Appendix 3
Noise Review

mpdc.govt.nz 35 Kenrick Street PO Box 266, Te Aroha 3342
Morrinsville & Te Aroha 07 884 0060 Matamata 07 881 9050

matamata piako district council

HEGLEY ACOUSTIC CONSULTANTS

1/355 Manukau Road
Epsom, Auckland 1023
PO Box 26283
Epsom, Auckland 1344

T: 09 638 8414
E: hegley@acoustics.co.nz

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Kelly Moulder
Planning Officer
Matamata-Piako District Council
PO Box 266
Te Aroha 3342

Dear Kelly

DISTRICT PLAN NOISE RULES

The attached documents are suggested tracked changes for the noise rules and Development Concept Plans for your consideration.

The question has been raised with respect to specific noise provisions for the Settlement Zone and Business/Industrial Precincts as part of the plan change process. It is understood that while there may be various uses, such as residential, business and industrial, each type of activity will be related back to the noise rules for the specific use. On that basis there will be adequate noise controls already in place to provide the appropriate protection both within the given zone and between the zones.

The control of traffic and rail noise should be reviewed. It is considered desirable to control these noise sources although at the moment the controls are limited to new dwellings located adjacent to state highways and railway lines. The basic argument is that if a set noise limit is exceeded this will create an unreasonable environment for a noise sensitive activity so the appropriate noise mitigation should be put in place. If this argument is accepted it means there will be existing dwellings fronting onto state highways where a reasonable level of noise is being exceeded and to acknowledge this without demonstrating these dwellings need to be provided for suggests a bias noise control. In this case, the noise maker should be prepared to upgrade a dwelling where the noise is exceeding a reasonable level. This is not a new approach and reflects the controls already in place for airports, sea ports and to some extent industrial sites (such as currently being put in place for the Proposed Plan Change – Waitoa Dairy Manufacturing site). It appears there needs to be a level playing field with respect to the control of traffic noise to maintain consistency. With the above in mind it is recommended that either a noise rule addressing all noise should be adopted or there should not be any rule in the District Plan. It is also noted that if it is acknowledged that traffic noise needs to be controlled, it is difficult to justify limiting this control to state highways; the control should be for all major roads in the district.

It is also relevant that traffic noise in the Matamata Piako area is not considered a significant problem with the busiest state highway only carrying around 12,000vpd with 16%hcv (SH27 just north of Matamata). When considering the 12,000vpd traffic flow a dwelling at 20m from the road with a 180^0 unobstructed view of the road will experience the 40dB $L_{Aeq(24hr)}$ design limit in a bedroom with windows closed. This distance quickly drops to a dwelling 10m from a road with the typical traffic flows in the district. In urban areas, where the traffic speed is 50km/hr, the above distances are nominally half that where the speed is 100km/hr.

If the resident of an existing dwelling applies to NZTA to have traffic noise controlled the NZTA should be responsible for the cost of the upgrade to achieve the indoor design noise level. This would not be a difficult exercise, as NZTA already has noise contours along all of the highways so is able to quickly determine the noise reduction that would be necessary. In addition, the traffic flows are available so it is an easy exercise to predict the traffic noise at any dwelling. Appendix 1 gives examples of other major infrastructure where the operator of the land assists with the upgrading of dwellings where the noise received is above a level considered reasonable.

If it is proposed to retain a traffic noise control, a recommended rule is given in the District Plan mark-up attached.

With respect to train noise the same basic approach is recommended. The main difference between traffic noise and train noise is that traffic flows for all roads in the district and traffic noise contours on state highways are readily available while there are no noise contours for trains; also train movements are very difficult to obtain. Further, with the expected very low number of trains the noise from them is not seen as a problem in the district.

Once you have reviewed the attached you may have some questions and I will be happy to respond.

Should you have any questions regarding the above please do not hesitate to contact me.

