

MARSHALL DAY
Acoustics

TE RAPA NORTH INDUSTRIAL ZONE PLAN CHANGE 17

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Project: **PLAN CHANGE 17 - TE RAPA NORTH INDUSTRIAL ZONE**

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Report No.: **Rp 001 20240355**

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Document Control

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EXECUTIVE SUMMARY

Private Plan Change 17 ('PC 17') is a request that is seeking to rezone approximately 91ha of land (the 'Plan Change Area') surrounding the Te Rapa Dairy Manufacturing Site at 1344 Te Rapa Road ('Manufacturing Site').

The objectives of PC17 are to:

1. Rezone all Fonterra-owned land to Te Rapa North Industrial zone.
2. Protect the Te Rapa Dairy Manufacturing Site from reverse sensitivity risk.
3. Future proof rail access on the North Island Main Trunk Line ('NIMT').

The Te Rapa North Industrial Zone (including the Plan Change Area) is currently used for a mix of rural, industrial and rural-residential uses. PC17 will rezone part of the Te Rapa North Industrial growth node, leaving the remaining areas with the deferred industrial zone overlay that treats the zone as a Future Urban zone under the Hamilton City Operative District Plan.

The Plan Change Area is bordered to the west by the NIMT and State Highway 1C to the northwest. On the other side of the NIMT and Onion Road (to the west) is an area of Te Rapa North Industrial zone that is subject to the deferred industrial zone overlay, but obtained a resource consent several years ago that enables it to be developed and used for Industrial use. This area is referred to as the Porters Land.

Fonterra has engaged Vitruvius to develop a concept for the rail siding onto the NIMT. Noise from this type of activity on land that is not subject to Kiwirail designation can generate elevated levels of noise, but in our view, these would not exceed the existing noise rules that will be adopted by PC17; and so the anticipated level of amenity within the zone will be maintained. Mitigation options for rail siding noise are available should these be required and could be identified and implemented as necessary as part of the developed or detailed design process.

We consider the Hamilton City Operative District Plan already has appropriate noise controls in place to ensure that both intrazonal and interzone noise enabled by PC17 will be controlled to an appropriate level. Cumulative noise exceeding appropriate and permitted standards is not anticipated because of the distance between potential sources of noise (including existing and proposed industrial land as well as the Manufacturing Site) and receivers.

