

**Proposed Plan Changes 23 and 58 to the
Wairau/Awatere & Marlborough Sounds Resource Management Plans
SUBMISSION**

**Submission Form for Plan Changes 23 and 58 to the
Wairau/Awatere & Marlborough Sounds
Resource Management Plans
Frost Fan Plan Changes**

Name/Organisation: PAUL BRÜCKEL

Address for Service: 875 WAIHOPAI VALLEY
RD 6
BLENHEIM 7276

Phone Number: 572 4300

Fax Number: 572 4300

Office Use
Participant No. 21
Submission Point No.

File Refs
W045-15-58
M13-15-23
Date Received Stamp

Submissions Close:
**5.00 pm Friday
23 October 2009**

Return your submission to:
Marlborough District Council
PO Box 443
Blenheim 7240
Attention: Mark Caldwell
Fax: (03) 520 7496
E-Mail: frostfans@marlborough.govt.nz

Do you support this part of the plan change?
 Yes No
 No Yes

Paul Brückel 23/10/09

How To Make A Submission
 Anyone is welcome to make a submission, either as an individual or on behalf of an organisation. You may use this form or prepare your own submission so long as you are careful to provide all of the information identified on this form. [These information requirements are per Form 5 of the Resource Management (Forms, Fees and Procedures) Regulations 2003]. If you run out of room here, please continue on a separate page. When preparing your submission you need to include the following:

"This part of my submission relates to ..." - state the name of the plan change and the part(s) of the plan change that is/are the subject of your submission.

"I support (or oppose) this part of the plan change." - state whether you support or oppose (in full or part).

"My reasons for supporting (or opposing) this part of the plan change ..." - tell us what your concerns are and the reasons why you support or oppose the provisions in the plan change.

"The decision I seek from the Council is ..." - How do you want the Council to respond to your submission? It is very important that you clearly state the decision you wish the Council to make as the Council cannot make changes which have not been specifically requested. Start by indicating if you want the provision to be retained, deleted or amended. If you want an amendment (including additional provisions) then specify what wording changes you would like to see.

REMEMBER - the clearer you can be, the easier it will be for the Council to understand your concerns and take them into account.

**Proposed Plan Changes 23 and 58 to the
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Comments

Cumulative Noise

The proposed plan changes which fail to even mention, let alone consider, cumulative noise effects cannot prove effective in addressing the enormous cumulative noise levels now imposed upon many residents in the province.

I have only three frost machines less than one kilometer from my home (at 537 metres, 662 metres and 725 metres), and yet I experience cumulative noise levels of up to 61 dBA with only the two nearest machines running and a light wind blowing the noise away from me. These levels are 11 dB above the proposed level of 50 dBA for a single machine with the 5 dB penalty applied for special audible characteristics (which these machines exhibit).

It is essential that the proposed rules incorporate limits for the cumulative noise level from all frost fans measured at a dwelling and not approve individual frost fans for compliance and then take no account of the total cumulative noise from all of them.

Continuing to concentrate on individual frost fans and their noise compliant parameters, without considering the cumulative effect of other machines likely to operate during a frost event, is akin to checking speedway noise compliance by measuring individual car noise and then saying 'OK, as all the cars are individually compliant, you can start your race with as many cars as you like' – I am quite sure that the affected residents would have something to say regarding the competence of such a methodology and resulting decision.

Switch on temperature

If the switch-on temperature were to be reduced to below 0.75°C it is estimated that the start-up time could be delayed by up to at least an hour, to reduce the noise nuisance, save fuel and reduce the carbon footprint. Similarly a switch-off temperature of above 0.75°C would provide similar benefits.

Manual Switch-on- enable and Mandatory Staff Presence

If staff were to be required to be on site to enable the frost fans and to monitor and ensure that they switched on and off at the prescribed temperatures, it would ensure that rogue fan operation and noise annoyance would be eliminated – it would also provide assurance that in the event of a fan failing to start, the staff member could take action to prevent serious crop damage from frost and any associated financial loss. A further advantage would be the ability of the staff member to shut down a frost fan should mechanical problems arise affecting health and safety aspects. If the potential financial losses are as large as often reported, I believe that the grape growers should have no problem with such a requirement.

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Automatic Wind Speed Shut Off

Observations have for some time concluded that if, and when, frost fans are operated even if light wind is present, then noise from the fan blades increases significantly, and risk of mechanical damage or even failure is increased. A very recent report¹ confirms these observations and a copy is attached to this submission. Unlike the Frost Boss four-blade frost fans which incorporate as standard a wind sensor and automatic shut down when wind reaches or exceeds 10 km/h, the two bladed frost fans which lack any such protective devices continue to operate in considerably higher winds (up to 21 km/h have been noted) with significantly higher noise levels and attendant risk of mechanical damage, not to mention potential loss of crop if the frost fan should fail during a frost event. In view of the foregoing, it should be borne in mind that machines that meet the existing compliance level of 55dBA L₁₀ will exceed that limit by possibly up to 10dB when the (unattended?) machines continue to operate in windy conditions.

Wine Industry proposal for 60dBA compliance limit

It should be noted that in asking for this increased limit, the wine industry is continuing to ignore the fact that many (if not most) two bladed frost fans continue to be operated at non-compliant and excessive speeds with corresponding excess noise levels likely to equal or even exceed the 60dbA proposed. This non-compliant operation continues to be the major contributor to the extremely high levels of cumulative noise pollution.

I suggest that if action were to be taken to adjust all machines to their compliant operating speeds, there would be an immediate and significant reduction in the cumulative noise levels in the province which are a significant source for complaint.

Ambient noise increase due to frost fan operations

Measurements taken in 1994 and again in 2007 prove that the basic ambient background noise in the Waihopai Valley has not increased by more than one or two decibels during the period. However measurements in 2007 show an increase in the ambient level, when frost fans were operating, of approximately 25 decibels or an increase in noise intensity level of 316 times!

Since 2007 many tens if not hundreds of additional frost fans have been installed which will no doubt have pushed the cumulative noise level even higher!

In conjunction with the plan changes, it is imperative that a determined and aggressive programme of compliance monitoring and enforcement be implemented to encompass all existing and future machines in order to reduce and then contain cumulative noise levels.

It is not sufficient to merely enforce compliance on machines where neighbours lodge noise complaints, as it is very apparent that cumulative noise originating several kilometers away is impacting upon residents ability to sleep.

¹ Rikan Aeromarine report 20 October 'Effects of running Frost Fans in Ambient Wind'

**Proposed Plan Changes 23 and 58 to the
Wairau/Awatere & Marlborough Sounds Resource Management Plans
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PLAN CHANGE 58

New Rule 30.2.9

30.2.9.1.1 Change to read:

Cumulative frost fan noise shall not exceed 55dBA Leq (or 50dBA Leq where special audible characteristics exist) when measured at the notional boundary of any existing dwelling, visitor accommodation or other habitable building (other than on the property on which the frost fan is situated)

i) ~~at a distance of 300 metres from the device; or~~

30.2.9.1.3 Change to read:

The frost fan shall only be operated for frost protection from bud burst (mid-September) to mid-December, and from 1st March to the last day of harvest, or the 30th of April, whichever comes first, commencing when the air temperature at the vine canopy drops below 0.75 °C and terminating when this temperature rises above 0.75°C

30.2.9.2 Matters Over Which Council Will Exercise Control

The Council reserves control over and may impose conditions with respect to:

(b) Speed of frost fan

Note: It is important to ascertain Make, Model gearbox ratios, and engine speed in order to correctly calculate fan blade speed for correlation with acoustic report(s) when non-standard combinations are installed.

New Rule 2.3.3

2.3.3.2 Change to read:

Cumulative frost fan noise shall not exceed 55dBA Leq (or 50dBA Leq where special audible characteristics exist) when measured at the notional boundary of any existing dwelling, visitor accommodation or other habitable building (other than on the property on which the frost fan is situated)

i) ~~at a distance of 300 metres from the device; or~~

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2.3.3.4 The frost fan shall only be operated for frost protection *from bud burst (mid-September) to mid-December, and from 1st March to the last day of harvest, or the 30th of April, whichever comes first, commencing when the air temperature at the vine canopy drops below 0.75 °C and terminating when this temperature rises above 0.75°C*

2.3.3.5 Matters Over Which Council Will Exercise Control

The Council reserves control over and may impose conditions with respect to:

(b) Speed of frost fan

Note: It is important to ascertain Make, Model gearbox ratios, and engine speed in order to correctly calculate blade speed for correlation with acoustic report(s) when non-standard combinations are installed.

PLAN CHANGE 23

New Rule 36.2.7

30.2.7.1.1 Change to read:

Cumulative frost fan noise shall not exceed 55dBA Leq (or 50dBA Leq where special audible characteristics exist) when measured at the notional boundary of any existing dwelling, visitor accommodation or other habitable building (other than on the property on which the frost fan is situated)

i) ~~at a distance of 300 metres from the device; or~~

30.2.7.1.3 The frost fan shall only be operated for frost protection *from bud burst (mid-September) to mid-December, and from 1st March to the last day of harvest, or the 30th of April, whichever comes first, commencing when the air temperature at the vine canopy drops below 0.75 °C and terminating when this temperature rises above 0.75°C*

30.2.7.2 Matters Over Which Council Will Exercise Control

The Council reserves control over and may impose conditions with respect to:

(b) Speed of frost fan

Note: It is important to ascertain Make, Model gearbox ratios, and engine speed in order to correctly calculate blade speed for correlation with acoustic report(s) when non-standard combinations are installed.

