Regional Rail Link Authority

Regional Rail Link: Section 2

Noise Management Plan

RRL-2000-EAC-REP-0002

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Regional Rail Link Authority

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Noise Management Plan

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1 Introduction

This plan is the draft noise management plan (NMP) for Section 2 of the Regional Rail Link (RRL), which is required to satisfy Part 1,vii of the Minister's Decision to the Environment Effects Statement (EES) referral, and accompanies the noise impact management report (RRL-2006-EAC-REP-0001).

Noise and vibration from the RRL have the potential to adversely impact on sensitive receivers located near to the alignment. Noise and vibration impacts from construction and operation of the proposed railway are detailed in the RRL Section 2 Noise Impact Management Report.

This draft NMP outlines the recommended controls on the railway design and processes to be implemented during design, construction and operation of the RRL to manage operational and construction noise impacts from the railway. It is prepared within the current Victorian legislative framework that specifically excludes the operations of passenger rail services from the *Environment Protection Act 1970*.

The Contractor shall develop works procedures to implement noise and vibration controls during construction that meet the requirements of Section 4 of this NMP.

2 Policy Framework

The Victorian integrated and sustainable transport policy is outlined in *Towards an integrated and sustainable transport future: A new legislative framework for transport in Victoria* (Policy Statement July 2009) and in the *Transport Integration Act 2010*.

The *Transport Integration Act* provides the overarching policy framework for transport legislation, and provides guidance and direction for decisions in key areas that impact on transport, including planning and local government. The policy statement notes that the challenges facing the transport system and the community's expectations for transport are very different than they were a generation ago.

While the policy statement and Act do not provide any specific guidance in relation to noise impacts from railways, the vision statement (Part 2.6) does note the *'aspiration of Victorians for an integrated and sustainable transport system that contributes to … an environmentally responsible State'*, and Part 2.10(c), that *'[the] transport system should actively contribute to environmental sustainability by avoiding, minimising and offsetting harm to the local and global environment, including through transport related emissions and pollutants [and the loss of biodiversity]*'.

The Act requires that, in exercising certain powers and functions in relation to the Regional Rail Link, the Department of Transport (DoT) and other transport bodies have regard to the transport system objectives set out in the Act which relevantly includes the integration of transport, land use and environmental sustainability. The Act also sets out decision making principles to which the DoT and other transport bodies must have regard when making certain decisions , including the principle of integrated decision making to achieve government policy through coordination across all government agencies.

This draft noise management plan and the associated noise impact management report detail how the RRL project responds to the Transport Integration Act's vision statement and objectives through:

- route selection
- material selection
- design approach and
- construction management.

3 Operational Noise

The noise impact management report (RRL-2000-EAC-REP-0001) provides details of the operational noise predictions undertaken for the proposed railway, and documents the expected railway noise levels in the community near to the proposed alignment.

The alignment design includes a 3–8 m cutting through the Wyndham Vale Station region. This cutting has been provided to reduce severance, access and visual amenity impacts on the Wyndham Vale community that would result from an at-grade railway with multiple road bridges necessary for each of the crossings. The cutting provides a secondary benefit of significant mitigation of noise emission from the railway.

Details of the design approach to mitigate operational noise from the RRL are provided in the noise impact management report.

3.1 Proposed Noise Standards for Operation of the Railway

Victoria does not currently have any legislative requirements or guidance limits on noise and vibration from passenger railway movements. Section 251B of the *Victorian Transport (Compliance and Miscellaneous) Act 1983* specifically excludes noise emanating from passenger rolling stock as constituting a nuisance, and states that the *Environmental Protection Act* does not apply to noise from rolling stock. Therefore a series of project specific *qualitative standards* are proposed to manage operational noise.

The *qualitative standards* which must be observed include:

- the route is selected so as to reduce and mitigate operational railway noise
- all new intersections will be grade separated, which avoids noise from bells, signals and braking traffic
- the track alignment must be designed with a minimum curve radius of 450 m to limit wheel–rail contact noise
- bridges and viaducts must be constructed from concrete or composite steel–concrete structures with ballasted decks to decrease noise radiation
- the track must be constructed using continuous welded rail to minimise the number of rail joints and minimise the wheel–rail contact noise
- the operator of the rail system must undertake regular maintenance of the track profile and the train wheels to reduce noise caused by wheel and rail roughness

3.2 Specific Operational Noise Controls

The specific noise controls which have been, and are to be adopted are;

Maintenance and Operation

- new trains added to the fleet will be more modern V/Locity type rolling stock
- track and wheel roughness and profiles to be maintained to the Accredited Rail Operator's maintenance and engineering standards

Planning

- consideration of amenity of future noise sensitive developments in the vicinity of the rail alignment and, if necessary, the inclusion of specific development controls

4 Construction Noise and Vibration

Expected construction noise levels are documented in the *Noise Impact Management Report* (RRL-2000-EAC-REP-0001), which provides details of the expected construction methodology and equipment.