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1.0 INTRODUCTION

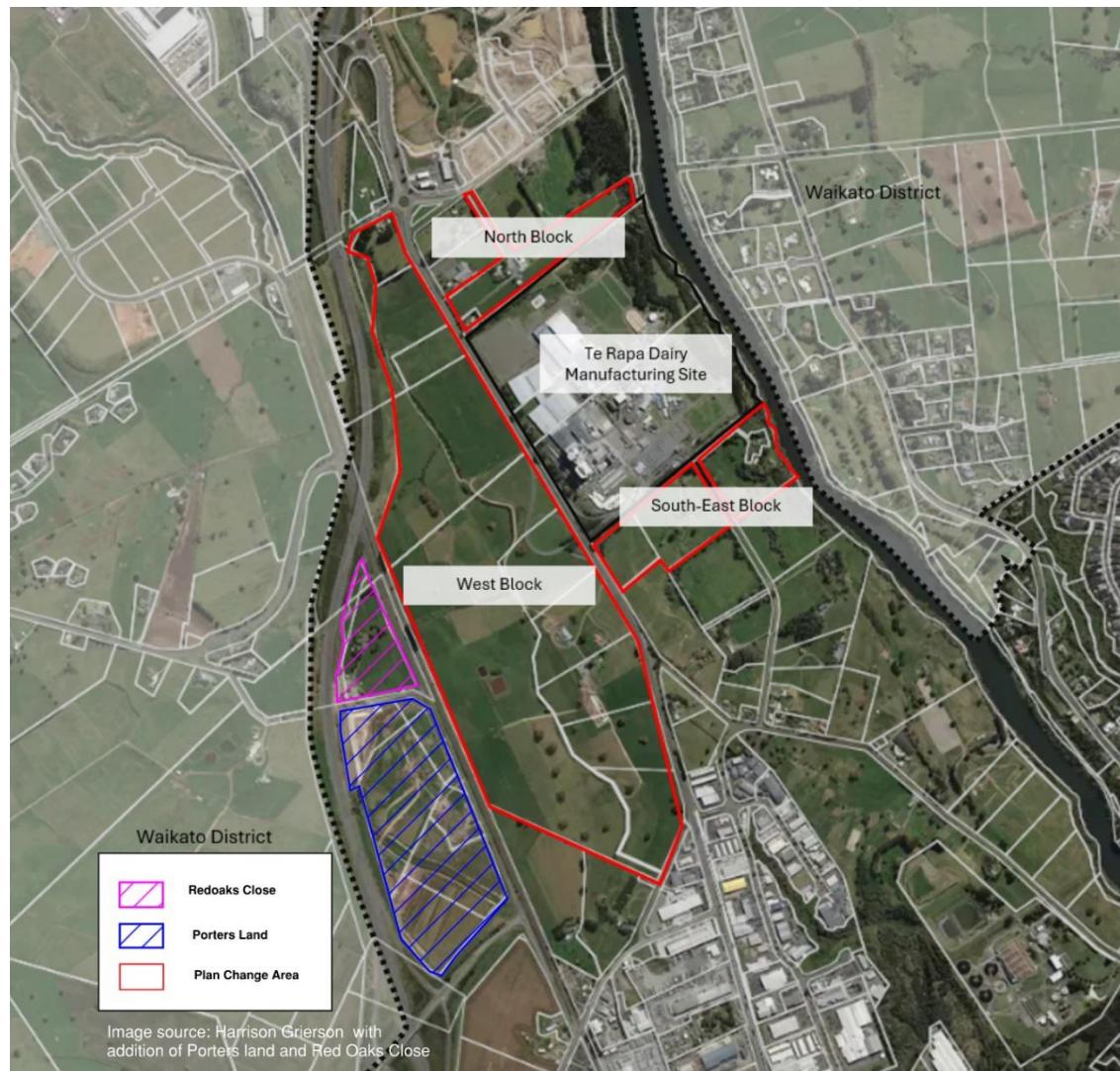
Marshall Day Acoustics ('MDA') has prepared this report on behalf of Fonterra to inform and support its Private Plan Change ('PC17') request at Te Rapa, Hamilton. The purpose of PC17 is to rezone approximately 91ha of land (the 'Plan Change Area') surrounding the Te Rapa Dairy Manufacturing Site. PC17 does not seek to change the land use of the Te Rapa Dairy Manufacturing Site. or planning provisions relating to the Manufacturing Site. Amended provisions seek the alignment of activities across the zone, it does not seek to enable nor impede the activities of the Manufacturing Site.

The objectives of PC17 are to:

1. Rezone all Fonterra-owned land to Te Rapa North Industrial zone.
2. Protect the Te Rapa Dairy Manufacturing Site from reverse sensitivity risk.
3. Future proof rail access on the North Island Main Trunk Line.

The extent of the Plan Change Area is set out within **Figure 1** in red / red dash outline. Also shown is the land known as "Porters" in blue hatching and Red Oaks Close in pink hatching, which are discussed in section 3.5.

Figure 1: Plan Change Area Boundaries, Porters Land and Red Oaks Close



MDA has reviewed the PC17 proposal, considering the existing situation and the acoustic implications of future development that will be enabled by PC17. Below we consider the extent to which noise can be managed to ensure that neighbouring zones and the areas that will remain subject to the 'Deferred Industrial Zone' overlay area will not be adversely affected.

2.0 PC17 PLAN CHANGE AREA AND SURROUNDING ENVIRONMENT

The Plan Change Area is described in full in the Assessment of Environmental Effects ('AEE') Report but is summarised here.

The Plan Change Area is within the northern extent of Te Rapa, approximately 8km north of Central Hamilton, near the boundary of the Hamilton City and Waikato Districts.

