

27 April 2023

Shae Crossan
Stratum Consultants

P. 09 308 9015
E. info@stylesgroup.co.nz
W. www.stylesgroup.co.nz
Saatchi & Saatchi Building,
L2, 125 The Strand, Parnell
PO Box 37857, Parnell,
Auckland 1151

By email: shae.crossan@stratum.nz

Dear Shae,

245 Te Puna Station Road – Response to Request for Information

Introduction

Styles Group has prepared a response to the noise-related matters raised by Western Bay of Plenty District Council (**WBOPDC**). All matters raised are in relation to information provided in the Styles Group report (the **Report**) and the Styles Group Noise Management Plan (**NMP**) with respect to 245 Te Puna Station Road, Te Puna (the **Site**).

Acoustic matters raised

The matters raised and our responses are provided below. We have addressed the matters in the order they are set out in the requests for further information.

The application asserts that noise will comply with the relevant noise rules. We direct you to the following District Plan provision 4C.1.3.4:

Explanatory note:

Council may require any Discretionary or Non-Complying resource consent application in any zone to provide as part of the resource consent documentation evidence from an appropriately qualified independent person that the proposal shall comply with the District Plan noise levels for the site. Council shall consider the noise insulation methods associated with the use of generators, fans, blowers, refrigeration equipment, forklifts, outdoor loading operations, and any activity that operates between 7.00pm and 7.00am.

It is acknowledged that the acoustic bunding at the site has been constructed in excess of the Structure Plan requirements. However, the following information will provide further confidence regarding the Site's overall ability to manage noise:

21. Please provide the following:

- Days and hours of operation for the Site.
- Any other noise mitigation/management measures which will be implemented to ensure compliance with the relevant noise performance standards by tenants' activities.
- *The assessment states that in the opinion of the author, special audible characteristic are 'not required for any of the activities currently being undertaken on site'. I would expect to see further technical justification in support of this statement, especially given that should the adjustment be applied the daytime levels would not comply.*

• *The measured levels for concrete crushing in the assessment report appear to be lower than we would expect. The levels in the NMP are much higher and more in line with what we would expect, this should be clarified to confirm the correct levels were adopted in the assessment which identified compliance.*

• *Night-time noise levels appear to be based on moving a single house from the centre of the site – rather than close to the eastern boundary which is where the dwellings are shown as located. It is likely that night-time noise levels with truck movements closer to boundaries would therefore be higher at the closest dwellings. Please provide further details on the modelling of night-time noise.*

The location of concrete crushing (as assessed) is not clear, so it is not possible to verify the predicted levels at receivers. This should be clarified in the assessment report.

• *No assessment of cumulative noise levels has been provided.*

Response (Part 1):

- i. We understand that the Site will generally be operational Monday to Friday, 7:00 am to 5:30 pm. Depending on the occupancies of the Site, there may be activities on site outside these hours provided they comply with the relevant permitted noise standards in the WBPDP. For example, the cottages stored at the demolition yard are intermittently moved to / from the site at night (on average, approximately once per month).

There are no fixed buildings proposed on the Site. We understand that there is no proposal to establish any activities that could generate noise throughout the night.

- ii. Any new activities to be established at the Site will be reviewed by Barry Daniel (responsible for implementing the NMP) or a suitably qualified person to identify noise sources from that activity. Any activities that generate higher levels of noise or operate at night will be located at a tenancy that borders Te Puna Station Road or is at least 100 m from the notional boundary of any dwelling. Activities that generate higher levels of noise will also be located away from each other, where possible. This will help to reduce the cumulative level of noise from the Site being received at any individual surrounding dwelling.
- iii. An adjustment for special audible characteristics (SAC) is applied in accordance with NZS 6802:2008 where a sound may cause adverse community response at lower levels because it is noticeably tonal or impulsive. This is often assessed subjectively by a suitably qualified person. Where there is doubt about the presence of tonality it may be assessed objectively by analysis of the third-octave bands of a measured noise sample (as set out in Appendix B4 of NZS 6802:2008). The only noise sources presently anticipated on the Site that would qualify for the adjustment are tonal reversing alarms and intermittent impact noises. The NMP prevents the use of tonal alarms and requires broadband alarms to be used. The NMP also requires noise from tailgates being slammed and loads being dropped from height to be avoided. There are no other sources on site that would meet the criteria for the adjustment by either subjective analysis or analysis of the noise spectrum.
- iv. The crusher will no longer be used on site.
- v. Night-time noise level predictions have been updated following further information being provided to us.

We have run the noise model based on a truck delivering or collecting a cottage to the south-western corner of the A&J Demolition yard (driving along the eastern side of the yard) and a truck delivering or collecting a house on the eastern-most boundary of the Total Relocations yard. The predicted noise level is 31 dB L_{Aeq} at the notional boundary of 177 Te Puna Station Road, 37 dB L_{Aeq} at the notional boundary of 161 Clarke Road and 31 dB L_{Aeq} at the notional boundary of 42 Teihana Road.

- vi. The crusher will no longer be used on site.
- vii. Noise modelling has been undertaken to predict the cumulative noise levels from the Site. The cumulative noise levels from the Site will not exceed the WBPDP permitted noise limits. Most activities that will be established on the Site are not yet known, and so the noise sources from those tenancies cannot be described yet. The NMP has been updated to address how the cumulative noise from the Site will be managed so that the noise levels at the nearest notional boundary of any receiving site are compliant with the permitted noise limits when new activities are added to the Site.

22. Please provide an outline of methods proposed to manage construction noise from any physical works required as part of this application.

It is not clear within the NMP who is ultimately responsible for ensuring this plan is implemented. This is especially important given the proposal for sublots operating independently - further clarity on this matter should be provided within the NMP.

- *The NMP does not provide operators guidance on what to do if their activities contain special audible characteristics (whines, bangs, intermittent noise generation etc).*
- *Table 1 of the NMP provides typical noise levels at 10m; however, it would perhaps be more useful as a management tool if this was given as a separation distance from neighbours per activity to comply (for example it is likely concrete crushing can only occur in certain parts of the site).*
- *The NMP does not provide clear management procedures to limit night-time activity to meet the more stringent night-time limits.*
- *The second bullet point under item 6.1 suggests screening must be 2m high to be acoustically effective. However, this is dependent on the height of the noise source so could be misleading to future operators on the site who may inadvertently rely on ineffective screening. Suggest this is updated to provide clearer direction.*
- *Whilst the objective of the document is stated as to manage cumulative noise from the site, there is limited information on how this will be managed in effect, barring 'careful consideration'. If concrete crushing commences in one part of the site this would potentially limit the possibility for other high noise generating activities on site but the NMP does not provide clear guidance on how the NMP would be used to avoid cumulative levels above the limits across multiple separate leased areas. Please provide comment.*
- *The NMP relies on some tools/machinery being able to operate within buildings. However, no buildings are planned.*

Response (Part 2):

We have updated the NMP to address the RFI. The main changes are outlined below:

- i. Barry Daniel is responsible for implementing the NMP (contact details provided in Section 2.0)
- ii. Changes have been made to Section 4.2 to address cumulative noise levels.
- iii. Updates to Table 2 *Noise source level* to include compliance distances for individual activities. These are activity-specific distances and do not include any reduction for mitigation measures that may be available. Noise level predictions will still be required before establishing new activities on the site. These will include reductions from mitigation measures and will include the prediction of the cumulative noise levels.
- iv. The current activities at night comply with the permitted noise limits at night. The NMP requires any new activity at night to be assessed by a suitably qualified person and added to the plan to ensure that it will not infringe the noise limits before the activity begins.
- v. Minor changes to Section 6 to address barrier height.
- vi. Addition of Appendix D which sets out each tenancy on the Site and the noise sources, potential special audible characteristics, and mitigation measures for that specific tenancy. This Appendix will be updated when there are changes to noise sources operating on the site, or when a new activity is being established on a subplot.
- vii. Before any new noise generating activity begins on the Site, the cumulative noise levels from the Site including that activity will be assessed by a suitably qualified person and added to the NMP. The NMP will include any mitigation, management, and layout requirements required for the new or existing activities. This measure will ensure that the cumulative noise levels will not infringe the permitted noise limits.
- viii. The reference to 'buildings' is the relocatable buildings on the Site.

