A2I | CONSISTENCY ASSESSMENT REPORT (MINOR) – HAREFIELD YARD

A2I | Albury to Illabo



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DOCUMENT TITLE	**A2I | CONSISTENCY ASSESSMENT REPORT (MINOR) – HAREFIELD YARD**
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Glossary

Specific terms and acronyms used throughout this strategy are listed and described in the table below.

TERM	DEFINITION
Action Management Plan	EPBC ACT: In relation to an action, means a plan for managing the impacts of the action on a matter protected by a provision of Part 3, such as a plan for conserving habitat of a species
A2I	Albury to Illabo
ACHAR	Technical Paper 2: Aboriginal Cultural Heritage Assessment Report of the EIS
AEP	Annual Exceedance Probability
AHD	Australian Height Datum
AHIMS	Aboriginal Heritage Information Management System service by Heritage NSW
ARTC	Australia Rail Track Corporation
ASS	Acid Sulfate Soils
BARM	Biodiversity Assessment Report Memo
CA	Consistency Assessment report
CEMP	Construction Environmental Management Plan
Change	Macquarie Dictionary: A variation, adjustment, alteration, deviation or transformation to the project scope, construction methodology or design.
CIZ	Construction Impact Zone
CNVIS	Construction Noise and Vibration Impact Statement
CNVIS Addendum	An addendum to the endorsed CNVIS
CoA	Condition(s) of approval
Compatible	Macquarie Dictionary: Capable of existing in harmony. Capable of orderly, efficient integration with other elements in a system.
Consistent	Macquarie Dictionary: Agreeing or accordant; compatible; not self-opposed or self-contradictory; constantly adhering to the same principles, course, etc.
Consistent with	Means that carrying out the project (as approved) will comply with the terms of the approval despite the proposed change. (See Barrick Australia Ltd v. Williams [2009] NSWCA 275)
Construction	Includes work required to construct the CSSI as defined in the Project Description described 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.
Construction boundary	As defined in the Division 5.2 approval, the area physically affected by work as defined in the Project Description as described in the documents listed in CoA A1. Referred to as the 'approved CIZ' in this CA.
DAWE	*Former* Australian Government Department of Agriculture, Water and Environment.
Division 5.2 Approval	An approval under Division 5.2 of the NSW *Environmental Planning and Assessment Act 1979* for State Significant Infrastructure / Critical State Significant Infrastructure.
EAD	Environmental assessment documentation, as listed in CoA A1.
EIS	Environmental Impact Statement
EPL	Project's Environment Protection Licence (#21984)

Harefield	Harefield Yard clearances enhancement site
IRPL	Inland Rail Pty Ltd (subsidiary of ARTC)
LGA	Local government area
MR	Martinus Rail, the principal contractor appointed by IRPL to construct the A2I section of the Inland Rail program.
Modification of an Approval	Section 5.25 *Environmental Planning and Assessment Act 1979*: Means changing the terms of the Division 5.2 approval, including revoking or varying a condition of the approval or imposing an additional condition on the approval.
NCA	Noise Catchment Area
PCT	Plant Community Type as described in the vegetation classification system, approved by the NSW Plant Community Type Control Panel and described in the BioNet Vegetation Classification Database
PIR	Preferred Infrastructure Report
PIR RtS	Preferred Infrastructure Report Response to Submissions report
the Project	Albury to Illabo project approved under section 5.19 of the EP&A Act on 8 October 2024
Proposed Change	The change to the Project which is the subject of this consistency assessment (extension of the CIZ along the Junee to Illabo clearances enhancement site).
RAPs	Registered Aboriginal Parties for the Project.
SSI	State Significant Infrastructure
TSP	Total Suspended Particles
UMMs	Updated Mitigation Measures

1 Introduction

1.1 Background

ARTC prepared an Environmental Impact Statement (EIS) for the Inland Rail – Albury to Illabo Project which was placed on public exhibition from 17 August 2022 to 28 September 2022. The EIS identified a range of environmental, social and planning issues associated with the construction and operation of the Albury to Illabo (A2I) Project and proposed measures to mitigate and manage those potential impacts.

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.

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);

The Minister for Planning and Public Spaces approved the Albury to Illabo Project under section 5.19 of the *Environmental Planning and Assessment Act 1979* (EP&A Act) on 8 October 2024. The approval incorporated the Minister's Conditions of Approval.

For the purposes of this consistency assessment (CA), the approval issued by the NSW Minister for Planning and Public Spaces for the A2I Project is referred to as the Division 5.2 approval.

1.1.1 EPBC Act Referral

The proposal was referred to the Australian Government Minister for the Environment under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) due to potential for impacts on protected matters on 2 June 2020 (EPBC Referral No 202/8670). On 29 June 2020, the former Australian Government Department of Agriculture, Water and Environment (DAWE) notified that the proposal is not a controlled action, and hence approval under the EPBC Act is not required.

1.2 Project Changes

The Project has not been the subject of a modification under section 5.25 of the EP&A Act.

The following consistency assessments have been prepared to support the undertaking of the Project:

- EIS Consistency Assessment Report (Minor) Kildare Catholic College (MR, April 2025)
- EIS Consistency Assessment Report (Minor) Junee to Illabo Clearances (MR, April 2025)
- EIS Consistency Assessment Report (Minor) Cassidy Parade and Pearson Street (MR, May 2025)
- EIS Consistency Assessment Report (Small Scale) Wagga Traffic Investigations (MR, May 2025)
- EIS Consistency Assessment Report (Minor) Edmondson Street Utilities (MR, July 2025)
- EIS Consistency Assessment Report (Minor) Edmondson Street Timing (MR, July 2025)

- EIS Consistency Assessment Report (Minor) Driver Platforms Stage B (MR, August 2025)
- EIS Consistency Assessment Report (Minor) Junee Precinct (MR, August 2025)
- EIS Consistency Assessment Report (Minor) Albury Precinct (MR, September 2025)
- EIS Consistency Assessment Report (Minor) Wagga Stage B (MR, September 2025)
- EIS Consistency Assessment Report (Minor) Junee to Illabo Clearances (MR, September 2025)
- EIS Consistency Assessment Report (Minor) Riverina Highway Site Establishment (MR, September 2025)
- EIS Consistency Assessment Report (Minor) Wagga Wagga Traffic Mitigations (MR, October 2025)
- EIS Consistency Assessment Report (Minor) Bomen Yard Construction Boundary Changes (MR, November 2025)
- EIS Consistency Assessment Report (Small Scale) Albury North Signal Hut (MR, November 2025)
- EIS Consistency Assessment Report (Minor) Signalling Scope Stage B (MR, November 2025)
- EIS Consistency Assessment Report (Minor) Culcairn Site Establishment (MR, November 2025)
- EIS Consistency Assessment Report (Minor) The Rock & Table Top Site Establishment (MR, November 2025)
- EIS Consistency Assessment Report (Minor) Uranquinty Supporting Works (MR, November 2025)
- EIS Consistency Assessment Report (Minor) Billy Hughes Bridge Stage B (MR, January 2026)
- EIS Consistency Assessment Report (Minor) A2I Overhead Wiring Investigations (MR, February 2026)
- EIS Consistency Assessment Report (Minor) Wagga Wagga Precinct Stage B (MR, February 2026)
- EIS Consistency Assessment Report (Minor) Edmondson Street Utilities (MR, February 2026)
- EIS Consistency Assessment Report (Minor) Junee Precinct (MR, February 2026)
- EIS Consistency Assessment Report (Minor) Albury Precinct (MR, February 2026)
- EIS Consistency Assessment Report (Minor) Murray River bridge (MR, February 2026)
- EIS Consistency Assessment Report (Minor) Bomen Yard Construction Boundary Changes (MR, March 2026)
- EIS Consistency Assessment Report (Minor) Riverina Highway Changes (MR, March 2026)
- EIS Consistency Assessment Report (Minor) The Rock & Table Top Supporting Works (MR, March 2026)
- EIS Consistency Assessment Report (Minor) Yerong Creek Supporting Works (MR, March 2026)
- EIS Consistency Assessment Report (Minor) Wagga Wagga Precinct Supporting Works (MR, April 2026)
- EIS Consistency Assessment Report (Minor) Junee to Illabo Clearances (MR, April 2026)
- EIS Consistency Assessment Report (Small Scale) Temporary Speed Reduction Signs (MR, May 2026)
- EIS Consistency Assessment Report (Minor) Overhead Wiring Site Investigations at Validation and Treatment Sites (MR, July 2026)
- EIS Consistency Assessment Report (Minor) Uranquinty Supporting Works (MR, August 2026)
- EIS Consistency Assessment Report (Minor) Yerong Creek Supporting Works (MR, August 2026)
- EIS Consistency Assessment Report (Small Scale) Temporary Speed Reduction Signs (MR, September 2026)
- EIS Consistency Assessment Report (Small Scale) Track Stressing Operations (MR, September 2026)
- EIS Consistency Assessment Report (Small Scale) Sign Installation and Removal (MR, September 2026)

- EIS Consistency Assessment Report (Minor) Wagga Wagga Precinct Supporting Works (MR, September 2026)
- EIS Consistency Assessment Report (Minor) Junee Precinct (MR, September 2026)

1.3 Purpose of consistency assessment

This consistency assessment has been prepared in accordance with the Inland Rail Pty Ltd (IRPL) specification for NSW Consistency Assessments (0-0000-902-EEC-00-SP-0001_1). The purpose of this consistency assessment is to:

- Describe the Proposed Change relative to the Division 5.2 approval.
- Assess the environmental impacts associated with the Proposed Change relative to the Division 5.2 approval.
- Determine if the Proposed Change is consistent with the Division 5.2 approval or whether further approval is required either for a modification application or a new Project.

2 Proposed Change

2.1 Description of proposed change

The EAD identified the indicative proposal sites to enable construction of the reference design for the Albury to Illabo (A2I) section of the Inland Rail program. Further detailed design, construction planning, and site surveys have identified refinements to the construction methodology and resulted in the requirement to adjust the construction boundary as defined in the Division 5.2 approval and described in the EAD.

The Proposed Change relates to extending the construction impact zone (CIZ) at the following enhancement site:

- Harefield Yard enhancement site (Harefield Yard)

This Consistency Assessment (CA) considers the Proposed Change, which involves extending the approved construction boundary. This includes adjustments to the construction boundary to allow for safe and efficient personnel and plant/machinery interface within the Project area, and to facilitate the scope of works such as signalling works, track work, underboring installation and gantry removal. When in operation, the interface between workers and machinery would be constrained, which unnecessarily heightens safety risks and operational inefficiencies. The proposed extension is also required for accommodate adequate construction area for material stockpiling.

For the purpose of this consistency assessment, the CIZ, where areas are proposed to be expanded, are referred to as the 'proposed CIZ extension areas'. The proposed CIZ extension areas fall within the existing rail corridor and connects to adjacent public roads where access points are proposed. The proposed CIZ extension areas are shown in greater detail in relation to key environmental constraints in Figures 2-1a and 2-1b.

The scope of works proposed for Harefield Yard are consistent with that assessed in the EAD. No additional construction activities are proposed as part of this CA.

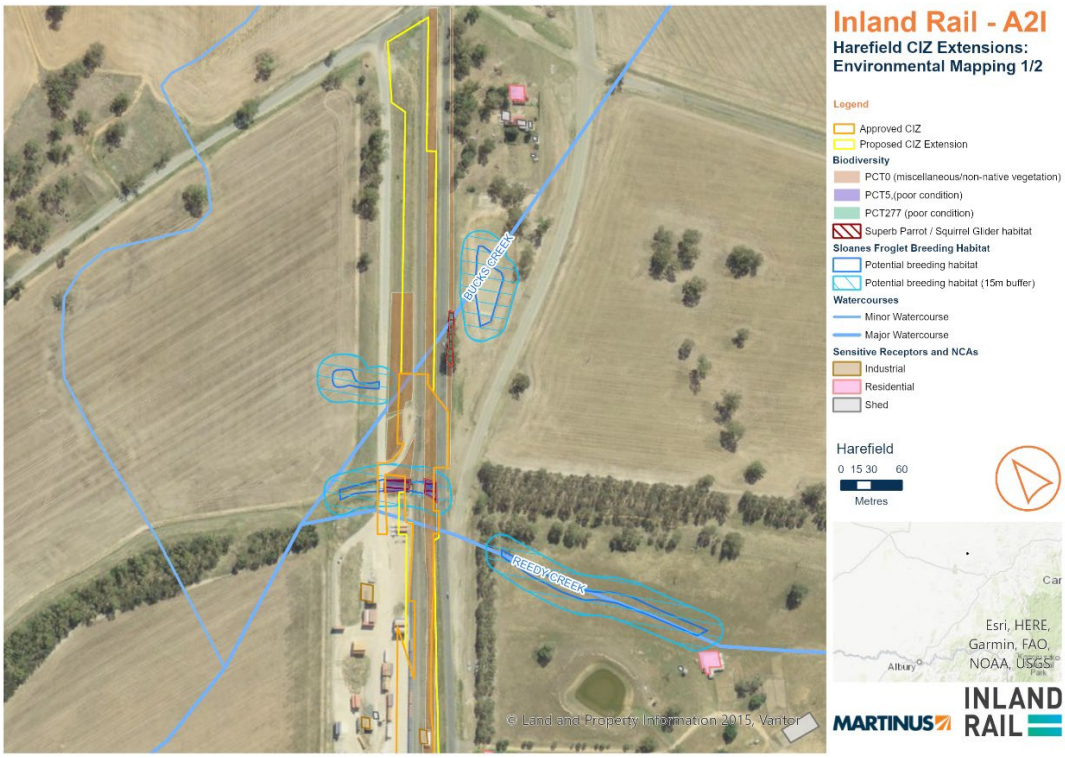


Figure 2-1a: Proposed CIZ Extension (North)

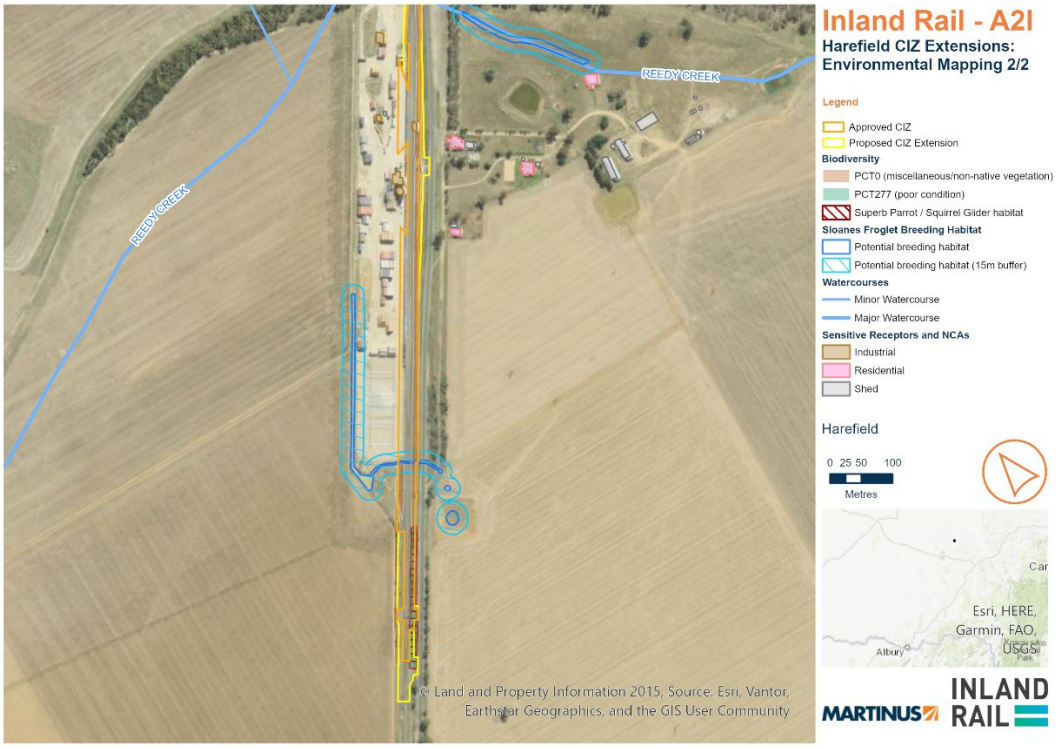


Figure 2-1b: Proposed CIZ Extension (South)

2.1.1 Methodology

Work Plan

Chapter 8 of the EIS provides an overview of construction activities for the Project and describes construction activities planned for each of the enhancement sites. The Proposed Change would enable these construction activities to occur and would not introduce additional activities at Harefield Yard enhancement site.

Construction activities, including the required plant and equipment, that would be undertaken within the proposed CIZ (by extension of the approved CIZ) are considered below.

Site Activities

- Facilitating construction traffic (safe manoeuvring and access)

Track Activities

- Track Typical
- Track Peak

Signalling Work

- Underbore installation
- Gantry Removal
- Signalling Works

Plant and equipment

Plant and equipment required for these works include:

- Centrifugal fan
- Compactor
- Compressor
- Crane (mobile)
- Directional Drill
- EWP
- Excavator
- Franna
- Front End Loader
- Generator
- Grinder
- Hand Tools – electric
- Hi-rail Crane
- Hi-rail Excavator
- Hydraulic/pneumatic tools
- Lighting Towers
- Light Vehicles
- PEM-LEM
- Saw Rail
- Tele Handler
- Truck and Dog
- Truck - Flat Bed
- Truck – medium rigid
- Truck – Tipper
- Vac Truck
- Vibratory Roller
- Wacker Packer
- Water Cart

2.2 Need

The EAD identified the 'Proposal site area' consisting of each of the enhancement sites to enable construction of the reference design, which forms the construction boundary, as defined in the Division 5.2 approval and referred to as the 'approved CIZ' for the purpose of this CA. Further detailed design and site surveys resulted in the requirement to adjust the approved CIZ to facilitate the works safely such as signalling works, gantry removal, track works and underbore installation.

The Proposed Change is required for constructability and safe operations of the Project, which is not adequately considered as part of the reference design in the EIS.

Without this extension, the interface between overhead signalling services, workers and machinery remains constrained, heightening safety risks and operational inefficiencies. The extension would significantly ease congestion and provide adequate space to perform the approved construction activities.

2.3 Location and setting

The Proposed Change relates to the Harefield Yard enhancement site within the Junee Precinct within the Junee local government area (LGA). Figure 2-2 presents the location of the Proposed change.

The Proposed Change falls within the rail corridor and has been historically heavily disturbed. Aspect specific location and setting information as it relates to the Proposed Change is contained in the subsections below.

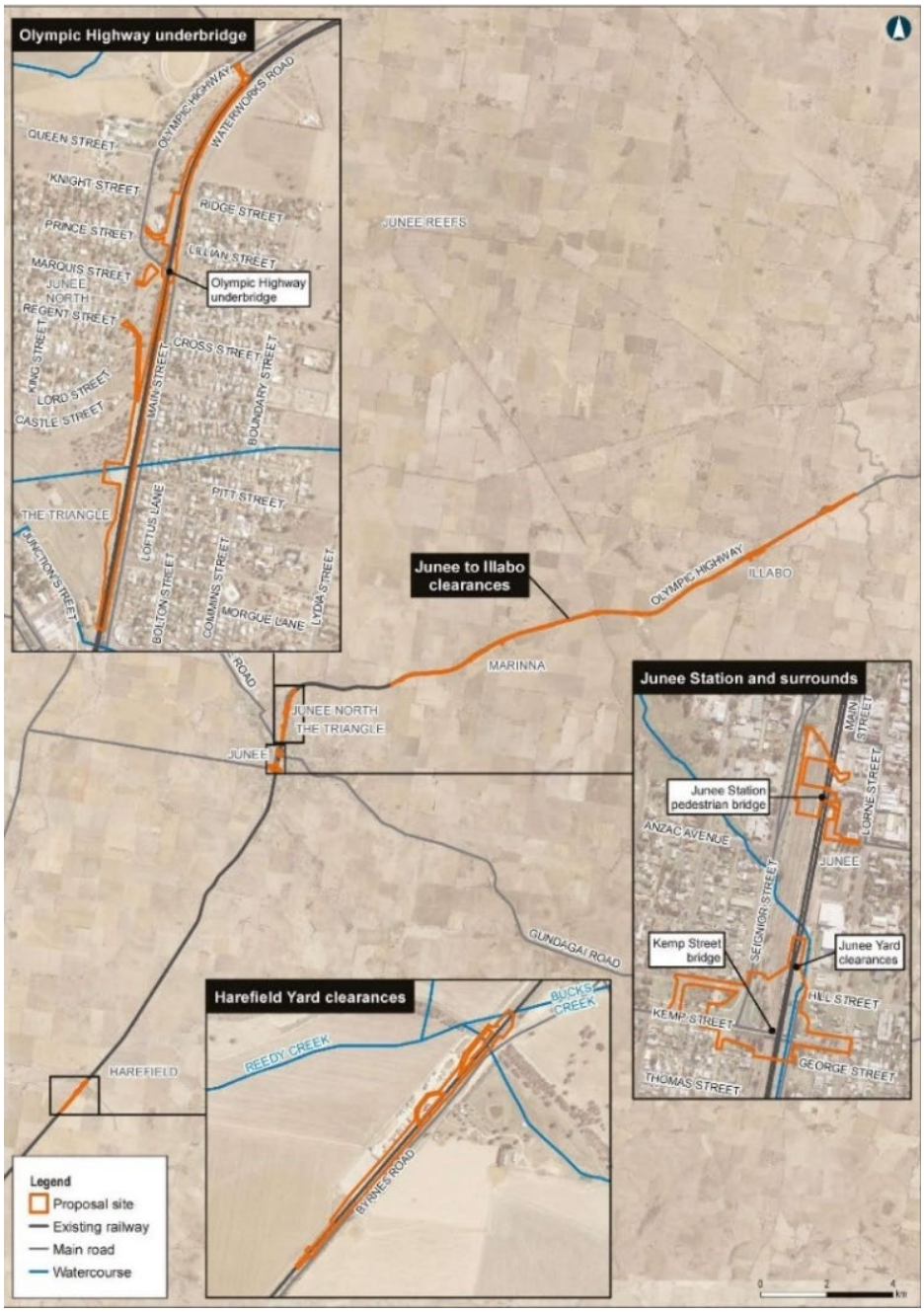


Figure 2-3: EIS Regional context of the Junee Precinct enhancement sites.

2.4 Construction hours

Activities within the CIZ permitted by the Proposed Change would be undertaken during the same hours as adjoining areas within the approved CIZ.

The works associated with the Proposed Change will be timetabled to be carried out during the approved standard construction hours as per the Project's Environment Protection Licence #21984 (EPL), where possible. The standard construction hours are as follow:

- 7:00am to 6:00pm Monday to Friday, inclusive;
- 8:00am to 6:00pm Saturday and
- At no time on Sundays or public holidays.

As outlined in CoA E70, any highly noise intensive works that result in an exceedance of the applicable NML at the same receiver must only be undertaken between:

- 8:00am to 6:00pm Monday to Friday;
- 8:00am to 1:00pm Saturday;
- If continuously, then not exceeding (3) hours, with a maximum cessation of work of not less than an hour.

The Proposed Change activities may occur outside of standard construction hours and the hours approved as part of CoA E69 and EPL condition L4. Any out-of-hours works (OOHW) within the extended CIZ would be implemented in accordance with CoA E71 and EPL condition L4.

The Proposed Change would host pre-construction and construction activities from September 2026 until the completion of construction of the Project.

3 Consultation

Inland Rail does not always carry out consultation for consistency assessments. However, in some cases consultation may be carried out to:

- Help identify the nature and scale of the impacts.
- Involve the community in the options considerations for the Proposed Change.
- Manage community expectations for the Project.
- Provide the best design outcome that minimises environmental impacts.

As considered above, Martinus Rail has undertaken ongoing consultation with asset owners in relation to determining a suitable design and to coordinate construction impacts on existing operational utilities.

Consultation with each of the affected landowners where works are proposed outside the approved CIZ would be undertaken prior to commencement of works. The proposed CIZ extension areas are located within the rail corridor and adjacent road corridor.

Where arrangements such as licences are required for use of land adjacent to the rail corridor for access or construction related activities (such as temporary stockpiling), these arrangements would be made in consultation with the relevant landowner or, in the case of access from the public road network, the relevant road authority

Where vegetation removal is proposed on land not owned by Inland Rail, consultation will be carried out with the property owner including confirming any revegetation/rehabilitation requirements. This will be undertaken in accordance with the Community Communication Strategy (IRPL, 2024), prior to the removal of vegetation.

Where a proposed CIZ extension is subject to the preparation of a land licence/agreement, works will only occur following the approval of that land licence/agreement. Any land licence/agreements required as part of this CA, will be provided to IRPL prior to commencement of works.

The community would be notified in accordance with Section 7.1 of the Community Communication Strategy (IRPL, 2024), including where works may be required outside of the approved construction hours for A2I, prior to commencement of works. Any complaints, feedback or enquiries would be handed in accordance with Section 8 of the Community Communication Strategy.

4 Environmental Assessment

4.1 Environmental risk review

An environmental risk review of the proposed activities has been undertaken and is provided below in Table 4.1. Assessments of potential impacts are provided in greater detail for:

- Traffic and transport (Section 4.2)
- Noise and vibration (Section 4.3)
- Aboriginal heritage (Section 4.4)
- Non-Aboriginal heritage (Section 4.5)
- Biodiversity (Section 4.6)
- Surface water, flood risk and water quality (Section 4.7)
- Soils and contamination (Section 4.8)
- Air quality (Section 4.9)
- Landscape and visual (Section 4.10)

Table 4.1 Consistency assessment review

ISSUE	Y/N	NOTES
Are works required outside the IR property acquisition boundary, or land not previously impact on by Project works?	Yes	The Proposed Change would involve impact outside of the approved CIZ and therefore on land not previously impacted on by Project works, however the proposed CIZ extension areas are immediately adjacent to the approved CIZ. Where works will occur on road reserve these will be carried out through the relevant councils (S138 process). For works occurring outside the IRPL acquisition boundary, land licence/agreements will be prepared where required. These will be managed by the MR Communications Team Ias discussed in Section 3 above).
Will the works result in any changes to form or functionality of the approved Project?	No	The Proposed Change would not impact on the form or functionality of the approved project. The Proposed Change is additional CIZ required to improve constructability of the approved Project following detailed design and would involve the same construction activities and operation in the EAD.
Are there any potential impacts on traffic and transport associated with the works?	No	The Proposed Change would not generate any new impacts to traffic and transport. Potential traffic and transport impacts are considered in greater detail in Section 4.2
Are there any potential noise and vibration impacts associated with the works?	Yes	The Proposed Change may result in short-term noise impacts during construction. Specifically, there may be a noticeable change in noise exposure for the property at 1994 Byrnes Road as a result of works that include Site Establishment, Laydown and Stockpiling reducing from approximately 260m away to the order of 60m away from this property. Potential noise and vibration impacts are considered in greater detail in Section 4.3.
Are there any potential impacts on known Aboriginal heritage items or sites located in the vicinity of the works?	No	There are no known Aboriginal heritage items or sites located within 200m of the proposed CIZ extension areas. A Heritage Memo for the Proposed Change has been developed for this CA and is available in Appendix F. The Heritage Memo determines that there is no potential for impact to Aboriginal heritage. Potential impacts to Aboriginal heritage items are considered in greater detail in Section 4.4.

Are there any potential impacts on non-Aboriginal heritage items or sites located in the vicinity of the works?	No	There are no known non-Aboriginal heritage items or sites located within 200m of the proposed CIZ extension areas. A Heritage Memo for the Proposed Change has been developed for this CA and is available in Appendix F. The Heritage Memo determines that there is no potential for impact to non-Aboriginal heritage. Potential impacts to non-Aboriginal heritage items are considered in greater detail in Section 4.5.
Are the works within 50m of an EEC or threatened species?	Yes	The Proposed Change is located in areas where several threatened species have been sighted. These impacts are therefore considered in greater detail in Section 4.6. Only a single tree will require trimming of vegetation will be required for the Proposed Change.
Do the works require clearing of native vegetation or habitat trees?	Yes	Only a single tree will require trimming of vegetation will be required for the Proposed Change. Potential biodiversity impacts are considered in greater detail in Section 4.6.
Are the works within 40m of a waterway or water body?	Yes	Reedy Creek is an ephemeral watercourse that intersects the enhancement site. Potential impacts to flood risk and water quality are considered in greater detail in Section 4.7
Are the works located on flood prone land?	No	The Proposed Change is not located on land affected by local overland flooding. Potential impacts to flood risk are considered in greater detail in Section 4.7.
Are the works located on bushfire prone land?	No	The Proposed Change is not located on bushfire prone land.
Do the works involve ground disturbance of more than 2 hectares?	Yes	The proposed CIZ extension areas cover a cumulative area of approximately 1.8ha. The extent of ground disturbance required for the Proposed Change would be substantially less than the cumulative total of the proposed CIZ extension areas as part of the additional CIZ will only be used as trafficable area. Potential impacts to soils and contamination are considered in greater detail in Section 4.8.
Are the works in an area of known salinity hazard risk?	Yes	The Proposed Change is located in an area of low salinity hazard. Potential impacts associated with salinity are discussed in greater detail in Section 4.8.
Are the works in an area of known acid sulfate soil risk?	Yes	The Proposed Change is located in an area of low probability for acid sulfate soils (ASS) occurrence. Potential impacts associated with ASS are considered in greater detail in Section 4.8.
Will works require temporary or permanent placement of surplus spoil material?	No	The Proposed Change will enable more construction area to undertake approved construction activities including temporary stockpiling however the extension itself, if approved, will not create the need for additional temporary stockpiling, apart from minor amounts of spoil generated by the underbore entry and exit pit excavations required for the signalling scope. Potential impacts to soils and contamination are considered in greater detail in Section 4.8.
Are the works in an area of known contamination risk?	Yes	The Proposed Change is located in an area noted as a general contamination risk. Potential impacts associated with contamination are considered in greater detail in Section 4.8.
Are there any potential air quality impacts associated with the works?	No	The Proposed Change could result in minor, short-term air quality impacts during construction. Potential air quality impacts are discussed in greater detail in Section 4.9.

Are there any potential landscape and visual impacts associated with the works?	Yes	The Proposed Change would result in potential minor and short-term visual impacts during construction. Potential landscape and visual impacts are discussed in greater detail in Section 4.10
Will works result in any operational impacts further to those detailed in the approved Project?	No	The Proposed Change would not represent an increase in operational impact compared to that which was assessed as part of the approved project.

4.2 Traffic and transport

The following discussion is drawn from the EAD (EIS, Chapter 9 and Technical Paper 1) and the Precinct Traffic Management Sub Plan (PTMSP) Stage B – Junee LGA General.

4.2.1 Existing environment

The Proposed Change is located on land within and adjacent to the existing rail corridor which forms part of the Main South Line in the NSW rail network.

The Harefield Yard enhancement site is parallel to Byrnes Road, and includes a level crossing near the intersection of Byrnes Road and Harefield Road. Harefield Road connects to the Olympic Highway to the west.

Construction Traffic

The Harefield Yard enhancement site is assessed as requiring up to forty-seven (47) light vehicles and eight (8) heavy vehicle one-way movements per peak hour (EIS, Tech Paper 1). The construction volume for all road links are expected to operate at Loss of Service (LoS) B or better, which is considered stable flow conditions and an acceptable LOS as per the Guide to Traffic Generating Developments (RTA 2002). Furthermore, the assessment shows no change in LOS as a result of the construction generated traffic and subsequently no significant impacts to road operation and performance are expected. Key local roads and LoS (including construction traffic) that serve Harefield Yard are summarised in Table 4.2.

Table 4.2: Overview of key roads and performance at Harefield Yard

KEY ROADS	CONSTRUCTION PEAK VOUME – ONE WAY	COMBINED VOULME – ONE WAY	LOCAL ROAD PERFORMANCE
Harefield Road	28	37	B
Brynes Road[1]	28	174	B
Harefield Railway Access Road[2]	28	163	B

(1) Byrnes Road, north of Harefield Road

(2) No data available, traffic volume estimated based on road type and surrounding land uses

Construction Access Points

Access to the worksite will be via six (6) existing access points to the rail corridor located on Byrnes Road, Old Byrnes Road and Harefield Rail Access Road.

Construction access points between the public road network and the Harefield Yard enhancements site considered in the EAD are detailed in Table 4.3 and shown in the mapping provided in Figure 4-1.

Table 4.3 Existing access points at Harefield Yard

ROAD NAME	TURN TREATMENT	CONSIDERATIONS
26 / Harefield Road	Two-way	Left and right turn into and out of site. Opposing movements on public road. High speed environment (≥80km/h). Current configuration does not meet turn warrant guidance; Road Safety Audit would investigate the need for traffic management of this access.
25 / Byrnes Road (south of Harefield Road)	Two-way	Left and right turn into and out of site. Opposing movements on public road. High speed environment (≥80km/h). Current configuration does not meet turn warrant guidance; Road Safety Audit would investigate the need for traffic management of this access.

Pedestrians and active transport

Provision for active transport in the vicinity of the Harefield Yard enhancement sites is minimal and, given the surrounding land uses, the demand for cycling and pedestrian travel in the area is likely to be low.

Travelling stock reserves and emergency vehicle access

The Proposed Change does not intersect any mapped travelling stock reserves.



Figure 4-1: Site Access locations – Harefield Yard Clearances Enhancement Site

4.2.2 Impact assessment

The Proposed Change would involve adjustments to the approved CIZ to allow for safe and efficient personnel and plant interface as well as sufficient space for construction laydown areas. Construction traffic would utilise access points as assessed in the Junee LGA General Precinct Traffic Management Plan (PTMP) Rev 2.1.

Construction traffic and parking

The Proposed Change would not introduce any additional construction traffic and therefore would not impact the assessed LoS (B or higher) for any of the local roads that provide access to the enhancement site.

The Proposed Change would allow for better utilisation of the existing construction impact zone for movement of plant and vehicles through the enhancement site

Site access points

Construction traffic would utilise access points as assessed in the Junee LGA General Precinct Traffic Management Plan (PTMP) Rev 2.1.

Emergency vehicle access

The Proposed Change would not have an adverse impact for emergency vehicle access. The purpose of the additional CIZ area is to provide better inter-corridor access and vehicle movements which in-turn would enable improved access and movement for emergency vehicles as assessed in the EAD. The Proposed Change would not impact the Project's ability to manage emergency vehicle access in accordance with the CoA and EAD, including measures relating to consultation with emergency services and traffic control arrangements.

4.2.3 Conclusion

The Proposed Change would not generate any additional construction traffic or parking demand compared with what was assessed in the EAD. No additional impacts to pedestrian and cycle paths are expected as a result of the Proposed Change.

Potential traffic and transport impacts of the Proposed Change can therefore be adequately managed in accordance with the CoAs and UMMs, and through the implementation of the Project's Construction Environmental Management Plan (CEMP). Therefore, no additional mitigation measures are proposed.

4.3 Noise and vibration

The following discussion is drawn from Technical Paper 6: Noise and vibration (non-rail) of the EAD, the Harefield Yard Clearances Construction Noise and Vibration Impact Statement (CNVIS) (SLR Consulting Australia, February 2025 Doc No: 6-0052-210-EEC-J1-AS-0001_0) (Appendix A) and the Harefield CNVIS Addendum (6-0052-210-EEC-J1-AS-002_ADD_0) (Appendix B).

4.3.1 Existing environment

Common noise and vibration sources at Harefield Yard are train movements along the operational rail corridor, major road traffic and local traffic. Potential sensitive receivers are those that may be affected by changes in noise and vibration levels within the work area. Consistent with the adopted standards and guidelines, sensitive receivers in the work areas include residential dwellings, schools and education institutions, places of worship, childcare centres, medical facilities, commercial property and industrial premises. The closest schools and education institutions, places of worship, childcare centres, medical facilities, to the Harefield Yard enhancement site are located in the township of Junee at a distance of 10km to the north.

Five residential properties closest to the site are all within a distance of 150m east of the Harefield Yard with two properties between 40 and 50m from the nearest proposed CIZ boundary.

The existing vibration environment in close proximity to the railway line includes vibration from existing freight train movements on the alignment. Additional sources of vibration may be associated with operation of industrial premises, road traffic operations and construction activities typical of the environment.

Noise catchment areas

Noise catchment areas (NCA) were defined in the EIS to classify groups of sensitive receivers that are likely to have a similar existing noise environment and experience similar impacts from construction of the Project. These were determined through reference to aerial imagery and land use maps and verified during background noise monitoring.

The Proposed Change is rural with scattered farming properties in the vicinity. The area is affected by the Harefield Terminal located adjacent to the rail corridor. The NCA description, approximate number of sensitive receivers, Rating Background Levels (RBL) and Noise Management Levels (NMLs) for J2I are presented in Table 4.4, Table 4.5 and shown in Figure 4-1. Given the minor extent of the proposed CIZ extension areas and their location immediately adjacent to the approved CIZ, the RBLs and NMLs set out for the Project are also considered appropriate for assessment of the Proposed Change.

Table 4.4: NCA and background noise information at J2I

NCA ID	APPROXIMATE NUMBER OF RECEIVERS IN NCA	DESCRIPTION	RBL (DBA)		
			Day[1]	Evening[1]	Night[1]
NCA 13	14	The area around Harefield Yard is rural with scattered farming properties in the vicinity. The area is affected by the Harefield Terminal located adjacent to the rail corridor.	41	39	37

1 Time periods defined as - Day: 7am to 6pm Monday to Saturday, 8am to 6pm Sunday; Evening, 6pm to 10pm; Night 10pm to 7am Monday to Saturday, 10pm to 8am Sunday

Table 4.5: NCA and noise management levels

NCA ID	NOISE MANAGEMENT LEVEL (NML) LAEQ,15MIN DB			
	Approved hours (RBL + 10 dB)	OUT OF HOURS		
		Daytime (RBL + 5 dB)*	Evening (RBL + 5 dB)*	Night-time (RBL + 5 dB)*
NCA 13	51	46	44	42

**Time periods defined as - Day: 7am to 6pm Monday to Saturday, 8am to 6pm Sunday; Evening, 6pm to 10pm; Night 10pm to 7am Monday to Saturday, 10pm to 8am Sunday*

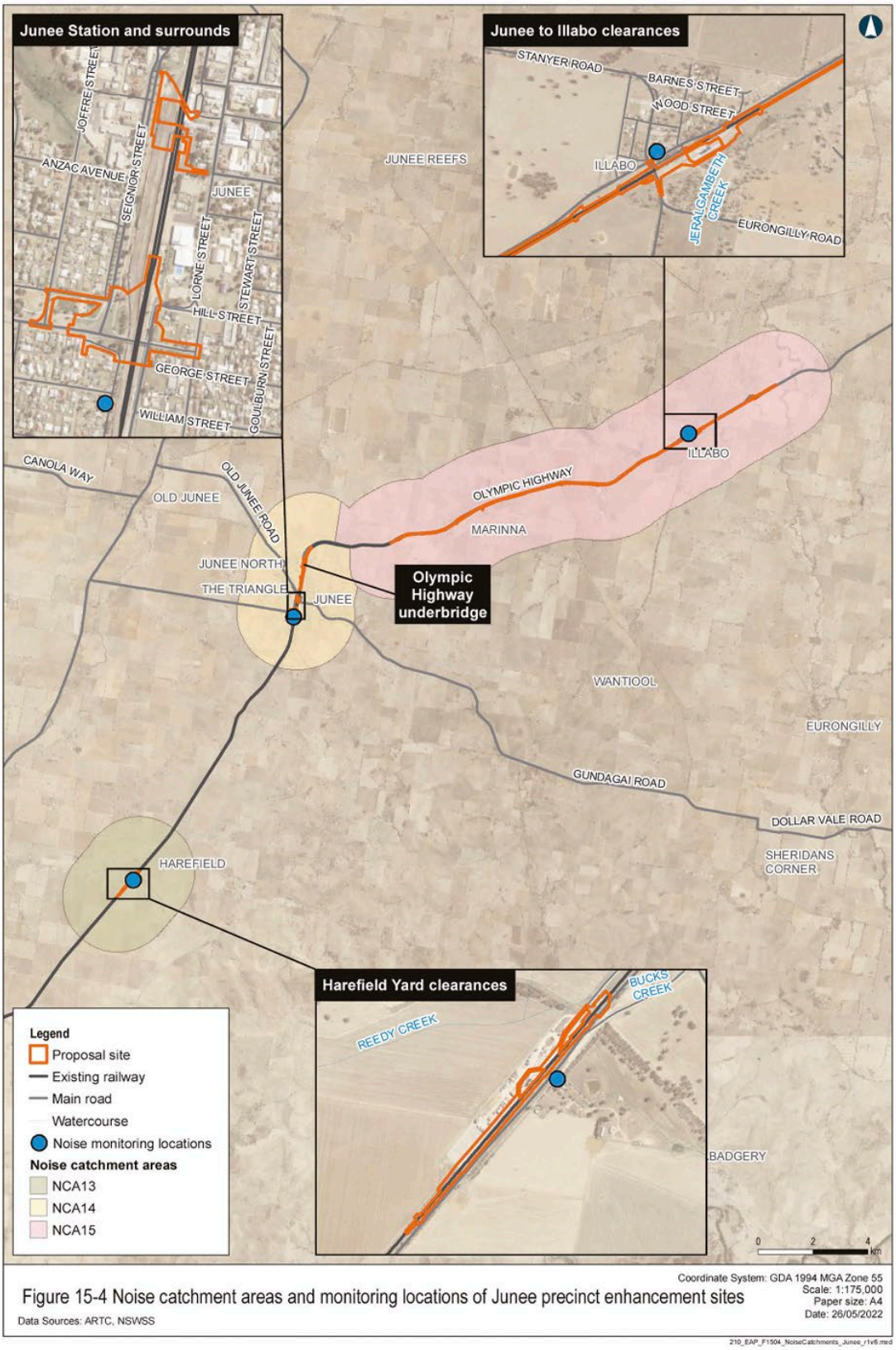


Figure 4-2 EAD mapped NCA 13 in relation to Harefield Yard enhancement site

4.3.2 Impact assessment

Construction Hours

Construction hours are discussed in Section 2.4.

'Highly noise intensive works' as per the Project Approval are defined as:

- use of power saws, such as used for cutting timber, rail lines, masonry, road pavement or steel work
- grinding metal, concrete or masonry
- rock drilling
- line drilling
- vibratory rolling
- bitumen milling or profiling
- jackhammering, rock hammering or rock breaking
- impact piling
- tamping (for rail Projects).

In accordance with CoA E73, where OOHW is required:

- For carrying out work that if carried out during standard hours would result in a high risk to construction personnel or public safety based on a risk assessment carried out in accordance with AS/NZS ISO 31000:2018: "Risk management – Guidelines"; or
- Where the relevant roads authority has advised the Proponent in writing that carrying out the work during standard hours would result in a high risk to road network performance and a road occupancy licence will not be issued; or
- Where the relevant utility service operator has advised the Proponent in writing that carrying out the work during standard hours would result in a high risk to the operation and integrity of the utility network; or
- Work undertaken in a rail possession for operational or safety reasons.

This will be regulated through the Out of Hours Work Protocol except as permitted by the EPL.

Distance to Receivers

The Proposed Change will decrease the distance from residential receivers as follows:

- By up to 5m closer to 3 residential receivers to the east of the proposed CIZ, and
- By up to 200m closer to 2 residential receivers to the north of the proposed CIZ.

The next CNVIS revision noise assessment will take the proposed distances into consideration.

Predicted Noise Levels

Predicted worse-case noise levels for residential receivers:

- Clearly Audible' noise impacts are predicted at the closest residential receivers for all scenarios except site establishment (daytime, evening OOH and night OOH), gantry removal (all hours), signalling (all hours) and underbore installation (all hours).
- 'Moderately intrusive' noise impacts are predicted at the closest residential receivers for all scenarios except signalling (all hours), gantry removal (all hours), and underbore installation (all hours).
- 'Highly intrusive' noise impacts are predicted at the closest residential receivers to the work for scenarios site establishment (all hours), track work – peak (all hours), and track work – typical (all hours). Detailed information, including the duration and specific timing of OOHW, will be provided in the corresponding OOHW permit.

- Sleep disturbance impacts would generally be caused by heavy vehicle movements and more noise intensive equipment. Where reasonable and feasible, these activities should be limited to the less sensitive periods to avoid noise impacts during more sensitive out-of-hours periods. The number of awakening events would depend on several factors, including the equipment being used, the duration of noisy work and the distance of the work to each residential receiver.

Ground-borne Noise

Ground-borne construction noise impacts from the Project and the Proposed Change are not anticipated as vibration intensive work with the potential to generate perceptible ground-borne noise, is not included in the scope of work. Vibration intensive work for the Project (including the Proposed Change) will be completed outdoors, meaning airborne noise levels at the nearest receivers are expected to be higher than the corresponding internal ground-borne noise levels.

Where airborne noise levels are higher than ground-borne noise levels it is not necessary to evaluate potential ground-borne noise impacts and as such, they have not been considered further in the CNVIS assessment.

Vibration Impacts

The minimum working distances for vibration intensive work, and as per the listed plant and equipment part of the scope of works, are listed below in Table 4.6 below.

Table 4.6: Recommended minimum working distances from vibration intensive equipment

SCENARIO	RATING/ DESCRIPTION	MINIMUM DISTANCE			
		Cosmetic Damage			Human Comfort
		Residential and Light Commercial	Heritage Items	Industrial and Heavy	Human Response (NSW EPA Guideline)
Track Work – Peak	Vibratory Roller >300 kN (13-18 tonne)	20 m	40 m	10 m	100 m

Cosmetic Damage Assessment

The CNVIS determines that no structures have the potential to exceed vibration criteria for cosmetic damage.

Human Comfort Assessment

Receivers within close proximity to the Proposed Change have the potential to fall within the human comfort minimum working distances, and occupants of these buildings may be able to perceive vibration impacts at times when vibratory rollers are in use nearby. Where impacts are perceptible, they would likely only be apparent for relatively short durations when vibration intensive equipment is in use nearby.

- Four properties have been identified for potential exceedance for human comfort during Track Work – Peak activities.

The four structures identified in the Harefield CNVIS Addendum (6-0052-210-EEC-J1-AS-0002_ADD_0) for potential exceedance for human comfort were also identified in the endorsed CNVIS.

Construction Traffic Noise

As detailed in Section 4.3 the Proposed Change would not introduce any additional construction traffic compared with the approved Project and therefore would not impact the assessed construction traffic noise.

Operational Noise

The Proposed Change is required to support construction of the Project and would not introduce any additional potential noise and vibration impacts during the operation phase.

4.3.3 Conclusion

The Proposed Change would not generate any new substantial noise and vibration impacts as it relates to enabling approved construction activities directly adjacent to the approved CIZ. Notwithstanding, there may be a noticeable change in noise exposure for the property at 1994 Byrnes Road as a result of works that include Site Establishment, Laydown and Stockpiling reducing from approximately 260m away to the order of 60m away from this property. However, in general noise and vibration impacts are expected to be short-term and minor in nature.

Potential noise and vibration impacts of the Proposed Change can therefore be adequately managed in accordance with the CoAs and UMMs, and through the implementation of the Project's CEMP. Therefore, no additional mitigation measures are proposed.

4.4 Aboriginal heritage

The following discussion is drawn from Revised Technical Paper 2: Aboriginal Cultural Heritage Assessment Report of the EIS (ACHAR) (GML Heritage, 2021), Appendix E: Detailed Response to Aboriginal Cultural Heritage Matters of the Albury to Illabo Response to Submissions Report (Appendix E of the RtS) (GML Heritage, 2023) and the Heritage Memo developed for this CA, available in Appendix F.

4.4.1 Existing environment

Harefield was assessed as being substantially disturbed due to the container terminal construction. The opposite side of the track was also notably disturbed and comprised mainly ballast and disturbed ground overgrown with grass. This area was assessed as having no archaeological potential.

The landforms at the enhancement sites relevant to the Proposed Change are detailed in Table 4.7.

Table 4.7: Landform at Harefield Yard

SUBJECT TO SURVEY?	LANDFORM
Yes	Creek Terraces

Harefield is noted in the ACHAR as having nil archaeological potential. Searches of the Heritage NSW Aboriginal Heritage Information Management System (AHIMS) database undertaken to inform the ACHAR indicate that there are no registered Aboriginal heritage sites located within 200m of the Proposed Change.

An updated AHIMS search was conducted by Martinus on 24 July 2026, confirming that no Aboriginal Heritage sites are located within 200 meters of the Proposed Change (refer to Appendix F).

4.4.2 Impact assessment

The ACHAR notes Reedy Creek, which is just to the north of Harefield and is within the Harefield Yard clearances enhancement site. This creek leads to Houlaghans Creek (to the west) which is part of a significant Wiradjuri site comprising a number of creeks and wetlands. The key concern here was about environmental protection, ensuring that sediments and runoff would be controlled to avoid harm to the water quality of downstream environments. Water quality impacts would not be exacerbated by the Proposed Change, as considered in Section 4.6.