The Plan Change Area is made up of three distinct land parcels, all of which are encompassed by the Waikato River to the east, the Waikato Expressway (State Highway 1C) and the North Island Main Trunk rail line (NIMT) to the west, Hutchinson Road and Bern Road to the north and Ruffell Road, Old Ruffell Road and property boundaries to the south. Te Rapa Road runs north to south through the centre of the Plan Change Area.

The three land parcels are described as follows, with land not owned by Fonterra shown underlined:

West Block:

- Section 1 & Section 3 SO 456626 (Sikh Society); and
- Lot 1 – 6 DPS 11087; and
- Part Lot 2 DPS 10804; and
- Lot 1 DPS 34481; and
- Part Lot 1 DPS 10804.

North Block:

- Lot 1 DP 551065; and
- Lot 1 DPS 8230.

South-East Block:

- Lot 5 DPS 18043; and
- Lot 1 DPS 85687; and
- Lot 1-3 DPS 61136 (Lot 1-2: Francis Vincent Rog, Karen Elizabeth Rog & Lot 3: J W Trustees Limited).

The Plan Change Area is predominantly utilised for rural uses with a small number of associated houses.

Surrounding environment

The surrounding environment predominantly comprises rural and industrial activities, with the outer residential suburbs and industrial areas of Hamilton to the south and southeast. The Plan Change Area is centred around the Te Rapa Dairy Manufacturing Site, which is a milk processing site recognised within the Waikato Regional Policy Statement as "Regionally Significant Industry".

The Te Awa Lakes Development is to the north and will provide 90ha of industrial, commercial, and residential land.

The majority of the surrounding area is zoned Te Rapa North Industrial Zone under the Hamilton City Operative District Plan ('ODP'), which is then overlaid with a 'Deferred Industrial Zone' area overlay, and the 'Te Rapa Dairy Manufacturing Site' overlay.

Zoning Summary

The Plan Change Area is currently zoned Te Rapa North Industrial Zone and Open Space Zone - Natural Open Space Zone under the ODP.

The application area is overlaid with a 'Deferred Industrial Zone' Area overlay. The 'Te Rapa North Industrial Staging' applies to the western portion, which is identified as Stage 1.

The Te Rapa Dairy Manufacturing Site Noise Emissions Boundary overlays the majority of the Plan Change Area, except for the northernmost and southernmost parts of the West Block. This noise emission contour

also extends over other nearby Deferred Industrial Land not included in PC17, particularly to the north and southeast, but also a small area further to the west.

Other nearby or adjoining zones within Hamilton City include Open Space Zone - Natural Open Space, Industrial Business Zone - Business 6 Zone - Neighbourhood Centre (Te Awa Lakes).

The other nearby or adjoining zones within Waikato District include General Rural, General Industrial, Rural Lifestyle and Open Space.