The following additional RFI was also received:

Noise:

17. The noise assessment provided was prepared at a time when concrete crushing activity was operating at the site. We understand this activity has ceased and is not proposed to continue. In addition, the assessment report notes that at the time of site visit (January 2021), it was not possible to undertake residual noise measurements due to use of reverse squawkers and road works occurring nearby. Please review whether the noise measurements should be undertaken again to measure the noise generated by the actual activities proposed (and currently operating at site under stay of abatement).
18. Please review the need to update the noise assessment based upon the actual height of existing bunds, any additional bunding proposed (and / or fencing) that may be required to achieve compliance with the bunding/screening height requirements of Appendix 7; and/or to mitigate noise and visual effects on adjacent sites.
19. Depending on the response to 16 and 17 above, the noise modelling may also need to be updated.
20. The assessment states that in the opinion of the author, special audible characteristic are 'not required for any of the activities currently being

undertaken on site'. Please provide further technical justification in support of this statement, especially given that should the adjustment be applied, the daytime levels would not comply.

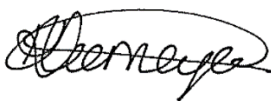
21. Night-time noise level predictions appear to be based on moving a single house from the centre of the site (Total Relocations tenancy). Please clarify if house moving is proposed at night. And if so, also model the noise generated from any other tenancy areas where night time moving may be proposed.
22. Please provide a Noise Management Plan for the specific activities proposed. We recommend that you also review s92 response review comments provided for RC13474L on February 7, 2023, and address any matters that would be applicable to the proposed industrial activities (operation for two years).

Response (Part 3):

- i. We have updated the assessment of noise effects to reflect the changes to existing activities on the Site. It is our opinion that noise measurements of the current use of the Site and the ambient noise levels are not required. There are no high-noise activities operating on the Site and the proposal does not include any infringement of the permitted noise limits.
- ii. Our assessment and modelling include the existing earth bund around the occupied sublots. The earth bund remaining at the existing height is proposed as a condition of consent. There is no requirement to update our modelling and no further acoustic barriers are required for compliance.
- iii. The noise modelling has been updated to remove the concrete crushing activity, as above.
- iv. Special audible character (SAC) has been addressed in our RFI response (Part 1, iii) and in the NMP. If an adjustment for SAC were required, the noise levels would be non-compliant by 1 dB at 161 Clarke Road. There are a number of mitigation measures that could be put in place to reduce the levels by 1 dB if this were the case. However, through the provisions of the NMP there are currently no activities being undertaken where SAC cannot be avoided by following the NMP. The mitigation requirements for avoiding SAC for each subplot are set out in Appendix D of the NMP.
- v. Night-time noise level predictions have been addressed in our RFI response (Part 1, v).
- vi. Our original NMP has been updated.

Please contact me if you require any further information.

Yours sincerely,



Kelly Leemeyer, MASNZ
Senior Consultant



ASSESSMENT OF NOISE EFFECTS

TE PUNA INDUSTRIAL ZONE ACTIVITIES
245 TE PUNA STATION ROAD, TE PUNA

PREPARED FOR

Barry Daniel

DATE

27 April 2023

Assessment prepared by Styles Group for Barry Daniel.

REVISION HISTORY

Rev:	Date:	Comment:	Version:	Prepared by:	Reviewed by:
1	18/02/21		Draft	Kelly Leemeyer, MASNZ Consultant Styles Group	Jamie Exeter, MASNZ, Assoc. NZPI Senior Consultant Styles Group
2	19/02/21		Final Draft		
3	8/09/22	Minor updates, updated site layout.	Final		
4	27/04/23	Updated to remove crusher and other changes to activities on site	Final	Kelly Leemeyer, MASNZ Senior Consultant Styles Group	Jamie Exeter, MASNZ, Assoc. NZPI Principal Styles Group

COPYRIGHT

All material in this document including, without limitation, text, images, graphics, layout, intellectual property and any other information (collectively 'content') is subject to copyright and other proprietary rights, including but not limited to, the Copyright Act 1994 (New Zealand) and international copyrights, trademarks or other intellectual property rights and laws. Unless otherwise stated, the content in this document is owned by Styles Group. The content of this document may not be copied in whole or in part without the permission of Styles Group.

Table of contents

Executive summary	1
1.0 Introduction	2
2.0 The proposal	2
3.0 The Site and surrounding environment	4
3.1 Zoning	5
4.0 Noise standards applying to the proposal	5
4.1 Western Bay of Plenty District Plan	5
4.2 New Zealand acoustics standards	7
4.2.1 NZS 6802:2008 Special audible characteristics	7
4.2.2 NZS 6802:2008 Duration adjustment	7
5.0 Noise mitigation	7
6.0 Noise modelling and predictions	8
6.1 Reference noise levels	8
6.2 Noise model parameters	9
6.3 Noise rating level calculation adjustments	9
6.4 Noise rating level predictions	10
7.0 Future activities	10
8.0 Assessment of noise effects	11
9.0 Recommended conditions of consent	12
10.0 Conclusion	12

Appendices

Appendix A	Glossary of terms
Appendix B	Noise rating level contours

Executive summary

Styles Group has assessed the potential noise effects of the existing and proposed activities at 245 Te Puna Station Road in the Te Puna Industrial Zone. Resource consent is sought to continue the current activities on the site and to establish additional activities over time.

We have prepared noise level predictions for the current activities using computer noise modelling software. Our assessment demonstrates that the noise emissions from the current activities comply with the Western Bay of Plenty District Plan permitted noise limits at the notional boundary of all surrounding sites.

Noise management and mitigation measures are proposed as conditions of consent. This includes maintaining the existing earth bunds and managing any future activities through the provisions of a noise management plan.

We do not expect noise from the proposed activity to cause unreasonable disturbance. The noise will be consistent with the existing environment in terms of both the level and character of noise anticipated by the District Plan zone, and the existing noise sources in the area which include road and rail traffic noise.

We have recommended conditions of consent based on our findings.

1.0 Introduction

Barry Daniel has engaged Styles Group to undertake an acoustic assessment of the potential noise effects of activities at 245 Te Puna Station Road, Te Puna (the **Site**). The Site is in the Te Puna Industrial Zone. Resource consent is sought to continue the current activities on the Site and establish additional activities over time.

This report sets out an assessment of the proposal from an acoustics perspective, including:

- i. Noise level predictions of the existing activities, prepared using Brüel & Kjær Predictor computer noise modelling software
- ii. An assessment of the noise levels in accordance with the Western Bay of Plenty District Plan (The District Plan) and the relevant New Zealand acoustics standards
- iii. Recommended noise management measures and conditions of consent based on our findings.

Our assessment is based on our understanding of the proposal following a site visit and discussions with the project team. This report should be read in conjunction with the application site plans and the Assessment of Environmental Effects. A glossary of acoustical terms used within this document is attached as Appendix A.

2.0 The proposal

Resource consent is sought to continue the current activities on the Site and establish additional activities over time. We understand that the concrete crushing activity and yard are no longer in use.

The existing activities have been established in the eastern area of the Site and include:

- A concrete crushing yard. We understand that this is no longer operating and is not part of the resource consent application
- An earthmoving machinery tyre storage yard (Earthmover Tyre Services)
- Two storage and renovation yards for removal houses (A&J Demolition and Total Relocations)
- A storage yard for imported swimming pools (Compass Pools).

The Earthmover Tyre Services storage yard involves one to two persons coming to site and collecting a truck from the yard to pick up tyres. Tyres are collected from across the country and delivered to site up to two times per day. Deliveries are intermittent, depending on the location for collection, and do not occur every day. Tyres are also intermittently collected from the site using a Hiab.

