

10 October 2025

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Dear Vance,

**RE: Managed fill, 363 Jones Road, Dury
Response to Section 92 Questions**

Styles Group assessed the potential noise effects of the proposed managed fill at 363 Jones Road, Dury and provided an acoustic report dated 1 November 2024.

This letter provides further noise mitigation advice and a response to the Auckland Council s92 request dated 4 March 2025. The matters relevant to noise and vibration are set out below:

3a. Please provide additional information on rural amenity effects when considering the level, character, timing, frequency, and duration of noise emissions from daily filling activities, the relationship with the existing noise environment (i.e. ambient and background noise levels) and, the audibility of noise received at the closest neighbouring dwellings including in outdoor living areas and inside habitable rooms.

3b. Please comment if vibration from heavy machinery operating on the subject site will be perceptible at the closest dwellings and if so, please describe typical subjective effects on affected occupants and any mitigation (if required).

3c. Although trucks driving on public roads to and from the subject site are outside the scope of the AUP(OP) noise standards, given a number of submitters have expressed their concerns, please confirm the preferred route (i.e. immediate road network) for trucks travelling to and from the subject site and, the associated noise and vibration effects on the closest dwellings to the road having regard to existing traffic volume, the percentage of heavy vehicles, the frequency and timing of truck pass-by events associated with the subject site and, potential noise or vibration nuisance from truck pass-by events relative to the existing noise environment.

3d. Please confirm the level of mitigation (in decibels) provided by the proposed noise bund, as the acoustic assessment states the bund will be located approximately 20-25m from the eastern boundary but the plans show the bund will be much closer.

3e. Please update the noise assessment to consider potential effects on the newest dwelling located at 1821 Hunua Road (which was not shown on the previous aerial images).

3f. If you have considered any amendments to the proposal as a result of your review of the submissions, or have any further information prepared in this regard, please advise so that this can be reviewed.

1.0 Response to Question (3a)

3a. Please provide additional information on rural amenity effects when considering the level, character, timing, frequency, and duration of noise emissions from daily filling activities, the relationship with the existing noise environment (i.e. ambient and background noise levels) and, the audibility of noise received at the closest neighbouring dwellings including in outdoor living areas and inside habitable rooms.

Permitted activities in the Rural – Rural Production Zone (**RPZ**) include intensive farming, forestry, farm and forestry quarries, and mineral prospecting and exploration. These activities typically involve the use of heavy machinery and truck movements on private land, similar to the proposed activity.

We have considered whether any other activity permitted in the RPZ might generate the same noise effects in terms of level, character and timing. AUP policy H19.2.4 states (emphasis added):

(2) Recognise the following are typical features of the Rural – Rural Production Zone, Rural – Mixed Rural Zone and Rural – Rural Coastal Zone and will generally not give rise to issues of reverse sensitivity in these zones:

...

(b) noise, odour, dust, traffic and visual effects associated with use of the land for farming, horticulture, forestry, mineral extraction and cleanfills;

The duration of noise that any neighbour might be exposed to as a result of any permitted activities would depend on their proximity to particular features of the site. The fill will be completed in six stages across two separate areas. Out of a period of 10 years, we would expect that the total cumulative duration of machinery use for the proposed fill could be similar to the duration of machinery noise from permitted farming and horticultural activities or farm or forestry quarries.

The permitted activities in the RPZ could also generate noise at a level and character that is similar to that proposed here, where noise from heavy plant, and vehicle, truck and heavy machinery movements could be present intermittently but regularly.

AUP performance standards for noise have been set at a level that will maintain appropriate amenity standards for residents in the RPZ. This is consistent with Section 8.6 of NZS 6802:2008 which sets out a guideline upper noise limit of 55 dB L_{Aeq} for the reasonable protection of health and amenity associated with the use of land for residential purposes (including within the notional boundary of a rural dwelling).

The noise will comply with the permitted noise limits, and the character, timing, frequency, and duration of the noise will be consistent with the existing noise environment. Noise levels up to 55 dB L_{Aeq} could be generated by permitted activities in the RPZ all day and evening from 7.00am – 10.00pm and on Sundays. There will be no noise from the site outside the hours of 7:00 am – 6:00 pm, Monday to Friday and 7:00 am – 1:00 pm on Saturdays, or at any time on Sundays and public holidays. Truck movements throughout the day will be intermittent, and earthmoving plant will only be used once the fill material has been delivered to site for the day.

