – Appendix E - Biodiversity Development Assessment Report version 12 (IRDJV, June 2024) • I2S – Mitigation Measures (Inland Rail, April 2024) • Illabo to Stockinbingal (SSI-9604) Additional and Appropriate Measures for Box Gum Woodland Impacts (Inland Rail, June 2024) • Technical and Approvals Consultancy Services: Illabo to Stockinbingal – Box Gum Woodland Gum Flat Rehabilitation Opportunity (IRDJV, June 2024)
EPA	Environment Protection Authority
EP&A Act	*Environmental Planning and Assessment Act 1979*
EPBC Act	Commonwealth *Environment Protection and Biodiversity Conservation*
EPL	Environment Protection Licence under the *Protection of the Environment Operations Act 1997*
ER	Environmental Representative for the CSSI as approved by the Planning Secretary
IMS	John Holland Integrated Management System
Incident	An occurrence or set of circumstances that causes or threatens to cause material harm and which may or may not be or cause a non-compliance.
IRPL	Inland Rail Pty Ltd
ISC	Infrastructure Sustainability Council
I2S	Inland Rail – Illabo to Stockinbingal Project
JHG	John Holland Group
LGA	Local Government Area
Material Harm	is harm that: (a) involves actual or potential harm to the health or safety of human beings or to the environment that is not trivial; or (b) results in actual or potential loss or property damage of an amount, or amounts in aggregate, exceeding $10,000, (such loss includes the reasonable costs and expenses that would be incurred in taking all reasonable and practicable measures to prevent, mitigate or make good harm to the environment).
Non-compliance	An occurrence, set of circumstances or development that is a breach of this approval.
NSW	New South Wales
NOx	Oxides of nitrogen
NO_2	Nitrogen dioxide
PAH	Polycyclic aromatic Hydrocarbons
PDCA	Plan-Do-Check-Act
Planning Secretary	Planning Secretary of the Department (or nominee, whether nominated before or after the date on which this approval was granted).
PM	Particulate matter
PM_{10}	Particulate Matter less than 10 microns in aerodynamic diameter
$PM_{2.5}$	Particulate Matter less than 2.5 microns in aerodynamic diameter

Term / Abbreviation	Definition / Expanded text
POEO Act	*Protection of the Environment Operations Act 1997*
Project	Inland Rail – Illabo to Stockinbingal Project
SMART	Specific, Measurable, Achievable, Realistic and Timely
SSI	State Significant Infrastructure
RMMs	Revised Mitigation Measures
SO_2	Sulfur dioxide
SWMSP	Soil and Water Management Sub-Plan
SVOCs	Semi-volatile organic compounds
The 'Blue Book'	*Managing Urban Stormwater – Guidelines published by Landcom, 2004* and used for industry best practice erosion and sediment control planning and management
TSP	Total suspended particulates are particles of less than 100 micrometres
Work	Any physical work for the purpose of the CSSI including construction and low impact work but not including operational maintenance work.
VOCs	Volatile Organic Compounds

2.2 Compliance Roadmap

The Inland Rail – Illabo to Stockinbingal Project (I2S), the Project, is subject to both state and federal approval. Further Project background is provided in Section 3.2.

The following section provides a tabular representation of the Project approval requirements, as described in the State Conditions of Approval (CoA) (SSI-9406), and a reference link to detail how these requirements would be achieved during Project delivery. It's noted that there are no air quality specific CoA in the Federal Approval (EPBC 2018/8233).

A cross reference is also included to indicate where each requirement is addressed in this Air Quality Management Sub-Plan (AQMP) or other Project management documentation.

2.2.1 State Conditions of Approval

The CSSI CoA relevant to the Project and the AQMP under the *Environmental Planning and Assessment Act 1979* are provided in Table 2-2.

Table 2-2 State CoA relevant to the AQMP

CoA No.	Condition Requirements	Document Reference
C16	CEMP(s) (and relevant CEMP sub-plans) not requiring the Planning Secretary's approval, but requiring ER endorsement, must be submitted to the ER no later than one (1) month before the commencement of construction or where construction is staged no later than one (1) month before the commencement of that stage. The CEMPs (and relevant CEMP sub-plans) must be endorsed by the ER as being consistent with the conditions of this approval and all undertakings made in the documents listed in Condition A1.	Section 3.4.3
E162	In addition to the performance outcomes, commitments and mitigation measures specified in the documents listed in Condition A1, all practicable measures must be implemented to minimise the emission of dust, odour and other air pollutants during the construction and operation of the CSSI.	Section 4 and 8

2.2.1 Revised Mitigation Measures

The Revised Mitigation Measures relevant to the development of this AQMP are listed in Table 2-3.

Table 2-3 Revised Mitigation Measures relevant to this Plan

Ref.	Issue	Mitigation Measure	Timing	AQMP Reference
AQ-1	General air quality management	An air quality management plan would be prepared and implemented as part of the CEMP. It would include measures to minimise the potential for air quality impacts on the local community and environment, and would address all aspects of construction, including: • spoil handling • machinery operating procedures • soil treatments • stockpile management • haulage dust suppression • monitoring.	Pre-Construction Construction	This plan
AQ-2	Construction activities and earthworks that may cause dust impact	Where sensitive receptors are located within the study area (350 m from construction footprint and 50 m of the route(s) used by construction vehicles on public roads, up to 500 m from the site access points) determined for each key activity, or visible dust is generated from vehicles using unsealed access roads, road watering and/or other stabilising approaches would be implemented.	Construction	Table 8-1
AQ-3	Blasting management	Blasting will not be undertaken if the prevailing wind conditions are likely to transport dust emissions towards the nearest sensitive receptors.	Construction	Table 8-1
AQ-4	Impacts on sensitive receivers (communications)	Where sensitive receivers are located in close proximity to construction sites, especially sites 4 and 6: • implement the Inland Rail Communications and Engagement Strategy, which would include community engagement before work commences onsite • display the name and contact details of person(s) accountable for air quality and dust issues on the site boundary • display the head or regional office contact information.	Construction	Table 8-1

3 Introduction

3.1 Context

This AQMP forms part of the Construction Environmental Management Plan (CEMP) for the Inland Rail – Illabo to Stockinbingal Project (the Project).

This Plan has been prepared to address the requirements related to air quality management associated with the Infrastructure Approval (SSI-9406), the measures listed in the Environmental Impact Statement (EIS) as amended by the Submissions Report (known as RMMs), Environmental Protection Licence (EPL) and all applicable legislation, guidelines, standards and specifications.

3.2 Background

3.2.1 The Project

The Project is located in south-western New South Wales (NSW) in the Riverina region (refer to Figure 3-1). Illabo is a small town located at the southern end of the alignment 16 kilometres (km) north-east of Junee in the Junee Local Government Area (LGA).

Stockinbingal is situated at the northern end of the Project, approximately 20 km north-west of Cootamundra in the Cootamundra–Gundagai Regional LGA. The major towns surrounding the Project are Wagga Wagga, about 50 km to the south, Young to the north-east and Cootamundra to the east.

The Project comprises a new rail corridor that would connect Illabo to Stockinbingal. The alignment branches out from the existing rail line north-east of Illabo and travels north to join the Stockinbingal–Parkes Line west of Stockinbingal. The route will travel primarily through undeveloped land predominantly used for agriculture.

The Project includes modifications to the tie-in points at Illabo and Stockinbingal to allow for trains to safely enter and exit the Illabo to Stockinbingal section of Inland Rail. The alignment also crosses several local and private roads, watercourses and privately owned properties. Additionally, no major towns are located within the Project site between Illabo and Stockinbingal.

The Project will include a total extent of approximately 42.5 km, including 39 km of new, greenfield railway which will incorporate the following key features:

- single track standard gauge on a combination of existing ground level embankments and within cuttings
- new bridges and road overpasses
- crossing loop and maintenance siding
- new level crossings, stock crossings and upgrades to existing level crossings
- new major stormwater diversion and minor drainage works associated with installation and upgrades to culverts.

The Project will also include upgrades to approximately 3 km of existing track associated with tie-in works and construction of an additional 1.7 km of new track to maintain the existing rail network connections. Road upgrade works will also be undertaken to re-align approximately 1.4 km of Burley Griffin Way to provide a road-over-rail bridge at Stockinbingal. Re-alignment of Ironbong Road will also be completed to allow for safe sight lines. A temporary workforce accommodation camp will also be constructed to house the workforce for the duration of the Project.

A detailed Project description is provided in Section 3 of the CEMP. Key features of the Project are shown on Figure 3-2.