A&J Demolition store and renovate relocatable houses. They also store empty skip bins, portable fencing, and building supplies. Up to 10 people will be on site each day, depending on the number of houses being renovated at the time. The buildings are brought to site by truck and are generally stored there for long periods of time. Truck movements to and from this part of the site are infrequent, occurring approximately one to two times every six months (often at night). A forklift is also used intermittently.

The Total Relocations yard is used to store and renovate relocatable houses. Up to six people will be on site working on the houses each day when there are houses requiring work. When there are no houses requiring work, there will be no one on site.

The Compass Pools yard is used to store swimming pool shells. Approximately 15 – 20 shells are delivered to site every fortnight, and four to five shells are collected from the site per week. There are no permanent staff on site for this activity. Pools are lifted on and off trucks using a Hiab on a truck.

The applicant proposes to continue these activities and to add a range of other activities to the vacant parts of the Site over time. Future uses are anticipated to include activities permitted in the zone, such as storage yards, and a plant nursery. The activities on the Site will continue to evolve as tenants change. The typical day-to-day operating hours for the Site are presently 7:00 am – 5:30 pm, Monday to Friday. There will be intermittent use outside these hours e.g., for house deliveries / removal from site.

The layout of the Site is shown in Figure 1 below.

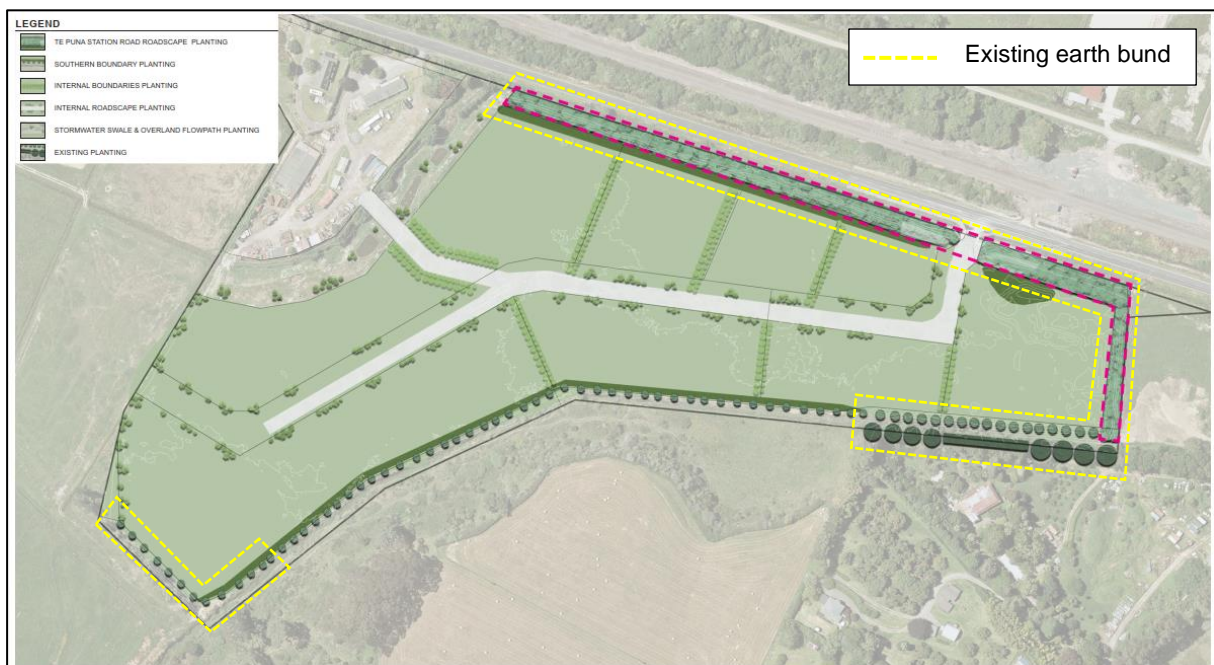


Figure 1: Site layout

3.0 The Site and surrounding environment

Figure 2 illustrates the Site (shaded red) and the closest surrounding sites.

The East Coast Main Trunk line runs along the northern side of Te Puna Station Road opposite the Site.



Figure 2: Map showing the Site (shaded red) and surrounding sites

3.1 Zoning

The zoning of the Site and the surrounding sites are shown in Figure 3 below. The Site and sites to the west are zoned *Industrial* and are identified in Appendix 7 of the District Plan as the *Te Puna Business Park*. The surrounding sites to the south and east are zoned *Rural*.

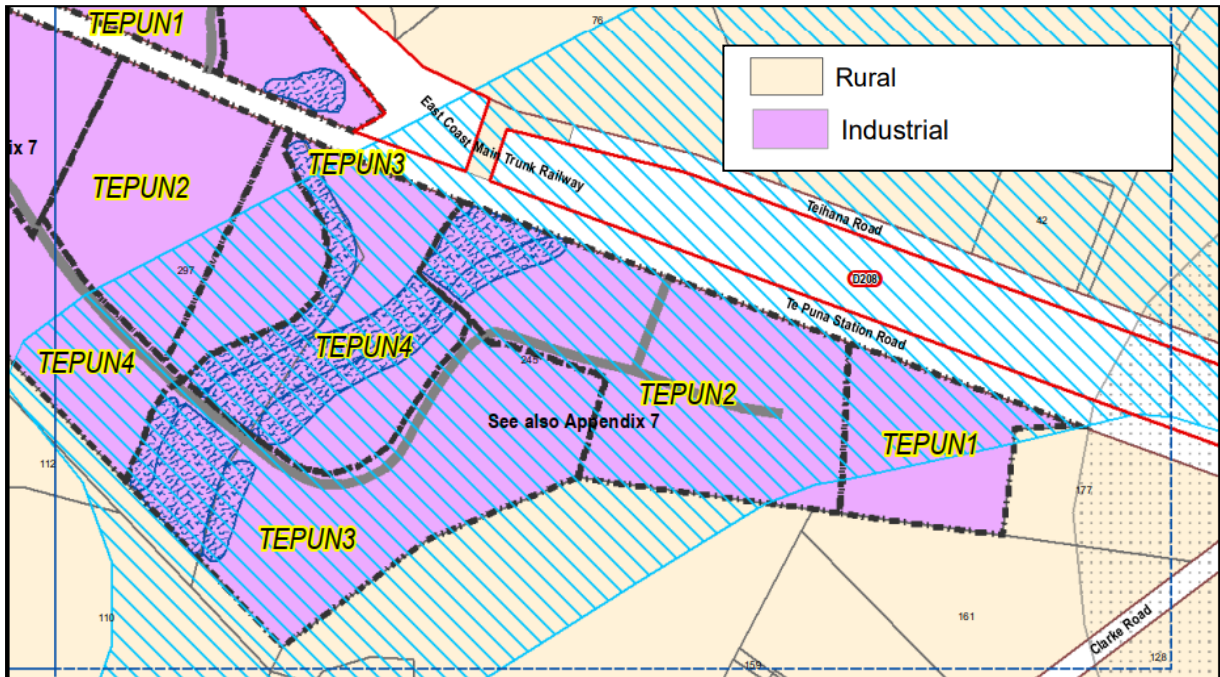


Figure 3: WBOP District Plan zoning map of the site and surrounding sites

4.0 Noise standards applying to the proposal

This section sets out the framework for the management of noise effects under the Western Bay of Plenty District Plan and the Act and the relevant New Zealand acoustics standards for the measurement and assessment of noise.