We consider that the level, character, timing, frequency, and duration of the noise emissions from the site will be consistent with the permitted standards for the Rural – Rural Production Zone if our recommended conditions are imposed and complied with.

2.0 Response to Question (3b)

3b. Please comment if vibration from heavy machinery operating on the subject site will be perceptible at the closest dwellings and if so, please describe typical subjective effects on affected occupants and any mitigation (if required).

The closest receiver to the cleanfill site is 332 Jones Road. The façade of the dwelling at 332 Jones is approximately 35m from the closest part of the Stage 5 fill area.

The earthmoving plant proposed for each stage of work includes the use of a 21 ton excavator, a D6 bulldozer and one 18 ton sheepsfoot roller. At the closest distance of 35m, the vibration from the proposed plant is very unlikely to be perceptible inside the dwelling and would not cause any disturbance to residential activities.

As the works move away and further into the cleanfill site, the vibration will not be perceptible at all.

Vibration is likely to be perceptible within 332 Jones Road and 353 Jones Road during the construction of the level 1 earth bund. Any vibration effects during the construction of the bund will be short term and no longer than 4 – 5 days. Construction vibration generated by bund construction is expected to be just perceptible within the nearest dwellings but it will not exceed the AUP vibration amenity limits in E25.6.30.

3.0 Response to Question (3c)

3c. Although trucks driving on public roads to and from the subject site are outside the scope of the AUP(OP) noise standards, given a number of submitters have expressed their concerns, please confirm the preferred route (i.e. immediate road network) for trucks travelling to and from the subject site and, the associated noise and vibration effects on the closest dwellings to the road having regard to existing traffic volume, the percentage of heavy vehicles, the frequency and timing of truck pass-by events associated with the subject site and, potential noise or vibration nuisance from truck pass-by events relative to the existing noise environment.

All trucks will access the site via Hunua Road from the west, which is the closest route to the motorway.

A tube count was placed on Hunua Road to collect traffic volume and speed data.^[1] Data was recorded from 18 - 24 March 2024. The 5-day ADT was found to be 1921 vehicles with 27% heavy vehicles. This equates to 519 heavy vehicle movements per day.

^[1] By Commute Transportation Consultants

The traffic assessment shows there could be up to an additional 96 truck movements per day as result of the proposed fill operation. The additional truck movements will all be between 7.00am and 6.00pm, Monday to Friday, and 7.00am and 1.00pm on Saturday.

The additional 96 trucks per day compared to the existing 519 heavy vehicle movements will result in an increase of no more than 1 dB noise over the whole day. An increase of 1 dB will not be noticeable.

The traffic assessment shows existing peak hour vehicles during the opening hours of the fill is 117 per hour, of which 30% are heavy. This equates to 35 peak hour heavy vehicles. To assess the worst case scenario, we have compared the following:

- Existing peak hour: 117 vehicle movements with 35 peak vehicle movements
- Proposed peak hour: 40 heavy vehicle movements

If the peak hour of both the existing trucks and the proposed trucks occurs at the same time then the increase will be approximately 3 dB. If this scenario does occur then the increase of 3 dB during the peak hour will just be noticeable, but will not result in unreasonable noise effects.

However, this scenario would only occur if the peak truck hours occurred at the same time. If this did occur it would only be for a limited duration. The fill would not realistically be able to operate at 20 trucks per hour for any more than 2 – 3 hours because the total number of trucks per day must not exceed 96 between 7.00am – 6.00pm (11 hours). As set out above, the additional 96 trucks per day compared to the existing 519 heavy vehicle movements will result in an increase of no more than 1 dB noise over the whole day.

The proposed truck movements will not generate higher levels of vibration than existing truck movements on the public road or increase the level of vibration in any dwelling, and they will only occur during daytime hours.

4.0 Response to Question (3d)

3d. Please confirm the level of mitigation (in decibels) provided by the proposed noise bund, as the acoustic assessment states the bund will be located approximately 20-25m from the eastern boundary but the plans show the bund will be much closer.

The proposed northern bund (levels 1) height has increased from 3.0m to 4.0m since we provided our initial assessment. The increased bund height will provide additional and more effective noise attenuation.

Figure 1 overleaf shows the location of the northern bund (level 1).