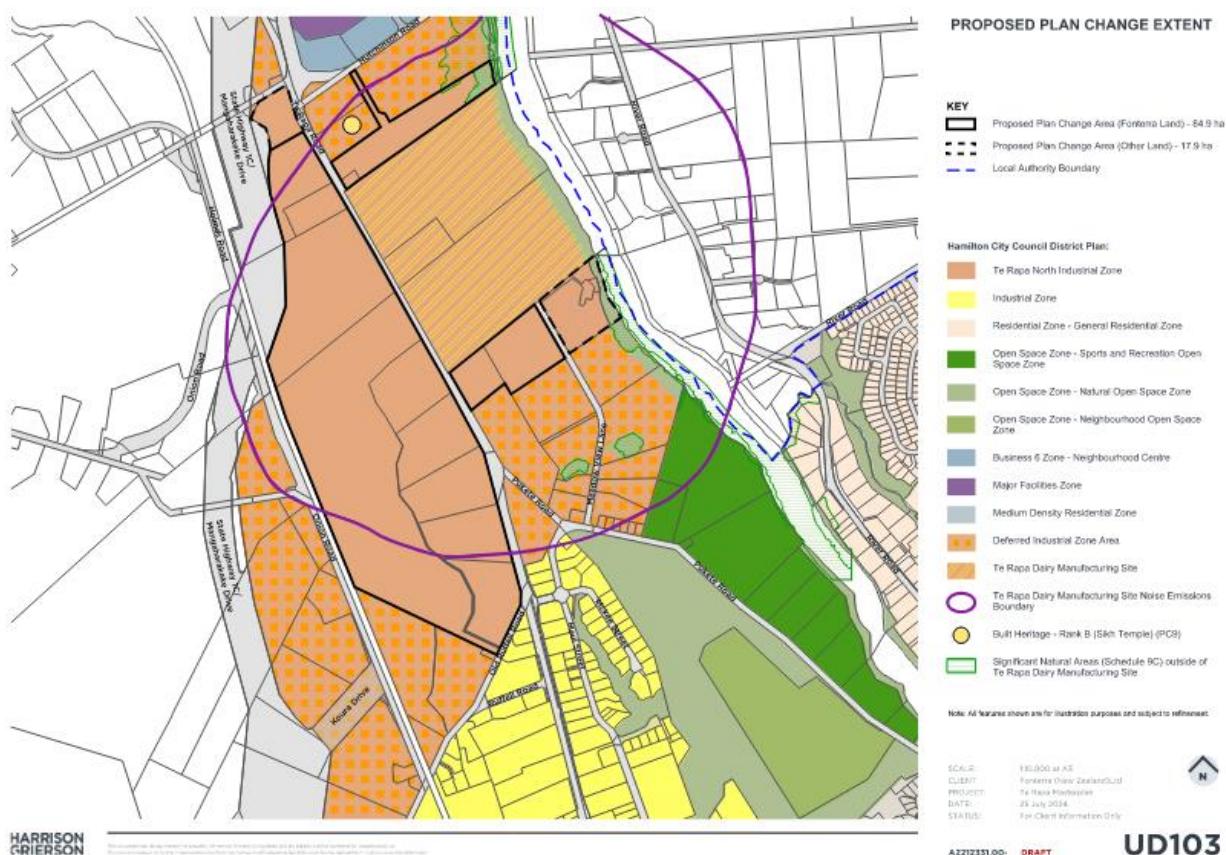
3.0 ACOUSTIC GUIDANCE

3.1 PC17 with respect to Te Rapa Dairy Manufacturing Site

The Dairy Manufacturing Site has its own noise limit requirements as provided for in the ODP (see **Appendix B**). Rule 25.8.3.8 of the ODP states that noise from the Te Rapa Dairy Manufacturing Site shall not exceed 45 dBL_{Aeq(15min)} when measured at the Noise Emission Boundary.

Figure 2 illustrates the Noise Emission Boundary and the Plan Change Area.

Figure 2: Te Rapa Noise Emissions Boundary and the Plan Change Area



The provisions of PC17 and the land it will impact are independent of the Te Rapa Dairy Manufacturing Site.

The noise emissions from PC17 and the methods to control this to an acceptable level will be more in line with standard industrial zone noise rules and will not utilise the Noise Emission Boundary technique. As such, PC17 is not proposing a conflicting overlay, and the PC17 area within the Noise Emission Boundary will continue to be subject to the relevant Noise Emission Boundary rules already in the ODP (being Rules 25.8.3.1 and 25.8.3.8).

3.2 PC17 Noise Control

We consider the current ODP noise rules are appropriate and can be applied to the Plan Change Area. The noise rules contained within ODP Chapter 25 provide certainty of outcome for PC17 activities as well as existing land uses. Attached as **Appendix B** are the relevant parts of Chapter 25 regarding noise rules.

3.3 Potential cumulative noise

We do not consider that cumulative noise to receivers outside the Plan Change Area, but within Fonterra's Noise Emission Boundary, will occur. This is because the noise limit applicable to PC17 activities is lower than is permitted within the Noise Emission Boundary and when added together are anticipated to result in no change to the existing permitted noise environment.