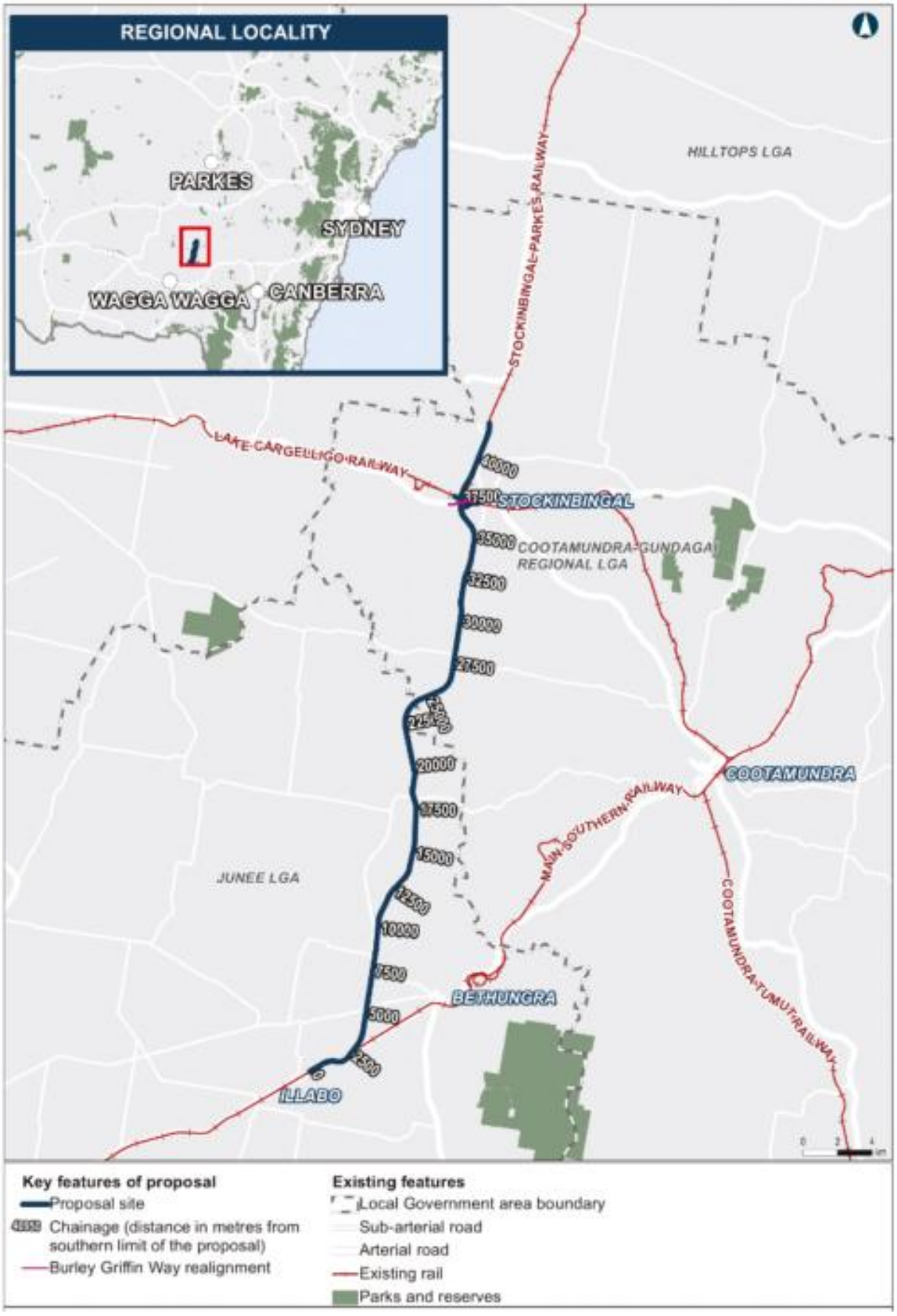

Figure 3-1 Project locality (Source: Illabo to Stockinbingal - Environmental Impact Statement, 2022)

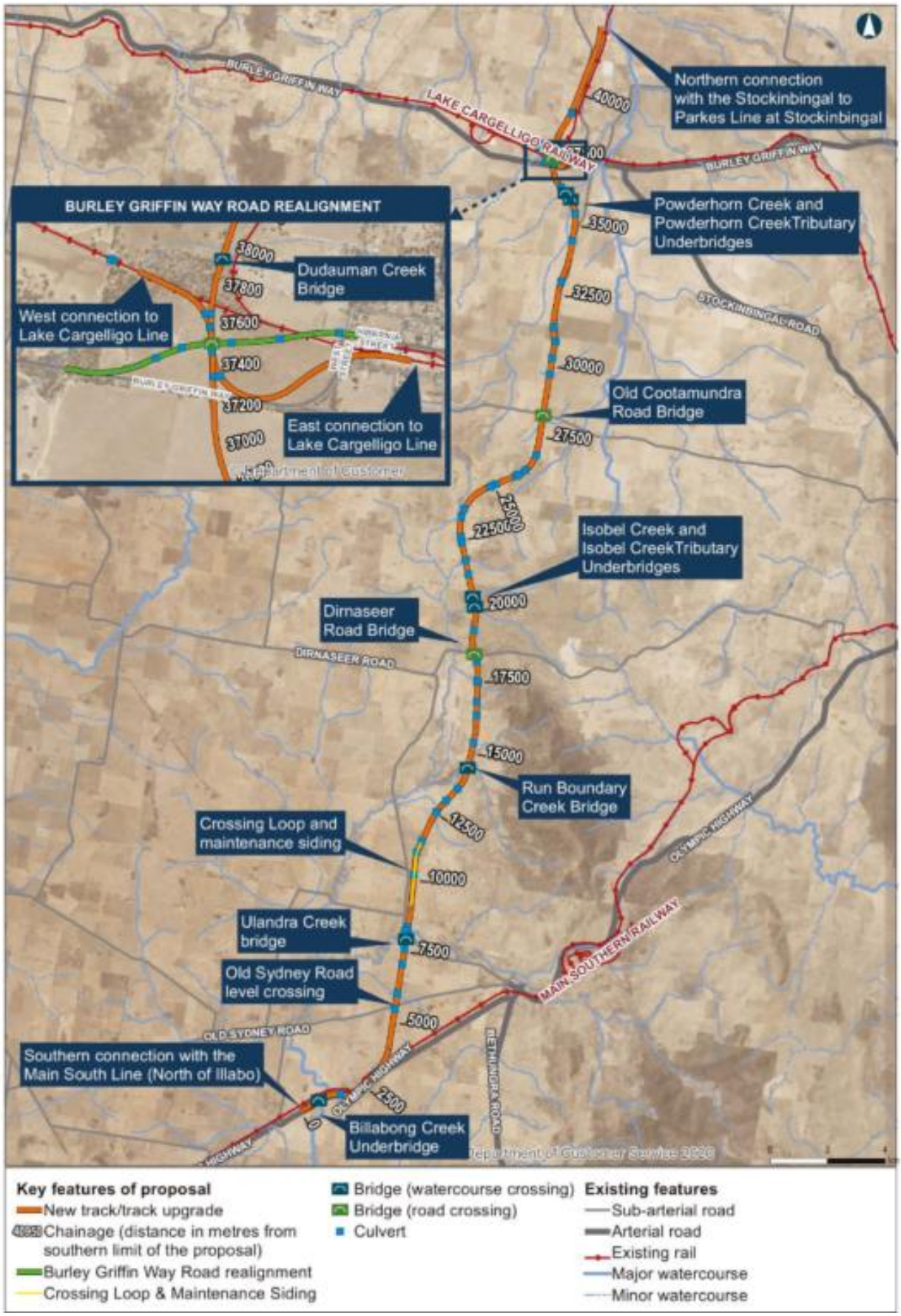

Figure 3-2 Key Project features (Source: Illabo to Stockinbingal - Environmental Impact Statement, 2022)

3.2.2 Statutory Context

The Project was declared Critical State Significant Infrastructure (CSSI) in 2021, requiring approval under Division 5.2 of the NSW Environmental Planning and Assessment Act 1979. In accordance with the Secretary's Environmental Assessment Requirements (SEARs) (dated 30 April 2021), an EIS was prepared by Australian Rail Track Corporation (ARTC) in August 2022. The EIS was exhibited by the Department of Planning, Housing and Infrastructure (DPHI) for a period of six (6) weeks, commencing on 14 September 2022 and concluding on 26 October 2022.

Following public exhibition of the EIS, ARTC prepared a Submissions Report to respond to submissions and describe Project design refinements.