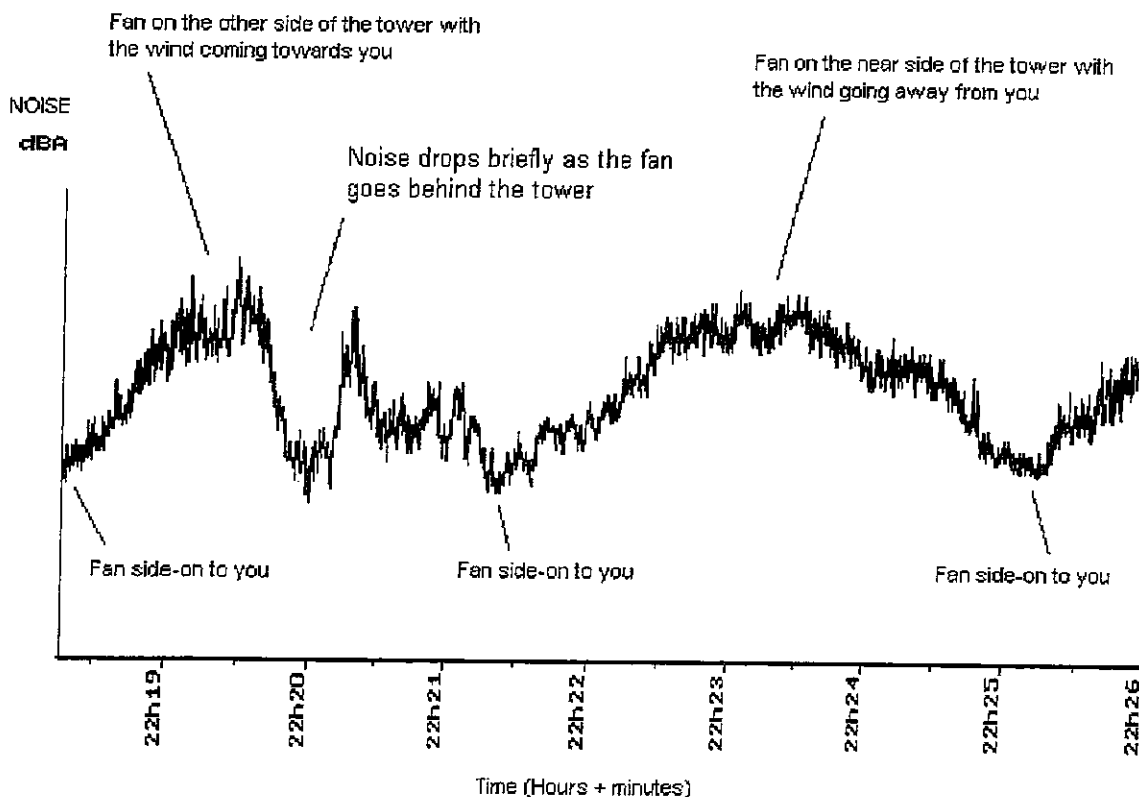
Effects of running Frost Fans in Ambient Wind

Frost fans are designed to run on still, frosty nights. During these conditions the aerodynamic loads on the fan are predictable and manageable.

If frost fans are run in even the slightest ambient wind, the aerodynamic loads on the blades change significantly. This change in loading is very audible and can be clearly observed on a Noise versus Time plot.

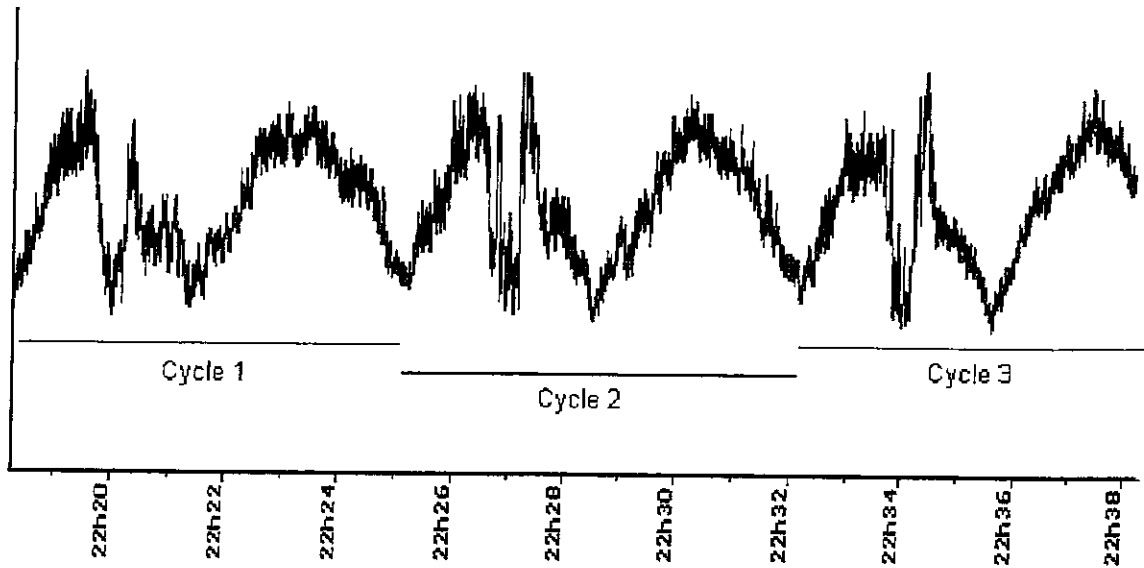
This change in noise level reflects the increased aerodynamic loads on the fan and gearboxes, which can be quite significant and random. The stronger the ambient wind, the higher the additional noise and the higher the adverse aerodynamic loads on the blades. In some instances, the random load changes on the fan can induce unpredictable oscillations in the tower.

The noise versus time plot for a frost fan, in still air, produces a cyclical noise signature that varies depending on where the fan is, relative to the observer. The plot below shows a typical 4 blade, aluminium alloy fan at 100m from the observer. The fan is rotating slowly around the tower, in a clockwise direction, when observed from above. The periodic cycle time for this particular fan is about 7 minutes. The fan is the quietest when it is side on to the observer and loudest when the fan blast is going away from the observer.

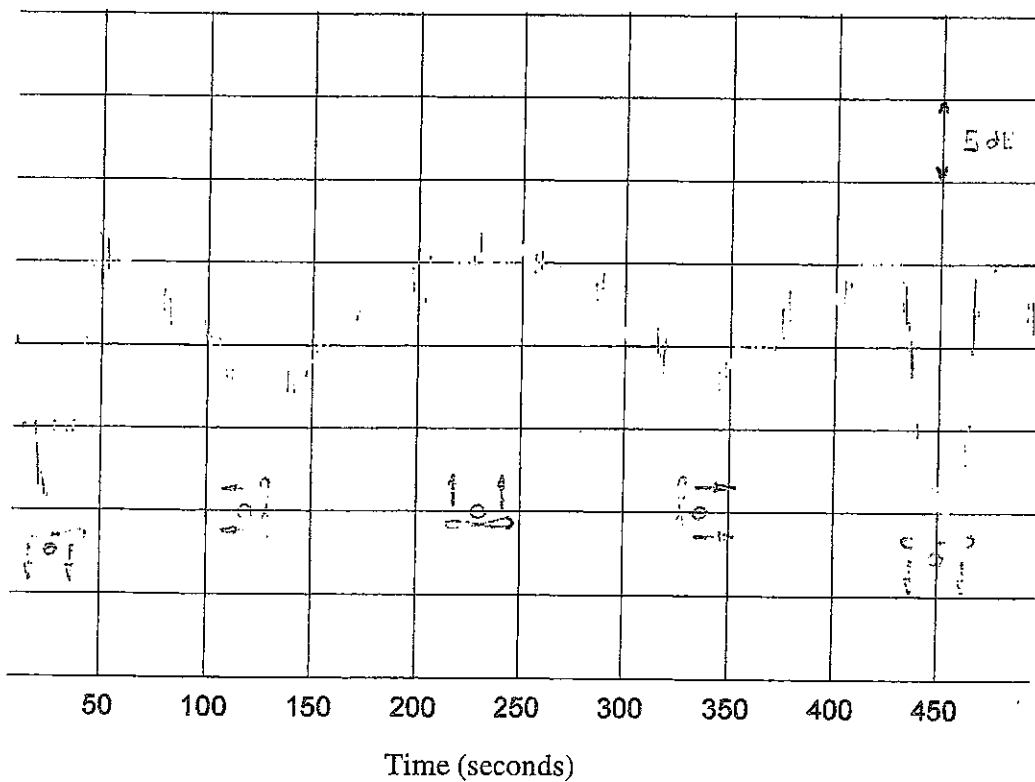


When the fan completes quite a few cycles, a uniform, repeating, noise signature becomes apparent. The plot below shows 3 cycles of a 4 blade fan, running in still air, at a distance of 100m from the observer. The noise signature is clear and repeatable.