The Noise Emission Boundary primarily impacts land within the Plan Change Area. Outside this area, but within the Noise Emission Boundary, is limited to the land on the far side of the Waikato River and areas to the north and south of the eastern parts of PC17.

As such, the majority of the Plan Change Area is sufficiently distant from any noise sensitive receivers that in practice the source of noise will most likely be limited by the need to comply at other (closer) intervening sites.

3.4 Cross boundary receivers across Waikato River

The existing houses on the opposite side of the Waikato River already receive some noise from Te Rapa Dairy Manufacturing site which is addressed by the Noise Emission Boundary and conditions that apply to the manufacturing site.

The distance between the Plan Change Area and receivers on the opposite side of Waikato River provides a spatial buffer. The industrial activities that will be enabled by PC17 will be required to comply with potential noise receivers on the *near side* of the Waikato River and this means noise will already be controlled to an appropriate level on the other side of the river.

3.5 Land on Onion Rd between rail line and Waikato Expressway

This land comprises two parts – the Empire Corporation Limited ('Porters') block (390 - 440 Onion Road, Horotiu) and 16 Red Oaks Close. **Refer Figure 1.**

Resource consent for subdivision as Industrial use on the Porters land was issued September 2021 (**Appendix C**), as such, noise sensitive activities are not anticipated to establish in this location in future. The use of this land for Industrial activities is consistent and sympathetic to the purpose of PC17 and the ODP noise rules reflect this.

16 Red Oaks Close forms the remainder of the land in this area. The property is elevated, overlooking the PC17 area and the Waikato Expressway. We anticipate this dwelling already receives a significant amount of road traffic noise that would likely exceed that arising from the ODP noise limits for activities within the Plan Change area. In our opinion, this means the property has a low risk of any reduction in existing amenity due to noise.

Both the Porters block and 16 Red Oaks Close also share a boundary with the Designated NIMT which, irrespective of PC17 and the Waikato Expressway, results in noise effects on these land parcels. This noise and its consequent effects, along with noise from the Waikato Expressway and the Te Rapa Manufacturing Site, already form the existing environment.

3.6 Undeveloped Land and Potential Future Noise Sensitive Receivers

We note that undertaking an analysis of future potential use of land is better performed by other experts such as planners. However, in this section we use our experience, our review of the ODP and the Hamilton City Council 2024-34 Long-Term Plan, as well as observing how surrounding land use has changed over time in this locality to provide potential insight into what change in land use can be expected.

The currently undeveloped land adjacent and nearby the PC17 area is a mixture of rural or deferred industrial zonings, which enable the development of sensitive activities but only at low densities, i.e. a single standalone home. High-density residential or high-amenity commercial activities are not anticipated activities in these zones and so, are not likely to occur.

As the Plan Change Area develops, the users of sites will need to understand the requirement to comply with the ODP noise rules that apply. This scenario occurs already at locations within the City/District where different zones interface.

3.7 Rail Sidings

We consider the proposed noise limits (ODP) that will apply to the Te Rapa North Industrial Zone are appropriate to address potential noise emissions from the rail siding enabled by PC17.

However, we acknowledge the KiwiRail Designation F1a, which provides for the NIMT, may be expanded over the potential rail siding area.

Noise from KiwiRail designated land is typically exempt from any noise limits – both for trains in motion and stopped, and sidings if they are within a designation. It is only when the rail movement of goods from the designated land onto another site occurs that the noise may become eligible for consideration under District Plan rules.

We have conducted our assessment assuming that the proposed land for a siding is outside of KiwiRail designated land. Therefore, any activity that occurs – other than the train if it remains within the KiwiRail designation – will be assessed as site activity noise.

Detailed analysis of potential rail siding noise on the Plan Change Area cannot be provided now because the design is not fully developed. However, based on experience at other rail sidings, compliance with the ODP noise rules can be achieved.