The Proposed Change is considered consistent with the level of impact considered as part of the EAD for Aboriginal heritage. In the event any unexpected heritage finds are encountered during the undertaking of the Proposed Change, the discovery will be managed in accordance the Project's Unexpected Finds Procedure for Heritage and Human Remains, as shown in Appendix C.

4.4.3 Conclusion

The Proposed Change falls within surveyed areas that have been subject to previous ground disturbance.

The Proposed Change scope of works would not result in an increase on the level of impact assessed as part of the A2I EAD and would not impact the Project's ability to comply with relevant conditions of approval or updated management measures. In the event any unexpected heritage finds are encountered during the undertaking of the Proposed Change, the discovery will be managed in accordance the Project's Unexpected Finds Procedure for Heritage and Human Remains, as shown in Appendix C.

Potential Aboriginal heritage impacts of the Proposed Change can therefore be adequately managed in accordance with the CoAs and UMMs, and through the implementation of the Project's CEMP. Therefore, no additional mitigation measures are proposed.

4.5 Non-Aboriginal heritage

The following discussion is drawn from Technical Paper 3: Non-Aboriginal Heritage (GLM Heritage, 2022) of the EAD and the Heritage Memo developed for this CA, available in Appendix F.

4.5.1 Existing environment

As outlined in the EIS (Technical Paper 3: Non-Aboriginal Heritage), no non-Aboriginal heritage items or areas of archaeological potential were identified within 200m of Harefield Yard.

4.5.2 Impact assessment

No registered or unregistered potential heritage items were identified within 200m of the Harefield Yard enhancement site which includes the Proposed Change area. Therefore, no further consideration for the impact of the proposed change on non-aboriginal heritage was required.

The EAD does not identify any areas of non-Aboriginal archaeological potential at Harefield Yard. Therefore, there would be no impact to areas of non-Aboriginal potential archaeological as a result of the Proposed Change.

Therefore, the Proposed Change is considered consistent with the level of impact considered as part of the EAD for non-Aboriginal heritage. In the event any unexpected heritage finds are encountered during the undertaking of the Proposed Change, the discovery will be managed in accordance the Project's Unexpected Finds Procedure for Heritage and Human Remains, as shown in Appendix C.

4.5.3 Conclusion

The Proposed Change falls within surveyed areas that have been subject to previous ground disturbance.

The Proposed Change scope of works would not result in an increase on the level of impact assessed as part of the A2I EAD and would not impact the Project's ability to comply with relevant conditions of approval or updated management measures. In the event any unexpected heritage finds are encountered during the undertaking of the Proposed Change, the discovery will be managed in accordance the Project's Unexpected Finds Procedure for Heritage and Human Remains, as shown in Appendix C.

Potential Aboriginal heritage impacts of the Proposed Change can therefore be adequately managed in accordance with the CoAs and UMMs, and through the implementation of the Project's CEMP. Therefore, no additional mitigation measures are proposed.

4.6 Biodiversity

4.6.1 Existing environment

A Biodiversity Assessment Report Memo (BARM) (Habitat Innovation & Management, September 2026) (Appendix G) has been prepared to assess the potential impact from the Proposed Change. The following subsection outlines the existing environment as per the BARM's database searches and visual assessment.

Native vegetation and Threatened Ecological Communities

The Biodiversity Development Assessment Report (BDAR, WSP 2024) Appendix A1, Map 13, details that the CIZ is situated entirely within the Lower Slopes IBRA Subregion. Appendix A2, Map 13 indicates that Reedy Creek and Bucks Creek intersect the original CIZ, with Bucks Creek also extending into the proposed CIZ extension. Appendix B2, Map 19 indicates that the original CIZ and part of the proposed CIZ extension includes approximately 0.0207 ha of poor condition PCT 5 (River Red Gum herbaceous - grassy very tall open forest wetland on inner floodplains in the lower slopes sub-region of the NSW South Western Slopes Bioregion and the eastern Riverina Bioregion), approximately 0.1094 ha of poor condition PCT 277 (Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion) and approximately 2.2268 ha of PCT 0 (Miscellaneous ecosystem – highly disturbed vegetation).

Appendix B3, Map 12 indicates that the southwestern portion of the CIZ and CIZ extension contain the BC Act-listed TECs *White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Riverina Bioregions*.

A 23 July 2026 review of the Protected Matters Search Tool (PMST report) showed that three Commonwealth Threatened Ecological Communities (TECs) have potential to be within the locality of the subject site as per Table 4.8.

Table 4.8: TECs recorded in the PMST report and their likelihood of occurring within the subject site

PMST COMMUNITY ID	COMMUNITY NAME	THREATENED SPECIES LISTING UNDER EPBC ACT	LIKELINESS TO OCCUR
43	White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland	Critically Endangered	Likely
86	Grey Box (Eucalyptus microcarpa) Grassy Woodlands and Derived Native Grasslands of South-eastern Australia	Endangered	Likely
98	Weeping Myall Woodlands	Endangered	May

Threatened flora

As noted in the BARM (Appendix G), a 23 July 2026 review of the Protected Matters Search Tool (PMST) showed only one flora species, the Slender Darling-pea (*Swainsona murrayana*) which 'may' occur within the locality of the subject site. This species is listed as Vulnerable under the EPBC Act.

A search of the NSW BioNet Atlas database within a 10 km radius of the subject site showed that no threatened vegetation species have been recorded and uploaded to this database.

Threatened fauna

A search of the Protected Matters Search Tool (PMST) listed 27 threatened fauna species listed under the EPBC Act which were categorised as 'may' or are 'likely' to occur on or near the site. Details of these are outlined in Table 8 of the BARM.

A 3 August 2026 search on the NSW BioNet Atlas database within a 10 km radius of the proposed rail development site showed that 10 threatened species listed under the NSW BC Act and Commonwealth EPBC Act have previously been recorded in the area. These are outlined in Table 9 of the BARM.

Migratory species

As noted in the BARM (Appendix G), eight migratory bird species were listed as having potential of utilising the subject site as habitat. These are shown in Table 10 of the BARM. Due to the historic and ongoing disturbances at the site, low habitat quality and limited habitat features, none of the threatened or migratory species have been identified as having a high likelihood of utilising or relying on the site's habitat.

Endangered Populations

No Endangered Populations were identified.

Habitat connectivity

There is a planted habitat connectivity corridor between the subject site and the vegetated corridor along the western edge of the QUBE depot and along Reedy Creek.

Field assessment

Surveys were conducted on 4 June 2025 and 24 July 2026. Weather conditions were clear and sunny with low wind. The CIZ extension is separated into two main sections:

- an eastern (or northeastern) portion, north of the QUBE and on land between Reedy Creek and Harefield Road, and,
- a western (or southwestern) portion, south of the QUBE and within the narrow rail corridor.

The eastern portion is characterised by a strip of open grassed land, the slight depression of Bucks Creek and a unformed access road. The western portion is characterised by a narrow grassed section running parallel to the rail line.

Incidental fauna survey

Fauna species were recorded opportunistically by an ecologist whilst the site was traversed on foot via a meander survey. A total of 12 fauna species were recorded across the site. None are threatened species, and three are introduced species. These are outlined in Table 11 of the BARM.

PCT and vegetation surveys

The field assessment confirmed the presence of PCT 0 (Miscellaneous Ecosystems – highly disturbed), in the northern portion of the proposed extension, in addition to a strip along the southeastern face of the existing CIZ. The field assessment also validated the presence of PCT 5 around the Reedy Creek channel. The area mapped as PCT 276 and PCT 277 in the southwestern portion of the CIZ and extension is dominated by exotic groundcover, some Red-leg Grass (*Bothriochloa macra*) and regrowth Western Silver Wattle (*Acacia decora*) and therefore does not meet the classification criteria for either PCT, or the threatened ecological communities. Therefore, no mapped CEEC is impacted by clearing and grubbing of shrubs and tree trimming activities. PCT 45 and PCT 76 were not identified in the CIZ or extension.

The field validated plant communities are shown in Figure 5 of the BARM, with the PCT in the CIZ extension detailed in Table 12 of the BARM.

Twenty-two plant species were recorded within the subject site (4 June 2025, 24 July 2026) and are listed in Table 13 of the BARM. Most of the subject site is dominated by exotic vegetation and is highly disturbed due

to historical clearing and previous development. The grassy cover is predominantly Red-leg Grass, Wild Oats, Couch and Ryegrass, with scattered weeds (Patterson's Curse, Fleabane), regrowth Western Silver Wattle and Yellow Box.

Habitat features

Various potential habitat features were recorded on site during the field surveys. This includes timber piles, logs and fallen trees, plus the habitat created by the existing road culvert over Reedy Creek. These features are detailed below, and locations have been mapped and are shown in Figure 11 of the BARM.

Habitat trees

A dead tree located on the northern side (and possibly just outside) of the northern CIZ extension has cracks and crevices that may provide habitat for microbats. The location of the tree can be found at Figure 6 of the BARM.

4.6.2 Impact assessment

As detailed in the BARM, the footprint of the proposed CIZ extension will occupy a highly modified landscape that has existing rail and road infrastructure. Where vegetation is present, exotic groundcover species dominate, though some remnant patches of native PCT remain.

The activities proposed for the subject site are likely to result in the complete removal of vegetative cover in most of the extension area, with trimming required in some sections:

- Trimming or clearing and grubbing of 0.7758143 ha of Miscellaneous Ecosystems - highly disturbed vegetation and 0.0138 ha of ornamental plantings.
- Clearing and grubbing of land where no plant community type has been determined (1.33406 ha).

Potential threatened species habitat in Reedy Creek was identified through the desktop assessment, including for Superb Parrot, Squirrel Glider and Sloane's Froglet. The proposed extension does not impact the mapped potential habitat. The BARM found that no threatened fauna species are expected to inhabit the site due to the lack of records, the low-quality foraging habitat, historic and ongoing disturbance from agriculture, railway and roads.

The vegetation is predominantly classified as no vegetation (PCT 0) and highly disturbed or ornamental miscellaneous vegetation.

A timber pile and a fallen tree are located within the subject site and are considered habitat for ground dwelling fauna including small mammals, reptiles and frogs and the proposed development may impact these habitat features. There are also several Fairy Martin nests under the culvert on Reedy Creek which are unlikely to be impacted by the extension as this culvert is outside the subject site. Impacts to the fauna that inhabit the identified habitat features can be avoided or managed through appropriate safeguards.

Though it has been identified as having low aquatic and biodiversity values, Bucks Creek may form low quality habitat during and after rainfall events. Potential impacts to Bucks Creek can be managed through the implementation of an Erosion and Sediment Control plan and appropriate safeguards.

There have been no critical habitat or Areas of Outstanding Biodiversity Value identified within the study area. The impact to identified Biodiversity Values Mapped land at Bucks Creek will be negligible to low.

All vegetation proposed for removal provides low-quality foraging habitat for threatened fauna. Within the context of the surrounding landscape, it is unlikely this vegetation would be utilised given the presence of superior habitats adjoining the subject site, and in the broader landscape. Further, it is considered unlikely that any threatened species would occupy the subject due to pre-existing and ongoing disturbance (railway, roads, works areas). As such, no threatened flora or fauna are likely to be significantly impacted.

Appropriate safeguards must be implemented when disturbing or undertaking works near the identified habitat features shown in Figure 11 of the BARM. These form part of the Albury to Illabo A2I Stage C Construction Biodiversity Management Plan (CBMP, Martinus 2026) and would include:

- The disturbance zone for removal of vegetation and habitat features should be clearly marked for machinery drivers so that all native vegetation outside the marked disturbance zone is protected (CBMP 6.1).
- Appropriate pre- and post-clearing procedures should be followed to minimise harm to fauna in the area (CBMP 6.1.1 – 6.1.5).
- Works within Reedy Creek are to be conducted in accordance with Controlled Activity Guidelines and an Erosion and Sediment Control Plan with works to be conducted when dry (CBMP 6.3).

4.6.3 Conclusion

As noted in the BARM, the proposed Harefield Yard CIZ extension would not impact threatened species, their habitat or disrupt their breeding cycles. Impacts to native vegetation or Threatened Ecological Communities are minor in nature and will not result in a significant impact. As such, the potential impacts on biodiversity identified for the Proposed Change can be appropriately managed in accordance with the Conditions of Approval and through implementation of the Updated Mitigation Measures outlined in the Construction Biodiversity Management Plan for the Project.

All applicable mitigation measures in the CoAs and UMMs will be implemented, with any additional mitigation measures outlined in Table 4-13.

4.7 Surface water, flood risk and water quality

The following discussion is drawn from Technical Paper 11: Hydrology, Flooding and Water Quality (WSP, 2022) of the EAD.

4.7.1 Existing environment

Flooding

The Proposed Change is located within the Murrumbidgee catchment of the Murray-Darling Basin. The Murrumbidgee catchment extends from the Kosciuszko National Park in eastern NSW to Balranald in western NSW, with inflows primarily sourced from the Great Dividing Range (EIS, Chapter 18).

The frequency of flood events is generally referred to in terms of their annual exceedance probability (AEP). For example, for a 5% AEP flood, there is a five per cent probability (or a one in 20 chance) that there would be floods of a greater magnitude in any given year. For a 1% AEP flood, there is a one per cent probability (or a one in 100 chance) that there would be floods of greater magnitude each year. The probable maximum flood (PMF) is the largest flood that could be expected to occur at a particular location, usually estimated from probable maximum precipitation.

Current information does not show Harefield Yard clearances site affected by regional flooding. Reedy Creek is an ephemeral watercourse that intersects the enhancement. The Reedy Creek catchment upstream of the proposal is approximately 3ha. No flood information was available for the Reedy Creek.

Water Quality

Reedy creek intersects the enhancement site at two locations and has not been classified as key fish habitat. The enhancement site is part of the Houlaghans sub catchment of the Murrumbidgee catchment. There are

four small farm dams surrounding the site, however none of these, fall within the proposed CIZ extension areas.

4.7.2 Impact assessment

Flooding

Current information does not show Harefield Yard clearances site affected by regional flooding.

Water Quality

Construction presents a risk to downstream water quality if management measures are not implemented, monitored, and maintained throughout the construction period. If inadequately managed, construction activities could potentially impact water quality if they disturb soil or watercourses, result in the uncontrolled discharges of substances to watercourses, or generate contamination.

The following construction activities as part of the Proposed Change have the potential to impact water quality in downstream watercourses as a result of erosion and sedimentation (EIS, chapter 18):

- stripping topsoils for site preparation
- vegetation removal
- construction of site access roads, crane pads, construction compounds and other site infrastructure
- cut, fill and piling
- ground disturbance for removal of rail infrastructure
- track realignment including removal, treatment and fill of formation
- stockpiling and transport of materials and soils.
- the downstream effects of water quality impacts could potentially include:
- smothering aquatic life and/or inhibiting photosynthesis conditions for aquatic and riparian flora
- impacts on breeding and spawning conditions of aquatic fauna
- changes to water temperature due to reduced light penetration
- increased turbidity levels above the design levels of water treatment infrastructure
- reduced visibility in recreation areas.

The Proposed Change would not require the use of any additional water and therefore would not utilise or impact the operation of nearby farm dams.

4.7.3 Conclusion

The above activities and potential impacts are consistent with level of impact considered as part of the EAD. The Proposed Change would not involve any major earthworks or other construction activities that would substantially alter the flood regime at Harefield.

4.8 Soils and contamination

The following discussion is drawn from Technical Paper 13: Contamination (WSP, 2022) of the EAD.

4.8.1 Existing environment

Harefield Yard clearances are at an elevation of 250m AHD. There are about four small dams surrounding the enhancement site, and Reedy creek is crossed twice by the enhancement site. Most of the vegetation around

the enhancement site has been cleared for agricultural land. The enhancement site is part of the Houlaghans sub catchment of the Murrumbidgee River Basin

Existing soil characteristics within the Proposed Change area are shown in Table 4.9 below.

Table 4.9: Existing soil characteristics at Harefield

LANDSCAPE	SOIL	CHARACTERISTICS
Currajong soil landscape in the south west **Houlaghans Creek soil landscape in the north east**	Deep (>100 cm) mottled red and brown Chromosols on upper, mid and lower slopes Moderately deep to deep (>50 cm), brown and red Dermosols on mid-to-lower slopes Deep (>100 cm), imperfect to moderately well-drained mottled red, brown and yellow Chromosols on lower slopes Deep (>100 cm), imperfectly drained brown and red Sodosols on some lower slopes, in drainage depressions and along creek flats.	Localised seasonal waterlogging, flood hazard, sheet and gully erosion hazard, poor drainage, strong acidity of topsoils, sodicity/dispersibility and low wet bearing strength of subsoil, and salinity.

Saline soils

The Proposed Change is located on land mapped as having 'low land salinity hazard.

Acid sulfate soils

The Proposed Change is located within areas described as having a low probability of acid sulfate soils (ASS).

Naturally acidic soil

The Proposed Change is located on land that could be impacted by naturally acidic soils.

Contamination

The Proposed Change is located within an existing rail corridor, which is considered to contain a general level of risk associated with contamination from historical development and activities associated with its operation. A range of sites adjacent to the rail corridor that would be considered to have associated contaminated risk were identified, including agricultural land. The sources for these general contamination risks include:

- fill used in construction of the existing rail line, which may be contaminated EIS weed-suppression activities
- buildings potentially containing hazardous materials
- rail line ballast potentially containing heavy metals and other contaminants
- contamination from maintenance activities undertaken at sidings and near silos or other areas
- use of chemicals on agricultural land
- machinery storage and maintenance, refuelling and spray rig filling, agricultural sheds and silos

The Proposed Change is located directly adjacent to areas of environmental concern (AEC), AEC 40, and AEC 41. Description of the AECs and potential contaminants of concern are provided in Table 4.10 and shown in the mapping provided in Figure 4-3.

Table 4.10: Description of AEC and potential contaminants of concern

ENHANCEMENT SITE	AEC	DESCRIPTION OF AEC	POTENTIAL CONTAMINANTS OF CONCERN
Harefield Yard	AEC 40	Herbicide spraying around the station	Diffuse presence or isolated hotspots of Organochlorine pesticides (OCPs)or organophosphorus pollutants (OPPs) along the existing rail
	AEC 41	Potential Asbestos-Containing Material (ACM) and glass, ceramic, ballast and plastic on the enhancement site surface	Asbestos and lead dust and/or paint

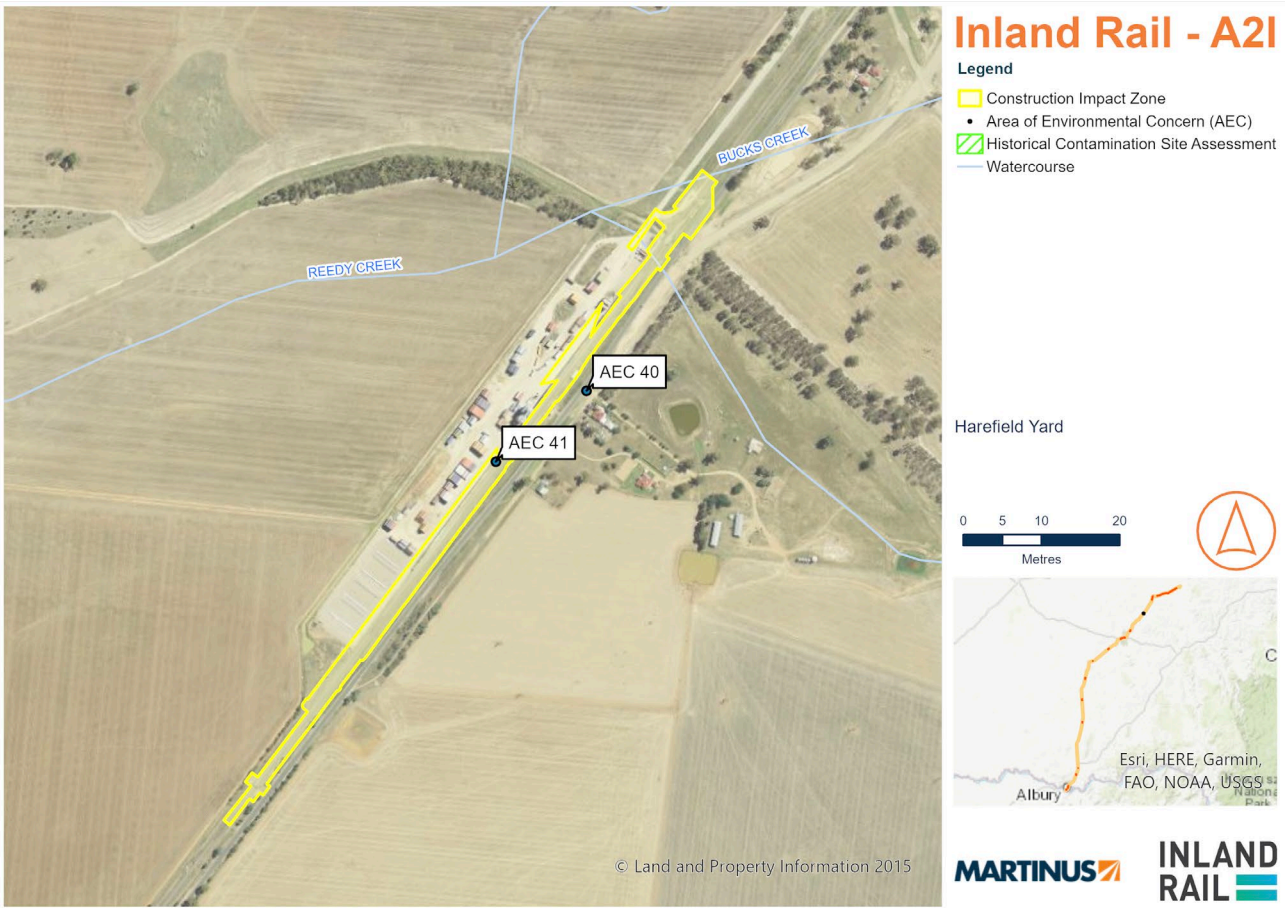


Figure 4-3: EAD mapped locations of AECs in relation to Harefield Yard.

4.8.2 Impact assessment

Excavation and ground disturbance activities would expose and disturb soils. If not adequately managed, this could result in:

- erosion of exposed soil and stockpiled materials
- dust generation
- an increase in sediment loads entering the stormwater system and/or local runoff, and, therefore, nearby receiving waterways
- increase in salinity levels in soil

- ASS conditions
- mobilisation of contaminated sediments, with resultant potential for environmental and human health impacts

Soil erosion

Construction activities associated with the Proposed Change would temporarily expose the natural ground surface and sub-surface through the removal of vegetation, overlying structures and minor excavation. The exposure of soil to runoff and wind can increase soil erosion potential; particularly, where construction activities are undertaken in soil landscapes characterised by dispersive soils, given their susceptibility to erosion. This is consistent with the potential impacts considered as part of the EAD and would be managed in accordance with the Blue Book.

Contamination

There is a general contamination risk present for Harefield Yard resultant from the general setting within an existing rail corridor and land uses that occur in and adjacent to the area. The risk of the Proposed Change interacting with contaminants is considered to be low with the exception of where it is located immediately adjacent to AEC40 and AEC41. During site inspections (EIS, Chapter 20), potential ACM fragments with glass, ceramic, ballast and plastic was observed in the west of the site (AEC41).

The specific waste type generated through the proposed underboring activities to support the signalling scope (i.e. drilling fluids), its handling, storage, classification, transport, disposal and any contamination risks associated with it, will be managed in line with the relevant Waste Management measures and information detailed in the Utilities Management Framework (UMF) (EIS, Appendix D). These measures have been included in this document at Table 4-13 as additional mitigation measures.

4.8.3 Conclusion

Construction activities at the Proposed Change area would be short term and would be prepared with consideration of the existing soils and contamination characteristics of the area.

Potential soil and contamination impacts of the Proposed Change can therefore be adequately managed in accordance with the CoAs and UMMs, and through the implementation of the Project's Construction Environmental Management Plan (CEMP). In the event any unexpected contamination finds are encountered during the undertaking of the Proposed Change, the discovery will be managed in accordance the Project's Unexpected Finds Procedure for Contamination, as shown in Appendix E.

4.9 Air quality

The following discussion is drawn from Technical Paper 14: Air Quality (WSP, 2022) of the EAD.

4.9.1 Existing environment

Regional air quality 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, and domestic solid and liquid fuel burning in the region, also contribute to the local air shed.

As noted in the EIS (Chapter 22), air quality data has been sourced from the Junee monitoring station, with the results summarised in Table 4.11 below, alongside the air quality impact assessment criterion for each pollutant specified in the *Approved Methods for the Modelling and Assessment of Air Pollutants in New South Wales* (NSW EPA, 2016).

Table 4.11: Background air quality (2016 to 2020)

MONITORING STATION	POLLUTANT	AVERAGING PERIOD	AIR QUALITY IMPACT ASSESSMENT CRITERIA	YEAR*				
				2016	2017	2018	2019	2020
Junee	Total Suspended Particles (TSP) (g/m^3)	Annual	90	**292**	**358**	**1,331**	**3,523**	**9,018**

**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 (EIS, Chapter 22)*

4.9.2 Impact assessment

The following activities have the potential to generate dust during construction:

- vegetation clearing and grubbing
- construction of access points and roads
- dirt, mud, or other materials tracked onto a paved public roadway by a vehicle leaving a construction site (generally referred to as egress)
- erosion of unsealed surfaces
- materials handling and loading at laydown areas, and vehicle movements on unsealed roads/surfaces.

4.9.3 Conclusion

The Proposed Change impacts to air quality have been deemed as negligible to high prior to any mitigation measure implementation (EIS, Chapter 22). Following the implementation of appropriate mitigation measures, the residual air quality impacts would be reduced to negligible to low risk and short-term.

Potential air quality impacts of the Proposed Change can therefore be adequately managed in accordance with the CoAs and UMMs, and through the implementation of the Project's CEMP.

4.10 Landscape and visual

The following discussion is drawn from Technical Paper 10: Landscape and Visual Impact (IRIS, 2022) of the EAD.

4.10.1 Existing environment

The landscape of Harefield Yard includes the former Harefield railway station and surrounding undulating rural fields. The station buildings have previously been removed; however, the large concrete silos remain as prominent structures, typical of rural stations in this region. A freight container terminal now operates to the west of the station, storing and loading containers to and from the rail corridor. Beyond the terminal and rail corridor, the area consists of a flat, rural landscape, which has been extensively cleared and modified for irrigated and dryland arable farming purposes.

Landscape Sensitivity

This landscape contains rural and industrial (logistics and transport) uses, generally experienced by local residents, staff and visitors to nearby properties and freight container terminal. There are a large number of vehicles passing the site via Byrnes Road. This landscape character area is of neighbourhood landscape sensitivity.

Daytime Visual Impact

At the Harefield Yard clearances enhancement site, the proposal would include trackwork and the removal of a signal gantry. There would be views to this work from a short section of Byrnes Road, from within the adjacent freight container terminal, and across the surrounding rural properties. These views would be somewhat contained by the existing grain silos, freight containers and roadside vegetation. Due to the small scale of these works, there would not be a visual impact expected at this location.

Nighttime Visual Impact

At night, the Harefield Yard clearances enhancement site and surrounding rural landscape would have low light levels. There would be lighting from scattered rural residences scattered across the surrounding landscape. Vehicles travelling along the Olympic Highway and other local roads, and existing trains travelling along the existing rail corridor would have moving headlights and contribute to the light levels. This landscape is an area of low district brightness and has a moderate visual sensitivity at night

4.10.2 Impact assessment

Landscape Sensitivity

The Proposed Change would be within the existing rail corridor. While the construction activity would alter the character of a localised part of this landscape, the activity would be compatible with the existing rail corridor and there would not be any substantial areas of vegetation removed. Overall, there would be a negligible magnitude of change and a negligible landscape impact.

Daytime Visual Impact

As noted above, the Proposed Change would be within the existing rail corridor, and while the construction activities would alter the character of a localised part of the landscape, the activity is compatible with the existing rail corridor. Therefore, the Proposed Change would have a negligible magnitude of change.

Nighttime Visual Impact

There is the potential that OOHW would be required, with potential usage of task lighting and headlights from construction vehicles accessing and moving along the rail corridor. Along the rail corridor there may be views of this work from the Highway and from rural dwellings where there is not intervening vegetation. This includes residential properties either set back from the rail corridor to the north of the site and properties to the southeast of the Highway.

Overall, during construction there would be a low magnitude of change and a moderate-minor adverse visual impact at night during construction.

4.10.3 Conclusion

Impacts to landscape sensitivity, viewpoints and night-time visual are expected to be short-term and minor with the implementation of appropriate mitigation measures as outlined in the CoA and UMMs.

Potential landscape and visual impacts of the Proposed Change can therefore be adequately managed in accordance with the CoAs and UMMs, and through the implementation of the Project's CEMP.

4.11 Matters of national environmental significance

As discussed in Section 1.1, the A2I Project was referred to the Australian Government Minister for the Environment under the EPBC Act due to potential for impacts on protected matters on 2 June 2020 (EPBC Referral No 202/8670). On 29 June 2020, DAWE notified that the proposal is not a controlled action, and hence approval under the EPBC Act is not required.

The Proposed Change is considered against matters of national environmental significance and impacts on Commonwealth land in accordance with the EPBC Act in Table 4.12, which determined that there would be no impacts on matters of national environmental significance and no referral is required.

Table 4.12 Matters of national environmental significance

FACTOR	IMPACT (YES/NO)	IMPACT DESCRIPTION
Any impact on a World Heritage property?	No	No, there are no impacts on a World Heritage property resulting from the proposed works.
Any impact on a National Heritage place?	No	No, there are no impacts on a National Heritage place resulting from the proposed works.
Any impact on a wetland of international importance?	No	No, there are no impacts on a wetland of international importance resulting from the proposed works.
Any impact on a listed threatened species or communities?	TBD	No, there are no impacts to threatened species, populations or ecological communities are expected as a result of the proposed activity.
Any impacts on listed migratory species?	TBD	No, there are no impacts to threatened species, populations or ecological communities are expected as a result of the proposed activity.
Any impact on a Commonwealth marine area?	No	No, there are no impacts on a Commonwealth marine area resulting from the proposed works.
Does the proposal involve a nuclear action (including uranium mining)?	No	No, the proposal does not involve a nuclear action, including uranium mining.
Additionally, any impact (direct or indirect) on Commonwealth land?	No	No, there are no impacts to Commonwealth land resulting from the proposed works.

4.12 Environmental management measures

Potential environmental impacts of the Proposed Change would be managed in accordance with the CoAs and UMMs, and through the implementation of the Project's CEMP. Table 4.13 summarises the environmental aspects considered as part of this CA and provides consideration of any additional control measures to manage potential impacts. There are no proposed additional mitigation measures for the Proposed Change.

Table 4.13: Additional mitigation measures

ASPECT	NATURE AND EXTENT OF IMPACTS (NEGATIVE AND POSITIVE) DURING CONSTRUCTION (IF CONTROL MEASURES IMPLEMENTED) OF THE PROPOSED CHANGE, RELATIVE TO THE APPROVED PROJECT	PROPOSED CONTROL MEASURES IN ADDITION TO PROJECT COA AND UMM	MINIMAL IMPACT YES/NO	ENDORSED	
				Yes/No	Comments
Traffic and transport	No increase in construction traffic is anticipated and any road closure will be temporary and have minimal impact to residents and local traffic	No additional mitigation measures required.	Yes		
Noise and vibration	Noise and vibration impacts are expected to be short-term and minor in nature.	No additional mitigation measures required.	Yes		

Aboriginal heritage	The Proposed Change scope of works would not result in an increase on the level of impact assessed as part of the A2I EAD and would not impact the Project's ability to comply with relevant conditions of approval or updated management measures.	No additional mitigation measures required.	Yes		
Non-Aboriginal heritage	The Proposed Change scope of works would not result in an increase on the level of impact assessed as part of the A2I EAD and would not impact the Project's ability to comply with relevant conditions of approval or updated management measures.	No additional mitigation measures required.	Yes		
Biodiversity	The potential impacts on biodiversity identified for the Proposed Change can be appropriately managed in accordance with the CoAs and through implementation of the UMMs outlined in the Construction Biodiversity Management Plan for the Project.	The below safeguards must be implemented when disturbing or undertaking works near habitat features shown in Figure 11 of the BARM: 1. The disturbance zone for removal of vegetation and habitat features should be clearly marked for machinery drivers so that all native vegetation outside the marked disturbance zone is protected. 2. Appropriate pre- and post-clearing procedures should be followed to minimise harm to fauna in the area. 3. Works within Reedy Creek are to be conducted in accordance with Controlled Activity Guidelines and an Erosion and Sediment Control Plan with works to be	Yes		

		conducted when dry.			
Surface water, flood risk and water quality	The Proposed Change is consistent with level of impact considered as part of the EAD. The Proposed Change would not involve any major earthworks or other construction activities that would substantially alter the flood regime.	No additional mitigation measures required.	Yes		
Soils and contamination	Construction activities at the Proposed Change area would be short term and would be prepared with consideration of the existing soils and contamination characteristics of the area. Management measures associated with the handling, storage, classification, transport, disposal and any contamination risks of drilling fluids generated by underboring activities to support the signalling scope are set out and explained within the Utilities Management Framework (UMF) (EIS, Appendix D) and are adapted here for this document.	1. Solid and liquid wastes would be managed and classified in accordance with the *Waste Classification Guidelines, Part 1: Classifying Waste, (EPA,2014b)* and disposed of to an appropriately licensed facility by an appropriately licensed waste contractor. 2. Drilling fluids (if any) used during underboring to support the signalling scope would be appropriately stored in accordance with a drilling fluid management plan, which would be prepared for the activity.	Yes		
Air quality	Air quality impacts are expected to be short-term and minor in nature.	No additional mitigation measures required.	Yes		
Landscape and visual	Impacts to landscape sensitivity and night-time visual are expected to be short-term and minor in nature.	No additional mitigation measures required.	Yes		
Cumulative impacts	No substantial impact is expected	No additional mitigation measures required.	Yes		

5 Consistency assessment

The factors in Table 5.1 are considered against the Proposed Change as described in this document to determine whether the proposed change can be considered consistent with the Minister's approval.

Table 5.1 Consistency questions

CONSISTENCY QUESTION	DISCUSSION	CONSISTENT
Q1) Are the proposed works being carried out as part of an approved project? E.g. Are works "generally in accordance with" project documents and plans, where relevant?	As considered throughout this document, the Proposed Change is being carried out generally in accordance with the EAD outlined in CoA A1 of the Infrastructure Approval.	Yes
Q2) Is the modification such a radical transformation of the project as a whole, as to be, in reality, an entirely new project? Note: If answered Yes, a new project application may be required.	The Proposed Change is not considered to constitute a 'modification' and is not such a radical transformation of the Project that would result in an entirely new project.	No
Q3) Are the proposed works a modification that is considered "consistent with" the project as approved? This will require the work in question to have environmental impacts contemplated by the approval (such as EA / EIS, CEMP, spoil management plan, heritage management plan or the like), including documents forming part of the approval, or as a minimum, very few additional impacts.	Yes, the proposed works are considered "consistent with" the project as approved. The Proposed Change aligns with the safeguards outlined in the PIR RtS and the CoA. The Proposed Change has been carefully evaluated and determined to be consistent with the level of environmental impact accounted for in the approval documents and would be implemented in accordance with the approved environmental management plans for the Project.	Yes
Q4) When considering all previous consistency assessments and the potential cumulative impacts, are the proposed works still considered 'consistent with' the project as approved?	Yes, when considering all previous consistency assessments and the potential cumulative impacts, the proposed works are still considered 'consistent with' the project as approved. A list of consistency assessments approved prior to the Proposed Change is provided in Section 1.	Yes

6 Monitoring and Reporting

There is no additional monitoring or reporting required as a result of the Proposed Change.

7 Conclusion

Based on the consistency assessment in this report, the proposed change is considered:

Further to the details provided in Table 5.1 above, the Proposed Change is considered:

☒ Consistent with the Ministers Conditions of Approval, and the Statement of Commitments / Mitigation Measures.

☐ ~~Not consistent with the Ministers Conditions of Approval, and the Statement of Commitments / Mitigation Measures. A modification to the project approval must be prepared and submitted to the Department of Planning Infrastructure and Environment for approval.~~

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8 Certification

Author

This consistency assessment provides a true and fair review of the Proposed Change for the Inland Rail – Albury to Illabo Project.

Name: Simon Fisher	**Signature:** DocuSigned by: F858C386E017448...
Position: Environmental Approvals Lead	**Date:** 22/09/2026
Organisation: Martinus Rail	

Inland Rail

The Proposed Change, subject to the implementation of all the environmental requirements of the Project, is consistent with the Division 5.2 approval.

Name: Susan Kay	**Signature:**
Position: Environment Manager	**Date:** 23/09/2026
Organisation: Inland Rail	

Name: Malcolm Clark	**Signature:** MC
Position: Project Director (Manager)	**Date:** Oct 1, 2026
Organisation: Inland Rail	

I have examined the Proposed Changes by reference to the Division 5.2 approval in accordance with Section 5.25(2) of the EP&A Act. I consider that the proposal is consistent with the Division 5.2 approval.

I agree / ~~do not agree~~ with the recommendations of the [~~insert~~ above signatory ~~e.g. PEL]~~ and approve ~~/ do not approve~~ of the carrying out the Proposed Change in accordance with those recommendations.

Appendix A Construction Noise and Vibration Impact Statement (SLR)

A2I | Albury to Illabo – Harefield Yard Clearances

Construction Noise and Vibration Impact Statement

Martinus Rail

1/23-27 Waratah Street, Kirrawee, NSW 2232

Prepared by:

SLR Consulting Australia

Tenancy 202 Submarine School, Sub Base Platypus, 120 High Street, North Sydney NSW 2060, Australia

SLR Project No.: 610.031317.00001

Client Reference No.: R13

27 February 2025

Revision: v1.0

Revision Record

Revision	Date	Prepared By	Checked By	Authorised By
v1.0	27 February 2025	Jason Rasquinha	Steven Luzuriaga	

Basis of Report

This report has been prepared by SLR Consulting Australia (SLR) with all reasonable skill, care and diligence, and taking account of the timescale and resources allocated to it by agreement with Martinus Rail (the Client). Information reported herein is based on the interpretation of data collected, which has been accepted in good faith as being accurate and valid.

This report is for the exclusive use of the Client. No warranties or guarantees are expressed or should be inferred by any third parties. This report may not be relied upon by other parties without written consent from SLR.

SLR disclaims any responsibility to the Client and others in respect of any matters outside the agreed scope of the work.

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Acronyms and Abbreviations

AA	The Acoustics Advisor for the CSSI approved by the Planning Secretary
A2I	Albury to Illabo section of the Inland Rail project
ARTC	Australian Rail Track Corporation
AS	Australian Standard
AV:ATG	Assessing Vibration: a technical guideline (DEC, 2006)
BS	British Standard
dBA	A-weighted decibel (referenced 20 µPa)
DPHI	Department of Planning, Housing and Infrastructure
CCHMP	Construction Cultural Heritage Management Plan
CEMP	Construction Environmental Management Plan
CNVF	Inland Rail NSW Construction Noise and Vibration Framework
CNVMP	Construction Noise and Vibration Management Plan
CSSI	Critical Stage Significant Infrastructure
DEC	Department of Environment and Conservation
DECC	Department of Environment and Climate Change (now NSW EPA)
DIN	Deutches Institut für Normung (German Institute for Standardisation)
EIS	Environmental Impact Statement
EP&A Act	Environmental Planning and Assessment Act 1979
EPA	Environment Protection Authority
EPL	Environmental Protection Licence
ER	The Environmental Representative(s) for CSSI approved by the Planning Secretary.
HNA	Highly Noise Affected
Hz	Hertz
ICNG	Interim Construction Noise Guideline (DECC, 2009
IR	Inland Rail
ISO	International Standards Organisation
km	Kilometres
km/h	Kilometres per hour
L_{Aeq}	Equivalent continuous noise level, providing a representation of the cumulative level of noise exposure over a defined period.
$L_{Aeq(15hour)}$	The equivalent continuous noise level for the 15-hour daytime period of 7.00 am to 10.00 pm
$L_{Aeq(9hour)}$	The equivalent continuous noise for the 9-hour night-time period of 10.00 pm to 7.00 am
$L_{Aeq(1hour)}$	The equivalent continuous noise for the 1-hour daytime or night-time period that has the potential to result in the greatest noise impact to sensitive receivers.

L_{Amax}	The maximum noise level during the measurement or assessment period. The L_{AFmax} or Fast is averaged over 0.125 of a second and the L_{ASmax} or Slow is averaged over 1-second.
m	Metres
mm	Millimetres
mm/s	Millimetres per second
m/s	Metres per second
MR	Martinus Rail
NCA	Noise Catchment Areas
NML	Noise Management Level
NSW	New South Wales
NPfI	Noise Policy for Industry
OOHW	Out of hours work
PPV	Peak Particle Velocity
RBL	Rating Background Level
TfNSW	Transport for New South Wales
VDV	Vibration Dose Value

Compliance Table

CoA	Requirement	Reference
A1	The Proponent must carry out the CSSI in accordance with the terms of this approval and generally in accordance with the: a) Inland Rail – Albury to Illabo Environmental Impact Statement (ARTC, August 2022) b) Albury to Illabo Response to Submissions (ARTC, November 2023) c) Albury to Illabo Preferred Infrastructure Report (ARTC, November 2023) d) Albury to Illabo Preferred Infrastructure Report Response to Submissions (ARTC, February 2024) e) Inland Rail – Albury to Illabo (SSI-10055) Response to request for additional information – Air Quality Assessment (letter dated 1 May 2024) f) Part 1 - Revised Technical Paper 8: Biodiversity Development Assessment Report (WSP, February 2024) g) Part 2 - Revised Technical Paper 8: Biodiversity Development Assessment Report (WSP, February 2024)	**The CNVMP**
A2	The CSSI must only be carried out in accordance with all procedures, commitments, preventative actions, performance criteria and mitigation measures set out in the documents listed in Condition A1 unless otherwise specified in, or required under, this approval.	**The CNVMP**
C9	The Construction Noise and Vibration Sub-plan must include, but not limited to: a) measures to reduce construction to standard ICNG hours where sensitive land uses are likely to be noise affected for more than 3 months; b) an approach to assess and manage construction fatigue from noise impacts on sensitive receivers on an ongoing basis; c) noise sensitive periods identified by the community, religious, educational institutions, noise and vibration-sensitive businesses and critical working areas and measures to ensure noise levels above the NMLs do not occur during sensitive periods in accordance with Condition E76; d) mitigation for construction traffic noise impacts from additional construction traffic and road diversions; e) the location of all heritage items, non-heritage structures and infrastructure likely to be impacted by vibration and measures to manage vibration impacts at those items and structures; and f) vibration levels at a range of distances from vibration intensive equipment such as excavators and vibratory rollers before undertaking works with the specific type and size of equipment.	**The CNVMP**
E68	A detailed land use survey must be undertaken to confirm sensitive land use(s) (including critical working areas such as operating theatres and precision laboratories) potentially exposed to construction noise and vibration, construction ground-borne noise and operational noise. The survey may be undertaken on a progressive basis but must be undertaken in any one area before the commencement of work which generates construction or operational noise, vibration or ground-borne noise in that area. The results of the survey must be included in the Noise and Vibration CEMP sub-plan required by Condition C8.	**The CNVMP, Section 3.0, Figure 1**
E69	Work must be undertaken during the following hours: a) 7:00am to 6:00pm Mondays to Fridays, inclusive; b) 7:00am to 6:00pm Saturdays; and c) at no time on Sundays or public holidays.	**Section 2.2**

CoA	Requirement	Reference
E70	Except as permitted by an EPL, highly noise intensive works that result in an exceedance of the applicable NML at the same receiver must only be undertaken: a) between the hours of 8:00 am to 6:00 pm Monday to Friday; b) between the hours of 8:00 am to 1:00 pm Saturday; and c) if continuously, then not exceeding three (3) hours, with a minimum cessation of work of not less than one hour. For the purposes of this condition, 'continuously' includes any period during which there is less than one hour between ceasing and recommencing any of the work.	**Section 2.2.1**, **Section 8.2**
E71	Notwithstanding Conditions E69 and E70, work may be undertaken outside the hours specified in the following circumstances (a, b, or c): a) Safety and Emergencies, including: i. for the delivery of materials required by the NSW Police Force or other authority for safety reasons; or ii. where it is required in an emergency to avoid injury or the loss of life, to avoid damage or loss of property or to prevent environmental harm. On becoming aware of the need for emergency work in accordance with Condition E71(a), the AA, the ER, the Planning Secretary and the EPA must be notified of the reasons for such work. Best endeavours must be used to notify all noise and/or vibration affected residents and owners/occupiers of properties identified sensitive land use(s) of the likely impact and duration of those work. b) Work, that meets the following criteria: i. construction that causes $L_{Aeq(15\ minute)}$ noise levels: • no more than 5 dB(A) above the rating background level at any residence in accordance with the ICNG, and • no more than the 'Noise affected' NMLs specified in Table 3 of the ICNG at other sensitive land use(s); and ii. construction that causes L_{AFmax} noise levels no more than 15 dB above the rating background level at any residence during the night period as defined in the ICNG. and iii. construction that causes: • continuous or impulsive vibration values, measured at the most affected residence no more than the preferred values for human exposure to vibration, specified in Table 2.2 of *Assessing Vibration: a technical guideline* (DEC, 2006), or • intermittent vibration values measured at the most affected residence no more than the preferred values for human exposure to vibration, specified in Table 2.4 *of Assessing Vibration: a technical guideline* (DEC, 2006). c) By Approval, including: i. where different construction hours, such as those for a rail possession, are permitted under an EPL in force in respect of the CSSI; or ii. works which are not subject to an EPL that are approved under an Out-of-Hours Work Protocol as required by Condition E72; or iii. negotiated agreements with directly affected residents and sensitive land use(s).	**Section 2.3**
E72	An Out-of-Hours Work Protocol must be prepared to identify a process for the consideration, management and approval of work which is outside the hours defined in Conditions E69, and that are not subject to an EPL. The Protocol must be approved by the Planning Secretary before commencement of the Out-of-Hours Work. The Protocol must be prepared in consultation with the ER, AA and EPA.	**The CNVMP, Section 2.4**

CoA	Requirement	Reference
	The Protocol must include: a) identification of low and high-risk activities and an approval process that considers the risk of activities, proposed mitigation, management, and coordination, including where: i. the ER and AA review all proposed out-of-hours activities and confirm their risk levels, ii. low risk activities can be approved by the ER in consultation with the AA, and iii. high risk activities that are approved by the Planning Secretary; b) a process for the consideration of out-of-hours work against the relevant NML and vibration criteria; c) a process for selecting and implementing mitigation measures for residual impacts in consultation with the community at each affected location, including respite periods. The measures must take into account the predicted noise levels and the likely frequency and duration of the out-of-hours works that sensitive land use(s) would be exposed to, including the number of noise awakening events; d) procedures to facilitate the coordination of out-of-hours work including those approved by an EPL or undertaken by a third party, to ensure appropriate respite is provided; and e) notification arrangements for affected receivers for approved out-of-hours work and notification to the Planning Secretary of approved low risk out-of-hours works. This condition does not apply if the requirements of Condition E71 are met.	
E73	Except as permitted by an EPL, out-of-hours work that may be regulated through the Out-of-Hours Work Protocol as per Condition E72, but is not limited to: a) Carrying out work that if carried out during standard hours would result in a high risk to construction personnel or public safety based on a risk assessment carried out in accordance with AS/NZS ISO 31000:2009: "Risk management; or b) where the relevant roads authority has advised the Proponent in writing that carrying out the work during standard hours would result in a high risk to road network performance and a road occupancy licence will not be issued; or c) where the relevant utility service operator has advised the Proponent in writing that carrying out the work during standard hours would result in a high risk to the operation and integrity of the utility network; or d) work undertaken in a rail possession for operational or safety reasons. *Note: Other out-of-hours works can be undertaken with the approval of an EPL, or through the project's Out-of-Hours Work Protocol for works not subject to an EPL.*	**Section 2.3**
E74	Mitigation measures must be implemented with the aim of achieving the following construction noise management levels and vibration objectives: a) construction 'Noise affected' NMLs established using the Interim Construction Noise Guideline (DECC, 2009); b) vibration criteria established using *the Assessing vibration: a technical guideline* (DEC, 2006) (for human exposure); c) Australian Standard AS 2187.2 - 2006 "*Explosives - Storage and Use - Use of Explosives*"; d) BS 7385 Part 2-1993 "*Evaluation and measurement for vibration in buildings Part 2*" as they are "applicable to Australian conditions"; and e) the vibration limits set out in the *German Standard DIN 4150-3: Structural Vibration- effects of vibration on structures* (for structural damage).	**The CNVMP, Section 4.0**, **Section 8.0**

CoA	Requirement	Reference
	Work that exceeds the noise management levels and/or vibration criteria must be managed in accordance with the Noise and Vibration CEMP sub-plan. *Note: The ICNG identifies 'particularly annoying' activities that require the addition of 5 dB(A) to the predicted level before comparing to the construction NML.*	
E75	Mitigation measures must be applied when the following residential ground-borne noise levels are exceeded: a) evening (6:00 pm to 10:00 pm) — internal $L_{Aeq(15\ minute)}$: 40 dB(A); and b) night (10:00 pm to 7:00 am) — internal $L_{Aeq(15\ minute)}$: 35 dB(A). The mitigation measures must be outlined in the Noise and Vibration CEMP sub-plan, including in any Out-of-Hours Work Protocol, required by Condition E72.	**Section 4.2.3**
E76	Noise generating work in the vicinity of community, religious, educational institutions, noise and vibration-sensitive businesses and critical working areas (such as exam halls, theatres, laboratories and operating theatres) resulting in noise levels above the NMLs must not be timetabled during sensitive periods, unless other reasonable arrangements with the affected institutions are made at no cost to the affected institution.	**Section 8.0**
E77	At no time can noise generated by construction exceed the National Standard for exposure to noise in the occupational environment of an eight-hour (8hr) equivalent continuous A-weighted sound pressure level of $L_{Aeq,8h}$ of 85 dB(A) for any employee working at a location near the CSSI.	**Section 8.6**
E78	Construction Noise and Vibration Impact Statements (CNVIS) must be prepared for work that may exceed the noise management levels, vibration criteria and/or ground-borne noise levels specified in Condition E74 and Condition E75 at any residence outside construction hours identified in Condition E69, or where receivers will be highly noise affected. The CNVIS must include specific mitigation measures identified through consultation with affected sensitive land use(s) and the mitigation measures must be implemented for the duration of the works. A copy of the CNVIS must be provided to the AA and ER prior to the commencement of the associated works. The Planning Secretary may request a copy/ies of CNVIS.	**This report, Section 8.5**
E79	Owners and occupiers of properties at risk of exceeding the screening criteria for cosmetic damage must be notified before work that generates vibration commences in the vicinity of those properties. If the potential exceedance is to occur more than once or extend over a period of 24 hours, owners and occupiers are to be provided a schedule of potential exceedances on a monthly basis for the duration of the potential exceedances, unless otherwise agreed by the owner and occupier. These properties must be identified and considered in the Noise and Vibration CEMP Sub-plan required by Condition C8 and the Community Communication Strategy required by Condition B1.	**Section 8.0**
E80	Vibration testing must be undertaken before and during vibration generating activities that have the potential to impact on heritage items to identify minimum working distances to prevent cosmetic damage. In the event that the vibration testing and attended monitoring shows that the preferred values for vibration are likely to be exceeded, the construction methodology must be reviewed and, if necessary, additional mitigation measures implemented.	**Section 6.1, Section 8.0**
E81	Advice from an independent heritage specialist must be sought on methods and locations for installing equipment used for vibration, movement and noise monitoring at heritage-listed structures. *Note: The heritage specialist is to provide advice prior to installing equipment that may impact the heritage significance or structural integrity of the heritage listed structures.*	**Section 8.0**
E83	All work undertaken for the delivery of the CSSI, including those undertaken by third parties (such as utility relocations), must be coordinated to ensure respite periods are provided. This must include:	**Section 8.0, Section 8.2**

CoA	Requirement	Reference
	a) rescheduling work to provide respite to impacted noise sensitive land use(s) so that the respite is achieved; or b) the provision of alternative respite or mitigation to impacted noise sensitive land use(s); and c) the provision of documentary evidence to the AA in support of any decision made in relation to respite or mitigation. The consideration of respite must also include all other CSSI, SSI and SSD projects which may cause cumulative and/or consecutive impacts at receivers affected by the delivery of the CSSI.	
E119	The Proponent must coordinate Work with adjoining Inland Rail Projects, including any work to relocate or connect utilities, to minimise cumulative and consecutive noise and vibration impacts and maximise respite for affected sensitive land uses. Coordination and mitigation measures must be detailed in the Construction Noise and Vibration management Sub-plan required by Condition C9.	**Section 8.0, Section 8.2, Section 9.0**
E122	Property damage caused directly or indirectly (for example from vibration or from groundwater change) by the construction or operation must be rectified at no cost to the owner. Alternatively, compensation may be provided for the property damage as agreed with the property owner.	**Section 6.1**

1.0 Introduction

SLR Consulting Australia Pty Ltd (SLR) has been engaged by Martinus Rail (MR) to prepare a construction noise and vibration impact statement (CNVIS) for the work at the Harefield Yard Clearance. These sites form part of the Albury to Illabo (A2I) section of Inland Rail (the Project). This assessment has been prepared in accordance with the Construction Noise and Vibration Management Plan (CNVMP) for the A2I section of the Project.