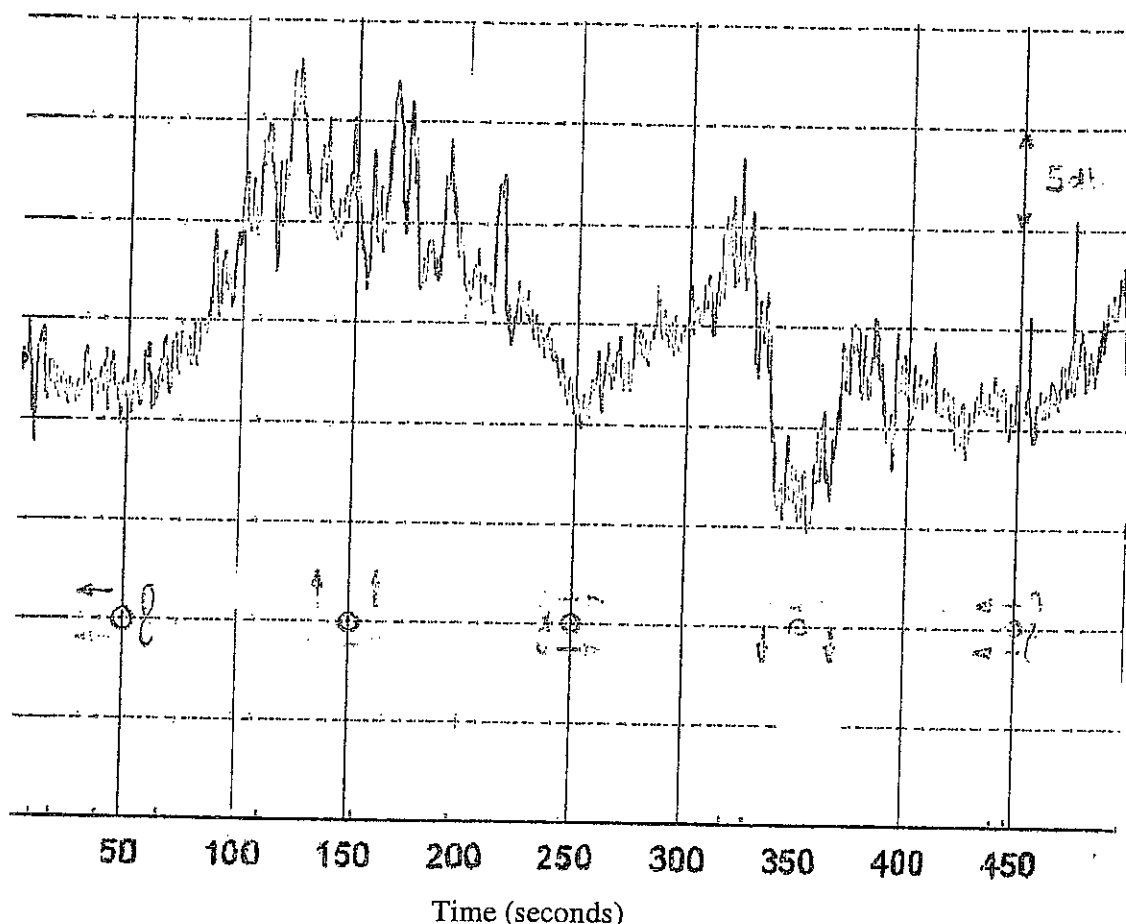
Noise
dBA



The next plot shows the complete cycle for a 2009 model, FrostBoss C-49, 4 blade fan measured at 100m from the observer, in still air. The noise output from this fan is lower and much smoother than the previous model, 4 blade aluminium fan.



When this same fan is run in a light, puffy ambient wind, of less than 10 km/hr, it produces a totally different noise signature plot. The noise output becomes very spiky with sudden, random jumps in noise, of up to 10 dB. The clean uniformity of the noise signature is lost, and you would think it was the noise signature plot for a totally different fan.



These spikes in the noise output are generated by sudden changes in the apparent angle of attack of the airflow impinging the high speed sections of the fan blades. The airflow over these parts of the blade become unstable and can separate and reattach very suddenly. This manifests itself as a fluctuating change in the thrust developed by the blade and can be observed as an instantaneous increase in the fan noise and movement in the top of the tower.

A New Zealand manufacturer of frost fans, Frost Boss, has been pro-active in preventing their frost fans from running in ambient wind. For the past 3 years they have been supplying their fans with a wind speed sensor that shuts down the fan, if the ambient wind exceeds 10 km/hr, when averaged over a minute. Once shut down, the fan is re-armed, ready to run again, but it cannot restart until the one minute average wind speed has decreased to below 8 km/hr.

Field reports indicate the wind sensor has shut down many frost fans temporarily in areas where the fan owner said there is no wind during frost events. In some instances, frost fans have been shut down many times during one frost event, as the ambient wind comes and goes through the night. Some areas, with geographic peculiarities, are very susceptible to large pockets of wind passing through the vineyard on a frosty night.

If ambient wind does shut down the frost fan, for a period of time during a frost event, the crop is still protected because the incoming ambient wind is doing the job of the frost fan, by mixing the warmer air in the inversion layer with the colder air around the crop. This effect can be seen in the temperature data collected from vineyards with frost fans fitted with wind sensors. In addition, an ambient wind erodes the upwind and crosswind reach of the frost fan, reducing the effectiveness of the frost fan significantly.

If the frost event is accompanied by a polar blast of chilled air, and the inversion layer is pushed out by much colder, sub-zero air, the grower would want to shut the fan down regardless, to avoid blast-freezing his crop. The wind sensor will activate in these polar winds and prevent the fan from running for the duration of the polar wind passing through the area. This can happen in southern parts of New Zealand.

The wind sensor also protects an armed, auto-start, frost fan from inadvertently running in an ambient wind when it is not meant to. From time to time, the temperature sensing circuit may develop a fault, or be damaged by grazing stock or vineyard machinery. When this happens, the frost fan may get a signal to start, and it would be free to run until someone notices it running, or it runs out of fuel. At least with a wind sensor fitted, the fan is prevented from running during the day if there is anything more than a light breeze blowing past the fan.

Without a doubt, a wind sensor is a vital piece of control equipment for a frost fan. It can act when a human thinks it doesn't need to act. The wind sensor on a frost fan performs exactly the same function as a pressure relief valve in a hydraulic circuit. It prevents the equipment from being subjected to operating loads the equipment is not designed to take.

In conclusion, frost fans should not be run in ambient wind, because the wind subjects the fan to aerodynamic loads that it is not designed to withstand. These additional loads are both audible and visible. The first indicator of ambient wind is the increased random noise level from the fan. With the new breed of quieter fans coming on to the market this year, the increased noise created by ambient wind on the fan is even more noticeable.

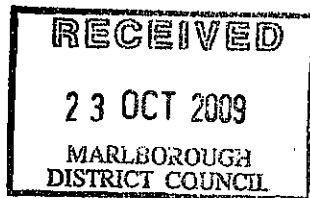
Richard Karn B.E (Mech), M.E (Aero)

Aerodynamic Research Engineer



Disclosure Statement

Rikan Aeromarine Ltd is a specialist aerodynamic research company with over 30 years experience in all aspects of aerodynamic research and design. The company provides research consultancy services to Frost Boss Wind Machines Ltd, based in Hastings.



FORM 5

Part - No 22.

SUBMISSION ON A PUBLICLY NOTIFIED PROPOSED PLAN CHANGE UNDER CLAUSE 6 OF THE RESOURCE MANAGEMENT ACT 1991-

To: Marlborough District Council
PO Box 443
Blenheim 7240
Attention: Mark Caldwell
Fax (03) 520 7496
frostfans@marlborough.govt.nz

Full name of submitter: Waihopai Holdings Limited
Postal address: 10 Malthouse Road
Riverlands
Blenheim RD4

This is a submission on proposed Plan Change 58 – Use of wind machines for frost protection ("the Plan Change").

The specific provisions of the proposal that my submission relates to are:
(give details)

- The change of status of frost fans from permitted to controlled;
- the lowering in decibel level from 60 to 55 dB LAeq;
- the rule that noise shall not exceed 55 dB LAeq at a notional boundary of existing habitable buildings;
- the reference to NZS 6801 : 2008; and
- the list of matters that the Council may impose conditions on.

My submission is:

1. Change from Permitted to Controlled Status

Waihopai Holdings Limited ("WHL") opposes the change of status of frost fans from permitted to controlled. WHL believes the proposition that landowners must "demonstrate compliance with the noise standards before the wind machines are erected" is problematic. Noise emissions from a frost fan cannot be definitively determined until after a frost fan is erected, installed and tested as each site is unique and there are a number of factors that play a part in the actual noise emissions of a particular fan. As such WHL seeks elaboration as to how compliance can be robustly demonstrated prior to installation?

2. Reduction in Decibel Limit

WHL opposes the lowering in the noise limit from 60 to 55 dB. The wine industry is extremely important to the Marlborough economy, it accounts for 20% of Marlborough's GDP and employs over 4,000 people on a full time basis. A balance must be struck which acknowledges the financial importance of the grape growing

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industry in Marlborough and the low frequency of frost fan use on an annualized basis. WHL is of the view that the existing noise limits are already strict enough, lowering the noise limit is unjustified and there is no scientific basis for the new proposed limit.

3. Noise at a Notional Boundary

WHL opposes the proposed new rule that noise shall not exceed 55 dB LAeq at a notional boundary of existing habitable buildings. WHL has an existing vineyard with two frost fans on the vineyard. Both frost fans were located on the vineyard as far from WHL's boundary so as to protect the existing vineyard from frost. On the boundary between WHL and its neighbour (ie. the maximum distance from the frost fan) WHL still suffers a loss of crop due to frost – the frost fan is located as far from WHL's boundary as possible to protect the vineyard. WHL's neighbour has located his house very close to the boundary between their land and WHL's vineyard. As such the distance from that notional boundary to the existing frost fan is under 100m. WHL would be highly unlikely to be able to comply with the noise limits proposed at this notional boundary. The new Plan change would make the vineyard financially unviable if the new rules were to apply to these existing frost fans. The section 32 Report fails to adequately quantify these costs.