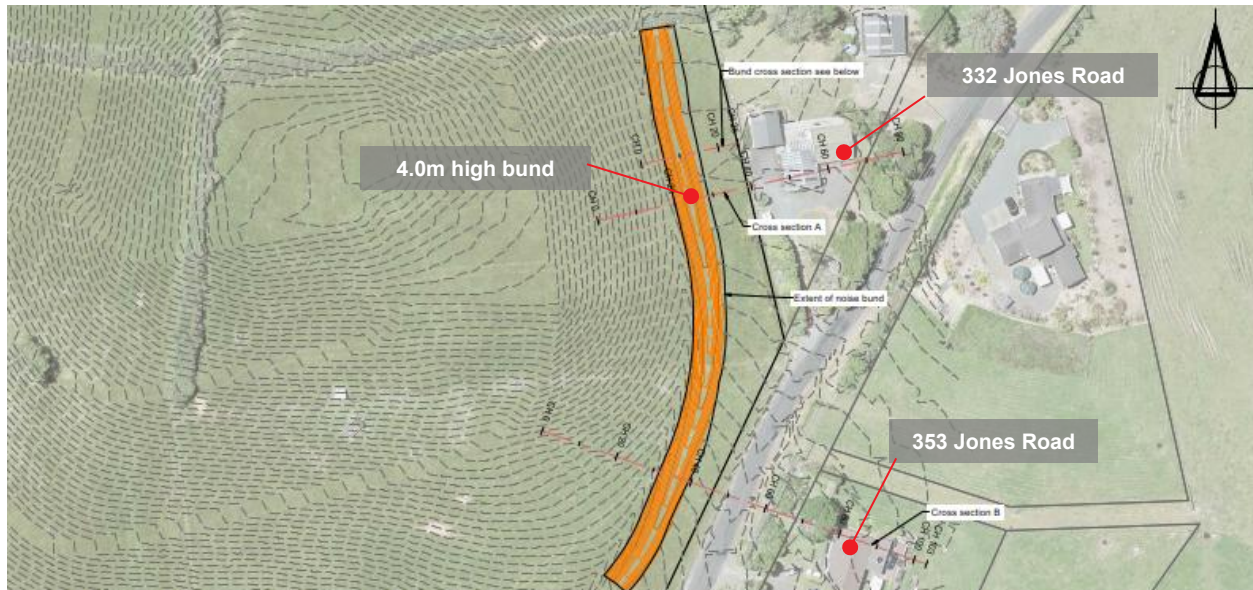


Figure 1: Location of the northern bund (level 1)

Figure 2 shows a cross section of the level 1 bund and the dwelling at 332 Jones Road.