This report assesses the potential construction noise and vibration impacts for the work associated with Harefield Yard Clearances (ie gantry removal work). An explanation of the specialist acoustic terminology used in this report is provided in **Appendix A**.

2.0 Project Description

Inland Rail is an approximate 1,600 kilometres (km) freight rail network that will connect Beveridge and Kagaru via regional Victoria, New South Wales 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. Inland Rail will accommodate double-stacked freight trains up to 1,800 metres (m) long and 6.5 m high.

The Albury to Illabo (A2I) section (the Project) forms a key component of the Inland Rail program. It is a 185 km section of existing rail corridor located in regional NSW between the towns of Albury and Illabo. 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. This CNVIS is associated with the work at Harefield Yard Clearances (ie gantry removal work).

Relevant noise and vibration conditions from the Conditions of Approval (CoA) are detailed within the compliance table at the beginning of this document and will be complied with during the work.

2.1 Scope of this CNVIS

The focus of this CNVIS is work at Harefield Yard. Work at this site includes:

- Site Establishment / Demobilisation
- Compound Operation
- Geotechnical Investigation
- Track Work
- Track Tamping
- Platform & Shed Removal
- Gantry removal
- Signalling Work
- Bridge Modification Work

Further details of work activities are outlined in **Section 5.1**. The work areas are surrounded by a combination of rural residential and commercial receivers. The acoustic environment is dominated by road traffic noise from the Byrnes Road. The Project location, work areas and surrounding receivers are shown in **Figure 1**.

2.2 Hours of work

In accordance with the Construction Noise and Vibration Management Plan (CNVMP) and CoA E69 construction work must be undertaken within the approved standard construction hours:

a) 7:00am to 6:00pm Monday to Friday, inclusive;

b) 7:00am to 6:00pm Saturday and

c) At no time on Sundays or public holidays.

2.2.1 Highly Noise Intensive Work

As outlined in the CoA E70, any highly noise intensive works that result in an exceedance of the applicable NML at the same receiver must only be undertaken:

a) Between 08:00am – 06:00pm Monday to Friday;

b) Between 08:00am – 01:00pm Saturday; and

c) If continuously, then not exceeding (3) hours, with a maximum cessation of work of not less than one hour.

The CoA defines ‘highly noise intensive works’ as those identified as annoying under the ICNG and include:

- Use of ‘beeper’ style reversing or movement alarms, particularly as night-time;
- Use of power saws, such as used for cutting timber, rail lines, masonry, road pavement or steel work;
- Grinding metal, concrete or masonry;
- Rock drilling;
- Line drilling;
- Vibratory rolling;
- Rail tamping and regulating;
- Bitumen milling or profiling;
- Jackhammering, rock hammering or rock breaking;
- Impact piling.

2.3 Variation to hours of work

Notwithstanding Conditions E69 and E70, work may be undertaken outside the hours specified in the following circumstances (a, b, or c):

a) Safety and Emergencies

b) Work, that meets specific criteria

c) By Approval

Note: refer to **Compliance Table** for further detail.

2.4 Justification of Out of Hours Work (OOHW)

Work activities that may be required or proposed to be undertaken outside of standard working hours will be managed in accordance with the OOHW Protocol as defined in CoA E72 and E73, unless the work is regulated by an EPL.

All work on or adjacent to roads would be carried out in accordance with a relevant Traffic Control Plan (TCP), Road Occupancy Licence (ROL) and/or rail possession to facilitate safe work near live road/rail traffic. Where an ROL/rail possession cannot be obtained for the approved project hours and/or proposed works cannot be undertaken safely during these hours, some works will be required to be undertaken outside of standard hours (ie Out of Hours Work, OOHW).

As outlined in the ICNG, work undertaken on public infrastructure may need to be undertaken outside the recommended standard hours. For this project the need is based on a requirement to sustain the operational integrity of public infrastructure, as works to restore operation of the infrastructure provide benefit to the greater community (ie more than just local residents).

Further detail around the specific work tasks, duration and justification of OOHW must be identified in the OOHW permit, required by the OOHW Protocol or EPL.

3.0 Existing Environment

The existing ambient noise environment was described in Environmental Impact Statement (EIS), Technical Paper 6 – Noise and Vibration (Non-Rail) for the Albury to Illabo project. This section provides details of the existing ambient noise environment relevant to the Harefield Yard Clearances.

The noise catchment areas (NCAs) used are consistent with the NCAs described in the EIS and are shown in **Figure 1** with the receiver classifications and approximate noise monitoring locations.

A detailed land use survey was undertaken in August 2024 to confirm sensitive land uses within the project area, results of the land use survey have been incorporated into the receiver classifications shown in **Figure 1.**

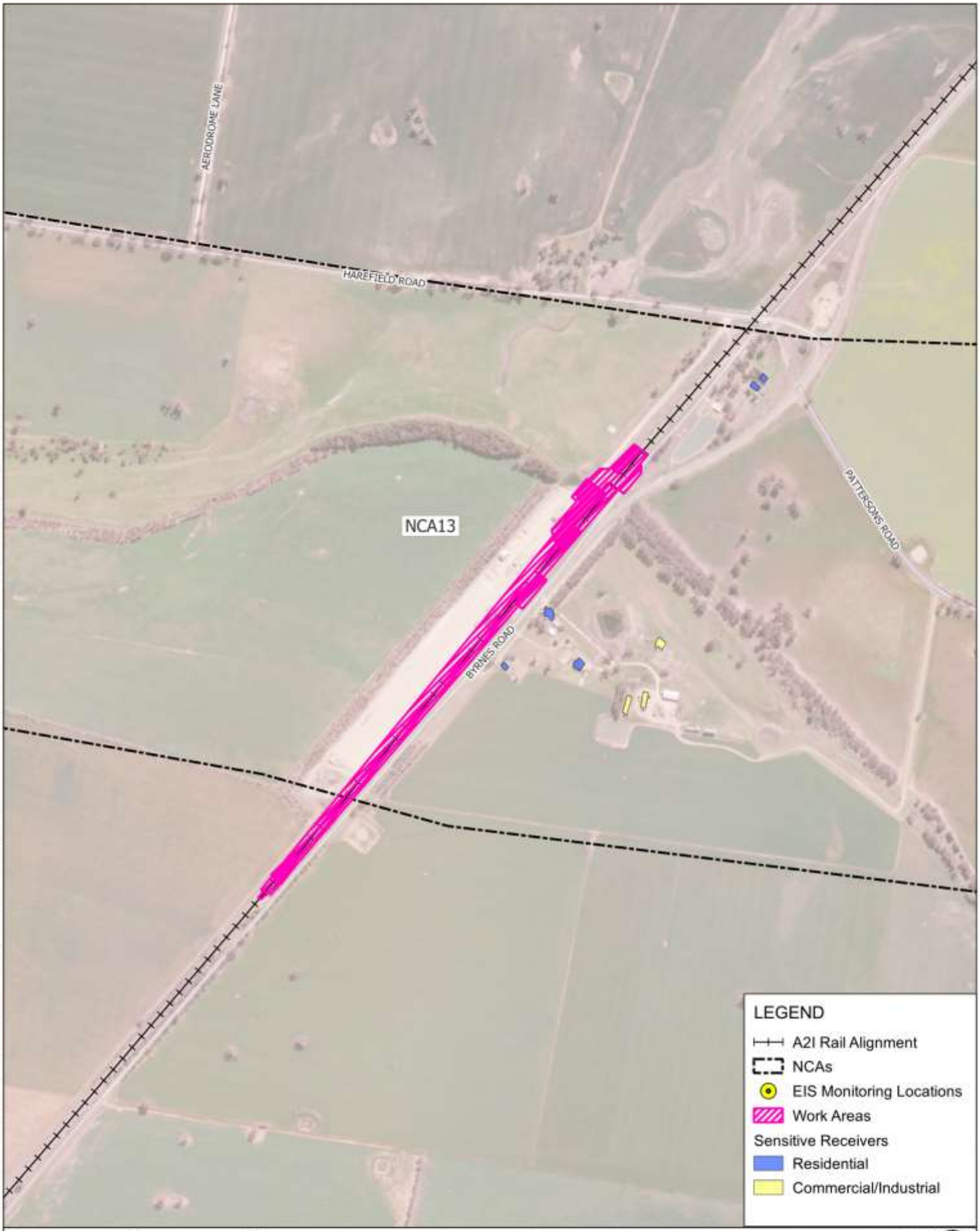
3.1 Background Noise Levels

Background noise levels have been referenced from the baseline noise survey undertaken as part of the EIS and reproduced in the CNVMP. The background noise levels relevant to the Harefield Yard work are summarised in **Table 1**.

Table 1 Background Noise Levels

Noise Monitoring Location	NCA	Rating background Level (RBL) dBA NPfI defined time periods[1]		
		Daytime period	Evening period	Night-time period
13	13	41	39	37

Note 1: The assessment periods are the daytime which is 7 am to 6 pm Monday to Saturday and 8 am to 6 pm on Sundays and public holidays, the evening which is 6 pm to 10 pm, and the night-time which is 10 pm to 7 am on Monday to Saturday and 10 pm to 8 am on Sunday and public holidays. See the NSW EPA Noise Policy for Industry (NPfI).



0 250 500 m

Scale: Scale: 1:10,000
Coordinate System: GDA2020 / MGA zone 55

Drawn Date: 22-Jan-2025
Project Number: 610.031317

SLR

Data Source:
ESRI World Imagery

DISCLAIMER: All information within this document maybe based on external sources. SLR Consulting Pty Ltd makes no warranty regarding the data's accuracy or reliability for any purpose .

Receiver Classifications and Noise Monitoring Locations

FIGURE 1

\\au.slr.local\Corporate\Projects-SLR\610-SrvSYD\610-SYD\610.031317.00001 Inland Rail A2P Enhancement\06 SLR Data\05 Modelling\90 CNV\S02 A2I\07 Analysis\Harefield Yard\610.031317 A2I CNVIS - Harefield.qgz

Table 3 Residential Noise Management Levels

NCA	Noise Management Level ($L_{Aeq(15minute)}$ - dBA)				Sleep disturbance Screening Level (RBL +15dB or 52 dB)	Sleep Awakening Reaction Level
	Approved Hours (RBL +10dB)	Out of Hours[1]				
		Daytime (RBL +5dB)	Evening (RBL +5dB)	Night-time (RBL +5dB)		
NCA13	51	46	44	42	57	65

Note 1: Approved Construction Hours are Monday to Saturday 7 am to 6 pm, as defined in CoA E69.

Note 2: Work outside of the Approved Hours is defined as OOHW = Out of Hours Work. Daytime out of hours is Sunday and public holidays between 8 am to 6 pm. Evening is 6pm to 10pm Monday – Sunday (including public holidays). Night-time is 10pm to 7am Monday – Saturday and 10pm to 8am Sunday (including public holidays).

Highly Noise Affected

In addition to the NMLs presented above, the ICNG highly noise affected level (75 dBA) is applicable to all residential receivers during approved project hours as outlined in the CNVMP and the ICNG.

Sleep Disturbance

Where the sleep disturbance screening level (RBL + 15 dB or 52 dB, whichever is greater, see **Table 3**) is exceeded, further assessment is required to determine whether the 'awakening reaction' level of L_{Amax} 65 dBA (external) would be exceeded and the likely number of these events. The awakening reaction level is the level above which residents are likely to be awoken from sleep.

4.2.2 Other Sensitive Land Uses and Commercial Receivers

The ICNG NMLs for 'other sensitive' non-residential land uses are shown in **Table 4**.

The ICNG references *AS2107:2016 Acoustics – Recommended design sound levels and reverberation times for building interiors* for criteria for 'other sensitive' receivers which are not listed in the guideline. Neither the ICNG nor AS2107 provide criteria for child care centres so the Association of Australian Acoustical Consultants *Guideline for Child Care Centre Acoustic Assessment* (GCCCAA) has been referenced.

Table 4 NMLs for 'Other Sensitive' Receivers

Land Use	Noise Management Level $L_{Aeq(15minute)}$ (dBA) (Applied when the property is in use)	
	Internal	External
ICNG 'Other Sensitive' Receivers		
Classrooms at schools and other educational institutions	45	55[1]
Hospital wards and operating theatres	45	65[2]
Places of worship	45	55[1]
Active recreation areas (characterised by sporting activities which generate noise)	-	65
Passive recreation areas (characterised by contemplative activities that generate little noise)	-	60
Commercial	-	70
Industrial	-	75
Non-ICNG 'Other Sensitive' Receivers		

Land Use	Noise Management Level $L_{Aeq(15minute)}$ (dBA) (Applied when the property is in use)	
	Internal	External
Hotel – daytime & evening[3]	50	60[1,5]
Hotel – night-time[3]	35	45[1,5]
Child care centres – activity areas[4]	40	50[1,5]
Child care centres – sleeping areas[4]	35	45[1,5]
Library[3]	45	55[1]
Public Building[3]	50	60[1]
Aged Care	Considered as Residential	

Note 1: It is assumed that these receivers have windows partially open for ventilation which results in internal noise levels being around 10 dB lower than the external noise level.

Note 2: It is assumed that these receivers have fixed windows which conservatively results in internal noise levels being around 20 dB lower than the external noise level.

Note 3: Criteria taken from AS2107.

Note 4: Criteria taken from Association of Australian Acoustical Consultants Guideline for Child Care Centre Acoustic Assessment.

Note 5: Some receivers near highways or rail lines may have building façade mitigation and air-conditioning. Where evidence is provided a 20dB reduction from external to internal may be adopted.

4.2.3 Ground-borne Noise

Construction work can cause ground-borne (structure-borne or regenerated) noise impacts in nearby buildings when vibration intensive equipment is in use, such as during tunnelling or excavation work using tunnel boring machines, roadheaders or rockbreakers. Vibration can be transmitted through the ground and into nearby buildings, which can then create audible noise impacts inside the building.

Ground-borne noise NMLs are applicable where ground-borne noise levels are likely to be higher than airborne noise levels, which can occur where work is underground or where surface work is shielded by noise barriers or other structures or façade mitigation at the receiver. Ground-borne noise is generally found to generate impacts during the evening and night-time periods when ambient noise levels are often much lower, and ground-borne noise is more prominent.

The internal ground-borne noise NMLs for residential receivers are shown in **Table 5**.

Table 5 Internal ground-borne NMLs

Receiver Type	Noise Management Level ($L_{Aeq(15minute)}$ – dBA)		
	Daytime[1]	Evening[2]	Night-time[2]
Residential	n/a	40	35

Note 1: Daytime ground-borne noise NMLs are not specified in the ICNG of CoA.

Note 2: Specified in the ICNG and CoA E75.

For other sensitive receivers, including commercial receivers such as offices and retail areas, the ICNG does not provide guidance in relation to acceptable ground-borne noise levels. For the purpose of this CNVIS, the internal airborne NMLs presented in **Table 4** will also be adopted for ground-borne noise.

4.3 Vibration Criteria

The effects of vibration from construction work can be divided into three categories:

- Those in which the occupants of buildings are disturbed (**human comfort**). People can sometimes perceive vibration impacts when vibration generating construction work is located close to occupied buildings. Vibration from construction work tends to be intermittent in nature and the EPA's Assessing Vibration: a technical guideline (2006) (AV:ATG) provides criteria for intermittent vibration based on the Vibration Dose Value (VDV), as shown in **Table 6**. While the construction activities for the proposal are generally not expected to result in continuous or impulsive vibration impacts, corresponding criteria are provided in **Table 7**.
- Those where building contents may be affected (**building contents**). People perceive vibration at levels well below those likely to cause damage to building contents. For most receivers, the human comfort vibration criteria are the most stringent and it is generally not necessary to set separate criteria for vibration effects on typical building contents. Exceptions to this can occur when vibration sensitive equipment, such as electron microscopes or medical imaging equipment, are in buildings near to construction work. No such equipment has been identified in the study area.
- Those where the integrity of the building may be compromised (**structural/cosmetic damage**). If vibration from construction work is sufficiently high it can cause cosmetic damage to elements of affected buildings. Industry standard cosmetic damage vibration limits are specified in British Standard BS 7385 and German Standard DIN 4150. The limits are shown in **Table 8** and **Table 9**.

Table 6 Human Comfort Vibration – Vibration Dose Values for Intermittent Vibration

Building Type	Assessment Period	Vibration Dose Value[1] ($m/s^{1.75}$)	
		Preferred	Maximum
Critical Working Areas (eg operating theatres or laboratories)	Day or night-time	0.10	0.20
Residential	Daytime	0.20	0.40
	Night-time	0.13	0.26
Offices, schools, educational institutions and places of worship	Day or night-time	0.40	0.80
Workshops	Day or night-time	0.80	1.60

Note 1: The VDV accumulates vibration energy over the daytime and night-time assessment periods, and is dependent on the level of vibration as well as the duration.

Table 7 Human Comfort Vibration – Preferred and Maximum Weighted Root Mean Square Values for Continuous and Impulsive Vibration Acceleration (m/s^2) 1–80 Hz

Location	Assessment period	Preferred values		Maximum values	
		z-axis	x- and y-axis	z-axis	x- and y-axis
Continuous vibration					
Residential	Daytime	0.010	0.0071	0.020	0.014
	Night-time	0.007	0.005	0.014	0.010
Offices, schools, educational institutions and places of worship	Day or night-time	0.020	0.014	0.040	0.028
Workshops	Day or night-time	0.04	0.029	0.080	0.058
Impulsive vibration					
Residential	Daytime	0.30	0.21	0.60	0.42
	Night-time	0.10	0.071	0.20	0.14
Offices, schools, educational institutions and places of worship	Day or night-time	0.64	0.46	1.28	0.92
Workshops	Day or night-time	0.64	0.46	1.28	0.92

Table 8 Cosmetic Damage – BS 7385 Transient Vibration Values for Minimal Risk of Damage

Group	Type of Building	Peak Component Particle Velocity in Frequency Range of Predominant Pulse	
		4 Hz to 15 Hz	15 Hz and Above
1	Reinforced or framed structures. Industrial and heavy commercial buildings	50 mm/s at 4 Hz and above	
2	Unreinforced or light framed structures. Residential or light commercial type buildings	15 mm/s at 4 Hz increasing to 20 mm/s at 15 Hz	20 mm/s at 15 Hz increasing to 50 mm/s at 40 Hz and above

Note 1: Where the dynamic loading caused by continuous vibration may give rise to dynamic magnification due to resonance, especially at the lower frequencies where lower guide values apply, then the guide values may need to be reduced by up to 50%.

Table 9 Cosmetic Damage – DIN 4150 Guideline Values for Short-term Vibration on Structures

Group	Type of Structure	Guideline Values Vibration Velocity (mm/s)				
		Foundation, All Directions at a Frequency of			Topmost Floor, Horizontal	Floor Slabs, Vertical
		1 to 10 Hz	10 to 50 Hz	50 to 100 Hz	All frequencies	All frequencies
1	Buildings used for commercial purposes, industrial buildings and buildings of similar design	20	20 to 40	40 to 50	40	20
2	Residential buildings and buildings of similar design and/or occupancy	5	5 to 15	15 to 20	15	20

Group	Type of Structure	Guideline Values Vibration Velocity (mm/s)				
		Foundation, All Directions at a Frequency of			Topmost Floor, Horizontal	Floor Slabs, Vertical
		1 to 10 Hz	10 to 50 Hz	50 to 100 Hz	All frequencies	All frequencies
3	Structures that, because of their particular sensitivity to vibration, cannot be classified as Group 1 or 2 **and** are of great intrinsic value (eg heritage listed buildings)	3	3 to 8	8 to 10	8	20[1]

Note 1: It may be necessary to lower the relevant guideline value markedly to prevent minor damage.

4.3.1 Heritage Buildings or Structures

Heritage listed buildings and structures should be considered on a case-by-case basis but BS 7385 notes that buildings of historical value should not be assumed to be more sensitive to vibration, unless structurally unsound. Where a heritage building is deemed to be sensitive, the more stringent DIN 4150 Group 3 guideline values in **Table 9** can be applied.

Heritage Structures

No heritage buildings or structures have been identified within vicinity of the work areas as per the State Heritage Inventory and Local Environmental Plans. Therefore, no additional consideration or assessment has been undertaken in relation to heritage buildings or structures.

4.3.2 Buried Pipework and Utilities

The German Standard DIN 4150-3:1999 “Structural Vibration Part 3: Effects of vibration in structures” provides guideline values for evaluating the effect of vibration on buried pipework. The values are based on the assumption that pipes have been manufactured and laid using current technology. Additional considerations may be required at junctions. The recommended limits for short term vibration to ensure minimal risk of damage are presented numerically in **Table 10**.

Table 10 Guideline Values for Short Term Vibration on Buried Pipework

Line	Pipe Material	Guideline value at the Pipe[1,2] (PPV mm/s)
1	Steel (including welded pipes)	100
2	Clay, concrete, reinforced concrete, pre stressed concrete, metal (with or without flange)	80
3	Masonry, plastic[3]	50

Note 1: Mounting equipment directly onto pipes may not be possible. If the vibration source is not immediately next to the pipework, measurements can be made on the ground surface to obtain an estimate. Generally, this vibration level will be greater than the level measured directly on the pipework.

Note 2: The guideline values may be reduced by 50% without further analysis when evaluating the effects of long-term vibration on buried pipework.

Note 3: Drainpipes shall be evaluated using the values given for Line 3.

Buried Pipework and Utilities

No buried pipework or utilities have been identified in this CNVIS at risk of impact from vibration. Therefore, no additional consideration or assessment has been undertaken in relation to buried pipework and utilities.

4.3.3 Minimum Working Distances for Vibration Intensive Work

Minimum working distances for typical vibration intensive construction equipment have been sourced from the Transport for NSW (TfNSW) Construction Noise and Vibration Guideline (Public Transport Infrastructure) (CNVG-PTI) and are shown in **Table 11**. The minimum working distances are for both cosmetic damage (from BS 7385 and DIN 4150) and human comfort (from the NSW EPA Assessing Vibration: a technical guideline). They are calculated from empirical data which suggests that where work is further from receivers than the quoted minimum distances then impacts are not considered likely.

The minimum working distances listed in the CNVG were used to derive the minimum working distances required for cosmetic damage to industrial and heavy commercial buildings (also reinforced or framed structures). The following pseudo-power law relationship has been used in the derivations:

$$V_2 = V_1 \times \left(\frac{D_1}{D_2}\right)^B$$

where a site exponent value of B = 1.6 is adopted for the calculations, as per AS2187.2:2006

Table 11 Recommended Minimum Working Distances from Vibration Intensive Equipment

Plant Item	Rating/Description	Minimum Distance			
		Cosmetic Damage			Human Response (NSW EPA Guideline)[2]
		Residential and Light Commercial (BS 7385)	Heritage Items[1] (DIN 4150, Group 3)	Industrial and Heavy Commercial (BS 7385)	
Vibratory Roller	<50 kN (1–2 tonne)	5 m	11 m	3 m	15 m to 20 m
	<100 kN (2–4 tonne)	6 m	13 m	3 m	20 m
	<200 kN (4–6 tonne)	12 m	25 m	6 m	40 m
	<300 kN (7–13 tonne)	15 m	31 m	8 m	100 m
	>300 kN (13–18 tonne)	20 m	40 m	10 m	100 m
	>300 kN (>18 tonne)	25 m	50 m	12 m	100 m
Small Hydraulic Hammer	300 kg (5 to 12 t excavator)	2 m	5 m	1 m	7 m
Medium Hydraulic Hammer	900 kg (12 to 18 t excavator)	7 m	15 m	4 m	23 m
Large Hydraulic Hammer	1,600 kg (18 to 34 t excavator)	22 m	44 m	11 m	73 m
Vibratory Pile Driver	Sheet piles	2 m to 20 m	5 m to 40 m	1 to 10 m	20 m
Piling Rig – Bored	≤ 800 mm	2 m (nominal)	5 m	1 m	4 m

Plant Item	Rating/Description	Minimum Distance			
		Cosmetic Damage			Human Response (NSW EPA Guideline)[2]
		Residential and Light Commercial (BS 7385)	Heritage Items[1] (DIN 4150, Group 3)	Industrial and Heavy Commercial (BS 7385)	
Jackhammer	Hand held	1 m (nominal)	3 m	1 m	2 m
Ballast Tamping[2]	N/A	5 m	10 m	3 m	30 m

Note 1: Minimum working distances for heritage items that have been identified as structurally unsound or otherwise particularly sensitive to vibration. These distances have been calculated based on the 2.5 mm/s PPV criteria from DIN 4150 and the cosmetic damage minimum working distances presented in the CNVG-PTI with reference to BS 7385.

Note 2: Based on SLR measurement data. The human response minimum working distance for Ballast Tamping is determined based on a residential night-time preferred VDV criterion.

The minimum working distances are indicative and will vary depending on the particular item of equipment and local geotechnical conditions. The distances apply to cosmetic damage of typical buildings under typical geotechnical conditions.

4.4 Traffic on Surrounding Roads

The potential impacts from project related traffic on the surrounding public roads are assessed using the NSW EPA *Road Noise Policy* (RNP). An initial screening test is first applied to evaluate if existing road traffic noise levels are expected to increase by more than 2.0 dB. Where this is considered likely, further assessment is required using the RNP criteria shown in **Table 12**.

Table 12 RNP/NCG Criteria for Assessing Traffic on Public Roads

Road Category	Type of Project/Land Use	Assessment Criteria (dBA)	
		Daytime (7 am – 10 pm)	Night-time (10 pm – 7 am)
Freeway/ arterial/ sub-arterial roads	Existing residences affected by additional traffic on existing freeways/arterial/sub-arterial roads generated by land use developments	$L_{Aeq(15hour)}$ 60 (external)	$L_{Aeq(9hour)}$ 55 (external)
Local roads	Existing residences affected by additional traffic on existing local roads generated by land use developments	$L_{Aeq(1hour)}$ 55 (external)	$L_{Aeq(1hour)}$ 50 (external)

5.0 Noise Assessment

The potential construction noise levels from the Project have been predicted using ISO 9613:2 algorithm in SoundPLAN noise modelling software. The model includes ground topography, buildings and representative noise sources from the Project.

5.1 Work Scenario

Noise modelling scenarios have been determined based on key Project noise generating stages, supplied by the Project team. A detailed description of each work scenario and the total sound power levels (Lw) are provided in **Table 13**. A summary of construction work periods and schedule required for each scenario is shown in **Table 14**, as per the working hours defined in the CNVMP. The locations of the various work areas are shown in **Figure 2**.

Table 13 Work Scenario Descriptions

ID	Scenario	Description	Total Lw
W.001	Site Establishment / Demobilisation	• Site Compound delivery and set up • Laydown and haul road construction	112
W.002	Compound Operation	• Operation of the site compound • Delivery of materials/equipment	109
W.003	Geotechnical Investigation	• Surveying the of properties of the ground under work area	111
W.004	Track Work – Peak	• Track work including highly noise intensive work	119
W.005	Track Work - Typical	• Track work excluding highly noise intensive work	114
W.006	Track Tamping	• Track tamping work following track work	116
W.007	Platform & Shed Removal	• Demolition/removal of existing platform and shed	119
W.008	Gantry removal	• Demolition/removal of gantry	120
W.009	Signalling Work	• Installation of signalling infrastructure	104
W.010	Bridge Modification Work	• Works to upgrade existing bridge	113
W.011	Track Work Over Bridge – Peak	• Track work over rail bridge including highly noise intensive work	121
W.012	Track Work Over Bridge - Typical	• Track work over rail bridge excluding highly noise intensive work	114
W.013	Track Tamping Over Bridge	• Track tamping work over rail bridge following track work	116

Table 14 Scenarios and Periods of Work

ID	Scenario	Hours of Work				Indicative Start Date	Likely Duration
		Approved Hours	Out-of-Hours Work				
			Day OOH[1]	Evening [2]	Night[3]		
W.001	Site Establishment / Demobilisation	✓	✓	-	-	September 2025	1 month

ID	Scenario	Hours of Work				Indicative Start Date	Likely Duration
		Approved Hours	Out-of-Hours Work				
			Day OOH[1]	Evening [2]	Night[3]		
W.002	Compound Operation	✓	✓	✓	✓	September 2025	3 months
W.003	Geotechnical Investigation	✓	✓	-	-	October 2025	1 month
W.004	Track Work - Peak	✓	✓	✓	✓	October 2025	2 months
W.005	Track Work - Typical	✓	✓	✓	✓	October 2025	2 months
W.006	Track Tamping	✓	✓	✓	✓	October 2025	2 months
W.007	Platform & Shed Removal	✓	✓	-	-	October 2025	1 month
W.008	Gantry removal	✓	✓	✓	✓	September 2025	2 months
W.009	Signalling Work	✓	✓	✓	✓	October 2025	2 months
W.010	Bridge Modification Work	✓	✓	✓	✓	October 2025	2 months
W.011	Track Work Over Bridge – Peak	✓	✓	✓	✓	October 2025	2 months
W.012	Track Work Over Bridge - Typical	✓	✓	✓	✓	October 2025	2 months
W.013	Track Tamping Over Bridge	✓	✓	✓	✓	October 2025	2 months

Note 1: Daytime out of hours is 8 am to 6 pm on Sunday and public holidays.

Note 2: Evening is 6 pm to 10 pm Monday – Sunday (including public holidays).

Note 3: Night is 10 pm to 7 am Monday – Saturday and 10pm to 8am Sunday (including public holidays).

Note 4: Where works are expected to occur outside of the standard working hours, further detail around the specific work tasks, duration and justification of OOHW must be identified in the OOHW permit, required by the OOHW Protocol or EPL.

Figure 2 Construction Work Locations



5.1.1 Modelling Scenarios and Equipment

The assessment uses 'realistic worst-case' scenarios to determine the impacts from the noisiest 15-minute period that is likely to occur for each work scenario, as required by the ICNG. Sound power levels (L_W) for the construction equipment used in the modelling are listed in **Appendix B**.

5.2 Predicted Noise Levels

The following overview is based on the predicted impacts at the most affected receivers and is representative of the worst-case noise levels that are likely to occur during construction.

The assessment shows the predicted 'mitigated' impacts based on the exceedance of the noise management levels, as per the categories in **Table 15**. Recommendations for mitigation and management are provided in **Section 8.0**.

Table 15 Exceedance Bands and Impact Colouring

Subjective Classification	Exceedance of Noise Management Level		Impact Colouring
	Daytime	Out of Hours	
Negligible	No exceedance	No exceedance	
Noticeable	-	1 to 5 dB	
Clearly Audible	1 to 10 dB	6 to 15 dB	
Moderately Intrusive	11 to 20 dB	16 to 25 dB	
Highly Intrusive	> 20 dB	> 25 dB	

A summary of the number of buildings where NML exceedances were predicted for the various work scenarios is shown in **Table 16**. The number of receivers above the 'highly noise affected' (HNA) level are also included in the table. Maps of the predicted worst-case noise impacts and corresponding work areas are presented in **Appendix C**.

The assessment presents the combined predicted noise impacts for each scenario. Meaning, the worst-case result at each receiver is considered from all potential work areas where each scenario is to be undertaken.

The assessment is generally considered conservative as the calculations assume several items of construction equipment are in use at the same time within individual scenarios. As outlined in **Section 5.1.1,** the assessment uses 'realistic worst-case' scenarios to determine the impacts from the noisiest 15-minute period that is likely to occur for each work scenario.

The exceedances shown in **Table 16** are therefore representative of a 'realistic worst-case' 15-minute period, and are unlikely to occur for extended periods of time throughout the entire construction period at any given receiver.

The indicative work durations presented in **Table 14** represent a window of time where the scenarios could occur, and does not represent the entire duration of the exceedances shown in **Table 16**.

In reality, there would frequently be periods when construction noise levels are much lower than the worst-case levels predicted as well as times when no equipment is in use and no noise impacts occur.

Table 16 Overview of NML Exceedances

ID	Scenario	Number of Receivers																	
		HNA[1]	With NML exceedance[2]																
			Approved Daytime			Out of Hours													
						Daytime OOH				Evening				Night-time				Sleep Disturbance	Sleep Awakening
			1-10 dB	11-20 dB	>20 dB	1-5 dB	6-15 dB	16-25 dB	>25 dB	1-5 dB	6-15 dB	16-25 dB	>25 dB	1-5 dB	6-15 dB	16-25 dB	>25 dB	>Screening Level	>65 dB
Residential Receivers																			
W.001	Site Establishment / Demobilisation	-	1	-	-	4	1	-	-	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
W.002	Ancillary Facility Operation	-	1	-	-	3	1	-	-	4	1	-	-	3	2	-	-	**5**	-
W.003	Geotechnical Investigation	-	1	2	-	2	1	2	-	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
W.004	Track Work – Peak	-	1	2	1	1	1	2	1	1	1	1	2	-	2	1	2	**5**	**3**
W.005	Track Work - Typical	-	1	2	-	1	1	2	-	1	1	2	-	2	1	1	1	**4**	**2**
W.006	Track Tamping	-	1	2	-	1	1	2	-	1	1	2	1	1	1	2	1	**5**	**3**
W.007	Platform & Shed Removal	**1**	-	2	1	1	-	2	1	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
W.008	Gantry removal	-	-	-	-	3	-	-	-	3	-	-	-	-	3	-	-	**3**	-
W.009	Signalling Work	-	-	-	-	1	-	-	-	-	1	-	-	-	1	-	-	**1**	-
W.010	Bridge Modification Work	-	1	-	-	2	1	-	-	4	1	-	-	2	3	-	-	**5**	-
W.011	Track Work Over Bridge – Peak	-	5	-	-	-	5	-	-	-	4	1	-	-	3	2	-	**5**	**1**
W.012	Track Work Over Bridge - Typical	-	1	-	-	4	1	-	-	3	2	-	-	2	3	-	-	**5**	-
W.013	Track Tamping Over Bridge	-	2	-	-	3	2	-	-	2	3	-	-	-	5	-	-	**5**	-
Other Sensitive Receivers																			
W.001	Site Establishment / Demobilisation	n/a	-	-	-	-	-	-	-	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
W.002	Ancillary Facility Operation	n/a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	n/a	n/a
W.003	Geotechnical Investigation	n/a	-	-	-	-	-	-	-	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
W.004	Track Work – Peak	n/a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	n/a	n/a
W.005	Track Work - Typical	n/a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	n/a	n/a
W.006	Track Tamping	n/a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	n/a	n/a
W.007	Platform & Shed Removal	n/a	-	-	-	-	-	-	-	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
W.008	Gantry removal	n/a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	n/a	n/a
W.009	Signalling Work	n/a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	n/a	n/a
W.010	Bridge Modification Work	n/a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	n/a	n/a
W.011	Track Work Over Bridge – Peak	n/a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	n/a	n/a
W.012	Track Work Over Bridge - Typical	n/a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	n/a	n/a
W.013	Track Tamping Over Bridge	n/a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	n/a	n/a

Note 1: Highly noise affected, based on ICNG definition (i.e. predicted LAeq(15minute) noise at residential receiver is greater than 75 dBA).
Note 2: Based on worst-case predicted noise levels

A summary of the predicted worst-case noise levels is shown below for each work area:

Residential Receivers

- 'Clearly Audible' noise impacts are predicted at the closest residential receivers for all scenarios except *W.007*, *W.008* and *W.009* during the approved and out-of-hours daytime periods, for scenarios *W.002, W.004* to *W.006* and *W.009* to *W.013* during evening and nighttime periods.
- 'Moderately intrusive' noise impacts are predicted at the closest residential receivers to the work for scenarios *W.003* to *W.007* during the approved and out-of-hours daytime periods and for scenarios *W.004* to *W.006 and W.011* during the evening and night periods.
- 'Highly intrusive' noise impacts are predicted at the closest residential receivers to the work for scenarios *W.004* and *W.007* during the approved and out-of-hours daytime periods, for scenarios *W.004* and *W.006* during the evening period and for scenarios *W.004* to *W.006* during the night-time period. The addresses of the residential receivers impacted by OOHW are provided in **Appendix D**.
- A single receiver is predicted to be 'highly noise affected' during work for scenario *W.007.*
- Sleep disturbance impacts would generally be caused by heavy vehicle movements and more noise intensive equipment. Where reasonable and feasible, these activities should be limited to the less sensitive periods to avoid noise impacts during more sensitive out-of-hours periods (refer to **Section 8.0**). The number of awakening events would depend on several factors, including the equipment being used, the duration of noisy work and the distance of the work to each residential receiver. Further detail around the specific OOHW, (eg duration and justification) must be identified in the OOHW permit, refer **Section 2.4**.

Other Sensitive Receivers

- Noise impacts at 'other sensitive' receivers are predicted to comply with the NMLs for all assessed scenarios.

Review of the predictions shows that both the sleep disturbance screening level and sleep awakening reaction level are likely to be exceeded when night work occurs near residential receivers.

The receivers which would potentially be affected by sleep awakening impacts are generally the same receivers where 'moderately intrusive' and 'highly intrusive' night-time impacts have been predicted (refer to **Appendix C**).

These receivers may be eligible for respite offers (RO), agreements with owners (AO) or alternative accommodation (AltA), refer **Section 8.3**. Furthermore, for scenarios where 'highly intrusive' impacts are predicted (ie *W.004*, *W.005, W.006* and *W.007*), noisy activities will be scheduled during standard daytime hours, where feasible, to minimise disruption during OOHW periods. It is noted however, that work for scenarios *W.004* to *W.006* will occur during a rail possession and will be undertaken within the limitations of the possession.

All appropriate feasible and reasonable construction noise mitigation measures will be applied to work as outlined in **Section 8.0** and **Section 8.1**.

5.3 Ground-borne Noise

Ground-borne construction noise impacts from the Project are not anticipated as vibration intensive work with the potential to generate perceptible ground-borne noise, is not included in the scope of work. Vibration intensive work for the Project will be completed outdoors meaning airborne noise levels at the nearest receivers are expected to be higher than the corresponding internal ground-borne noise levels.

Where airborne noise levels are higher than ground-borne noise levels it is not necessary to evaluate potential ground-borne noise impacts and as such, they have not been considered further for this assessment.

6.0 Vibration Assessment

Vibration intensive items of equipment that would be required during work assessed in this CNVIS include a vibratory roller, large hydraulic hammer and a ballast tamper. These items of equipment are required during the work as shown in **Table 17**.

The potential impacts during vibration intensive work have been assessed using the Transport CNVG-PTI minimum working distances for cosmetic damage and human response shown in **Table 17**.

Table 17 Vibration Intensive Equipment

ID	Scenario	Plant Item/ Rating/Description	Minimum Distance			
			Cosmetic Damage			Human Response (NSW EPA Guideline)
			Residential and Light Commercial (BS 7385)	Heritage Items (DIN 4150, Group 3)	Industrial and Heavy Commercial (BS 7385)	
W.001	Site Establishment/ Demobilisation	Vibratory Roller <50 kN (1-2 tonne)	5 m	11 m	3 m	15 m to 20 m
W.007	Platform and shed removal	Vibratory Roller >300 kN (13-18 tonne)	20 m	40 m	10 m	100 m
W.004	Track Work – Peak	Vibratory Roller >300 kN (13-18 tonne)	20 m	40 m	10 m	100 m
W.008	Gantry removal	Large Hydraulic Hammer 1,600 kg (18-34 t excavator)	22 m	44 m	11 m	73 m
W.006, W.013	Track Tamping	Ballast Tamper	5 m	10 m	3 m	30 m

Vibration offset distances have been determined from the TfNSW CNVG-PTI minimum working distances for cosmetic damage and human comfort (see **Table 11**) and the assessment is summarised in **Figure 3** to **Figure 7**.

The offset distances are representative of the highest vibration levels that would likely be experienced by the nearest receivers when work occurs nearby.

For most construction activities, vibration emissions are intermittent in nature and for this reason, higher vibration levels occurring over shorter time periods are allowed.

In the event that additional work is undertaken which requires the use of other items of plant identified than those identified in **Table 17**, a vibration impact assessment must be conducted prior to the commencement of work.

Figure 3 Vibratory Roller (13-18 tonne) - Minimum Working Distances (W.001, W.007)



Figure 4 Vibratory Roller (1-2 Tonne) - Minimum Working Distances (W.001, W.007)



Figure 5 Vibratory Roller (13-18 tonne) - Minimum Working Distances (W.004)



Figure 6 Hydraulic Hammer - Minimum Working Distances (W.008)



Figure 7 Ballast Tamping - Minimum Working Distances (W.006, W.013)



6.1 Cosmetic Damage Assessment

Figure 3 and **Figure 5** show that some structures within the railway corridor have the potential to fall within the cosmetic damage minimum working distance for light commercial structures when large vibratory rollers are in use during *W.001, W.004* and *W.007*. **Figure 4** shows that with the use of the small vibratory roller in *W.001* and *W.007*, three of the structures are outside the cosmetic damage minimum working distance. The remaining structure within the minimum working distance for cosmetic damage is the shed marked for removal in *W.007*.

Figure 6 and **Figure 7** show that all structures are beyond the minimum working distances for cosmetic damage when large hydraulic hammers are in use during *W.008* and for ballast tamping during *W.006/W.013,* respectively. It is noted that for scenarios *W.006* and *W.013*, the nearby structures have been previously exposed to track tamping activities during standard periodic maintenance of the track.

Offset distances from specific vibration intensive plant to the nearest receivers and building construction should be confirmed before commencing vibration intensive work during construction.

Before commencement of any work, a structural engineer must undertake condition surveys of all building, structures, utilities and the like identified as being at risk of damage. For this CNVIS, conditions surveys (based on the 13-18 tonne vibratory roller) should be considered for:

- Three structures within the rail corridor at Harefield Yard (excluding the shed to removed in *W.007*)

After completion of construction, condition surveys must be undertaken by a structural engineer for all items for which pre-condition surveys were undertaken.

The results of the surveys must be documented in a Condition Survey Report for each item surveyed. Copies of Condition Survey Reports must be provided to the landowners of the items surveyed, and no later than one month before the commencement of construction and three months following the completion of construction.

Feasible and reasonable construction vibration mitigation measures should be applied where vibration intensive work is required within the minimum working distances. Construction vibration mitigation and management measures are discussed in **Section 8.0**.

In accordance with CoA E122, property damage caused directly or indirectly by the construction or operation must be rectified at no cost to the owner. Alternatively, compensation may be provided for the property damage as agreed with the property owner.

6.2 Human Comfort Assessment

Figure 3 and **Figure 5** show that two residential receivers have the potential to fall within the human comfort minimum working distances when vibratory rollers are in use during *W.001, W.004* and *W.007*. Occupants of these buildings may be able to perceive vibration impacts at times when vibratory rollers are in use nearby. Where impacts are perceptible, they would likely only be apparent for relatively short durations when vibration intensive equipment is in use nearby. **Figure 4** demonstrates that with the use of the small vibratory roller during *W.001* and *W.007*, all residential receivers are outside the human comfort minimum working distance.

Figure 6 and **Figure 7** show that all sensitive receivers are beyond the minimum working distances for human comfort during *W.008* and *W.006/W.013,* respectively .

It is noted that the structures within the rail corridor that are identified as being within the minimum working distances for human comfort are unoccupied and hence human comfort impacts would not occur.

Based on the assessment above, where feasible the smaller vibratory roller will be prioritised during *W.001* and *W.007*.

Feasible and reasonable construction vibration mitigation measures should be applied where vibration intensive work is required within the minimum working distances. Construction vibration mitigation and management measures are discussed in **Section 8.0**.

7.0 Construction Traffic Assessment

The EIS identified that during the construction phase of the project, heavy vehicles would be required for materials and equipment delivery while light vehicles will transport workers to and from the site. This additional road traffic may impact receivers along the proposed transport routes.

No additional information has been provided regarding construction road traffic, therefore a summary of the predicted daytime traffic noise levels from the EIS is shown in **Table 18**.

Table 18 Construction Traffic Assessment

Traffic Route	Road Type	Predicted Construction Traffic Noise (Both Directions) LAeq (Period)		Exceed base criterion? Day[1] (7am – 10pm)	Potential Increase > 2dB	Potential Noise Impact
		Existing	Existing + Proposed			
Harefield Yard						
Harefield Road	Local	44.7	50.4	No	Yes	No
Byrnes Road	Arterial	59.7	60.9	Yes	No	No
Harefield Railway Access Road	Sub-arterial	35.6	44.8	No	Yes	No

Note 1: Freeway/arterial/sub-arterial roads: $L_{Aeq(15hour)}$ 60dBA(external)
Local roads: $L_{Aeq(1hour)}$ 55dBA (external)

The EIS found that construction traffic associated with the Harefield Yard Clearances on public roads complies with the road traffic noise goals during the daytime.

