Greater Geelong Planning Scheme Amendments C444ggee and C453ggee

Planning Panels Victoria

Statement of Evidence – Acoustics

Tom Evans

Expert of Lara Farms Pty Ltd

Thursday, 2 April 2026

Resonate

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1 Introduction

1.1 Introduction

1.1.1 My name is Thomas Ross Evans. I am Managing Director of Resonate Consultants Pty Ltd (Resonate) at Level 16, 350 Queen Street, Melbourne Victoria 3000.

1.2 Qualifications and experience

1.2.1 I hold a Bachelor of Engineering with 1st Class Honours (Mechatronic) from the University of Adelaide and a Bachelor of Economics.

1.2.2 I have worked as a professional acoustic consultant for 20 years. Since commencing my career, I have gained significant experience in the measurement, prediction and assessment of environmental noise from industry, music venues and road traffic. I am a Member of the Australian Acoustical Society (MAAS).

1.2.3 Appendix A contains a statement detailing my qualifications and experience.

1.3 Expertise

1.3.1 My area of expertise is acoustics, including environmental noise.

1.3.2 I have sufficient expertise to make this statement because I have extensive experience in the field of environmental noise, having been involved in the assessment of noise emissions and managing them for residential developments in Victoria and other jurisdictions. My experience includes the measurement, prediction and assessment of industrial noise, rail traffic noise and road traffic noise.

1.3.3 Key projects are presented in my statement in Appendix A.

2 Scope

2.1 Background

2.1.1 Lara Farms Pty Ltd (**Lara Farms**) is the proponent in respect of Greater Geelong Planning Scheme Amendments C444ggee (**Residential Amendment**) and C453ggee (**Business Park Amendment**), together referred to the Amendments. The Amendments propose to facilitate the transition of land at 76-156 Canterbury Road East, 705-765 Princes Highway, 785-805 Princes Highway and 610 Rennie Street, Lara (the **Land**) for urban purposes, generally in accordance with the outcomes sought under various strategic planning documents including the *G21 Regional Growth Plan, City of Greater Geelong Settlement Strategy* and *Lara Structure Plan* respectively.

2.1.2 The Residential Amendment proposes:

- Rezoning the land from a Farming Zone (**FZ**) to General Residential Zone – Schedule 1 (**GRZ1**), with a relatively small section rezoned from FZ to Industrial 3 Zone (**IN3Z**).
- Inserting a new Development Plan Overlay – Schedule 48 – South East Lara Residential Growth Area (**DPO48**) to guide future land use and development outcomes.
- Applying an Environmental Audit Overlay (**EAO**) to ensure that potentially contaminated land is assessed and, where necessary, remediated prior to use or development that could pose a risk to human health or the environment.
- Updates to, and insertion of new, maps as required within the Greater Geelong Planning Scheme (the **Planning Scheme**).

2.1.3 The Business Park Amendment proposes:

- Rezoning the land from a Farming Zone (**FZ**) to Industrial 1 Zone (**IN1Z**) and IN3Z, with the IN3Z area acting as a buffer between the IN1Z and Residential Amendment.
- Applying the Design and Development Overlay – Schedule 55 **(DDO55**).
- Updates to maps as required within the Planning Scheme.

2.1.4 The Land is bound by the Princes Highway to the southeast and the V/Line rail corridor that serves Geelong to the northwest, both of which are sources of noise that could impact future noise sensitive development. The Residential Amendment application was informed by a report by Enfield Acoustics and titled *Lara Subdivision and Rezoning – Acoustic Report*, dated 24 January 2024 (**Acoustic Report**). The Acoustic Report considered the potential for road and rail traffic noise to impact on future residential development and provided recommendations for planning controls for future residential development to address this noise impact.

2.2 Instructions

2.2.1 I have been instructed by Norton Rose Fulbright, on behalf of Lara Farms, to prepare an expert witness statement and give expert evidence at the inquiry with respect to my opinion as to the appropriateness of the Amendments in relation to noise impacts.

2.2.2 A copy of my instructions is included as Appendix B.

2.2.3 This statement provides a summary of my expert opinion regarding managing noise, particularly reverse amenity risks, for the Amendment. It has been prepared in accordance with Planning Panels Victoria *Practice Note 1 – Expert evidence*.

2.3 Documents reviewed and considered

2.3.1 Information I have considered in the preparation of this statement is documented in Appendix C. Most notably, my statement considers:

- Acoustic Report prepared by Enfield Acoustics.
- The *Environment Protection Act 2017* (the EP Act), the *Environment Reference Standard* (ERS) and *Environment Protection Regulations 2021* (the EP Regulations).
- VicRoads *Requirements of Developers – Noise Sensitive Uses* (VicRoads Requirements of Developers).
- VicRoads *Traffic noise reduction policy 2005* (VicRoads Policy).
- Victorian *Passenger Rail Infrastructure Noise Policy* (the PRINP).
- EPA Publication 1826.5 *Noise limit and assessment protocol for the control of noise from commercial, industrial and trade premises and entertainment venues* (Noise Protocol).

2.4 Site visit

2.4.1 I undertook a site visit to the area to inspect the site and surrounds between 3 pm and 5:30 pm on Tuesday, 24 March 2026. During this time, I undertook short-term attended noise measurements

3 Site and proposal

3.1 Site description

3.1.1 The Amendment Land, current land zoning and other key features are shown in Figure 1.

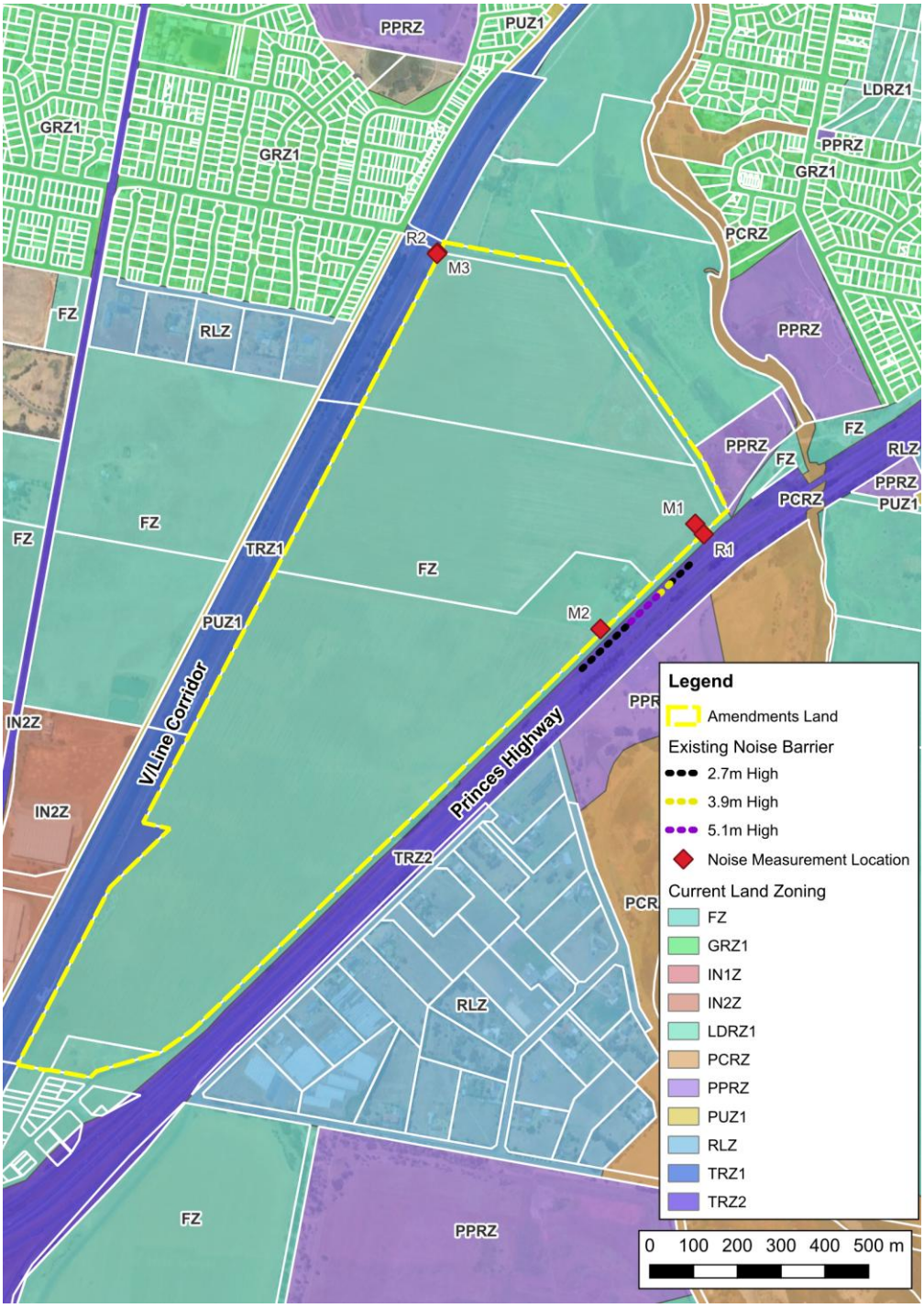

Figure 1 Land and Amendment areas

3.1.2 The Land is currently a FZ, and the Amendments propose to rezone it to GRZ1, IN3Z and IN1Z as shown in Figure 2 for the Residential Amendment and Figure 3 for the Business Park Amendment. As shown in Figure 2, the GRZ1 would be located in the northeast section of the Land, with the IN3Z (promoting lighter industrial use) shown on Figure 3 providing an intermediary buffer from the IN1Z (which can facilitate heavier industrial use) to the southeast.