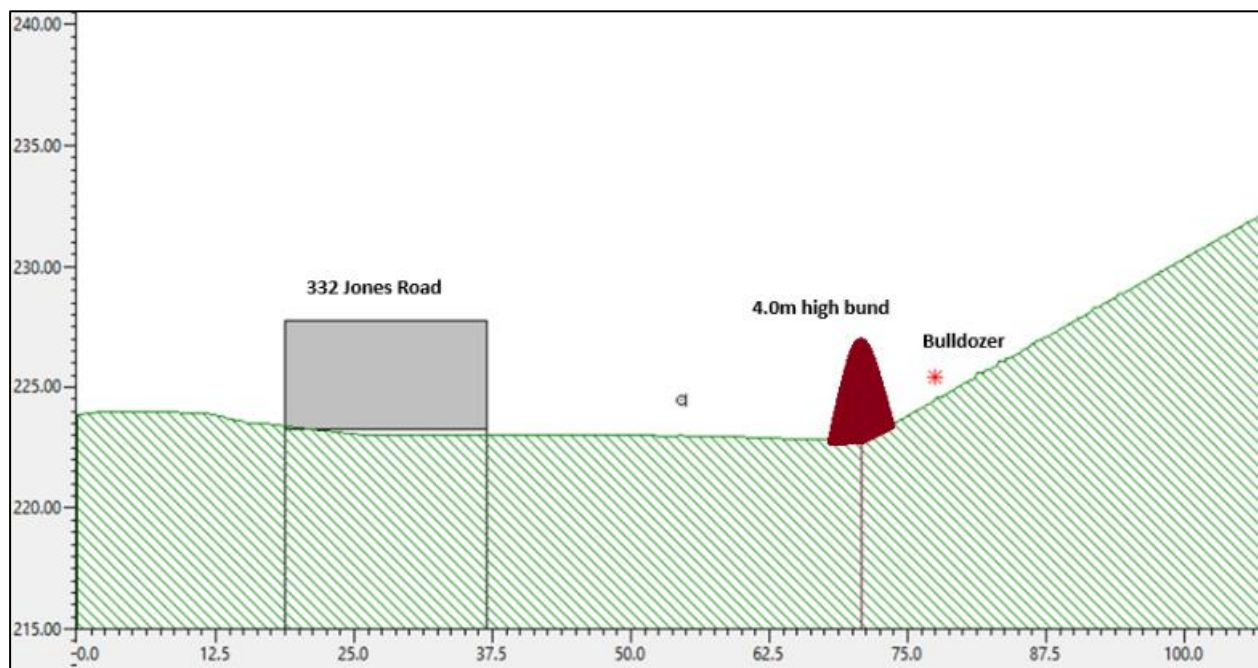


Figure 2: Cross section of level 1 bund

The predicted noise rating levels for the operation of the bulldozer at a distance of 35 – 40m from the site boundary with and without the 4.0m high level 1 bund are:

- With bund: 54 dB L_{Aeq}
- Without bund: 65 dB L_{Aeq}

Our noise modelling shows that the level 1 bund will provide 11 dB attenuation when fully blocking line of sight.

We have provided additional bund options in our response to RFI Question 3(f).

5.0 Response to Question (3e)

3e. Please update the noise assessment to consider potential effects on the newest dwelling located at 1821 Hunua Road (which was not shown on the previous aerial images).

We have updated our noise model and assessment to include the second dwellings at 1821 Hunua Road and 380 Jones Road.

5.1 Second dwelling at 1821 Hunua Road

The second dwelling at 1821 Hunua Road is located approximately 70m from the closest fill area.

The highest predicted unmitigated noise level at the notional boundary of the second dwelling at 1821 Hunua Road is 58 dB L_{Aeq} . This is a 3 dB exceedance of the 55 dB L_{Aeq} RPZ noise limit in AUP Standard E25.6.3.

There are a number of mitigation options, including bunds and setback distances. The applicants preferred mitigation option is to use multiple bunds. This requires earth bunds to be constructed at four locations as the fill works increase in height.

The first high bund (level 1) will 50m long and 3.0m high. The bund will be constructed on the south-west fill boundary, as shown below in Figure 3:

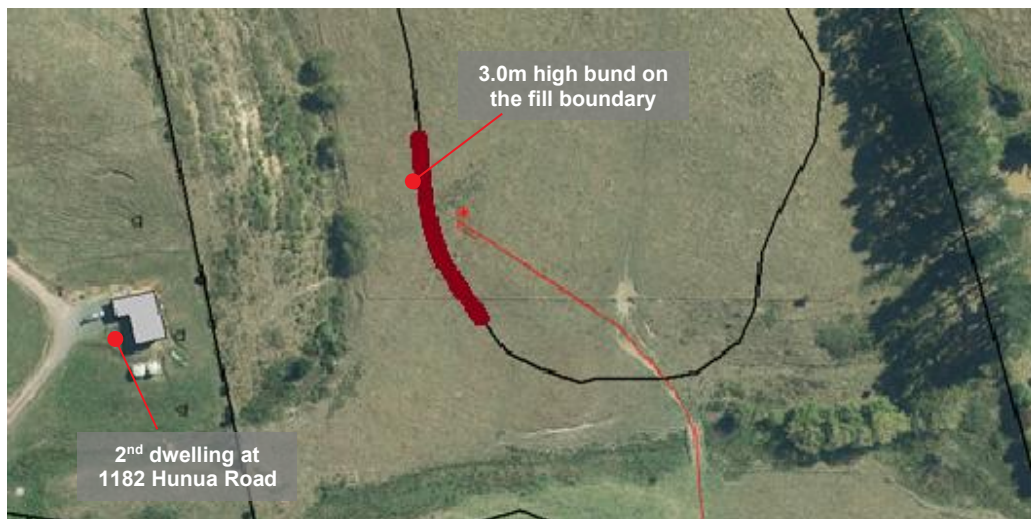


Figure 3: South-west level 1 bund (3.0m height) at 185m RL

Additional bunds will then be constructed as the fill increases, as shown in Figures 4 – 6 below.



Figure 4: South-west level 2 bund (3.0m height) at 187m RL



Figure 5: South-west level 3 bund (3.0m height) at 190m RL



Figure 6: South-west level 4 bund (3.0m height) at 193m RL

No further bunds are required following the construction of the level 4 bund at 193m RL and after the plant is used further than 90m from the site boundary of 1821 Hunua Road.

The highest predicted noise rating level with the multi-level bund option is 54 dB L_{Aeq} at the notional boundary of 1821 Hunua Road. The predicted noise rating level complies with the 55 dB L_{Aeq} noise limit in AUP Standard E25.6.3 by a margin of 1 dB.