The EIS did not assess construction traffic during the night-time period, and no additional information has been provided regarding construction road traffic. Therefore, it is conservatively assumed that where night-time construction traffic is required, impacts would be experienced by residences along construction routes on sub-arterial and local roads within close proximity to the work sites. Night-time noise impacts are not anticipated on arterial roads.

Traffic diversions are not proposed for the work assessed in this CNVIS.

Mitigation and management measures to assist in minimising noise impacts from construction traffic are shown in **Section 8.0**.

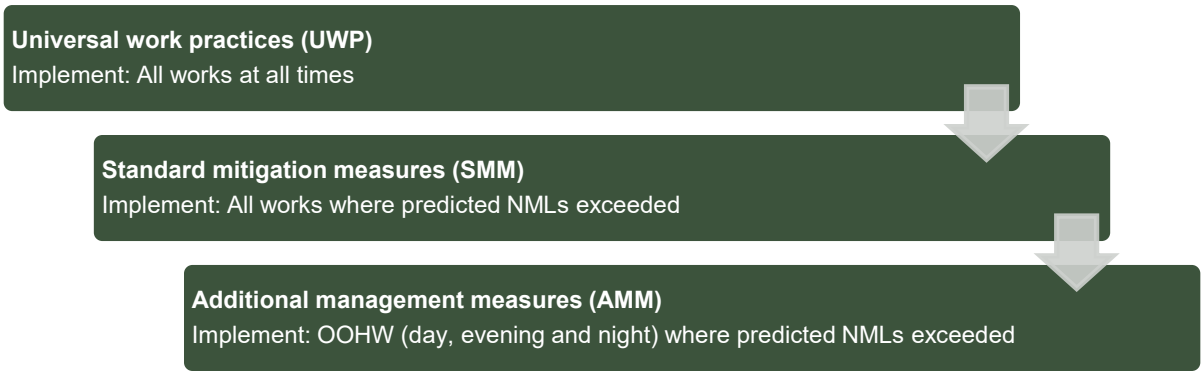
8.0 Mitigation and Management Measures

Noise from the Project may be apparent at the nearest receivers at certain times during the construction of. The Project should apply all feasible and reasonable mitigation measures to minimise the impacts.

In accordance with CoA E74, works that exceed the noise management levels and/or vibration criteria must be managed in accordance with the CNVMP.

The Inland Rail NSW Construction Noise and Vibration Framework (CNVF) has been adopted as a guideline for this project and outlines a hierarchy of work practices and mitigation measures to minimise the impact of construction noise and vibration on the community. This hierarchy is shown in **Figure 8**

Figure 8 Hierarchy of Work Practices and Mitigation Measures



The universal work practices (UWP) and standard mitigation measures (SMM) for the overall A2I project are outlined in the CNVMP. All mitigation and management measures outlined in the CNVMP will be adopted in accordance with CoA E74. Site specific mitigation measures are also outlined below in **Section 8.1**. These measures have been incorporated into the noise modelling assessment to provide mitigated results. Additional Management Measures (AMM) are outlined in **Section 8.3**.

8.1 Site Specific Mitigation Measures

Table 19 outlines the mitigation and management measures that will be adopted to minimise potential noise and vibration impacts associated with this CNVIS at surrounding sensitive receivers. These measures have been considered in noise modelling based on the total scenario sound power levels, refer **Appendix B**.

Table 19 Site Specific Mitigation Measures

Measure	Reference / Notes
Project Planning	
Use quieter and less vibration emitting construction methods where feasible and reasonable.	Best practice
Works will be completed during the approved daytime construction hours where possible, as outlined in **Section 2.2.** Some unavoidable OOHW will be required due to road and rail traffic management restrictions, as outlined in **Section 2.3**.	Best practice CoA E69 CoA E71

Measure	Reference / Notes
Where OOHW is required, an OOHW Permit will be prepared, as required by the OOHW Protocol or EPL. Further detail around the specific work tasks, duration and justification of OOHW must be identified in the OOHW permit.	Best practice CoA E71 CoA E72 CoA E73
Scheduling	
Highly noise intensive works that result in an exceedance of the applicable NML at the same receiver must only be undertaken: a) Between 08:00am – 06:00pm Monday to Friday; b) Between 08:00am – 01:00pm Saturday; and c) if continuously, then not exceeding three (3) hours, with a minimum cessation of work of not less than one hour. Refer **Section 8.2**.	Best practice CoA E70
Noise generating work in the vicinity of community, religious, educational institutions, noise and vibration-sensitive businesses and critical working areas (such as exam halls, theatres, laboratories and operating theatres) resulting in noise levels above the NMLs will not be timetabled during sensitive periods, unless other reasonable arrangements with the affected institutions can be made at no cost to the affected institution. Refer to Community Consultation in **Section 8.5**.	Best practice CoA E76
All work undertaken for the delivery of the project including those undertaken by third parties (such as utility relocations), must be coordinated to ensure respite periods are provided.	Best practice, CoA E83
Where feasible: • Limit noise generating work outside of standard construction hours as much as possible • Limit noise generating work on the weekends as much as possible • Construction works should be completed as soon as possible. Refer to Community Consultation in **Section 8.5**	Best practice, CoA E78
Site Layout	
Compounds and worksites have been designed to promote one-way traffic and minimise the need for vehicle reversing.	Best practice
Construction activities must be planned to minimise vehicle movements around the Site.	
Work compounds, parking areas, and equipment and material stockpiles will be positioned away from noise-sensitive locations and take advantage of existing screening from local topography.	
Equipment that is noisy will be started away from sensitive receivers	
Training	
Training will be provided to all personnel on noise and vibration requirements for the project. Inductions and toolbox talks to be used to inform personnel of the location and sensitivity of surrounding receivers.	Best practice
The induction protocols must include awareness of noise generating activities and mitigation measures and techniques that should be implemented.	
Training must be conducted for appropriate community behaviours when access/egress the Site.	
Plant and Equipment Source Mitigation	
All plant and equipment must be maintained in a proper and efficient condition, operated in a proper and efficient manner, and feature standard noise reduction measures where applicable.	Best practice CNVF

Measure	Reference / Notes
Plant and equipment must be selected that can be fitted with options to minimise noise such as covers, mufflers, shrouds and other noise suppression equipment. Low noise emission plant and equipment must be selected where available. These considerations have been included in noise modelling based on the equipment sound power levels, refer **Appendix B**.	
Tonal reversing/movement alarms (beepers) will be replaced with non-tonal alarms (squawkers) on all equipment in use (subject to occupational health and safety requirements).	
Stationary noise sources will be sited behind structures (or temporary screens) that act as barriers, or at the greatest distance from the noise-sensitive area (where practicable). Equipment will be oriented so that noise emissions are directed away from any sensitive areas.	
Noise generating equipment will be regularly checked and effectively maintained, including checking of hatches/enclosures regularly to ensure that seals are in good condition and doors close properly against seals.	
Noise monitoring spot checks of equipment will be completed to ensure individual items are operating as expected	
Dropping materials from a height will be avoided.	
Loading and unloading will be carried out away from noise sensitive areas, where practicable.	
Alternative construction methods will be considered for the vibratory roller (eg smaller sized equipment, refer **Section 6.0**). Use of these methods will depend on the specific circumstances and therefore the worst-case scenario is included for the purpose of this CNVIS.	Best practice
Construction Traffic	
Construction traffic routes to site will be limited to major roads where possible.	Best practice
Trucks will not queue outside residential properties.	
Truck drivers will be instructed to avoid compression braking as far as practicable.	
Delivery vehicles should be fitted with straps rather than chains for unloading, wherever possible.	
Truck movements will be kept to a minimum (ie trucks are fully loaded on each trip).	
Screening	
Install purpose-built screening or enclosures around long-term fixed plant that has the potential to impact nearby receivers	Best practice CNVF
The layout of the site will take advantage of existing screening from local topography, where possible. Site huts, maintenance sheds and/or containers will be positioned between noisy equipment and the affected receivers.	
Implementation of temporary noise barriers for highly intensive noise activities, such as saw cutting or rock breaking.	
Community Consultation	
Regular communications on the activities and progress of the proposal shall be provided to the community (eg via newsletter, email and/or website).	Best practice CNVF
A telephone, email and web-based community information service shall be established to allow the community to obtain additional information on construction activities, provide feedback or make a complaint.	Best practice CNVF

Measure	Reference / Notes
Owners and occupiers of properties at risk of exceeding the screening criteria for cosmetic damage (and/or human comfort) must be notified before work that generates vibration commences in the vicinity of those properties. If the potential exceedance is to occur more than once or extend over a period of 24 hours, owners and occupiers are to be provided a schedule of potential exceedances on a monthly basis for the duration of the potential exceedances, unless otherwise agreed by the owner and occupier.	Best practice CoA E79
Personalised communication and respite offers will be provided to all receivers that are predicted to be highly noise affected (HNA).	Best practice
Notification will be provided to all impacted residences along construction traffic routes (including temporary diversions).	Best practice
Where complaints are received, work practices will be reviewed and feasible and reasonable practices applied to minimise any further impacts.	Best practice
Monitoring	
Noise and/or vibration monitoring will be conducted (as appropriate) when noise/vibration intensive works are being undertaken in close proximity to sensitive receivers.	Best practice CNVF CoA E80 CoA E81
Noise and vibration monitoring will be undertaken in accordance with the CNVMP and Monitoring Program.	
Advice from a heritage specialist must be sought on methods and locations for installing equipment used for vibration, movement and noise monitoring at heritage-listed structures.	
See **Section 8.7** for details of monitoring requirements.	
Vibration	
Where vibration generating works are required within the minimum working distances and considered likely to exceed the criteria: • Different construction methods with lower source vibration levels (ie alternative equipment) will be investigated and implemented, where feasible (refer **Table 11**). • Attended vibration measurements will be undertaken at the start of the works to determine actual vibration levels of the item. Works will cease if the monitoring indicates vibration levels are likely to, or do, exceed the relevant cosmetic damage criteria. Note: Small vibratory rollers or static rolling will be prioritised to reduce vibration impacts to surrounding receivers.	Best practice CoA E80
Vibration intensive works required within the minimum working distance at the same receiver must only be undertaken: a) Between 08:00am – 06:00pm Monday to Friday; b) Between 08:00am – 01:00pm Saturday; and c) if continuously, then not exceeding three (3) hours, with a minimum cessation of work of not less than one hour. Refer to **Section 8.2**.	Best practice CoA E70

Measure	Reference / Notes
Where works are required within the cosmetic damage minimum working distances, building condition surveys will be completed before and after the works to ensure no cosmetic damage has occurred.	Best practice CoA C9
Property damage caused directly or indirectly (for example from vibration or from groundwater change) by the construction or operation must be rectified at no cost to the owner. Alternatively, compensation may be provided for the property damage as agreed with the property owner.	Best practice CoA E122

8.2 Respite

In accordance with CoA E70, except as permitted by an EPL, highly noise intensive works that result in an exceedance of the applicable NML at the same receiver must only be undertaken:

a) Between 08:00am – 06:00pm Monday to Friday;

b) Between 08:00am – 01:00pm Saturday; and

c) if continuously, then not exceeding three (3) hours, with a minimum cessation of work of not less than one hour.

For the purposes of this condition, 'continuously' includes any period during which there is less than one hour between ceasing and recommencing any of the work.

In accordance with CoA E72 and E83, the procedure outlined in the OOHW Protocol must be implemented to coordinate OOHW (including those approved by an EPL or undertaken by a third party), to ensure appropriate respite is provided. This coordination must include:

a) rescheduling work to provide respite to impacted noise sensitive land use(s) so that the respite is achieved; or

b) the provision of alternative respite or mitigation to impacted noise sensitive land use(s); and

c) the provision of documentary evidence to the AA in support of any decision made in relation to respite or mitigation.

The consideration of respite must also include all other CSSI, SSI and SSD projects which may cause cumulative and/or consecutive impacts at receivers affected by the delivery of the CSSI.

Highly noise intensive works (as defined in **Section 2.2.1**) are required in various work scenarios. As outlined above, highly noise intensive work that results in an exceedance of the applicable NML is restricted to the hours shown above and must have respite periods as defined above.

CoA E70 applies to the following work scenarios where highly noise intensive works are proposed and the NML is predicted to be exceeded:

- W.001 – Site Establishment / Demobilisation
- W.004 – Track Work - Peak
- W.006 – Track Tamping
- W.007 – Platform and Shed Removal
- W.008 – Gantry removal
- W.011 – Track Work Over Bridge - Peak
- W.013 – Track Tamping Over Bridge

In accordance with CoA E71, all scenarios listed above require approval through the OOHW Protocol or and EPL to occur outside the hours listed above from CoA E70.

Respite offers are also required as part of the additional mitigation measured outlined in **Section 8.3.**

8.3 Additional Mitigation and Management Measures for Out of Hours Work

Where the 'mitigated' construction noise levels remain above the NMLs, the Additional Mitigation Measures Matrix (AMMM) adapted from in the CNVF and CNVMP is to be implemented. The approach, guided by the AMMM, is primarily aimed at pro-active engagement with affected sensitive receptors rather than additional noise reducing mitigation. OOHW has been divided into three periods (Day, Evening and Night) as adapted from the CNVF around the approved project hours (CoA E69).

Additional mitigation measures described in the CNVMP are listed in **Table 20**. The additional mitigation measures to be adopted for airborne noise are identified in **Table 21**. The additional mitigation measures for construction vibration are identified in **Table 22**.

Table 20 Additional Mitigation Measures

Mitigation/Management Measure	Abbreviation
Communication (Category 1) [1]	CO1
Communication (Category 2) [2]	CO2
Respite Offer[3]	RO
Alternative Accommodation	AltA
Agreement with Owners	AO

Note 1: As outlined in the CNVF, Communication to provide information on the OOHW via methods such as letter box drop, email, newsletter, media advertisements and/ or website prior to the works commencing.

Note 2: As outlined in the CNVF, Communication should be personalised (e.g. door knock, meeting, telephone call). Contact with these residents should commence early to enable feedback to be considered by the proposal.

Note 3: As outlined in the CNVF, Respite Offers are not applicable to non-residential receivers. RO may comprise of pre-purchased movie tickets, dinner vouchers or similar. RO can also be provided by limiting high noise generating works and allowing at least a one-hour respite period between blocks of work. Where possible, the timing of this respite should be discussed with the impacted community.

Table 21 Airborne Noise – Additional Mitigation Measures Matrix

Time Period		Exceedance of NML	Perception	Duration	Communication Category/ Management Measure
OOHW Daytime Period	Sunday 8am – 6pm (including public holidays)	<5	Noticeable	Any	CO1
		5-15	Clearly audible	Any	CO1
		16-25	Moderately intrusive	Any	CO1, CO2
		>25	Highly intrusive	Any	CO1, CO2
OOHW Evening Period	Monday – Sunday 6pm – 10pm (including public holidays)	<5	Noticeable	Any	CO1
		5-15	Clearly audible	Any	CO1
		16-25	Moderately intrusive	Any	CO1, CO2
		>25	Highly intrusive	Any	CO1, CO2
				>2 consecutive rest periods[1]	CO1, CO2, RO
OOHW Night Period	Monday – Saturday 10pm – 7am Sunday 10pm – 8am (including public holidays)	<5	Noticeable	Any	CO1
		5-15	Clearly audible	Any	CO1
		16-25	Moderately intrusive	Any	CO1, CO2
				>2 consecutive sleep periods[1]	CO1, CO2, RO,AO
		>25	Highly intrusive	Any	CO1, CO2, RO
				>2 consecutive sleep periods[1]	CO1, CO2, RO, AO, AltA

Note 1: Where the duration exceeds 2 consecutive rest/sleep periods, the corresponding additional mitigation measures will be provided for all periods where construction exceedances are expected to occur.

Table 22 Vibration – Additional Mitigation Measures Matrix

Time Period		Duration	Exceedance of 'preferred' value	Exceedance of 'maximum' value
OOHW Daytime Period	Sunday 8am – 6pm (including public holidays)	Any	CO1, CO2	CO1, CO2, RO
OOHW Evening Period	Monday – Sunday 6pm – 10pm (including public holidays)	Any	CO1, CO2	CO1, CO2, RO
OOHW Night Period	Monday – Saturday 10pm – 7am Sunday 10pm – 8am (including public holidays)	Any	CO1, CO2, RO	CO1, CO2, RO, AltA

8.3.1 Receivers Eligible for Additional Mitigation Measures – Noise

The receivers eligible for additional mitigation and management measures due to construction noise from the project work are presented in **Appendix C** and **Appendix D**. Where OOHW is required additional mitigation measures as detailed in **Table 21** must be implemented in accordance with the CNVMP and CNVF.

The addresses of the impacted receivers for potential OOHW are provided in **Appendix D**. Any proposed works outside of the approved daytime hours will need to be assessed as part of the OOHW permit preparation discussed in **Section 2.4**.

OOHW scenarios *W.004, W.005, W.006* and *W.007*, are predicted to create highly intrusive noise levels at residential receivers. Should these works occur for more than two consecutive sleep periods in a row, additional mitigation measures must be provided to affected sensitive receivers as detailed in **Table 21**. Where possible, work would be scheduled to avoid impacting the same receivers for more than two consecutive sleep periods. Receivers that would be impacted for more than two consecutive sleep periods must be identified in the OOHW permit.

8.3.2 Receivers Eligible for Additional Mitigation Measures – Vibration

Figure 3 and **Figure 5** identify sensitive receivers with the potential to fall within the minimum working distances for Human Comfort when large vibratory rollers are in use.

Construction vibration mitigation and management measures are discussed in **Section 8.0**. As defined in **Section 2.2.1** and **Section 8.2** activities involving high noise generating equipment, such as rock hammering or vibratory rolling, are limited to specific daytime construction hours only. Respite periods of 1 hour after every 3 hours of high noise/vibration generating work are also required.

Any proposed works outside of the approved daytime hours will need to be assessed as part of the OOHW permit preparation discussed in **Section 2.4**. Any additional mitigation required (from **Table 22**) for vibration activities must be identified in the OOHW permit.

8.4 Community Notification

As detailed in the standard management measures outlined in **Section 8.3.2**:

- A telephone, email and web-based community information service will be established to allow the community to obtain additional information on construction activities, provide feedback or make a complaint.
- Regular communications on the activities and progress of the proposal shall be provided to the community (e.g. via newsletter, email and/or website).

8.5 Consultation with Affected Receivers

In accordance with CoA E78, the CNVIS must include specific mitigation measures identified through consultation with affected sensitive land user(s) and the mitigation measures must be implemented for the duration of the Work. Details of this consultation are provided below.

8.5.1 Consultation approach

This section discusses the consultation approach that has been undertaken for the purposes of the work subject to this CNVIS. It is noted that consultation with affected sensitive land users on what specific mitigation measures they may require is considered to be an ongoing and live process and as such, measures that are personal to individual affected sensitive

land user(s) will not be regularly documented in this CNVIS. Consultation records will be made available to the AA upon request.

The purpose of this consultation is to identify receivers who have specific circumstances that need further consideration during construction – for example, households who have children undertaking exams (HSC or similar), households who have vulnerable persons with disabilities or medical conditions, shift workers, etc.

The consultation approach utilised by Martinus Rail is in accordance with the Community Communications Strategy. The approach involved directly contacting the affected sensitive land user identified by this CNVIS through one or more of the following methods:

- Surveys distributed by email and paper notifications
- Door-knocks with a 'Sorry we missed you' card for those who were not at home
- Notifications
- Phone calls
- Emails
- Community briefings / group meetings.

Affected sensitive land users contacted by Martinus Rail have been made aware of the anticipated duration and nature of construction works that may affect them, as well as mitigation measures that will be implemented in accordance with the CEMP and CNVMP. Contact information for Martinus Rail's Community Team have been provided to assist with ongoing consultation during construction.

Depending on individual needs and circumstances, specific mitigation measures offered by Martinus Rail could include but are not limited to:

- Offers of individually agreed respite to highly noise affected sensitive land users (standard construction hours)
- Consultation on timetabling of highly noise intensive works to avoid sensitive periods
- Offers of attended noise monitoring at the premises to confirm actual levels of impact
- Offers of temporary alternative accommodation or work space
- Individual briefings.

Specific mitigation measures identified in consultation with individual affected sensitive land users will be implemented during works subject to this CNVIS. Further mitigation measures may be identified by the affected community as construction progresses and these will be assessed where reasonable and feasible and on a case by-case basis.

8.5.2 Consultation for this CNVIS

The project website includes the following key information:

- Latest approvals
- All management plans, including the CNVMP and the Construction Environmental Management Plan (CEMP), which provide information on the relevant environmental management measures
- Notifications, including three-month lookaheads, monthly updates and specific OOHW notifications

- Contact mechanisms, including requests for feedback and/or complaints on individual circumstances.

As part of the project's program of regular notifications, the following notifications have included information on the OOHW requirements subject to this CNVIS:

- Project-wide monthly notifications distributed to over 25,000 properties
- Work specific notifications
- Three-month lookahead notifications distributed to over 25,000 properties
- Regular emails with details of upcoming work or changes.

All notifications include the following:

- Link to project website
- 24/7 phone number and email address for enquiries, complaints or comments
- Requests for the community to provide feedback on their individual needs and circumstances.

Prior to commencement of works subject to this CNVIS, targeted consultation occurred with a total of approximately 7,127 residential properties across the entire project alignment, approximately 35 of which were in Harefield. These properties received targeted letterbox drops, emails and newspaper adverts from the Community Team and feedback was sought across (3) three weeks, from 7 August to 28 August 2024.

The team requested feedback from the affected community on their individual needs during this targeted consultation.

8.5.3 Consultation outcomes

Feedback received during this consultation was primarily related to the existing operational train line and the disturbance the trains cause

In Harefield, no additional management measures relating to construction noise were identified during this consultation; however, the following general sentiments were noted from respondents:

- Limit noise generating work outside of standard construction hours as much as possible
- Limit noise generating work on the weekends as much as possible
- Construction works should be completed as soon as possible.

The CNVIS documents the need to limit noise generating work as much as possible and this will be achieved through the implementation of existing mitigation measures listed in this CNVIS.

Nevertheless, regular consultation with the community will continue throughout construction in accordance with the Community Communications Strategy, and the Community Action Plan prepared for the relevant activities. A list of key stakeholders relevant to this CNVIS are included in **Table 23** below.

Table 23 Key Stakeholders for this CNVIS

Precinct Area	Receiver Type	Level of Engagement	Distance from Work Site (m)
Harefield Yard			

Precinct Area	Receiver Type	Level of Engagement	Distance from Work Site (m)
Byrnes Road	Residential	Consult	Various

8.6 Occupational Noise Exposure

In accordance with CoA E77, worksites will be managed to ensure that noise generated by construction will not exceed the National Standard for exposure to noise in the occupational environment of an eight-hour equivalent continuous A-weighted sound pressure level of $L_{Aeq,8h}$ of 85 dBA for any employee working at a location near the project.

It is not anticipated that an exceedance will occur at any point during the project, however occupational exposure to noise will primarily be managed under the Work Health and Safety Management Plan.

8.7 Monitoring

Noise and vibration monitoring will be undertaken in accordance with the CNVMP (including monitoring program) and the CNVF.

CoA E81 requires that advice from an independent heritage specialist must be sought on methods and locations for installing equipment used for vibration, movement and noise monitoring at heritage-listed structures prior to the installation of the equipment.

Construction Noise Monitoring

Construction noise monitoring will be carried out at the commencement of activities to confirm that actual noise levels are consistent with the predictions presented in this CNVIS, and that the management measures that have been implemented are effective or as per the CNVMP.

Monitoring locations will be focused to the most impacted receivers identified in **Appendix C**. Indicative locations are identified in **Table 24**, however, these will be subject to provision of safe access and the specific location of work being undertaken at the time of monitoring.

Noise monitoring will, where practicable, be in a position with unobstructed views of general site activities, whilst shielded as much as possible from non-construction site noise (e.g. road traffic, rail noise and other surrounding noise). The preferred measurement height is 1.2-1.5m above the ground. In accordance with *Australian Standard AS1055:2018*, outdoor noise monitoring is to be undertaken at least 3.5m from any reflecting structure other than the ground.

Noise monitoring will be carried out on or near the property boundary at the locations representative of the nominated receivers in **Table 24** (i.e. in publicly accessible areas near the nominated receivers, if it is safe to do so). Noise monitoring results will be assessed against the noise management levels (NMLs) and predicted exceedance category identified in **Appendix C**.

The results will be documented with discussion about the details of work underway at the time and mitigation in place. Noise monitoring results will be recorded on the MR Noise Monitoring Form in Procore. Noise monitoring data will be made available to the AA and ER for information, upon request.

Construction Vibration monitoring

Attended or unattended vibration monitoring will be undertaken as required. Monitoring locations may vary as work progresses and will be determined on a case-by-case basis or in response to complaints. The focus of monitoring will be at risk buildings, structures and sensitive receivers as identified in **Section 6.0**. If other vibration intensive activities are required, an assessment of their potential impact is required as per the CNVMP.

Indicative locations are identified in **Table 24**, however, these will be subject to provision of safe access and the specific location of work being undertaken at the time of monitoring. Vibration monitoring data will be made available to the AA and ER for information, upon request.

Table 24 Indicative Monitoring Locations

Location	Type	Monitoring	Timing
Noise Monitoring			
• 1165 Byrnes Road, Harefield • 1912 Byrnes Road, Harefield	Activities based noise monitoring	• Confirming that actual noise levels are consistent with predicted noise impacts and that the effectiveness of actions and mitigation measures implemented are satisfactory, • In response to a noise related complaint(s) (determined on a case-by-case basis) • Following implementation of mitigation measures or noise attenuation because of exceedance of predicted noise levels	At the commencement of the activities being undertaken
	Out of Hours Work	Attended monitoring as required by the Out of Hours Work (OOHW) plan to validate noise levels are consistent with predicted noise impacts and that the effectiveness of actions and mitigation measures implemented are satisfactory	At the commencement of the range of OOHW activities being undertaken.
	Plant / Equipment Checks	Spot checks would be carried out as required on a case-by-case basis, such as • In response to a specific noise related complaint and • During noise verification monitoring when it is possible to isolate the noise from one piece of plant or equipment.	case-by-case basis
Vibration Monitoring			
• 1165 Byrnes Road, Harefield • Structures within the rail corridor (see **Section 6.1**)	Activities based vibration monitoring	• Confirming that vibration levels are below criteria and that the effectiveness of actions and mitigation measures implemented are satisfactory • In response to a vibration related complaint(s) (determined on a case-by-case basis)	Throughout vibration generating activities being undertaken within minimum working distances to nearby receivers.

9.0 Cumulative Impacts

Cumulative construction noise impacts can occur where multiple work activities are being completed near to a particular receiver at the same time. There is potential for cumulative construction impacts from multiple construction activities being completed in different areas of the project.

Since the construction scenarios required for various stages of the project would generally require similar items of equipment, concurrent construction work being completed near to a particular area could theoretically increase the worst-case noise levels in this report by around 3 dB (ie a logarithmic adding of two sources of noise at the same level).

The likelihood of worst-case noise levels being generated by two different work activities at the same time is, however, considered low and rather than increase construction noise levels, the impact of concurrent work would generally be a limited to a potential increase in the duration, and annoyance, of noise impacts on the affected receivers.

In practice, construction noise levels in any one location would vary and would be frequently much lower than the worst-case scenario assessed due to construction staging moving work around within the study area and, in many cases, only a few items of equipment being used at any one time.

Martinus Rail will take feasible and reasonable steps to consult and coordinate with other construction projects when they become aware of them and if they have the potential to impact the same receivers concurrently, to minimise cumulative impacts of noise and vibration and maximise respite for affected sensitive receivers (in accordance with CoA E72 and E83).

Appendix A Acoustic Terminology

A2I | Albury to Illabo – Harefield Yard Clearances

Construction Noise and Vibration Impact Statement

Martinus Rail

SLR Project No.: 610.031317.00001

27 February 2025

Doc No:
6-0052-210-EEC-J1-AS-0001_0

1. Sound Level or Noise Level

The terms 'sound' and 'noise' are almost interchangeable, except that 'noise' often refers to unwanted sound.

Sound (or noise) consists of minute fluctuations in atmospheric pressure. The human ear responds to changes in sound pressure over a very wide range with the loudest sound pressure to which the human ear can respond being ten million times greater than the softest. The decibel (abbreviated as dB) scale reduces this ratio to a more manageable size by the use of logarithms.

The symbols SPL, L or LP are commonly used to represent Sound Pressure Level. The symbol LA represents A-weighted Sound Pressure Level. The standard reference unit for Sound Pressure Levels expressed in decibels is 2×10^{-5} Pa.

2. 'A' Weighted Sound Pressure Level

The overall level of a sound is usually expressed in terms of dBA, which is measured using a sound level meter with an 'A-weighting' filter. This is an electronic filter having a frequency response corresponding approximately to that of human hearing.

People's hearing is most sensitive to sounds at mid frequencies (500 Hz to 4,000 Hz), and less sensitive at lower and higher frequencies. Different sources having the same dBA level generally sound about equally loud.

A change of 1 dB or 2 dB in the level of a sound is difficult for most people to detect, whilst a 3 dB to 5 dB change corresponds to a small but noticeable change in loudness. A 10 dB change corresponds to an approximate doubling or halving in loudness. The table below lists examples of typical noise levels.

Sound Pressure Level (dBA)	Typical Source	Subjective Evaluation
130	Threshold of pain	Intolerable
120	Heavy rock concert	Extremely noisy
110	Grinding on steel	
100	Loud car horn at 3 m	Very noisy
90	Construction site with pneumatic hammering	
80	Kerbside of busy street	Loud
70	Loud radio or television	
60	Department store	Moderate to quiet
50	General Office	
40	Inside private office	Quiet to very quiet
30	Inside bedroom	
20	Recording studio	Almost silent

Other weightings (eg B, C and D) are less commonly used than A-weighting. Sound Levels measured without any weighting are referred to as 'linear', and the units are expressed as dB(lin) or dB.

3. Sound Power Level

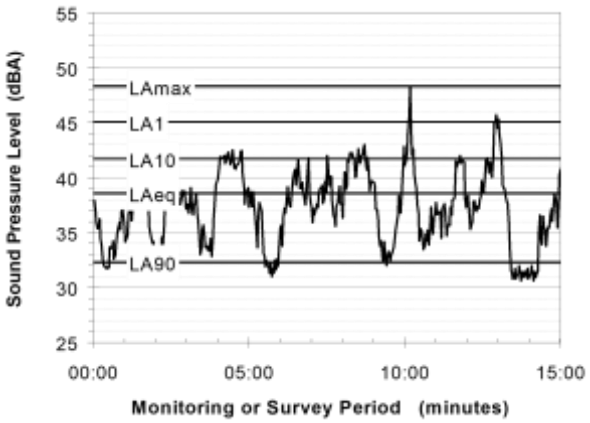
The Sound Power of a source is the rate at which it emits acoustic energy. As with Sound Pressure Levels, Sound Power Levels are expressed in decibel units (dB or dBA), but may be identified by the symbols SWL or LW, or by the reference unit 10^{-12} W.

The relationship between Sound Power and Sound Pressure is similar to the effect of an electric radiator, which is characterised by a power rating but has an effect on the surrounding environment that can be measured in terms of a different parameter, temperature.

4. Statistical Noise Levels

Sounds that vary in level over time, such as road traffic noise and most community noise, are commonly described in terms of the statistical exceedance levels LAN, where LAN is the A-weighted sound pressure level exceeded for N% of a given measurement period. For example, the LA1 is the noise level exceeded for 1% of the time, LA10 the noise exceeded for 10% of the time, and so on.

The following figure presents a hypothetical 15 minute noise survey, illustrating various common statistical indices of interest.



Of particular relevance, are:

LA1 The noise level exceeded for 1% of the 15 minute interval.

LA10 The noise level exceeded for 10% of the 15 minute interval. This is commonly referred to as the average maximum noise level.

LA90 The noise level exceeded for 90% of the sample period. This noise level is described as the average minimum background sound level (in the absence of the source under consideration), or simply the background level.

LAeq The A-weighted equivalent noise level (basically, the average noise level). It is defined as the steady sound level that contains the same amount of acoustical energy as the corresponding time-varying sound.

LAmax The A-weighted maximum sound pressure level of an event measured with a sound level meter.

5. Frequency Analysis

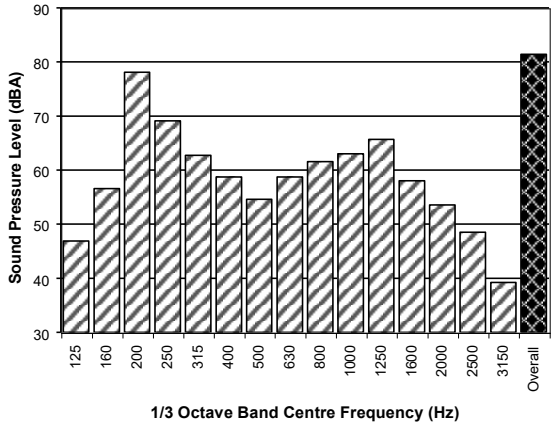
Frequency analysis is the process used to examine the tones (or frequency components) which make up the overall noise or vibration signal.

The units for frequency are Hertz (Hz), which represent the number of cycles per second.

Frequency analysis can be in:

- Octave bands (where the centre frequency and width of each band is double the previous band)
- 1/3 octave bands (three bands in each octave band)
- Narrow band (where the spectrum is divided into 400 or more bands of equal width)

The following figure shows a 1/3 octave band frequency analysis where the noise is dominated by the 200 Hz band. Note that the indicated level of each individual band is less than the overall level, which is the logarithmic sum of the bands.



6. Annoying Noise (Special Audible Characteristics)

A louder noise will generally be more annoying to nearby receivers than a quieter one. However, noise is often also found to be more annoying and result in larger impacts where the following characteristics are apparent:

- **Tonality** - tonal noise contains one or more prominent tones (ie differences in distinct frequency components between adjoining octave or 1/3 octave bands), and is normally regarded as more annoying than 'broad band' noise.
- **Impulsiveness** - an impulsive noise is characterised by one or more short sharp peaks in the time domain, such as occurs during hammering.
- **Intermittency** - intermittent noise varies in level with the change in level being clearly audible. An example would include mechanical plant cycling on and off.
- **Low Frequency Noise** - low frequency noise contains significant energy in the lower frequency bands, which are typically taken to be in the 10 to 160 Hz region.

7. Vibration

Vibration may be defined as cyclic or transient motion. This motion can be measured in terms of its displacement, velocity or acceleration. Most assessments of human response to vibration or the risk of damage to buildings use measurements of vibration velocity. These may be expressed in terms of 'peak' velocity or 'rms' velocity.

The former is the maximum instantaneous velocity, without any averaging, and is sometimes referred to as 'peak particle velocity', or PPV. The latter incorporates 'root mean squared' averaging over some defined time period.

Vibration measurements may be carried out in a single axis or alternatively as triaxial measurements (ie vertical, longitudinal and transverse).

The common units for velocity are millimetres per second (mm/s). As with noise, decibel units can also be used, in which case the reference level should always be stated. A vibration level V, expressed in mm/s can be converted to decibels by the formula 20 log (V/Vo), where Vo is the reference level (10^{-9} m/s). Care is required in this regard, as other reference levels may be used.

8. Human Perception of Vibration

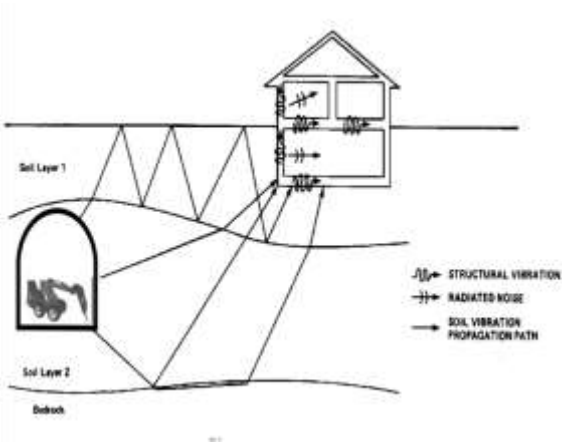
People are able to 'feel' vibration at levels lower than those required to cause even superficial damage to the most susceptible classes of building (even though they may not be disturbed by the motion). An individual's perception of motion or response to vibration depends very strongly on previous experience and expectations, and on other connotations associated with the perceived source of the vibration. For example, the vibration that a person responds to as 'normal' in a car, bus or train is considerably higher than what is perceived as 'normal' in a shop, office or dwelling.

9. Ground-borne Noise, Structure-borne Noise and Regenerated Noise

Noise that propagates through a structure as vibration and is radiated by vibrating wall and floor surfaces is termed 'structure-borne noise', 'ground-borne noise' or 'regenerated noise'. This noise originates as vibration and propagates between the source and receiver through the ground and/or building structural elements, rather than through the air.

Typical sources of ground-borne or structure-borne noise include tunnelling works, underground railways, excavation plant (eg rockbreakers), and building services plant (eg fans, compressors and generators).

The following figure presents an example of the various paths by which vibration and ground-borne noise may be transmitted between a source and receiver for construction activities occurring within a tunnel.



The term 'regenerated noise' is also used in other instances where energy is converted to noise away from the primary source. One example would be a fan blowing air through a discharge grill. The fan is the energy source and primary noise source. Additional noise may be created by the aerodynamic effect of the discharge grill in the airstream. This secondary noise is referred to as regenerated noise.

Appendix B Modelling Scenarios and Equipment

A2I | Albury to Illabo – Harefield Yard Clearances

Construction Noise and Vibration Impact Statement

Martinus Rail

SLR Project No.: 610.031317.00001

27 February 2025

Doc No:
6-0052-210-EEC-J1-AS-0001_0

Equipment		Total Lw (dBA)	Articulated Dump Truck	Ballast Regulator[1]	Ballast Tamper[1]	Centrifugal fan	Compressor	Crane (mobile)	Crane Franna (20T)	Dynamic Track Stabiliser	Elevated Work Platform	Excavator - Tracked (20T)	Excavator 20-30T + Hammer[1]	Front End Loader	Generator	Grinder[1]	Hand tools (electric)	Hi-Rail Crane	Hi-Rail Excavator	Hi-Rail Truck/Trolley	Hydraulic / Pneumatic Tools	Light Vehicle	Lighting Tower	PEM-LEM	Plate Compactor	Rail saw[1]	Roller - Vibratory[1]	Saw (Circular)[1]	Telescopic Handler	Truck - Medium Rigid (20T)	Truck - Vacuum (NDD)	Watercart
Sound Power Level (Lw)[2]			109	114	115	90	109	104	98	113	97	105	122	113	92	105	102	104	105	103	116	95	80	100	104	118	109	118	99	103	109	105
Estimated utilisation (%)			25	75	75	100	50	30	30	50	25	50	30	50	100	30	75	30	50	25	75	25	100	50	100	25	100	25	50	25	100	75
ID	**Construction Scenario**																															
Harefield Yard																																
W.001	Site Establishment / Demobilisation	**112**	1					1			1				1		2					2					1			2		1
W.002	Compound Operation	**109**				1	1		1						1		1					2								2		1
W.003	Geotechnical Investigation	**111**															1		1			2								2	1	
W.004	Track Work - Peak	**119**				1	1	1			1	1		1	1	1	2	1	1	1	1	2	2	1	1	1	1		1	2		1
W.005	Track Work - Typical	**114**				1	1	1			1			1	1		2	1	1	1		2	2	1					1	2		1
W.006	Track Tamping	**116**		1	1																											
W.007	Platform & Shed Removal	**119**	1					1			1			1	1		1				1	2			1		1	1	1	2	1	
W.008	Gantry removal	**120**					1	1					1		1		1	1		1	1	1			1					1	1	
W.009	Signalling Work	**104**						1			1				1		1					2										
W.010	Bridge Modification Work	**113**				1	1	1			1			1	1		1					2							1	2		1
W.011	Track Work Over Bridge – Peak	**121**				1	1	1			1	1		1	1	1	2	1	1	1	1	2	2	1		1			1	2		1
W.012	Track Work Over Bridge - Typical	**114**				1	1	1			1			1	1		2	1	1	1		2	2	1					1	2		1
W.013	Track Tamping Over Bridge	**116**		1	1																											

Note 1: Equipment classed as ‘annoying’ in the ICNG and requires a 5 dB correction.
Note 2: Sound power level data is taken from the DEFRA Noise Database, AS2436, TfNSW Construction Noise and Vibration Strategy and the ARTC Noise Prediction Tool.

Appendix C Noise Impact Maps

A2I | Albury to Illabo – Harefield Yard Clearances

Construction Noise and Vibration Impact Statement

Martinus Rail

SLR Project No.: 610.031317.00001

27 February 2025

Appendix D Receivers Triggering Additional Mitigation

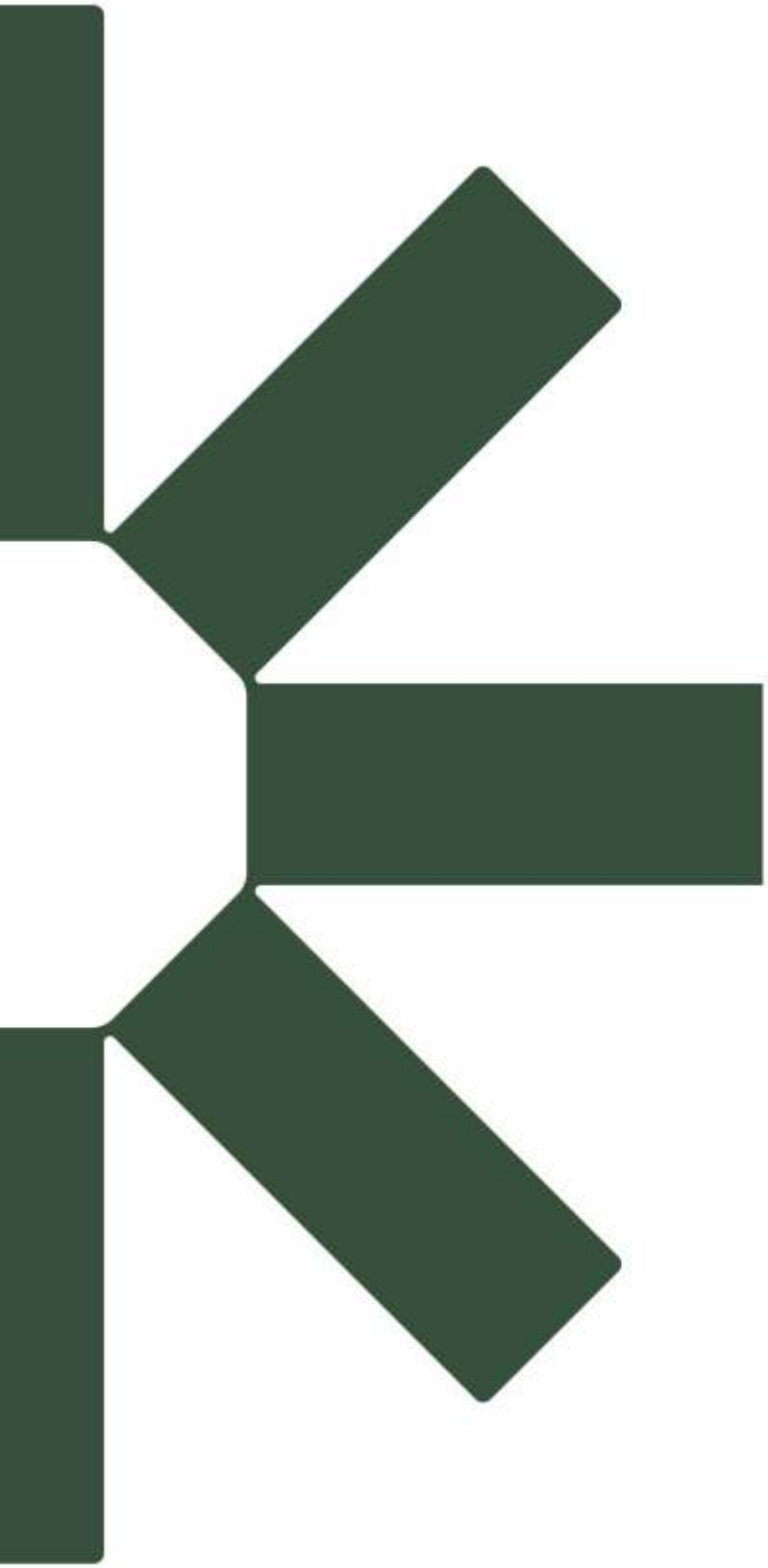
A2I | Albury to Illabo – Harefield Yard Clearances

Construction Noise and Vibration Impact Statement

Martinus Rail

SLR Project No.: 610.031317.00001

27 February 2025



Making Sustainability Happen

Appendix B Construction Noise and Vibration Impact Statement - Addendum

Appendix C Unexpected Finds Procedure (Heritage and Human Remains)

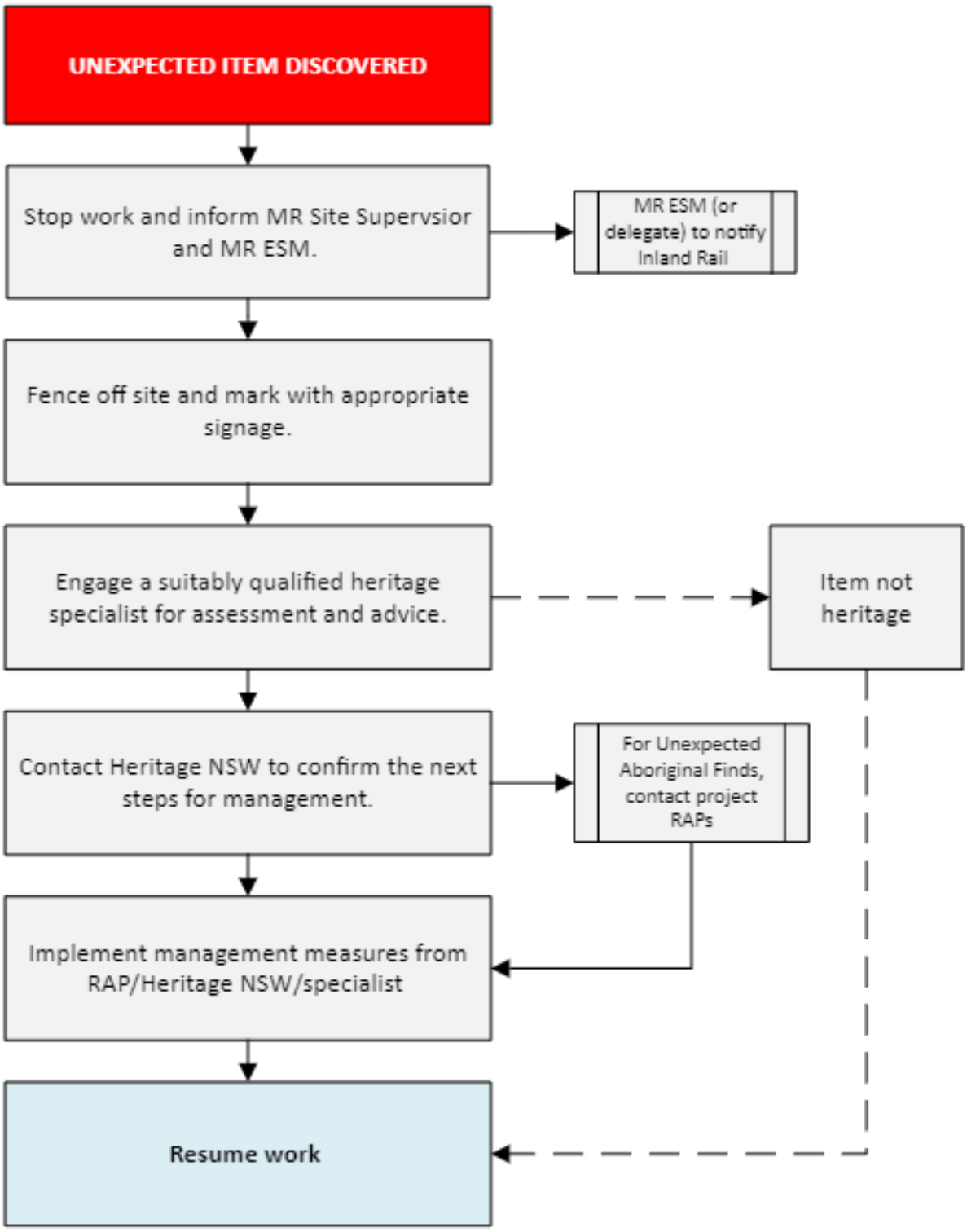
ABORIGINAL AND NON-ABORIGINAL HERITAGE: UNEXPECTED FINDS PROCEDURE

An Aboriginal artefact is anything that is the result of past Aboriginal activity. This includes stone (artefacts, rock engravings etc.), plant (culturally scarred trees) and animal bone (if showing signs of modification; i.e. smoothing, use). Human bone (skeletal remains) may also be uncovered while onsite.