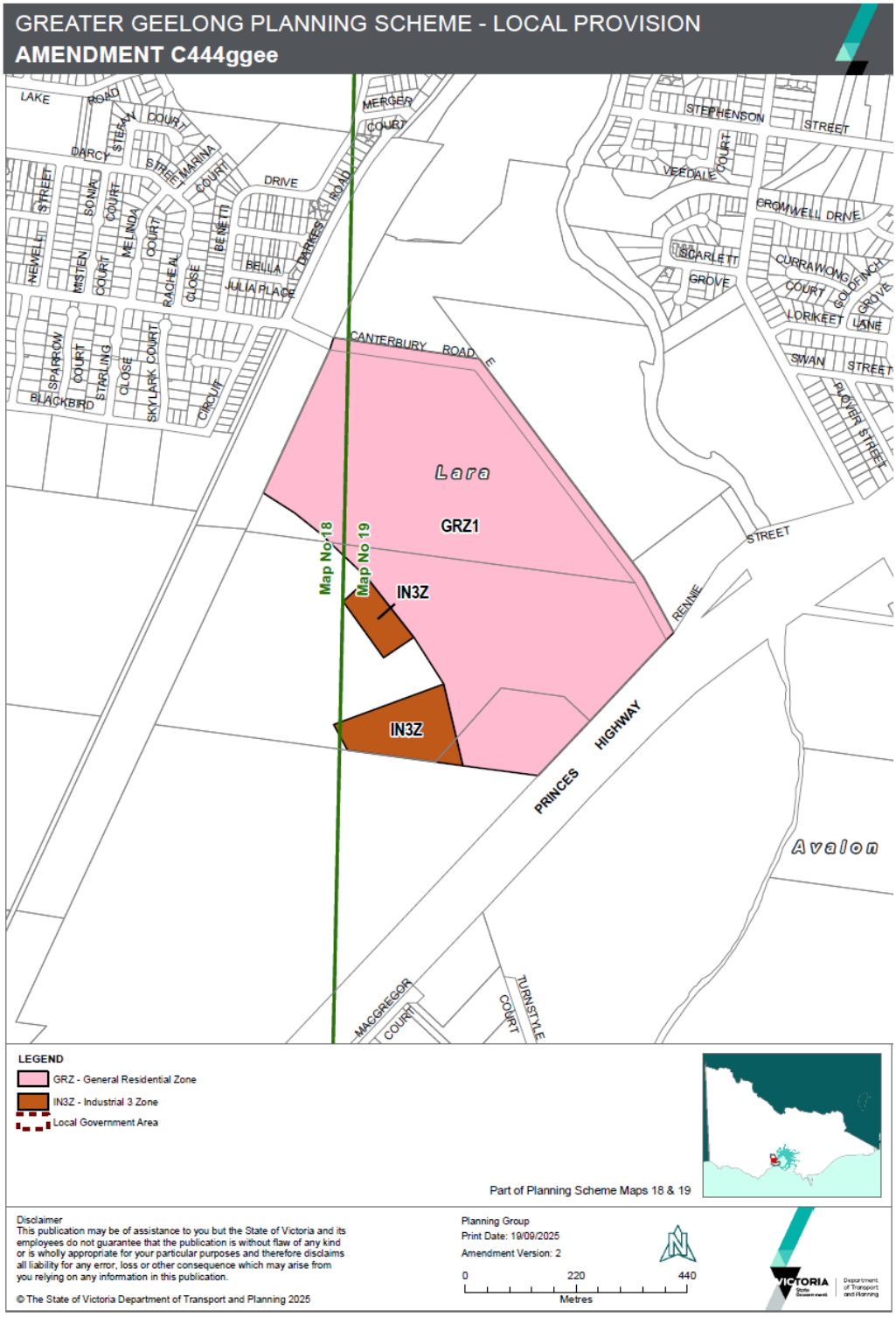

Figure 2 Residential Amendment proposed rezoning

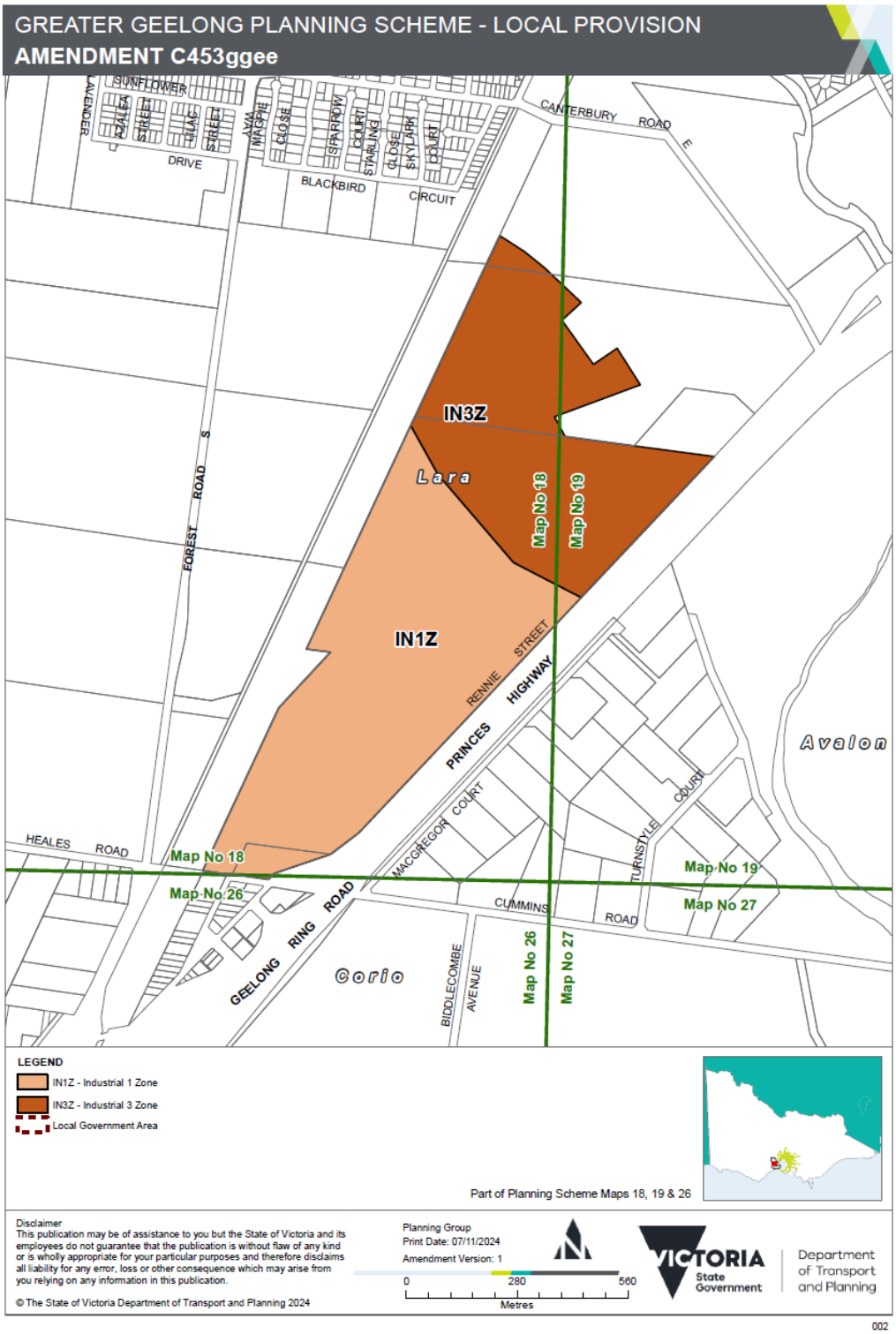

Figure 3 Business Park Amendment proposed rezoning

3.1.3 There is one existing residential land use within the Residential Amendment land, with an existing noise barrier being in place to partially shield this land use from the Princes Highway. The extent of the noise barrier is shown in Figure 1, with heights as reported in the Acoustic Report. Based on my inspection, the heights as reported in the Acoustic Report appear accurate and the existing noise barrier is a solid

structure with no apparent gaps along its length that would degrade its performance as an acoustic barrier. As it is not on the Land, I do not expect that development work on the Residential Amendment land would necessitate its removal.

3.2 Acoustic considerations

3.2.1 The primary acoustic considerations relating to the site relate to reverse amenity effects on the Residential Amendment land, with the proposed Residential amendment introducing the potential for new noise sensitive residential use adjacent to the Princes Highway and V/Line corridor. Residential development within the site should be designed and constructed to provide appropriate amenity for future occupants considering these noise sources.

3.2.2 The Business Park Amendment, and limited IN3Z section of the Residential Amendment, also requires consideration of new industrial noise sources that may be facilitated within the industrial zones.

3.2.3 Finally, rezoning of land from FZ to more intensive usage such as IN3Z and IN1Z can also have the potential to change industrial noise limits applicable at existing noise sensitive areas surrounding the Land, as the EP Regulations require that noise limits be set with reference to land zoning. Where this may expose an existing noise sensitive area to a greater permissible level of industrial noise, this impact should be considered.

3.3 Existing noise levels

Enfield Acoustics

3.3.1 Enfield Acoustics undertook noise measurements at three locations across the site as shown on Figure 1. The measurements were conducted in October 2021.

3.3.2 Road traffic noise measurements were conducted at locations closer to the Princes Highway being M1 and M2, with the measured road traffic noise levels shown in Table 1. M1 was not effectively shielded by the existing noise barrier, while M2 was located behind the noise barrier. I note Enfield Acoustics did not report noise levels as measured on the weekend days, such that the existing noise levels represent those measured on weekdays only. This is a conservative approach as road traffic noise will be higher on weekdays than on weekends.