4. Special Audible Characters & NZS 6801 : 2008

WHL seeks clarification in relation to the reference in the new Plan to NZS 6801 : 2008. At present it is unclear whether a 5 dB penalty ought to be applied under the existing rules in the Plan. The Environment Court in ENV-2007-CHC-000184 (*the Maclean v Muricata Estate case*) stated:

"[33] Because frost fans were considered by the Council to have "special audible characteristics", it applied the 5 dBA "penalty" for such sounds to give a level of 55 dBA L10 rather than the level of 60 dBA L10 in rule 4.1.2.3. The applicant is prepared to accept and meet such a condition, but does not agree that such a penalty is in fact required under the rules. We are not required to determine the point, although it may have merit. We understand that it involves the question whether a rule expressly dealing with wind machines for frost control (Rule 1.4.2.3, which states a noise level of 60 dBA L10) is to be altered by a provision dealing with noise generally."

WHL seeks clarification as to whether the proposed 55 dBA is absolute or whether a 5 dB special audible characteristics penalty may apply effectively lowering the standard from 55 to 50 dB.

5. Matters In Respect of Which Council May Impose Conditions

WHL opposes the proposed list of matters over which Council reserves the right to control and impose conditions. The speed at which a frost fan is permitted to run is critical to ensure adequate frost protection. The higher the speed the greater the effectiveness of the frost fans but the greater the noise emission. WHL runs its frost fans at the lowest possible speed to protect its crop. If a lesser speed were imposed as a condition of the fans operation this could effectively render the frost fans useless. WHL believes that parameters and specifics need to be drawn around when any conditions will be imposed and what restrictions may be imposed.

6. Scope of Application of the New Rules



WHL regards it as necessary that any change to the Plan ought to specify what frost fans the new rules relate to. WHL understands that existing frost fans will have to comply with the old rules and any new frost fans will have to comply with the new rules. Council has told WHL that if any existing frost fans are modified then they will no longer come within the old rules but will have to comply with the more stringent noise restrictions imposed by the new rules. If this is the case, this stance would provide a strong disincentive for existing frost fan owners to upgrade to new technology. In WHL's case, this is relevant because it is currently looking into changing the blades on two existing frost fans to quieter blades (new technology that has recently been offered by wine machine manufacturers) in response to complaints from a neighbour. If a change to the blades on a frost fan means that the new rules will apply to that existing frost fan then this would be a strong disincentive for WHL to modify its existing frost fans, which would not be a positive outcome for WHL's neighbour.

I am aware of and support the submission made by New Zealand Winegrowers.

I oppose each of the provisions listed above for the reasons provided in that submission.

I seek the following decision from the Marlborough District Council:

- (a) that frost fans remain a permitted activity;
- (b) that the maximum dB limit remain at 60;
- (c) that noise limits are not relevant at a notional boundary and only at 300m as per the existing rules;
- (d) that any change to the rules determines definitively whether any penalty ought to be imposed in the presence of special audible characteristics;
- (e) that further detail is provided in any change to the rules to elaborate when and the extent to which control may be exercised / conditions imposed with respect to the matters listed; and
- (f) that a provision is included in the any change to the Plan to set out which frost fans the new rules will apply to.

WHL seek the following decision from the Local Authority:

Either:

Withdraw the variation until the programme of forensic monitoring is completed;

OR

Should the Council proceed with the Plan Change, then the amendments requested are set out in the submission of New Zealand Winegrowers.



I wish to be heard in support of my submission

If others make a similar submission I **would** be prepared to consider presenting a joint case with them at any hearing



AMY ELIZABETH MURPHY

Signature of person making submission or authorized agent

23 October 2009

Date

Submission Form for Plan Changes 23 and 58 to the Wairau/Awatere & Marlborough Sounds Resource Management Plans Frost Fan Plan Changes

Name/Organisation: Nelson Marlborough DHB Public Health Service

Contact Name: Geoff Cameron

Address for Service: NMDHB
Public Health Service
PO Box 647
NELSON

Phone Number: (03) 5461541

Fax Number: (03) 5461542

Office Use

Participant No.
23

Submission Point No.

File Refs
W045-15-58
M13-15-23

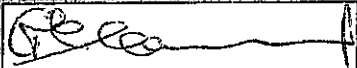
Date Received Stamp
RECEIVED
23 OCT 2009
MARLBOROUGH DISTRICT COUNCIL

Submissions Close:
5.00 pm Friday
23 October 2009

Number of Attachments: 22

Do you wish to be heard in support of your submission? YES NO

If you wish to be heard in opposition would you be prepared to consider presenting a link? YES NO

Signature:  **Date:** 22 October 2009

Return your submission to:
Marlborough District Council
PO Box 443
Blenheim 7240
Attention: Mark Caldwell
Fax: (03) 520 7496
E-Mail: frostfans@marlborough.govt.nz

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REMEMBER - the clearer you can be, the easier it will be for the Council to understand your concerns and take them into account.

Please indicate the plan change(s) that your submission relates to:

Plan Change 23 (Frost Fans) to the Marlborough Sounds Resource Management Plan

Plan Change 58 (Frost Fans) to the Wairau/Awatere Resource Management Plan

If you wish to provide a submission for more than one of the plan changes, you can use the same form so long as you clearly indicate which plan change your comments relate to.

Any submission received by the Council is considered to be public information.

Plan Change No. Volume, Section of Plan, Page Number	Details of your submission and specific changes or decisions requested
<i>Example: Plan Change 23 New policy 1.9</i>	<i>Example: I oppose this policy because... I would like the Council to change wording of this policy to "suggest change"</i>

Attached are submissions on:

- Proposed Plan Change #23 to the Marlborough Sounds Resource Management Plan, and
- Proposed Plan Change #58 to the Wairau/Awatere Resource Management Plan"

Reset Form

SUBMISSION ON PUBLICLY NOTIFIED PROPOSED PLAN CHANGE UNDER, CLAUSE 6, OF THE FIRST SCHEDULE TO THE RESOURCE MANAGEMENT ACT 1991

To the Marlborough District Council

<i>Office Use</i>
Participant No.
Submission Point No.
File Refs
W045-15-58
M13-15-23
Date received stamp

Submissions on behalf of The Nelson Marlborough District Health Board Public Health Service

This is a submission on Proposed Plan Change #58 to the Wairau/ Awatere Resource Management Plan titled. "Use of wind machines for frost protection"

The broad reason for these submissions is to provide helpful, objective and independent input so as to promote the reduction of adverse environmental noise effects on the health of people and communities pursuant to the New Zealand Public Health and Disability Act 2000 and the Health Act 1956. These statutory obligations are the responsibility of the Ministry of Health and in the Marlborough District these obligations are carried out by delegation under Crown funding agreements by the Nelson Marlborough District Health Board Public Health Service. The Ministry of Health requires The Public Health Service, to reduce any potential health risks by means including submissions on Plans, Variations and Plan Changes to ensure the public health significance of noise is considered. The Proposed Plan Change "Use of wind machines for frost protection" contains provisions which may affect the health of people and communities in the district. The Public Health Service makes this submission on matters relating to environmental noise and how it is proposed to be controlled and mitigated through these two Proposed Plan Changes.

The sole objective of these submissions is to improve the provisions relating to noise for the people and communities of the District and to promote efficient administration of those provisions by the Council.

1. **Generally**

The submission is: The Nelson Marlborough District Health Board Public Health Service supports the proposed plan change to improve the plan provisions, but with the amendments proposed in the detailed submissions below. All references are to the document "Appendix 1: Schedule of proposed changes Wairau/ Awatere Resource Management Plan, to the section 32 report ,and the legal basis is understood to be the Act as at the date of notification of the proposed plan changes.

2. **The specific provision is:** Generally, in relation to the proposed rule as a whole and related to the scope of the proposed plan change.

The submission is: It is understood operation of frost fans during certain advection frost events is counter productive to frost mitigation and under these circumstances residents affected by noise from frost fans should not have to tolerate their operation. Operation of frost fans which may have the effect of worsening frost damage is not sustainable management. Such matters are within the compass of meteorological experts for comment and the Public Health Service wishes to raise this issue as a matter for which Council should seek independent meteorological expert input when considering its own further submissions.

It may be that additional provisions are required in this part of the plan rule to prohibit use of frost fans during advection frost events defined in a manner deemed appropriate by meteorological experts. This aspect raises the question of whether use of frost machines should be a prohibited activity under certain conditions. Whether or not such measures could or should be given effect through a new plan section related to prohibited activities in addition to that proposed under the classification of a controlled activity, is a matter for legal and planning consideration.

The decision required is: Consider the sustainability of frost fan operation for advection frost events with independent expert meteorological input as to the practicality of such plan provisions. Consider the possible need for prohibited activity status for advection frost events.

3. **The specific provision is:** **Item 1, Volume 2** under the heading "Definitions,"

The submission is: The phrase "to control frost" is imprecise as the purpose is to mitigate damage from frost. Frost conditions cannot be controlled.

The decision required is: Amend by deleting the words "control frost" and substitute the words, "to mitigate frost damage".

4. **The specific provision is:** **Item 1, Volume 2,** under the heading "Definitions,"

The submission is: Inclusion of the words "support structure" is noted in the definition but the definition literally excludes from consideration the power source, typically a diesel engine. Elsewhere in New Zealand and during the Waihopai Valley noise testing in May 2009 it was demonstrated that a power source can be as significant an issue at 300m distance as the aerodynamic noise caused by the fan blades. Note power sources may be permanent or temporary installations.