A historic artefact is anything that is the result of past activity not related to Aboriginal occupation. This includes pottery, wood, glass and metal objects as well as the built remains of structures, sometimes heavily ruined.

In the event of an unexpected heritage find, the following protocol will apply:

1. All ground-disturbance work in the vicinity of the find must cease immediately. The Site Supervisor is to be made aware of the object(s) and is to notify the MR Construction Manager and MR ESM. The MR ESM (or delegate) will notify the relevant Inland Rail (IR) representative.
2. The find will be temporarily fenced off as quickly as possible to ensure no damage/further damage to the object(s). Signage on the fencing is to state that the area is subject to environmental protection, that no ground disturbance is allowed, and should include relevant contact details for the MR ESM.
3. The MR ESM (or delegate) will contact a suitably qualified heritage specialist to assess the find. The heritage specialist will then determine the need for further investigation or management. The heritage specialists assessment may be undertaken using good quality images, with a scale and several angles, however, if photographic evidence does not allow for certainty, then a site visit from the suitably qualified heritage specialist will be required.
4. If the find is an Aboriginal object, the MR ESM (or delegate) and/or heritage specialist will contact the RAPs to attend the site to inspect the find and to determine, in consultation, the next steps for management. These measures will include registration of the object in the Aboriginal Heritage Information Management System within a reasonable time.
5. The MR ESM (or delegate) and/or heritage specialist will also contact Heritage NSW (phone 02 9873 8500) to confirm the next steps for management.
6. Ground disturbance work in the vicinity of the find can only continue under supervision of a suitably qualified heritage specialist, having regard to any advice from Heritage NSW and RAPs.



Flow Chart: Unexpected heritage finds

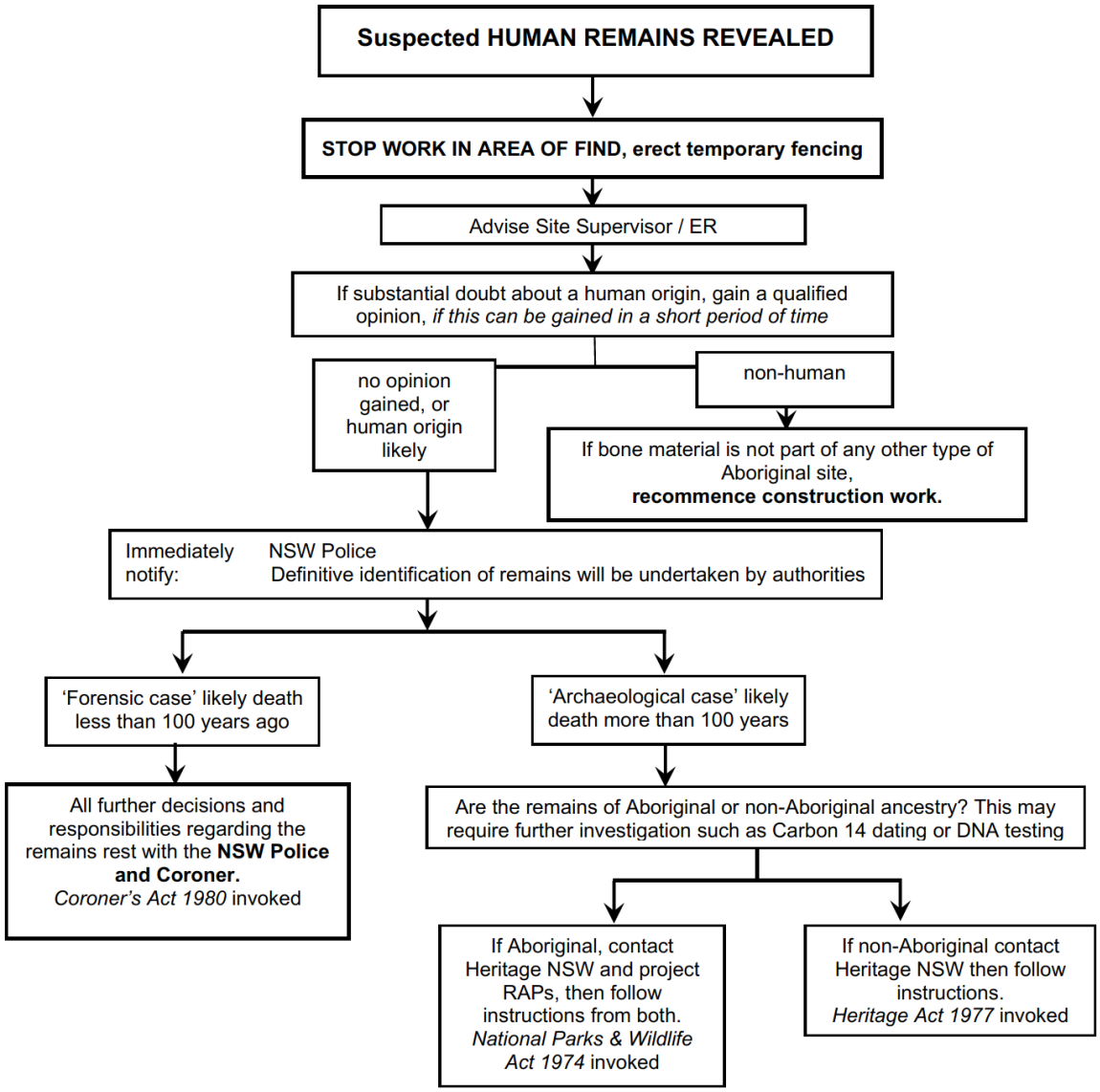
UNEXPECTED HUMAN REMAINS PROCEDURE

The procedure related to the discovery of suspected human skeletal material is based on Requirement 25 of the *Code of Practice for Archaeological Investigation of Aboriginal objects in NSW* (DECCW 2010b) and the *Skeletal Remains: Guidelines for the management of human skeletal remains under Heritage Act 1977* (NSW Heritage Office1998). A flow chart is supplied below.

If known, or suspected skeletal remains are encountered during the construction and/or operation of the project, the following procedure will be followed:

1. The area will be temporarily fenced immediately to ensure no damage/further damage to skeletal material. No skeletal material that remains in place should be disturbed from its location;
2. Works in the vicinity are to be stopped immediately;
3. The Site Supervisor is to be made aware of the skeletal material and is to notify the MR Environmental Manager and MR Construction Manager. Inland Rail Representatives are to be contacted at this stage;
4. Attempt to determine if the bones are animal or human. May require photos of the bones to be sent to the MR Heritage Consultant to determine if the remains are likely to be human or not;
5. If a qualified opinion concludes the bones are not human in origin and are unlikely to be part of an archaeological site works may recommence;
6. If no qualified opinion can be gained or the bones are suspected of being human, undertake the following:
    i) MR will contact Police, allowing Police to conduct an assessment to determine if the remains are part of a forensic case (less than 100 years old), or are archaeological (more than 100 years old);
    ii) If the remains are assessed as ‘archaeological’, there then needs to be an attempt to determine if they are Aboriginal or non-Aboriginal;
    iii) Inland Rail will contact the relevant stakeholders, including Heritage NSW (phone 02 9873 8500) and RAPs (if the remains are Aboriginal);
    iv) All further activities will be determined by Heritage NSW and the RAPs (if the remains are Aboriginal);
    v) No work may recommence in the area of the find until Heritage NSW provides the approval to do so.

Flow Chart: Suspected Human remains



Appendix D Unexpected Finds Procedure (Flora and Fauna)

Discovery of unexpected threatened entity i.e.
(a) any additional impact to threatened species or ecological communities that were included in the assessment but have been found at a new location
(b) to any threatened entity that was not offset.

Stop all work which is likely to impact on the threatened entity.
The person who discovered the find is to notify all project personnel woking in the immediate vicinity of the find(s) so that any potential disturbance activity can be halted.

Notify Site Supervisor and Environmental Manager

All personnel

Notify and consult the project ecologist and install deliniation (for flora and/ or fauna habitat)
Project ecologist to confirm if the threatened entity would be potentially impacted and confirm appropriateness of deliniation/ initial measures.

Is the species or community a listed threatened entity under State or Commonwealth legislation?

No

Yes

Has impact to the species or community in that location been assessed in the EAD and will the absolute clearing extent be within the restrictions posed by Condition E23?

Yes

The impact to the species or community was a assessed by the EAD and is permissible in that location (Any conditions of the Infrastructure Approval must also be considered). **The impact is therefore permissible**

Notify DPHI and BCS in writing on any additional mitigation measures to be implemented

No

The impact to the species or community was NOT addressed in the EAD , follow up investigation is required

Martinus Rail to consult with the Project Ecologist and ARTC when developing actions to assess and manage the find.

For EPBC Act species (and as required under the BC Act) conduct and assessment of significance and review controls to mitigate impacts. Where relevant consider additional controls to minimise impacts to the unexpected find

Consult with DPHI/BCS as relevant regarding propsed measures, impacts and follow up actions

Record find and follow up actions

Confirm with DPHI/BCS (as relevant) that proposed controls are adequate to proceed.

Records of the find to be submitted to BioNet.

Biodiversity assessment to be prepared and implemented (or alternatively the BDAR is to be updated with new impacts) and additional approval documents to be prepared as required.

Measures which can be implemented prior to impact are to be implemented.

Measures required to be implemented at a later date (i.e. any revision to the offsets) with be implemented following impacts

Records of the find to be submitted to BioNet

Martinus Rail Environment Manager or delegate authorises Unexpected Finds Hold Point Release

Recommence works with updated controls where necessary

Appendix E Unexpected Finds Procedure (Contamination)

UNEXPECTED FINDS PROCEDURE FOR CONTAMINATION

MANAGEMENT AND RESPONSIBILITY

INDUCTION/ TOOLBOX TALKS
All personnel are to receive Project/ Site Inductions and on-going training via Toolbox Talks

All personnel

EVIDENCE OF CONTAMINATION OBSERVED

STOP ALL WORK IN THE AREA IMMEDIATELY AND

PREVENT FURTHER ACTIVITY IN THE AREA.

NOTIFY THE SITE SUPERVISOR AND SAFETY MANAGER , ENVIRONMENT MANAGER AND CORDON OFF AREA.

Site Supervisor
Project Manager
Lead Safety Manager
Environment Manager

- Do not touch or disturb the item/ material
- Delineate the find from the rest of the worksite
- Inform the Environment Manager regarding the potential contamination find. The following detail should be provided:
  - The location of the potential contamination
  - Visual appearance
  - Odour (if any)
  - Depth
  - Surrounding material and works being undertaken at the time of discovering the material
- WHS and EM to determine immediate actions to prevent WHS and ENV issues
- EM to notify IR of Unexpected Find

ASSESSMENT

Contamination Consultant to assess and classify the unexpected find in accordance with the NSW regulatory requirements, including sampling and laboratory analysis.

Contamination Consultant

MANAGEMENT STRATEGY

- Contamination Consultant to develop a provide a plan for managing and/or remediating the material
- IR/ARTC to review and accept the proposed strategy

Environment Manager
Contamination Consultant
IR/ARTC

STRATEGY IMPLEMENTATION

- Implement the approved management and/or remediation as per the Contamination consultants direction
- IR/ARTC to review and accept the proposed strategy (if required)

Contamination Consultant
Site Supervisor
Environment Manager

Once the contamination find has been mitigated and clearance report received from the contamination consultant. EM is to notify Project Manager who is to approve re-commencement of works in the vicinity of the remediation site. IR/ARTC will review clearance report and must provide approval/acceptance prior to recommencing works

Environment Manager
Project Manager
IR/ARTC

Recommence works

Asbestos

An unexpected find occurs when Asbestos Containing Material (ACM) not identified in the Asbestos Register is found on site. In the event of an unexpected find the below steps are to be followed:

1. The area is to be demarcated, works in the area to cease and workers notified
2. Notify the Site Supervisor first. Site Supervisor will then notify the Project Manager, Safety Manager and Environment Manager.
3. Notify IR/ARTC within five (5) business days after the discovery.
4. Control dust by with dust suppression
5. A certified occupational hygienist is to be engaged to provide recommendations to manage the area
6. Occupational hygienist arrange for testing of the suspected ACM and monitoring of the area (if required)
7. The area is to be made safe as per the certified

Contamination Consultant

Works undertaken in relation to Contamination to investigate, assess, remediate or validate remediation or land use suitability shall be undertaken by a suitably qualified person holding valid 'Site Contamination' certification under the Certified Environment Practitioners Scheme (CEnvP) - Environment Institute of Australia and New Zealand or Certified Professional Soil Scientist – Contaminated Site Assessment and Management under the Soil Science Australia Certification Scheme.

With relevant qualifications and experience in keeping with the National Environmental Protection (Assessment of Site Contamination) Measure 1999 Amendment 2013 (ASC NEPM 2013).



Procedure

1) Potential contaminated soil/material encountered during construction activities. STOP ALL WORK AND NOTIFY IMMEDIATELY
2) Undertake a site/area contamination investigation. The Environment Manager (EM) is to assess the situation and if considered necessary, commission a suitably qualified contamination specialist to undertake a contamination investigation in the area of the find.
3) The consultation specialists in consultation with the EM will determine the appropriate management measures to be implemented. This may include leaving contamination undisturbed if it does not pose unacceptable risks to human health or the environment, capping of contamination, treatment or offsite disposal. If the material is to be disposed of offsite, ensure the waste facility is appropriately licensed. Contaminated material requiring off-site disposal is to be classified in accordance with the Waste Classification Guidelines – Part 1: Classification of Waste, NSW EPA 2014. Maintain records to demonstrate waste material was appropriately managed
4) If the material is determined to be Acid Sulfate Soil (ASS) or Potential Acid Sulfate Soil (PASS), an Acid Sulfate Soil Management Plan would be prepared and implemented in accordance with the Acid Sulfate Soil Manual (Acid Sulfate Soil Management Advisory Committee, August 1998).
5) Prior to any contamination investigation, management or remediation activities appropriate work method documentation encompassing safety and environmental risk management will be prepared for review and approval by the EM and IR
6) If required a Remedial Action Plan (RAP) will be prepared in accordance with legislative requirements
7) If material is to be treated and reused or left in situ ensure appropriate records are maintained and location of material (survey) is undertaken and provided to IR
8) Once the contamination find has been mitigated and clearance report received from the contamination consultant. This report is to be submitted to IR/ARTC for acceptance prior to recommencement of work
9) EM is to notify Project Manager who is to approve re-commencement of works in the vicinity of the remediation site.

Appendix F Heritage Memo

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MARTINUS INLAND RAIL



A2I | HAREFIELD YARD – CONSTRUCTION NOISE AND VIBRATION IMPACT STATEMENT ADDENDUM

A2I | Albury to Illabo

CONTRACT NUMBER: 0052

PROJECT DOCUMENT NUMBER:

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NAME	TITLE	SIGNATURE	DATE
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GLOSSARY

Specific terms and acronyms used throughout this plan are listed and described in Table 1 below.

TABLE 1: DEFINITIONS

TERM	DEFINITION
A2I	Albury to Illabo section of the Inland Rail project
Addendum	Addendum to the endorsed Construction Noise and Vibration Impact Statement
CA	Consistency Assessment
CoA	Conditions of Approval for SSI-10055
CNVIS	Construction Noise and Vibration Impact Statement
Harefield Yard	Harefield Yard Clearances enhancement site
km	Kilometres
m	Metres
NML	Noise Management Levels
OOH	Out-of-hours
Project	Albury to Illabo Project approved under Section 5.19 of the EP&A Act on 8 October 2024, as modified on 13 August 2025
RBL	Rating Background Level
SLR Predict	A2I noise and vibration management tool
SSI	State Significant Infrastructure
t	tonnes
W.001A	Work scenario 001A - Site Establishment – Signalling Works
W.001B	Work scenario 001B – Site Establishment _ Track and Civil
W.004A	Work scenario 004A - Track Work - Peak
W.005A	Work scenario 005A - Track Work - Typical
W.008A	Work scenario 008A - Gantry Removal
W.009A	Work scenario 009A - Underbore Installation
W.009B	Work scenario 009B – Signalling Work

1 INTRODUCTION

1.1 Inland Rail

Inland Rail is an approximate 1,600 kilometres (km) freight rail network that will connect Beveridge and Kagaru via regional Victoria, New South Wales 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. Inland Rail will accommodate double-stacked freight trains up to 1,800 metres (m) long and 6.5 m high.

The Albury to Illabo (A2I) section (the Project) forms a key component of the Inland Rail program.It is a 185 km section of existing rail corridor located in regional NSW between the towns of Albury and Illabo. 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.

Precinct	Enhancement sites
Albury Precinct	Murray River bridge
	Albury Station pedestrian bridge
	Albury Yard clearances
	Riverina Highway bridge
	Billy Hughes bridge
	Table Top Yard clearances
Greater Hume-Lockhart	Culcairn pedestrian bridge
	Culcairn Yard clearances
	Henty Yard clearances
	Yerong Creek Yard clearances
	The Rock Yard clearances
Wagga Wagga	Uranquinty Yard clearances
	Pearson Street bridge
	Cassidy Parade pedestrian bridge
	Edmonson Street bridge
	Wagga Wagga Station pedestrian bridge
	Wagga Wagga Yard clearances
	Bomen Yard clearances
Junee	Harefield Yard clearances
	Kemp Street bridge
	Junee Station pedestrian bridge
	Junee Yard clearances
	Olympic Highway underbridge
	Junee to Illabo clearances



FIGURE 1: PROJECT ENHANCEMENT SITES

1.1 Purpose of this Addendum

This Construction Noise and Vibration Impact Statement Addendum (Addendum) has been prepared to identify and assess the additional work areas required to support and enable the signalling activities and track works associated with the Harefield Yard clearances enhancement site (Harefield Yard), as shown in Figure 2 through to Figure 8 below. This Addendum will form part of the endorsed Construction Noise and Vibration Impact Statement (CNVIS) (Doc No: 6-0052-210-EEC-J1-AS-0001) for Harefield Yard.

This Addendum should be reviewed in conjunction with the CNVIS for Harefield Yard, including adopted Rating Background Levels (RBL), Noise Management Levels (NML) and assessment criteria in accordance with the Conditions of Approval (CoA) (SSI-10055).

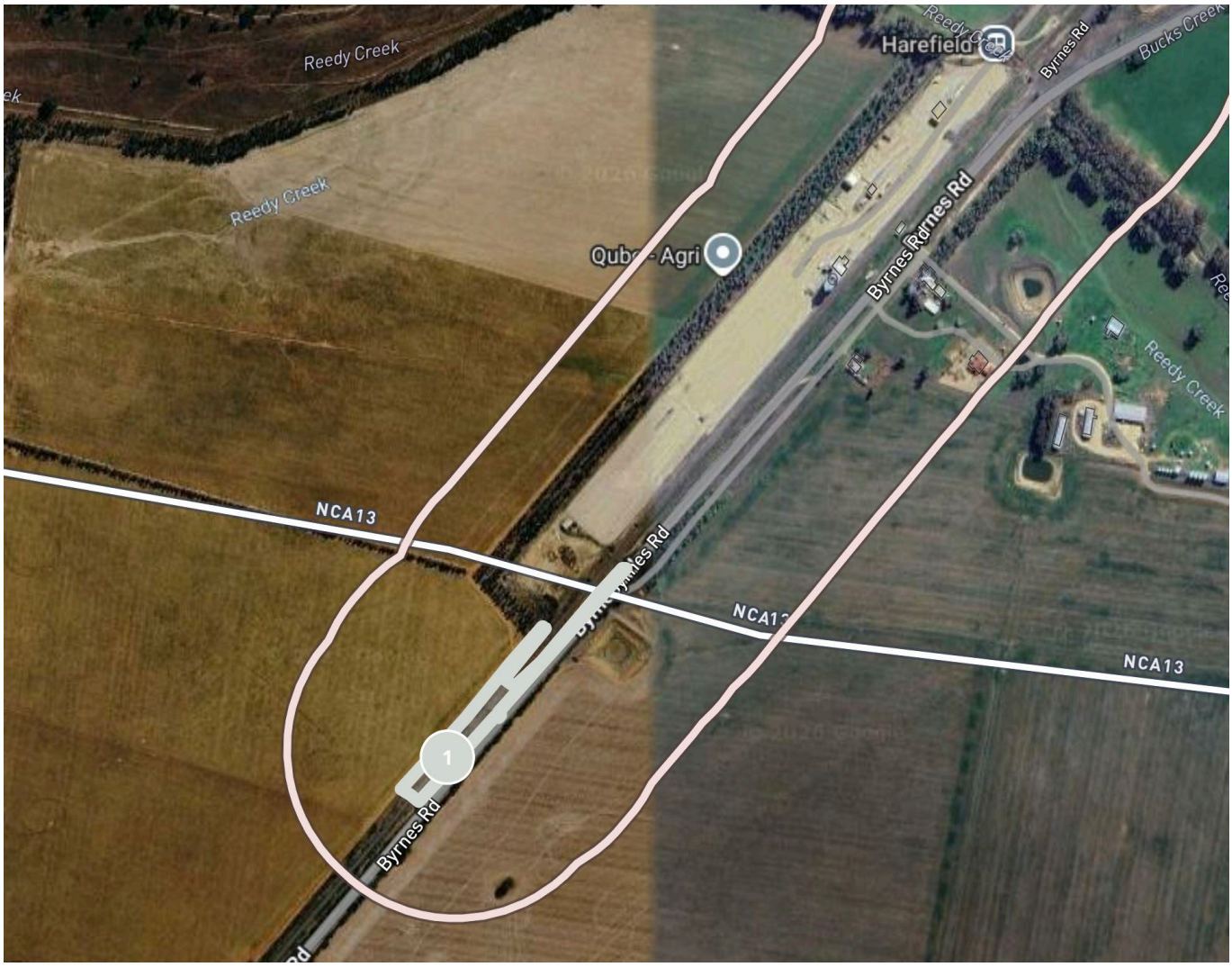


FIGURE 2: ADDITIONAL WORK AREA REQUIRED FOR HAREFIELD YARD (W.001A)



FIGURE 3: ADDITIONAL WORK AREA REQUIRED FOR HAREFIELD YARD (W.008A)



FIGURE 4: ADDITIONAL WORK AREA REQUIRED FOR HAREFIELD YARD (W.009A)



FIGURE 5: ADDITIONAL WORK AREA REQUIRED FOR HAREFIELD YARD (W.009B)



FIGURE 6: ADDITIONAL WORK AREA REQUIRED FOR HAREFIELD YARD (W.001B)



FIGURE 7: ADDITIONAL WORK AREA REQUIRED FOR HAREFIELD YARD (W.004A)



FIGURE 8: ADDITIONAL WORK AREA REQUIRED FOR HAREFIELD YARD (W.005A)

2 NOISE ASSESSMENT

The potential construction noise levels from the proposed works have been predicted using SLR Predict, the A2I project-specific noise and vibration tool. This CNVIS Addendum assesses the work scenarios identified in Table 2.

TABLE 2: WORK SCENARIO DESCRIPTION

ID	Scenario	Description	Total Lw
Signalling Works			
W.001A	Site establishment	▪ Access road and laydown construction ▪ Delivery of materials/equipment	▪ 116
W.008A	Gantry Removal	▪ Removal of gantry structure and footings	▪ 101
W.009A	Signalling Works	▪ Underbore installation	▪ 111
W.009B	Signalling Works	▪ Installation of signalling infrastructure	▪ 110
Track and Civil Works			
W.001B	Site establishment	▪ Access road and laydown construction ▪ Delivery of materials/equipment ▪ Stockpiling	▪ 116
W.004A	Track Work - Peak	▪ Track work	▪ 119
W.005A	Track Work Typical	▪ Track work	▪ 114

2.1 Site Establishment W.001A (Signalling Works)

2.1.1 Scope

The additional work area and revised plant and equipment required for Harefield Yard (Figure 2) forms part of the wider scope associated at the Harefield Yard clearances enhancement site and will enable signalling works.

The endorsed Harefield Yard CNVIS has assessed site establishment under work scenario W.001, and the proposed works under the CNVIS Addendum include the following:

Activity

- Access road and laydown construction
- Delivery of materials/equipment

Plant and equipment

- Excavator – tracked (20t)
- Front End Loader

- Light vehicle
- Truck and Dog (30t)
- Water Cart

Construction hours

- Standard approved construction hours:
  - 7am to 6pm Monday to Friday, inclusive
  - 7am to 6pm Saturday
- Daytime out-of-hours (OOH)
  - 8am to 6pm Sunday and Public Holidays

2.1.2 Assessment

An additional work area and revised plant and equipment, as per the Harefield Yard Consistency Assessment (CA) (Doc No: 6-0052-210-EAP-J1-AS-0001), for the Harefield Yard CNVIS has been identified, and assessed as per methodology, and plant and equipment noted in Section 2.1.1 above. SLR Predict, the A2I noise and vibration management tool, has been utilised to assess this additional work area and revised plant and equipment. The plant and equipment list (as noted above) has been considered as a worst-case scenario within a 15-minute assessment period.

The operating time (utilisation %) of each plant and equipment is representative to site working conditions.

2.1.3 Results

The SLR Predict results are presented in Appendix A, for approved standard hours, as the most affected period.

Table 3 provides a summary of the exceedances identified through various assessments. It compares the following:

- W.001 exceedances identified in the Harefield Yard CNVIS (Doc No: 6-0052-210-EEC-J1-AS-0001)
- W.001A exceedances identified in the SLR Predict results for the additional work areas shown in Figure 2.

TABLE 3: EXCEEDANCE COMPARISONS FOR W.001A

ASSESSMENT RESULTS (DAYTIME OOH)	NUMBER OF RESIDENTIAL RECEIVERS WITH NML EXCEEDANCE	
	W.001 CNVIS	SLR Predict – W.001A additional area
Total Lw (dBA)	112	116
Noticeable (1-5 dB)	4	3
Clearly Audible (6-15 dB)	1	0
Moderately Intrusive (16-25 dB)	0	0
Highly Intrusive (>25 dB)	0	0
Above Sleep Disturbance (>Screening level)	N/A	NA
Above Sleep Awake (>65 dB)	N/A	N/A

Although Table 3 shows an overall increase in the Total Lw (dBA) from 112 to 116, compared to the Harefield Yard CNVIS (Doc No: 6-0052-310-EEC-J1-AS-0001), the intensity of impacts resulting from the current proposed scenario

(last column) decreased in the number of receivers experiencing a noticeable level of noise (1-5 dB exceedance) and clearly audible (6-15 dB exceedance). The reason for the decrease in impacts to residential receivers is a result of the proposed CIZ extension being at a greater distance to the receivers than was previously modelled in the Harefield Yard CNVIS (Doc No: 6-0052-210-EEC-J1-AS-0001).

2.2 Signalling Works W.008A (Gantry Removal)

2.2.1 Scope

The additional work area required for Harefield Yard (Figure 3) forms part of the wider scope associated at the Harefield Yard clearances enhancement site and will enable signalling works. Gantry removal was assessed under the Harefield Yard CNVIS (Doc No: 6-0052-210-EEC-J1-AS-0001) but it was later determined that additional area is required to safely mobilise and manoeuvre plant and equipment for this scope of works.

The endorsed Harefield Yard CNVIS has assessed gantry removal activity under work scenario W.008, and the proposed works under the CNVIS Addendum include the following:

Activity

- Removal of the Gantry Structure

Plant and equipment

- Crane - franna
- Truck – flat bed
- Elevated Work Platform

Construction hours

- Standard approved construction hours:
  - 7am to 6pm Monday to Friday, inclusive
  - 7am to 6pm Saturday
- Daytime out-of-hours (OOH)
  - 8am to 6pm Sunday and Public Holidays
- Evening OOH:
  - 6pm to 10pm Monday to Sunday (including Public Holidays)
- Night OOH:
  - 10pm to 7am Monday to Saturday
  - 10pm to 8am Sunday (including Public Holidays)

2.2.2 Assessment

An additional work area, as per the Harefield Yard CNVIS (Doc No: 6-0052-210-EEC-J1-AS-0001), compared to the Harefield Yard CNVIS has been identified, and assessed as per methodology, and plant and equipment noted in Section 2.2.1 above. SLR Predict, the A2I noise and vibration management tool, has been utilised to assess this additional work area. The plant and equipment list (as noted above) has been considered as a worst-case scenario within a 15-minute assessment period.

The operating time (utilisation %) of each plant and equipment is representative to site working conditions.

2.2.3 Results

The SLR Predict results are presented in Appendix B, for night out of hours, as the most affected period.

Table 4 provides a summary of the exceedances identified through various assessments. It compares the following:

- W.008 exceedances identified in the Harefield Yard CNVIS
- W.008A exceedances identified in the SLR Predict results for the additional work areas shown in Figure 3.

TABLE 4: EXCEEDANCE COMPARISONS FOR W.008A

ASSESSMENT RESULTS (NIGHT OOH)	NUMBER OF RESIDENTIAL RECEIVERS WITH NML EXCEEDANCE	
	W.008 CNVIS	SLR Predict – W.008A additional area
Total Lw (dBA)	120	101
Noticeable (1-5 dB)	0	0
Clearly Audible (6-15 dB)	3	0
Moderately Intrusive (16-25 dB)	0	0
Highly Intrusive (>25 dB)	0	0
Above Sleep Disturbance (>Screening level)	3	0
Above Sleep Awake (>65 dB)	0	0

Table 4 shows a decrease in the intensity of impacts resulting from the current proposed scenario (last column). This is likely due to the reduction in the quantity and type of plant and equipment and lower total sound power level required for the removal of the gantry structure as was modelled in the Harefield Yard CNVIS (Doc No: 6-0052-210-EEC-J1-AS-0001).

2.3 Signalling Works W.009A (Underbore Installation)

2.3.1 Scope

The additional work area required for Harefield Yard (Figure 4) forms part of the wider scope associated at the Harefield Yard clearances enhancement site and will enable signalling works.

The endorsed Harefield Yard CNVIS did not assess underbore installation activity but for the comparison the CNVIS Addendum has considered it against the CNVIS signalling works under work scenario. The proposed works under the CNVIS Addendum include the following:

Activity

- Underbore installation

Plant and equipment

- Excavator (10t)
- Directional Drill
- NDD Vacuum truck
- Truck – tipper (5t)
- Wacker packer

Construction hours

- Standard approved construction hours:

- 7am to 6pm Monday to Friday, inclusive
- 7am to 6pm Saturday
- Daytime out-of-hours (OOH)
  - 8am to 6pm Sunday and Public Holidays
- Evening OOH:
  - 6pm to 10pm Monday to Sunday (including Public Holidays)
- Night OOH:
  - 10pm to 7am Monday to Saturday
  - 10pm to 8am Sunday (including Public Holidays)

2.3.2 Assessment

An additional work area, as per the Harefield Yard Consistency Assess (Doc No:), compared to the Harefield Yard CNVIS has been identified, and assessed as per methodology, and plant and equipment noted in Section 2.3.1 above. SLR Predict, the A2I noise and vibration management tool, has been utilised to assess this additional work area. The plant and equipment list (as noted above) has been considered as a worst-case scenario within a 15-minute assessment period.

The operating time (utilisation %) of each plant and equipment is representative to site working conditions.

2.3.3 Results

The SLR Predict results are presented in Appendix C, for night out of hours, as the most affected period.

Table 5 provides a summary of the exceedances identified through various assessments. It compares the following:

- W.009 exceedances identified in the Harefield Yard CNVIS
- W.009A exceedances identified in the SLR Predict results for the additional work areas shown in Figure 4.

TABLE 5: EXCEEDANCE COMPARISONS FOR W.009A

ASSESSMENT RESULTS (NIGHT OOH)	NUMBER OF RESIDENTIAL RECEIVERS WITH NML EXCEEDANCE	
	W.009 CNVIS	SLR Predict – W.009A additional area
Total Lw (dBA)	104	113
Noticeable (1-5 dB)	0	0
Clearly Audible (6-15 dB)	1	0
Moderately Intrusive (16-25 dB)	0	0
Highly Intrusive (>25 dB)	0	0
Above Sleep Disturbance (>Screening level)	1	0
Above Sleep Awake (>65 dB)	0	0

Although Table 5 shows an overall increase in the total Lw (dBA) from 104 to 113 the intensity of impacts resulting from the current proposed scenario (last column) decreased in the number of receivers experiencing a clearly audible (6-15 dB exceedance) and 'Above Sleep Disturbance'.

Underbore installation was not previously included as an activity within the signalling scope of works. Therefore, the additional activity, change in plant and equipment required for underbore installation as well as increased distance of the activity to the nearest sensitive receivers is the likely reason for the decrease in impacts to what was modelled in the Harefield Yard CNVIS (Doc No: 6-0052-210-EEC-J1-AS-0001) for W.009 Signalling Works.

2.4 Signalling Works W.009B

2.4.1 Scope

The additional work area required for Harefield Yard (Figure 5) forms part of the wider scope associated at the Harefield Yard clearances enhancement site and will enable signalling works.

The endorsed Harefield Yard CNVIS has assessed signalling works under work scenario W.009. The proposed works under the CNVIS Addendum include the following:

Activity

- Installation of signalling infrastructure

Plant and equipment

- Light vehicle
- Excavator (10t)
- NDD Vacuum truck
- Truck – tipper
- Wacker packer

Construction hours

- Standard approved construction hours:
  - 7am to 6pm Monday to Friday, inclusive
  - 7am to 6pm Saturday
- Daytime out-of-hours (OOH)
  - 8am to 6pm Sunday and Public Holidays
- Evening OOH:
  - 6pm to 10pm Monday to Sunday (including Public Holidays)
- Night OOH:
  - 10pm to 7am Monday to Saturday
  - 10pm to 8am Sunday (including Public Holidays)

2.4.2 Assessment

An additional work area, as per the Harefield Yard Consistency Assessment (Doc No: 6-0052-210-EAP-J1-AS-0001), compared to the Harefield Yard CNVIS has been identified, and assessed as per methodology, and plant and equipment noted in Section 2.4.1 above. SLR Predict, the A2I noise and vibration management tool, has been utilised to assess this additional work area. The plant and equipment list (as noted above) has been considered as a worst-case scenario within a 15-minute assessment period.

The operating time (utilisation %) of each plant and equipment is representative to site working conditions.

2.4.3 Results

The SLR Predict results are presented in Appendix D, for approved standard hours, as the most affected period.

Table 6 provides a summary of the exceedances identified through various assessments. It compares the following:

- W.009 exceedances identified in the Harefield Yard CNVIS
- W.009B exceedances identified in the SLR Predict results for the additional work areas shown in Figure 5.

TABLE 6: EXCEEDANCE COMPARISONS FOR W.009B

ASSESSMENT RESULTS (NIGHT OOH)	NUMBER OF RESIDENTIAL RECEIVERS WITH NML EXCEEDANCE	
	W.009CNVIS	SLR Predict – W.009B additional area
Total Lw (dBA)	104	116
Noticeable (1-5 dB)	0	1
Clearly Audible (6-15 dB)	1	2
Moderately Intrusive (16-25 dB)	0	0
Highly Intrusive (>25 dB)	0	0
Above Sleep Disturbance (>Screening level)	1	N/A
Above Sleep Awake (>65 dB)	0	N/A

Table 6 shows an overall increase in the Total Lw (dBA) from 104 to 116 in the intensity of impacts resulting from the current proposed scenario (last column) and a slight increase in the number of receivers experiencing a noticeable level of noticeable (1-5 dB) and clearly audible (6-15 dB) exceedance.

2.5 Site Establishment – Access Track and Laydown Yard / Stockpile Area W.001B (Track and Civil Works)

2.5.1 Scope

The additional work area required for Harefield Yard (Figure 6) forms part of the wider scope associated at the Harefield Yard clearances enhancement site and will enable track and civil works.

The endorsed Harefield Yard CNVIS has assessed site establishment under work scenario W.001. The proposed works under the CNVIS Addendum include the following:

Activity

- Access road and laydown/stockpile construction
- Delivery of materials/equipment

Plant and equipment

- Front End Loader
- Truck and Dog
- Excavator (20T)
- Light Vehicle

Construction hours

- Standard approved construction hours:
  - 7am to 6pm Monday to Friday, inclusive
  - 7am to 6pm Saturday
- Daytime out-of-hours (OOH)
  - 8am to 6pm Sunday and Public Holidays
- Evening OOH:
  - 6pm to 10pm Monday to Sunday (including Public Holidays)
- Night OOH:
  - 10pm to 7am Monday to Saturday
  - 10pm to 8am Sunday (including Public Holidays)

2.5.2 Assessment

An additional work area, as per the Harefield Yard Consistency Assessment (Doc No: 6-0052-210-EAP-J1-AS-0001), compared to the Harefield Yard CNVIS has been identified, and assessed as per methodology, and plant and equipment noted in Section 2.5.1 above. SLR Predict, the A2I noise and vibration management tool, has been utilised to assess this additional work area. The plant and equipment list (as noted above) has been considered as a worst-case scenario within a 15-minute assessment period.

The operating time (utilisation %) of each plant and equipment is representative to site working conditions.

2.5.3 Results

The SLR Predict results are presented in Appendix E, for approved standard hours, as the most affected period.

Table 7 provides a summary of the exceedances identified through various assessments. It compares the following:

- W.001 exceedances identified in the Harefield Yard CNVIS
- W.001B exceedances identified in the SLR Predict results for the additional work areas shown in Figure 6.

TABLE 7: EXCEEDANCE COMPARISONS FOR W.001B

ASSESSMENT RESULTS (DAYTIME OOH)	NUMBER OF RESIDENTIAL RECEIVERS WITH NML EXCEEDANCE	
	W.001 CNVIS	SLR Predict – W.001B additional area
Total Lw (dBA)	112	116
Noticeable (1-5 dB)	4	0
Clearly Audible (6-15 dB)	1	0
Moderately Intrusive (16-25 dB)	0	3
Highly Intrusive (>25 dB)	0	2
Above Sleep Disturbance (>Screening level)	N/A	5
Above Sleep Awake (>65 dB)	N/A	2

Table 7 shows an overall increase in the intensity of impacts resulting from the current proposed scenario (last column) including an increase Total Lw (dBA) as a result of the increased work area and total Lw (dBA). As well as an increase in the number of receivers experiencing a highly intrusive level of noise (> 25 dB exceedance) and moderately intrusive (16-25 dB exceedance), there are also five receivers above the 'above sleep disturbance' and two receivers above the 'above sleep awake' criterion in comparison to the endorsed CNVIS.

2.6 Track Work – Peak (W.004)

2.6.1 Scope

The additional work area required for Harefield Yard (Figure 7) forms part of the wider scope associated at the Harefield Yard clearances enhancement site and will enable signalling works.

The endorsed Harefield Yard CNVIS has assessed Track Work - Peak under work scenario W.004, and included the following:

Activity

- Track Work - Peak

Plant and equipment

- Centrifugal fan
- Compactor (plate)
- Compressor
- Crane (mobile)
- Elevated Work Platform
- Excavator (20t)
- Front End Loader
- Generator
- Grinder
- Hand tools – electric
- Hi-rail Crane
- Hi-rail Excavator (20t)
- Hi-rail Trolley
- Hydraulic/pneumatic tools
- Light Vehicles
- Lighting Towers
- PEM-LEM
- Vibratory Roller (7-13t)
- Saw Rail
- Tele Handler
- Truck – medium rigid
- Water cart

Construction hours

- Standard approved construction hours:
  - 7am to 6pm Monday to Friday, inclusive
  - 7am to 6pm Saturday
- Daytime out-of-hours (OOH)
  - 8am to 6pm Sunday and Public Holidays

- Evening OOH:
  - 6pm to 10pm Monday to Sunday (including Public Holidays)
- Night OOH:
  - 10pm to 7am Monday to Saturday
  - 10pm to 8am Sunday (including Public Holidays)

2.6.2 Assessment

An additional work area, as per the Harefield Yard Consistency Assessment (Doc No: 6-0052-210-EAP-J1-AS-0001), compared to the Harefield Yard CNVIS has been identified, and assessed as per methodology, and plant and equipment noted in Section 2.6.1 above. SLR Predict, the A2I noise and vibration management tool, has been utilised to assess this additional work area. The plant and equipment list (as noted above) has been considered as a worst-case scenario within a 15-minute assessment period.

The operating time (utilisation %) of each plant and equipment is representative to site working conditions.

2.6.3 Results

The SLR Predict results are presented in Appendix F, for night out of hours, as the most affected period.

Table 8 provides a summary of the exceedances identified through various assessments. It compares the following:

- W.004 exceedances identified in the Harefield Yard CNVIS
- W.004A exceedances identified in the SLR Predict results for the additional work areas shown in Figure 7.

TABLE 8: EXCEEDANCE COMPARISONS FOR W.004A

ASSESSMENT RESULTS (NIGHT OOH)	NUMBER OF RESIDENTIAL RECEIVERS WITH NML EXCEEDANCE	
	W.004 CNVIS	SLR Predict – W.004A additional area
Total Lw (dBA)	119	119
Noticeable (1-5 dB)	0	0
Clearly Audible (6-15 dB)	2	2
Moderately Intrusive (16-25 dB)	1	2
Highly Intrusive (>25 dB)	2	1
Above Sleep Disturbance (>Screening level)	5	5
Above Sleep Awake (>65 dB)	3	2

Table 8 shows an overall similar intensity of impacts in comparison to the endorsed CNVIS resulting from the current proposed scenario (last column). There is a slight increased number of receivers experiencing a moderately intrusive level of noise (6 - 10 dB exceedance) by one receiver, and a decrease by one receiver in the highly intrusive (>25 dB exceedance) and above sleep awake noise levels.

2.7 Track Work – Typical W.005

2.7.1 Scope

The additional work area required for Harefield Yard (Figure 8) forms part of the wider scope associated at the Harefield Yard clearances enhancement site and will enable track works.

The endorsed Harefield Yard CNVIS has assessed track works – typical under work scenario W.005, and included the following:

Activity

- Track Work - Typical

Plant and equipment

- Centrifugal fan
- Compressor
- Crane (mobile)
- Elevated Work Platform
- Excavator (20t)
- Front End Loader
- Generator
- Grinder
- Hand tools – electric
- Hi-rail Crane
- Hi-rail Excavator (20t)
- Hi-rail Trolley
- Light Vehicles
- Lighting Towers
- PEM-LEM
- Tele Handler
- Truck – medium rigid
- Water cart

Construction hours

- Standard approved construction hours:
  - 7am to 6pm Monday to Friday, inclusive
  - 7am to 6pm Saturday
- Daytime out-of-hours (OOH)
  - 8am to 6pm Sunday and Public Holidays
- Evening OOH:
  - 6pm to 10pm Monday to Sunday (including Public Holidays)
- Night OOH:
  - 10pm to 7am Monday to Saturday
  - 10pm to 8am Sunday (including Public Holidays)

2.7.2 Assessment

An additional work area, as per the Harefield Yard Consistency Assessment (Doc No: 6-0052-210-EAP-J1-AS-0001), for the Harefield Yard CNVIS has been identified, and assessed as per methodology, and plant and equipment noted in Section 2.7.1 above. SLR Predict, the A2I noise and vibration management tool, has been utilised to assess this additional work

area. The plant and equipment list (as noted above) has been considered as a worst-case scenario within a 15-minute assessment period.

The operating time (utilisation %) of each plant and equipment is representative to site working conditions.

2.7.3 Results

The SLR Predict results are presented in Appendix H, for approved standard hours, as the most affected period.

Table 9 provides a summary of the exceedances identified through various assessments. It compares the following:

- W.005 exceedances identified in the Harefield Yard CNVIS
- W.005A exceedances identified in the SLR Predict results for the additional work areas shown in Figure 8.

TABLE 9: EXCEEDANCE COMPARISONS FOR W.005A

ASSESSMENT RESULTS (NIGHT OOH)	NUMBER OF RESIDENTIAL RECEIVERS WITH NML EXCEEDANCE	
	W.005 CNVIS	SLR Predict – W.005A additional area
Total Lw (dBA)	114	114
Noticeable (1-5 dB)	2	1
Clearly Audible (6-15 dB)	1	3
Moderately Intrusive (16-25 dB)	1	1
Highly Intrusive (>25 dB)	1	0
Above Sleep Disturbance (>Screening level)	4	3
Above Sleep Awake (>65 dB)	2	1

Table 9 shows an overall similar intensity of impacts resulting from the current proposed scenario (last column). There is a slight increased number of receivers experiencing a clearly audible level of noise (6 - 10 dB exceedance), all other noise categories remained the same or reduced in the number of receivers impacted.

3 VIBRATION ASSESSMENT

3.1 Signalling Activities

There are no vibration intensive plant and equipment proposed as part of signalling works scenarios W.001A, W.008A, whilst W.009A and W.009B include wacker packers, which generate ground vibration, albeit minor. No vibration impacts are expected W.001A, W.008A and have been confirmed as no impact for W.009A and W.009B (refer Appendix D).

3.2 Track Works

There are no vibration intensive plant and equipment proposed as part of W.001B and W.005A. Therefore, no vibration impacts are expected.

3.3 Track Works – Peak (W.004A)

As noted above in Section 2.6, a vibratory roller (7-13t) will be utilised as part of the site establishment at Harefield Yard.

The potential vibration impacts associated with W.0004A have been assessed utilising SLR Predict. A comparison of the Transport CNVG-PTI minimum working distances for cosmetic damage and human comfort (TfNSW CNVG-PTI) against the SLR Predict results, has been summarised and presented in Table 10 below:

TABLE 10: VIBRATION CRITERIA EXCEEDANCES FOR W.004A

VIBRATION CRITERIA	VIBRATION CRITERIA	NUMBER OF RECEIVERS WITH VIBRATION CRITERIA EXCEEDANCE[1]
	Vibratory Roller 7-13 tonne (TfNSW's CNVG PTI)	SLR Predict – W.004A
Cosmetic Damage (Residential and Light Commercial)	15m	0 properties
Cosmetic Damage for Unsound Heritage	31m	0 properties
Cosmetic Damage (Industrial and Heavy Commercial)	8m	0 properties
Human Comfort	100m	4 properties

Note 1: Some addresses have both residential and non-residential uses and therefore have been accounted for in each vibration criteria category triggered.

Table 10 shows the number of properties with the potential to exceed vibration criteria for cosmetic damage and human comfort. The four structures identified in this CNVIS Addendum for potential exceedance for human comfort were also identified in the endorsed CNVIS. No structures have been identified to have the potential for cosmetic damage.

The SLR Predict results are presented under Appendix G.

4 CONCLUSION

4.1 Mitigation and Management Measures

As this Addendum forms part of the endorsed CNVIS for Harefield Yard, the same noise and vibration management measures apply as noted in Section 8 of the CNVIS.

4.2 Additional Mitigation Measures

As noted in Figure 9 and under Appendix A through to Appendix G, the SLR Predict results include a section on all applicable additional mitigation measures. There additional mitigation measures will be implemented where appropriate.

Airborne Noise - Additional Mitigation Measures Matrix				
Time Period	Exceedance of NML	Perception	Duration	Communication Category/Management Measure
OOHW Daytime PeriodSunday 7am - 6pm(including public holidays)	<5	Noticeable	Any	CO1
	5 - 15	Clearly audible	Any	CO1
	16 - 25	Moderately intrusive	Any	CO1, CO2
	>25	Highly intrusive	Any	CO1, CO2
OOHW Evening PeriodMonday - Sunday 6pm - 10pm(including public holidays)	<5	Noticeable	Any	CO1
	5 - 15	Clearly audible	Any	CO1
	16 - 25	Moderately intrusive	Any	CO1, CO2
	>25	Highly intrusive	Any	CO1, CO2
			>2 consecutive rest periods	CO1, CO2, RO
OOHW Night PeriodMonday - Sunday 10pm - 7am(including public holidays)	<5	Noticeable	Any	CO1
	5 - 15	Clearly audible	Any	CO1
	16 - 25	Moderately intrusive	Any	CO1, CO2
			>2 consecutive sleep periods	CO1, CO2, RO, AO
	>25	Highly intrusive	Any	CO1, CO2, RO
			>2 consecutive sleep periods	CO1, CO2, RO, AO, AltA

FIGURE 9: ADDITIONAL MITIGATION MEASURES MATRIX



APPENDICES

APPENDIX A

SLR Predict Results (W.001A) - Noise

Construction Noise and Vibration Impact Statement (CNVIS)

This report presents the outcomes of detailed noise/vibration modelling relating to specific construction activities proposed on site in accordance with the methodology outlined in the *Construction Noise and Vibration Management Plan* (CNVMP) and overarching *Construction Noise and Vibration Impact Statement* (CNVIS).
Prior to detailed noise/vibration modelling being undertaken, work activities are reviewed and considered in relation to industry best practice, consistent with the requirements of the CNVMP. Consideration is first given to eliminating the noise/vibration emissions so far as reasonably practicable. Where elimination is not practicable, efforts are been made to reduce the risk as far as practical by implementing noise and vibration management measures as outlined in the overarching CNVIS and CNVMP.
Examples of these measures include selecting the quietest equipment and processes to complete the works, considering staging and periods of respite to minimise prolonged periods of noise and vibration exposure, and maximising distances between construction activities and sensitive receivers.