Approval for the Project was granted on 4 September 2024 by the Minister for Planning (SSI-9406) and was subject to a number of CoAs.

The Project was determined to be a controlled action under the EPBC Act. The Project received EPBC Controlled Action Approval from Department of Climate Change, Energy, the Environment and Water (DCCEEW) (EPBC Referral 2018/8233) on 28 October 2024.

3.3 Scope of the AQMP

This AQMP 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 construction works, and under the control of the contractor John Holland Group (JHG). All JHG staff and sub-contractors are required to comply with the requirements of this Plan and related environmental management plans over the full duration of the construction program.

The scope of this AQMP is to describe how the potential air quality and dust impacts will be managed during construction of the Project and includes:

- a description of Project construction activities.
- environmental obligations attached to the Project.
- legislation and external licences, permits and approvals required for the Project.
- objectives, targets and performance criteria.
- the existing environment in relation to air quality.
- air quality impacts by the Project.
- mitigation measures to manage air quality impacts which will be implemented through the Project.
- describes compliance management items including roles and responsibilities, training, monitoring and inspections, non-compliance protocols, incident response, auditing, reporting complaints management etc.
- Describes review and improvement requirements for the Project.

Operational air quality impacts and operational measures do not fall within the scope of this AQMP and therefore are not included within the processes contained within this AQMP.

3.4 Environmental Management Systems Overview

3.4.1 Environmental Management Systems

The Project Environmental Management System (EMS) is based on the ISO 14001 accredited JHG EMS, which itself forms part of the overall JHG Integrated Management System (IMS), tailored to satisfy Project-specific requirements. It provides a framework to ensure an integrated approach to meeting Project requirements and defines how the Project will minimise impacts to the environment. It comprises a

combination of governance documentation, Project-specific management plans (including this AQMP), procedures and tools.

The basis for the EMS is the concept of Plan-Do-Check-Act (PDCA), as shown in Figure 3-3.

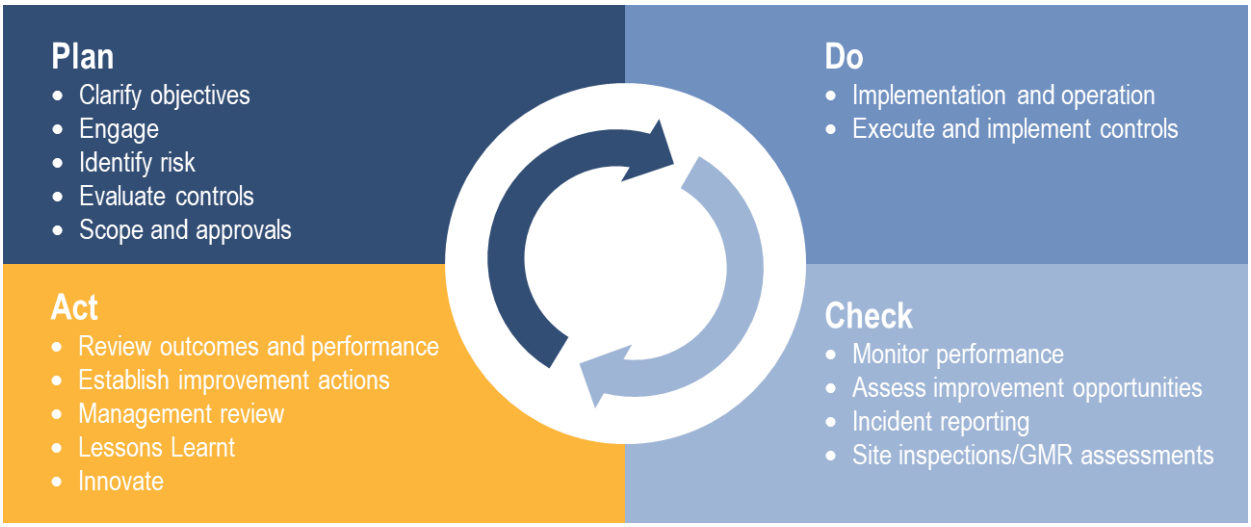

Figure 3-3 PDCA model

The PDCA model provides an iterative process to achieve continual improvement. As applied to the Project environmental processes, it can be briefly described as follows:

- **Plan**: Establish environmental objectives and processes necessary to deliver results in accordance with the JHG environmental policy.
- **Do**: Implement the environmental processes as planned.
- **Check**: Monitor and measure processes against the environmental policy, including its commitments, environmental objectives, and operating criteria, and report the results.
- **Act:** to continually improve the environmental processes.

The framework introduced in ISO14001 is integrated into a PDCA model within the EMS and in turn the Project CEMP and this AQMP.

In accordance with the JHG Environmental Policy (refer to Appendix A5 of the CEMP), the Project will:

- Continually improve the EMS to enhance performance, through management review and CEMP and AQMP revisions
- Maintain third party certification of the overarching EMS to ISO 14001 with independent verification of implementation and effectiveness.

The EMS provides structure to environmental management of the Project and covers areas such as training, record management, inspections, objectives, and policies. This CEMP has been prepared as part of the EMS using JHG documentation as the basis for some documents (Figure 3-4).

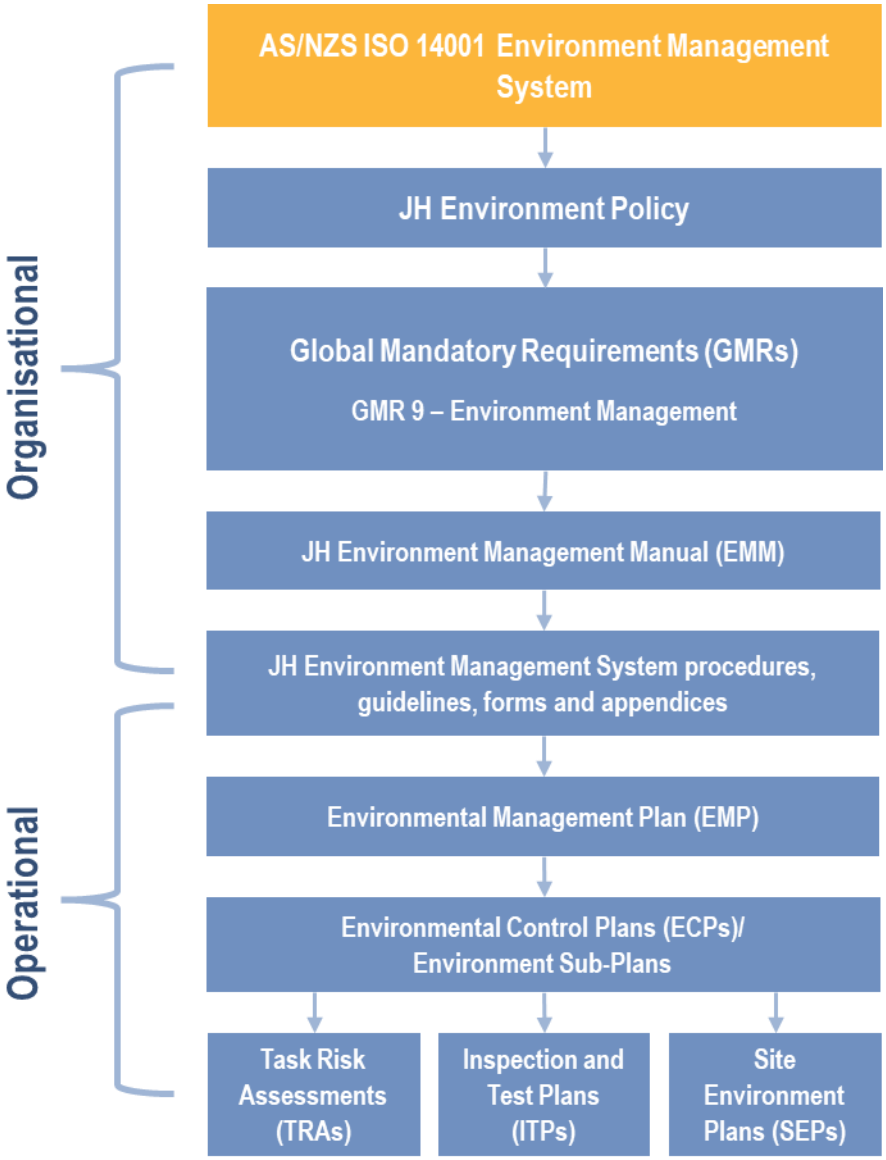

Figure 3-4 – EMS structure

The EMS contains policies, standards, manuals, plans, procedures, processes, and other documents that enable the Project to achieve its objectives through planned and controlled processes.