3.3.3 For rail traffic noise, Enfield Acoustics undertook noise measurements at a location close to the V/Line corridor, marked as M3 on Figure 1. The measurements were also conducted in October 2021. From the measurements, Enfield Acoustics reported train pass-by noise levels of:

- Sound Exposure Level (SEL) of 86 dB L_{Aeq}. The SEL represents the energy averaged noise level of a train pass-by concentrated into a 1-second time period, such that it removes the variability of different train pass-by durations. It can be used, in conjunction with a passenger timetable, to determine the $L_{Aeq,16h}$ and $L_{Aeq,8h}$ noise levels.
- Maximum noise level of 98 dB L_{Amax} with a train horn and 83 dB L_{Amax} for a train pass-by without train horn. The maximum noise level represents the maximum instantaneous sound pressure level within a noise measurement period.

3.3.4 Considering the number of trains on the current timetable (as at the date of the report), the Acoustic Report calculated the following $L_{Aeq,16h}$ and $L_{Aeq,8h}$ rail noise levels at M3:

- 59 dB $L_{Aeq,16h}$ between 6 am and 10 pm based on 103 train pass-bys. For assessment against the PRINP, this would require a façade correction factor and would result in a noise level of 62 dB $L_{Aeq,16h}$.
- 53 dB $L_{Aeq,8h}$ between 10 pm and 6 am based on 13 train pass-bys. For assessment against the PRINP, this would require a façade correction factor and would result in a noise level of 56 dB $L_{Aeq,8h}$.

Table 1 Enfield Acoustics road traffic noise measurements

Date	Measured noise level at M1			Measured noise level at M2		
	dB $L_{A10,18h}$[1]	dB $L_{Aeq,16h}$[2]	dB $L_{Aeq,8h}$[3]	dB $L_{A10,18h}$[1]	dB $L_{Aeq,16h}$[2]	dB $L_{Aeq,8h}$[3]
Tuesday, 19/10/21	Incomplete	Incomplete	61	Incomplete	Incomplete	59
Wednesday, 20/10/21	67	65	60	65	63	56
Thursday, 21/10/21	65	63	58	62	60	57
Friday, 22/10/21	66	64	57	64	62	57
Saturday, 23/10/21	–	–	–	–	–	–
Sunday, 24/10/21	–	–	–	–	–	–
Monday, 25/10/21	67	65	59	65	64	57
Tuesday, 26/10/21	66	64	62	Incomplete	61	Incomplete
Average (free-field)	**66**	**64**	**60**	**64**	**62**	**57**
Average (façade-corrected)[4]	**69**	**–**	**–**	**67**	**–**	**–**

(1) Average of $L_{A10,1h}$ noise levels between 6 am and midnight.

(2) Energy-averaged L_{Aeq} noise level between 6 am and 10 pm.

(3) Energy-averaged L_{Aeq} noise level between 10 pm and 6 am.

(4) The measured free-field road traffic noise levels have a +2.5 dB façade-correction applied to them when assessing $L_{A10,18h}$ road traffic noise levels to represent the noise level that would be expected at 1 m from a residential building façade.

Supplementary monitoring

3.3.5 To assess the validity of the Enfield Acoustics measurements for the current time period, I undertook short-term attended monitoring during my site visit at locations R1 (similar to M1 but closer to the Princes Highway) and R2 (equivalent to M3) as shown on Figure 1.

3.3.6 At location R1, I measured 74 dB $L_{A10,1h}$. In comparison, the predicted noise level shown for the existing scenario at the measurement site based on the noise contours in Appendix A of the Acoustic Report was 71 dB $L_{A10,18h}$. Considering that my measurements were conducted during the afternoon peak hour (3:30 pm to 4:30 pm), I would expect my measured $L_{A10,1h}$ to be in the order of 3 dB higher than the corresponding $L_{A10,18h}$ noise level, which represents the average from 6 am to midnight. As such, I consider that my measurements of road traffic noise show good agreement with the predicted noise levels in the Acoustic Report.

3.3.7 At location R2, from six train pass-bys I measured:

- An average SEL of 84 dB.
- An L_{Amax} from a train horn of 97 dB L_{Amax} and 85 dB L_{Amax} for general (non-train horn) pass-by noise.

3.3.8 My measured rail noise levels show good agreement with those presented in the Acoustics Report, being within 2 dB, and I have adopted those in the Enfield Acoustics Report as they are marginally higher.

3.3.9 A review of the current timetable for the V/Line from Melbourne to Geelong on the Transport Victoria website indicates a total of 104 train pass-bys during the period from 6 am to 10 pm and 13 train pass-bys during the period from 10 pm to 6 am, such that there is negligible difference with the volumes adopted in the Acoustic Report. As such, my calculated L_{Aeq} train noise levels remain at 59 dB $L_{Aeq,16h}$ and 53 dB $L_{Aeq,8h}$ as per the Acoustic Report.

4 Applicable legislation, policy and guidelines

4.1 Overview

4.1.1 This section provides a brief overview of applicable legislation, policy and guidelines with respect to the Amendments.

4.2 Environment Protection Act 2017

4.2.1 Section 25(1) of the EP Act sets forth the General Environmental Duty (**GED**), which states:

> A person who is engaging in an activity that may give rise to risks of harm to human health or the environment from pollution or waste must minimise those risks, so far as reasonably practicable.

4.2.2 The GED applies both to noise generators (noise sources) but also to the developers of future noise sensitive land.

4.2.3 In assessing noise from noise generators, Environment Protection Authority Victoria (**EPA**) has released a range of subordinate legislation and guidelines to support the EP Act. Compliance with these subordinate legislation and guidelines would be expected to assist in meeting the GED.

4.2.4 For developers of new noise sensitive development, there are a range of Victorian policies and guidelines available that also provide guidance on acceptable noise levels at residential land uses constructed next to transportation noise sources that are relevant in considering how the GED may be achieved.

4.2.5 The EP Act also prohibits the emission of unreasonable noise and aggravated noise by noise sources. The EP Act provides a definition for 'Unreasonable noise' in two parts. Section 3(1)(a) states that noise that is unreasonable having regard to the following:

- its volume, intensity or duration
- its character
- the time, place and other circumstances in which it is emitted
- how often it is emitted
- any prescribed factor.

4.2.6 Section 3(1)(b) states that noise is unreasonable noise if it is prescribed to be so. Regulation 118 prescribes noise that exceeds the noise limits established for industrial noise to be unreasonable noise.

4.2.7 Unreasonable noise occurs if noise meets the requirements of Section 3(1)(a) and/or Section 3(1)(b) of the EP Act.

4.3 Environment Reference Standard

4.3.1 The ERS exists under the EP Act and specifies environment reference standards that reflect the environmental values that the Victorian community wants to achieve and maintain. An environment reference standard is not a compliance standard which a duty holder must achieve, but is intended to inform planning decisions. An environment reference standard may be taken into account by any decision maker, where it is helpful, to assist with making an environment protection decision.

4.3.2 Part 3 of the ERS documents environmental values of the ambient sound environment and indicators and objectives for the ambient sound environment that are intended to support these values. Table 2 presents the environmental values of the ambient sound environment and Table 3 presents the supporting indicators and objectives.

Table 2 Environmental values of the ambient sound environment

Environmental value	Description of environmental value
Sleep during the night	An ambient sound environment that supports minimal sleep disruption at night
Domestic or recreational activities	An ambient sound environment that supports recreational and domestic activities in a residential setting
Normal conversation	An ambient sound environment that allows for a normal conversation indoors without the need to raise voices
Child learning and development	An ambient sound environment that supports cognitive development and learning in children
Human tranquillity and enjoyment outdoors in natural areas	An ambient sound environment that allows for the appreciation and enjoyment of the environment for its natural condition and the restorative benefits of tranquil soundscapes in natural areas
Musical entertainment	An ambient sound environment that recognises the community's demand for a wide range of musical entertainment

Table 3 Indicators and objectives of the ambient sound environment

Land use category	Indicator	Objective
Category 1: An urban form with distinctive features or characteristics of taller buildings, high commercial and residential intensity and high site coverage. For example, Industrial Zone 1, Industrial Zone 2, Port Zone, Road 1 Zone, Capital City Zone and Docklands Zone.	Outdoor $L_{Aeq,8h}$	55 dB
	Outdoor $L_{Aeq,16h}$	60 dB
Category 2: Medium rise building form with a strong urban or commercial character. For example, Industrial Zone 3, Commercial Zones, Activity Centre Zone, Mixed Use Zone and Road Zone 2.	Outdoor $L_{Aeq,8h}$	50 dB
	Outdoor $L_{Aeq,16h}$	55 dB
Category 3: Lower rise building form including lower density residential development and detached housing, typical or suburban residential settings or in towns of district or regional significance. For example, Residential Growth Zone, General Residential Zone, Neighbourhood Residential Zone, Urban Floodway Zone, Public Park and Recreation Zone and Urban Growth Zone.	Outdoor $L_{Aeq,8h}$	40 dB
	Outdoor $L_{Aeq,16h}$	50 dB
Category 4: Lower density or sparse populations with settlements that include smaller hamlets, villages and small towns that are generally unsuited for further expansion. Land uses include primary industry and farming. For example, Low Density Residential Zone, Township Zone, Rural Living Zone, Green Wedge A Zone, Rural Conservation Zone, Public Conservation and Resource Zone, Green Wedge Zone, Farming Zone and Rural Activity Zone.	Outdoor $L_{Aeq,8h}$	35 dB
	Outdoor $L_{Aeq,16h}$	40 dB
Category 5: Unique combinations of landscape, biodiversity and geodiversity. These natural areas typically provide undisturbed species habitat.	Qualitative	A sound quality that is conducive to human tranquillity and enjoyment having regard to the ambient natural soundscape.