The decision required is: Amend by addition to the definition of "frost fan," after the words "support structure," the words, "and power source".

5. **The specific provision is:** **Item 2** Proposed amendment to rule 30.1.4.2.3. (a)-(c) and **Item 9** Proposed amendment to rule 2.2.11 of Appendix K.

The submission is: The Public Health Service supports deletion of the existing provisions which have proved unsatisfactory and inadequate for the purpose originally intended.

The decision required is: Delete existing rule 36.1.4.2.4.

6. **The specific provision is:** **Item 3** Proposed new rule 30.1.4.2.4. (a)-(c) and **Item 6** proposed new rule 31.1.5.1, and **Item 7** new rule 2.2.11.1

The submission is: The Public Health Service supports provisions for reverse sensitivity designed to limit exposure of people to frost fan noise. However the performance standard lacks the necessary elements of indoor sound level design limits such as have been evolved over the years to address noise emission from airports, ports, road traffic and inner city noise. The key elements of how noise is measured and assessed are missing and reliance on a design certificate without reference to appropriate standards can lead to confusion, inequities and failure of the intended purpose of the rule. Certification without a standard to which certification is related is meaningless as there are many different possible acoustical criteria that might be applied. NZS 6802:2008 provides guidance on these measures (See section 8.6.9).

Reliance upon closed windows to meet acoustical indoor design limits must be complemented with alternative means of ventilation as required by the Building Code. This is a matter specified in NZS 6801:2008, section 6.2.2.

All these matters have been in the public arena for some years since the former Building Industry Authority published its consultation proposals for amendment to the Building Code to specify required indoor noise limits when acoustical requirements for the purposes of the RMA must be met to meet some other statute such as a district plan rule. While those provisions are still being considered for implementation by government, many other local authorities have had to make interim provisions of the kind necessitated by this proposed rule, for other types of external noise sources.

Provision needs to be included for consideration of circumstances where an alteration to a dwelling does not, having regard to the screening of the bedroom affected by other parts of the dwelling, require any treatment of the bedroom to meet the performance standard of being adequately isolated from noise arising from the operation of the frost fan.

Proposed clause (c) is supported consequentially renumbered (h) as below.

The defect can be remedied by amendment to revise the proposed rule using the guidance in NZS 6802:2008.

The decision required is: Amend by deleting the proposed rule paragraphs (a)-(c) and substitute the following or provisions to the like effect or by inclusion of the part related to ventilation in a new Appendix or elsewhere in the Plan:

Noise isolation

(a) Any bedroom in a building used as a dwelling house, visitor accommodation or other habitable building located within 300 metres of any frost fan shall be adequately isolated from noise arising from the operation of the frost fan.

(b) For the purposes of this rule, "adequately isolated" means the building shall be orientated, screened, sited, and acoustically insulated, to comply with the design sound levels set out in (c).

(c) The building envelope shall be designed and constructed to achieve the following sound insulation in any bedroom.

$$D_{nT,w} + C_{tr} > 30 \text{ dB}$$

(d) Construction shall be in accordance with an acoustical design certificate signed by a suitably qualified and experienced acoustical engineer stating the design as proposed will achieve compliance with the above indoor design sound levels.

(e) Sub-clauses (a)-(d) shall in addition apply to any alteration to a habitable room used as a bedroom.

Ventilation

(f) Indoor design sound levels in (c) above shall be achieved with windows and doors open unless adequate alternative ventilation means for fresh air from outside the building envelope is provided. Where bedrooms with openable windows providing natural ventilation are required to be closed to comply with an acoustical isolation requirement, an alternative supplementary source of fresh air is required to achieve a minimum distribution into the bedroom of 7.5 litres per second per person. Acoustical and ventilation requirements shall be met concurrently.

(g) Where approved alternative means of ventilation are provided the installation shall if supplied by a fan assisted mechanical ventilation system:

(i) Enable the rate of airflow to be controlled across the range, from the maximum airflow capacity down to 0.5 ± 0.1 air changes of outdoor air per hour in all bedrooms; and

(ii) Limiting internal pressure to not more than 30 Pascals above ambient air pressure; and

(iii) Being individually switched on and off by the building occupants, in the case of each system; and

(iv) Creating no more than $L_{eq} 30$ dBA in any bedrooms. Noise levels from the mechanical system(s) shall be measured at least 1 metre away from any diffuser.

If air conditioning plus mechanical outdoor air ventilation is used it shall:

(i) Provide 7.5 litres per second per person in all bedrooms

(ii) Provide internal temperatures in bedrooms above not greater than 25 degrees Celsius at 5% ambient design conditions as published by the National Institute of Water and Atmospheric Research ("NIWA") (NIWA, Design Temperatures for Air Conditioning (degrees Celsius), Data Period 1991-2000), with all external doors and windows of the bedroom closed; and

(h) Compliance with the above ventilation performance standards shall be achieved by construction and operation in accordance with a ventilation design certificate signed by a suitably qualified ventilation engineer stating that the design as proposed will achieve compliance with the minimum performance standard. This certificate shall be submitted with the relevant application for resource consent or building consent.

(i) For the purpose of this rule, "frost fan" includes a proposed frost fan for which an approved building consent and/or resource consent has been granted.

Definitions and standards

$(D_{nT,w} + C_{tr})$: means the standardised level difference (outdoor to indoor) and is a measure of the airborne sound insulation provided by the external building envelope (including windows, walls, ceilings and floors where appropriate) described using $D_{nT,w} + C_{tr}$ as defined in the following Standards:

AS/NZS ISO 717.1:2004 *Acoustics - Rating of sound insulation in buildings and of building elements – Part 1: Airborne sound insulation* (using spectrum No.2).

ISO 140-5:1998 *Acoustics - Measurement of sound insulation in buildings and of building elements Part 5: Field measurements of airborne sound insulation of facade elements and facades*.

7. **The specific provision is:** **Item 4** Proposed new bullet point under rule 30.2.1
- The submission is:** The Public Health Service supports the addition of this item. The words “use of a frost fan” would include operation of the fan, and power source regardless of the purpose. This approach is strongly supported as any attempt to refine the terminology further by means of an inclusive or exclusive list of types of operation would probably never be comprehensive enough and would allow technical or legal argument about intentions of the operator, a matter that would cause monitoring difficulties, and could not be proved to the standard required for any necessary enforcement proceedings.
- The decision required is:** Retain provision or words to the like effect.
8. **The specific provision is:** **Item 5** proposed new rule 30.2.9 and **Item 10** proposed new rule 2.3.3 to Appendix K
- The submission is:** The Public Health Service supports the proposed new rule status as a controlled activity because this provides for site-by-site consideration and allows the consent authority to impose conditions appropriate to the circumstances.
- Consideration of the Environment Court’s distinction between the alternative classification of a discretionary activity indicates a “precautionary approach” would be appropriate where there was a shortage of empirical information and researched data concerning the effects of an activity. However that is not the case for wind machines, so a “controlled activity” is an appropriate status.
- “Prohibited activity” status is recognised as unrealistic given the number of existing installations, however see paragraph 2 (page 1) for a possible exception. RMA Section 77B (2) (aa) provides that the consent authority must grant the resource consent, unless it has insufficient information to determine whether or not the activity is a “controlled activity”, and this in conjunction with the other provisions of s.77B enables Council an adequate degree of control without the statutory burden on the horticulture industry being too high given the need to also provide for the health and safety of the people and communities under Section 5 of the Act.
- The decision required is:** Retain provision or words to the like effect.
9. **The specific provision is:** **Item 5** proposed new rule “Standards and terms” rule 30.2.9.1.1, first line and **item 10** proposed new rule 2.3.1 to Appendix K

The submission is: The Public Health Service supports the proposed new rule but with amendments. The acoustical descriptor or metric used is the A-frequency weighted time average sound level however the incorrect expression and abbreviation has been used given the proposed method of assessment and measurement is the 2008 editions of NZS 6801 and NZS 6802. The correct expression using these standards is "LAeq (t)" where (t) is the measurement sample time. See next submission for addition matters related to the sample time interval.

The decision required is: Amend "55 dBA Leq" to "55 dB LAeq (t)."

10. **The specific provision is:** **Item 5** proposed new rule "Standards and terms" rule 30.2.9.1.1, first line and **Item 10** proposed new rule 2.3.1 to Appendix K

Continued from and linked to the previous submission, in the case of almost all, (discounting the rare use of non-360 degree rotating frost fan heads, and for all three main types of frost fans, the fans rotate on a mast according to gearbox reductions and engine RPM. The cycle period varies and is typically in the range 4-8 minutes.

Under the existing rules in the plan, measurements must be in accordance with the provisions in the Definitions section, page 19 "Interpretation - Noise Measurements" where for cyclic noise, the measurement sample may be less than 10-15 minutes and an average level shall be determined in manner set out in sub clause 3 of that plan section. This requires an energy average value based on ten head rotation cycles be derived for assessment purposes against noise limits.

This is a simple and fair statistical approach to produce a representative value for a relatively short duration cyclic event of a repetitive nature; however it was not designed specifically for wind machines.

Noise assessment using NZS 6802:2008 uses a different method to derive a rating level than the 1991 edition of the standard cited in the current plan rules and modified by the noise interpretation section described in the preceding paragraph. Because sound of an operating frost fan is typically continuous over at least several hours when "on" (albeit with a fluctuating noise level), the "simple" method of assessment set out in NZS6802:2008 can be used rather than the detailed method. This means measurement duration of 15 minutes is required and the number of cycles could be ignored. A 15 minute measurement period is traditionally what has generally been used as the measurement time interval for assessing environmental noise.