4.1 Western Bay of Plenty District Plan

Standard 4C.1.3 sets out the performance standards for the measurement and assessment of noise at the surrounding *Rural Zone* and *Industrial Zone* sites:

4C.1.3.2 Noise Limits

(b) Noise limits for activities in Industrial and Commercial Zones

(i) All activities located within Industrial and Commercial Zones shall be so conducted as to ensure that noise from the site shall not exceed the following noise limits within the stated timeframes at any point within the notional boundary of any dwelling in a Rural Zone or Rural-Residential Zone, nor at any point within the boundary of any property within a Residential or Future Urban Zone:

Time period		Sound Level Not to be Exceeded	
Day	Hours	L _{Aeq}	L _{Amax}
Monday to Saturday	6am to 10pm	55dB	N/A
Sunday and Public Holidays	9am to 6pm	55dB	N/A
At all other times		45dB	70dB

(ii) All activities located within Industrial Zones (excluding emergency service sirens) shall be so conducted as to ensure that noise from the site shall not exceed the following noise limits within the stated timeframes at any point within the boundary of any other property within an Industrial Zone:

Time period	Sound Level Not to be Exceeded	
	L _{Aeq}	L _{Amax}
Daytime 7am-10pm	65dB	N/A
Night time 10pm-7am	65dB	85dB

4C.1.3.4 Noise Measurement and Assessment

- a) For the purposes of Rule 4C.1.3.2, subject to the express provisions of these rules, sound levels should be measured in accordance with the requirements of NZS 6801:2008 Measurement of Environmental Sound, and assessed in accordance with the requirements of NZS6802:2008 Assessment of Environmental Sound;
- b) The noise shall be measured with a sound level meter complying with the International Standard IEC 651 (1979): Sound Level Meters, Type 1.

Explanatory note:

Council may require any Discretionary or Non-Complying resource consent application in any zone to provide as part of the resource consent documentation evidence from an appropriately qualified independent person that the proposal shall comply with the District Plan noise levels for the site. Council shall consider the noise insulation methods associated with the use of generators, fans, blowers, refrigeration equipment, forklifts, outdoor loading operations, and any activity that operates between 7.00pm and 7.00am.

The permitted noise limits for noise emissions from the Site can be summarised as:

- 55 dB L_{Aeq} during the day and 45 dB L_{Aeq} and 70 dB L_{Amax} during the night for noise received at any notional boundary in the Rural Zone (noting the shorter daytime period on Sundays)
- 65 dB L_{Aeq} during the day and 65 dB L_{Aeq} and 85 dB L_{Amax} during the night for noise received at any other site in the Industrial Zone.

In accordance with Rule 4C.1.3.4 (a), all noise must be measured and assessed in accordance with NZS 6801:2008 *Acoustics – Measurement of environmental sound* and NZS 6802:2008 *Acoustics – Environmental noise*.

4.2 New Zealand acoustics standards

All measurement and assessment of noise has been undertaken in accordance with the requirements of NZS 6801:2008 and NZS 6802:2008. Further discussion on the application of NZS 6802:2008 to our assessment is set out below.

4.2.1 NZS 6802:2008 Special audible characteristics

Section 6.3 of NZS 6802:2008 states that where the sound being assessed has a distinctive character which may affect its subjective acceptability (for example, it is noticeably impulsive or tonal), the representative sound level shall be adjusted to take this into account.

An adjustment for special audible characteristics (SAC) is not required for any of the activities currently being undertaken on site. Measures are proposed to avoid the types of noises and manage activities that could qualify for the adjustment. These are discussed further in Section 5.0.

4.2.2 NZS 6802:2008 Duration adjustment

Section 6.4 of NZS 6802:2008 states that if a sound is not present all of the time it is likely to create lesser annoyance than the same sound if it were continuously present. The Standard recommends that an adjustment of up to -5 dB shall be applied to the representative sound level to take this into account. The more the sound under investigation is present, the less the duration adjustment value is. If a sound is continuous then no duration adjustment is warranted. Because of the importance of protecting sleep, no adjustment is allowed during a prescribed time frame defined in a consent condition, rule or national environmental standard as night-time.

The duration adjustment applied to this application is discussed further in this report.

5.0 Noise mitigation

A number of physical noise mitigation and management measures have been implemented on the Site and form part of the application. The mitigation provided by these measures has been included in our calculation of the noise emissions from the Site and our assessment of the potential noise effects of the activity. We have set out the noise mitigation measures below.

The noise mitigation measures that have been implemented on the Site are set out below:

- i. Existing 2 – 3 m high earth bunds on the Site serve as acoustic barriers by screening the neighbouring sites from the activity. These are identified in the site plan in Figure 1. Our noise modelling is based on a 2.5 m high earth bund along the southern and eastern boundaries (shared with 161 Clarke Road and 177 Te Puna Station Road respectively) and a 2 m high earth bund along the northern road front boundary.
- ii. Tailgates on trucks must be operated with care not to create excessive noise (slamming).

- iii. Any mobile plant must be fitted with a broadband reversing alarm. The use of tonal reversing alarms (beepers) will be prohibited.
- iv. A Noise Management Plan (**NMP**) will be prepared and implemented to enable appropriate management of the operational noise levels associated with existing and future activities on the Site. The objective of this NMP is to ensure cumulative noise levels from all noise sources on the Site comply with the permitted noise limits at the nearest receivers. A draft version of the NMP has been prepared. This addresses mitigation measures to manage noise levels between leased areas/ sublots within the Site.

6.0 Noise modelling and predictions

Noise level predictions have been undertaken using noise modelling software to understand the spatial propagation of noise levels across and beyond the Site. This methodology enables the accurate prediction of noise levels across large areas of land, at multiple receivers and under a wide range of meteorological and operational conditions. The computer noise model is three-dimensional and considers the topography, buildings, ground coverage, physical attributes of the sound sources and receivers and many other factors.

We have used Brüel & Kjær Predictor computer noise modelling software to prepare the noise level predictions, based on the International Standards ISO 9613-1/2 *Acoustics – Attenuation of sound during propagation outdoors*. The calculations assume meteorological conditions that slightly enhance propagation in all directions in accordance with NZS 6801:2008. The Brüel & Kjær Predictor software is globally recognised and has been successfully implemented on a large number of projects throughout New Zealand.

This section sets out the information that has been used in the project noise model. This includes the noise sources, cadastral data, physical mitigation measures, model input parameters and any calculation adjustments applied to the predicted noise levels in accordance with the relevant New Zealand acoustics standards.

6.1 Reference noise levels

The reference sound power levels used in our calculations are derived from measurements undertaken by Styles Group. Our reference sound power levels are based on typical plant and operations. Good plant selection, regular maintenance, and experienced operators can further reduce noise emissions.

A sound power level of 102 dB L_{WA} has been used for the forklift operating at the AJ Demolition Yard. To represent the worst-case scenario, the noise model has been run with the forklift in two positions; one with the forklift closest to 177 Te Puna Station Road and one with the forklift closest to 161 Clarke Road.

A sound power level of 101 dB L_{WA} has been used for the Hiab truck lifting swimming pools and tyres. We have assumed there could be one truck accessing the tyre disposal yard and

one truck accessing the swimming pool yard in the same 15-minute period, with a swimming pool and tyres being lifted off the trucks. This allows for a worst-case scenario when calculating a representative $L_{Aeq(15\text{ min})}$ noise level for the activity on site in accordance with NZS 6802:2008.

Noise levels from trucks accessing the AJ demolition yard and the Total Relocations yard have been represented in a separate noise model during the night-time period. The locations of the truck movements are based on the worst-case scenario for the two closest receivers.

6.2 Noise model parameters

Terrain contours were imported from the Land Information New Zealand site. The topographical contours encompass the entire site and a large area of the surrounding land.

The input parameters for the noise model are set out in Table 1.

Table 1: Predictor noise model input parameters

Parameters/calculation settings	Details
Software	Brüel & Kjær Predictor V2023
Calculation method	ISO 9613.1/2
Meteorological parameters	Single value, C0 = 0
Ground attenuation over land	General method, ground factor: 0.9
Air temperature	293.15 K
Atmospheric pressure	101.33k Pa
Air humidity	60%

6.3 Noise rating level calculation adjustments

A duration adjustment has been applied to our daytime noise level calculations to derive a noise rating level in accordance with NZS 6802:2008 for comparison with the permitted noise limits.