Yours faithfully
Hegley Acoustic Consultants

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5 Performance standards – all activities

5.2 Noise

5.2.1 General noise

i. Where any dwelling in a Business zone is to be constructed within 10m of any road boundary an acoustic design report, prepared by a suitably qualified acoustic engineer, confirming that the specific design of the dwelling will provide a noise level (24 hours Leq) that will not exceed 45dBA and the maximum noise level (L_{max}) that will not exceed 78dBA in all habitable rooms with all opening windows closed must be obtained within twelve months of the commencement of construction.

ii. For any new activity in any zone Council may require the submission of an acoustic design report from a suitably qualified Acoustic Engineer confirming that the anticipated noise levels will be in accordance with the requirements for the zone (or Development Concept Plan with respect to Scheduled Industrial Sites).

iii.

iv. Construction noise from the site must meet the limits recommended in Table 1 of NZS6803:1999 Acoustics – Construction Noise

v. The noise levels must be measured in accordance with the requirements of NZS6801:2008: Acoustics - Measurement of environmental sound as assessed in accordance with the requirements of NZS6802:2008 Acoustics – Environmental noise.

Objectives/Policies		
3.5.2.3	O1, O2, O6	P1, P2

Explanation

Traffic noise for residential uses with increasing flows and night time movements can become a nuisance. The aim is to minimise the traffic noise received at any new dwelling so noise will not be a long term problem. Similarly construction noise and noise with special characteristics can become a nuisance when expectations as to the length or nature of the noise are exceeded. The design standards are consistent with international design guidelines and the aims of the Resource Management Act.

5.2.2 Residential zone

i. Home occupations.

The noise level (L_{Aeq}) as measured at any point within the boundary of an adjacent residentially zoned site must not exceed the following:

Monday to Friday	8.00am to 6.00pm	45dB
		35dB

At all other times including Saturdays, Sundays and Public Holidays	

ii. Discretionary activities and education facilities up to a maximum of 10 pupils.

The noise level (L_{Aeq}) as measured at any point within the boundary of an adjacent residentially zoned site must not exceed the following:

Monday to Friday	8.00am to 6.00pm	50dBA
At all other times including Saturdays, Sundays and Public Holidays		40dBA

iii. Residential activities

The noise level (L_{Aeq}) as measured at any point within the boundary of an adjacent residentially zoned site must not exceed the following:

Monday to Saturday	7.00am to 10.00pm	50dB
At all other times including Sundays and Public Holidays		40dB
10.00pm to 7.00am	65dB L_{AFmax}	

The levels for the daytime period may be exceeded for reasonable periods where that noise is associated with normal household activities, such as lawn mowing or home handyman work.

Objectives/Policies		
3.5.2.3	O1, O2, O3	P1, P3

Explanation

Any non-residential activity should not compromise the noise environment. For this reason low noise levels have been set to reflect the fact that no significant noise intrusion is acceptable. It should be noted that a level of 35dB (L_{Aeq}) prohibits almost any type of industrial noise in the area. The aim of this control is to provide for quiet home occupations, not noisy ones.

Some activities in residential areas are noisy yet are still considered acceptable, such as the lawn mower (at a reasonable hour of the day). However, an air conditioning unit operating at a much lower level can cause annoyance for a neighbour.

5.2.3 Business zone

i. The noise level (L_{Aeq}) as measured at any point within the boundary of any land zoned residential, or the notional boundary of any rural dwelling, or at any point within the boundary of any site within the "Shopping Frontage", must not exceed the following:

Monday to Saturday	7.00am to 10.00pm	50dB
At all other times including Sundays and Public Holidays		40dB
10.00pm to 7.00am. The L_{AFmax} shall not exceed 65dB.		

ii. The noise level (L_{Aeq}) as measured at any point within the boundary of any adjacent property in the Business zone (excluding those sites within the "Shopping Frontage"), shall not exceed the following:

Monday to Saturday	8.00am to 10.00pm	55dBA
At all other times including Sundays and Public Holidays		45dBA

iii. The noise level (L_{Aeq}) as measured at any point within the boundary of any adjacent Industrial zone shall not exceed 60dB.