3.4.2 Global Mandatory Requirements

JHG's Global Mandatory Requirements (GMRs) outline the control strategies and minimum standards for managing, and where possible, eliminating key risks across the Project. These standards have been developed to:

- Minimise the impact of our activities on the environment and communities.
- Reduce our use of natural resources and energy, and the generation of waste.
- Be a reliable and trustworthy partner to our customers, dedicated to providing environmentally sustainable solutions throughout our diverse business.

The GMR's form part of the Project EMS and are to be used as tools in development of planning documents for management of environmental risks / impacts.

GMR's which are relevant to this AQMP and will be implemented include GMR 9 – Environmental Management.

3.4.3 AQMP preparation, endorsement and approval

The AQMP has been prepared to satisfy the RMM AQ-1 in relation to air quality management during construction of the Project. In accordance with CoA C16, this AQMP will be submitted to the ER no later than 1 month before the commencement of construction or where construction is staged no later than 1 month before the commencement of that stage. This AQMP must be endorsed by the ER as being consistent with the CoA and all undertakings made in the documents listed in CoA A1.

3.4.4 Interactions with other management plans and strategies

This AQMP is a sub-plan to the CEMP. The following sub-plans are of most relevance to the AQMP and should be read in conjunction with this plan:

- Soil and Water Management Sub-plan (SWMSP), which identifies procedures for minimising erosion within the construction footprint and provides measures which assist in minimising sources of dust.
- Biodiversity Management Sub-plan (BMSP) which details the clearing processes to be undertaken which assist in minimising sources of dust during construction.
- Waste Management Sub-plan, which identifies the appropriate storage, handling, treatment, reuse, recycling and/or disposal of construction waste material, that may generate offensive odours and/or gases.
- Blasting Management Strategy which has been developed to ensure that all blasting and associated activities are carried out so as not to generate unacceptable dust, noise and vibration impacts or pose a significant risk to sensitive receivers.

4 Purpose and Objectives

4.1 Purpose

The purpose of this AQMP is to describe how JHG will manage the potential air quality impacts during the construction of the Project in accordance with Specific, Measurable, Achievable, Realistic and Timely (**SMART**) principles. These include:

- **S**pecific – air quality management measures explored in Section 8 of this AQMP specifically speak to JHGs approach to dust generation and other potential air quality impacts during construction which was identified in the EIS as a key impact.
- **M**easurable – Inspection and monitoring requirements detailed in Section 9.3 of this Plan include specific measures or indicators for which inspection and monitoring requirements will be triggered.
- **A**chievable – Ongoing compliance with relevant infrastructure approval (SSI-9460), RMMs and EPL in Section 2.2, is achievable throughout the delivery of the Project and represents the minimum requirements to be implemented by JHG.
- **R**elevant - The management measures outlined in Section 8 of this Plan represent JHG's approach to monitoring and tracking against the objectives, targets and environmental performance outcomes (which are identified in Section 4.3 of this AQMP).
- **T**ime-bound – On a broader scale, the management measures set out within Section 8 of this Plan are required to be implemented for the duration of construction, setting a clear and defined time frame.

4.2 Objectives

The objective of this AQMP is to ensure that all avoidance, mitigation and management measures relevant to air quality matters within the following documents, are adopted and implemented.

- The EIS prepared for the Project
- The Submissions Report prepared for the Project, including the RMMs
- Infrastructure Approval (SSI-9406) and associated CoA
- Commonwealth EPBC Controlled Action Approval (EPBC 2018/8233)
- Relevant conditions of the Project's EPL (EPL application currently being assessed)
- IRPL Specifications
- Legislative requirements detailed in Section 5 of this AQMP.

4.3 Performance Targets

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

- Ensure compliance with the relevant legislative requirements, Infrastructure Approval (SSI-9406), Submissions Report and relevant RMMs and the Project EPL (Section 2).
- Manage complaints from the community and stakeholders in accordance with the complaints management process detailed in the CEMP (Section 7.6 of the CEMP).
- Manage potential air quality / dust impacts during the construction of the Project through the implementation of feasible and reasonable air quality management measures (Section 8).
- Ensure training and awareness on air quality management is provided to 100% of construction personnel through site inductions (Table 8-1).

- Maintain all plant and equipment in accordance with manufacturer's requirements (Table 8.1).

4.4 Air Quality Goals

As dust is the significant air quality issue on the project, the following air quality goals have been established.

Pollutant	Averaging Period	Criteria
PM_{10}	24 hours	$50\mu g/m^{3}$, [1]
Dust deposition	Annual	$2g/m^2/month^2$

1. Based on Air NEPM and the approved methods
2. Maximum increment. Maximum cumulative impact of $4g/m^2/month$

5 Environmental requirements

5.1 Relevant legislation and guidelines

The primary legislation, guidelines and standards relevant to air quality management are presented in Table 5-1. Also refer to Appendix A1 of the CEMP for a full register of legal requirements for the Project.

Table 5-1 Principal legislation and guidelines relevant to Air Quality Management

Legislation	• *Environmental Planning and Assessment Act 1979* (EP&A Act) • *Protection of the Environment Operations Act 1997* (POEO Act) • *Protection of the Environment Operations (Clean Air) Regulation 2022* • *Protection of the Environment Operations (General) Regulation 2022*
Guidelines and Specifications	• *National Environment Protection Measure for Ambient Air Quality (NEPM-AAQ) National Environment Protection Council (NEPC, 2016) National Environment Protection Measure for Air Toxics (Air Toxics NEPM)* (NEPC, 2011) • *Australian Standard AS 3580.1.1-2007 Methods of Sampling Analysis of Ambient Air. Part 1.1 Guide to Siting Air Monitoring Equipment* • *Australian Standard AS 3580.10.1-2016 Methods of Sampling Analysis of Ambient Air. Determination of Particulate Matter – Deposited Matter - Gravimetric Metho*d • *Approved Methods for Modelling and Assessment of Air Pollutants in NSW* (NSW EPA, 2022) • *Approved Methods for the Sampling and Analysis of Air Pollutants in NSW* (NSW EPA, 2022) • *Air Emissions Inventory for the Greater Metropolitan Region in New South Wales* (EPA, 2012) • *Technical Framework: Assessment and management of odour from stationary sources in NSW* (Department of Environment and Conservation, 2006) • *Government Resource Efficiency Policy (NSW Office of Environment and Heritage* (OEH, 2014)

5.2 Environment Protection Licence

The Project is subject to an Environment Protection Licence (EPL) as a Scheduled Activity for ‘rail construction’. EPLs require practical measures that could be taken to protect the environment from harm, including management of air quality. Compliance with the obligations of the EPL assist in avoiding indirect impacts through pollution or other disturbances. The Project will be constructed so as to meet requirements identified in the EPL.

5.3 Infrastructure Sustainability (IS) Rating Scheme

In accordance with CoA E148, JHG is required to achieve a minimum ‘excellent’ rating for both ‘Design’ and ‘As built’ civil works, under the Infrastructure Sustainability Council (ISC) of Australia infrastructure rating tool, or through the use of an equivalent process or an equivalent level of performance using a demonstrated equivalent rating tool. JHG will be delivering a the ISC rating using v1.2.

The implementation of ISC requirements is embedded across all relevant works and environmental management practices. Air quality will be managed under the relevant credits including Dis-4 and will be aligned with commitments made in the Project Sustainability Management Plan. Some key requirements, goals and measures relevant to noise and vibration are provided in Table 5-2.

Table 5-2 ISC rating requirements for air quality

Credit	Credit Name	Benchmark	Must Statement	Requirements	Where addressed
Dis-4	Air quality	**Level 1** – Measures to minimise adverse impacts to local air quality during construction and operation have been identified and implemented. AND Monitoring of air emissions and/or air quality is undertaken at appropriate intervals and in response to complaints during construction	Air emission or air quality goals (see section 4.4) are limits that must not be exceeded or levels that the project aims to keep within.	- Baseline studies should be undertaken and air quality predictions established to inform the management process and measures. - Measures should be documented in management plans such as Construction and Operational Environmental Management Plans or specific Air Quality Management Plans - Air emission or air quality goals should be based on relevant regulations and the advice of a qualified air quality specialist.	Section 8, 9
		Level 2 – The requirements for Level 1 are achieved. AND Monitoring and modelling demonstrates no recurring or major exceedances of air emission or air quality goals.	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 8, 9
		Level 3 – The requirements for Level 2 are achieved. AND Monitoring and modelling demonstrates no exceedances of air emission or air quality goals.			Section 8, 9

6 Existing environment

This section summarises the existing air quality conditions within and adjacent to the Project, based on information contained in the EIS.