The noise generated by construction activities has the potential to cause disturbance to local residents. Disturbance to residents can be minimised by the implementation of careful planning of site works, implementation of measures to reduce disturbance, noise and vibration monitoring and community consultation.

While some construction noise and vibration impacts could be expected at all locations adjacent to the rail alignment at some time during the construction period, the highest construction noise and vibration impacts are expected near to grade separated crossings, where piling and bridge construction works will be necessary, and near cuttings where blasting is likely to be necessary for the excavation.

The levels of vibration generated from various construction activities will be site specific, and will be dependent on the ground type, the particular equipment used, and the proximity of the construction activity to the receiver location.

It is a project requirement that construction noise and vibration be managed in accordance with:

- the Victorian EPA guidelines for major construction sites; and
- EPA Noise Control Guidelines (EPA 1254)

In addition, further controls are required to be undertaken where the works are particularly intrusive. These are particular to the construction of railway infrastructure and are based on guidance in the NSW transport infrastructure development corporation (TIDC) Railway Infrastructure Construction Noise Guidance.

The specific construction noise controls which are to be adopted are documented below.

4.1 Specific construction noise controls

The following specific construction noise controls are required for this project:

- fit and maintain appropriate mufflers on earth-moving and other vehicles on the site
- fit all pneumatic tools with an effective silencer on their air exhaust port
- enclose noisy equipment in accordance with standard industry practice
- schedule deliveries to the site so that disruption to local amenity and traffic are minimised
- site buildings, access roads and plant should be positioned such that the minimum disturbance occurs to the locality. Barriers such as hoardings or temporary enclosures should be used. The site should be planned to minimise the need for reversing of vehicles
- install less noisy movement/reversing warning systems for equipment and vehicles that will operate for extended periods (ie > 1 day on site), during sensitive times (ie night or evening periods) or in close proximity to sensitive sites. Typically broadband sounders are required in preference to tonal sounders
- turn off plant when not being used.

4.2 Operational Schedule/Noise Limits

The work is to be carried out in accordance with the operational schedule shown in Table 1 and subject to compliance with Table 2;

Table 1 Operational Schedule/Noise Limits (ref: EPA Noise Control Guidelines, Publication 1254)

Operational Schedule/Noise Limits
Normal Working Hours
7:00 — 18:00 hours Monday to Friday
7:00 — 13:00 hours Saturdays
Weekend/evening work hours
Noise level at any residential premises is not to exceed background noise by: • 10 dB(A) or more for up to 18 months after project commencement (ie *significant* construction commencing in a particular area) • 5 dB(A) or more after 18 months during the hours of: • 18:00 — 22:00 hours Monday to Friday • 13:00 — 22:00 hours Saturdays • 07:00 — 22:00 hours Sundays and public holidays
Night period
Noise inaudible within a habitable room of any residential premises during the hours of: • 22:00 — 7:00 hours Monday to Sunday

Noise from the site shall comply with the requirements of the operational schedule/noise limits, except for:

- unavoidable works
- night period low-noise or managed-impact works approved by the Principal's Representative and notified to the local authority (Wyndham City Council, Shire of Melton or the EPA as appropriate).

Unavoidable works are works that cannot practicably meet the schedule requirements because the work involves continuous work — such as a concrete pours — or would otherwise pose an unacceptable risk to life or property, or risk a major traffic hazard. Affected premises should be notified of the intended work, its duration and times of occurrence. Approval must be sought from the Principal's Representative and notification made to the relevant authority (Wyndham City Council, Shire of Melton or the EPA).

Low-noise or managed-impact works are works approved by the Principal's Representative that are:

- inherently quiet or unobtrusive (for example, manual painting, internal fit-outs, cabling) or
- where the noise impacts are mitigated (for example, no impulsive noise and average noise levels over any half hour do not exceed the background) through actions specified in a noise management plan (construction procedure) and supported by expert acoustic assessment.

Low-noise or managed-impact works do not feature intrusive characteristics such as impulsive noise or tonal movement alarms.