Objectives/Policies		
3.5.2.3	O1, O2	P1, P2

Explanation

Differing noise standards have been set for the “Shopping Frontage” to protect their character and amenity values. Noisy activities can have a detrimental effect on the well being of a person in their place of residence or at work. Limiting the noise will ensure that a reasonable level of amenity is maintained in residential areas in particular.

The L_{AFmax} value at night time is to minimise any sleep disturbance for the residential community.

5.2.4 Industrial zone

a. The noise level (L_{Aeq}) as measured at any point within the boundary of any land zoned residential, or the notional boundary of any rural dwelling shall not exceed the following:

Monday to Saturday	7.00am to 10.00pm	55dB
At all other times including Sundays and Public Holidays		45dB
10.00pm to 7.00am. The L_{AFmax} shall not exceed 75dB.		

b. The noise level (L_{Aeq}) as measured at any point within the boundary of any adjacent Industrial zone shall not exceed 65dB.

5.2.5 Scheduled sites (see Schedule 5)

i. Unless otherwise specified for a scheduled site and shown on the Development Concept Plan, the noise levels and noise control periods relating to scheduled sites shall be as follows:

   a. The noise level (L_{Aeq}) as measured at any point within the boundary of any land zoned residential, the notional boundary of the rural dwelling, where shown on the DCP, or the noise emission control boundary must not exceed the following:

Monday to Saturday	7.00am to 10.00pm	50dB
At all other times including Sundays and Public Holidays		40dB
10.00pm to 7.00am. The L_{AFmax} shall not exceed 65dB.		

   b. The noise level (L_{Aeq}) as measured at any point within the boundary of any adjacent Industrial zone must not exceed 65dBA.

ii. That any variation or change to existing development concept plans and new scheduled sites shall develop a noise control boundary and noise controls by reference to rule 1.4.2(i).

Objectives/Policies

3.5.2.3	O1, O2	P1, P2, P3

Explanation

Noisy activities can have a detrimental effect on the well being of a person. Limiting the noise will ensure that a reasonable level of amenity is maintained in residential areas. The requirements of scheduled sites will provide a reasonable level of acoustic protection for residents' use and ensure undisturbed sleep for people for the open window situation.

The inter zone controls for the Industrial zone is to allow normal office work to be undertaken without undue interference from the neighbours.

The L_{AFmax} value at night time is to minimise any sleep disturbance for the residential community.

5.2.6 Rural and Rural-Residential zones

i. The noise level (L_{Aeq}) as measured at any point within any residentially zoned boundary or at any point within the notional boundary of any rural dwelling must not exceed the following:

7.00am to 8.00pm	50dB
8.00pm to 7.00am	40dB

ii. Noise from the operation of frost protection fans must not exceed 55dB L_{Aeq} and 65dB L_{AFmax} at any point within the notional boundary of any dwelling in a Rural or Rural-Residential Zone (excluding a residential dwelling on the same property upon which the fan is operating) nor at any point within the boundary of any property within a Residential Zone.

iii. When the frost protection fan is in operation for frost protection the frost protection fan must not start up until the air at canopy height drops to 2^0C, and shall cease operation when the rising temperature reaches 4^0C at canopy height.

iv. When the frost protection fan is operating for maintenance purposes the machine must only be used from Monday to Friday 8am to 5pm.

ii. Exclusions

Seasonal or temporarily intermittent noise resulting from agriculture and forestry activities (e.g. crop spraying, agriculture or forestry harvesting, etc) consistent with the predominant character of the Rural zone, are permitted provided that:

a. The activity is conducted in accordance with good management practice; and
b. Machinery is operated in accordance with manufacturers' specifications.