5.2 Minor dwelling at 380 Jones Road

A minor dwelling is consented at 380 Jones Road. The façade of the dwelling will be approximately 70m from the closest fill area.

The highest predicted unmitigated noise level at the notional boundary of the minor dwelling at 380 Jones Road is 58 dB L_{Aeq} .

This is a 3 dB exceedance of the 55 dB L_{Aeq} noise limit in AUP Standard E25.6.3.

There are a number of mitigation options, including bunds and setback distances. The applicants preferred mitigation option is use earth bunds to attenuate the noise levels.

The haul road passes through the ideal location of the bund. We have worked with the landscaping team and designed an overlapping dual bund option. This is two 3.0m high bunds with a gap for the haul road pass between, as shown below in Figure 7:

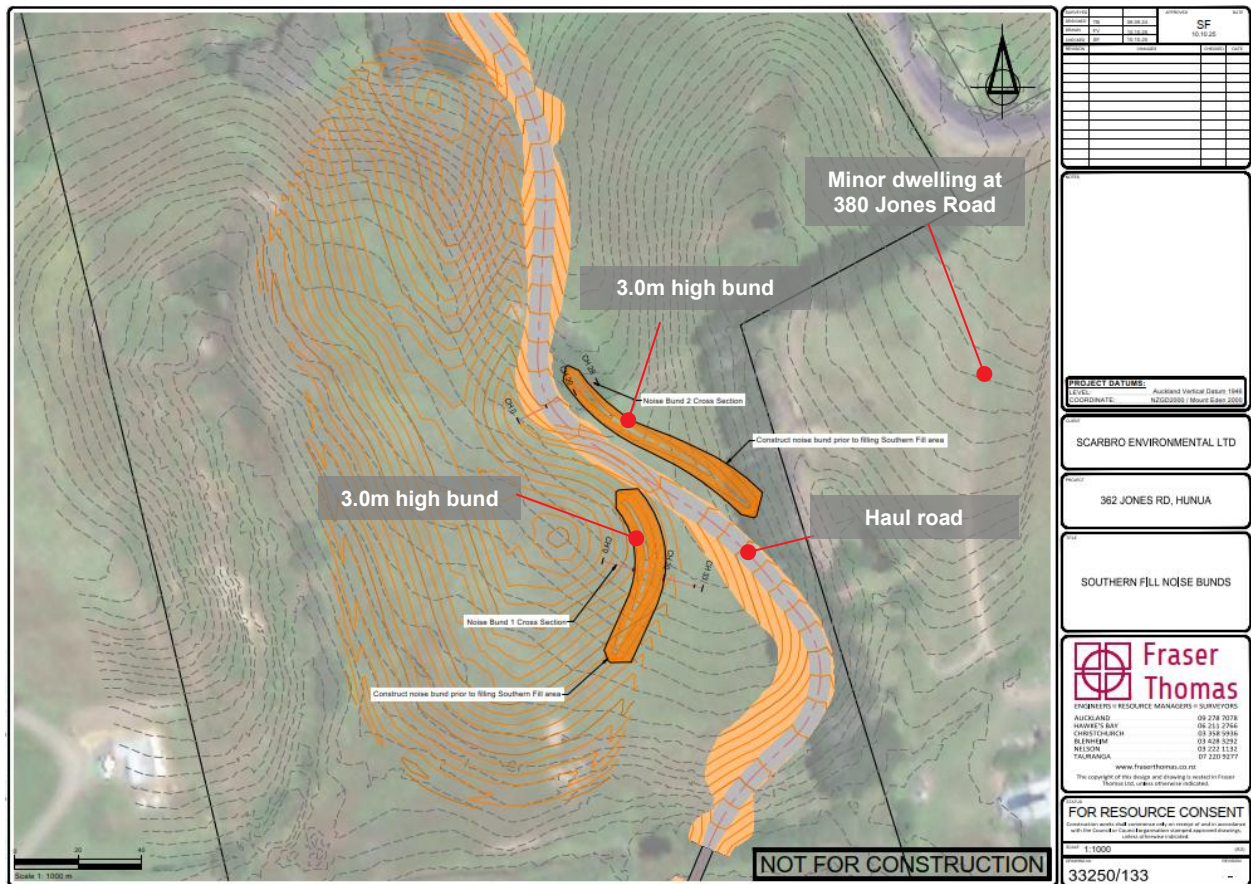


Figure 7: East bunds to southern fill area (landscape plan drawing number 33250/133)

The dual bund option shown in Figure 7 above provides additional acoustic screening of the trucks on the haul road as they pass by the second dwelling at 380 Jones Road, although the bund is not required to ensure that truck noise complies.