All vehicular movements to and from the site are to only occur during the scheduled normal working hours or as otherwise specified in the Transport Management Plan or Environment Management Plan, unless these movements are associated with unavoidable night works.

4.3 Additional Controls for Unavoidable or Managed-impact Out-of-Hours Works

Additional controls (ie in addition to those provided in Section 4.2 above) are warranted where Unavoidable or Managed-impact works are undertaken in the evening or night periods. The mitigation measures outlined in Table 2 should be considered for inclusion in the RRLA Communications Plan.

Table 2 Additional mitigation measures matrix for airborne construction noise (ref: TIDC Construction Noise Strategy)

Time Period		Mitigation Measures			
		$L_{A10,15min}$ noise level above background (RBL) Qualitative assessment of noise levels			
		0 to 10 dBA Noticeable	10 to 20 dBA Clearly audible	20 to 30 dBA Moderately intrusive	> 30 dBA Highly intrusive
Out-of-hours (weekend/ evening)	Monday to Friday (1800 - 2200 hours) Saturday (1300 - 2200 hours) Sunday and Public Holiday (0700 - 1800 hours)	-	Letter box drop	Monitoring Letter box drop	Monitoring Individual briefing Letter box drop Respite offer Phone calls Specific notification
Out-of-hours (night)	Monday to Friday (2200 - 0700 hours) Saturday (2200 - 0800 hours) Sunday and Public Holiday (1800 - 0700 hours)	Letter box drop	Monitoring Letter box drop	Monitoring Individual briefing Letter box drop Phone calls Specific notification	Alternative accommodation Monitoring Individual briefing Letter box drop Phone calls Specific notification

Note: activities are for residents identified as affected by construction noise.

4.4 Noise and Vibration Monitoring

Environmental noise and vibration monitoring is required to be undertaken in the vicinity of noise and vibration sensitive residences at the beginning of each new stage of construction work (eg. excavation, concreting, laying ballast etc), and at any other time when disturbance is likely, such as work particularly close to residential properties (particularly in the Manor Lakes/Wyndham Vale and Tarneit areas), or using impulsive construction activities. Monitoring will be undertaken at locations representative of noise or vibration affected properties.

4.5 Community Consultation

Local residents shall be notified of the scope and extent of construction activities prior to their commencement in accordance with the RRL communications requirements of the Contractor. This will include an indication of how they are likely to be affected in terms of noise and vibration, and allow for feedback during the construction process.

Access to a translation service must be provided by the contractor, as required, for residents for whom English is not a first language in order to ensure effective communication with all residents.

It is required that construction noise and vibration impacts on buildings of importance (such as heritage listed buildings) be considered on a case-by-case basis with detailed engineering analysis being carried out if necessary. This analysis should include details of the building structure, such as general condition of the structure, list of defects, photographs, details of all major extensions, repairs and renovations. A crack exposure report should be prepared both pre and post exposure, and both internally and externally.

4.6 Construction Vibration

Groundborne vibration from general construction works is required to comply with a limit of 5 mm/sec (RMS) between 4–250 Hz at vibration sensitive receivers.

4.7 Blasting Noise and Vibration Mitigation

Blasting is likely to be required for RRL construction through Wyndham Vale, including the station, and some cuttings through isolated areas of the alignment.

Ground vibration and air-overpressure from blasting operations shall meet the requirements of Appendix J of AS2187.2[1] as follows in Table 3.

Table 3 Ground vibration and airblast over pressure limits, Source: AS2187.2 Tables J4.5(A) and J5.4(B)

Type of Blasting Operations	Peak Component Particle velocity limit (mm/s)	Peak Sound Pressure Level limit (dBL re 20μPa)
Operations lasting longer than 12 months or more than 20 blasts	5 mm/s for 95% of blasts 10 mm/s maximum unless higher limit agreed with occupier	115 dBL for 95% of blasts 120 dBL maximum unless higher limit agreed with occupier
Operations lasting for less than 12 months or less than 20 blasts	10 mm/s maximum unless higher limit agreed with occupier	120 dBL for 95% of blasts 125 dBL maximum unless higher limit agreed with occupier

All blast vibration and overpressure levels are required to be measured at representative locations (typically the nearest affected residences) and kept on permanent record, along with any blast observations from the shot-firer and any affected neighbours. Any actions resulting from complaints shall also be recorded. A pre-construction dilapidation survey of potentially affected buildings (including houses) and structures should be carried out prior to commencement of blasting.

1 AS 2187.2-2006 *Explosives - Storage, transport and use, Part 2 Use of explosives*, Standards Australia, 2006.