Potential noise mitigation for rail sidings can include, for instance, the final location of siding, construction of barriers/bunds between siding and receiver(s) and potentially partial or full enclosure. This range of options illustrates there is scope and opportunity available should the detailed analysis indicate noise mitigation of rail siding activities required.

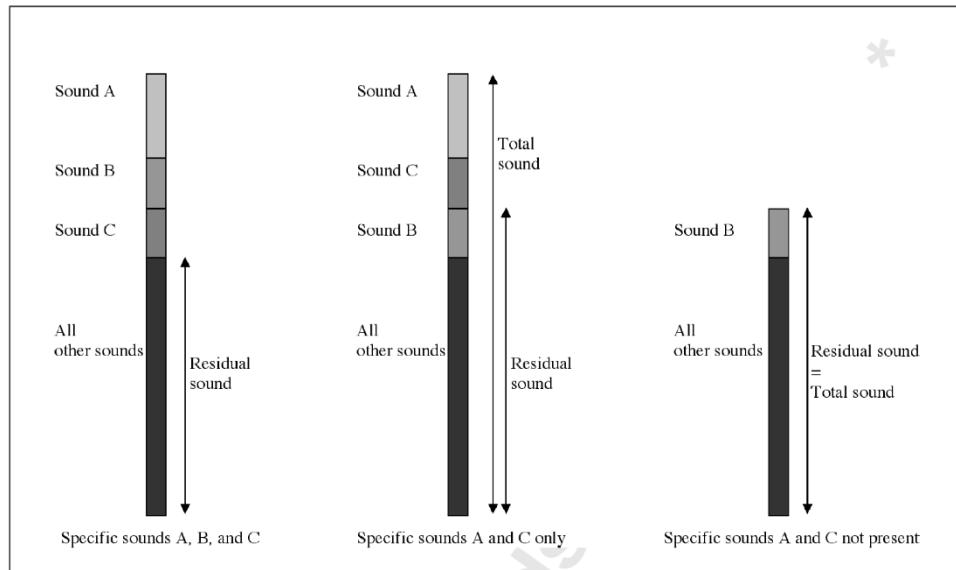
4.0 SUMMARY

We propose the Hamilton City Operative District Plan noise rules within **Appendix B** are appropriate to manage the potential noise emissions that may arise from development enabled through PC17, including the future rail siding.

We consider the existing HCODP provisions, along with location of the Plan Change Area and its relationship to existing or potential future sensitive activities, will ensure noise is controlled to an appropriate level.

APPENDIX A GLOSSARY OF TERMINOLOGY

NZS 6801:2008	New Zealand Standard NZS 6801:2008 <i>Acoustics – Measurement of environmental sound</i>
NZS6802:2008	New Zealand Standard NZS 6802:2008 <i>Acoustics - Environmental Noise</i>
NZS6803:1999	New Zealand Standard NZS 6803: 1999 <i>Acoustics - Construction Noise</i>
DIN4150-3:2016	German Standard DIN 4150-3:2016 <i>Structural Vibration - Effects of Vibration on Structures</i>
Background sound	The sound that is continuously present in a room or outdoor location. Often expressed as the A-weighted sound level exceeded for 90 % of a given time period i.e. L_{A90} .
Noise	A subjective term used to describe sound that is unwanted by, or distracting to, the receiver.
Notional boundary	A line 20 metres from any side of a dwelling, or the legal boundary where this is closer to the dwelling.
	This definition is from NZS 6802:2008.
Specific sound	A component of total sound that can be identified as associated with a specific source. Specific sound is the ‘sound of interest’ in an assessment.
	This definition is from NZS 6802:2008.
Total sound	The totally encompassing sound in a given situation at a given time, from all sources near and far, including the Specific Sound. See also Residual Sound.
Or	
Ambient sound	



This definition is from NZS 6802:2008.