4.3.3 Should the Amendments be approved, the relevant ERS category for the GRZ1 would be Category 3, with associated ERS objectives of 50 dB $L_{Aeq,16h}$ between 6 am and 10 pm, and 40 dB $L_{Aeq,8h}$ between 10 pm and 6 am. The ERS objectives of the IN1Z and IN3Z would be higher, although no noise sensitive development would be expected in those areas.

4.3.4 The measurements conducted by Enfield Acoustics, and supported by my own measurements, show that the existing noise levels at the Land are above the Category 3 objectives in the region closest to the Princes Highway due to exposure to road traffic noise respectively. At the measurement sites closest to the Princes Highway, the noise levels are in the range of 62 to 64 dB $L_{Aeq,16h}$ and 57 to 60 dB $L_{Aeq,8h}$.

4.3.5 As noted by the Acoustic Report, ERS Category 3 objectives are regularly exceeded near major transport corridors. In my experience, the measured road traffic noise levels on the Land are not unusual in residentially zoned land adjacent to major roads. It would be impractical for new and/or existing residential land in these regions to seek to achieve the ERS objectives across the entire land due to the significant reduction in noise levels that would be required. Therefore, and consistent with the approach in the Acoustic Report, I have adopted the approach of:

- Considering the road and rail traffic noise levels in light of relevant guidelines applied in Victoria for residential development adjacent to major transport corridors, most notably the VicRoads Requirements of Developers (Section 4.4).
- Considering the potential for appropriate controls to be implemented such as placement of buildings to provide shielded outdoor areas and acoustic treatments to building facades to achieve appropriate internal amenity.
- Ensuring that the proposed controls in DPO48 align with the above.

4.4 VicRoads Requirements of Developers

4.4.1 The relevant guidance for assessing road traffic noise on new residential developments is taken from the VicRoads Requirements of Developers, which I understand to represent the Department of Transport and Planning's (DTP's) current approach to the control of road traffic noise where residential development is proposed adjacent to State-controlled highways such as the Princes Highway. This document establishes noise levels consistent with those applied under the VicRoads *Traffic noise reduction policy 2005*, which applies when a freeway is constructed or upgraded near existing residential land uses, but provides specific guidance for the development of new residential land uses near major existing roads.

4.4.2 The noise assessment criteria for multi-unit low level residential development (such as that which could be expected in the GRZ1) set out in the VicRoads Requirements of Developers are summarised below:

> Where it is a practical option to erect a noise barrier to protect a large number of buildings in a sub-division, then the developments should be subject to the following noise requirements:
>
> 1. No new allotment should be created such that there is insufficient space at the 75 dB(A) noise contour, to erect a house or other noise sensitive development, (that is, the area of the allotment at the 75 dB(A) contour or lesser noise level, must be of a sufficient size to build a dwelling).
>
> 2. The developer shall attenuate traffic noise from a Freeway to a level of 63 dB(A) or less, at the most exposed façade of the noise sensitive building.
>
> 3. The noise sensitive buildings adjacent to the Freeway should also be designed and constructed to protect internal noise sensitive areas. That is, the building layout should have the service areas (laundry, bathroom, garage, etc,) facing the freeway whilst the noise sensitive uses (bedrooms, living areas, etc,) are located away from the freeway side of the building. Furthermore, for the exposed façade, window and door openings should be of a minimum size.
>
> 4. Council should request the developer to provide a report by a qualified acoustic consultant outlining the necessary noise control measures to achieve the preferred actions outlined above.

5. The adopted noise attenuation requirements will be met for 10 years after finalization of the development or, where relevant, for each stage of the development.

6. The noise fence shall have a design life of not less than 50 years. After the installation of noise barriers erected to satisfy the requirement of (2) above, noise measurements shall be taken at several suitable locations that have been agreed to by all relevant parties. The results of the measurements will be distributed to these parties. It should be noted that the measurements should demonstrate that the noise barrier would perform as required in (6) above.

8. Should the performance of the barrier not comply with the objective, then the Council shall require the developer to modify the barrier to achieve the objective.

Where the developer decides, in consultation with VicRoads and Council that it is not desirable to erect high noise barriers then the following conditions should apply to the permits.

9. The noise sensitive buildings adjacent to the Freeway must be designed and constructed to meet the desirable acoustic standards set out in AS 2107-2000 “Acoustics – Recommended Design Sound Levels and Reverberation Times for Building Interiors”. It should be recognized that AS2107-2000 does not adequately consider peak noise levels. Due regard should also be given to the requirements set out in AS 3671-1989 “Acoustics – Road Traffic Noise Intrusion – Building Siting and Construction”.

10. The building layout requirements in part 3, above, will apply.

11. The developer must provide a fence that visually screens the traffic from the view at the lowest habitable level of the development. This screen would be expected to screen out vehicles that are up to 3.5 metres high.

12. Council should request the developer to provide a report by a qualified acoustic consultant outlining the necessary noise control measures to achieve the preferred actions outlined above.

13. After the development has been completed a survey of the internal noise levels should be undertaken within several suitable buildings to demonstrate that the internal noise levels have been achieved. The results of the measurements will be distributed to the relevant parties.

14. Should the internal noise levels not comply with the AS 2107-2000 objectives, then the Council should require the developer to undertake works rectifying the situation.

4.4.3 From the measurements referred to in Section 3.3, the existing road traffic noise levels across the proposed GRZ1:

- Exceed 63 dB $L_{A10,18h}$, with noise levels of up to 69 dB $L_{A10,18h}$ measured at M1.
- Do not exceed the upper maximum of 75 dB $L_{A10,18h}$ anywhere on the Land where an allotment may be constructed.

4.4.4 While the VicRoads Requirements of Developers are set on the basis of external noise levels, it also notes that, if agreed in consultation with DTP and the applicable Council, then an exceedance of the external noise criteria may be allowed for subject to appropriate treatment of the building façade to achieve internal noise levels. The Acoustic Report notes that consultation was held with DTP with respect to using a combination of building orientation, placement and façade design to achieve a combination of shielded outdoor areas and appropriate internal amenity and this approach is reflected in the proposed planning control in DPO48. As such, it is not necessary for the external noise criterion of 63 dB $L_{A10,18h}$ to be achieved across all areas of future residential land.

4.4.5 The VicRoads Requirements of Developments recommend that internal noise levels should be consistent with Australian Standard / New Zealand Standard (AS/NZS) 2107 *Acoustics - Recommended Design Sound Levels and Reverberation Times for Building Interiors*. It refers to the 2000 version of AS/NZS 2107, but this has since been superseded by the 2016 version, which I discuss further in Section 4.9.

4.5 PRINP

4.5.1 Noise associated with passenger rail vehicles providing passenger rail services is exempted from compliance with the EP Act and any subordinate instrument, including the ERS, through Section 251B of the *Transport (Compliance and Miscellaneous) Act 1983*. Instead, passenger rail noise from new or upgraded rail infrastructure projects is assessed using the PRINP.

4.5.2 The PRINP establishes investigation thresholds for operational noise from rail infrastructure projects, including for new residential developments near rail infrastructure projects where there is a change in land use. The investigation thresholds apply at noise sensitive uses such as residences, and other buildings where people sleep, as well as noise sensitive community buildings such as schools, kindergartens and libraries.

4.5.3 Table 4 presents the PRINP investigation thresholds for change in land use near an existing rail corridor which are relevant to the Residential Amendment

Table 4 PRINP Investigation thresholds for change in land use near an existing rail corridor

Project type	**Daytime noise level[1]**	**Night noise level[2]**	**Maximum noise level[3]**
Type of receiver	**dB $L_{Aeq,16h}$**	**dB $L_{Aeq,8h}$**	**dB L_{Amax}**
Residential dwellings and other buildings where people sleep including age persons homes hospitals motels in caravan parks	65 L_{Aeq}	60 L_{Aeq}	85 L_{Amax}

(1) Energy-averaged noise level considering all pass-bys over the daytime period from 6 am to 10 pm.

(2) Energy-averaged noise level considering all pass-bys over the night time period from 10 pm to 6 am.

(3) Maximum instantaneous noise level not exceeded by 95% of rail pass-bys for either the daytime or night-time period.

4.5.4 From the measurements referred to in Section 3.3, the existing rail traffic noise levels at the nearest part of the Residential Amendment to the rail corridor are:

- Below 65 dB $L_{Aeq,16h}$ and 60 dB $L_{Aeq,8h}$.
- Exceed 85 dB L_{Amax} from train horns.

4.5.5 Where the PRINP thresholds are exceeded, the PRINP notes that options to reduce or mitigate exposure to rail noise of noise sensitive uses could include building and architectural treatments such as:

- requiring developers to consider building orientation, placement on site and design of floor-plans
- use of building materials including double-glazing that can help reduce or mitigate internal noise in a building.

4.6 Environment Protection Regulations 2021

4.6.1 The EP Regulations are subordinate legislation that support the EP Act and are relevant to future noise sources that may be developed within the IN1Z and IN3Z. With respect to noise from commercial, industrial and trade premises, such as that which may be developed, the EP Regulations:

- establish noise limits
- establish what noise sources at the premises are subject to those noise limits.

4.6.2 Under the EP Regulations, the assessment of noise from commercial, industrial and trade premises must be carried out in accordance with the Noise Protocol, both in terms of establishing noise limits as noise sensitive areas and in terms of the measurement of noise from the subject premises.

4.6.3 The EP Regulations define unreasonable noise as noise that exceeds the applicable noise limits from the Noise Protocol.