Rotation cycles are typically 5-7 minutes in duration and the only significant variable while fans are operating is wind load if any wind is present. At least one cycle of operation, aside from initial start up or run down, is desirable to obtain a representative sound level for a frost fan operation. A full 15 minute measurement time will be adequate for normal assessment purposes, however in circumstances where frost fan operation occurs for less than 15 minutes, the assessment method provides for a normalisation method by calculation based on measurement of a lesser time period. Based on experience this should be not less than one mast rotation cycle to obtain a representative value. Thus the method of assessment is adequate to cope with longer or shorter operating times in a fair manner.

The decision required is: The Public Health Service supports the proposed assessment method based on NZS 6802:2008.

11. **The specific provision is:** **Item 5** proposed new rule "Standards and terms" rule 30.2.9.1.1, first line and **Item 10** proposed new rule 2.3.3.2 to Appendix K

The submission is: The Public Health Service supports the proposed new rule but with amendments. The words, "when measured" create legal uncertainty of the kind subject to adverse

comment by the Environment Court due to the necessity for measured levels to be adjusted for various factors specified in the cited assessment standard. Using this phrase “when measured,” allows legal argument that no adjustment to measured levels was intended. Uncertainty in drafting of noise rules has been well canvassed in the Environment Court and predecessor Tribunal and Board decisions over the past 40 years. Best practice drafting avoids such ambiguities which can undermine the ability of a Council to undertake enforcement action if such is considered necessary.

This uncertainty can be resolved by deleting the words “as measured” from the sentence.

The decision required is: Delete the words, “as measured”.

12. **The specific provision is:** **Item 5** proposed new rule “Standards and terms” rule 30.2.9.1.1, sub-clauses i) and ii) and **Item 10** proposed new rule 2.3.3.2 to Appendix K

The submission is: The Public Health Service supports the proposed new rule but with amendments. In these sub-clauses the words “at a distance of ” and “at the notional boundary” are stated as the assessment location. The word “at” is inadequate and a known problem that has been subject of adverse comment by the Environment Court. It was initially superseded by the phrase “at or within the boundary,” as used elsewhere in the Council’s noise rules. However this phrase was in turn held to be uncertain by the Court. The words were superseded by the time the 1999 edition of the Assessment Standard was published with what is now recognised to be best practice and what is also now generally understood to be acceptable to the Environment Court. The acceptable wording or phrase now used is, “at any point within...” in relation to a notional boundary or parcel of land or zone boundary desired to be protected by a noise limit.

This phrase overcomes practical difficulties caused by obstructions of various kinds and the need for a certain degree of survey precision about the exact location of a survey boundary. “At” is less of a problem than the survey precise term “on,” but both have been superseded in recent editions of various standards by the proposed “at any point within...” phrase in relation to boundaries etc.

For the special case of the 300m distance, (which is supported by the Public Health Service), the word “at” has some of the same problems as the use of “at the notional boundary” as discussed in the preceding paragraph because of local obstacles, eg ditches, blackberry. Legal argument on what constitutes “at” the measurement point can undermine enforcement ability because of metrological reasons, ie which may affect legal measurement accuracy, any measurement of distance also has some degree of uncertainty. In enforcement proceedings the ability to test each point in defence is a matter of justice and drafting of rules should contemplate such contingencies.

The distance should be specified as 300 metres plus or minus 3.0 metres which allows for normal optical and other methods of determining distance by range finding instrumentation without highly specialised range finding instrumentation. The possible error in decibel measurement for such a distance would amount to about plus or minus 0.05 dB, an infinitesimal quantity of sound energy. Decibels are only calculated in tenths when necessary and are reported as integer numbers. One hundredth parts of a decibel are inconsequential. However if a rule states “at 300m” then there is a high burden of proof that the distance was actually 300m.

The amendment proposed resolves the issue in a practical manner which will facilitate any monitoring undertaken by Council staff, reduce the monitoring burden and be within the existing range finding capabilities of Councils monitoring equipment.

The decision required is:

A sub-clause (i) Amend the distance of 300m by adding after the numerals “300” the term “± 3” ie “300m ± 3m ”

B sub-clause (ii) Delete the words, “at the notional boundary” and substitute, “At any point within the notional boundary...”

13. **The specific provision is:** Item 5 proposed new rule “Standards and terms” rule 30.2.9.1.1 and item 10 proposed new rule 2.3.3.2 to Appendix K

The submission is: The Public Health Service supports the proposed new rule but with amendments. The distance 300m (± 3m as recommended) can be a confounding factor in the presence of other noise sources such as other frost fans, helicopters or other aircraft or road traffic. The matter of cumulative effects is a known problem and a confounder of practical measurements. This is a manageable problem for documentation associated with making an application for resource consent where predictions can be made. However the rule itself is intended to be enforceable if necessary at law and its usage in that context needs to be accommodated by the methods of assessment provided.

NZS 6802:2008 is a document not part of the district plan, but cited by the district plan and only in the possession of a few institutions and consultants, or highly motivated members of the public and industry who can afford the cost. In making this rule provision Council needs to appreciate that assessment under NZS 6802 allows and provides for methods to avoid erroneous results due to intrusion from sound sources other than the sound source of interest. (See NZS 6802; 2008, the Foreword, and clauses 5.4.2, C6.1.2, 6.2.2 (c), Appendix B, and in particular clause B3.)

Such external indirect and esoteric references and qualifiers of application of a rule can cause confusion and it is suggested that it may be better to address this matter overtly in the rule by including a proviso which enables these measurement methods to be used to avoid erroneous results from other noise sources which are part of the residual noise in the rural landscape.

Such measures will allow for measurement of sound from a frost fan under investigation at distances closer than 300m so as to minimise the effects of sounds of extraneous noise events from other sources in the environment, including other frost fans. The standard for assessment makes provision for calculating the effect of extraneous noise source contributions where necessary but this may be impractical for frost fans in a locality so measurement closer to the fan of interest is necessary to minimise the effects of other fans or other noise sources. This is an important method to allow practical checking by Council staff of frost fan compliance with noise limits.

The method proposed below is designed to provide a simple rather than complex calculation approach and to ensure fairness to frost fan operators and to avoid technical arguments about the various factors affecting sound propagation outdoors.

The decision required is: Amend proposed rule 30.2.9.1.1 and new rule 2.3.3.3 to Appendix K by adding the following new paragraph after the words “whichever is the least distance”.

“Provided that, for the purpose of minimising the effect of extraneous noise sources on measurements, the sound level of any frost fan at 300m distance from the assessment point may be calculated from measurements made at a closer location to the frost fan, with the resultant sound level reduced by the level reduction due to divergence alone. Such measurements shall not be made within 50m of the frost fan under investigation and calculation shall otherwise be in accordance with rule 30.2.9.1.2.”

14. **The specific provision is:** Item 5 proposed new rule “Standards and terms” rule 30.2.9.1.2 and Item 10 proposed new rule 2.3.3.3 to Appendix K

The submission is: The incorrect title is cited for NZS 6802:2008.

The decision required is: Amend the title to “Acoustics – Measurement of Environmental Sound”.

15. **The specific provision is:** Item 5 proposed new rule “Standards and terms” rule 30.2.9.1.3 and Item 10 proposed new rule 2.3.3.3 to Appendix K

The submission is: The Public Health Service supports the proposed new rule including air temperature threshold requirements but with amendments. The phrases “operated for frost protection” and “when the air temperature drops to 2°C.” are joined by the word “and”. This raises uncertainty as to the possible conjunctive or disjunctive meaning of the word. This creates legal uncertainty of a kind known to be rejected by the Environment Court because it allows possible legal defences in enforcement proceedings based on argument about the rule maker’s intent.

The drafted form can be argued to contradict the words “use of a frost fan” under the heading “Frost Fans (new controlled activity rule)” as commented upon elsewhere.

The couplet phrase “and when” is recognised as poor grammar and the use of the word is syntactically unnecessary. Its removal resolves the potential enforcement problem without affecting the meaning or intention.

The decision required is: Amend 30.2.9.1.3 and proposed new rule 2.3.3.3 to Appendix K by deleting the word “and” in the first sentence.

16. **The specific provision is:** Item 5 proposed new rule “Standards and terms” rule 30.2.9.1.3 and proposed new rule 2.3.3.4 to Appendix K

The submission is: The Public Health Service supports the proposed new rule including air temperature threshold requirements but is concerned at the adequacy of the provision which in its present form may hinder enforcement. The requirement is for temperature measurement at 2 °C and at 0.8meters above ground level. The temperature threshold is a critical parameter triggering the operation of frost fans and its measurement needs to have some rigor. There is an issue concerning where, when and how and with what degree of accuracy and in conjunction with other “near the ground” climatic parameters related to moisture content measurement that should be made. On sloping ground different factors apply than on flat ground, as does ground character, presence of surface features such as shelter belts, drains, and vegetation.

Regard should be paid to meteorological expert opinion on these matters. The Public Health Service concern is that, if people in rural areas are to be subjected to frost fan noise for sustainable management reasons, then there must be a high duty to avoid false triggering and operation only when frost damage has a reasonable certainty of occurring.

It appears that the instrumentation requirements and measurement details in relation to temperature lack rigor or traceability to standards in the manner required for noise measurements. It would seem appropriate that expert meteorological advice should be sought on this matter (independent from such advice on behalf of or to vineyard operators) as it appears the proposed provision is inadequate in its present form.