This exclusion does not include rural operations such as the distribution of industrial factory by-products.

The noise levels set by this Rule do not apply within the Quarry Noise Control Boundary shown in Appendix 8. The noise levels set by this Rule will apply to Rural zoned land outside that boundary.

Objectives/Policies		
3.5.2.3	O1, O2, O3, O4	P1, P2, P4

5.2.7 Airport noise

i. The noise of aircraft using the airport shall not exceed the air noise boundary (L_{dn} 65dBA) or the outer control boundary (L_{dn} 55dBA) as shown on planning map.

ii. The maintenance of aircraft, including engine testing, shall comply with the following conditions:

The noise level (L_{Aeq}) as measured at any point within the notional boundary of any rural dwelling must not exceed the following limits:

Monday to Saturday	7.00am to 10.00pm	55dB
At all other times including Sundays and Public Holidays		45dB

Objectives/Policies		
3.5.2.3	O1, O2, O6	P1, P4

Explanation

The airfield represents a significant existing use in the rural area. It is appropriate that the rules contain measures that while placing the onus on airfield operators to maintain the existing noise environment and provide for the foreseeable future, also places an onus on new noise sensitive activities in the vicinity to provide for their own protection.

L_{dn} (the day/night level) is defined as the time average sound level in decibels over a 24 hour period (from midnight to midnight) with the addition of 10dBA to night time levels during the period from midnight to 0700 hours and from 2200 hours to midnight to take account of the increase annoyance caused by noise at night.

5.2.8 Noise standards for works and network utilities

i. See Section 8 for additional noise standards applicable to works and network utilities. Where there is conflict between the noise standards in 5.2.1–5.2.7 above and Section 8, the standards in Section 8 shall apply.

5.2.9 Noise insulation: Noise sensitive activities – railway lines and state highways

i. Performance Standards

a. New (including relocated) buildings to be used for a noise sensitive activity located:

i. Within 40m of a railway line included in the definition of "regionally significant infrastructure";

ii. Within 80m of a state highway with a posted speed limit above 70km/h; or

iii. Within 40m of a state highway with a posted speed limit of 70km/h or less;

Shall be designed, insulated, constructed, or screened by suitable barriers and maintained to ensure that noise received within any new bedroom, habitable space, or other space containing a noise sensitive activity, will not exceed the limits below:

Space	Internal noise limit	
	Road traffic noise	**Railway noise**
Inside bedrooms	40dB $L_{Aeq(24h)}$	35dBA $L_{Aeq\ (1\ hour)}$
Inside other habitable rooms	45dB $L_{Aeq(24h)}$	40dBA $L_{Aeq\ (1\ hour)}$
Inside other spaces containing a noise sensitive activity	No greater than the recommended maximum design guidelines in AS/NZS 2107-2000: Acoustics – recommended design sound level and reverberation times for building interiors	

b. Where the traffic noise from a State Highway exceeds the limits above at any noise sensitive activity existing at [date of proposed change] and if requested by the owner, NZTA must offer appropriate acoustic treatment in respect of residential units to comply with the limits set in the above table.

c. The distances referred to above are measured from the:

- Edge of a railway track;
- Edge of the nearest traffic lane of the state highway;
- Face of the closest external wall of a new building.

d. If windows are required to be closed to achieve the noise limits above, the building shall be designed and constructed to provide an alternative means of ventilation in accordance with Clause G4 of the New Zealand Building Code.

e. An acoustic design report prepared by an appropriately qualified practitioner confirming compliance with the limits above must be submitted to Council as part of any resource or building consent application.