APPENDIX B HCOPD

25.8.2 Objectives and Policies: Noise and Vibration

Objective	Policies
25.8.2.1 Activities have minimal adverse noise and vibration effects on other activities and sites, consistent with the amenity values of the receiving environment.	25.8.2.1a The amenity values of the surrounding neighbourhood and adjoining activities, especially noise-sensitive activities, shall be protected from the effects of unreasonable noise. 25.8.2.1b Construction, maintenance and demolition activities shall be required to minimise potential adverse effects on the surrounding neighbourhood and adjoining activities. 25.8.2.1c Noise effects arising from new and altered roads should be managed using best practicable options to ensure noise levels received by existing premises and facilities that are sensitive to noise are reasonable. 25.8.2.1d Commercial, industrial and community activities shall ensure that noise received at the boundary of Residential and Special Character Zones is consistent with the residential noise environment. 25.8.2.1e Noise from non-residential activities in residential areas shall not unduly adversely affect residential amenity values. 25.8.2.1f Temporary events shall minimise noise impacts on residential activities when taking into account the level and duration of the noise.

Explanation

The policies ensure that noise levels will be appropriately managed to protect the *amenity values* of receiving environments.

Management of the interface between areas is important to ensure that noise is within a reasonable expectation for the zoning and noise levels meet accepted minimum standards for the receiving *environment*. Within industrial and commercial areas, higher noise levels are accepted, but will be controlled to prevent unreasonable noise from transferring between *sites*.

The policies will capture changes to the noise environment arising from *new and altered roads*. The Plan aims to limit people's exposure to traffic noise from new *transport corridors* by reducing noise at the source, and requiring insulation for new *development* beside busy *transport corridors* (see Objective 25.8.2.2).

Many construction activities are inherently noisy but methods are available which can control the emission and impact of this noise. Noise experienced during construction is of a temporary nature and provided that noise at inconvenient times can be mitigated or avoided, reasonable levels of *construction noise* can be accommodated.

Objective	Policies
25.8.2.2 Reduce reverse-sensitivity <i>effects</i> arising from new <i>noise-sensitive activities</i> locating:	<p>25.8.2.2a Noise-sensitive activities locating within the Central City, Business, Industrial, Ruakura Logistics, Te Rapa North, Te Awa Lakes Major Facilities and Ruakura Industrial Park Zones or within an existing defined helinoise boundary or within the <i>Te Rapa Dairy Manufacturing Site</i> Noise Emission Boundary should include design and materials to reduce interior noise to acceptable levels.</p> <p>25.8.2.2b Noise-sensitive activities locating near <i>transport corridors</i> that carry high traffic volumes, or railways, should include design and materials to reduce interior noise to acceptable levels.</p> <p>25.8.2.2c Noise-sensitive activities located within the Rototuna North East Character Zone <i>adjacent</i> to the Waikato Expressway (Designation E90) within the habitable <i>building setback</i> should provide sufficient acoustic treatment to protect its residential noise environment.</p> <p>25.8.2.2d In the Te Awa Lakes Business 6 zone, <i>residential activities</i> and associated <i>outdoor living areas</i> shall be set back from Hutchinson Road to avoid or minimise the potential for reverse sensitivity effects on regionally significant and other industry.</p>



Explanation

The objectives and policies recognise that some areas of the City contain a diverse range of activities, and that there is increased potential for conflict over noise, particularly when [noise-sensitive activities](#) locate near existing noisy activities.

The objective and policies recognise that [noise-sensitive activities](#) establishing in these areas will require appropriate design and materials, such as acoustic insulation, to achieve an acceptable internal noise environment.

The objectives and policies also recognise that the noise levels within the [Te Rapa Dairy Manufacturing Site](#) Noise Emission Boundary were agreed through an appeal settlement on the Waikato District Plan and the area around [the Dairy Manufacturing Site](#) was subsequently transferred into Hamilton City. Noise sensitive activities locating within [the Dairy Manufacturing Site](#) Noise Emission Boundary need to be aware of the existing noise levels within the Noise Emission Boundary.