Consultation with Affected Receivers
In accordance with CoA E78, the CNVIS must include specific mitigation measures identified through consultation with affected sensitive land user(s) and the mitigation measures must be implemented for the duration of the Work. Details of this consultation are provided in the overarching CNVIS for each enhancement site.

Predicted Noise Levels
The assessment presents the highest predicted level at each receiver building, considering predictions at each floor and façade from all potential work areas. The assessment is generally considered conservative as the calculations assume several items of construction equipment are in use at the same time within each work area. The assessment uses 'realistic worst-case' scenarios to determine the impacts from the noisiest 15-minute period that is likely to occur for each work scenario.

Assessment Details

Author Name	
Author Email	noiseassessments@martinus.com.au
Author Organisation	Martinus Rail
Project Name	A2I - Albury to Illabo
Assessment Name	Harefield - Signalling (W.001A)
Assessment Number	518
Stage	A2I Construction
Permit Number	
Start Date	2026-09-01
End Date	2027-04-30
Assessment Period	Day - out of hours

Equipment Details

Plant/Equipment	Equipment Sound Power Level (Unadjusted), dBA	Number of Units	Temporary Noise Barrier
1: Site Establishment - Laydown and Access (Height: Ground)	Total: 116		
Front End Loader 50% operation	113	1	No
Light Vehicle (accelerating) 25% operation	95	5	No
Lighting Tower 100% operation	80	1	No
Truck - road truck/ truck & dog (30T) 75% operation	108	6	No
Excavator - Tracked (20T) 50% operation	105	1	No

Note 1: Equipment classed as 'annoying' in the *Interim Construction Noise Guideline (DECC, 2009)* include a 5 dB correction.
Note 2: Equipment sound power levels consider the mitigation measures outlined in the overarching CNVIS to provide mitigated results.

Assessment Results



	Residential	Non-Residential
Highly Intrusive	0 property	0 property
Moderately Intrusive	0 property	0 property
Clearly Audible	0 property	0 property
Noticeable	3 properties	0 property

Legend

Project Boundary
Work Areas
Barriers

Results by Receiver

Facade/Floor: Show, Minimum floor to show: 0

Address	Land Use	Noise Catchment Area	Construction Noise Management Level, dBA	Predicted Noise Level, dBA	Predicted Noise Level Above Noise Management Level, dB	Noise Category
1912 BYRNES RD, HAREFIELD NSW 2650	RES	NCA13	46	48	2	Noticeable

Results by Receiver

Facade/Floor: Show, Minimum floor to show: 0

Address	Land Use	Noise Catchment Area	Construction Noise Management Level, dBA	Predicted Noise Level, dBA	Predicted Noise Level Above Noise Management Level, dB	Noise Category
1922 BYRNES RD, HAREFIELD NSW 2650	RES	NCA13	46	47	1	Noticeable
1296 BYRNES RD, HAREFIELD NSW 2650	RES	NCA13	46	47	1	Noticeable

Recommended Mitigation Measures

This assessment has been conducted with regard to the relevant CNVIS and CNVMP. To manage noise and vibration impacts, project specific mitigation measures may be considered such as reviewing construction staging methodology to identify opportunities to schedule intensive works during less sensitive time periods and by providing a clear process for community engagement and complaints. Likewise, the requirements and actionable items within the overarching CNVIS and CNVMP should be considered and adopted where appropriate. Following the consideration of project specific noise mitigation measures, additional noise mitigation measures to be explored are described in the Inland Rail NSW Construction Noise and Vibration Framework (CNVF) and summarised below.

Airborne Noise - Additional Mitigation Measures Matrix				
Time Period	**Exceedance of NML**	**Perception**	**Duration**	**Communication Category/Management Measure**
OOHW Daytime Period Sunday 7am - 6pm (including public holidays)	<5	Noticeable	Any	CO1
	5 - 15	Clearly audible	Any	CO1
	16 - 25	Moderately intrusive	Any	CO1, CO2
	>25	Highly intrusive	Any	CO1, CO2
OOHW Evening Period Monday - Sunday 6pm - 10pm (including public holidays)	<5	Noticeable	Any	CO1
	5 - 15	Clearly audible	Any	CO1
	16 - 25	Moderately intrusive	Any	CO1, CO2
	>25	Highly intrusive	Any	CO1, CO2
			>2 consecutive rest periods	CO1, CO2, RO
OOHW Night Period Monday - Sunday 10pm - 7am (including public holidays)	<5	Noticeable	Any	CO1
	5 - 15	Clearly audible	Any	CO1
	16 - 25	Moderately intrusive	Any	CO1, CO2
			>2 consecutive sleep periods	CO1, CO2, RO, AO
	>25	Highly intrusive	Any	CO1, CO2, RO
			>2 consecutive sleep periods	CO1, CO2, RO, AO, AltA

Vibration - Additional Mitigation Measures Matrix			
Time Period	**Duration**	**Exceedance of 'preferred' value**	**Exceedance of 'maximum' value**
OOHW Daytime Period Sunday 8am-6pm	Any	CO1, CO2	CO1, CO2, RO
OOHW Evening Period Mon-Sun 6pm-10pm	Any	CO1, CO2	CO1, CO2, RO

OOHW Night Period Mon-Sat 10pm-7am Sun 10pm-8am	Any	CO1, CO2, RO	CO1, CO2, RO, AltA

Additional Mitigation Measures	
Measure	**Abbreviation**
Communication (Category 1)[1]	CO1
Communication (Category 2)[2]	CO2
Respite Offer[3]	RO
Alternative Accommodation	AltA
Agreement with Owners	AO

Note 1: CO1: Communication to provide information on the OOHW via methods such as letter box drop, email, newsletter, media advertisements and/ or website prior to the works commencing.
Note 2: CO2: Communication should be personalised (e.g. door knock, meeting, telephone call). Contact with these residents should commence early to enable feedback to be considered by the proposal.
Note 3: RO are not applicable to non-residential receivers. RO may comprise of pre-purchased movie tickets, dinner vouchers or similar. RO can also be provided by limiting high noise generating works and allowing at least a one-hour respite period between blocks of work. Where possible, the timing of this respite should be discussed with the impacted community.

Receiver Types			
Code	**Description**	**Code**	**Description**
RES	Residential	OED	Other Educational
COM	Commercial	OHO	Other Hotel
IND	Industrial	OLI	Other Library
OOA	Other Outdoor Active Recreation	OME	Other Medical
OOP	Other Outdoor Passive Recreation	OPW	Other Place of Worship
OCC	Other Child Care	OPB	Other Public Building

APPENDIX B

SLR Predict Results (W.008A) - Noise

Construction Noise and Vibration Impact Statement (CNVIS)

This report presents the outcomes of detailed noise/vibration modelling relating to specific construction activities proposed on site in accordance with the methodology outlined in the *Construction Noise and Vibration Management Plan* (CNVMP) and overarching *Construction Noise and Vibration Impact Statement* (CNVIS).
Prior to detailed noise/vibration modelling being undertaken, work activities are reviewed and considered in relation to industry best practice, consistent with the requirements of the CNVMP. Consideration is first given to eliminating the noise/vibration emissions so far as reasonably practicable. Where elimination is not practicable, efforts are been made to reduce the risk as far as practical by implementing noise and vibration management measures as outlined in the overarching CNVIS and CNVMP.
Examples of these measures include selecting the quietest equipment and processes to complete the works, considering staging and periods of respite to minimise prolonged periods of noise and vibration exposure, and maximising distances between construction activities and sensitive receivers.

Consultation with Affected Receivers
In accordance with CoA E78, the CNVIS must include specific mitigation measures identified through consultation with affected sensitive land user(s) and the mitigation measures must be implemented for the duration of the Work. Details of this consultation are provided in the overarching CNVIS for each enhancement site.

Predicted Noise Levels
The assessment presents the highest predicted level at each receiver building, considering predictions at each floor and façade from all potential work areas. The assessment is generally considered conservative as the calculations assume several items of construction equipment are in use at the same time within each work area. The assessment uses ‘realistic worst-case’ scenarios to determine the impacts from the noisiest 15-minute period that is likely to occur for each work scenario.

Assessment Details

Author Name	
Author Email	noiseassessments@martinus.com.au
Author Organisation	Martinus Rail
Project Name	A2I - Albury to Illabo
Assessment Name	Harefield Gantry Removal
Assessment Number	523
Stage	A2I Construction
Permit Number	
Start Date	2026-09-01
End Date	2027-04-30
Assessment Period	Night - out of hours

Equipment Details

Plant/Equipment	Equipment Sound Power Level (Unadjusted), dBA	Number of Units	Temporary Noise Barrier
1: Gantry Removal (Height: Ground)	Total: 101		
Crane Franna (20 tonne) 80% operation	98	1	No
Truck (flatbed) 50% operation	95	1	No
Elevated Work Platform 100% operation	97	1	No

Note 1: Equipment classed as 'annoying' in the *Interim Construction Noise Guideline (DECC, 2009)* include a 5 dB correction.
Note 2: Equipment sound power levels consider the mitigation measures outlined in the overarching CNVIS to provide mitigated results.

Assessment Results



	Residential	Non-Residential
Highly Intrusive	0 property	0 property
Moderately Intrusive	0 property	0 property
Clearly Audible	0 property	0 property
Noticeable	0 property	0 property
Above Sleep Disturbance	0 property	0 property
Above Sleep Awake	0 property	0 property

Legend

	Project Boundary
	Work Areas
	Barriers

Results by Receiver

Facade/Floor: Show, Minimum floor to show: 0

Address	Land Use	Noise Catchment Area	Construction Noise Management Level, dBA	Predicted Noise Level, dBA	Predicted Noise Level Above Noise Management Level, dB	Noise Category

No results

Recommended Mitigation Measures

This assessment has been conducted with regard to the relevant CNVIS and CNVMP. To manage noise and vibration impacts, project specific mitigation measures may be considered such as reviewing construction staging methodology to identify opportunities to schedule intensive works during less sensitive time periods and by providing a clear process for community engagement and complaints. Likewise, the requirements and actionable items within the overarching CNVIS and CNVMP should be considered and adopted where appropriate. Following the consideration of project specific noise mitigation measures, additional noise mitigation measures to be explored are described in the Inland Rail NSW Construction Noise and Vibration Framework (CNVF) and summarised below.

Airborne Noise - Additional Mitigation Measures Matrix				
Time Period	**Exceedance of NML**	**Perception**	**Duration**	**Communication Category/Management Measure**
OOHW Daytime Period Sunday 7am - 6pm (including public holidays)	<5	Noticeable	Any	CO1
	5 - 15	Clearly audible	Any	CO1
	16 - 25	Moderately intrusive	Any	CO1, CO2
	>25	Highly intrusive	Any	CO1, CO2
OOHW Evening Period Monday - Sunday 6pm - 10pm (including public holidays)	<5	Noticeable	Any	CO1
	5 - 15	Clearly audible	Any	CO1
	16 - 25	Moderately intrusive	Any	CO1, CO2
	>25	Highly intrusive	Any	CO1, CO2
			>2 consecutive rest periods	CO1, CO2, RO
OOHW Night Period Monday - Sunday 10pm - 7am (including public holidays)	<5	Noticeable	Any	CO1
	5 - 15	Clearly audible	Any	CO1
	16 - 25	Moderately intrusive	Any	CO1, CO2
			>2 consecutive sleep periods	CO1, CO2, RO, AO
	>25	Highly intrusive	Any	CO1, CO2, RO
			>2 consecutive sleep periods	CO1, CO2, RO, AO, AltA

Vibration - Additional Mitigation Measures Matrix			
Time Period	**Duration**	**Exceedance of 'preferred' value**	**Exceedance of 'maximum' value**
OOHW Daytime Period Sunday 8am-6pm	Any	CO1, CO2	CO1, CO2, RO
OOHW Evening Period Mon-Sun 6pm-10pm	Any	CO1, CO2	CO1, CO2, RO

OOHW Night Period Mon-Sat 10pm-7am Sun 10pm-8am	Any	CO1, CO2, RO	CO1, CO2, RO, AltA

Additional Mitigation Measures

Measure	Abbreviation
Communication (Category 1)[1]	CO1
Communication (Category 2)[2]	CO2
Respite Offer[3]	RO
Alternative Accommodation	AltA
Agreement with Owners	AO

Note 1: CO1: Communication to provide information on the OOHW via methods such as letter box drop, email, newsletter, media advertisements and/ or website prior to the works commencing.
Note 2: CO2: Communication should be personalised (e.g. door knock, meeting, telephone call). Contact with these residents should commence early to enable feedback to be considered by the proposal.
Note 3: RO are not applicable to non-residential receivers. RO may comprise of pre-purchased movie tickets, dinner vouchers or similar. RO can also be provided by limiting high noise generating works and allowing at least a one-hour respite period between blocks of work. Where possible, the timing of this respite should be discussed with the impacted community.

Receiver Types

Code	Description	Code	Description
RES	Residential	OED	Other Educational
COM	Commercial	OHO	Other Hotel
IND	Industrial	OLI	Other Library
OOA	Other Outdoor Active Recreation	OME	Other Medical
OOP	Other Outdoor Passive Recreation	OPW	Other Place of Worship
OCC	Other Child Care	OPB	Other Public Building

APPENDIX C

SLR Predict Results (W.009A) – Noise & Vibration

Construction Noise and Vibration Impact Statement (CNVIS)

This report presents the outcomes of detailed noise/vibration modelling relating to specific construction activities proposed on site in accordance with the methodology outlined in the *Construction Noise and Vibration Management Plan* (CNVMP) and overarching *Construction Noise and Vibration Impact Statement* (CNVIS).
Prior to detailed noise/vibration modelling being undertaken, work activities are reviewed and considered in relation to industry best practice, consistent with the requirements of the CNVMP. Consideration is first given to eliminating the noise/vibration emissions so far as reasonably practicable. Where elimination is not practicable, efforts are been made to reduce the risk as far as practical by implementing noise and vibration management measures as outlined in the overarching CNVIS and CNVMP.
Examples of these measures include selecting the quietest equipment and processes to complete the works, considering staging and periods of respite to minimise prolonged periods of noise and vibration exposure, and maximising distances between construction activities and sensitive receivers.

Consultation with Affected Receivers

In accordance with CoA E78, the CNVIS must include specific mitigation measures identified through consultation with affected sensitive land user(s) and the mitigation measures must be implemented for the duration of the Work. Details of this consultation are provided in the overarching CNVIS for each enhancement site.

Predicted Noise Levels

The assessment presents the highest predicted level at each receiver building, considering predictions at each floor and façade from all potential work areas. The assessment is generally considered conservative as the calculations assume several items of construction equipment are in use at the same time within each work area. The assessment uses 'realistic worst-case' scenarios to determine the impacts from the noisiest 15-minute period that is likely to occur for each work scenario.

Assessment Details

Author Name	
Author Email	noiseassessments@martinus.com.au
Author Organisation	Martinus Rail
Project Name	A2I - Albury to Illabo
Assessment Name	Harefield Underbore installation (W.009A)
Assessment Number	524
Stage	A2I Construction
Permit Number	
Start Date	2026-09-01
End Date	2027-04-30
Assessment Period	Night - out of hours

Equipment Details

Plant/Equipment	Equipment Sound Power Level (Unadjusted), dBA	Number of Units	Temporary Noise Barrier
1: Underbore Installation (Height: Ground)	Total: 113		
Directional Drill 100% operation	101	1	No
Truck - vacuum (NDD or non-destructive digger) 100% operation	109	1	No
Light Vehicle (accelerating) 25% operation	95	5	No
Excavator - Tracked (10T) 100% operation	100	2	No
Truck - tipper small (5T) 30% operation	97	1	No
Wacker Packer 100% operation	105	2	No

Note 1: Equipment classed as 'annoying' in the *Interim Construction Noise Guideline (DECC, 2009)* include a 5 dB correction.
Note 2: Equipment sound power levels consider the mitigation measures outlined in the overarching CNVIS to provide mitigated results.

Assessment Results



	Residential	Non-Residential
Highly Intrusive	0 property	0 property
Moderately Intrusive	0 property	0 property
Clearly Audible	0 property	0 property
Noticeable	0 property	0 property
Above Sleep Disturbance	0 property	0 property
Above Sleep Awake	0 property	0 property

Legend

Project Boundary	
Work Areas	
Barriers	

Results by Receiver

Facade/Floor: Show, Minimum floor to show: 0

Address	Land Use	Noise Catchment Area	Construction Noise Management Level, dBA	Predicted Noise Level, dBA	Predicted Noise Level Above Noise Management Level, dB	Noise Category
No results						

Recommended Mitigation Measures

This assessment has been conducted with regard to the relevant CNVIS and CNVMP. To manage noise and vibration impacts, project specific mitigation measures may be considered such as reviewing construction staging methodology to identify opportunities to schedule intensive works during less sensitive time periods and by providing a clear process for community engagement and complaints. Likewise, the requirements and actionable items within the overarching CNVIS and CNVMP should be considered and adopted where appropriate. Following the consideration of project specific noise mitigation measures, additional noise mitigation measures to be explored are described in the Inland Rail NSW Construction Noise and Vibration Framework (CNVF) and summarised below.

Airborne Noise - Additional Mitigation Measures Matrix

Time Period	Exceedance of NML	Perception	Duration	Communication Category/Management Measure
OOHW Daytime Period Sunday 7am - 6pm (including public holidays)	<5	Noticeable	Any	CO1
	5 - 15	Clearly audible	Any	CO1
	16 - 25	Moderately intrusive	Any	CO1, CO2
	>25	Highly intrusive	Any	CO1, CO2
OOHW Evening Period Monday - Sunday 6pm - 10pm (including public holidays)	<5	Noticeable	Any	CO1
	5 - 15	Clearly audible	Any	CO1
	16 - 25	Moderately intrusive	Any	CO1, CO2
	>25	Highly intrusive	Any	CO1, CO2
			>2 consecutive rest periods	CO1, CO2, RO
OOHW Night Period Monday - Sunday 10pm - 7am (including public holidays)	<5	Noticeable	Any	CO1
	5 - 15	Clearly audible	Any	CO1
	16 - 25	Moderately intrusive	Any	CO1, CO2
			>2 consecutive sleep periods	CO1, CO2, RO, AO
	>25	Highly intrusive	Any	CO1, CO2, RO
			>2 consecutive sleep periods	CO1, CO2, RO, AO, AltA

Vibration - Additional Mitigation Measures Matrix

Time Period	Duration	Exceedance of 'preferred' value	Exceedance of 'maximum' value

OOHW Daytime Period Sunday 8am-6pm	Any	CO1, CO2	CO1, CO2, RO
OOHW Evening Period Mon-Sun 6pm-10pm	Any	CO1, CO2	CO1, CO2, RO
OOHW Night Period Mon-Sat 10pm-7am Sun 10pm-8am	Any	CO1, CO2, RO	CO1, CO2, RO, AltA

Additional Mitigation Measures

Measure	Abbreviation
Communication (Category 1)[1]	CO1
Communication (Category 2)[2]	CO2
Respite Offer[3]	RO
Alternative Accommodation	AltA
Agreement with Owners	AO

Note 1: CO1: Communication to provide information on the OOHW via methods such as letter box drop, email, newsletter, media advertisements and/ or website prior to the works commencing.
Note 2: CO2: Communication should be personalised (e.g. door knock, meeting, telephone call). Contact with these residents should commence early to enable feedback to be considered by the proposal.
Note 3: RO are not applicable to non-residential receivers. RO may comprise of pre-purchased movie tickets, dinner vouchers or similar. RO can also be provided by limiting high noise generating works and allowing at least a one-hour respite period between blocks of work. Where possible, the timing of this respite should be discussed with the impacted community.

Receiver Types

Code	Description	Code	Description
RES	Residential	OED	Other Educational
COM	Commercial	OHO	Other Hotel
IND	Industrial	OLI	Other Library
OOA	Other Outdoor Active Recreation	OME	Other Medical
OOP	Other Outdoor Passive Recreation	OPW	Other Place of Worship
OCC	Other Child Care	OPB	Other Public Building

Construction Noise and Vibration Impact Statement (CNVIS)

This report presents the outcomes of detailed noise/vibration modelling relating to specific construction activities proposed on site in accordance with the methodology outlined in the *Construction Noise and Vibration Management Plan* (CNVMP) and overarching *Construction Noise and Vibration Impact Statement* (CNVIS).
Prior to detailed noise/vibration modelling being undertaken, work activities are reviewed and considered in relation to industry best practice, consistent with the requirements of the CNVMP. Consideration is first given to eliminating the noise/vibration emissions so far as reasonably practicable. Where elimination is not practicable, efforts are been made to reduce the risk as far as practical by implementing noise and vibration management measures as outlined in the overarching CNVIS and CNVMP.
Examples of these measures include selecting the quietest equipment and processes to complete the works, considering staging and periods of respite to minimise prolonged periods of noise and vibration exposure, and maximising distances between construction activities and sensitive receivers.

Consultation with Affected Receivers

In accordance with CoA E78, the CNVIS must include specific mitigation measures identified through consultation with affected sensitive land user(s) and the mitigation measures must be implemented for the duration of the Work. Details of this consultation are provided in the overarching CNVIS for each enhancement site.

Predicted Noise Levels

The assessment presents the highest predicted level at each receiver building, considering predictions at each floor and façade from all potential work areas. The assessment is generally considered conservative as the calculations assume several items of construction equipment are in use at the same time within each work area. The assessment uses 'realistic worst-case' scenarios to determine the impacts from the noisiest 15-minute period that is likely to occur for each work scenario.

Assessment Details

Author Name	
Author Email	noiseassessments@martinus.com.au
Author Organisation	Martinus Rail
Project Name	A2I - Albury to Illabo
Assessment Name	Harefield Underbore installation
Assessment Number	524
Stage	A2I Construction
Permit Number	
Start Date	2026-09-01
End Date	2027-04-30
Assessment Period	Vibration

Equipment Details

Plant/Equipment	Equipment Sound Power Level (Unadjusted), dBA	Number of Units	Temporary Noise Barrier
1: Underbore Installation (Height: Ground)	Total: 113		
Directional Drill 100% operation	101	1	No
Truck - vacuum (NDD or non-destructive digger) 100% operation	109	1	No
Light Vehicle (accelerating) 25% operation	95	5	No
Excavator - Tracked (10T) 100% operation	100	2	No
Truck - tipper small (5T) 30% operation	97	1	No
Wacker Packer 100% operation	105	2	No

Note 1: Equipment classed as 'annoying' in the *Interim Construction Noise Guideline (DECC, 2009)* include a 5 dB correction.
Note 2: Equipment sound power levels consider the mitigation measures outlined in the overarching CNVIS to provide mitigated results.

Assessment Results



	Residential	Non-Residential
Cosmetic Damage	0 property	0 property
Human Comfort	0 property	0 property
Cosmetic Damage for Unsound Heritage	0 property	0 property

Legend

Project Boundary
Work Areas
Barriers

Results by Receiver

Address	Land Use	Vibration Category

No results

Recommended Mitigation Measures

This assessment has been conducted with regard to the relevant CNVIS and CNVMP. To manage noise and vibration impacts, project specific mitigation measures may be considered such as reviewing construction staging methodology to identify opportunities to schedule intensive works during less sensitive time periods and by providing a clear process for community engagement and complaints. Likewise, the requirements and actionable items within the overarching CNVIS and CNVMP should be considered and adopted where appropriate. Following the consideration of project specific noise mitigation measures, additional noise mitigation measures to be explored are described in the Inland Rail NSW Construction Noise and Vibration Framework (CNVF) and summarised below.

Airborne Noise - Additional Mitigation Measures Matrix

Time Period	Exceedance of NML	Perception	Duration	Communication Category/Management Measure
OOHW Daytime Period Sunday 7am - 6pm (including public holidays)	<5	Noticeable	Any	CO1
	5 - 15	Clearly audible	Any	CO1
	16 - 25	Moderately intrusive	Any	CO1, CO2
	>25	Highly intrusive	Any	CO1, CO2
OOHW Evening Period Monday - Sunday 6pm - 10pm (including public holidays)	<5	Noticeable	Any	CO1
	5 - 15	Clearly audible	Any	CO1
	16 - 25	Moderately intrusive	Any	CO1, CO2
	>25	Highly intrusive	Any	CO1, CO2
			>2 consecutive rest periods	CO1, CO2, RO
OOHW Night Period Monday - Sunday 10pm - 7am (including public holidays)	<5	Noticeable	Any	CO1
	5 - 15	Clearly audible	Any	CO1
	16 - 25	Moderately intrusive	Any	CO1, CO2
			>2 consecutive sleep periods	CO1, CO2, RO, AO
	>25	Highly intrusive	Any	CO1, CO2, RO
			>2 consecutive sleep periods	CO1, CO2, RO, AO, AltA

Vibration - Additional Mitigation Measures Matrix

Time Period	Duration	Exceedance of 'preferred' value	Exceedance of 'maximum' value

OOHW Daytime Period Sunday 8am-6pm	Any	CO1, CO2	CO1, CO2, RO
OOHW Evening Period Mon-Sun 6pm-10pm	Any	CO1, CO2	CO1, CO2, RO
OOHW Night Period Mon-Sat 10pm-7am Sun 10pm-8am	Any	CO1, CO2, RO	CO1, CO2, RO, AltA

Additional Mitigation Measures

Measure	Abbreviation
Communication (Category 1)[1]	CO1
Communication (Category 2)[2]	CO2
Respite Offer[3]	RO
Alternative Accommodation	AltA
Agreement with Owners	AO

Note 1: CO1: Communication to provide information on the OOHW via methods such as letter box drop, email, newsletter, media advertisements and/ or website prior to the works commencing.
Note 2: CO2: Communication should be personalised (e.g. door knock, meeting, telephone call). Contact with these residents should commence early to enable feedback to be considered by the proposal.
Note 3: RO are not applicable to non-residential receivers. RO may comprise of pre-purchased movie tickets, dinner vouchers or similar. RO can also be provided by limiting high noise generating works and allowing at least a one-hour respite period between blocks of work. Where possible, the timing of this respite should be discussed with the impacted community.

Receiver Types

Code	Description	Code	Description
RES	Residential	OED	Other Educational
COM	Commercial	OHO	Other Hotel
IND	Industrial	OLI	Other Library
OOA	Other Outdoor Active Recreation	OME	Other Medical
OOP	Other Outdoor Passive Recreation	OPW	Other Place of Worship
OCC	Other Child Care	OPB	Other Public Building

APPENDIX D

SLR Predict Results (W.009B) – Noise & Vibration

Construction Noise and Vibration Impact Statement (CNVIS)

This report presents the outcomes of detailed noise/vibration modelling relating to specific construction activities proposed on site in accordance with the methodology outlined in the *Construction Noise and Vibration Management Plan* (CNVMP) and overarching *Construction Noise and Vibration Impact Statement* (CNVIS).
Prior to detailed noise/vibration modelling being undertaken, work activities are reviewed and considered in relation to industry best practice, consistent with the requirements of the CNVMP. Consideration is first given to eliminating the noise/vibration emissions so far as reasonably practicable. Where elimination is not practicable, efforts are been made to reduce the risk as far as practical by implementing noise and vibration management measures as outlined in the overarching CNVIS and CNVMP.
Examples of these measures include selecting the quietest equipment and processes to complete the works, considering staging and periods of respite to minimise prolonged periods of noise and vibration exposure, and maximising distances between construction activities and sensitive receivers.

Consultation with Affected Receivers
In accordance with CoA E78, the CNVIS must include specific mitigation measures identified through consultation with affected sensitive land user(s) and the mitigation measures must be implemented for the duration of the Work. Details of this consultation are provided in the overarching CNVIS for each enhancement site.

Predicted Noise Levels
The assessment presents the highest predicted level at each receiver building, considering predictions at each floor and façade from all potential work areas. The assessment is generally considered conservative as the calculations assume several items of construction equipment are in use at the same time within each work area. The assessment uses ‘realistic worst-case’ scenarios to determine the impacts from the noisiest 15-minute period that is likely to occur for each work scenario.

Assessment Details

Author Name	
Author Email	noiseassessments@martinus.com.au
Author Organisation	Martinus Rail
Project Name	A2I - Albury to Illabo
Assessment Name	Harefield - Signalling
Assessment Number	518
Stage	A2I Construction
Permit Number	
Start Date	2026-09-01
End Date	2027-04-30
Assessment Period	Night - out of hours

Equipment Details

Plant/Equipment	**Equipment Sound Power Level (Unadjusted), dBA**	**Number of Units**	**Temporary Noise Barrier**
1: Site Establishment - Laydown and Access (Height: Ground)	Total: 116		
Front End Loader 50% operation	113	1	No
Light Vehicle (accelerating) 25% operation	95	5	No
Truck - road truck/ truck & dog (30T) 75% operation	108	6	No
Excavator - Tracked (20T) 50% operation	105	1	No
Water Cart 75% operation	105	1	No

Note 1: Equipment classed as 'annoying' in the *Interim Construction Noise Guideline (DECC, 2009)* include a 5 dB correction.
Note 2: Equipment sound power levels consider the mitigation measures outlined in the overarching CNVIS to provide mitigated results.

Assessment Results



	Residential	Non-Residential
Highly Intrusive	0 property	0 property
Moderately Intrusive	0 property	0 property
Clearly Audible	2 properties	0 property
Noticeable	1 property	0 property
Above Sleep Disturbance	0 property	0 property
Above Sleep Awake	0 property	0 property

Legend

	Project Boundary
	Work Areas
	Barriers

Results by Receiver

Facade/Floor: Show, Minimum floor to show: 0

Address	Land Use	Noise Catchment Area	Construction Noise Management Level, dBA	Predicted Noise Level, dBA	Predicted Noise Level Above Noise Management Level, dB	Noise Category
1912 BYRNES RD, HAREFIELD NSW 2650	RES	NCA13	42	48	6	Clearly Audible
1922 BYRNES RD, HAREFIELD NSW 2650	RES	NCA13	42	48	6	Clearly Audible
1296 BYRNES RD, HAREFIELD NSW 2650	RES	NCA13	42	47	5	Noticeable

Recommended Mitigation Measures

This assessment has been conducted with regard to the relevant CNVIS and CNVMP. To manage noise and vibration impacts, project specific mitigation measures may be considered such as reviewing construction staging methodology to identify opportunities to schedule intensive works during less sensitive time periods and by providing a clear process for community engagement and complaints. Likewise, the requirements and actionable items within the overarching CNVIS and CNVMP should be considered and adopted where appropriate. Following the consideration of project specific noise mitigation measures, additional noise mitigation measures to be explored are described in the Inland Rail NSW Construction Noise and Vibration Framework (CNVF) and summarised below.

Airborne Noise - Additional Mitigation Measures Matrix				
Time Period	**Exceedance of NML**	**Perception**	**Duration**	**Communication Category/Management Measure**
OOHW Daytime Period Sunday 7am - 6pm (including public holidays)	<5	Noticeable	Any	CO1
	5 - 15	Clearly audible	Any	CO1
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	>25	Highly intrusive	Any	CO1, CO2
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			>2 consecutive rest periods	CO1, CO2, RO
OOHW Night Period Monday - Sunday 10pm - 7am (including public holidays)	<5	Noticeable	Any	CO1
	5 - 15	Clearly audible	Any	CO1
	16 - 25	Moderately intrusive	Any	CO1, CO2
			>2 consecutive sleep periods	CO1, CO2, RO, AO
	>25	Highly intrusive	Any	CO1, CO2, RO
			>2 consecutive sleep periods	CO1, CO2, RO, AO, AltA

Vibration - Additional Mitigation Measures Matrix			
Time Period	**Duration**	**Exceedance of 'preferred' value**	**Exceedance of 'maximum' value**
OOHW Daytime Period Sunday 8am-6pm	Any	CO1, CO2	CO1, CO2, RO
OOHW Evening Period Mon-Sun 6pm-10pm	Any	CO1, CO2	CO1, CO2, RO

OOHW Night Period Mon-Sat 10pm-7am Sun 10pm-8am	Any	CO1, CO2, RO	CO1, CO2, RO, AltA

Additional Mitigation Measures

Measure	Abbreviation
Communication (Category 1)[1]	CO1
Communication (Category 2)[2]	CO2
Respite Offer[3]	RO
Alternative Accommodation	AltA
Agreement with Owners	AO

Note 1: CO1: Communication to provide information on the OOHW via methods such as letter box drop, email, newsletter, media advertisements and/ or website prior to the works commencing.
Note 2: CO2: Communication should be personalised (e.g. door knock, meeting, telephone call). Contact with these residents should commence early to enable feedback to be considered by the proposal.
Note 3: RO are not applicable to non-residential receivers. RO may comprise of pre-purchased movie tickets, dinner vouchers or similar. RO can also be provided by limiting high noise generating works and allowing at least a one-hour respite period between blocks of work. Where possible, the timing of this respite should be discussed with the impacted community.

Receiver Types

Code	Description	Code	Description
RES	Residential	OED	Other Educational
COM	Commercial	OHO	Other Hotel
IND	Industrial	OLI	Other Library
OOA	Other Outdoor Active Recreation	OME	Other Medical
OOP	Other Outdoor Passive Recreation	OPW	Other Place of Worship
OCC	Other Child Care	OPB	Other Public Building

Construction Noise and Vibration Impact Statement (CNVIS)

This report presents the outcomes of detailed noise/vibration modelling relating to specific construction activities proposed on site in accordance with the methodology outlined in the *Construction Noise and Vibration Management Plan* (CNVMP) and overarching *Construction Noise and Vibration Impact Statement* (CNVIS).
Prior to detailed noise/vibration modelling being undertaken, work activities are reviewed and considered in relation to industry best practice, consistent with the requirements of the CNVMP. Consideration is first given to eliminating the noise/vibration emissions so far as reasonably practicable. Where elimination is not practicable, efforts are been made to reduce the risk as far as practical by implementing noise and vibration management measures as outlined in the overarching CNVIS and CNVMP.
Examples of these measures include selecting the quietest equipment and processes to complete the works, considering staging and periods of respite to minimise prolonged periods of noise and vibration exposure, and maximising distances between construction activities and sensitive receivers.

Consultation with Affected Receivers

In accordance with CoA E78, the CNVIS must include specific mitigation measures identified through consultation with affected sensitive land user(s) and the mitigation measures must be implemented for the duration of the Work. Details of this consultation are provided in the overarching CNVIS for each enhancement site.

Predicted Noise Levels

The assessment presents the highest predicted level at each receiver building, considering predictions at each floor and façade from all potential work areas. The assessment is generally considered conservative as the calculations assume several items of construction equipment are in use at the same time within each work area. The assessment uses ‘realistic worst-case’ scenarios to determine the impacts from the noisiest 15-minute period that is likely to occur for each work scenario.

Assessment Details

Author Name	
Author Email	noiseassessments@martinus.com.au
Author Organisation	Martinus Rail
Project Name	A2I - Albury to Illabo
Assessment Name	Harefield - Signalling
Assessment Number	518
Stage	A2I Construction
Permit Number	
Start Date	2026-09-01
End Date	2027-04-30
Assessment Period	Vibration

Equipment Details

Plant/Equipment	Equipment Sound Power Level (Unadjusted), dBA	Number of Units	Temporary Noise Barrier
1: Site Establishment - Laydown and Access (Height: Ground)	Total: 116		
Front End Loader 50% operation	113	1	No
Light Vehicle (accelerating) 25% operation	95	5	No
Truck - road truck/ truck & dog (30T) 75% operation	108	6	No
Excavator - Tracked (20T) 50% operation	105	1	No
Water Cart 75% operation	105	1	No

Note 1: Equipment classed as 'annoying' in the *Interim Construction Noise Guideline (DECC, 2009)* include a 5 dB correction.
Note 2: Equipment sound power levels consider the mitigation measures outlined in the overarching CNVIS to provide mitigated results.

Assessment Results



	Residential	Non-Residential
Cosmetic Damage	0 property	0 property
Human Comfort	0 property	0 property
Cosmetic Damage for Unsound Heritage	0 property	0 property

Legend

Project Boundary
Work Areas
Barriers

Results by Receiver

Address	Land Use	Vibration Category
No results		

Recommended Mitigation Measures

This assessment has been conducted with regard to the relevant CNVIS and CNVMP. To manage noise and vibration impacts, project specific mitigation measures may be considered such as reviewing construction staging methodology to identify opportunities to schedule intensive works during less sensitive time periods and by providing a clear process for community engagement and complaints. Likewise, the requirements and actionable items within the overarching CNVIS and CNVMP should be considered and adopted where appropriate. Following the consideration of project specific noise mitigation measures, additional noise mitigation measures to be explored are described in the Inland Rail NSW Construction Noise and Vibration Framework (CNVF) and summarised below.

Airborne Noise - Additional Mitigation Measures Matrix

Time Period	Exceedance of NML	Perception	Duration	Communication Category/Management Measure
OOHW Daytime Period Sunday 7am - 6pm (including public holidays)	<5	Noticeable	Any	CO1
	5 - 15	Clearly audible	Any	CO1
	16 - 25	Moderately intrusive	Any	CO1, CO2
	>25	Highly intrusive	Any	CO1, CO2
OOHW Evening Period Monday - Sunday 6pm - 10pm (including public holidays)	<5	Noticeable	Any	CO1
	5 - 15	Clearly audible	Any	CO1
	16 - 25	Moderately intrusive	Any	CO1, CO2
	>25	Highly intrusive	Any	CO1, CO2
			>2 consecutive rest periods	CO1, CO2, RO
OOHW Night Period Monday - Sunday 10pm - 7am (including public holidays)	<5	Noticeable	Any	CO1
	5 - 15	Clearly audible	Any	CO1
	16 - 25	Moderately intrusive	Any	CO1, CO2
			>2 consecutive sleep periods	CO1, CO2, RO, AO
	>25	Highly intrusive	Any	CO1, CO2, RO
			>2 consecutive sleep periods	CO1, CO2, RO, AO, AltA

Vibration - Additional Mitigation Measures Matrix

Time Period	Duration	Exceedance of 'preferred' value	Exceedance of 'maximum' value

OOHW Daytime Period Sunday 8am-6pm	Any	CO1, CO2	CO1, CO2, RO
OOHW Evening Period Mon-Sun 6pm-10pm	Any	CO1, CO2	CO1, CO2, RO
OOHW Night Period Mon-Sat 10pm-7am Sun 10pm-8am	Any	CO1, CO2, RO	CO1, CO2, RO, AltA

Additional Mitigation Measures

Measure	Abbreviation
Communication (Category 1)[1]	CO1
Communication (Category 2)[2]	CO2
Respite Offer[3]	RO
Alternative Accommodation	AltA
Agreement with Owners	AO

Note 1: CO1: Communication to provide information on the OOHW via methods such as letter box drop, email, newsletter, media advertisements and/ or website prior to the works commencing.
Note 2: CO2: Communication should be personalised (e.g. door knock, meeting, telephone call). Contact with these residents should commence early to enable feedback to be considered by the proposal.
Note 3: RO are not applicable to non-residential receivers. RO may comprise of pre-purchased movie tickets, dinner vouchers or similar. RO can also be provided by limiting high noise generating works and allowing at least a one-hour respite period between blocks of work. Where possible, the timing of this respite should be discussed with the impacted community.

Receiver Types

Code	Description	Code	Description
RES	Residential	OED	Other Educational
COM	Commercial	OHO	Other Hotel
IND	Industrial	OLI	Other Library
OOA	Other Outdoor Active Recreation	OME	Other Medical
OOP	Other Outdoor Passive Recreation	OPW	Other Place of Worship
OCC	Other Child Care	OPB	Other Public Building

APPENDIX E

SLR Predict Results (W.001B) - Noise

Construction Noise and Vibration Impact Statement (CNVIS)

This report presents the outcomes of detailed noise/vibration modelling relating to specific construction activities proposed on site in accordance with the methodology outlined in the *Construction Noise and Vibration Management Plan* (CNVMP) and overarching *Construction Noise and Vibration Impact Statement* (CNVIS).
Prior to detailed noise/vibration modelling being undertaken, work activities are reviewed and considered in relation to industry best practice, consistent with the requirements of the CNVMP. Consideration is first given to eliminating the noise/vibration emissions so far as reasonably practicable. Where elimination is not practicable, efforts are been made to reduce the risk as far as practical by implementing noise and vibration management measures as outlined in the overarching CNVIS and CNVMP.
Examples of these measures include selecting the quietest equipment and processes to complete the works, considering staging and periods of respite to minimise prolonged periods of noise and vibration exposure, and maximising distances between construction activities and sensitive receivers.

Consultation with Affected Receivers
In accordance with CoA E78, the CNVIS must include specific mitigation measures identified through consultation with affected sensitive land user(s) and the mitigation measures must be implemented for the duration of the Work. Details of this consultation are provided in the overarching CNVIS for each enhancement site.

Predicted Noise Levels
The assessment presents the highest predicted level at each receiver building, considering predictions at each floor and façade from all potential work areas. The assessment is generally considered conservative as the calculations assume several items of construction equipment are in use at the same time within each work area. The assessment uses 'realistic worst-case' scenarios to determine the impacts from the noisiest 15-minute period that is likely to occur for each work scenario.

Assessment Details

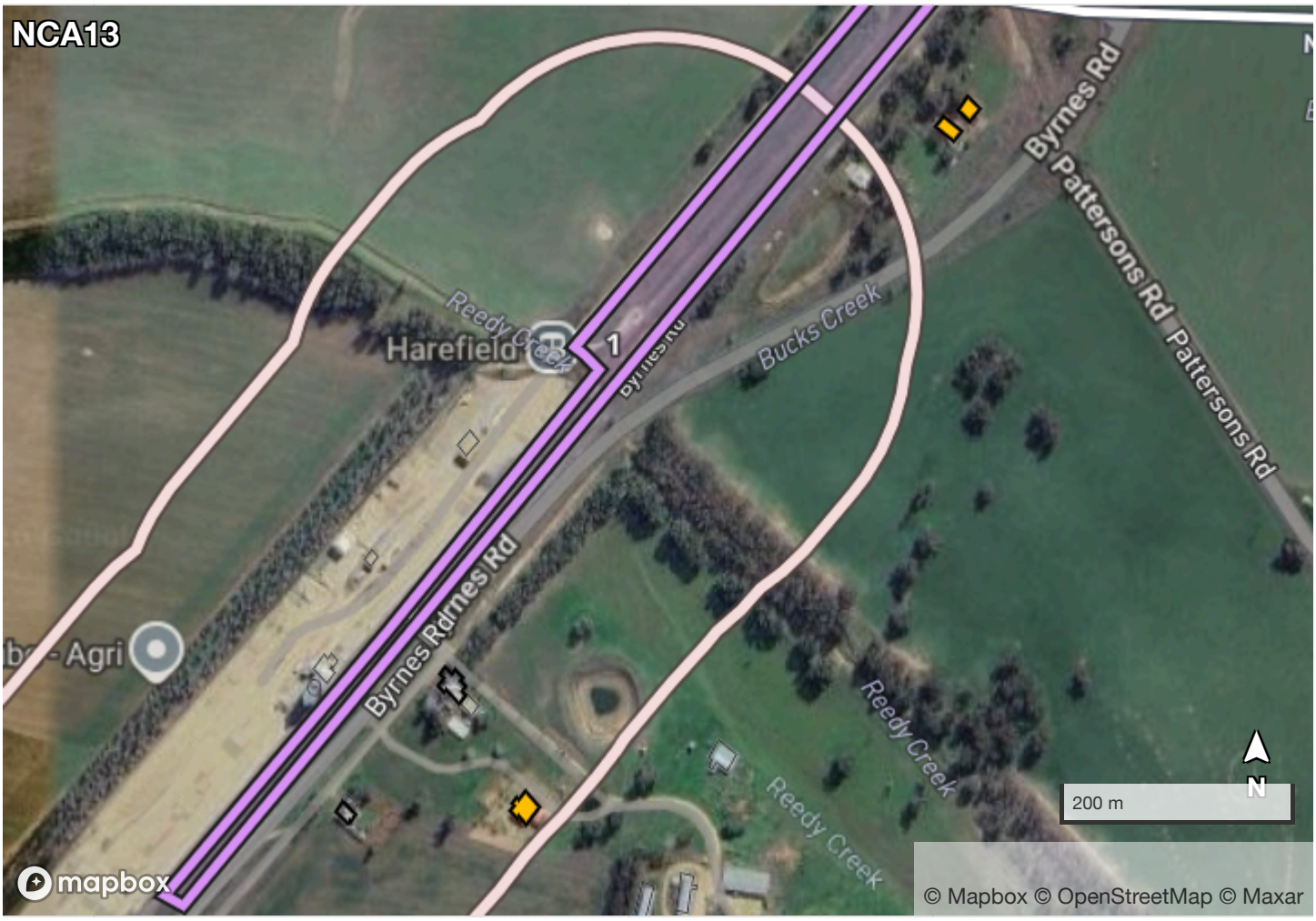
Author Name	
Author Email	noiseassessments@martinus.com.au
Author Organisation	Martinus Rail
Project Name	A2I - Albury to Illabo
Assessment Name	Harefield Site Establishment Track and Civi (W.001B)I
Assessment Number	526
Stage	A2I Construction
Permit Number	
Start Date	2026-09-01
End Date	2027-04-30
Assessment Period	Night - out of hours

Equipment Details

Plant/Equipment	**Equipment Sound Power Level (Unadjusted), dBA**	**Number of Units**	**Temporary Noise Barrier**
1: Track Works laydown yard (Height: Ground)	Total: 116		
Front End Loader 75% operation	113	1	No
Truck - road truck/ truck & dog (30T) 50% operation	108	6	No
Excavator - Tracked (20T) 50% operation	105	2	No
Light Vehicle (accelerating) 25% operation	95	4	No

Note 1: Equipment classed as 'annoying' in the *Interim Construction Noise Guideline (DECC, 2009)* include a 5 dB correction.
Note 2: Equipment sound power levels consider the mitigation measures outlined in the overarching CNVIS to provide mitigated results.

Assessment Results



	Residential	Non-Residential
Highly Intrusive	2 properties	0 property
Moderately Intrusive	3 properties	0 property
Clearly Audible	0 property	0 property
Noticeable	0 property	0 property
Above Sleep Disturbance	5 properties	0 property
Above Sleep Awake	2 properties	0 property

Legend

Project Boundary	
Work Areas	
Barriers	

Results by Receiver

Facade/Floor: Show, Minimum floor to show: 0

Address	Land Use	Noise Catchment Area	Construction Noise Management Level, dBA	Predicted Noise Level, dBA	Predicted Noise Level Above Noise Management Level, dB	Noise Category
1296 BYRNES RD, HAREFIELD NSW 2650	RES	NCA13	42	72	30	Highly Intrusive Above Sleep Dist Above Sleep Awake
1912 BYRNES RD, HAREFIELD NSW 2650	RES	NCA13	42	69	27	Highly Intrusive Above Sleep Dist Above Sleep Awake
1992 BYRNES RD, HAREFIELD NSW 2650	RES	NCA13	42	63	21	Moderately Intrusive Above Sleep Dist
1992 BYRNES RD, HAREFIELD NSW 2650	RES	NCA13	42	62	20	Moderately Intrusive Above Sleep Dist
1922 BYRNES RD, HAREFIELD NSW 2650	RES	NCA13	42	60	18	Moderately Intrusive Above Sleep Dist

Recommended Mitigation Measures

This assessment has been conducted with regard to the relevant CNVIS and CNVMP. To manage noise and vibration impacts, project specific mitigation measures may be considered such as reviewing construction staging methodology to identify opportunities to schedule intensive works during less sensitive time periods and by providing a clear process for community engagement and complaints. Likewise, the requirements and actionable items within the overarching CNVIS and CNVMP should be considered and adopted where appropriate. Following the consideration of project specific noise mitigation measures, additional noise mitigation measures to be explored are described in the Inland Rail NSW Construction Noise and Vibration Framework (CNVF) and summarised below.