The existing activities during the day take place on Monday to Friday. The noise sources on site may be present for up to 11 hours per day between 6:00 am and 10:00 pm. In accordance with Table 2 of NZS 6802:2008 a -1 dB adjustment has been made for a sound that is present less than 80% of the prescribed timeframe.

We understand that activities on Sundays are not anticipated at this time. If this changes, the duration adjustment will need to be calculated based on the prescribed time frame of 9:00 am and 6:00 pm. This will be included in the NMP.

We have not applied any duration adjustment to noise levels over the night-time period.

6.4 Noise rating level predictions

The predicted noise rating levels are displayed in Table 2 and Table 3. The daytime noise rating level contours are provided in Appendix B to illustrate the extent of the noise across the surrounding environment. The predicted noise rating levels are measured at the notional boundary.

The noise rating level includes a duration correction of -1 dB between 6:00 am and 10:00 pm in accordance with Clause 6.4 *Duration* of NZS 6802:2008. No adjustment has been made to any of the noise sources for special audible characteristics.

Any neighbouring site not specifically referenced in Table 2 or Table 3 is separated further from the proposed activity than those listed. The noise rating level received at the more distant sites will be lower and will readily comply with the permitted noise limit.

Table 2: Predicted noise rating levels 6:00 am to 10:00 pm

Address	Predicted noise rating level (dB L _{Aeq})	District Plan permitted noise limit
177 Te Puna Station Road	44 dB	55 dB L _{Aeq}
161 Clarke Road	51 dB	55 dB L _{Aeq}
42 Teihana Road	42 dB	55 dB L _{Aeq}

Table 3: Predicted noise rating levels 10:00 pm to 6:00 am

Address	Predicted noise rating level (dB L _{Aeq})	District Plan permitted noise limit
177 Te Puna Station Road	31 dB	45 dB L _{Aeq}
161 Clarke Road	37 dB	45 dB L _{Aeq}
42 Teihana Road	31 dB	45 dB L _{Aeq}

The noise rating levels displayed in Table 2 and Table 3 demonstrate that the current operations on the Site are compliant with the permitted noise limits at all surrounding sites, during all relevant prescribed timeframes.

7.0 Future activities

The noise levels of all activities on the Site will be managed so that the cumulative noise emissions from the Site comply with the permitted noise limits. This will be achieved through

careful management of the type and location of noise generating activities and through the provisions of the NMP.

Careful consideration will be given to the noise levels that an activity may generate and its effect on the cumulative noise levels prior to leasing an area of the Site.

The layout of the Site will be designed taking into consideration the cumulative noise levels received at the nearest rural or industrial sites. This means that activities on separate sublots that generate high levels of noise will be located apart or even at opposite ends of the Site to manage cumulative noise effects. There are no high noise generating activities currently operating on the Site.

When a new activity or new noise source may be added to the Site, the noise levels from all activities on site will be recalculated (the cumulative noise emissions) to ensure that the noise limits will not be exceeded. Specific mitigation for existing activities will be updated to accommodate new activities if required.

The noise levels will be assessed at the notional boundary of the nearest rural receivers: 177 Te Puna Station Road, 161 Clarke Road, and 42 Teihana Road. If the noise levels comply at these notional boundaries, they will be compliant for all other notional boundaries because of the additional separation distance.

The assessment position for the cumulative noise levels will need to be updated if the surrounding land is further developed and a notional boundary is established that is closer to the highest noise generating activities than the existing notional boundaries.

The above measures are all included in the draft NMP. The details of any new or updated mitigation for changing or new activities will be added to the NMP as required.

8.0 Assessment of noise effects

The noise emissions from the current activities on the Site comply with the permitted noise limits at the notional boundary of all surrounding sites.

The physical and management-based noise mitigation measures included as part of the application will enable the cumulative noise levels from existing and future activities on the site to comply with the permitted noise limits. This includes managing any new activities through the provisions of a NMP. The applicant proposes to include the existing and proposed noise mitigation measures in the conditions of consent.

Noise emissions from the proposed activity will be noticeable at times at the nearest surrounding notional boundaries. But we do not expect it to cause unreasonable disturbance. The noise will be consistent with the existing environment in terms of both the level and character of noise anticipated by the District Plan zone, and the existing noise sources in the area which include road and rail traffic noise.

9.0 Recommended conditions of consent

We recommend the following conditions of consent are imposed. These are in addition to the standard condition requiring compliance with the application documents as lodged (including this report) and based on compliance with the permitted noise limits.

1. The earth bunds existing at the time consent is granted must be maintained along the northern, eastern, and southern site boundaries at all times. The heights, specifications and locations of the constructed bunds must be in accordance with the application site plans and the acoustic assessment lodged with the application (prepared by Styles Group Acoustics & Vibration Consultants, dated 26 April 2023).
2. The consent holder must prepare a Noise Management Plan (NMP) for all activities on the site. The NMP must be submitted to Western Bay of Plenty District Council for certification within four weeks of this consent being granted. The objective of the NMP must be to ensure that the cumulative noise emissions from all activities on site do not exceed the Western Bay of Plenty District Plan permitted noise limits.

The NMP must include details of all noise management measures and restrictions and physical noise mitigation required to ensure that the permitted noise limits are consistently complied with. The NMP must be updated before any new noise source or noise generating activity is introduced to the site. All noise calculations and assessments used to inform the NMP must be undertaken by a suitably qualified person (e.g., MASNZ). The consent holder must submit the current version of the NMP to Western Bay of Plenty District Council for inspection upon reasonable request.

10.0 Conclusion

Styles Group has prepared noise level predictions, a range of noise management measures and we have assessed the potential noise effects of the activities at 245 Te Puna Station Road, Te Puna. Resource consent is sought to continue the current activities on the Site and to establish additional activities over time.

Our noise modelling demonstrates that the noise emissions from the current activities comply with the permitted noise limits at the notional boundaries of all surrounding sites.

The physical and management-based noise mitigation measures included as part of the application will enable the cumulative noise levels from existing and future activities on the site to comply with the permitted noise limits. This includes managing any new activities through the provisions of a NMP. The applicant proposes to include the existing and proposed noise mitigation measures in the conditions of consent.