4.7 Greater Geelong Planning Scheme

Clause 13.05-1S Noise Management

4.7.1 Clause 13.05-1S Noise Management of the Greater Geelong Planning Scheme has an objective to assist the management of noise effects on sensitive land uses and sets out the following strategy:

> Ensure that development is not prejudiced, and community amenity and human health is not adversely impacted by noise emissions.
>
> Minimise the impact on human health from noise exposure to occupants of sensitive land uses (residential use, child care centre, school, education centre, residential aged care centre or hospital) near the transport system and other noise emission sources through suitable building siting and design (including orientation and internal layout), urban design and land use separation techniques as appropriate to the land use functions and character of the area.

4.7.2 Clause 13.05-1S identifies the EP Act, the EP Regulations, Noise Protocol and the ERS as relevant considerations in meeting the objective.

Clause 58.04 Amenity Impacts

4.7.3 Clause 58.04 of the Planning Scheme is not directly relevant to future development on the GRZ1 as it relates to apartment developments. However, it does provide guidance on acceptable internal noise levels for residential development from road and rail traffic noise exposure and, therefore, I have considered it in terms of appropriate controls for future residential development on the Residential Amendment Land.

4.7.4 Clause 58.04 sets out that new buildings subject to the Clause within a noise influence area of road and/or rail should achieve internal noise levels of:

- Not greater than 35 dB $L_{Aeq,8h}$ for bedrooms.
- Not greater than 40 dB $L_{Aeq,16h}$ for living areas.

4.7.5 Noise influence areas are defined as:

- For road, within 300 m of the nearest trafficable lane of any freeway carrying at least 40,000 Annual Average Daily Traffic (AADT) volumes.
- For passenger railways, within 80 m from the centre of the nearest track.

4.8 Noise Protocol

4.8.1 EPA has prepared the Noise Protocol to specify methodologies for establishing noise limits for operational noise sources and for assessing noise levels against the noise limits. Compliance with the noise limits defined by the Noise Protocol is required by Regulations as noise that exceeds the noise limits is prescribed to be unreasonable noise.

4.8.2 The Noise Protocol defines different procedures for establishing noise limits depending on the type of noise source. The noise limits vary with time of day, land zoning and background noise, as well as whether a noise sensitive area is in an urban area (denoted as Major Urban Area) or rural area.

4.9 Internal amenity

4.9.1 There is no formal legislation or policy requirement for road traffic noise control at new noise sensitive areas in the Residential Amendment land. However, guidance is given by the VicRoads Requirements of Developers, Greater Geelong Planning Scheme and previous experience that I have referred to below.

AS/NZS 2107:2016

4.9.2 The VicRoads Requirements of Developers refers to AS/NZS 2107:2000 for defining acceptable internal noise levels, which has been superseded by Australian / New Zealand Standard 2107:2016 *Acoustics – Recommended design sound levels and reverberation times for building interiors* (AS / NZS 2107:2016). For residential development near major roads, AS/NZS 2107:2016 sets out an internal noise criterion of 35 to 45 dB L_{Aeq} for living rooms during the day and 35 to 40 dB L_{Aeq} for sleeping areas during the night.

4.9.3 I note that AS/NZS 2107:2016 does not specific a time period over which these L_{Aeq} noise levels are determined. Consistent with the approach taken in Clause 58.04 of the Planning Scheme, I consider it appropriate to apply a 16 hour day time and 8 hour night time period for the assessment at the Land (6 am to 10 pm for day and 10 pm to 6 am for night).

4.9.4 AS/NZS 2107:2016 specifies a range of noise levels and does not specify a time period over which the L_{Aeq} noise levels are determined. Consistent with the approach taken in Clause 58.04 of the Planning Scheme, I have adopted the following noise criteria which represent the mid-range for living areas and lower range for sleeping areas:

- 35 dB $L_{Aeq,8h}$ for bedrooms assessed from 10 pm to 6 am.
- 40 dB $L_{Aeq,16h}$ for living areas assessed from 6 am to 10 pm.

While Clause 58.04 is not relevant to future dwellings on the Land, the adoption of these noise criteria and time periods offers consistency with similar standards in the Greater Geelong Planning Scheme.

Maximum noise events

4.9.5 For rail noise, the L_{Aeq} noise levels at the Land comply with the PRINP investigation thresholds externally such that significant building construction measures to achieve appropriate internal L_{Aeq} noise levels are unlikely to be required. However, the L_{Amax} noise levels exceed the PRINP investigation thresholds at the closest areas to the V/Line rail corridor. L_{Amax} noise levels are relevant for consideration of potential sleep disturbance and therefore warrant additional consideration.

4.9.6 The typical approach to assessing the risk of sleep disturbance in Victoria and in VCAT matters is with reference to the approach set out in the New South Wales Environment Protection Authority (NSW EPA) *Road Noise Policy* (RNP). The RNP documents a review into sleep disturbance and concludes that:

- Internal noise levels below 50 to 55 dB L_{Amax} are unlikely to cause awakening reactions within bedrooms.
- Maximum internal noise levels of 65 to 70 dB L_{Amax} within bedrooms for one or two events per night are not likely to affect health and wellbeing significantly.

4.9.7 The L_{Amax} level represents the maximum instantaneous sound pressure level from a source, such that it captures the highest noise event arising from events including heavy vehicle pass-bys.

4.9.8 Considering the above, I have recommended an internal assessment criterion of 55 dB L_{Amax}. I note that is lower than the 65 dB L_{Amax} internal criterion recommended in the Acoustic Report, which I understand was recommended as such on the basis of other land covenants applied to residential subdivisions also adopted an internal 65 dB L_{Amax} criterion. However, I consider it to be better aligned with the typical approach taken to sleep disturbance assessments in Victoria.

4.10 Summary of noise assessment criteria

4.10.1 Table 5 provides a summary of the noise assessment criteria and approach for different elements relevant to the Amendments.

Table 5 Summary of noise assessment criteria and approach

Noise source	Noise receiver	Noise assessment criteria and approach
Road traffic noise from Princes Highway	Future residential land uses in the Residential Amendment area	Design new noise-sensitive development in areas where road traffic noise level exceeds 63 dB $L_{A10,18h}$ to: • Use building layout and orientation to provide shielded outdoor areas and minimise exposure to road traffic noise. • Achieve internal noise criteria of 40 dB $L_{Aeq,16h}$ within living areas. • Achieve internal noise criteria of 35 dB $L_{Aeq,8h}$ within sleeping areas.
Rail noise from V/Line corridor	Future residential land uses in the Residential Amendment area	Design new noise-sensitive development to: • Use building layout and orientation to provide shielded outdoor areas and minimise exposure to rail noise. • Achieve internal noise criteria of 40 dB $L_{Aeq,16h}$ within living areas. • Achieve internal noise criteria of 35 dB $L_{Aeq,8h}$ and 55 dB L_{Amax} within sleeping areas
Future industrial noise sources in the Business Park Amendment area	Future residential land uses in the Residential Amendment area & Existing residential land uses around the boundary of the Land	Future industrial noise sources must comply with the EP Act and EP Regulations, including prescribed noise limits set using the Noise Protocol.

5 Road traffic noise

5.1 Road traffic noise levels

5.1.1 The Acoustic Report presents predicted road traffic noise levels across the Land based on forecast 2039 traffic volumes as shown out to the 63 dB $L_{A10,18h}$ road traffic noise contour in Figure 4. The road traffic noise predictions were calibrated against the measured road traffic noise levels by Enfield Acoustics and, as set out in Section 3.3, my own measurements concluded that the road traffic noise measurements and predictions were sufficiently accurate. The use of a timeframe out to 2039 is also conservative as most assessments against the VicRoads Requirements of Developers guideline are typically undertaken on the basis of only 10 years of future traffic growth.