Advice Note: Compliance with Clause G4 will not guarantee thermal comfort. Owners should consider the installation of additional ventilation equipment such as a heat pump.

ii. Permitted activities

a. A new (including relocated) building to be used for a noise sensitive activity that has demonstrated compliance with the performance standards in 5.2.9(i) above is a permitted activity.

b. A new (including relocated) building, not to be used for a noise sensitive activity is a permitted activity and is not required to demonstrate compliance with the performance standards in 5.2.9(i) above.

iii. Restricted-discretionary activities

A new (including relocated) building, to be used for a noise sensitive activity not meeting the performance standards in 5.2.9(i) above is a restricted-discretionary activity

iv. Matters of discretion

Council has restricted its discretion to the following matters and may impose conditions relating to these matters if consent is granted:

a. The effects of noise from the state highway and/or railway network on the activity to be constructed/relocated;

b. The reverse-sensitivity effects of the activity to be constructed/relocated on the operation of the state highway and/or rail network and the ability and suitability of mitigation measures to enable the continued and uninterrupted operation of the state highway and/or railway network;

c. The degree of noise attenuation achieved by the noise sensitive activity;

d. Technical advice provided by the railway operator (KiwiRail) and/or the NZ Transport Agency.

v. Non-notification

Applications utilising Rule 5.2.9(iii) that do not simultaneously trigger other consent requirements, shall not be publicly notified and shall not be served on any party.

Objectives/Policies		
2.4.6	O1	P1, P2
2.4.7	O2, O3	P5
3.8.2	O2, O3	P9

5.2.10 Matamata airport approach path

i. Performance Standards

   a. New buildings or additions to existing buildings to be used for a noise sensitive activity shall not be located within the air noise boundary (65dBA Ldn) as shown on the Planning Maps.

   b. New buildings or additions to existing buildings to be used for a noise sensitive activity located in the area of land between the air noise boundary and the outer control boundary (65dBA – 55dBA Ldn contours) as shown on the Planning Maps shall be designed, insulated, and constructed to ensure a satisfactory internal noise environment in accordance with "NZS 6805:1992 – Airport Noise Management and Land Use Planning".

ii. Permitted activities

   a. New buildings or additions to existing buildings to be used for a noise sensitive activity located in the area of land between the air noise boundary and the outer control boundary (65dBA – 55dBA Ldn contours) as shown on the Planning Maps that have demonstrated compliance with the performance standard in 5.2.10(i)(b) above are a permitted activity.

   b. New buildings or additions to existing buildings to be used for a noise sensitive activity located outside the outer noise control boundary (55dBA Ldn contour) as shown on the Planning Maps are a permitted activity.

iii. Restricted-discretionary activities

New buildings or additions to existing buildings to be used for a noise sensitive activity located in the area of land between the air noise boundary and the outer control boundary (65dBA–55dBA Ldn contours) as shown on the Planning Maps that have not demonstrated compliance with the performance standard in 5.2.10(i)(b) above are a restricted-discretionary activity.

iv. Matters of discretion

Council has restricted its discretion to the following matters and may impose conditions relating to these matters if consent is granted:

   a. The effects of noise from the airport on the activity to be constructed;

   b. The reserve-sensitivity effects of the activity to be constructed on the continued operation of the airport;

   c. The extent to which the adverse effects can be mitigated;

   d. Any technical advice provided by the airport authority.

v. Non-notification

Applications utilising Rule 5.2.10(iii) that do not simultaneously trigger other consent requirements, shall not be publicly notified and shall not be served on any party other than the airport authority (Council).

vi. Non-complying activities

New buildings or additions to existing buildings to be used for a noise sensitive activity located within the air noise boundary (65dBA Ldn) as shown on the Planning Maps are a non-complying activity.

5.3 Vibration

i. Industrial and Business Activities

Advice note: This Section does not include vibration created as a result of blasting. See Section 4.9.1 for rules related to blasting.