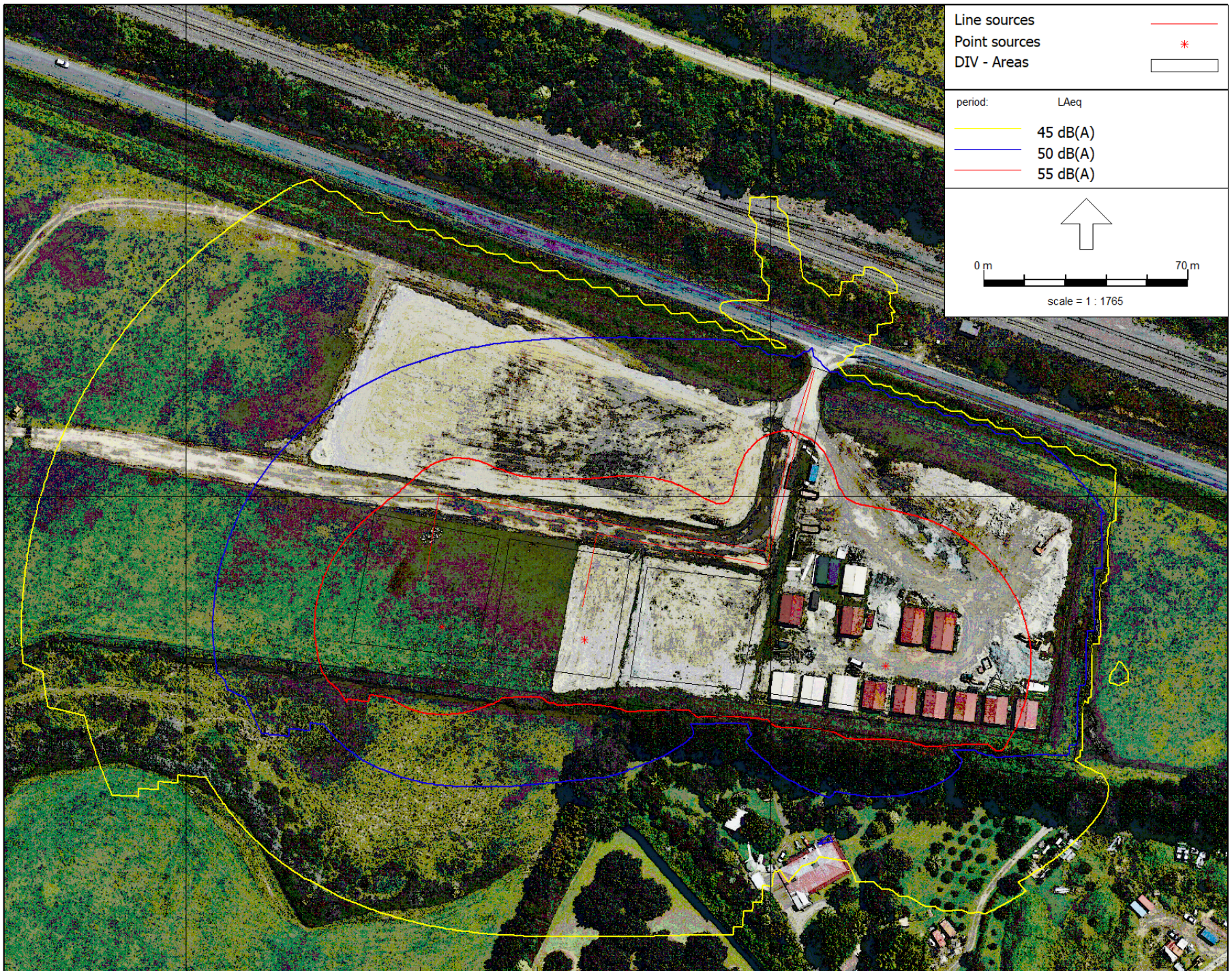
Noise from the proposed activity will be noticeable at times at the nearest surrounding notional boundaries but we do not expect it to cause unreasonable disturbance. The noise will be consistent with the existing environment in terms of both the level and character of noise anticipated by the District Plan zone, and the existing noise sources in the area which include road and rail traffic noise.

We have recommended conditions of consent based on our findings.

Appendix A Glossary of terms

Noise	A sound which serves little or no purpose for the exposed persons and is commonly described as 'unwanted sound'. The definition of noise includes vibration under the Resource Management Act.
dB (decibel)	The basic measurement unit of sound. The logarithmic unit used to describe the ratio between the measured sound pressure level and a reference level of 20 micropascals (0 dB).
A-weighting	A frequency filter applied to the full audio range (20 Hz to 20 kHz) to approximate the response of the human ear at lower sound pressure levels.
$L_{Aeq(t)}$ (dB)	The A-weighted equivalent sound pressure level with the same energy content as the measured varying acoustic signal over a sample period (t). The preferred metric for sound levels that vary over time because it takes into account the total sound energy over the time period of interest.
L_{AFmax} (dB)	The maximum A-weighted sound pressure level recorded during the measurement period using a fast time-weighting response.
L_{WA} (dB)	Sound power level (LWA) is the acoustical energy emitted by a sound source. It is an absolute value and is not affected by distance or the environment. The LWA is used in computer noise modelling to calculate the sound pressure level (e.g. L_{Aeq}) at a given distance.
Noise rating level	A derived noise level used for comparison with a noise limit.
Notional boundary	A line 20 metres from any side of a residential unit or other building used for a noise sensitive activity, or the legal boundary where this is closer to such a building.
NZS 6801:2008	N.Z. Standard NZS 6801:2008 Acoustics – Measurement of environmental sound.
NZS 6802:2008	N.Z. Standard NZS 6802:2008 Acoustics – Environmental noise.
NZS 6803:1999	N.Z. Standard NZS 6803:1999 Acoustics – Construction noise.
The Act	The Resource Management Act 1991.
s16	Section 16 of the Act states that "every occupier of land (including any premises and any coastal marine area), and every person carrying out an activity in, on, or under a water body or the coastal marine area, shall adopt the best practicable option to ensure that the emission of noise from that land or water does not exceed a reasonable level".
ISO 9613-1/2	International Standard ISO9613-1/2 Attenuation of sound during propagation outdoors

Appendix B Noise rating level contours



5824600

1872000

1872200





NOISE MANAGEMENT PLAN

245 TE PUNA STATION ROAD, TE PUNA

PREPARED FOR

Barry Daniel

DATE

27 April 2023

Noise management plan prepared by Styles Group for Barry Daniel.

REVISION HISTORY

Rev:	Date:	Comment:	Version:	Prepared by:	Reviewed by:
1	10/12/20	Draft for client review	Draft	Kelly Leemeyer, MASNZ Consultant Styles Group	Jamie Exeter, MASNZ, Assoc. NZPI Senior Consultant Styles Group
2	8/9/22	Minor updates	Final Draft		
3	27/04/23	Updates following RFI and removal of concrete crushing on site	Final Draft 2.0	Kelly Leemeyer, MASNZ Consultant Styles Group	Jamie Exeter, MASNZ, Assoc. NZPI Senior Consultant Styles Group

COPYRIGHT

All material in this document including, without limitation, text, images, graphics, layout, intellectual property and any other information (collectively 'content') is subject to copyright and other proprietary rights, including but not limited to, the Copyright Act 1994 (New Zealand) and international copyrights, trademarks or other intellectual property rights and laws. Unless otherwise stated, the content in this document is owned by Styles Group. The content of this document may not be copied in whole or in part without the permission of Styles Group.

Table of contents

1.0	Introduction	2
2.0	Contacts	2
3.0	Existing and future activities on the Site	2
4.0	Noise performance criteria	3
4.1	Western Bay of Plenty District Plan permitted noise limits	3
4.2	Management of cumulative noise levels	4
5.0	Typical noise generating activities in industrial and commercial zones.....	5
6.0	Noise mitigation measures.....	7
6.1	Acoustic screening	7
7.0	Noise monitoring	8
8.0	General requirements	9

Appendices

Appendix A	Glossary of terms
Appendix B	Site layout
Appendix C	Noise monitoring results
Appendix D	Tenancies at the Site

1.0 Introduction

Styles Group has been engaged by Barry Daniel to prepare a Noise Management Plan (**NMP**) to enable appropriate management of the operational noise levels associated with Te Puna Industrial Zone activities undertaken at 245 Te Puna Station Road (the **Site**).

The District Plan requires noise from all activities on the Site to be managed so that the cumulative noise emissions from all activities on the Site comply with the Western Bay of Plenty District Plan (**WBPD**) noise limits (i.e., when measured and assessed all together).

The Site includes ten areas (**sublots**) that will be developed over time. The objective of this NMP is to ensure that cumulative noise levels from all noise sources on the Site comply with the permitted noise limits at the nearest receivers in the Rural Zone and Industrial Zone.

This NMP is a 'living document' that will be updated when there are changes to the occupants and/ or activities undertaken on the sublots. This NMP must be kept up to date to include all noise sources and noise generating activities on the Site. It must be provided to WBPD upon reasonable request.

All noise calculations and assessments used to inform this NMP will be undertaken by a suitably qualified person e.g., a Member of the Acoustical Society of New Zealand.

A glossary of the acoustical terms used in this document is provided as Appendix A.

2.0 Contacts

The contact for queries regarding this NMP, and the person responsible for its implementation is:

Barry Daniel

ph: 027 437 6270

The consultants engaged to provide noise advice are:

Styles Group Acoustics & Vibration Consultants

ph: 09 308 9015

3.0 Existing and future activities on the Site

The activities below currently operate from the established sublots on the Site:

- An earthmoving machinery tyre storage yard (Earthmover Tyre Services)
- Two storage and renovation yards for removal houses (A&J Demolition and Total Relocations)
- A storage yard for imported swimming pools (Compass Pools).