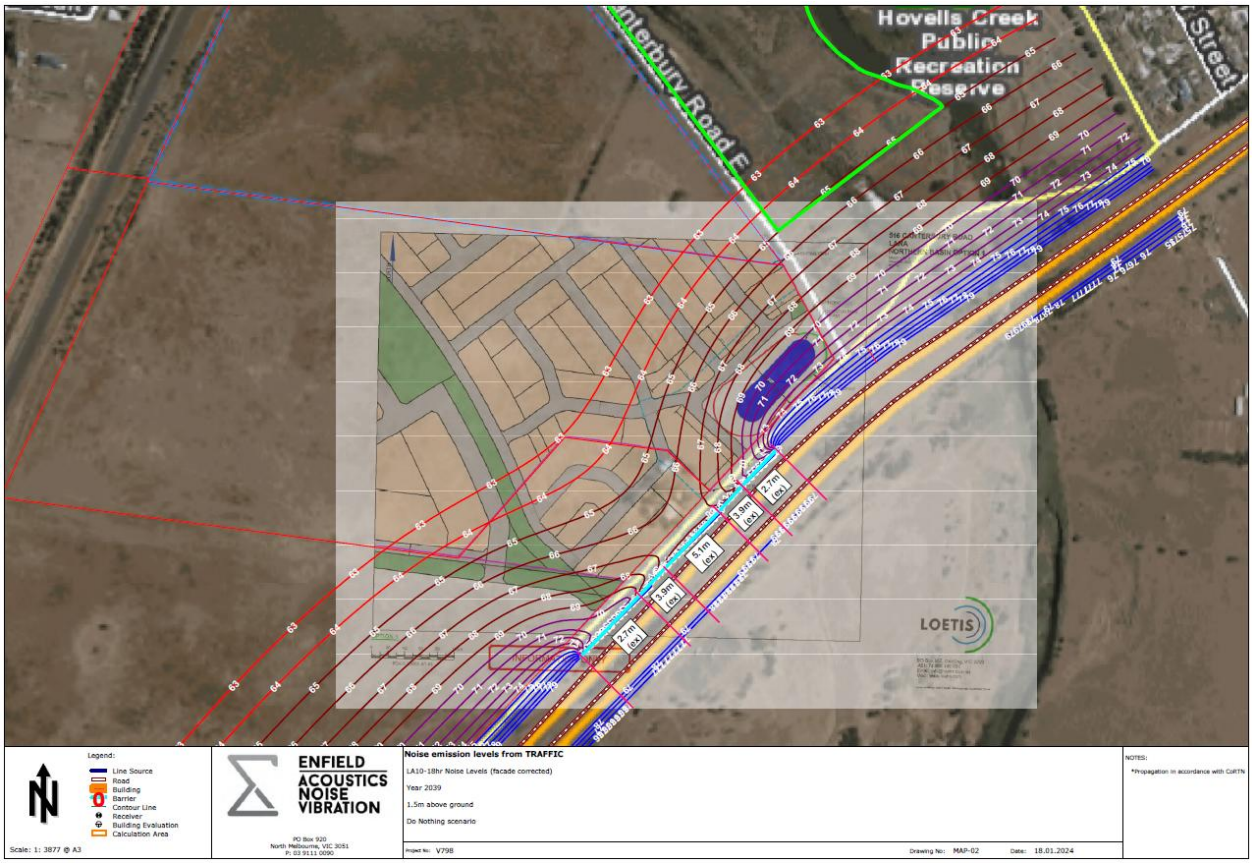

Figure 4 Predicted 2039 road traffic noise contours

5.1.2 Based on Figure 4, the 63 dB $L_{A10.18h}$ noise contour extends to approximately 250 m from the nearest trafficable lane of the Princes Highway at the northeast section of the land where there is no effective shielding from the existing noise barrier. Behind the noise barrier, the contour extends to approximately 220 m from the nearest trafficable lane. These distances are less than the 300 m recommended for apartment developments in similar situations by Clause 58.04 as per Paragraph 4.7.5.

5.1.3 I note that the actual extent of the 63 dB $L_{A10,18h}$ noise contour would likely be lower once development commences on the Residential Amendment Land, as intervening structures would provide shielding. However, any proposed residential development within the 63 dB contour should be required to consider road traffic noise mitigation due to the potential for road traffic noise levels above those set out in the VicRoads Requirements of Developers and the uncertainty regarding the timing of development in different areas of the Residential Amendment Land.

5.2 Road traffic noise mitigation

5.2.1 Road traffic noise mitigation to reduce noise at residential receivers within the predicted 63 dB noise contour should include a combination of:

- Orientation of buildings to position bedrooms facing away from the Princes Highway.
- The use of the building structure and/or localised shielding (e.g. fences) to provide shielded outdoor areas. Considering the predicted noise levels of up to 73 dB $L_{A10,18h}$ from the Acoustic Report, I would expect that outdoor areas shielded by building structures would have areas where the 63 dB noise criterion could be achieved due to the potential for solid structures (such as buildings) to provide 10 dB of shielding in the area immediately behind the structure.
- Architectural treatments to buildings to achieve appropriate internal noise levels of 40 dB $L_{Aeq,16h}$ within living areas and 35 dB $L_{Aeq,8h}$ within sleeping areas. Noting predicted noise levels of up to 73 dB $L_{A10,18h}$, I would expect that such treatments could comprise standard acoustic constructions of:
  - Upgraded single glazing (nominally 10 mm thick) or double glazing for windows and/or sliding doors to sensitive areas.
  - Solid core external doors to sensitive areas.
  - Acoustic seals to doors and windows to sensitive areas.
  - Alternative fresh air ventilation paths to allow occupants to keep windows closed for noise control in affected sensitive areas.

5.2.2 I note that the above recommendations are incorporated into DPO48 as discussed in Section 8.

6 Rail noise

6.1 Rail noise levels

6.1.1 As set out in Section 3.3, the measured rail noise levels are below the PRINP L_{Aeq} investigation thresholds of 65 dB $L_{Aeq,16h}$ and 60 dB $L_{Aeq,8h}$, being 62 dB and 56 dB respectively at the nearest Land boundary to the V/Line corridor. As such, no specific mitigation of L_{Aeq} noise levels would be required by PRINP.

6.1.2 The measured L_{Amax} noise level is above 85 dB L_{Amax}, being up to 98 dB. As such, mitigation of maximum noise events should be considered for residential development in close proximity to the V/Line corridor.

6.1.3 Considering the measured noise levels of 98 dB L_{Amax} and the attenuation of noise with distance, I expect that the PRINP threshold of 85 dB L_{Amax} may be exceeded for distances of up to 180 m from the centreline of the nearest V/Line corridor track. As discussed for road traffic noise in Paragraph 5.1.3, the actual distance at which L_{Amax} noise levels may exceed 85 dB may be lower once development commences on the Residential Amendment Land, as intervening structures could provide shielding. However, the height of the dominant noise source (being the train horn) may limit the effectiveness of shielding from intervening buildings. As such, any proposed residential development within this distance should be required to consider rail noise mitigation due to the potential for rail noise levels above those set out in PRINP and the uncertainty regarding the timing of development in different areas of the Residential Amendment Land.

6.2 Rail noise mitigation

6.2.1 Rail traffic noise mitigation to reduce noise at sleeping areas of residential receivers where the predicted 85 dB L_{Amax} threshold may be exceeded should include a combination of:

- Orientation of buildings to position bedrooms facing away from the V/Line corridor.
- Architectural treatments to buildings to achieve appropriate internal noise levels of 40 dB $L_{Aeq,16h}$ within living areas, and 35 dB $L_{Aeq,8h}$ and 55 dB L_{Amax} within sleeping areas. I would expect that such treatments could comprise standard acoustic constructions of:
  - Upgraded single glazing (nominally 10 mm thick) or double glazing for windows and/or sliding doors to sensitive areas.
  - Solid core external doors to sensitive areas.
  - Acoustic seals to doors and windows to sensitive areas.
  - Alternative fresh air ventilation paths to allow occupants to keep windows closed for noise control in affected sensitive areas.

6.2.2 I have made recommendations for the incorporation of the above into DPO48 as per Section 8.

7 Industrial noise

7.1 New industrial uses

7.1.1 New industrial uses developed in the new IN3Z or IN1Z land would be required to be designed and operated to produce noise emissions no higher than the prescribed noise limits under the EP Regulations and Noise Protocol. These noise limits apply to the cumulative noise emissions from all noise sources within the Land such that there would be requirements on new development to manage and control noise including consideration of cumulative noise.

7.1.2 For industrial noise impacting on new noise sensitive development within the GRZ1, the processes set out in the EP Regulations and Noise Protocol are appropriate and would result in industrial noise levels no higher than other residential land uses elsewhere within Victoria in my experience. The proposed amendments assist in reducing the risk of high levels of industrial noise by including the IN3Z as a buffer between the GRZ1 and IN1Z that acts to separate the GRZ1 noise sensitive areas from more noise-intensive uses that could occur within the IN1Z. This buffer also helps reduce the risk of industrial noise for new noise sensitive uses within the GRZ1.

7.1.3 Considering the above, I do not consider that there is the need for any specific planning controls for industrial noise emissions as part of the Business Park Amendment, as the controls already within the Planning Scheme (Clause 13.05-1S) and the EP Regulations are sufficient.

7.2 Effect of new land zoning on existing residences

7.2.1 As noise limits in Victoria are set with consideration of land zoning, the change in land zoning on the Land may change noise limits for existing noise sensitive areas around the Land. This includes residences at Blackbird Circuit and MacGregor Court as shown in Figure 4.

7.2.2 For residences on MacGregor Court in a Rural Living Zone (RLZ), the effect of the rezoning of FZ to IN1Z in the Land across from the Princes Highway would increase the noise limits determined based on the Noise Protocol. These residences are located outside of the Major Urban Area, as defined by EPA and as shown in Figure 4, and therefore noise limits are set with consideration of:

- land zoning (the Zone Level)
- time of day
- background noise in background-relevant areas, including high road traffic noise levels.

7.2.3 The change from FZ to IN1Z would result in changes in the Zone Level for most noise sources at MacGregor Court residences from:

- Day (7 am to 6 pm Monday to Saturday): 45 dB $L_{Aeq,30min}$ to 50 dB $L_{Aeq,30min}$
- Evening (6 pm to 10 pm Monday to Saturday, 7 am to 10 pm Sundays and Public Holidays): 38 dB $L_{Aeq,30min}$ to 45 dB $L_{Aeq,30min}$
- Night (10 pm to 7 am any day): 33 dB $L_{Aeq,30min}$ to 40 dB $L_{Aeq,30min}$

7.2.4 However, the noise limit at the MacGregor Court residences would also need to consider the high road traffic noise levels from the Princes Highway which would result in it being designated a background-relevant area and noise limits would be set with consideration of the high traffic noise method. Based on the measured noise levels at the Land, this would result in noise levels of no lower than 55 dB $L_{Aeq,30min}$ for Day, 50 dB $L_{Aeq,30min}$ for Evening and 45 dB $L_{Aeq,30min}$ for Night with or without the Amendments occurring. As such, the Amendments would not result in any change in applicable industrial noise limits at the MacGregor Court residences and would not lessen their protection against industrial noise through the EP Regulations and Noise Protocol.