The highest predicted noise rating level with the dual bund option is 54 dB L_{Aeq} . The predicted noise rating level complies with the 55 dB L_{Aeq} noise limit in AUP Standard E25.6.3 by a margin of 1 dB.

6.0 Response to Question (3f)

3f. If you have considered any amendments to the proposal as a result of your review of the submissions, or have any further information prepared in this regard, please advise so that this can be reviewed.

The recommended mitigation in our acoustic report dated 1 November 2024 was predominantly focussed on setback distances for the bull dozer and sheepsfoot roller from the site boundaries of 332 Jones Road and 353 Jones Road. The setbacks remain a valid mitigation option but we have also identified additional multiple bund options.

Multiple bunds can be constructed to screen the dwellings at 332 Jones Road and 353 Jones Road as the fill progresses.

The multiple bund options will involve building bunds at four levels as the works increase in height. To provide additional noise mitigation, the northern bund level 1 and 2 heights will be increased from 3.0m to 4.0m.

Figures 8 – 11 below demonstrate how the four level bund option will work at 332 Jones Road

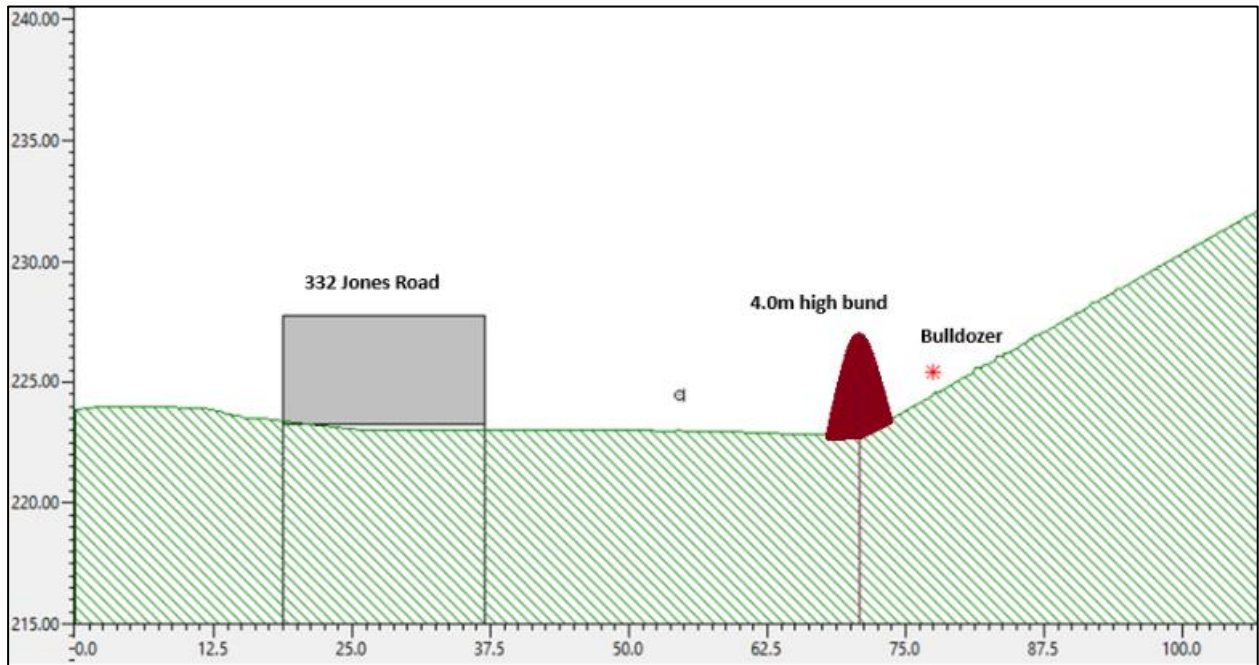


Figure 8: Level 1 bund (4.0m height) at RL 221 RL

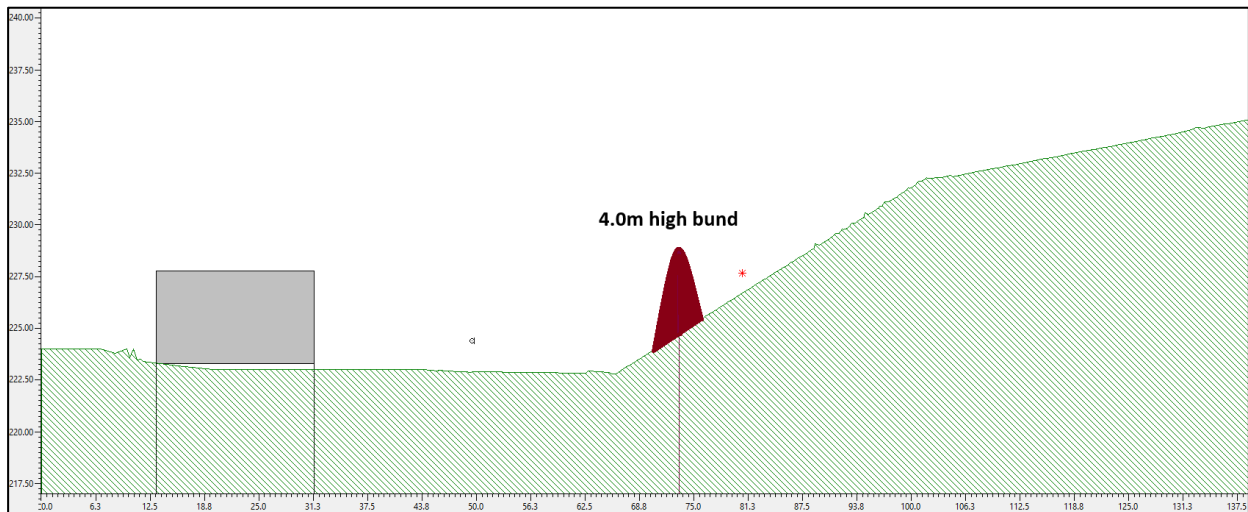


Figure 9: Level 2 bund (4.0m height) at 224m RL

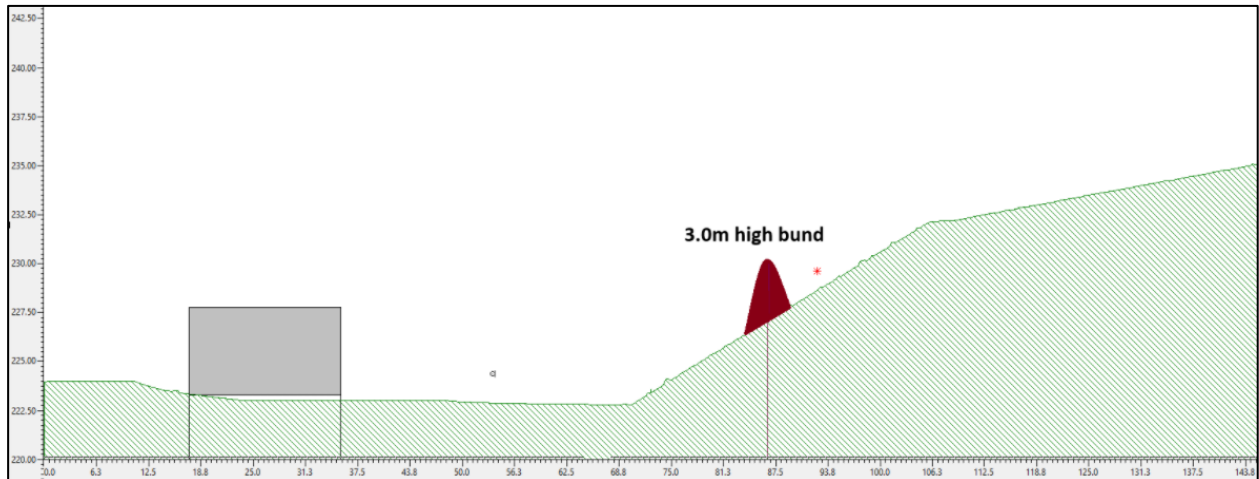


Figure 10: Level 3 bund (3.0 height) at 227m RL

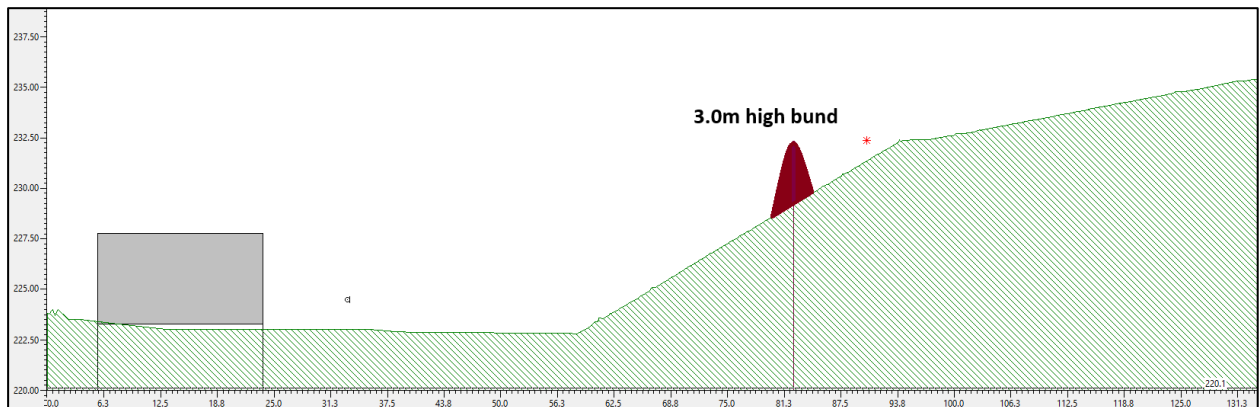


Figure 11: Level 4 bund at (3.0m height) at 330m RL

No further bunds are required after the level 4 bund is constructed due to the adequate setback distance and the reduction of line of site to the receiver.

We have updated our recommend conditions to include the multiple bund option as an alternative to the setback distance option.