6.1 Surrounding receivers

A total of 108 sensitive receivers were identified within 350 m of the Project site, 19 of which are also located within 50 m of haulage routes and up to 500 m from site access points. The majority of sensitive receivers are located in Stockinbingal. South of Stockinbingal, sensitive receivers are typically present as isolated rural dwellings within open farmland.

Figure 6-1 and Figure 6-2 shows the location and type of sensitive receivers within proximity to the Project.

Most receivers located in Stockinbingal are residential dwellings. An educational facility and place of worship are also located in Stockinbingal, along with several receivers used for commercial and active recreation purposes. The minimum distance to the nearest residential property has been identified as a receiver on Troy Street, located about 50 m from the Project site.

Seven construction sites (Sites 1 to 7) and three haulage routes were identified where sensitive receivers are located nearby, outlined in Appendix A of Technical Paper 15.

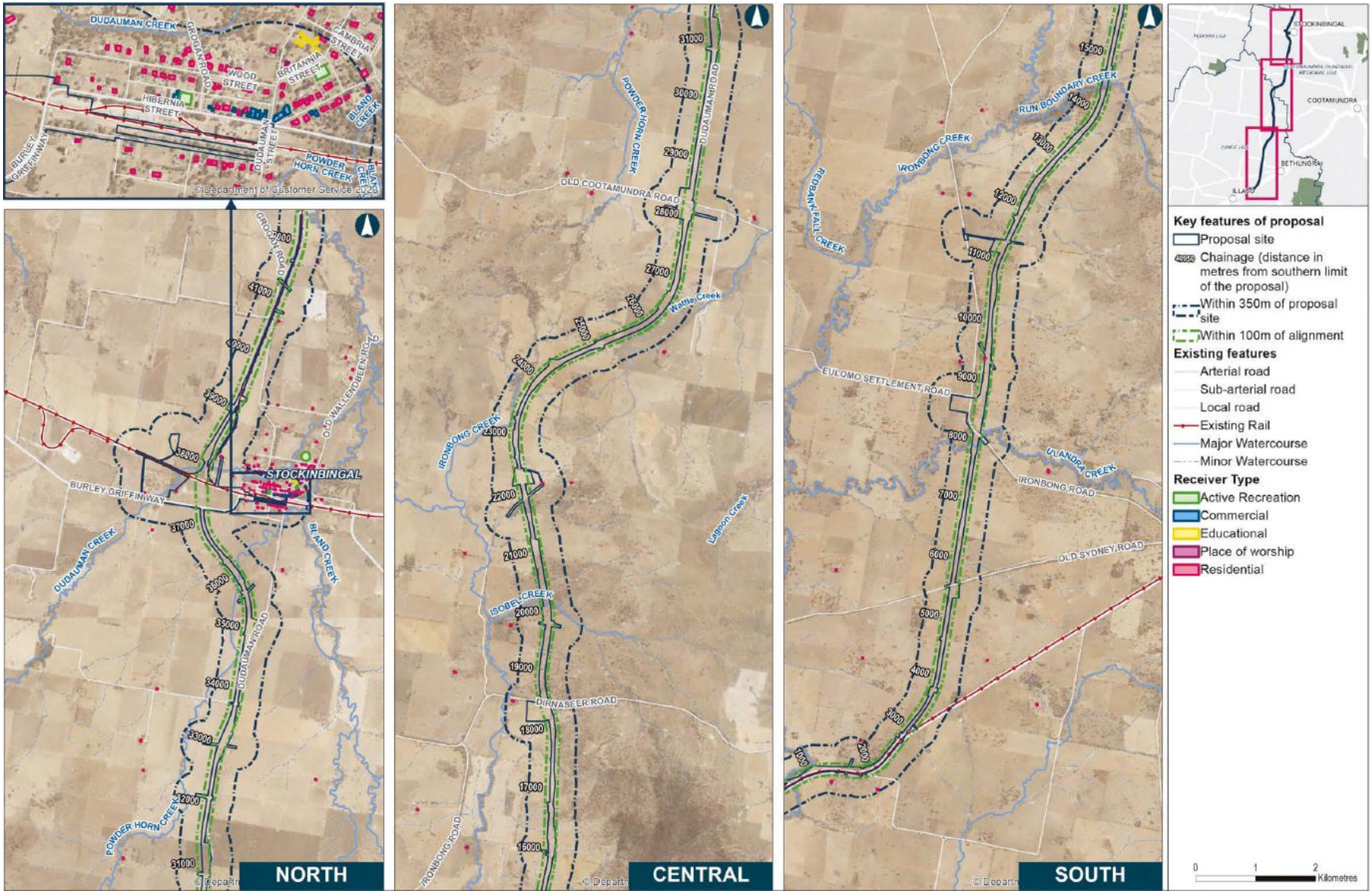

Figure 6-1 Location of sensitive receivers within and adjacent to the Project boundary. Sourced from the EIS Chapter 24 – Air Quality

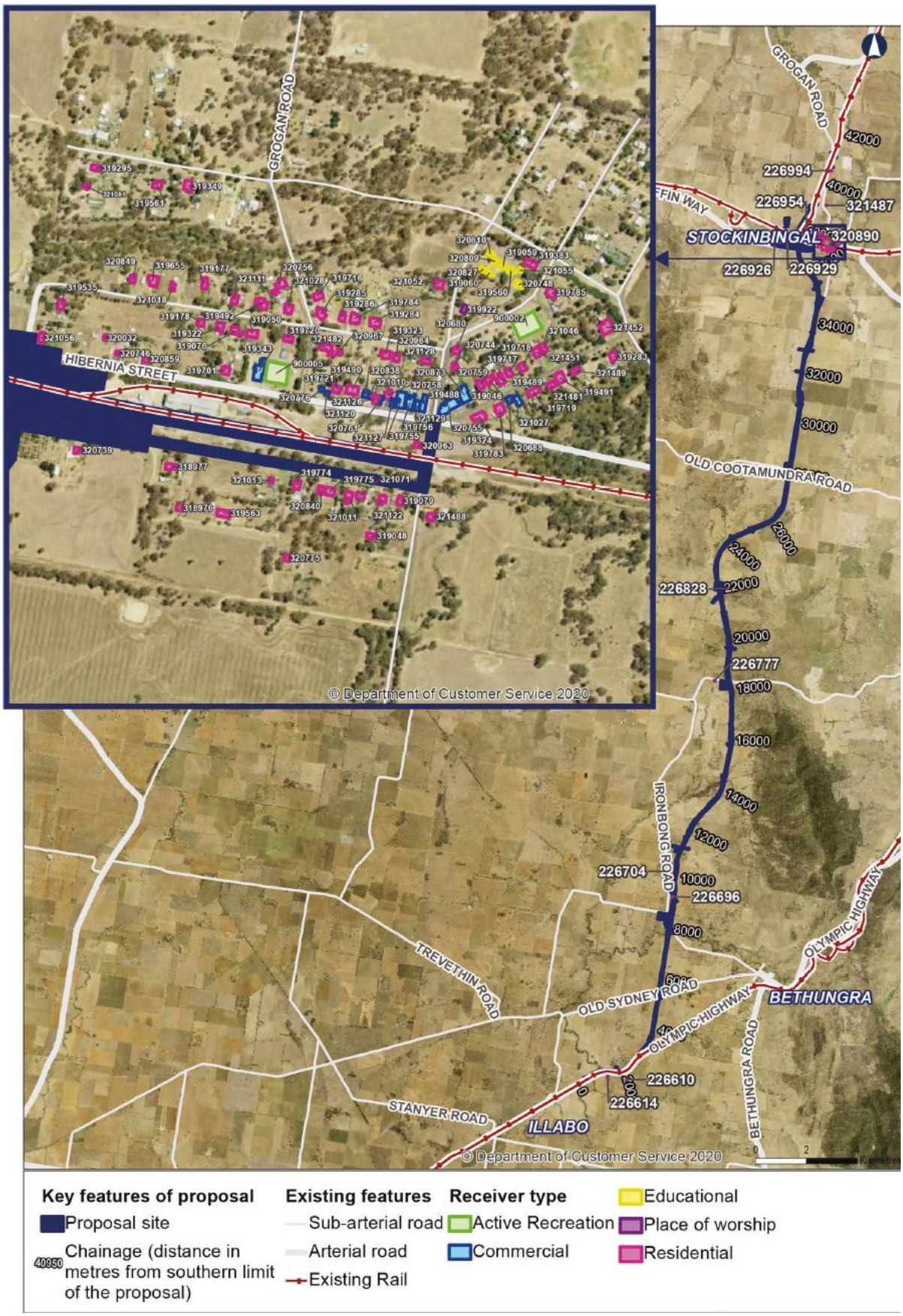

Figure 6-2 Location of sensitive receivers within and adjacent to the Project boundary at the Stockinbingal township. Sourced from the EIS Chapter 24 – Air Quality

6.2 Climatic conditions

Climate data was obtained from the Bureau of Meteorology (BoM) Cootamundra Airport site (site number 073142) and the Temora Airport site (site number 073151). These automatic weather station sites are located near to the Project and characterises the local meteorology using the most recent long-term dataset available.