Activities will be established on other parts of the Site over time. Some activities will generate higher levels of noise, while other activities will be much quieter and will generate lower levels of noise intermittently.

The overarching requirement is to manage the noise levels of all activities on the Site so that the cumulative noise levels from all activities on the Site comply with the WBPDP noise limits (i.e., when measured and assessed together).

4.0 Noise limits

The limits that apply to the cumulative noise levels from all activities on the Site can be summarised as:

- **Noise received within the notional boundary¹ of any neighbouring site in the Rural Zone (177 Te Puna Station Road, 161 Clarke Road, and 42 Teihana Road):**

Monday to Saturday: 55 dB L_{Aeq} from 6:00 am to 10:00 pm; and 45 dB L_{Aeq} and 70 dB L_{Amax} from 10:00 pm to 6:00 am.

Sundays: 55 dB L_{Aeq} from 9:00 am to 6:00 pm; and 45 dB L_{Aeq} and 70 dB L_{Amax} from 6:00 pm to 6:00 am the following day.

- **Noise received within the notional boundary of any other site in the Industrial Zone:**
- On all days: 65 dB L_{Aeq} at all times and 85 dB L_{Amax} from 10:00 pm to 7:00 am.

In accordance with WBPDP Rule 4C.1.3.4(a), all noise must be measured and assessed in accordance with NZS 6801:2008 *Acoustics – Measurement of environmental sound* and NZS 6802:2008 *Acoustics – Environmental noise*.

The noise limits above are taken from the WBPDP permitted noise limits for the Rural Zone and Industrial Zone. The Site is zoned *Industrial* and all surrounding sites are zoned either *Industrial* or *Rural*.

The permitted limits from the WBPDP District Plan for noise received at the surrounding *Rural Zone* and *Industrial Zone* sites are set out below for reference.

4C.1.3.2 Noise Limits

(b) Noise limits for activities in Industrial and Commercial Zones

- (i) All activities located within Industrial and Commercial Zones shall be so conducted as to ensure that noise from the site shall not exceed the following noise limits within the stated timeframes at any point within the notional boundary of any dwelling in a

¹ Notional boundary means a line 20m from any side of a *dwelling*, or the legal boundary of the property on which the *dwelling* is located, whichever point is closer to the *dwelling*.

Rural Zone or Rural-Residential Zone, nor at any point within the boundary of any property within a Residential or Future Urban Zone:

Time period		Sound Level Not to be Exceeded	
Day	Hours	L _{Aeq}	L _{Amax}
Monday to Saturday	6am to 10pm	55dB	N/A
Sunday and Public Holidays	9am to 6pm	55dB	N/A
At all other times		45dB	70dB

(ii) All activities located within Industrial Zones (excluding emergency service sirens) shall be so conducted as to ensure that noise from the site shall not exceed the following noise limits within the stated timeframes at any point within the boundary of any other property within an Industrial Zone:

Time period	Sound Level Not to be Exceeded	
	L _{Aeq}	L _{Amax}
Daytime 7am-10pm	65dB	N/A
Night time 10pm-7am	65dB	85dB

5.0 Management of cumulative noise levels

The noise levels of all activities on the Site must be managed so that the cumulative noise from the Site complies with the WBPDP noise limits, when assessed together. This can be achieved through careful management of the type and location of noise generating activities.

Before leasing an area of the Site, careful consideration must be given to the noise levels that an activity may generate and their effect on the cumulative noise levels.

The layout of the Site must take into consideration the cumulative noise levels received at the nearest rural or industrial sites. This means that activities on separate sublots that generate high levels of noise (potentially at the same time) should be located at apart or even at opposite ends of the Site to avoid cumulative noise effects. Currently, there are no high noise generating activities operating on the Site.

When a new activity or new noise source is planned for the Site, the noise levels from all activities on site must be recalculated to determine the cumulative noise emissions. Any design, mitigation or management measures will then be determined and implemented. This will ensure that the noise limits are not exceeded when activities change or are established. Specific mitigation for existing activities will need to be updated to accommodate new activities if the noise limits will be exceeded. The details of any new or updated mitigation will be included in Appendix D of this NMP.

The noise levels must be assessed at the notional boundary of the nearest rural receivers, 177 Te Puna Station Road, 161 Clarke Road and 42 Teihana Road. If the noise levels comply at

these notional boundaries, they will be compliant for all other notional boundaries because of the additional separation distance from the highest noise generating activities.

The assessment position for the cumulative noise levels will need to be updated if the surrounding land is further developed and a notional boundary is established that is closer to the highest noise generating activities than the existing notional boundaries.

6.0 Typical noise-generating activities in industrial and commercial zones

Table 1 sets out reference noise source levels for a number of activities that are typically undertaken within industrial or commercial areas and noise mitigation options for these activities. Further details of mitigation options are provided in Section 7.0. The mitigation options may not be practicable to implement in all cases but can be referred to as a guide if it becomes necessary to reduce noise levels between sublots or to mitigate cumulative noise emissions to the surrounding sites. This table will be updated with any site and plant specific measurements that are undertaken on the Site.

Table 1: Noise source levels

Activity	Noise level at 10 m	Distance for compliance with WPDP daytime noise limit*	Distance for compliance with WPDP daytime noise limit, including 10 dB reduction	Mitigation options to reduce noise
Angle grinder	86 dB L _{Aeq}	340 m	107 m	Operate inside building only or inside an acoustic enclosure, or behind acoustically effective fencing
Loading trucks with excavator	75 dB L _{Aeq}	95 m	31 m	Avoid impact noise from dropping material from height into empty truck. If possible, load trucks towards the centre of site rather than on a lot or Site boundary
Lifting with crane	75 dB L _{Aeq}	95 m	31 m	If possible, position crane engine near to the centre of site rather than on a lot or Site boundary Use a building as screening

Activity	Noise level at 10 m	Distance for compliance with WBPDP daytime noise limit*	Distance for compliance with WBPDP daytime noise limit, including 10 dB reduction	Mitigation options to reduce noise
Pneumatic impact wrench (rattle gun)	73 dB L _{Aeq}	76 m	24 m	Operate inside building or inside an acoustic enclosure or operate behind acoustically effective fencing
Water blaster	73 dB L _{Aeq}	76 m	24 m	Operate inside an acoustic enclosure or operate behind acoustically effective fencing
Forklift (diesel)	70 dB L _{Aeq}	54 m	17 m	Use electric forklift, operate slowly, set down loads and forks gently
Bobcat	70 dB L _{Aeq}	54 m	17 m	Switch pure tone reversing alarm (beeper) to broadband reversing alarm (squawker)
Truck movements	64 dB L _{Aeq}	27 m	9 m	If possible, keep trucks towards the centre of site rather than on a lot or Site boundary Operate only within daytime hours if trucks need to operate near a Site boundary with rural receivers
Handheld power tools	Ranges <60 dB – 85 dB L _{Aeq}	17 – 300 m	6 – 95 m	Operate inside building or inside an acoustic enclosure or operate behind acoustically effective fencing

*This is an activity specific distance and does not include any reduction for mitigation. Noise level predictions will be required before establishing new activities on the site, to include reductions from mitigation and cumulative noise levels.

Table 1 will be updated as new activities are established on the sublots. Table 1 should be referenced when a new activity is being established on one of the sublots to determine whether it is a high noise activity that may require screening or specific positioning within the Site.

Some activities that may be established may require more complex acoustic mitigation or management measures to ensure compliance. In all cases, an acoustics consultant will be engaged to discuss mitigation options that may be suitable and to update the NMP.

7.0 Noise mitigation measures

The consent holder and operators of activities on the sublots must take all practicable steps to implement the following noise mitigation measures listed below where it is required to mitigate noise emissions to the surrounding sites and/ or to manage noise levels within the Site. These can be adopted in conjunction with the options displayed in Table 1.