In the Rototuna North East Character Zone, the use of a specific [building setback](#) provision pre and post the construction of the Waikato Expressway (Designation E90) negates the need for additional acoustic mitigation of dwellings beyond the [setback](#) and provides protection for the outdoor amenity of residential properties within the [setback](#). However, habitable [buildings](#) located within the [setback](#) do have an increased potential to be affected. Accordingly [noise-sensitive activities](#) establishing in this area will require appropriate design and materials, such as acoustic insulation, to achieve an acceptable internal noise environment.

Objective	Policies
25.8.2.3 Reduce reverse-sensitivity vibration effects arising from new development locating near to the rail transport network.	25.8.2.3a New buildings locating near to the rail network should include design and materials to reduce vibration to acceptable levels.

Explanation

The objectives and policies recognise that in some areas of the City near to the rail network there is potential for vibration [effects](#). The objective aims to ensure that new [buildings](#) locating near to the rail are designed to recognise the [environment](#) in which they are located.

25.8.3 Rules – Specific Standards

25.8.3.1 Measurement and Assessment of Noise

- a. Noise levels shall be measured in accordance with NZS 6801:2008 "Acoustics – Measurement of Environmental Sound" and assessed in accordance with NZS 6802:2008 'Acoustics – Environmental Noise'. These apply unless otherwise stated.

25.8.3.2 Construction Noise

- a. All [construction noise](#) shall comply with the relevant noise levels stated in NZS6803: 1999, section 7.2 'Recommended numerical limits for [construction noise](#)' and shall be measured and assessed in accordance with NZS 6803:1999 'Acoustics – [Construction Noise](#)'.

25.8.3.3 Construction Vibration

- a. Construction vibration received by any [building](#) on any other [site](#) shall comply with the provisions of and be measured and assessed in accordance with German Standard DIN 4150-3:1999 Structural vibration – Effects of vibration on structures.

25.8.3.7 Noise Performance Standards for Activities in all Zones Except Major Facilities, Knowledge, Open Space, Ruakura Logistics and Ruakura Industrial Park Zones

a. Activities in all Zones except Major Facilities, Knowledge, Open Space, Ruakura Logistics and Ruakura Industrial Park Zones, shall not exceed the following noise levels at any point within the boundary of any other [site](#) in the:

- i. Residential Zones.
- ii. Special Character Zone.

Time of day	Noise level measured in L_{Aeq} [15 min]	Noise level measured in L_{AFmax}
iii. 0600 – 0700 hours	45 dB	75 dB
iv. 0700 – 2000 hours	50 dB	-
v. 2000 – 2300 hours	45 dB	-
vi. 2300 – 0600 hours	40 dB	75 dB
vii. 2300 – 0600, within that part of Te Awa Lakes Medium-Density Residential zone located within 200m of the carriageway of the Waikato Expressway	45dB	75 dB

b. Activities in all zones except the Major Facilities, Knowledge and Open Space Zones shall not exceed the following noise levels at any point within the [notional boundary](#) of any other [site](#) in the Future Urban Zone.

Time of day	Noise level measured in L_{Aeq} [15 min]	Noise level measured in L_{AFmax}
i. 0700 – 2200 hours	55 dB	-
ii. 2200 – 0700 hours	40 dB	75 dB

c. Any activity within the Industrial and Te Rapa North Industrial zones shall not exceed a noise level of 65dBA (L_{Aeq} [15 min]) at any point within the boundary of any other [site](#) within that zone. This standard does not apply to [sites](#) held in common ownership with the [site](#) containing the activity generating the noise. This standard applies to Stage 1A of the Te Rapa North Industrial Zone, but does not apply to the remainder of the Te Rapa North Industrial Zone until such time as the Deferred Industrial Zone overlay is removed.

d. Activities in the Te Awa Lakes Business 6 Zone shall not exceed the following levels within any other Business 6 zoned [site](#) or within any [site](#) in the Te Awa Lakes Visitor Accommodation Overlay area:

Note

1. The Te Rapa North Deferred Industrial Area, excluding Stage 1A, is assessed against the Future Urban noise standards until such time as the Deferred Industrial Zone overlay is removed.

APPENDIX C PORTERS LAND SUBDIVISION