Temperature statistics from Cootamundra Airport and the Temora Airport site exhibit a climate of hot and dry summers and cold winters. The hottest month is January, with a mean maximum temperature of 32.3 degrees Celsius (°C) and 34.3 °C respectively. In the coldest month of July, mean minimum and maximum temperatures range between 1.1 °C and 13 °C at Cootamundra Airport, and 2.2 °C and 13.8 °C at Temora Airport.

The Cootamundra Airport site receives an average of 583.3 millimetres (mm) of rainfall per year, while the Temora Airport site receives an average of 471.5 mm per year. For both locations, autumn is the driest season of the year with the driest month occurring in April, having the lowest mean rainfall annually.

The BoM provides detailed wind conditions data at Temora Airport Automatic Weather Station, including 1 minute average wind speed. The seasonal and annual wind rose plots are presented in Figure 6-3 for the five years (from 2016 to 2020). Typical winds at Temora Airport most frequently come from the east and south-westerly directions and rarely from the southeast. The average windspeed was 3.6 m/s over the five years, with calm winds of 8.3%.

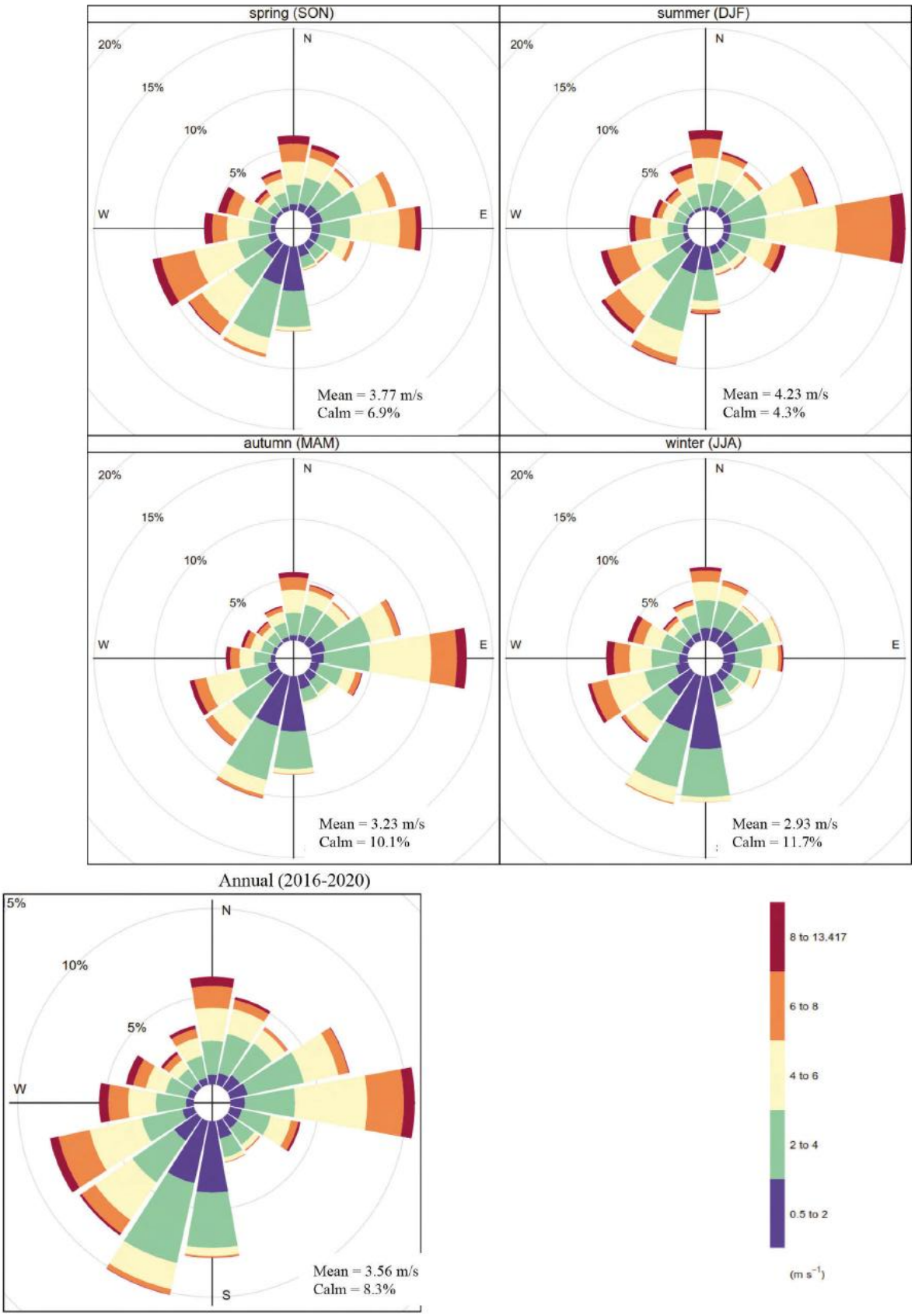

Figure 6-3 Temora Airport Automatic Weather Station Wind Roses (2016-2020). Sourced from the EIS Chapter 24 – Air Quality

6.3 Existing air quality

The main industrial and non-industrial air emission sources contributing to the local airshed include:

- traffic using the local road networks
- railway operations on the existing rail line adjoining the Project at its northern and southern extents
- fuel storage facilities
- gas metering stations
- domestic solid and liquid fuel burning
- dust from paved and unpaved roads
- residential activities (e.g. barbecues)
- agricultural activities.

These pollutant sources give rise to emissions of pollutants relevant to the Project including particulate matter (PM) fractions (TSP, PM_{10} and $PM_{2.5}$), NOx comprising NO_2 and NO, CO, SO_2, VOCs and SVOCs e.g. PAHs.

6.3.1 Adopted background concentrations

The two nearest Ambient air quality monitoring station (AAQMSs) to the Project site are Junee AAQMS and Temora AAQMS, 14 kilometres and 34 kilometres to the Project respectively, but only TSP was monitored at both sites.

Due to the remoteness of the Project site, the presence of AAQMS in the surrounding area was limited. The following datasets from other AAQMS were therefore adopted for use as background air quality in the EIS:

- PM_{10} and $PM_{2.5}$ at Wagga Wagga AAQMS (NSW): 40 kilometres south-west of the Project
- CO and NO_2 data at Florey AAQMS (ACT): 125 kilometres south-east of the Project
- SO_2 data at Bargo AAQMS (NSW) 245 kilometres east of the Project.

Both Florey and Bargo AAQMSs are located in more densely populated areas than the Project site. As such, NO_2, CO and SO_2 concentrations are likely to be higher than at the Project site primarily due to higher vehicular traffic emissions.

There is currently no available air quality monitoring data of VOCs, such as benzene or PAHs at any of the nearby AAQMS. The contribution of VOCs and PAHs from the Project is anticipated to be minor and background concentrations are likely to be low. Consequently, incremental impacts of VOCs (as benzene) and PAHs were assessed incrementally i.e. from the Project only.

The ambient air quality at each of the AAQMSs is summarised for the years 2016 to 2020.

The monitoring results indicate that:

- annual average TSP data were below the assessment criterion as prescribed in the Approved Methods
- 24-hour and annual average PM_{10} and $PM_{2.5}$ concentrations exceeded the relevant Air NEPM standards in some of the five years
- these exceedances were likely caused by dust storms or local dust events occurring at the Wagga Wagga AAQMS. Traffic on the local road network and domestic activities may also

contribute to the elevated concentrations. PM concentrations at the Project site are expected to be similar or lower than that at Wagga Wagga North, given its more remote location

- SO_2 concentrations were compliant with the Air NEPM standards for all five years
- CO and NO_2 concentrations were compliant with relevant Air NEPM standards for 2016 to 2019 but exceeded the Air NEPM standards in 2020. Exceedances in 2020 were likely caused by the severe bushfires in early 2020.