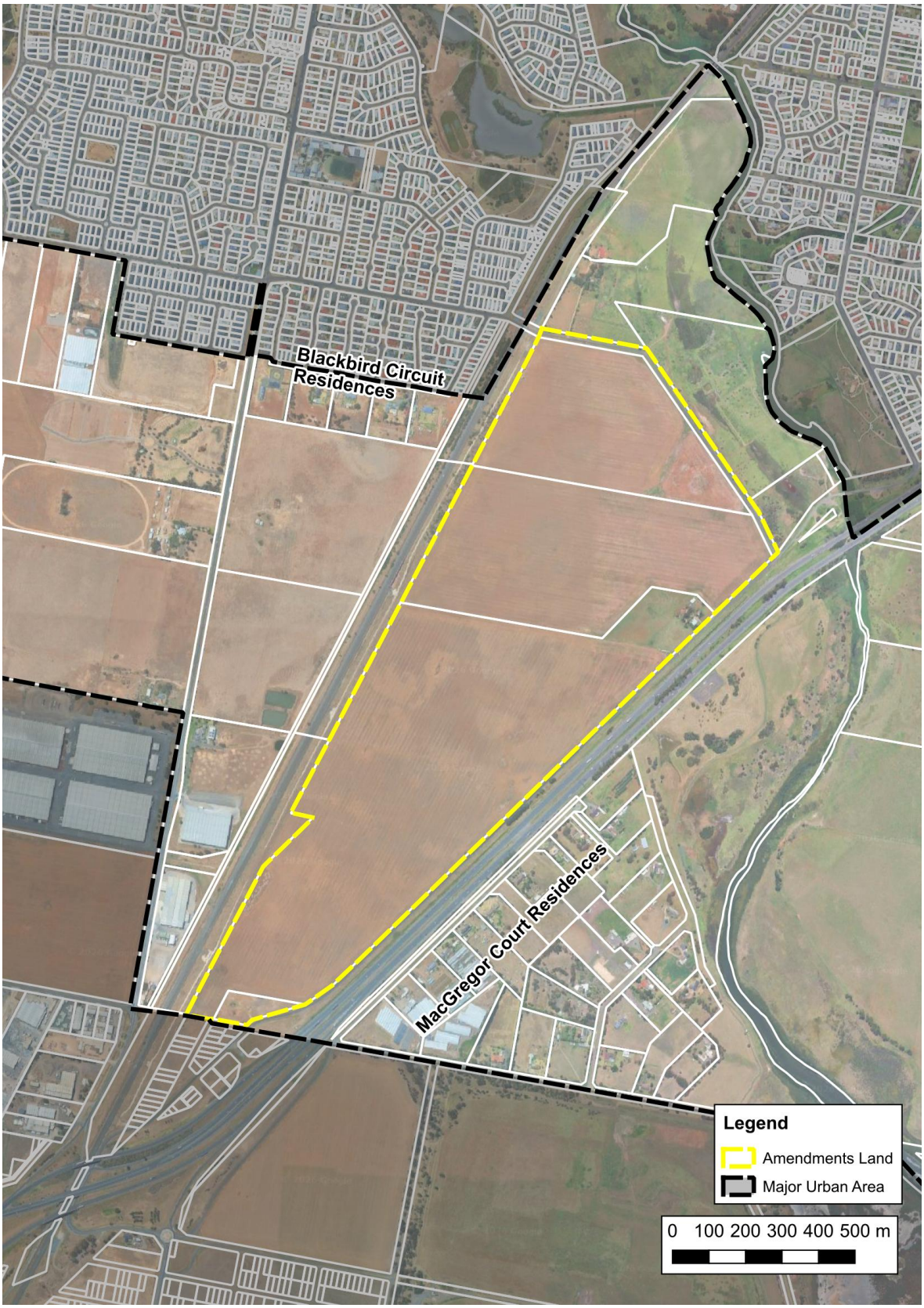

Figure 5 EPA defined Major Urban Area in relation to Land

7.2.5 For residences on Blackbird Circuit, there are residences both in a RLZ (located south of the Major Urban Area boundary) and residences in a GRZ1 (located north of the Major Urban Area boundary) as shown in Figure 4.

7.2.6 For the Blackbird Circuit residences to the south of the Major Urban Area boundary, these are closest to the IN3Z. The change from FZ to IN3Z as part of the Amendments would result in changes in the Zone Level for most noise sources at MacGregor Court residences from:

- Day (7 am to 6 pm Monday to Saturday): 45 dB $L_{Aeq,30min}$ to 46 dB $L_{Aeq,30min}$
- Evening (6 pm to 10 pm Monday to Saturday, 7 am to 10 pm Sundays and Public Holidays): 38 dB $L_{Aeq,30min}$ to 41 dB $L_{Aeq,30min}$
- Night (10 pm to 7 am any day): 33 dB $L_{Aeq,30min}$ to 36 dB $L_{Aeq,30min}$

7.2.7 Considering the above, the noise limits at these Blackbird Circuit residences could increase by 1 to 3 dB, although this would depend on the background noise level at the residences and the increase could be negligible if higher background noise levels were to prevail. Regardless, I do not consider that the minor increase in effective noise limit of 1 to 3 dB at these residences to be significant, noting that changes in noise level of 3 dB are typically only just perceptible to individuals.

7.2.8 For the Blackbird Circuit residences within the Major Urban Area boundary, noise limits are set with consideration of land zoning within both 70 m and 200 m circles of the noise sensitive area. The Noise Protocol categorises different land zones by type, with Type 3 zones resulting in higher noise limits than Type 2 zones. Type 1 zones result in the lowest noise limits. In general, the Amendments result in a reduction in the noise limits for these residences as the FZ (Type 2) within 200 m would predominantly be rezoned into a GRZ1 (Type 1). As such, I expect that lower noise limits could apply for industrial noise at these residences with the Amendments in place.

7.2.9 In summary, I do not consider that there is the need for any specific planning controls to address the minor effect of changes in noise limits at existing residences as part of the Amendments. The controls already within the Planning Scheme (Clause 13.05-1S) and the EP Regulations are sufficient.

8 Proposed Planning Scheme controls

8.1 DPO48

8.1.1 The recommendations in the Acoustic Report are intended to be given effect by controls within Schedule 48 to Clause 43.04 Development Plan Overlay (DPO48), which applies to the GRZ1 as part of the Residential Amendment.

8.1.2 DPO48 sets out the following requirement for any development plan in relation to noise emissions:

> A **Traffic and Rail Noise Impact Assessment** prepared by a suitably qualified acoustic engineer or other suitably qualified person to the satisfaction of the Responsible Authority, which:
>
> - Applies the following noise objectives:
> - 35 dB LAeq,8h when measured within a sleeping area between 10 pm and 6 am.
> - 40 dB LAeq,16h when measured within a living area between 6 am and 10 pm.
> - Assesses noise levels:
> - considering the cumulative noise impacting on the proposal including rail noise, road traffic noise.
> - in unfurnished rooms with a finished floor and the windows closed and be based on average external noise levels measured as part of a noise level assessment.
> - For areas other than sleeping and living areas, adopts the median value of the range of recommended design sound levels of Australian Standard AS/NZ 2107:2016 (Acoustics – Recommended design sound level and reverberation times for building interiors).
> - Includes recommendations for any noise attenuation measures required to meet the applicable noise level objectives, based on the following hierarchy that prioritises measures that benefit both outdoor and indoor areas of sensitive land uses:
> - noise barriers, preferably as close as practicable to the noise source(s), and then;
> - noise compatible design for buildings, with siting, orientation and internal layout, to be considered prior to setting building envelope performance requirements.
> - Specifies appropriate noise attenuation measures that can be included within Memorandum of Common Provisions;
> - Identifies which areas of the Site (or which lots) require noise attenuation measures to be implemented within the Memorandum of Common Provisions.

8.2 Commentary and recommendations

8.2.1 I make the following commentary and recommendations with respect to the proposed Planning Scheme controls, as shown in Table 6.

Resonate

Table 6 Commentary on acoustic report requirements

DPO48 requirement	Commentary and recommendation
Where a Traffic & Rail Noise Impact Assessment approved as part of the South East Lara Residential Growth Area Development Plan recommends any noise attenuation measures, permit conditions must give effect to the recommendations of the acoustic assessment unless a restriction on title of the relevant plan of residential subdivision is able to give effect to the recommendations of the acoustic assessment report.	No comment. While I agree that any acoustic report should specify measures, it is outside my area of expertise to advise on the appropriate mechanism by which to ensure that noise attenuation measures are incorporated.
Where noise attenuation measures are recommended in the approved Traffic & Rail Noise Impact Assessment, the permit must include a condition requiring verification by a qualified acoustic consultant that the constructed development complies with those recommendations	I agree with this requirement.
A **Traffic and Rail Noise Impact Assessment** prepared by a suitably qualified acoustic engineer or other suitably qualified person to the satisfaction of the Responsible Authority, which:	The control applies broadly such that any development plan would need to consider both rail and road noise. However, the Residential Amendment Land is generally only affected by road or rail noise, and not both. As such, I consider that this requirement could be separated into: • A requirement for a Traffic Noise Impact Assessment within 250 m of the nearest trafficable lane of the Princes Highway. • A requirement for a Rail Noise Impact Assessment within 180 m of the centre of the nearest V/Line track.
Applies the following noise objectives: – 35 dB LAeq,8h when measured within a sleeping area between 10 pm and 6 am. – 40 dB LAeq,16h when measured within a living area between 6 am and 10 pm.	While the L_{Aeq} noise criteria are appropriate, DPO48 does not consider maximum noise events for rail noise. As such, I recommend that the following be added to the DPO48 requirement in this bullet point: *– 55 dB LAmax when measured within a sleeping area between 10 pm and 6 am.*
For areas other than sleeping and living areas, adopts the median value of the range of recommended design sound levels of Australian Standard AS/NZ 2107:2016 (*Acoustics – Recommended design sound level and reverberation times for building interiors*).	This requirement goes beyond that typically required for new residential development in Victoria. As such, I recommend that it be removed as it could cover a broad range of uses not typically considered noise-sensitive.