Airborne Noise - Additional Mitigation Measures Matrix				
Time Period	**Exceedance of NML**	**Perception**	**Duration**	**Communication Category/Management Measure**
OOHW Daytime Period Sunday 7am - 6pm (including public holidays)	<5	Noticeable	Any	CO1
	5 - 15	Clearly audible	Any	CO1
	16 - 25	Moderately intrusive	Any	CO1, CO2
	>25	Highly intrusive	Any	CO1, CO2
OOHW Evening Period Monday - Sunday 6pm - 10pm (including public holidays)	<5	Noticeable	Any	CO1
	5 - 15	Clearly audible	Any	CO1
	16 - 25	Moderately intrusive	Any	CO1, CO2
	>25	Highly intrusive	Any	CO1, CO2
			>2 consecutive rest periods	CO1, CO2, RO
OOHW Night Period Monday - Sunday 10pm - 7am (including public holidays)	<5	Noticeable	Any	CO1
	5 - 15	Clearly audible	Any	CO1
	16 - 25	Moderately intrusive	Any	CO1, CO2
			>2 consecutive sleep periods	CO1, CO2, RO, AO
	>25	Highly intrusive	Any	CO1, CO2, RO
			>2 consecutive sleep periods	CO1, CO2, RO, AO, AltA

Vibration - Additional Mitigation Measures Matrix			
Time Period	**Duration**	**Exceedance of 'preferred' value**	**Exceedance of 'maximum' value**
OOHW Daytime Period Sunday 8am-6pm	Any	CO1, CO2	CO1, CO2, RO
OOHW Evening Period Mon-Sun 6pm-10pm	Any	CO1, CO2	CO1, CO2, RO

OOHW Night Period Mon-Sat 10pm-7am Sun 10pm-8am	Any	CO1, CO2, RO	CO1, CO2, RO, AltA

Additional Mitigation Measures	
Measure	**Abbreviation**
Communication (Category 1)[1]	CO1
Communication (Category 2)[2]	CO2
Respite Offer[3]	RO
Alternative Accommodation	AltA
Agreement with Owners	AO

Note 1: CO1: Communication to provide information on the OOHW via methods such as letter box drop, email, newsletter, media advertisements and/ or website prior to the works commencing.
Note 2: CO2: Communication should be personalised (e.g. door knock, meeting, telephone call). Contact with these residents should commence early to enable feedback to be considered by the proposal.
Note 3: RO are not applicable to non-residential receivers. RO may comprise of pre-purchased movie tickets, dinner vouchers or similar. RO can also be provided by limiting high noise generating works and allowing at least a one-hour respite period between blocks of work. Where possible, the timing of this respite should be discussed with the impacted community.

Receiver Types			
Code	**Description**	**Code**	**Description**
RES	Residential	OED	Other Educational
COM	Commercial	OHO	Other Hotel
IND	Industrial	OLI	Other Library
OOA	Other Outdoor Active Recreation	OME	Other Medical
OOP	Other Outdoor Passive Recreation	OPW	Other Place of Worship
OCC	Other Child Care	OPB	Other Public Building

APPENDIX F

SLR Predict Results (W.004A) – Noise

Construction Noise and Vibration Impact Statement (CNVIS)

This report presents the outcomes of detailed noise/vibration modelling relating to specific construction activities proposed on site in accordance with the methodology outlined in the *Construction Noise and Vibration Management Plan* (CNVMP) and overarching *Construction Noise and Vibration Impact Statement* (CNVIS).
Prior to detailed noise/vibration modelling being undertaken, work activities are reviewed and considered in relation to industry best practice, consistent with the requirements of the CNVMP. Consideration is first given to eliminating the noise/vibration emissions so far as reasonably practicable. Where elimination is not practicable, efforts are been made to reduce the risk as far as practical by implementing noise and vibration management measures as outlined in the overarching CNVIS and CNVMP.
Examples of these measures include selecting the quietest equipment and processes to complete the works, considering staging and periods of respite to minimise prolonged periods of noise and vibration exposure, and maximising distances between construction activities and sensitive receivers.

Consultation with Affected Receivers
In accordance with CoA E78, the CNVIS must include specific mitigation measures identified through consultation with affected sensitive land user(s) and the mitigation measures must be implemented for the duration of the Work. Details of this consultation are provided in the overarching CNVIS for each enhancement site.

Predicted Noise Levels
The assessment presents the highest predicted level at each receiver building, considering predictions at each floor and façade from all potential work areas. The assessment is generally considered conservative as the calculations assume several items of construction equipment are in use at the same time within each work area. The assessment uses 'realistic worst-case' scenarios to determine the impacts from the noisiest 15-minute period that is likely to occur for each work scenario.

Assessment Details

Author Name	
Author Email	noiseassessments@martinus.com.au
Author Organisation	Martinus Rail
Project Name	A2I - Albury to Illabo
Assessment Name	Harefield Track Work - Peak (W.004A)
Assessment Number	517
Stage	A2I Construction
Permit Number	N/A
Start Date	2026-09-01
End Date	2027-04-30
Assessment Period	Night - out of hours

Equipment Details

Plant/Equipment	Equipment Sound Power Level (Unadjusted), dBA	Number of Units	Temporary Noise Barrier
1: Track - Peak (Height: Ground)	Total: 119		
Centrifugal fan 100% operation	90	1	No
Compactor (plate) 100% operation	104	1	No
Compressor 50% operation	109	1	No
Crane (mobile) 30% operation	104	1	No
Excavator - Tracked (20T) 50% operation	105	1	No
Front End Loader 50% operation	113	1	No
Generator - attenuated 100% operation	92	1	No
Grinder 30% operation	105	1	No
Hand tools (electric) 75% operation	102	2	No

Note 1: Equipment classed as 'annoying' in the *Interim Construction Noise Guideline (DECC, 2009)* include a 5 dB correction.
Note 2: Equipment sound power levels consider the mitigation measures outlined in the overarching CNVIS to provide mitigated results.

Equipment Details

Plant/Equipment	Equipment Sound Power Level (Unadjusted), dBA	Number of Units	Temporary Noise Barrier
Hi-Rail Crane 30% operation	104	1	No
Hi-Rail Excavator (20T) 50% operation	105	1	No
Hi-Rail Truck/Trolley 25% operation	103	1	No
Hydraulic / Pneumatic Tools 75% operation	116	1	No
Light Vehicle (accelerating) 25% operation	95	2	Yes
Lighting Tower 100% operation	80	2	No
PEM-LEM 50% operation	100	1	No
Roller - vibratory (7-13t) 100% operation	109	1	No
Saw - rail 25% operation	118	1	No
Telescopic Handler 50% operation	99	1	No
Truck - medium rigid (20T) 25% operation	103	2	No
Water Cart 75% operation	105	1	No
2: Track - Peak (Vibration) (Height: Ground)	Total: 109		
Roller - vibratory (7-13t) 100% operation	109	1	No

Note 1: Equipment classed as 'annoying' in the *Interim Construction Noise Guideline (DECC, 2009)* include a 5 dB correction.
Note 2: Equipment sound power levels consider the mitigation measures outlined in the overarching CNVIS to provide mitigated results.

Assessment Results



	Residential	Non-Residential
Highly Intrusive	1 property	0 property
Moderately Intrusive	2 properties	0 property
Clearly Audible	2 properties	0 property
Noticeable	0 property	0 property
Above Sleep Disturbance	5 properties	0 property
Above Sleep Awake	2 properties	0 property

Legend

Project Boundary	
Work Areas	
Barriers	

Results by Receiver

Facade/Floor: Show, Minimum floor to show: 0

Address	Land Use	Noise Catchment Area	Construction Noise Management Level, dBA	Predicted Noise Level, dBA	Predicted Noise Level Above Noise Management Level, dB	Noise Category
1296 BYRNES RD, HAREFIELD NSW 2650	RES	NCA13	42	70	28	Highly Intrusive Above Sleep Dist Above Sleep Awake
1922 BYRNES RD, HAREFIELD NSW 2650	RES	NCA13	42	60	18	Moderately Intrusive Above Sleep Dist Above Sleep Awake
1912 BYRNES RD, HAREFIELD NSW 2650	RES	NCA13	42	59	17	Moderately Intrusive Above Sleep Dist
1992 BYRNES RD, HAREFIELD NSW 2650	RES	NCA13	42	53	11	Clearly Audible Above Sleep Dist
1992 BYRNES RD, HAREFIELD NSW 2650	RES	NCA13	42	52	10	Clearly Audible Above Sleep Dist

Recommended Mitigation Measures

This assessment has been conducted with regard to the relevant CNVIS and CNVMP. To manage noise and vibration impacts, project specific mitigation measures may be considered such as reviewing construction staging methodology to identify opportunities to schedule intensive works during less sensitive time periods and by providing a clear process for community engagement and complaints. Likewise, the requirements and actionable items within the overarching CNVIS and CNVMP should be considered and adopted where appropriate. Following the consideration of project specific noise mitigation measures, additional noise mitigation measures to be explored are described in the Inland Rail NSW Construction Noise and Vibration Framework (CNVF) and summarised below.

Airborne Noise - Additional Mitigation Measures Matrix				
Time Period	**Exceedance of NML**	**Perception**	**Duration**	**Communication Category/Management Measure**
OOHW Daytime Period Sunday 7am - 6pm (including public holidays)	<5	Noticeable	Any	CO1
	5 - 15	Clearly audible	Any	CO1
	16 - 25	Moderately intrusive	Any	CO1, CO2
	>25	Highly intrusive	Any	CO1, CO2
OOHW Evening Period Monday - Sunday 6pm - 10pm (including public holidays)	<5	Noticeable	Any	CO1
	5 - 15	Clearly audible	Any	CO1
	16 - 25	Moderately intrusive	Any	CO1, CO2
	>25	Highly intrusive	Any	CO1, CO2
			>2 consecutive rest periods	CO1, CO2, RO
OOHW Night Period Monday - Sunday 10pm - 7am (including public holidays)	<5	Noticeable	Any	CO1
	5 - 15	Clearly audible	Any	CO1
	16 - 25	Moderately intrusive	Any	CO1, CO2
			>2 consecutive sleep periods	CO1, CO2, RO, AO
	>25	Highly intrusive	Any	CO1, CO2, RO
			>2 consecutive sleep periods	CO1, CO2, RO, AO, AltA

Vibration - Additional Mitigation Measures Matrix			
Time Period	**Duration**	**Exceedance of 'preferred' value**	**Exceedance of 'maximum' value**
OOHW Daytime Period Sunday 8am-6pm	Any	CO1, CO2	CO1, CO2, RO
OOHW Evening Period Mon-Sun 6pm-10pm	Any	CO1, CO2	CO1, CO2, RO

OOHW Night Period Mon-Sat 10pm-7am Sun 10pm-8am	Any	CO1, CO2, RO	CO1, CO2, RO, AltA

Additional Mitigation Measures	
Measure	**Abbreviation**
Communication (Category 1)[1]	CO1
Communication (Category 2)[2]	CO2
Respite Offer[3]	RO
Alternative Accommodation	AltA
Agreement with Owners	AO

Note 1: CO1: Communication to provide information on the OOHW via methods such as letter box drop, email, newsletter, media advertisements and/ or website prior to the works commencing.
Note 2: CO2: Communication should be personalised (e.g. door knock, meeting, telephone call). Contact with these residents should commence early to enable feedback to be considered by the proposal.
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Receiver Types			
Code	**Description**	**Code**	**Description**
RES	Residential	OED	Other Educational
COM	Commercial	OHO	Other Hotel
IND	Industrial	OLI	Other Library
OOA	Other Outdoor Active Recreation	OME	Other Medical
OOP	Other Outdoor Passive Recreation	OPW	Other Place of Worship
OCC	Other Child Care	OPB	Other Public Building

APPENDIX G

SLR Predict Results (W.004A) - Vibration

Construction Noise and Vibration Impact Statement (CNVIS)

This report presents the outcomes of detailed noise/vibration modelling relating to specific construction activities proposed on site in accordance with the methodology outlined in the *Construction Noise and Vibration Management Plan* (CNVMP) and overarching *Construction Noise and Vibration Impact Statement* (CNVIS).
Prior to detailed noise/vibration modelling being undertaken, work activities are reviewed and considered in relation to industry best practice, consistent with the requirements of the CNVMP. Consideration is first given to eliminating the noise/vibration emissions so far as reasonably practicable. Where elimination is not practicable, efforts are been made to reduce the risk as far as practical by implementing noise and vibration management measures as outlined in the overarching CNVIS and CNVMP.
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In accordance with CoA E78, the CNVIS must include specific mitigation measures identified through consultation with affected sensitive land user(s) and the mitigation measures must be implemented for the duration of the Work. Details of this consultation are provided in the overarching CNVIS for each enhancement site.

Predicted Noise Levels
The assessment presents the highest predicted level at each receiver building, considering predictions at each floor and façade from all potential work areas. The assessment is generally considered conservative as the calculations assume several items of construction equipment are in use at the same time within each work area. The assessment uses 'realistic worst-case' scenarios to determine the impacts from the noisiest 15-minute period that is likely to occur for each work scenario.

Assessment Details

Author Name	
Author Email	noiseassessments@martinus.com.au
Author Organisation	Martinus Rail
Project Name)	A2I - Albury to Illabo
Assessment Name	Harefield Track Work - Peak (W.004A)
Assessment Number	517
Stage	A2I Construction
Permit Number	N/A
Start Date	2026-09-01
End Date	2027-04-30
Assessment Period	Vibration

Equipment Details

Plant/Equipment	Equipment Sound Power Level (Unadjusted), dBA	Number of Units	Temporary Noise Barrier
1: Track - Peak (Height: Ground)	Total: 119		
Centrifugal fan 100% operation	90	1	No
Compactor (plate) 100% operation	104	1	No
Compressor 50% operation	109	1	No
Crane (mobile) 30% operation	104	1	No
Excavator - Tracked (20T) 50% operation	105	1	No
Front End Loader 50% operation	113	1	No
Generator - attenuated 100% operation	92	1	No
Grinder 30% operation	105	1	No
Hand tools (electric) 75% operation	102	2	No

Note 1: Equipment classed as 'annoying' in the *Interim Construction Noise Guideline (DECC, 2009)* include a 5 dB correction.
Note 2: Equipment sound power levels consider the mitigation measures outlined in the overarching CNVIS to provide mitigated results.

Equipment Details

Plant/Equipment	Equipment Sound Power Level (Unadjusted), dBA	Number of Units	Temporary Noise Barrier
Hi-Rail Crane 30% operation	104	1	No
Hi-Rail Excavator (20T) 50% operation	105	1	No
Hi-Rail Truck/Trolley 25% operation	103	1	No
Hydraulic / Pneumatic Tools 75% operation	116	1	No
Light Vehicle (accelerating) 25% operation	95	2	Yes
Lighting Tower 100% operation	80	2	No
PEM-LEM 50% operation	100	1	No
Roller - vibratory (7-13t) 100% operation	109	1	No
Saw - rail 25% operation	118	1	No
Telescopic Handler 50% operation	99	1	No
Truck - medium rigid (20T) 25% operation	103	2	No
Water Cart 75% operation	105	1	No
2: Track - Peak (Vibration) (Height: Ground)	Total: 109		
Roller - vibratory (7-13t) 100% operation	109	1	No

Note 1: Equipment classed as 'annoying' in the *Interim Construction Noise Guideline (DECC, 2009)* include a 5 dB correction.
Note 2: Equipment sound power levels consider the mitigation measures outlined in the overarching CNVIS to provide mitigated results.

Assessment Results



	Residential	Non-Residential
Cosmetic Damage	0 property	0 property
Human Comfort	1 property	3 properties
Cosmetic Damage for Unsound Heritage	0 property	0 property

Legend

Project Boundary
Work Areas
Barriers

Results by Receiver

Address	Land Use	Vibration Category
1296 BYRNES RD, HAREFIELD NSW 2650	RES	Human Comfort
-	GAR	Human Comfort
-	GAR	Human Comfort

Results by Receiver

Address	Land Use	Vibration Category
661 HAREFIELD RD, HAREFIELD NSW 2650	GAR	Human Comfort

Recommended Mitigation Measures

This assessment has been conducted with regard to the relevant CNVIS and CNVMP. To manage noise and vibration impacts, project specific mitigation measures may be considered such as reviewing construction staging methodology to identify opportunities to schedule intensive works during less sensitive time periods and by providing a clear process for community engagement and complaints. Likewise, the requirements and actionable items within the overarching CNVIS and CNVMP should be considered and adopted where appropriate. Following the consideration of project specific noise mitigation measures, additional noise mitigation measures to be explored are described in the Inland Rail NSW Construction Noise and Vibration Framework (CNVF) and summarised below.

Airborne Noise - Additional Mitigation Measures Matrix				
Time Period	**Exceedance of NML**	**Perception**	**Duration**	**Communication Category/Management Measure**
OOHW Daytime Period Sunday 7am - 6pm (including public holidays)	<5	Noticeable	Any	CO1
	5 - 15	Clearly audible	Any	CO1
	16 - 25	Moderately intrusive	Any	CO1, CO2
	>25	Highly intrusive	Any	CO1, CO2
OOHW Evening Period Monday - Sunday 6pm - 10pm (including public holidays)	<5	Noticeable	Any	CO1
	5 - 15	Clearly audible	Any	CO1
	16 - 25	Moderately intrusive	Any	CO1, CO2
	>25	Highly intrusive	Any	CO1, CO2
			>2 consecutive rest periods	CO1, CO2, RO
OOHW Night Period Monday - Sunday 10pm - 7am (including public holidays)	<5	Noticeable	Any	CO1
	5 - 15	Clearly audible	Any	CO1
	16 - 25	Moderately intrusive	Any	CO1, CO2
			>2 consecutive sleep periods	CO1, CO2, RO, AO
	>25	Highly intrusive	Any	CO1, CO2, RO
			>2 consecutive sleep periods	CO1, CO2, RO, AO, AltA

Vibration - Additional Mitigation Measures Matrix			
Time Period	**Duration**	**Exceedance of 'preferred' value**	**Exceedance of 'maximum' value**
OOHW Daytime Period Sunday 8am-6pm	Any	CO1, CO2	CO1, CO2, RO
OOHW Evening Period Mon-Sun 6pm-10pm	Any	CO1, CO2	CO1, CO2, RO

OOHW Night Period Mon-Sat 10pm-7am Sun 10pm-8am	Any	CO1, CO2, RO	CO1, CO2, RO, AltA

Additional Mitigation Measures	
Measure	**Abbreviation**
Communication (Category 1)[1]	CO1
Communication (Category 2)[2]	CO2
Respite Offer[3]	RO
Alternative Accommodation	AltA
Agreement with Owners	AO

Note 1: CO1: Communication to provide information on the OOHW via methods such as letter box drop, email, newsletter, media advertisements and/ or website prior to the works commencing.
Note 2: CO2: Communication should be personalised (e.g. door knock, meeting, telephone call). Contact with these residents should commence early to enable feedback to be considered by the proposal.
Note 3: RO are not applicable to non-residential receivers. RO may comprise of pre-purchased movie tickets, dinner vouchers or similar. RO can also be provided by limiting high noise generating works and allowing at least a one-hour respite period between blocks of work. Where possible, the timing of this respite should be discussed with the impacted community.

Receiver Types			
Code	**Description**	**Code**	**Description**
RES	Residential	OED	Other Educational
COM	Commercial	OHO	Other Hotel
IND	Industrial	OLI	Other Library
OOA	Other Outdoor Active Recreation	OME	Other Medical
OOP	Other Outdoor Passive Recreation	OPW	Other Place of Worship
OCC	Other Child Care	OPB	Other Public Building

APPENDIX H

SLR Predict Results (W.005A) - Noise

Construction Noise and Vibration Impact Statement (CNVIS)

This report presents the outcomes of detailed noise/vibration modelling relating to specific construction activities proposed on site in accordance with the methodology outlined in the *Construction Noise and Vibration Management Plan* (CNVMP) and overarching *Construction Noise and Vibration Impact Statement* (CNVIS).
Prior to detailed noise/vibration modelling being undertaken, work activities are reviewed and considered in relation to industry best practice, consistent with the requirements of the CNVMP. Consideration is first given to eliminating the noise/vibration emissions so far as reasonably practicable. Where elimination is not practicable, efforts are been made to reduce the risk as far as practical by implementing noise and vibration management measures as outlined in the overarching CNVIS and CNVMP.
Examples of these measures include selecting the quietest equipment and processes to complete the works, considering staging and periods of respite to minimise prolonged periods of noise and vibration exposure, and maximising distances between construction activities and sensitive receivers.

Consultation with Affected Receivers
In accordance with CoA E78, the CNVIS must include specific mitigation measures identified through consultation with affected sensitive land user(s) and the mitigation measures must be implemented for the duration of the Work. Details of this consultation are provided in the overarching CNVIS for each enhancement site.

Predicted Noise Levels
The assessment presents the highest predicted level at each receiver building, considering predictions at each floor and façade from all potential work areas. The assessment is generally considered conservative as the calculations assume several items of construction equipment are in use at the same time within each work area. The assessment uses 'realistic worst-case' scenarios to determine the impacts from the noisiest 15-minute period that is likely to occur for each work scenario.

Assessment Details

Author Name	
Author Email	noiseassessments@martinus.com.au
Author Organisation	Martinus Rail
Project Name	A2I - Albury to Illabo
Assessment Name	Harefield Track - Typical (W.005A)
Assessment Number	528
Stage	A2I Construction
Permit Number	
Start Date	2026-09-01
End Date	2027-04-30
Assessment Period	Night - out of hours

Equipment Details

Plant/Equipment	Equipment Sound Power Level (Unadjusted), dBA	Number of Units	Temporary Noise Barrier
1: (Height: Ground)	Total: 114		
Centrifugal fan 100% operation	90	1	No
Compressor 50% operation	109	1	No
Crane (mobile) 30% operation	104	1	No
Elevated Work Platform 25% operation	97	1	No
Excavator - Tracked (20T) 50% operation	105	1	No
Generator - attenuated 100% operation	92	1	No
Hand tools (electric) 75% operation	102	2	No
Hi-Rail Crane 30% operation	104	1	No
Hi-Rail Excavator (20T) 50% operation	105	1	No

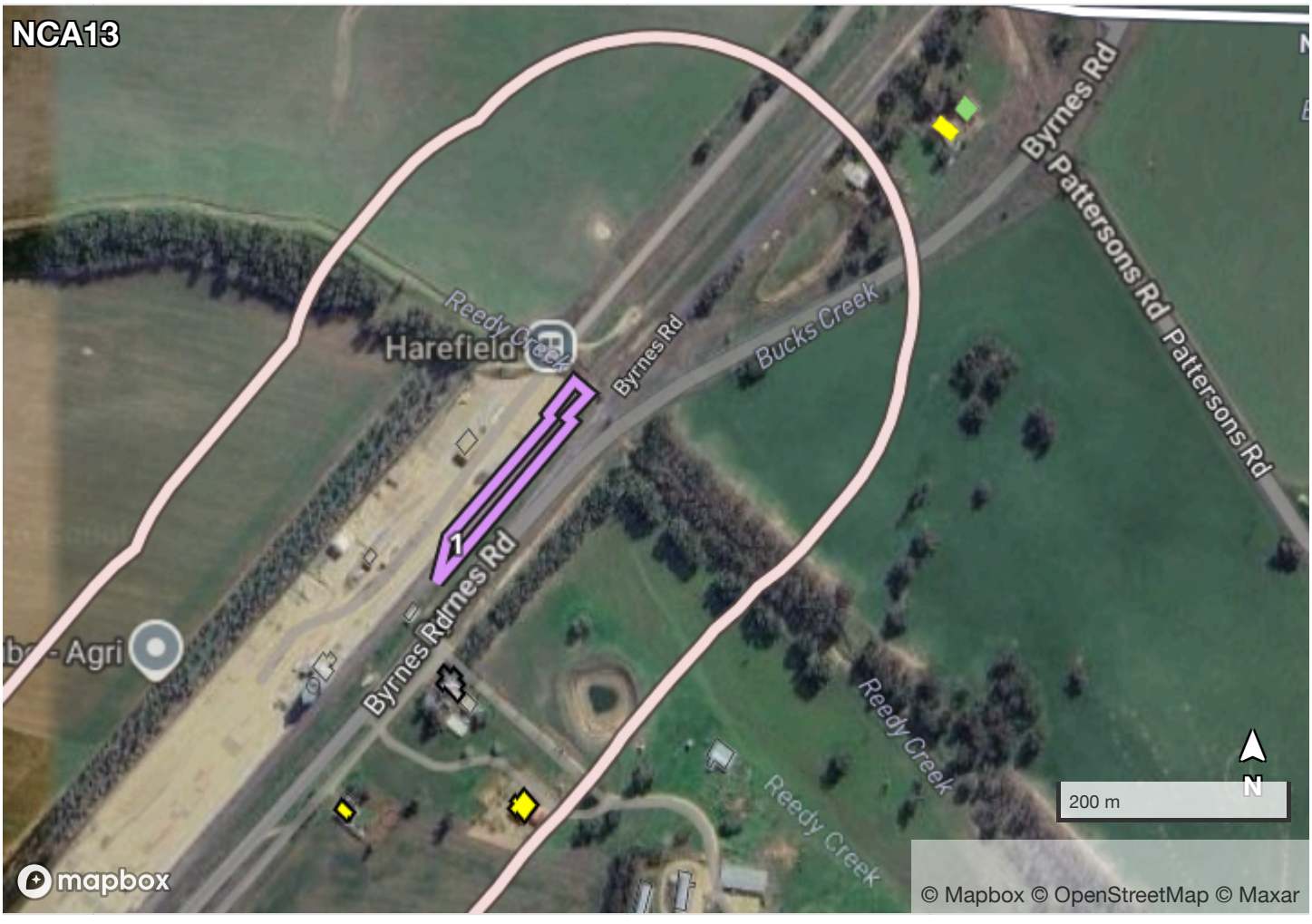
Note 1: Equipment classed as 'annoying' in the *Interim Construction Noise Guideline (DECC, 2009)* include a 5 dB correction.
Note 2: Equipment sound power levels consider the mitigation measures outlined in the overarching CNVIS to provide mitigated results.

Equipment Details

Plant/Equipment	Equipment Sound Power Level (Unadjusted), dBA	Number of Units	Temporary Noise Barrier
Hi-Rail Truck/Trolley 25% operation	103	1	No
Light Vehicle (accelerating) 25% operation	95	2	No
Lighting Tower 100% operation	80	2	No
PEM-LEM 50% operation	100	1	No
Telescopic Handler 50% operation	99	1	No
Truck - medium rigid (20T) 25% operation	103	2	No
Water Cart 75% operation	105	1	No
Front End Loader 50% operation	113	1	No

Note 1: Equipment classed as 'annoying' in the *Interim Construction Noise Guideline (DECC, 2009)* include a 5 dB correction.
Note 2: Equipment sound power levels consider the mitigation measures outlined in the overarching CNVIS to provide mitigated results.

Assessment Results



Assessment Results

	Residential	Non-Residential
Highly Intrusive	0 property	0 property
Moderately Intrusive	1 property	0 property
Clearly Audible	3 properties	0 property
Noticeable	1 property	0 property
Above Sleep Disturbance	3 properties	0 property
Above Sleep Awake	1 property	0 property

Legend

Project Boundary
Work Areas
Barriers

Results by Receiver

Facade/Floor: Show, Minimum floor to show: 0

Address	Land Use	Noise Catchment Area	Construction Noise Management Level, dBA	Predicted Noise Level, dBA	Predicted Noise Level Above Noise Management Level, dB	Noise Category
1296 BYRNES RD, HAREFIELD NSW 2650	RES	NCA13	42	64	22	Moderately Intrusive Above Sleep Dist Above Sleep Awake
1922 BYRNES RD, HAREFIELD NSW 2650	RES	NCA13	42	54	12	Clearly Audible Above Sleep Dist
1912 BYRNES RD, HAREFIELD NSW 2650	RES	NCA13	42	53	11	Clearly Audible Above Sleep Dist
1992 BYRNES RD, HAREFIELD NSW 2650	RES	NCA13	42	48	6	Clearly Audible
1992 BYRNES RD, HAREFIELD NSW 2650	RES	NCA13	42	47	5	Noticeable

Recommended Mitigation Measures

This assessment has been conducted with regard to the relevant CNVIS and CNVMP. To manage noise and vibration impacts, project specific mitigation measures may be considered such as reviewing construction staging methodology to identify opportunities to schedule intensive works during less sensitive time periods and by providing a clear process for community engagement and complaints. Likewise, the requirements and actionable items within the overarching CNVIS and CNVMP should be considered and adopted where appropriate. Following the consideration of project specific noise mitigation measures, additional noise mitigation measures to be explored are described in the Inland Rail NSW Construction Noise and Vibration Framework (CNVF) and summarised below.

Airborne Noise - Additional Mitigation Measures Matrix				
Time Period	**Exceedance of NML**	**Perception**	**Duration**	**Communication Category/Management Measure**
OOHW Daytime Period Sunday 7am - 6pm (including public holidays)	<5	Noticeable	Any	CO1
	5 - 15	Clearly audible	Any	CO1
	16 - 25	Moderately intrusive	Any	CO1, CO2
	>25	Highly intrusive	Any	CO1, CO2
OOHW Evening Period Monday - Sunday 6pm - 10pm (including public holidays)	<5	Noticeable	Any	CO1
	5 - 15	Clearly audible	Any	CO1
	16 - 25	Moderately intrusive	Any	CO1, CO2
	>25	Highly intrusive	Any	CO1, CO2
			>2 consecutive rest periods	CO1, CO2, RO
OOHW Night Period Monday - Sunday 10pm - 7am (including public holidays)	<5	Noticeable	Any	CO1
	5 - 15	Clearly audible	Any	CO1
	16 - 25	Moderately intrusive	Any	CO1, CO2
			>2 consecutive sleep periods	CO1, CO2, RO, AO
	>25	Highly intrusive	Any	CO1, CO2, RO
			>2 consecutive sleep periods	CO1, CO2, RO, AO, AltA

Vibration - Additional Mitigation Measures Matrix			
Time Period	**Duration**	**Exceedance of 'preferred' value**	**Exceedance of 'maximum' value**
OOHW Daytime Period Sunday 8am-6pm	Any	CO1, CO2	CO1, CO2, RO
OOHW Evening Period Mon-Sun 6pm-10pm	Any	CO1, CO2	CO1, CO2, RO

OOHW Night Period Mon-Sat 10pm-7am Sun 10pm-8am	Any	CO1, CO2, RO	CO1, CO2, RO, AltA

Additional Mitigation Measures	
Measure	**Abbreviation**
Communication (Category 1)[1]	CO1
Communication (Category 2)[2]	CO2
Respite Offer[3]	RO
Alternative Accommodation	AltA
Agreement with Owners	AO

Note 1: CO1: Communication to provide information on the OOHW via methods such as letter box drop, email, newsletter, media advertisements and/ or website prior to the works commencing.
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Receiver Types			
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OOA	Other Outdoor Active Recreation	OME	Other Medical
OOP	Other Outdoor Passive Recreation	OPW	Other Place of Worship
OCC	Other Child Care	OPB	Other Public Building



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24 July 2026

INLAND RAIL: ALBURY TO ILLABO (A2I) – HAREFIELD YARD, JUNEE SHIRE
CIZ EXTENSION HERITAGE ASSESSMENT: MEMORANDUM OF FINDINGS

1 INTRODUCTION

OzArk Environment & Heritage (OzArk) understands that Martinus is proposing to expand the Inland Rail Albury to Illabo (A2I, the project) Construction Impact Zone (CIZ) at Harefield Yard. The additional land required for the project was not covered by previous assessments (GML 2022, OzArk 2025) (**Figure** 2-1). Harefield is within the Junee Shire Council Local Government Area (LGA).

OzArk has prepared this Heritage Memorandum of Findings with reference to the *Due Diligence Code of Practice for the Protection of Aboriginal Objects in NSW* (Due Diligence Code), Heritage Council's *Investigating Heritage Significance, A guide to identifying and examining heritage items in NSW* and the *Historical Archaeology Code of Practice* to assess whether Aboriginal objects or items of historic significance may be harmed by the proposed CIZ extension. This assessment will inform a supplementary REF prepared as part of a Consistency Assessment, to ensure changes to the project are in line with the Project Approval SSI-10055. The Due Diligence Code is used here to determine whether the proposed extension will have an impact to Aboriginal heritage. The applicability of the Due Diligence Code is laid out below.

Determination of whether the Due Diligence Code of Practice applies

Item	Reasoning	Answer
Is the activity to be assessed under Division 4.7 (state significant development) or Division 5.2 (state significant infrastructure) of the EP&A Act?	While the broader project is an SSI, Due Diligence is being used here to determine whether the proposed footprint extension will cause an impact to Aboriginal heritage.	No (it is a Consistency Assessment)
Is the activity exempt from the NPW Act or NPW Regulation?	The proposal is not exempt under this Act or Regulation.	No
Do either or both apply: Is the activity in an Aboriginal place? Have previous investigations that meet the requirements of this Code identified Aboriginal objects?	The activity will not occur in an Aboriginal place. Past investigations which overlap the current proposed CIZ extensions confirm that no Aboriginal sites are present or likely.	No
Is the activity a low impact one for which there is a defence in the NPW Regulation?	The proposal is not a low impact activity for which there is a defence in the NPW Regulation.	No
Is the activity occurring entirely within areas that are assessed as 'disturbed lands'?	The proposal is entirely within areas of high modification.	Yes
Due Diligence Code of Practice assessment is required to determine whether impacts will occur to Aboriginal heritage		

2 PROPOSED ACTIVITY

Harefield CIZ extension includes adjustments to the construction boundary to allow for safe and efficient personnel and plant/machinery interface within the project area, and to facilitate the scope of works such as signalling works, track work, under boring installation and gantry removal. The proposed extension is also required to accommodate an adequate construction area for material stockpiling.

The proposed CIZ extension covers an area of approximately 0.70 hectares, as shown on **Figure** 2-1. The CIZ extension is located within the rail and road corridors. As such, the proposed works appear to be within landforms that have been modified in a clear and observable manner.

Figure 2-1: Aerial showing the study area.



3 ABORIGINAL CULTURAL HERITAGE ASSESSMENT

3.1 AHIMS SEARCH

On 22 July 2026 a basic search of the Aboriginal Heritage Information Management System (AHIMS) was undertaken over a 1 km by 1 km area centred between the proposed CIZ extensions (GDA, Zone: 55, Eastings: 546125 - 548125, Northings: 6129721 - 6131721) (see **Appendix 1**). The search returned no records of known Aboriginal sites within or near the proposed CIZ extensions.

There are no other sources of information to indicate that Aboriginal objects are likely in the proposed CIZ extensions.

3.2 LANDFORM

The proposed CIZ extension is within quaternary alluvial plains and is approximately 260 to 280 metres (m) above sea level (Australian Height Datum). The CIZ extension is intersected by a named nonperennial watercourse, Reedy Creek.

As some of the CIZ extension is within 200 m of a watercourse, landforms with identified archaeological sensitivity as set out in the Due Diligence Code of Practice are present and the assessment would usually proceed to visual inspection. However, this area was previously physically assessed by OzArk in 2025 (see **Section 3.3**).

3.3 PREVIOUS ASSESSMENTS IN OR NEAR THE PROPOSED CIZ EXTENSIONS

In 2025, OzArk completed a due diligence assessment with visual inspection, which partially overlaps the current proposed CIZ extension (Error! Reference source not found.). The visual inspection confirmed that landforms within the current CIZ extension and approved CIZ comprise of a flat plain landform that has been predominantly disturbed by construction of the existing railway track and yard as well as the operational QUBE facility and associated access road (Error! Reference source not found. to **Figure** 4-2). The area where the QUBE facilities are located is the most significantly disturbed landform. For the construction of the facility, the original topsoil was graded and built up over introduced material (**Figure** 4-2).

The OzArk 2025 assessment concluded that landforms adjacent to Reedy Creek are also highly disturbed through the construction of bridges for access to the road and the rail corridor (**Figure** 4-1). Significant landform modification was observed at the base of each bridge where stabilising earthworks had been required.

Dense grasses and weeds were present in the lesser disturbed sections, generally limited to the vegetated corridors between the railway and access roads and at the creek line (Error! Reference source not found.). In such areas, ground surface exposure was minimal, and where present, visibility was affected by plant debris and imported materials (i.e. gravels and road base).

The assessment and visual inspection concluded that the CIZ area has low archaeological potential.

4 CONCLUSION – ABORIGINAL HERITAGE

Application of assessment for Aboriginal heritage via the Due Diligence Code has determined that the proposed CIZ extension will not harm Aboriginal objects or landscape features with archaeological sensitivity (see **Table** 4-1).

Previous investigation combined with a desktop assessment indicates that no Aboriginal sites are likely to be present due to the significant land use disturbance. Further, there is a low likelihood of intact subsurface archaeological deposits. As documented in **Table** 4-1, no further archaeological investigation is required.

The works may proceed with caution and in the unlikely event that Aboriginal objects are encountered, refer to the Cultural Heritage Unexpected Finds Procedure in Appendix B of the *Stage B Construction Cultural Heritage Management Plan Inland Rail – Albury to Illabo / A2I*.

Table 4-1: Due Diligence Code of Practice application

Step	Reasoning	Answer
Step 1 Will the activity disturb the ground surface or any culturally modified trees?	The activities may involve ground disturbance within the railway corridor, as heavy earth-moving machinery will be required. The proposal activity is not an exempt activity or a low impact activity.	Yes
If the answer to Step 1 is 'yes', proceed to Step 2		
Step 2a Are there any relevant records of Aboriginal heritage on AHIMS to indicate presence of Aboriginal objects?	AHIMS indicated that there are no Aboriginal sites within the study area.	No
Step 2b Are there other sources of information to indicate presence of Aboriginal objects?	There are no other sources of information to indicate that Aboriginal objects are likely in the study area.	No
Step 2c Will the activity impact landforms with archaeological sensitivity as defined by the Due Diligence Code?	The study area contains landforms within 200 m of 'waters'.	Yes
If the answer to any stage of Step 2 is 'yes', proceed to Step 3		
Step 3 Can harm to Aboriginal objects listed on AHIMS or identified by other sources of information and/or can the carrying out of the activity at the relevant landscape features be avoided?	The proposal will not harm known Aboriginal sites and while landforms with identified archaeological sensitivity are present, previous visual inspections within and around the proposed CIZ extensions indicate that no Aboriginal sites are present or likely to occur due to extensive land modification. As such, visual inspection is not necessitated.	Yes
Conclusion		
Proceed with caution		

Figure 4-1: View southwest across existing disturbance at Reedy Creek.



Figure 4-2: View along the edges of the rail corridor.



5 NON-ABORIGINAL HERITAGE ASSESSMENT

5.1 DESKTOP SEARCH

A desktop search was conducted on the following databases to identify any potential previously recorded heritage within the study area. The results of this search are summarised in **Table** 5-1.

Table 5-1: Historic heritage: desktop-database search results.

Name of Database Searched	Date of Search	Type of Search	Comment
National and Commonwealth Heritage Listings	21 July 2026	Junee Shire Council LGA	No sites within study area.
State Heritage Listings	21 July 2026	NSW	No sites within study area.
Local Environment Plan (LEP)	21 July 2026	Junee Shire Council LEP 2012	No LEP items within or near to the study area

A search of the Heritage Council of NSW administered heritage databases and Junee Shire Council LEP 2012 returned no heritage items of historical significance within or near to the proposed CIZ extension. The closest LEP item to the CIZ extension is Yathella Park (I18) approximately 6.7 km to the northwest.

One unlisted historic item, the former Harefield Railway Station platform, is known to be present immediately adjacent to the proposed CIZ extension (OzArk 2026; **Figure** 5-1). Remnant features of this item were investigated and archivally recorded by OzArk in May 2026. The remnant features were assessed against the heritage significance criteria (DPE 2023) and it was concluded that the items were not of local or state heritage significance. As the currently proposed CIZ extension does not overlap the platform remnants there will be no further impacts to the remnant platform features from the current proposed works.

Figure 5-1: Location of former Harefield railway station platform in relation to the proposed CIZ extension.



6 CONCLUSION – HISTORIC HERITAGE

It can be concluded that the proposed CIZ extension will have "no impacts on heritage items (including areas of archaeological potential) beyond the impacts approved under the terms of this approval", as long as the measures outlined in Section 6 of the CCHMP and those listed below are implemented. This will ensure that proposed works will not directly or indirectly impact any identified or potential heritage items.

7 RECOMMENDATIONS

To ensure that the activities within the proposed Harefield CIZ extension do not inadvertently impact Aboriginal or non-Aboriginal heritage, the following recommendations should be adhered to:

1. Only the proposed activities outlined in this document have been assessed for their impacts to heritage within the CIZ extension. If additional activities are proposed, then further heritage impact assessment would be required.

2. If works encounter potential Aboriginal or Non-Aboriginal heritage items, the *Unexpected Heritage Finds and Human Remains Procedures,* Appendix B of the CCHMP should be followed.

3. If further extension of the CIZ is required that interacts with listed heritage places, then further assessment would be required to ensure that the provisions of CoA 15(c) can be met.

4. Other provisions as outlined in the CCHMP and *Construction Environmental Management Plan*, specifically regarding heritage inductions and awareness training for work crews, should be followed.

8 REFERENCES

DPE 2023. *Assessing Heritage Significance: Guidelines for assessing places and objects against the Heritage Council of NSW criteria*.

GML 2022. *Inland Rail – Albury to Illabo Technical Paper 3 – Non-Aboriginal Heritage*. Report to ARTC.

OzArk 2025. *Inland Rail: Albury to Illabo (A2I) – Harefield Yard, Junee Shire CIZ Extension Heritage Assessment: Memorandum of Findings*. Report for Martinus.

OzArk 2026. *Harefield Railway Station (former) and Platform: Unexpected Heritage Finds*. Report for Martinus.

APPENDIX 1: AHIMS SEARCH

AHIMS Web Services (AWS)
Search Result

Your Ref/PO Number : A2I Harefield
Client Service ID : 1161044

OzArk Environmental and Heritage Management - Dubbo

Date: 22 July 2026

PO Box 2069
Dubbo New South Wales 2830

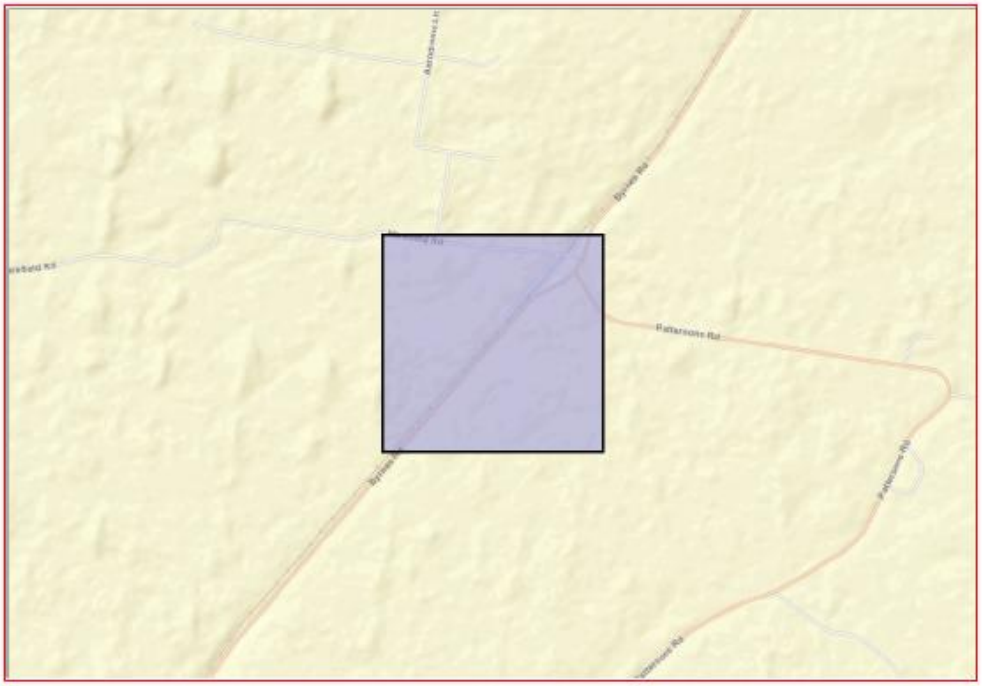
Attention: Eleanore Martin

Email: eleanore@ozarkehm.com.au

Dear Sir or Madam:

AHIMS Web Service search for the following area at Datum :GDA, Zone : 55, Eastings : 546125.0 - 548125.0, Northings : 6129721.0 - 6131721.0 with a Buffer of 0 meters, conducted by Eleanore Martin on 22 July 2026.

The context area of your search is shown in the map below. Please note that the map does not accurately display the exact boundaries of the search as defined in the paragraph above. The map is to be used for general reference purposes only.



A search of Heritage NSW AHIMS Web Services (Aboriginal Heritage Information Management System) has shown that:

0	Aboriginal sites are recorded in or near the above location.
0	Aboriginal places have been declared in or near the above location. *

Appendix G Biodiversity Assessment Report Memo (BARM)

Clint Dedden

Environmental Advisor

Martinus Rail Pty Ltd

15 September 2026

Dear Clint

Biodiversity Memorandum: Albury to Illabo Inland Rail (A2I) – Harefield Construction Impact Zone (CIZ) extension

This memo was developed for Martinus Rail Pty Ltd (Martinus) on behalf of Inland Rail Proprietary Limited to address potential ecological constraints associated with the proposed extension to the approved construction impact zone (CIZ) at the Harefield Yard clearances enhancement site of the Albury to Illabo (A2I) section of the Inland Rail program.The subject site addressed in this memo was not assessed as part of the Inland Rail, Albury to Illabo Revised Technical Paper 8: Biodiversity Assessment Report (BDAR) (WSP, 2024).

As a result, this memo is necessary to address requirements of the Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act), NSW Biodiversity Conservation Act 2016 (BC Act), NSW Water Management Act 2000 (WM Act), NSW Fisheries Management Act 1994 (FM Act), NSW Biosecurity Act 2015, and relevant State Environmental Planning Policies (SEPPs).

The results of this assessment will determine whether additional works or assessments are required to address ecological constraints and fulfil the legislative requirements of the relevant Acts.

If you have any queries, feel free to contact me.

Kind regards,



Joel Little

Senior Ecologist

Project Number	2025-47-01		
Document Number			
Project Name	A2I – Biodiversity Memo - Harefield Yard CIZ Extension		
Project Address	Harefield Road, Harefield NSW 2650		
Prepared for	Martinus		
Author	Mikayla Green, Carl Tippler		
Date Prepared	6/08/2026		
Review	Technical	Date	Review
	Carl Tippler, Joel Little	10 August 2026	Carl Tippler
Version	Draft V_0	10 August 2026	Martinus
Version	Draft V_1	15 September 2026	Martinus

This report should be cited as: 'HABITAT INNOVATION AND MANAGEMENT (2026). *A2I – Biodiversity Memo - Harefield Yard CIZ Extension* – Harefield Road, Harefield NSW 2650. Prepared for Martinus.'

Disclaimer: *This report has been prepared by HABITAT INNOVATION AND MANAGEMENT Pty Ltd for Martinus and may only be used for the purpose agreed between these parties, as described in this report. The opinions, conclusions and recommendations set out in this report are limited to those set out in the scope of works and agreed between these parties. HABITAT INNOVATION AND MANAGEMENT Pty Ltd accepts no responsibility or obligation for any third party that may use this information or for conclusions drawn from this report that are not provided in the scope of works or following changes occurring subsequent to the date that the report was prepared.*

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1. Scope of assessment

Habitat Innovation and Management has been contracted by Martinus to complete a Biodiversity Memo for the proposed Harefield Extension works area. The memo assessment will include a site characterisation, desktop review, flora and fauna survey. The potential constraints and impacts from the Harefield Extension to ecological communities listed as threatened under the Biodiversity Conservation Act 2016 (BC Act), Fisheries Management Act 1994 (FM Act) and Matters of National Environmental Significance listed and Areas of Outstanding Biodiversity Value under the Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act) and the requirements of the Biosecurity Act 2015 (NSW), State Environmental Planning Policy (Biodiversity and Conservation) 2016 (SEPP) will be identified and assessed.

2. Locality and site context

The area of the proposed Harefield CIZ extension (subject site) covers 2.1302 hectares and is located within the existing railway corridor and extends into the QUBE and Harefield Intermodal Terminal at Harefield, NSW 2650. It is located approximately 11 km south of Junee and 35 km north of Wagga Wagga (Figure 1 and Figure 2). The existing approved CIZ covers 3.2911 ha.

The subject site is characterised by the railway corridor, a section of the old route of Byrnes Road, an adjacent drainage channel, powerline easement, railway works area, bridge culvert and two mapped watercourses.

3. Proposed activities

The activities proposed for the subject site are likely to result in the complete removal of vegetative cover in most of the extension area, with trimming required in some sections:

- Clearing and grubbing of the entire area for the northern portion of the extension
- Clearing and grubbing of the second from the southern end portion
- Trimming only of trees in the first and third portions from the southern end

Refer to Figure 2 for details.

The extension intersects the fourth order stream of Bucks Creek. Offsite impacts may include noise, dust and the potential for sediment tracking or sediment migration. This assessment is limited to the activities listed.



Figure 1: Locality map showing the greater context of the proposed Harefield CIZ extension.



Figure 2: Subject site showing the boundary of the proposed Harefield CIZ extension.