Vibration from Industrial and Business activity shall not exceed the following average levels:

1. At or within the boundary of any site zoned Residential, or within 20m of any dwelling in the Rural or Rural-Residential zones:

Time	**Average weighted vibration level (Wb or Wd)**
Monday to Saturday: 7.00am to 6.00pm (0700 to 1800)	45 mm/s^2
At all other times	15 mm/s^2

2. At or within the boundary of any adjacent site zoned Business or Industrial:

Time	**Average weighted vibration level (Wb or Wd)**
At all times	60 mm/s^2

3. The weighted vibration levels Wb and Wd shall be measured according to BS6841:1987. The average vibration shall be measured over a time period not less than 60 seconds and not longer than 30 minutes. The vibration shall be measured at any point where it is likely to affect the comfort or amenity of persons occupying an adjacent site.

Objectives/Policies		
3.5.2.3	O1, O2, O3, O4	P1, P2, P3, P4

ii. Buildings adjacent to railway lines and state highways

Advice Note: Vibration from the operation of state highways and railway lines may cause adverse effects on adjacent buildings and occupants. Vibration is site specific and owners/developers are advised to undertake a vibration assessment to determine whether it will be an issue for their particular development.

Explanation

Vibration that is generated by business and industrial activities can cause discomfort or annoyance when it is transmitted to adjacent sites. Vibration produces complex sensations the location and character of which vary according to the vibration frequency, direction of vibration and other factors.

The vibration limits were chosen after consideration of the guidelines in the British Standard 6841:1987 and the Draft ISO Standard Dis 2634/2:(1987). The night time limit for residential areas and rural dwellings is set at just above the threshold of perception as it was considered necessary to provide a high degree of protection against sleep disturbances. During the day a limit of 3 times the threshold was chosen as a reasonable balance between residential amenity and the need for business activities to be able to generate a reasonable level of vibration.

8.1 Telecommunication

8.1.2 Performance standards

1 Where the cabinet is located in a residential zone, rural zone or a road reserve[1].

(a) 50dB L_{Aeq} between 7.00am to 10.00pm
(b) 40dB L_{Aeq} between the 10.00pm to 7.00am
(c) 65dB L_{AFmax} between the 10.00pm to 7.00am.

2 The noise from the cabinet must be measured and assessed at one of the following points:

(a) If the side of a building containing a noise sensitive activity is within 4m of the closest boundary of the road reserve, the noise must be measured at a point 1m from the side of the building; or

(b) In any other case, the noise must be measured at a point that is:

(i) at least 3 m from the cabinet; or
(ii) at any point within the residential boundary or notional boundary.

The noise from the cabinet must be measured in accordance with the requirements of NZS 6801:2008 *Acoustics – Measurement of environmental sound* assessed in accordance with the requirements of NZS 6802:2008 *Acoustic – Environmental Noise*. Where appropriate, the measured level must be adjusted in accordance with NZS 6801:2008 to a free field incident sound level.

8.2 Electricity transmission and distribution activities

8.2.2 Performance standards

iii Noise

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1 Where the substation is located in a residential zone, rural zone or a road reserve.

(d) 55dB L_{Aeq} between 7.00am to 10.00pm
(e) 45dB L_{Aeq} between the 10.00pm to 7.00am
(f) 75dB L_{AFmax} between the 10.00pm to 7.00am.

[1] Based on the Resource Management (National Environmental Standards for Telecommunication Facilities) Regulations 2016

2 The noise from the substation must be measured and assessed at one of the following points:

(a) If the side of a building containing a noise sensitive activity is within 4m of the closest boundary of the road reserve, the noise must be measured at a point 1m from the side of the building; or

(b) In any other case, the noise must be measured at a point that is:

(j) at least 3 m from the substation; or
(iii) at any point within the residential boundary or notional boundary.

The noise from the cabinet must be measured in accordance with the requirements of NZS 6801:2008 *Acoustics – Measurement of environmental sound* assessed in accordance with the requirements of NZS 6802:2008 *Acoustic – Environmental Noise.* Where appropriate, the measured level must be adjusted in accordance with NZS 6801:2008 to a free field incident sound level.