7 Environmental aspects and impacts

7.1 Construction activities

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

- Earthworks
- Geotechnical and soil investigations
- Establishment and operation of ancillary facilities and compounds
- Vegetation clearing and grubbing and mulching works
- Excavation
- Preparation of ballast deposition surface
- Installation of ballast layer
- Landscaping and finishing works
- Bridge preparation and installation
- Drainage works
- Topsoil / material handling including stripping, stockpiling, material loading and material haulage
- Vehicular movements over unpaved surface (including unsealed access roads)
- Temporary stockpiling which may result in wind erosion of exposed areas.
- Other potential air quality risks include exhaust emissions from construction plant and equipment, odour, and airborne hazardous materials.

7.2 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 of dust emissions. These include:

- 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.

7.3 Factors likely to affect gaseous emissions

7.3.1 Vehicle emissions

Diesel fuel combustion from vehicle movements and on-site plant and machinery operation would generate, CO, NO_x, SO_2 and trace amounts of non-combustible hydrocarbons (i.e. VOCs and PAHs) in addition to PM_{10} and $PM_{2.5}$. The emission rates and potential impact on surrounding areas would 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.

During the construction phase, equipment, materials and workers would be transported to the Project construction site along the Project and construction compounds on haulage roads and rail maintenance access roads.

Fuel combustion emissions from plant and equipment along the Project would be intermittent and transient. Given the anticipated duration of works at any given location, the likely numbers of emission sources, and scheduling of activities (i.e. not all machinery would be operating at the same location simultaneously), gaseous emissions are not anticipated to significantly influence local air quality. Emissions would be adequately manageable through the implementation of mitigation measures in section 8.

7.3.2 Fugitive emissions

Fuel storage, plant, machinery and vehicles refuelling, chemicals storage and handling have the potential to generate fugitive emissions. These emissions are expected to be minor and readily dispersed under normal conditions. In an event of leaking or spilling, local air quality is likely to be adversely impacted for a short period. However, these events are rare or may never happen during construction if proper management and handling procedures are in place and strictly followed (including bunding of fuel, oil and greases), which would ensure that air quality impacts would be localised in the event of a spill.

Diesel and petrol fuel would be stored at construction compounds. Lubricating and hydraulic oils and greases, acids and disinfectant would also be stored at multiple compounds. Fuel, oils and greases would be stored in a bunded area within drums, and refuelling would be conducted in the bunded area. Acids and disinfectant would be stored within immediate bulk containers within a bunded area.

In summary, with appropriate handling and storage, air quality impacts from these fugitive sources are considered to be not of significance.

7.3.3 Other odorous emissions

There is potential for odour emissions from some construction activities, including excavation works of potentially contaminated soil. In the event that contaminated materials are encountered, work in the affected area would cease immediately and the unexpected finds protocol would be implemented. Odour emissions would be effectively controlled and not cause adverse impacts on sensitive receivers.

Road modification works are proposed at Old Sydney Road, Ironbong Road, Dirnaseer Road, Old Cootamundra Road, Corbys Lane and Burley Griffin Way, as well as at several unformed roads and private access tracks. Given the short length that each road needs to be modified and the transient nature of the odour emissions from asphalt road laying, odour impact from asphalt laying during road modification works is not of significance.

7.4 Ecological impacts

As part of the assessment of potential air quality impacts on the receiving environment, ecological receivers within the Project were considered. An ecological receiver refers to any sensitive habitat affected by dust soiling. Elevated levels of dust settling on nearby vegetation have potential to reduce

photosynthesis and transpiration, leading to reduced growth rates and decreased overall health of the vegetation.

Deposition on dust foliage is likely to be highly localised, intermittent and temporary, and not considered to impact significantly on the Project. The management measures outlined in Table 8-1 will help to ensure dust impacts from construction works are minimised.

8 Environmental Mitigation and Management measures

8.1 Air Quality Mitigation and Management Measures

In accordance with the Infrastructure Approval (SSI-9406) and associated CoAs, mitigation measures will be implemented with the aim of achieving specific measures and requirements to address contract specifications, CoA and RMMs in relation impacts to air quality. These measures are outlined in Table 8-1**.** Air quality management and mitigation will be implemented using the hierarchy of hazard control, being:

1. Eliminate
2. Substitute
3. Engineering controls
4. Administrative controls and
5. Protect workers and sensitive receivers (if required) with personal protective equipment.

Table 8-1 Air quality management and mitigation measures

ID	Management measure	Timing	Responsibility for implementation	Reference or source
AQ01	Incorporate information on dust and odour sources, impacts and mitigation measures into Site Inductions and on-going Toolbox Talks.	During construction	JHG Environment and Sustainability Manager JHG Supervisors	Good practice
AQ02	Monitoring of meteorological conditions will include a trigger response in relation to air quality management. When high winds occur, a review of work areas and activities will be undertaken to determine if construction activities need to be altered or cease.	During construction	JHG Environment and Sustainability Manager JHG Supervisors JHG Site engineers	Good practice
AQ03	Soil treatments: Where sensitive receptors are located within the study area (350 m from construction footprint and 50 m of the route(s) used by construction vehicles on public roads, up to 500 m from the site access points)	During construction	JHG Construction Manager JHG Supervisors	RMM AQ_1 RMM AQ_2

ID	Management measure	Timing	Responsibility for implementation	Reference or source
	determined for each key activity, or visible excessive dust is generated from vehicles using unsealed access roads, road watering and/or other stabilising approaches would be implemented. For long-term access roads utilised by JH additional measure such as use of tackifier will be considered.		JHG Environment and Sustainability Manager JHG Site engineers	
AQ04	Blasting (if proposed) will not be undertaken if the prevailing wind conditions are likely to transport dust emissions towards the nearest sensitive receptors. Refer to the Blast Management Strategy (currently being developed) for further details on blast management.	During construction	JHG Construction Manager JHG Supervisors JHG Environment and Sustainability Manager JHG Site engineers	CoA E10 RMM AQ_3 Blast Management Strategy
AQ05	Where sensitive receivers are located in close proximity to construction sites, especially for construction sites 4 and 6 (Figure 6-1 and Figure 6-2): ▪ implement the Inland Rail Communications and Engagement Strategy, which would include community engagement before work commences onsite ▪ display the name and contact details of person(s) accountable for air quality and dust issues on the site boundary ▪ display the head or regional office contact information.	During construction	JHG Construction Manager JHG Supervisors JHG Environment and Sustainability Manager JHG Site engineers	RMM AQ_4
AQ06	Spoil handling machinery: ▪ Vehicles, plant and equipment will be switched off when not in use to minimise GHG emissions ▪ Vehicles, plant and equipment will be operated and maintained in an efficient manner, including to maximise fuel efficiency	During construction	JHG Construction Manager JHG Supervisors JHG Environment and Sustainability Manager JHG Site engineers	RMM AQ_01

ID	Management measure	Timing	Responsibility for implementation	Reference or source
AQ07	Stabilised accesses (e.g. wheel-wash facilities, rumble grids, ballast/rock) will be provided and used near the site exit points, as appropriate. Construction plant and equipment are to have any excess mud or debris removed prior to entering public roads.	During construction	JHG Supervisors JHG Environment and Sustainability Manager	Good practice
AQ08	Minimise the use of diesel- or petrol-powered generators and instead utilise mains electricity or battery powered equipment, where practicable.	During construction	JHG Supervisors JHG Construction Manager	Good practice
AQ09	Operating procedures: Dust generation will be minimised during construction where possible, particularly during earthworks and other activities that disturb the ground. Where practicable, specific measures will include (but not be limited to): ▪ Regularly watering exposed and disturbed areas including stockpiles, especially during dry and windy weather conditions ▪ The planning and undertaking of demolition activities, including the removal of hazardous building materials in a manner that minimises dust generation. This will also include the removal of hazardous building materials before the start of general demolition works ▪ Minimising the extent of disturbed and exposed surfaces ▪ Co-ordinating construction activities with a high potential to generate dust so that they do not occur at the same time. Refer to the SWMSP for further details.	During construction	JHG Construction Manager JHG Supervisors JHG Environment and Sustainability Manager JHG Site engineers	RMM AQ_01
AQ10	Stockpile management: Dust generation of stockpiles will be minimised where possible including: ▪ Minimising the number of stockpiles and amount of material stockpiled where practicable ▪ Positioning stockpiling areas as far as possible from identified sensitive receivers, including potentially ecologically sensitive receivers ▪ Limiting stockpiling activities during conditions where winds are blowing strongly in the direction(s) from the stockpiling location to identified sensitive receivers.	During construction	JHG Construction Manager JHG Supervisors JHG Environment and Sustainability Manager	RMM AQ_01