4. Relevant legislation

Table 1 outlines how the project has been considered under relevant Commonwealth and State environmental legislation.

Table 1: Legislation relevant to subject site.

Legislation, policy and Guidelines	Description	Project Relevance
Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act)	The EPBC Act protects Matters of National Environmental Significance (MNES), such as threatened species and ecological communities, migratory species (protected under international agreements), and National Heritage places (among others).	Threatened species (flora and fauna) listed under Commonwealth legislation in and adjacent to the subject site area are protected under the EPBC Act and potential harm must be assessed.
Biodiversity Conservation Act 2016 (BC Act)	Part 7 of the BC Act provides the environmental assessment requirements for activities being assessed under Part 5 of the EP&A Act. If a significant impact is likely, a Species Impact Statement is required. A Biodiversity Development Assessment Report (BDAR) may also be required if the proponent elects for this. Section 7.2(1)(a) and 7.3 describe the assessment requirements and thresholds for what is considered a significant impact. Land mapped on the Biodiversity Values Map may require a BDAR, unless it can be demonstrated that the mapped values do not exist on site, and that no significant impacts are likely.	Threatened species (flora and fauna) listed under NSW legislation in and adjacent to the subject site and Areas of Outstanding Biodiversity Value (AOBV) are protected under the BC Act and potential harm must be assessed. The extension includes land identified on the Biodiversity Values Map
Water Management Act 2000 (WM Act)	The objects of this Act are to provide for the sustainable and integrated management of the water sources of the State for the benefit of both present and future generations and, in particular— (a) to apply the principles of ecologically sustainable development, and (b) to protect, enhance and restore water sources, their associated ecosystems, ecological processes and biological diversity and their water quality, and (c) to recognise and foster the significant social and economic benefits to the State that result from the sustainable and efficient use of water, including— (i) benefits to the environment, and	Two mapped waterways bisect the proposed extension area and therefore fall under the WM Act particularly Division 7 which outlines Environmental Protection.

Legislation, policy and Guidelines	Description	Project Relevance
	(ii) benefits to urban communities, agriculture, fisheries, industry and recreation, and (iii) benefits to culture and heritage, and (iv) benefits to the Aboriginal people in relation to their spiritual, social, customary and economic use of land and water, (d) to recognise the role of the community, as a partner with government, in resolving issues relating to the management of water sources, (e) to provide for the orderly, efficient and equitable sharing of water from water sources, (f) to integrate the management of water sources with the management of other aspects of the environment, including the land, its soil, its native vegetation and its native fauna, (g) to encourage the sharing of responsibility for the sustainable and efficient use of water between the Government and water users, (h) to encourage best practice in the management and use of water.	
Fisheries Management Act 1994 (FM Act)	The FM Act aims 'to conserve, develop and share the fishery resources of the State for the benefit of present and future generations and, to: • Conserve fish stocks and key fish habitats • Conserve threatened species, populations and ecological communities of fish and marine vegetation • Promote ecologically sustainable development, including the conservation of biological diversity • Promote viable commercial fishing and aquaculture industries • Promote quality recreational fishing opportunities and appropriately share fisheries resources between the users of those resources and provide social and economic benefits for the wider community of New South Wales.	This Act relates to Key Fish Habitat, Threatened Species, Critical Habitat and threats to aquatic species. There are two waterways (Reedy Creek and Bucks Creek).
Biosecurity Act 2015	The objectives of the Act are: (1) The primary object of this Act is to provide a framework for the prevention, elimination and minimisation of biosecurity risks posed by biosecurity matter, dealing with biosecurity matter, carriers and potential carriers, and other activities that involve biosecurity matter, carriers or potential carriers. (2) The other objects of this Act are as follows— (a) to promote biosecurity as a shared responsibility between government, industry and communities,	The Biosecurity Act 2015 (NSW) provides a framework for the prevention, elimination and minimisation of biosecurity risks posed by an activity as a matter of biosecurity. As defined in Part 3, section 23 of this Act, any non-conformance by an individual is defined as guilty of an offence. No priority weeds

Legislation, policy and Guidelines	Description	Project Relevance
	(b) to provide a framework for the timely and effective management of the following— (i) pests, diseases, contaminants and other biosecurity matter that are economically significant for primary production industries, (ii) threats to terrestrial and aquatic environments arising from pests, diseases, contaminants and other biosecurity matter, (iii) public health and safety risks arising from contaminants, non-indigenous animals, bees, weeds and other biosecurity matter known to contribute to human health problems, (iv) pests, diseases, contaminants and other biosecurity matter that may have an adverse effect on community activities and infrastructure, (c) to provide a framework for risk-based decision-making in relation to biosecurity, (d) to give effect to intergovernmental biosecurity agreements to which the State is a party, (e) to provide how biosecurity requirements in other jurisdictions can be met, to maintain market access for industry.	were identified within the Subject Land at the time of the survey: All priority weeds are to be appropriately managed in accordance with the *Biosecurity Act 2015*.

5. Method

To assess the potential extent and severity of impacts to flora and fauna associated with the Proposed Harefield CIZ extension, a combination of desktop review and field-based surveys were undertaken. The following sections provide a detailed description of the methods and findings for each component of the assessment.

5.1 Desktop review

A desktop review was conducted prior to the field surveys, with further validation undertaken as required. The purpose of the desktop review was to identify and map Plant Community Types (PCTs), Critically Endangered Ecological Communities (CEECs), Threatened Ecological Communities (TECs), waterways, Strahler stream order, and Key Fish Habitat (KFH).

Previous Assessments

The desktop review included analysis of assessments conducted as part of the Inland Rail project near the proposed CIZ extension:

- Albury to Illabo, Preferred Infrastructure Report – Response to Submissions. Appendix G, Revised Technical Paper 8: – Biodiversity Development Assessment Report. Parts 1 and 2, WSP 2024.
- Pre-clearing Survey Report 2 – Inland Rail Albury to Illabo – Junee to Wagga Wagga, East Coast Ecology, 2025.
- Aquatic Biodiversity Impact Assessment - Technical Paper 09, Coast Ecology, 2022.
- Biodiversity Memorandum (Draft): Albury to Illabo (A2I) Inland Rail – Harefield Yard, Habitat Innovation & Management, 2025.
- Construction Biodiversity Management Plan – Albury to Illabo (Stage C), Martinus Rail, 2026.

This information supports the identification of sensitive ecological values including native PCT, TEC, threatened species, waterways, KFH and fauna habitats.

Due to the time since the original field assessments, BDAR and approval, the desktop study will also assess current spatial data and information including:

- Protected Matters Search Tool (2026) – Matters of National Environmental Significance, EPBC Act 1999.
- SEED spatial map (2026), NSW Government.
- NSW Hydrology, Hydrology (all types).
- SVTM NSW Extant PCT, Plant Community Types with labels.
- BioNet Atlas (2026), NSW Office of Environment and Heritage.
- BioNet Vegetation Classification (2026), NSW Office of Environment and Heritage.

- Fisheries Spatial Portal (2026), NSW Department of Primary Industries and Regional Development.
- SIX Maps (Spatial Information Exchange) spatial services (2026), NSW Government.

Matters of National Environmental Significance

Matters of National Environmental Significance listed under the Commonwealth *Environment Protection and Biodiversity Conservation Act* 1999 (EPBC Act) are listed from the Protected Matters Search Tool (PMST) report as well as the BioNet Atlas/Vegetation Classification database.

The PMST was designed to assist in searching for matters protected under the EPBC Act by generating a list of protected matters that may occur in or near a selected area. The PMST is a generalised search tool, compared to other search tools such as BioNet Atlas, as it incorporates likely habitat as well as species records in the broader area of the mapped location to generate the report.

Biodiversity Values Map

A review was conducted of the Biodiversity Values Map. The tool identifies biodiversity values, which may include biodiverse riparian land and threatened species or communities with potential for serious and irreversible impact. The threshold tool was not used in this instance as the project has already exceeded the threshold and an approval already obtained for a certain amount of native vegetation clearing. The proposed extension will not result in the project exceeding the approved native vegetation clearing .

Areas of Outstanding Biodiversity Value

A review was conducted of the NSW AOBV register. The register identifies areas of declared critical habitat under the *Threatened Species Conservation Act 1995* which are classified as Areas of Outstanding Biodiversity Value (AOBV) following the commencement of the NSW *Biodiversity Conservation Act 2016*.

Plant Community Types

A review of NSW SEED mapping State Vegetation Type Mapping (SVTM) extent was undertaken to identify any native PCT within the proposed rail development site extension, particularly where this has not been quantified previously. PCT diagnostic data and associated threatened ecological communities are then extracted from the BioNet Vegetation Classification Database.

Threatened flora

A review of the PMST report and BioNet Atlas Vegetation Classification was undertaken to identify any threatened flora species (under the BC Act or EPBC Act) which have previously been recorded within a 10 km radius of the subject site.

Threatened and Migratory fauna

A review of the PMST report and BioNet Atlas was undertaken to identify any threatened fauna species (under BC Act and EPBC Act) which have previously been recorded within a 10 km radius of the subject site.

Watercourses and Key Fish Habitat

Strahler Stream Order is used to describe the hierarchy of streams from the top of a catchment to the bottom. A first order stream starts at the top of the catchment and has no other streams flowing into it. They are the smallest streams in the system.

When two streams with the same order join, the resulting stream has the next highest order e.g. where two first order streams join, they form a second order stream. Consequently, they are bigger in size due to the water from both streams combining into one. The Strahler system must be applied to streams shown in the *Water Management (General) Regulation* 2018 hydro line spatial data.

One of the objectives of *the Fisheries Management Act* 1994 (FM Act) is the conservation of 'Key Fish Habitat' (KFH). To support this objective, a policy-based definition of KFH has been developed to inform the preparation of mapping. KFH includes most permanent and semi-permanent freshwater habitats such as rivers, creeks, lakes, lagoons, billabongs, weir pools, and impoundments, generally delineated to the top of the bank.

Field validation of mapped KFH within the unnamed waterway was undertaken in accordance with the framework outlined in the Policy and Guidelines for Fish Habitat Conservation and Management (DPIE Fisheries, 2013). This process allowed for determination of KFH Type and Class based on observed habitat features and the potential presence of threatened species.

The assessment criteria for KFH Type and Class (DPIE Fisheries, 2013) are provided in Table 2 and Table 3. KFH mapping data was sourced from the Fisheries Spatial Data Portal (2024).

Table 2. Extract from Fisheries NSW Policy and Guidelines for Fish Habitat Conservation and Management (NSW Department of Primary Industries 2013) showing KFH type classification.

TYPE 1 - Highly sensitive key fish habitat:

- *Posidonia australis* (strapweed)
- *Zostera, Heterozostera, Halophila and Ruppia* species of seagrass beds >5m^2 in area
- Coastal saltmarsh >5m^2 in area
- Coral communities
- Coastal lakes and lagoons that have a natural opening and closing regime (i.e. are not permanently open or artificially opened or are subject to one off unauthorised openings)
- Marine park, an aquatic reserve or intertidal protected area
- SEPP 14 coastal wetlands, wetlands recognised under international agreements (e.g. Ramsar, JAMBA, CAMBA, ROKAMBA wetlands), wetlands listed in the Directory of Important Wetlands of Australia[2]
- Freshwater habitats that contain in-stream gravel beds, rocks greater than 500 mm in two dimensions, snags greater than 300 mm in diameter or 3 metres in length, or native aquatic plants
- Any known or expected protected or threatened species habitat or area of declared 'critical habitat' under the FM Act
- Mound springs

TYPE 2 – Moderately sensitive key fish habitat:

- *Zostera*, *Heterozostera, Halophila* and *Ruppia* species of seagrass beds <5m^2 in area
- Mangroves
- Coastal saltmarsh <5m^2 in area
- Marine macroalgae such as *Ecklonia* and *Sargassum* species
- Estuarine and marine rocky reefs
- Coastal lakes and lagoons that are permanently open or subject to artificial opening via agreed management arrangements (e.g. managed in line with an entrance management plan)
- Aquatic habitat within 100 m of a marine park, an aquatic reserve or intertidal protected area
- Stable intertidal sand/mud flats, coastal and estuarine sandy beaches with large populations of in-fauna
- Freshwater habitats and brackish wetlands, lakes and lagoons other than those defined in TYPE 1
- Weir pools and dams up to full supply level where the weir or dam is across a natural waterway

TYPE 3 – Minimally sensitive key fish habitat may include:

- Unstable or unvegetated sand or mud substrate, coastal and estuarine sandy beaches with minimal or no in-fauna
- Coastal and freshwater habitats not included in TYPES 1 or 2
- Ephemeral aquatic habitat not supporting native aquatic or wetland vegetation

Notes: For the purposes of these policy and guidelines the following are **not considered key fish habitat**[5]:

- First and second order streams on gaining streams (based on the Strahler method of stream ordering)
- Farm dams on first and second order streams or unmapped gullies
- Agricultural and urban drains
- Urban or other artificial ponds (e.g. evaporation basins, aquaculture ponds)
- Sections of stream that have been concrete-lined or piped (not including a waterway crossing)
- Canal estates

Table 3. Extract from Fisheries NSW Policy and Guidelines for Fish Habitat Conservation and Management (NSW Department of Primary Industries 2013) showing KFH class classification.

CLASS 1 Major key fish habitat	Marine or estuarine waterway or permanently flowing or flooded freshwater waterway (e.g. river or major creek), habitat of a threatened or protected fish species or 'critical habitat'.
CLASS 2 Moderate key fish habitat	Non-permanently flowing (intermittent) stream, creek or waterway (generally named) with clearly defined bed and banks with semi-permanent to permanent waters in pools or in connected wetland areas. Freshwater aquatic vegetation is present. TYPE 1 and 2 habitats present.
CLASS 3 Minimal key fish habitat	Named or unnamed waterway with intermittent flow and sporadic refuge, breeding or feeding areas for aquatic fauna (e.g. fish, yabbies). Semi-permanent pools form within the waterway or adjacent wetlands after a rain event. Otherwise, any minor waterway that interconnects with wetlands or other CLASS 1-3 fish habitats.
CLASS 4 Unlikely key fish habitat	Waterway (generally unnamed) with intermittent flow following rain events only, little or no defined drainage channel, little or no flow or free standing water or pools post rain events (e.g. dry gullies or shallow floodplain depressions with no aquatic flora present).

5.2 Field assessment

A diurnal (daytime) field assessment was undertaken to validate the presence of flora, fauna and habitat constraints identified by the desktop review and to provide accurate survey of vegetation condition and habitat suitability.

The field assessment was undertaken by Mikayla Green (Ecologist) on 4 June 2025 for the original Biodiversity Memo, and 24 July 2026 for this report. Field surveys included mapping of ecological constraints in the development extension zone, recording all fauna incidentally encountered and mapping of any significant habitat features.

Opportunistic flora and fauna survey

Flora and fauna surveys were conducted as a meander survey across the full extent of the proposed railway development zone. The results of both surveys (June 2025 and July 2026) conducted by Habitat Innovation & Management were combined for the field assessment.

Plant Community Type validation

Any plant community types identified from the SVTM were validated on site during field surveys. This involved traversing the site on foot to map native vegetation of all levels of stratum, to confirm any PCT on site.

Waterway validation

Waterway validation was undertaken by a visual assessment of the location of the mapped waterways and determining the presence of key geomorphic features including a defined channel and/or flow path, creek banks and floodplain.

Survey limitations

Survey limitations are mitigated as best as possible with any biodiversity assessment, but due to the nature of undertaking ecological assessments, not all limitations are able to be eliminated. Identified survey limitations have been included below:

- Time of year - Native vegetation species flower and fruit at varying times of the year. Often the flowers, fruit and buds are key features for identification. Both field surveys were conducted in winter, resulting in a lack of seed heads or flowers on other plants. As a result, accurate identification of flora can be more challenging.
- Only one diurnal survey was conducted. Often not all species are recorded in one fauna survey and repeat surveys would increase the likelihood of species detection.

6. Results

6.1 Desktop assessment

Previous Assessments

The Biodiversity Development Assessment Report (BDAR, WSP 2024) Appendix A1, Map 13, details that the CIZ is situated entirely within the Lower Slopes IBRA Subregion. Appendix A2, Map 13 indicates that Reedy Creek and Bucks Creek intersect the original CIZ, with Bucks Creek also extending into the proposed extension. Appendix B2, Map 19 indicates that the original CIZ and part of the proposed extension includes PCT 5, PCT 277 and Miscellaneous ecosystem – highly disturbed vegetation. No threatened species were identified within the CIZ. Appendix B3, Map 12 indicates that the southwestern portion of the CIZ and extension contain the BC Act listed TEC *White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Riverina Bioregions*. Three threatened species polygons were identified in Appendix C4, Map 13, including Superb Parrot, Squirrel Glider and Sloane's Froglet. Appendix C5, Map 13, identified several sections of potential Sloane's Froglet breeding habitat in the southwestern and northeastern portions of the CIZ. PCT 5 and PCT 277 has been identified to be in a poor condition.

Table 4: Plant community types as per the BDAR (WSP 2024)

Plant Community Type	Plant Community Name	Condition	Area (ha)
PCT 0	No plant community	NA	2.2268
NA	Miscellaneous ecosystem - ornamental plantings	NA	0.0086
NA	Miscellaneous ecosystem - highly disturbed areas with no or limited native vegetation	NA	0.9256
PCT 5	River Red Gum herbaceous - grassy very tall open forest wetland on inner floodplains in the lower slopes sub-region of the NSW South Western Slopes Bioregion and the eastern Riverina Bioregion	Poor	0.0207
PCT 277	Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion	Poor	0.1094
Total			3.2911

The Aquatic Biodiversity Impact Assessment (Coast Ecology 2022) lists the fourth order Reedy Creek and Bucks Creek as present within the Harefield Yard CIZ. No Key Fish Habitat (KFH) is mapped, and the creeks are listed as a Class 4, unlikely KFH watercourses. Reedy Creek had a defined channel but was highly disturbed and negligible impacts can be mitigated through appropriate controls. Bucks Creek did not have a defined

channel and, as the channel does not hold water and is unlikely to support threatened species, the risk of impact was determined to be low.

The Martinus Stage C CBMP (2026) also identified the same ecological constraints including PCT 5 and PCT 277, the BC Act TEC and the habitat polygons for the three Threatened Species (Superb Parrot, Squirrel Glider and Sloane's Froglet).

The Habitat draft Biodiversity Memo (2025) assessed the potential disturbance to a proposed (but not adopted) extension covering 1.994 ha of land, including 1.048 ha of Miscellaneous Ecosystems – highly disturbed, and 0.19 ha of highly disturbed aquatic habitat. All vegetation likely to be impacted by the 2025 extension was determined to be low-quality foraging habitat for threatened fauna. Within the context of the surrounding landscape, it was considered unlikely that the vegetation would be utilised by fauna given the presence of better habitats outside the subject site, and in the broader landscape. Further, it was considered unlikely that any threatened species would occupy the subject due to evidence of current and ongoing disturbance (railway, roads, works areas).

Matters of National Environmental Significance

A 23 July 2026 review of the Protected Matters Search Tool (PMST report) showed that three Threatened Ecological Communities (TECs) have potential to be within the locality of the subject site (Table 5).

Table 5: TECs recorded in the PMST report and their likelihood of occurring within the subject site.

PMST Community ID	Community Name	Threatened species listing under EPBC Act	Likeliness to occur
43	White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland	Critically Endangered	Likely
86	Grey Box (*Eucalyptus microcarpa*) Grassy Woodlands and Derived Native Grasslands of South-eastern Australia	Endangered	Likely
98	Weeping Myall Woodlands	Endangered	May

Biodiversity Values Map

A 28 July 2026 review of the Biodiversity Values Map indicated that the northern end of the extension is intersected by mapped biodiverse riparian land (Figure 3) which aligns with the mapped watercourse of Bucks Creek. This value has been assessed as part of the Aquatic Biodiversity Impact Assessment (ABIA, Coast Ecology 2022) which found that it did not contain water, did not have defined banks or riparian vegetation and was not considered to have fish habitat. As the ABIA, and the subsequent BDAR, found that there would be no significant impact to the low biodiversity values identified in Bucks Creek at the Harefield Yard site, including the extension area, no additional assessment or update to the BDAR is required.



Figure 3: Biodiversity Values Map report

Areas of Outstanding Biodiversity Value (AOBV)

A review was conducted of the NSW AOBV register. No AOBV are identified in the study area and therefore will not be impacted by the proposal.

Plant Community Types

The BDAR, SVTM and BioNet Vegetation Classification portal identified that five PCTs are within proximity to the subject site (Figure 4). These are:

- PCT 5 - River Red Gum herbaceous-grassy very tall open forest wetland on inner floodplains in the lower slopes sub-region of the NSW South Western Slopes Bioregion and the eastern Riverina Bioregion
- PCT 45 - Plains Grass grassland on alluvial mainly clay soils in the Riverina Bioregion and NSW South Western Slopes Bioregion
- PCT 76 - Western Grey Box tall grassy woodland on alluvial loam and clay soils in the NSW South Western Slopes and Riverina Bioregions
- PCT 276 - Yellow Box grassy tall woodland on alluvium or parna loams and clays on flats in NSW South Western Slopes Bioregion
- PCT 277 - Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion

The total area over the approved CIZ is 3.29136 ha, with the breakdown of each PCT listed below.

Table 6: Approved CIZ plant community types and area

PCT number	Plant Community Type (PCT)	Condition	Area (ha)
0	No PCT	NA	1.87
NA	Miscellaneous ecosystem - ornamental plantings	NA	0.0086
NA	Miscellaneous ecosystem - highly disturbed areas with no or limited native vegetation	NA	0.9256
PCT 5	River Red Gum herbaceous - grassy very tall open forest wetland on inner floodplains in the lower slopes sub-region of the NSW South Western Slopes Bioregion and the eastern Riverina Bioregion	Poor	0.0207
PCT 277	Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion	Poor	0.1094
PCT 276	Yellow Box grassy tall woodland on alluvium or parna loams and clays on flats in NSW South Western Slopes Bioregion	Poor	0.3567
Total			3.29136

Four of the five PCTs are associated with TECs as outlined in Table 7. PCT 276 and PCT 277 are mapped to be within the CIZ extension and the potential impact of the activity to the critically endangered TEC is considered further in section 7.

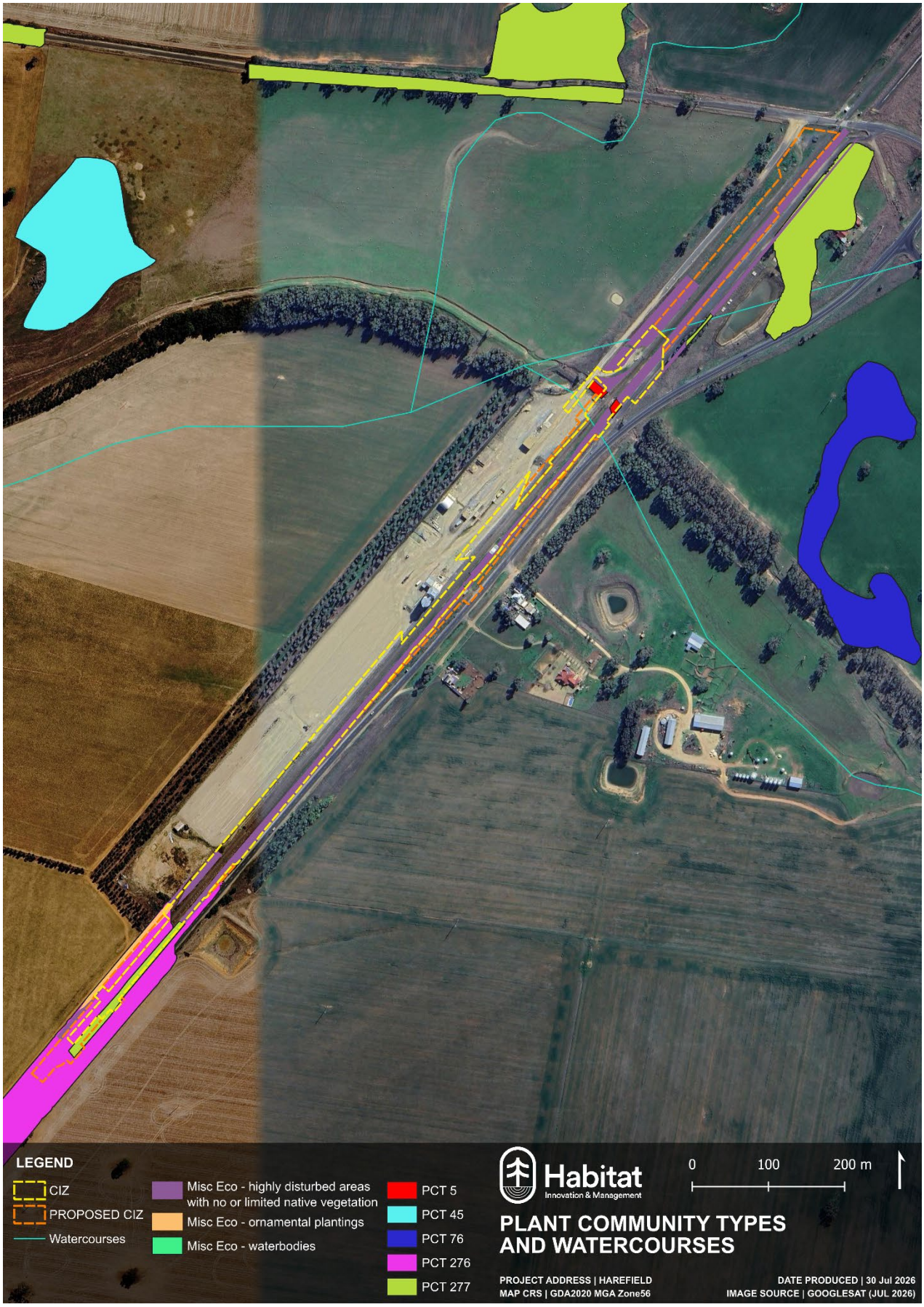


Figure 4: Extant Plant Community Type map.

Table 7: TECs for mapped PCTs and their listing under the BC Act and EPBC Act

NSW PCT number	TEC name	TEC Listing	Listing status
45	Artesian Springs Ecological Community in the Great Artesian Basin	BC Act	Critically Endangered
45	Natural Grasslands of the Murray Valley Plains	EPBC Act	Critically Endangered
76	Inland Grey Box Woodland in the Riverina, NSW South Western Slopes, Cobar Peneplain, Nandewar and Brigalow Belt South Bioregions	BC Act	Endangered
76	Grey Box (*Eucalyptus microcarpa*) Grassy Woodlands and Derived Native Grasslands of South-eastern Australia	EPBC Act	Endangered
276, 277	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Riverina Bioregions	BC Act	Critically Endangered
276, 277	White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland	EPBC Act	Critically Endangered

Threatened flora

A 23 July 2026 review of the Protected Matters Search Tool (PMST) showed only one flora species, the Slender Darling-pea (*Swainsona murrayana*) which 'may' occur within the locality of the subject site. This species is listed as Vulnerable under the EPBC Act.

A search of the NSW BioNet Atlas database within a 10 km radius of the subject site showed that no threatened vegetation species have been recorded and uploaded to this database.

Threatened and Migratory Fauna

A search of the Protected Matters Search Tool (PMST) listed 27 threatened fauna species listed under the EPBC Act which were categorised as 'may occur on site' or are 'likely to occur on site' (Table 8).

Table 8: Threatened fauna species as per EPBC extracted from PMST report.

Scientific Name	Common Name	Simple Presence	Threatened Category
Birds			
Anthochaera phrygia	Regent Honeyeater	May	Critically Endangered
Aphelocephala leucopsis	Southern Whiteface	Likely	Vulnerable
Botaurus poiciloptilus	Australasian Bittern	May	Endangered
Calidris acuminata	Sharp-tailed Sandpiper	May	Vulnerable

Scientific Name	Common Name	Simple Presence	Threatened Category
Calidris ferruginea	Curlew Sandpiper	May	Critically Endangered
Climacteris picumnus victoriae	Brown Treecreeper (south-eastern)	May	Vulnerable
Falco hypoleucos	Grey Falcon	Likely	Vulnerable
Gallinago hardwickii	Latham's Snipe, Japanese Snipe	May	Vulnerable
Grantiella picta	Painted Honeyeater	Likely	Vulnerable
Hirundapus caudacutus	White-throated Needletail	Likely	Vulnerable
Lathamus discolor	Swift Parrot	Likely	Critically Endangered
Leipoa ocellata	Malleefowl	May	Vulnerable
Lophochroa leadbeateri leadbeateri	Major Mitchell's Cockatoo (eastern), Eastern Major Mitchell's Cockatoo, Pink Cockatoo (eastern)	May	Endangered
Melanodryas cucullata cucullata	South-eastern Hooded Robin, Hooded Robin (south-eastern)	Likely	Endangered
Neophema chrysostoma	Blue-winged Parrot	Likely	Vulnerable
Pedionomus torquatus	Plains-wanderer	May	Critically Endangered
Polytelis swainsonii	Superb Parrot	Likely	Vulnerable
Rostratula australis	Australian Painted Snipe	Likely	Endangered
Stagonopleura guttata	Diamond Firetail	Likely	Vulnerable
Macquaria australasica	Macquarie Perch	May	Endangered
Crinia sloanei	Sloane's Froglet	May	Endangered
Ranoidea raniformis	Southern Bell Frog, Growling Grass Frog, Green and Golden Frog	May	Vulnerable (listed as Litoria raniformis)
Mammals			
Nyctophilus corbeni	Corben's Long-eared Bat, South-eastern Long-eared Bat	May	Vulnerable
Phascolarctos cinereus (combined populations of Qld, NSW and the ACT)	Koala (combined populations of Queensland, New South Wales and the Australian Capital Territory)	Likely	Endangered
Pteropus poliocephalus	Grey-headed Flying-fox	Likely	Vulnerable
Reptiles			
Aprasia parapulchella	Pink-tailed Worm-lizard, Pink-tailed Legless Lizard	Likely	Vulnerable
Plants			
Swainsona murrayana	Slender Darling-pea, Slender Swainson, Murray Swainson-pea	May	Vulnerable

A 3 August 2026 search of the NSW BioNet Atlas database within a 10 km radius of the proposed rail development site showed that ten threatened fauna species listed under the BC Act and EPBC Act have previously been recorded in the area. These species are listed below in Table 9.

Table 9: Threatened species within a 10 km radius of the subject site from BioNet Atlas database.

Scientific Name	**Common Name**	**BC Act status**	**EPBC Act status**
Birds			
Polytelis swainsonii	Superb Parrot	Vulnerable	Vulnerable
Artamus cyanopterus cyanopterus	Dusky Woodswallow	Vulnerable	
Circus assimilis	Spotted Harrier	Vulnerable	
Climacteris picumnus victoriae	Brown Treecreeper (eastern subspecies)	Vulnerable	Vulnerable
Falco subniger	Black Falcon	Vulnerable	
Hieraaetus morphnoides	Little Eagle	Vulnerable	
Lathamus discolor	Swift Parrot	Endangered	Critically Endangered
Petroica boodang	Scarlet Robin	Vulnerable	
Petroica phoenicea	Flame Robin	Vulnerable	
Mammals			
Pteropus poliocephalus	Grey-headed Flying-fox	Vulnerable	Vulnerable

Eight migratory bird species were listed as having potential of utilising the subject site as habitat. These are shown in Table 10.

Table 10: Migratory species extracted from the PMST report.

Scientific Name	**Common Name**	**Listing under EPBC Act**	**Likelihood of occurrence**
Actitis hypoleucos	Common Sandpiper	Not listed	May
Apus pacificus	Fork-tailed Swift	Not listed	Likely
Calidris acuminata	Sharp-tailed Sandpiper	Vulnerable	May
Calidris ferruginea	Curlew Sandpiper	Critically Endangered	May
Calidris melanotos	Pectoral Sandpiper	Not listed	May
Gallinago hardwickii	Latham's Snipe, Japanese Snipe	Vulnerable	May
Hirundapus caudacutus	White-throated Needletail	Vulnerable	Likely
Motacilla flava	Yellow Wagtail	Not listed	May

Due to the historic and ongoing disturbances at the site, low habitat quality and limited habitat features, none of the threatened or migratory species have been identified as having a high likelihood of utilising or relying on the site's habitat.

Watercourses and Key Fish Habitat

Two waterways bisect the study site: Reedy Creek and Bucks Creek. The sections of Reedy Creek and Bucks Creek that cross the current and proposed CIZ are both considered fourth order streams under the Strahler Stream Order Classification (Coast Ecology 2022).

A review of the NSW Fisheries spatial portal showed that the mapped reach of Reedy Creek that bisects the subject site is mapped as Key Fish Habitat (KFH) (Figure 4), whilst Bucks Creek is not mapped as KFH. Both results were validated in the ABIA field survey.

Habitat connectivity

There is a planted habitat connectivity corridor between the subject site and the vegetated corridor along the western edge of the QUBE depot and along Reedy Creek.

Karst, caves, crevices, cliffs, rocks or other geological features of significance

A review of state geology and environmental sensitivity mapping indicates that the subject site does not contain any significant geological features such as karsts, caves, crevices, or cliffs. The land forming the subject site is also not mapped as contaminated land or being at risk of acid sulfate soils.

Biodiversity Values Map

Reedy Creek and Bucks Creek are mapped on the NSW Biodiversity Values Map. This result corresponds with the Key Fish Habitat mapping as per FM Act (Figure 4).

Topography and soils

The topography of the site is relatively flat land with one drainage depression (Bucks Creek) running east to west through the extension area. A review of the Australian Soil Classification Type mapping on SEED NSW showed that the subject site is mapped as Kandosol and Chromosol soils.

6.2 Field assessment

Surveys were conducted on 4 June 2025 and 24 July 2026. Weather conditions were clear and sunny with low wind.

The CIZ extension is separated into two main sections:

- an eastern (or northeastern) portion, north of the QUBE and on land between Reedy Creek and Harefield Road, and,
- a western (or southwestern) portion, south of the QUBE and within the narrow rail corridor

The eastern portion is characterised by a strip of open grassed land, the slight depression of Bucks Creek and a unformed access road. The western portion is characterised by a narrow grassed section running parallel to the rail line.

Incidental fauna survey

Fauna species were recorded opportunistically by Ecologist Mikayla Green whilst the site was traversed on foot via a meander survey.

A total of 12 fauna species were recorded across the site. None are threatened species, and three are introduced species.

Table 11: Field survey fauna species list

Scientific Name	Common Name	Listed under BC Act	Listed under EPBC Act
Birds			
Chenonetta jubata	Australian Wood Duck	Not listed	Not listed
Corvus coronoides	Raven	Not listed	Not listed
Dacelo novaeguineae	Laughing Kookaburra	Not listed	Not listed
Eolophus roseicapilla	Galah	Not listed	Not listed
Falco cenchroides	Nankeen Kestrel	Not listed	Not listed
Hirundo neoxena	Welcome Swallow	Not listed	Not listed
Ocyphaps lophotes	Crested Pigeon	Not listed	Not listed
Petrochelidon ariel	Fairy Martin	Not listed	Not listed
Platycercus eximius	Eastern Rosella	Not listed	Not listed
Sturnus vulgaris	European Starling	Introduced	Introduced
Mammals			
Felis catus	Feral Cat	Introduced	Introduced
Oryctolagus cuniculus	European Rabbit	Introduced	Introduced

PCT and vegetation surveys

The field assessment confirmed the presence of Miscellaneous Ecosystems – highly disturbed, in the northern portion of the proposed extension, in addition to a strip along the southeastern face of the existing CIZ. The field assessment also validated the presence of PCT 5 around the Reedy Creek channel. The area mapped as PCT 276 and PCT 277 in the southwestern portion of the CIZ and extension is dominated by exotic groundcover, some Red-leg Grass (*Bothriochloa macra*) and regrowth Western Silver Wattle (*Acacia decora*) and therefore does not meet the classification criteria for either PCT, or the threatened ecological communities. Therefore, no mapped CEEC is impacted by clearing and grubbing of shrubs and tree trimming activities.

PCT 45 and PCT 76 were not identified in the CIZ or extension.

The field validated plant communities are shown in Figure 5 with the PCT in the extension detailed below.

Table 12: Proposed CIZ Extension plant community types

PCT number	Plant Community Type (PCT)	Condition	Area (ha)*
0	No PCT	NA	1.3406
NA	Miscellaneous ecosystem - ornamental plantings	NA	0.0138173
NA	Miscellaneous ecosystem - highly disturbed areas with no or limited native vegetation	NA	0.7758143
PCT 5	River Red Gum herbaceous - grassy very tall open forest wetland on inner floodplains in the lower slopes sub-region of the NSW South Western Slopes Bioregion and the eastern Riverina Bioregion	Poor	0.00
PCT 277	Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion	Poor	0.00
PCT 276	Yellow Box grassy tall woodland on alluvium or parna loams and clays on flats in NSW South Western Slopes Bioregion	Poor	0.00
Total			2.1302

*Note that the area of vegetation was digitised based on online sources and field assessments and may differ from mapped PCT.

Twenty-two plant species were recorded within the subject site (4 June 2025, 24 July 2026) and are listed below in Table 13. Most of the subject site is dominated by exotic vegetation and is highly disturbed due to historical clearing and previous development. The grassy cover is predominantly Red-leg Grass, Wild Oats, Couch and Ryegrass, with scattered weeds (Patterson's Curse, Fleabane), regrowth Western Silver Wattle and Yellow Box (Table 13).

Table 13: Vegetation species observed within and on the margins of the subject site.

Scientific Name	Common Name	Native? (Y/N)	Listing under BC Act	Listing under EPBC	Surveyed
NATIVE FLORA					
Acacia decora	Western Silver Wattle	Y	Not listed	Not listed	Jul-26
Bothriochloa macra	Red-leg Grass	Y	Not listed	Not listed	Jul-26
*Carex appressa**	Tall Sedge	Y	Not listed	Not listed	Jun-25
Cynodon dactylon	Couch	Y	Not listed	Not listed	June 2025, July 2026
Dianella revoluta	Blue flax lily	Y	Not listed	Not listed	Jul-26
Eucalyptus melliodora	Yellow Box	Y	Not listed	Not listed	Jul-26
*Eucalyptus microcarpa**	Western Grey Box	Y	Not listed	Not listed	Jun-25
Juncus usitatus	Common rush	Y	Not listed	Not listed	June 2025, July 2026
Rytidosperma sp.	Wallaby Grass	Y	Not listed	Not listed	Jun-25
EXOTIC FLORA					

Scientific Name	Common Name	Native? (Y/N)	Listing under BC Act	Listing under EPBC	Surveyed
Ailanthus altissima	Tree of heaven	N	-	-	Jul-26
Avena fatua	Oats	N	-	-	Jul-26
Brassica sp.	Canola?	N	-	-	Jul-26
Cirsium vulgare	Spear Thistle	N	-	-	June 2025, July 2026
Conyza bonariensis	Fleabane	N	-	-	Jun-25
Echium plantagineum	Pattersons Curse	N	-	-	Jul-26
Erigeron bonariensis	Flax-leaved Horseweed	N	-	-	Jun-25
Lolium multiflorum	Rye grass	N	-	-	Jul-26
Malva parviflorum	Mallow	N	-	-	Jul-26
Paspalum dilatatum	Caterpillar Grass / Paspalum	N	-	-	June 2025, July 2026
Rumex sp. (occidentalis or acetosella)	Dock/Sorrel	N	-	-	Jun-25
Silybum marianum	Milk Thistle	N	-	-	Jul-26
Symphyotrichum subulatum	Annual Saltmarsh Aster	N	-	-	Jun-25

* Species recorded within and on the margin of the subject site.

Habitat features

Various potential habitat features were recorded on site during the field surveys. This includes timber piles, logs and fallen trees, plus the habitat created by the existing road culvert over Reedy Creek. These features are detailed below, and locations have been mapped and shown in Figure 11.

Habitat Trees

A dead tree located on the northern side (and possibly just outside) of the northern CIZ extension has cracks and crevices that may provide habitat for microbats (Figure 6, Table 14).



Figure 5: Field validated vegetation communities




Figure 6: Typical vegetation in the northern CIZ extension




Figure 7: Typical vegetation in the southern CIZ extension

Road Culvert

The road culvert has the potential to support habitat for Fairy Martins and microbats. Numerous Fairy Martin mud nests were observed on the underside of the culvert crossing over Reedy Creek (Figure 8). No birds were actively breeding at the time of field survey, and therefore no immediate risk of harm to this species will occur in the short-term, however the birds will return to nest between August and January. Fairy Martins are not a listed threatened species but are a native protected species. Impacts to them or their nests may require separate approvals.

Although Fairy Martins were absent, it is known that microbat species such as the threatened Southern Myotis (*Myotis macropus*) and various Bent-winged Bats (*Miniopterus spp.)* will utilise these nests as roosts during the daytime, therefore caution should be taken around these nests.



Figure 8: Fairy Martin Nests under culvert crossing of Reedy Creek.

Timber stockpile

The timber stockpile located adjacent to the railway siding (Figure 9) and a decaying fallen tree in the northern part of the extension (Figure 10) has potential to provide habitat for various reptile and frog species as the timber provides refuge and a source of invertebrate prey. Other species such as echidnas will use timber piles for refugia and ground-foraging birds may use the structure as a perch or hunting resource.



Figure 9: Stockpile (GH1) as potential habitat



Figure 10: Fallen tree (GH2) as potential habitat



Figure 11: Habitat features recorded within or near the proposed extension

Waterway validation and Key Fish Habitat

The reach of Bucks Creek that bisects the subject site is highly disturbed and not considered to be a functioning waterway or KFH (Figure 12). It has not been identified as potential Sloane's Froglet habitat. The flow path of this mapped creek has been erased from the landscape due to intensive broadacre cropping and other disturbances and no longer has hydrologic or geomorphic attributes of a waterway. As a result, it is not considered KFH. The biodiversity values are considered low due to the previous and ongoing disturbances within the rail and road corridor. The proposed extension will have low to negligible impacts on any residual biodiversity values. Therefore, an update to the BDAR or a new detailed assessment is not required.



Figure 12: The land in the area of the mapped Bucks Creek watercourse (Coast Ecology 2022)

Reedy Creek was validated as a functioning waterway as it has a bed and bank and upstream ponds that may provide refuge for aquatic and water-dependent fauna (Figure 13). It is determined to be a Type 3, Class 4, unlikely KFH watercourse, as per Table 2 and Table 3. This aligns with the ABIA and also reflects the ephemeral flow regime of the creek, presence of refuge pools, but limited connectivity to permanent watercourses.



Figure 13: Culvert crossing over Reedy Creek

Table 14: Habitat features identified in the CIZ extension

Label	Type	Comments	Tree Number	Tree Height (est. m)	Latitude	Longitude	Potential Species	Tree Removed	Limb/s Removed	Ecologist
GH1	Ground	Timber pile	NA	NA	-34.962565	147.518521	Reptile	NA	NA	Mikayla Green
AQH1	Aquatic	Drainage ditch	NA	NA	-34.963933	147.517159	Frog	NA	NA	Mikayla Green
AQH2	Aquatic	Drainage ditch	NA	NA	-34.957749	147.523116	Frog	NA	NA	Mikayla Green
S1	Structure	Box culvert	NA	NA	-34.957756	147.523305	Bird (not parrot), Frog	NA	NA	Mikayla Green
GH2	Ground	Large log and rabbit burrow	NA	NA	-34.95823	147.522525	Goanna, Reptile, Rabbit, small mammals	NA	NA	Mikayla Green
HT1	Habitat Tree	Cracks and crevices	1	9	-34.958494	147.522225	Microbat	FALSE	FALSE	Mikayla Green

7. Impact Assessment

The footprint of the proposed CIZ extension will occupy a highly modified landscape that has existing rail and road infrastructure. Where vegetation is present, exotic groundcover species dominate, though some remnant patches of native PCT remain.

The activities proposed for the subject site are likely to result in the complete removal of vegetative cover in most of the extension area, with trimming required in some sections:

- Trimming or clearing and grubbing of 0.7758143 ha of Miscellaneous Ecosystems - highly disturbed vegetation and 0.0138 ha of ornamental plantings.
- Clearing and grubbing of land where no plant community type has been determined (1.33406 ha).

Potential threatened species habitat in Reedy's Creek was identified through the desktop assessment, including for Superb Parrot, Squirrel Glider and Sloane's Froglet. The proposed extension does not impact the mapped potential habitat. This assessment found no threatened fauna species are expected to inhabit the site due to the lack of records, the low-quality foraging habitat, historic and ongoing disturbance from agriculture, railway and roads.

The vegetation is predominantly classified as no vegetation (PCT 0) and highly disturbed or ornamental miscellaneous vegetation.

A timber pile and a fallen tree are located within the subject site and are considered habitat for ground dwelling fauna including small mammals, reptiles and frogs and the proposed development may impact these habitat features. There are also several Fairy Martin nests under the culvert on Reedy Creek which are unlikely to be impacted by the extension as this culvert is outside the subject site. Impacts to the fauna that inhabit the identified habitat features can be avoided or managed through appropriate safeguards.

Though it has been identified as having low aquatic and biodiversity values, Bucks Creek may form low quality habitat during and after rainfall events. Potential impacts to Bucks Creek can be managed through the implementation of an Erosion and Sediment Control plan and appropriate safeguards.

Figure 11 shows the location of habitat features that may be impacted by the proposed CIZ extension.

This assessment has concluded that the proposed Harefield CIZ extension would not impact threatened species, their habitat or disrupt their breeding cycles. Impacts to native vegetation or Threatened Ecological Communities are minor in nature and will not result in a significant impact. There have been no critical habitat or Areas of Outstanding Biodiversity Value identified within the study area. The impact to identified Biodiversity Values Mapped land at Bucks Creek will be negligible to low.

All vegetation proposed for removal provides low-quality foraging habitat for threatened fauna. Within the context of the surrounding landscape, it is unlikely this vegetation would be utilised given the presence of superior habitats adjoining the subject site, and in the broader landscape. Further, it is considered unlikely that any threatened species would occupy the subject due to pre-existing and ongoing disturbance (railway, roads, works areas). As such, no threatened flora or fauna are likely to be significantly impacted.

Appropriate safeguards must be implemented when disturbing or undertaking works near identified habitat features. The following recommendations have been made to ensure best-practice pre-and post-clearance procedures are followed to minimise the potential harm to fauna that may be using these features as refuge.

8. Recommendations

To mitigate the potential impacts to biodiversity caused by the proposed CIZ extension the following mitigation measures and recommendations have been developed in line with the adopted Albury to Illabo A2I Stage C Construction Biodiversity Management Plan (Martinus 2026). The relevant sections of the CBMP are listed alongside the below recommendations:

- The disturbance zone for removal of vegetation and habitat features should be clearly marked for machinery drivers so that all native vegetation outside the marked disturbance zone is protected (CBMP 6.1).
- Appropriate pre- and post-clearing procedures should be followed to minimise harm to fauna in the area (CBMP 6.1.1 – 6.1.5).
- Works within Reedy Creek are to be conducted in accordance with Controlled Activity Guidelines and an Erosion and Sediment Control Plan with works to be conducted when dry (CBMP 6.3).
- If any unexpected finds arise (such as threatened species, tree hollows, nests or burrows) that are likely to be impacted by the works, then works are to stop immediately and the site ecologist should be contacted immediately for advice on how to proceed (CBMP 6.1.7, 6.5, 6.6).
- A site-specific Erosion and Sediment Control Plan (ESCP) and Construction Environment Management Plan (CEMP) should be developed and implemented to manage and minimise the impacts from site disturbance (CBMP Table 20, CB-26).
- To avoid the spread of weeds and pathogens during construction, the following mitigation measures are recommended (CBMP 6.4):
    - Exposed areas are to be kept to a minimum to reduce the establishment and spread of weeds, including from entering the drainage lines.
    - All exotic biomass cleared within the impact area should be removed from the study area and disposed of at an approved facility.
    - All equipment brought into the impact area is to be washed/cleaned so that it is free of soil, mud, debris or vegetation which may inadvertently introduce weeds and/or other pathogens into the impact area and study area.
    - Measures should be taken to prevent tracking of soils/sediments from work sites to roadways during work vehicle/machinery movement.

If all mitigation measures and recommendations are followed, it is not expected that the proposed development works will have any long-term significant impacts on the local flora and fauna.

9. Conclusions

This Biodiversity Memo has been developed for Martinus Rail in relation to the proposed Harefield CIZ extension.

The findings of this study conclude that no significant impacts to threatened species, populations or ecological communities are likely as a result of the proposed activity.

Although outside the BDAR assessed construction boundary for the Project, the biodiversity impacts are considered consistent with the initial assessment (WSP, 2024), and no further assessment or offsets (ecosystem or species) would be required.

The potential impacts on biodiversity identified for the proposed CIZ extension can be appropriately managed in accordance with the Conditions of Approval and through implementation of the updated management measures outlined in the Preferred Infrastructure Report Submissions Report for the Project.

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