7.0 Recommended conditions of consent

In addition to the standard condition requiring compliance with the application documents as lodged (including this report) and the noise limits set by the Auckland Unitary Plan, we recommend the following conditions of consent are also imposed:

Operating hours

1. The cleanfill must not operate outside the hours of 7:00 am to 6:00 pm Monday to Friday, and 7:00 am to 1:00 pm on Saturday. There must be no site activity on Sundays and Public Holidays.

Truck movements Monday – Friday

2. The number of truck movements associated with the managed fill on Monday – Friday must not exceed 192 per day (96 trucks) and 40 (20 trucks) in one hour.

Truck movements Saturday

3. The number of truck movements associated with the managed fill on Saturday must not exceed 100 per day (50 trucks) and 40(20 trucks) in one hour.

Reverse alarms

4. Tonal reverse alarms must not be used on any plant or machinery on site. Broadband reverse alarms may be fitted if reverse alarms are required.

Site specific mitigation measures for 332 Jones Road and 353 Jones Road

5. An earth bund shall be constructed to provide acoustic screening to 332 Jones Road and 353 Jones Road to the east of the site. The bund shall be at least 160m long and 4.0m high.
6. Bulldozers and vibratory compaction rollers must not be operated within 90m of the property boundaries of 332 Jones Road or 353 Jones Road during the operation of the cleanfill. These restrictions do not apply if the following circumstances:
 - a. When the plant is being used for construction works.
 - b. If additional bunds are constructed as the fill increases to ensure there is no line of sight between the plant and the receiver.

Site specific mitigation measures for 380 Jones Road (minor dwelling)