ID	Management measure	Timing	Responsibility for implementation	Reference or source
	▪ Stabilisation of stockpiles to be applied where they are inactive for extended periods of time. Examples of stabilisation include covering with geofabric, shaping/compacting/smoothing stockpiles, polymer application, use of cover crop, wetting down etc. Further stockpile management measures are contained in the SWMSP.		JHG Site engineers	
AQ11	Haulage dust suppression: • Ensuring loads are covered, and any loose materials/debris are removed before vehicles exit the site to minimise any impacts to haulage routes. • Where feasible, haul roads which are located near sensitive receivers are to be stabilised or wetted down when excessive dust is generated and causing impacts to sensitive receivers.	During construction	JHG Construction Manager JHG Supervisors JHG Environment and Sustainability Manager JHG Site engineers	RMM AQ_01
AQ12	Double handling of spoil will be avoided wherever practicable.	During construction	JHG Supervisors	Good practice
AQ13	Limiting construction activities during conditions where winds are blowing strongly in the direction(s) from the construction activities location to the identified sensitive receivers.	During Construction	JHG Construction Manager JHG Supervisors JHG Environment and Sustainability Manager JHG Site engineers	RMM AQ_01
AQ14	Disturbed areas and exposed surfaces that have the potential to cause dust impacts will be rehabilitated as soon as practicable.		JHG Construction Manager JHG Environment and Sustainability Manager	Good practice

ID	Management measure	Timing	Responsibility for implementation	Reference or source
AQ15	Undertake on-going visual monitoring for dust (site inspections) to assess the effectiveness of proactive and reactive mitigation measures.		JHG Environment and Sustainability Manager JHG Supervisors	Good practice

9 Compliance management

9.1 Roles and responsibilities

Roles and responsibilities related to the environment discipline and the Projects organisational structure are outlined in Section 7.1 of the CEMP.

Specific roles and responsibilities relevant to air quality management and this AQMP are provided in Section 8.

9.2 Training

All employees, sub-contractors and visitors will receive a Project induction prior to commencing work on site. The induction will include details on the following:

- Requirements of this AQMP
- Relevant legislation and guidelines
- Location of sensitive receivers
- Complaints reporting and recording
- How to implement air quality management measures
- Specific responsibilities to minimise air quality impacts on the community associated with construction activities.

Additional daily and task-specific training and awareness material may be delivered to relevant staff and workforce, in the form of toolbox talks and pre-start meetings, to ensure that where detailed information is required, it is accessible to all involved with the Project. Toolbox and prestart meetings will be used, as required, to highlight any specific issues that arise on-site and posters will be used to further educate employees and sub-contractors, particularly immediately prior to clearing works.

9.3 Monitoring and inspections

Table 9-1 details the inspections related to air quality management required to be undertaken during for the Project. A full list of inspections is provided in Section 9.1 of the CEMP. The frequency of these inspections may be increased to reflect the risk associated with potential impacts during adverse weather conditions or during specific construction activities.

Table 9-1: Air quality inspections

Inspection	Frequency	Responsibility	Record
Visual surveillance for dust emissions or sediment tracking off-site	Daily	JHG Environment and Sustainability Manager JHG Site Supervisor	Weekly inspection Daily diary
Inspection of dust controls to ensure effective implementation	Daily	JHG Environment and Sustainability Manager JHG Site Supervisor	Weekly inspection Daily diary
Investigation in response to non-vexatious complaints, or authorised agency request, regarding exceedance of air emissions	As required	JHG Environment and Sustainability Manager JHG Site Supervisor	Incident report Complaints register

Inspection	Frequency	Responsibility	Record
Haul road integrity (clean, no potholes etc)	Daily	JHG Environment and Sustainability Manager JHG Site Supervisor	Weekly inspection Daily diary
Plant / equipment inspections including maintenance and emissions	As required, prior to use	JHG Plant Manager JHG Site Supervisor	Weekly inspection Daily diary
No detectable offensive odours or gases (e.g. inspection of potential odour sources including freshly disturbed areas, open stockpiles, portable toilets, waste skips, etc)	Daily	JHG Plant Manager JHG Site Supervisor	Weekly inspection Daily diary
Weather forecast (e.g. rainfall and wind) will be checked to allow for proactive dust management actions to be implemented	Daily	JHG Environment and Sustainability Manager JHG Site Supervisor	Weekly inspection Daily diary

An adaptive approach to dust and air quality management will be implemented. Mitigation measures can be amended and improved if they are found to not meet the required outcomes. Weather forecasts and observations will be assessed and communicated through pre-starts and other tools.

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

Weekly and other routine inspections by the Inland Rail Environment and Sustainability Manager (or delegate), and the ER will also occur throughout construction. Detail on the nature and frequency of these inspections are documented in the CEMP.

Dust monitoring will be undertaken with monitoring locations georeferenced. All relevant equipment will be maintained and appropriately calibrated.

9.4 Non-Compliance and Non-Conformance

Non-compliances and non-conformances, including those related to air quality management, are detailed in Section 9.3 of the CEMP. This includes the definitions of non-compliance and non-conformance, corrective and preventative actions, communication of corrective and preventative actions to staff and non-conformance close-out.

9.5 Incident Response

Incident management, including air quality management, are detailed in Section 8 of the CEMP. This includes incident classification, notification and reporting including to external authorities, incident investigation and closeout.

9.6 Auditing

Audits (both internal and external) will be undertaken to assess the effectiveness of environmental controls, compliance with this sub plan, CoA and other relevant approvals, licenses and guidelines. Audit requirements are detailed in Section 9.4 of the CEMP.

9.7 Reporting

Reporting requirements relevant to the management of air quality are identified in Table 9-2. Requirements and responsibilities for reporting are further described in Section 9.5 of the CEMP.

Accurate records will be maintained substantiating all construction activities associated with the Project or relevant to the CoA, including measures taken to implement this AQMP. Records will be made available to IRPL, the ER, EPA and DPHI upon request, within the timeframe nominated in the request.

Table 9-2 Reporting requirements relevant to this plan

Item	Frequency	Standards	External reporting	Responsibility
Monthly Environmental Report	Monthly	Reporting as required by Inland Rail	N/A	JHG Environment and Sustainability Manager
Incident and non-compliance reports	At each occurrence	Reporting of incidents and non-compliances in accordance with CoA, EPL, Pollution Incident Response Management Plan.	Appropriate authority dependant on nature of the incident (e.g. EPA, DPHI) (see further detail in the CEMP)	JHG Environment and Sustainability Manager
Complaint register	Daily (ER, EPA) as received DPHI as requested	Reporting of complaints, in accordance with the CoA, EPL through the complaints register, to the ER and EPA for any complaints received (on the day they are received). Communication, notification and complaints handling requirements regarding air quality matters will be managed through the Complaints Management System.	ER (NSW CoA A27) EPA (in accordance with EPL conditions) DPHI (as requested by the Planning Secretary)	JHG Environment and Sustainability Manager JHG Stakeholder and Engagement Manager
EPL Annual Return	Annually	EPL Annual Return	EPA	JHG Environment and Sustainability Manager

Item	Frequency	Standards	External reporting	Responsibility
Equipment calibration records	As required	Manufacturers specifications	-	JHG Environment and Sustainability Manager

9.8 Complaints Management

Section 7.6 of the CEMP details communication and complaints management processes and procedures. The Community Consultation Strategy (CCS) identifies key stakeholder groups that will be consulted and engaged with during the Project and outlines the communication tools that will be used to consult and engage with these groups. During construction, any comments, feedback or complaints relating to air quality management issues will be addressed through the Complaints Management System. The Complaints Management System includes a complaints register within the stakeholder database.

10 Review and improvement

10.1 Continuous improvement

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 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.

The Project Environment Manager (or delegate) is responsible for ensuring stage-specific environmental risks are identified and included in the Project risk register and appropriate mitigation measures implemented throughout the construction, as part of the continuous improvement process. The process for ongoing risk identification and management during construction is outlined in the CEMP

10.2 AQMP update and amendment

The processes described in the CEMP may result in the need to update or revise this Plan. Only the JHG Environment and Sustainability Manager (or delegate) has the authority to approve changes to the requirements of this AQMP. Minor amendments to the AQMP may be approved by the ER (at Plannings discretion) in accordance with the CEMP and are to be implemented for the duration of construction and for any longer period set out in the monitoring programs or specified by the Planning Secretary, whichever is the greater. Amendments not considered minor by the ER require approval by the Planning Secretary.

A copy of the updated AQMP and changes will be distributed to all relevant stakeholders in accordance with the approved document control procedure detailed in the CEMP.