DPO48 requirement	Commentary and recommendation
Includes recommendations for any noise attenuation measures required to meet the applicable noise level objectives, based on the following hierarchy that prioritises measures that benefit both outdoor and indoor areas of sensitive land uses: – noise barriers, preferably as close as practicable to the noise source(s), and then; – noise compatible design for buildings, with siting, orientation and internal layout, to be considered prior to setting building envelope performance requirements.	I agree with this requirement.
Specifies appropriate noise attenuation measures that can be included within Memorandum of Common Provisions;	No comment. While I agree that any acoustic report should specify measures, it is outside my area of expertise to advise on the appropriate mechanism by which to ensure that noise attenuation measures are incorporated.
Identifies which areas of the Site (or which lots) require noise attenuation measures to be implemented within the Memorandum of Common Provisions.	No comment. While I agree that any acoustic report should specify which areas of the Land measures should be applied on, it is outside my area of expertise to advise on the appropriate mechanism by which to ensure that noise attenuation measures are incorporated.

9 Response to submissions

9.1 Overview

9.1.1 I have reviewed the submissions received on the Amendments where relevant to my area of expertise in acoustics. I set out my responses below.

9.2 DTP submission

9.2.1 Table 7 sets out my response to relevant parts of the DTP submission on the Residential Amendment.

Table 7 Response to DTP submission

DTP commentary or proposed modification to DPO48	Response
The Head, TfV requests further information on how the noise objectives proposed in the schedule to DPO48 have been arrived at.	Section 4 of my statement sets out the applicable legislation, policy and guidelines. Specifically, Sections 4.4, 4.5 and 4.9 set out how my recommended noise objectives have been arrived at. I note that my recommendations include the addition of an L_{Amax} objective to DPO48 for rail noise.
The use of a Memorandum of Common Provisions as the instrument for applying the noise attenuation measures is not supported. A review of other Development Plan Overlays in the Greater Geelong Planning Scheme indicates that a Section 173 Agreement is the standard instrument for applying noise attenuation measures.	No comment. It is outside my area of expertise to advise on the appropriate mechanism by which to ensure that noise attenuation measures are incorporated.
Addition of the following underlined text to DPO48: A **Traffic and Rail Noise Impact Assessment** prepared by a suitably qualified acoustic engineer or other suitably qualified person to the satisfaction of the Responsible Authority and the Head, Transport for Victoria, which:	I consider it appropriate that DTP be consulted regarding any such acoustic assessment.
DTP proposed modifications to the DPO48 control for a noise assessment, to include a Section 173 agreement for implementation rather than a Memorandum of Common Provisions.	No comment. It is outside my area of expertise to advise on the appropriate mechanism by which to ensure that noise attenuation measures are incorporated.

9.3 Individual submissions

9.3.1 Table 8 sets out my response to relevant parts of individual submissions.

Table 8 Response to individual submissions

Amendment	Submission number(s)	Submission content	Response
Residential Amendment	16	Concern around increased noise from cars on roads due to development of new residential land.	While there would be increased traffic from residential areas in the GRZ1, this is not normally significant for GRZ1 areas in my experience. Furthermore, in the context of this Land, the existing noise level is already significantly affected by road traffic noise from the Princes Highway and rail noise from the V/Line. I do not expect that any change arising from relatively low levels of traffic in GRZ1 would result in a noticed increase in noise level for surrounding areas considering the high levels of transport noise already present from these major transport corridors.
Business Park Amendment	2, 11, 12	General concerns around industrial noise	As set out in Section 7, I consider that the controls existing in the Planning Scheme, EP Regulations and Noise Protocol are sufficient to ensure effective control of future industrial noise. Future industrial use would be required to cumulatively comply with prescribed noise limits at new and existing residential areas.

10 Summary and declaration

10.1 Summary of opinion

10.1.1 Having considered the proposed Amendments, I am of the opinion that future residential development within the Residential Amendment Land can appropriately address the risk of transport noise from the Princes Highway and V/Line Corridor with appropriate planning controls. Furthermore, future industrial noise from development in the Business Park Amendment can be controlled in accordance with the existing controls that apply under the Planning Scheme and EP Regulations.

10.1.2 I have recommended some modifications to the proposed controls in DPO48 in order to:

- Address maximum noise events from rail traffic noise.
- Better specify the areas for which road and/or rail noise are relevant for future residential development.

10.2 Declaration

10.2.1 I have made all the inquiries that I believe are desirable and appropriate and no matters of significance which I regard as relevant have to my knowledge been withheld from the Panel.

Tom Evans
2 April 2026

Appendix A—Qualifications & experience

Qualifications

Bachelor of Engineering (Mechatronic) – 1st Class honours, 2006
Bachelor of Economics, 2005

Professional associations

MAAS – Member of the Australian Acoustical Society
Member of the Victorian Planning and Environmental Law Association

Employment history

June 2019 – ongoing	Director, Resonate Consultants, Melbourne
April 2018 – May 2019	Managing Director, Resonate Consultants, Melbourne
July 2012 – April 2018	Associate Director, Resonate Consultants, Melbourne / Adelaide
January 2012 – July 2012	Senior Acoustic Engineer, AECOM, Adelaide
November 2006 – December 2011	Acoustic Engineer, AECOM (previously Bassett Acoustics), Adelaide
November 2005 – November 2006	Vacation / Part-Time Employment in Acoustics, Bassett Acoustics, Adelaide

Professional experience

Since commencing my career as a professional acoustic consultant, I have gained significant experience in the assessment of environmental noise and vibration from a range of industries, including industrial facilities, power generation and renewables, construction facilities and transport infrastructure.

My experience covers all phases of a project from feasibility studies, through to planning approvals, detailed design assessments, construction phase assessments and post-construction commissioning and monitoring. In addition to providing advice on developments across various market sectors, I have been involved in the development of noise and vibration regulations for Local and State Government including leading a review into stakeholder perceptions of the previous SEPP N-1 and SEPP N-2 policies in Victoria that informed the creation of the current environmental noise legislation.

Key projects I have been involved in providing expert evidence include:

- 63 Acland Street St Kilda proposed venue
- Caulfield Gym extension of hours
- Craigieburn Hub
- Fosterville Gold Mine
- Golden Plains Wind Farm
- Middle Park Hotel
- North East Link Project
- Open Studio Music Venue, Northcote
- Rah Bar, South Yarra
- Ringwood residential development adjacent to EastLink
- Steel Cement Yarraville
- Suburban Rail Loop East
- The Deck Ballarat
- Willatook Wind Farm

Appendix B—Letter of instructions

30 March 2026

Email: tom.evans@resonate-consultants.com

Tom Evans
Managing Director
Resonate Consultants
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Adelaide SA 5000

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Direct line
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Email
nick.sutton@nortonrosefulbright.com

Your reference:

Our reference:
4059475

Dear Mr Evans,

Letter of instructions
Greater Geelong Planning Scheme Amendments C444ggee and C453ggee
Land: 76-156 Canterbury Road East, 705-765 Princes Highway, 785-805 Princes Highway and 610 Rennie Street, Lara

We continue to act for Lara Farms Pty Ltd, the proponent in respect of Greater Geelong Planning Scheme Amendments C444ggee and C453ggee (**Amendments**), listed to be heard by the independent Panel from 14 April 2026 to 17 April 2026.

This letter of instructions is supplementary to our letter to you dated 3 March 2026. Where relevant, we have adopted the definitions used in that correspondence.

We refer to the Panel's correspondence dated 3 March 2026, which we have added to Tab F (Panel Correspondence) of your brief. You should note the following key dates as contained in those letters:

The key dates will be:

- Tuesday 7 April 2026: Expert statements due (noting that we envisage filing evidence by Thursday 2 April given the Easter long weekend); and
- Tuesday 14 April to Friday 17 April 2026: the Panel Hearing dates.

Instructions

You are instructed to:

(1) Prepare an expert evidence statement that considers the appropriateness of the Amendments, having regard to relevant acoustic considerations, within the limits of your expertise; and

(2) If required, appear before the Panel to provide independent expert evidence in the hearing.

Your evidence should be given in accordance with the requirements and duties of *PPV Practice Note 1 – Expert Evidence.*

You will note that not all materials provided within your brief will necessarily be relevant to your expertise and instructions. You are instructed to determine for yourself what is relevant to your instructions in this matter.

Please contact the undersigned on 0476 574 032 should you have any questions regarding this matter or require any further materials.

Yours faithfully

Nick Sutton
Partner
Norton Rose Fulbright Australia

Appendix C—Information considered

I have considered the following documents in the preparation of this statement of evidence:

- Australian Standard 2107:2016 *Acoustics – Recommended design sound levels and reverberation times for building interiors*
- City of Greater Geelong, *Strategic Implementation Panel Submission – Part A Submission to the Independent Panel*, dated 30 March 2026
- Enfield Acoustics, 24 January 2024, Report V798-01 *Acoustic Report (R4)*.
- Environment Protection Act 2017
- Environment Protection Regulations 2021
- Environment Reference Standard
- EPA Victoria Publication 1826.5 *Noise limit and assessment protocol for the control of noise from commercial, industrial and trade premises and entertainment venues*
- Greater Geelong Planning Scheme
- NSW EPA *Road Noise Policy*
- Planning Scheme Amendment C444ggee Clauses and Schedules
- Planning Scheme Amendment C453ggee Clauses and Schedules
- VicRoads *Requirements of Developers – Noise Sensitive Uses*
- VicRoads *Traffic noise reduction policy 2005*
- Victorian *Passenger Rail Infrastructure Noise Policy*