The decision required is: Review proposed new rule 30.2.9.1.3 and proposed new rule 2.3.3.4 to Appendix K and take independent expert advice on improving its certainty and an appropriate metrological (legal metrology not to confused with meteorology), rigor and provide more detail on minimum parameters and location of measurement.

17. **The specific provision is:** Item 5 proposed new rule “Standards and terms” rule 30.2.9.1.4

The submission is: The Public Health Service strongly supports the 500m separation zone as the minimum that should be incorporated in this proposed rule, but also submits this is inadequate in relation to protection of urban areas. While 500m is an improvement on 300m, it is still inadequate in relation to that tiny portion of land area in the district specifically set aside for residential activities, in Blenheim and other townships compared to the total area of the district. The Public Health Service would prefer to see the distance as 1.0km rather than 500m from any land zoned Urban Residential, or Township Residential in the District Plan. This is the only measure that can protect the bulk of the population from night-time sleep disturbance and the adverse health effects consequential to sleep disturbance.

The decision required is: Amend the rule to provide for a separation distance of 1.0 km from any land zoned Urban Residential, or Township Residential in the District Plan.

18. **The specific provision is:** Item 5 proposed new rule “Standards and terms” rule 30.2.9., proposed new clause and proposed new rule 2.3.3.4 to Appendix K.

The submission is: A known issue is the need for maintenance testing of frost fans. Such testing should be restricted to defined daylight hours and the period 8am -5pm on any day except weekends and on any public holiday is recommended as appropriate. The proposed rule makes no provision for this and such provision is necessary in the experience of the Public Health Service.

The decision required is: Add a new rule sub-clause as follows:

“30.2.9.1.5 and 2.3.3.4 to Appendix K

“No frost fan shall be operated for the purposes of testing mechanical or electrical components of the installation outside the hours of 8am -5pm on any day except weekends and on any public holiday.

19. **The specific provision is:** Item 5 proposed new rule “Matters Over Which the Council Will Exercise Control,” rule 30.2.9.2, proposed new clause. and proposed new rule 2.3.3.5 to Appendix K.

The submission is: The term “Speed of frost fan” is inadequate because the definition, (as recommended to be amended), can include the mast and power source creating uncertainty whether engine speed or blade speed is intended to be controlled. All elements from engine through the drive train to and including the blades and exhaust need to be subject to control because of the number of possible components affecting noise emissions and aerodynamic efficiency. Some vision is required to contemplate coverage of future possible innovations. This can all be clarified by amendment.

The decision required is: Amend by deleting the words “Speed of Frost fan” and substitute the words, “Orientation, rotational constraints and speed of any frost fan power source or frost fan blade set and engine muffling.”

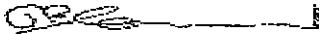
20. **The specific provision is:** 30.2.9.2 Under the heading "Matters Over Which the Council Will Exercise Control" and proposed new rule 2.3.3.5 to Appendix K.

The submission is: Public Health Service experience is that monitoring requirements are generally complemented by reporting requirements and are required by the assessment and measurement standards cited.

The decision required is: Amend by adding the words "and reporting" after the word "monitoring".

21. Nelson Marlborough District Health Board Public Health Service will wish to be heard in support of these submissions, but will not consider presenting a joint case with other parties making a similar submission.

Dated at Nelson this 22nd day of October 2009



Signed

GE CAMERON

Designated by the Director General of Health under s.7A of the Health Act 1956

For and on behalf of Public Health Service

Nelson Marlborough District Health Board

Attention:

Geoff Cameron

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**SUBMISSION ON PUBLICLY NOTIFIED PROPOSED PLAN CHANGE 23 UNDER, CLAUSE 6,
OF THE FIRST SCHEDULE TO THE RESOURCE MANAGEMENT ACT 1991**

To the Marlborough District Council

<i>Office Use</i>
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Submissions on behalf of The Nelson Marlborough District Health Board Public Health Service

This is a submission on Proposed Plan Change #23 to the Marlborough Sounds Resource Management Plan titled. "Use of wind machines for frost protection"

The broad reason for these submissions is to provide helpful, objective and independent input so as to promote the reduction of adverse environmental noise effects on the health of people and communities pursuant to the New Zealand Public Health and Disability Act 2000 and the Health Act 1956. These statutory obligations are the responsibility of the Ministry of Health and in the Marlborough District these obligations are carried out by delegation under Crown funding agreements by the Nelson Marlborough District Health Board Public Health Service. The Ministry of Health requires The Public Health Service, to reduce any potential health risks by means including submissions on Plans, Variations and Plan Changes to ensure the public health significance of noise is considered. The Proposed Plan Change "Use of wind machines for frost protection" contains provisions which may affect the health of people and communities in the district. The Public Health Service makes this submission on matters relating to environmental noise and how it is proposed to be controlled and mitigated through these two Proposed Plan Changes.

The sole objective of these submissions is to improve the provisions relating to noise for the people and communities of the District and to promote efficient administration, of those provisions by the Council.

1. **Generally**

The submission is: The Nelson Marlborough District Health Board Public Health Service supports the proposed plan change to improve the plan provisions, but with the amendments proposed in the detailed submissions below. All references are to the document "Appendix 1: Schedule of proposed changes Marlborough Sounds Resource Management Plan, to the section 32 report ,and the legal basis is understood to be the Act as at the date of notification of the proposed plan changes.

2. **The specific provision is:** Generally, in relation to the proposed rule as a whole and related to the scope of the proposed plan change.

The submission is: It is understood operation of frost fans during certain advection frost events is counter productive to frost mitigation and under these circumstances residents affected by noise from frost fans should not have to tolerate their operation. Operation of frost fans which may have the effect of worsening frost damage is not sustainable management. Such matters are within the compass of meteorological experts for comment and the Public Health Service wishes to raise this issue as a matter for which Council should seek independent meteorological expert input when considering its own further submissions.

It may be that additional provisions are required in this part of the plan rule to prohibit use of frost fans during advection frost events defined in a manner deemed appropriate by meteorological experts. This aspect raises the question of whether use of frost machines should be a prohibited activity under certain conditions. Whether or not such measures could or should be given effect through a new plan section related to prohibited activities in addition to that proposed under the classification of a controlled activity, is a matter for legal and planning consideration.

The decision required is: Consider the sustainability of frost fan operation for advection frost events with independent expert meteorological input as to the practicality of such plan provisions. Consider the possible need for prohibited activity status for advection frost events.

3. **The specific provision is:** **Item 1**, Volume 2 under the heading "Definitions,"

The submission is: The phrase "to control frost" is imprecise as the purpose is to mitigate damage from frost. Frost conditions cannot be controlled.

The decision required is: Amend by deleting the words "control frost" and substitute the words, "to mitigate frost damage".

4. **The specific provision is:** **Item 1**, Volume 2, under the heading "Definitions,"

The submission is: Inclusion of the words "support structure" is noted in the definition but the definition literally excludes from consideration the power source, typically a diesel engine. Elsewhere in New Zealand and during the Waihopai Valley noise testing in May 2009 it was demonstrated that a power source can be as significant an issue at 300m distance as the aerodynamic noise caused by the fan blades. Note power sources may be permanent or temporary installations.

The decision required is: Amend by addition to the definition of "frost fan," after the words "support structure," the words, "and power source".

5. **The specific provision is:** Item 2 Proposed amendment to rule 36.1.3.4.2.3.

The submission is: The Public Health Service supports deletion of the existing provisions which have proved unsatisfactory and inadequate for the purpose originally intended.

The decision required is: Delete existing rule 36.1.3.4.2.3.

6. **The specific provision is:** Item 3 Proposed new rule 36.1.3.4.2.6 (a)-(c))

The submission is: The Public Health Service supports provisions for reverse sensitivity designed to limit exposure of people to frost fan noise. However the performance standard lacks the necessary elements of indoor sound level design limits such as have been evolved over the years to address noise emission from airports, ports, road traffic and inner city noise. The key elements of how noise is measured and assessed are missing and reliance on a design certificate without reference to appropriate standards can lead to confusion, inequities and failure of the intended purpose of the rule. Certification without a standard to which certification is related is meaningless as there are many different possible acoustical criteria that might be applied. NZS 6802:2008 provides guidance on these measures (See section 8.6.9).

Reliance upon closed windows to meet acoustical indoor design limits must be complemented with alternative means of ventilation as required by the Building Code. This is a matter specified in NZS 6801:2008, section 6.2.2.

All these matters have been in the public arena for some years since the former Building Industry Authority published its consultation proposals for amendment to the Building Code to specify required indoor noise limits when acoustical requirements for the purposes of the RMA must be met to meet some other statute such as a district plan rule. While those provisions are still being considered for implementation by government, many other local authorities have had to make interim provisions of the kind necessitated by this proposed rule, for other types of external noise sources.

Provision needs to be included for consideration of circumstances where an alteration to a dwelling does not, having regard to the screening of the bedroom affected by other parts of the dwelling, require any treatment of the bedroom to meet the performance standard of being adequately isolated from noise arising from the operation of the frost fan.

Proposed clause (c) is supported consequentially renumbered (h) as below.

The defect can be remedied by amendment to revise the proposed rule using the guidance in NZS 6802:2008.