General noise mitigation

- The quietest machinery and methods available should be used where practicable
- All machinery should be in good condition and maintained in good condition. For example, all tracked plant should be greased to reduce squeaking
- When vehicles, machinery or plant are not required to be running, they should be switched off and not left idling
- Noisy plant and machinery should be strategically positioned on the site to reduce the effects on neighbours where practicable. For example, where there are buildings stored at tenancies, these can be used to screen a noisy activity from the same tenancy or a neighbouring tenancy
- Noise generating activities should be undertaken away from the site boundary to increase the separation distance between the noise source and the receiver
- All plant and equipment must use broadband reverse alarms (squawkers) in place of traditional tonal 'beepers'
- The tail gates of trucks should be closed with care and not slammed or allowed to fall closed causing unnecessary noise
- Horns should not be used unless in the case of an emergency
- Any radios or music played on site should not be audible at the nearest sites
- All personnel on site should be aware of this NMP and requirement to minimise the effects of noise on neighbouring lots and surrounding sites.

7.1 Acoustic screening

- Earth bunds between 2.0 m and 3.0 m high are in place around much of the Site boundary. These are very effective where they block the line of sight between the noise source and the receiver.

- Additional bunds or acoustic fencing can be constructed around the Site boundary or between lots if required. To be effective the barrier must block the line of sight between the noise source and the receiver. Typically, a 2 m high acoustically effective fence that is solid with no gaps along its' length or at the base, and a surface mass of no less than 10 kg/m² (e.g. 20 mm timber) will provide effective screening.
- A building is a very effective acoustic barrier if the noise source can be positioned so the building screens it from the receiving subplot or site.
- A localised acoustic barrier must be used to reduce the noise emissions if the noise levels from an activity near to a receiver cannot otherwise comply with the permitted or recommended noise limits.
- Any localised screening should be located as close as practicable to the noise source to improve its effectiveness.
- Quiet machinery and structures should be positioned to provide as much screening as possible to noisy equipment working on the site e.g., storage units, containers and trucks.

8.0 Noise monitoring

Noise measurements will be performed:

- i. If there is uncertainty regarding noise levels from a new activity and whether or not the noise emissions will be or compliant at adjacent sites
- ii. At the reasonable request of Western Bay of Plenty District Council
- iii. Following the receipt of any reasonable complaint.

The results of the monitoring will be used to determine whether compliance with the relevant noise limits is achieved, and if not, to inform the further mitigation that would be required to achieve compliance. The results will be used to update and maintain this NMP to ensure that mitigation measures are specifically tailored to the equipment used on each subplot. The results of all monitoring should be recorded in Appendix C and made available to Council at their reasonable request.

Noise measurements will be undertaken in accordance with this document and by observing the following requirements:

- i. All noise measurements shall be undertaken using a sound level meter conforming to at least IEC651 Type 1 criteria
- ii. All noise measurements and assessments shall be carried out in accordance with NZS 6801:2008 *Acoustics – Measurement of environmental sound* and NZS 6802:2008 *Acoustics – Environmental noise*

- iii. All noise monitoring and assessment shall be undertaken by a suitably qualified person.

9.0 General requirements

The NMP is a living document and will be updated when new activities are established on the Site or if activities being undertaken on the Site change and noise levels may increase.

All activities must be undertaken in accordance with the latest version of the NMP.

A copy of the current NMP shall be kept at each occupied subplot.

All personnel working on the Site will be informed about the need to minimise noise, the proximity of nearby noise sensitive dwellings, the need to comply with the District Plan noise limits during the day and night-time periods, and the need to avoid unreasonable noise at all times. Special attention should be given to:

- i. Proper selection, use and maintenance of tools and plant
- ii. Positioning of machinery on site
- iii. Avoidance of unnecessary noise
- iv. Procedures for receiving, reporting and investigation of noise complaints.

Appendix A Glossary of terms

Noise	A sound which serves little or no purpose for the exposed persons and is commonly described as 'unwanted sound'. The definition of noise includes vibration under the Resource Management Act 1991.
dB (decibel)	The basic measurement unit of sound. The logarithmic unit used to describe the ratio between the measured sound pressure level and a reference level of 20 micropascals (0 dB).
$L_{Aeq(t)}$ (dB)	The A-weighted equivalent sound pressure level with the same energy content as the measured varying acoustic signal over a sample period (t). The preferred metric for sound levels that vary over time because it takes into account the total sound energy over the time period of interest.
NZS 6801:2008	N.Z. Standard NZS 6801:2008 Acoustics – Measurement of environmental sound.
NZS 6802:2008	N.Z. Standard NZS 6802:2008 Acoustics – Environmental noise.
NMP	Noise management plan. A document designed to help occupants of the Site mitigate and minimise noise emissions to other lots and the surrounding area

Appendix B Site layout

TE PUNA STATION ROAD ROADScape | LANDSCAPE MITIGATION PLAN



LANDSCAPE PROPOSAL | 245 TE PUNA STATION ROAD | 1 APRIL



Appendix C Noise monitoring results

Measurement results

Sample start time	Duration of sample	L _{Aeq} (dB)	L _{AFmax} (dB)	Sound source controlling the measured levels	Adjustments required for distance, facade correction or barriers	Compliance achieved?	Noise mitigation options available

Appendix D Tenancies at the Site

Appendix D must be updated if there are any changes to the use of a tenancy at the Site including establishing any new activities, changes to machinery used, and hours of operation.

The mitigation measures required by each tenancy must be reviewed each time there are changes to the use of a tenancy at the Site to determine whether any additional mitigation measures are required.

A&J Demolition

Hours of operation

- Monday to Friday, 7:00 am to 5:30 pm
- Occasionally during evenings to move buildings to / from site

Noise sources

- Hand tools
- Forklift
- Trucks (day-time for cottage storage and removal)
- Trucks (night-time for cottage storage and removal)

Potential special audible characteristics

- Reverse beeper on machinery
- Use of machinery on site in a way that generates impulsive or impact noises

Mitigation measures required for compliance with noise limits

- Maintain 2.5 – 3 m high earth bund around the southern, eastern and western boundaries of the tenancy
- No tonal reversing alarms “beepers” to be used. Broadband reverse alarms “squawkers” must be fitted to all plant that requires a reverse alarm
- No loud music played to be played on the Site
- Avoid dropping / banging skip bins / other items when using the forklift

Total Relocation

Hours of operation

- Monday to Friday, 7:00 am to 5:30 pm
- Occasionally during evenings to move buildings to / from site

Noise sources

- Hand tools
- Trucks (day-time for building storage and removal)
- Trucks (night-time for building storage and removal)

Potential special audible characteristics

- Use of machinery on site in a way that generates impulsive / impact noises

Mitigation measures required for compliance with noise limits

- Maintain 2.5 - 3 m high earth bund around the southern, eastern and western boundaries of the tenancy
- No loud music played to be played on the Site
- No tonal reversing alarms “beepers” to be used. Broadband reverse alarms “squawkers” must be fitted to all plant that requires a reverse alarm

Earthmover Tyre service

Hours of operation

- Intermittently on Monday to Friday, 7:00 am to 5:30 pm

Noise sources

- Truck movements
- Hiab lifting tyres

Potential special audible characteristics

- Use of machinery on site in a way that generates impulsive / impact noise

Mitigation measures required for compliance with noise limits

- Maintain 2.5 - 3 m high earth bund around the southern, eastern and western boundaries of the tenancy
- No loud music played to be played on the Site
- No tonal reversing alarms “beepers” to be used. Broadband reverse alarms “squawkers” must be fitted to all plant that requires a reverse alarm

Swimming pool storage yard

Hours of operation

- Intermittently on Monday to Friday, 7:00 am to 5:30 pm

Noise sources

- Truck movements
- Hiab lifting swimming pools

Potential special audible characteristics

- Use of machinery on site in a way that generates impulsive / impact noises

Mitigation measures required for compliance with noise limits

- Maintain 2.5 - 3 m high earth bund around the southern, eastern and western boundaries of the tenancy
- No loud music played to be played on the Site
- No tonal reversing alarms “beepers” to be used. Broadband reverse alarms “squawkers” must be fitted to all plant that requires a reverse alarm