7. Two earth bunds shall be constructed to provide acoustic screening to 380 Jones Road. Each bund will be 50m long and 3.0m high. One bund will be constructed on each side of the haul road as per landscape plan drawing number 33250/133.

Site specific mitigation measures for 1821 Hunua Road (minor dwelling)

8. An earth bund shall be constructed to provide acoustic screening to the second dwelling at 1821 Hunua Road located to the east boundary of the southern area fill site. The bund shall be at least 50m long and 3.0m high.
9. Bulldozers and vibratory compaction rollers must not be operated within 90m of the site boundary with 1821 Hunua Road during the operation of the cleanfill. The setback restrictions do not apply in the following circumstances:
 - a. When the plant is being used for construction works.
 - b. If additional bunds are constructed as the fill increases to ensure there is no line of sight between the plant and the receiver.

Our modelling demonstrates that the noise emissions will comply with the permitted RPZ noise limits. However, an option to address any compliance concerns would be to impose the following noise monitoring condition:

10. Noise monitoring must be undertaken by a suitably qualified person on behalf of the consent holder within one year of fill commencing. The monitoring must include noise measurements that are representative of the worst-case noise emissions. A monitoring report must be provided to Auckland Council within two weeks of the monitoring being completed. The report must include a comparison between the noise levels at the nearest receivers and the consented noise levels based on the results of the monitoring, and any further mitigation noise mitigation measures that may be required to ensure consistent compliance.

Please contact me if you require any further information.

Yours sincerely,



Daniel Winter, MASNZ

Senior Consultant