The decision required is: Amend by deleting the proposed rule paragraphs (a)-(c) and substitute the following or provisions to the like effect or by inclusion of the part related to ventilation in a new Appendix or elsewhere in the Plan:

Noise isolation

- (a) Any bedroom in a building used as a dwelling house, visitor accommodation or other habitable building located within 300 metres of any frost fan shall be adequately isolated from noise arising from the operation of the frost fan.
- (b) For the purposes of this rule, “adequately isolated” means the building shall be orientated, screened, sited, and acoustically insulated, to comply with the design sound levels set out in (c).
- (c) The building envelope shall be designed and constructed to achieve the following sound insulation in any bedroom.

$$D_{nT,w} + C_{tr} > 30 \text{ dB}$$

(d) Construction shall be in accordance with an acoustical design certificate signed by a suitably qualified and experienced acoustical engineer stating the design as proposed will achieve compliance with the above indoor design sound levels.

(e) Sub-clauses (a)-(d) shall in addition apply to any alteration to a habitable room used as a bedroom.

Ventilation

(f) Indoor design sound levels in (c) above shall be achieved with windows and doors open unless adequate alternative ventilation means for fresh air from outside the building envelope is provided, used and maintained in operating order. Where bedrooms with openable windows providing natural ventilation are required to be closed to comply with an acoustical isolation requirement, an alternative supplementary source of fresh air is required to achieve a minimum distribution into the bedroom of 7.5 litres per second per person. Acoustical and ventilation requirements shall be met concurrently.

(g) Where approved alternative means of ventilation are provided the installation shall if supplied by a fan assisted mechanical ventilation system:

(i) Enable the rate of airflow to be controlled across the range, from the maximum airflow capacity down to 0.5 ± 0.1 air changes of outdoor air per hour in all bedrooms; and

(ii) Limiting internal pressure to not more than 30 Pascals above ambient air pressure; and

(iii) Being individually switched on and off by the building occupants, in the case of each system; and

(iv) Creating no more than $L_{eq} 30$ dBA in any bedrooms. Noise levels from the mechanical system(s) shall be measured at least 1 metre away from any diffuser.

If air conditioning plus mechanical outdoor air ventilation is used it shall:

(i) Provide 7.5 litres per second per person in all bedrooms

(ii) Provide internal temperatures in bedrooms above not greater than 25 degrees Celsius at 5% ambient design conditions as published by the National Institute of Water and Atmospheric Research ("NIWA") (NIWA, Design Temperatures for Air Conditioning (degrees Celsius), Data Period 1991-2000), with all external doors and windows of the bedroom closed; and

(h) Compliance with the above ventilation performance standards shall be achieved by construction and operation in accordance with a ventilation design certificate signed by a suitably qualified ventilation engineer stating that the design as proposed will achieve compliance with the minimum performance standard. This certificate shall be submitted with the relevant application for resource consent or building consent.

(i) For the purpose of this rule, "frost fan" includes a proposed frost fan for which an approved building consent and/or resource consent has been granted.

Definitions and standards

$(D_{nT,w} + C_{tr})$: means the standardised level difference (outdoor to indoor) and is a measure of the airborne sound insulation provided by the external building envelope (including windows, walls, ceilings and floors where appropriate) described using $D_{nT,w} + C_{tr}$ as defined in the following Standards:

AS/NZS ISO 717.1:2004 *Acoustics - Rating of sound insulation in buildings and of building elements - Part 1: Airborne sound insulation* (using spectrum No.2).

ISO 140-5:1998 *Acoustics - Measurement of sound insulation in buildings and of building elements Part 5: Field measurements of airborne sound insulation of facade elements and facades*.

7. **The specific provision is:** Item 4 Proposed new bullet point under 36.2

The submission is: The Public Health Service supports the addition of this item. The words “use of a frost fan” would include operation of the fan, and power source regardless of the purpose. This approach is strongly supported as any attempt to refine the terminology further by means of an inclusive or exclusive list of types of operation would probably never be comprehensive enough and would allow technical or legal argument about intentions of the operator, a matter that would cause monitoring difficulties, and could not be proved to the standard required for any necessary enforcement proceedings.

The decision required is: Retain provision or words to the like effect.

8. **The specific provision is:** Item 5 proposed new rule 36.2.7

The submission is: The Public Health Service supports the proposed new rule status as a controlled activity because this provides for site-by-site consideration and allows the consent authority to impose conditions appropriate to the circumstances.

Consideration of the Environment Court’s distinction between the alternative classification of a discretionary activity indicates a “precautionary approach” would be appropriate where there was a shortage of empirical information and researched data concerning the effects of an activity. However that is not the case for wind machines, so a “controlled activity” is an appropriate status.

“Prohibited activity” status is recognised as unrealistic given the number of existing installations, however see paragraph 2 (page 1) for a possible exception. RMA Section 77B (2) (aa) provides that the consent authority must grant the resource consent, unless it has insufficient information to determine whether or not the activity is a “controlled activity”, and this in conjunction with the other provisions of s.77B enables Council an adequate degree of control without the statutory burden on the horticulture industry being too high given the need to also provide for the health and safety of the people and communities under Section 5 of the Act.

The decision required is: Retain provision or words to the like effect

9. **The specific provision is:** Item 5 proposed new rule “Standards and terms” proposed new rule 36.2.7.1.1

The submission is: The Public Health Service supports the proposed new rule but with amendments. The acoustical descriptor or metric used is the A-frequency weighted time average sound level however the incorrect expression and abbreviation has been used given the proposed method of assessment and measurement is the 2008 editions of NZS 6801 and NZS 6802. The correct expression using these standards is “LAeq (t)” where (t) is the measurement sample time. See next submission for addition matters related to the sample time interval.

The decision required is: Amend “55 dBA Leq ” to “55 dB LAeq (t).”

10. **The specific provision is:** Item 5 proposed new rule “Standards and terms” proposed new rule 36.2.7.1.1

Continued from and linked to the previous submission, in the case of almost all, (discounting the rare use of non-360 degree rotating frost fan heads, and for all three main types of frost fans, the fans rotate on a mast according to gearbox reductions and engine RPM. The cycle period varies and is typically in the range 4-8 minutes.

Under the existing rules in the plan, measurements must be in accordance with the provisions in the Definitions section, page 19 “Interpretation - Noise Measurements” where for cyclic noise, the measurement sample may be less than 10-15 minutes and an average level shall be determined in manner set out in sub clause 3 of that plan section. This requires an energy average value based on ten head rotation cycles be derived for assessment purposes against noise limits.

This is a simple and fair statistical approach to produce a representative value for a relatively short duration cyclic event of a repetitive nature, however it was not designed specifically for wind machines.

Noise assessment using NZS 6802:2008 uses a different method to derive a rating level than the 1991 edition of the standard cited in the current plan rules and modified by the noise interpretation section described in the preceding paragraph. Because sound of an operating frost fan is typically continuous over at least several hours when “on” (albeit with a fluctuating noise level), the “simple” method of assessment set out in NZS6802:2008 can be used rather than the detailed method. This means measurement duration of 15 minutes is required and the number of cycles could be ignored. A 15 minute measurement period is traditionally what has generally been used as the measurement time interval for assessing environmental noise.

Rotation cycles are typically 5-7 minutes in duration and the only significant variable while fans are operating is wind load if any wind is present. At least one cycle of operation, aside from initial start up or run down, is desirable to obtain a representative sound level for a frost fan operation. A full 15 minute measurement time will be adequate for normal assessment purposes, however in circumstances where frost fan operation occurs for less than 15 minutes, the assessment method provides for a normalisation method by calculation based on measurement of a lesser time period. Based on experience this should be not less than one mast rotation cycle to obtain a representative value. Thus the method of assessment is adequate to cope with longer or shorter operating times in a fair manner.

The decision required is: The Public Health Service supports the proposed assessment method based on NZS 6802:2008.

11. **The specific provision is:** Item 5 proposed new rule "Standards and terms" proposed new rule 36.2.7.1.1

The submission is: The Public Health Service supports the proposed new rule but with amendments. The words, "when measured" create legal uncertainty of the kind subject to adverse comment by the Environment Court due to the necessity for measured levels to be adjusted for various factors specified in the cited assessment standard. Using this phrase "when measured," allows legal argument that no adjustment to measured levels was intended. Uncertainty in drafting of noise rules has been well canvassed in the Environment Court and predecessor Tribunal and Board decisions over the past 40 years Best practice drafting avoids such ambiguities which can undermine the ability of a Council to undertake enforcement action if such is considered necessary.

This uncertainty can be resolved by deleting the words "as measured" from the sentence,

The decision required is: Delete the words, "as measured".

12. **The specific provision is:** Item 5 proposed new rule "Standards and terms" proposed new rule 36.2.7.1.1, sub-clauses i) and ii)

The submission is: The Public Health Service supports the proposed new rule but with amendments. In these sub-clauses the words "at a distance of " and "at the notional boundary" are stated as the assessment location. The word "at" is inadequate and a known problem that has been subject of adverse comment by the Environment Court. It was initially superseded by the phrase "at or within the boundary," as used elsewhere in the Council's noise rules. However this phrase was in turn held to be uncertain by the Court. The words were superseded by the time the 1999 edition of the Assessment Standard was published with what is now recognised to be best practice and what is also now generally understood to be acceptable to the Environment Court. The acceptable wording or phrase now used is, "at any point within..." in relation to a notional boundary or parcel of land or zone boundary desired to be protected by a noise limit.

This phrase overcomes practical difficulties caused by obstructions of various kinds and the need for a certain degree of survey precision about the exact location of a survey boundary. "At" is less of a problem than the survey precise term "on," but both have been superseded in recent editions of various standards by the proposed "at any point within..." phrase in relation to boundaries etc.

For the special case of the 300m distance, (which is supported by the Public Health Service), the word "at" has some of the same problems as the use of "at the notional boundary" as discussed in the preceding paragraph because of local obstacles, eg ditches, blackberry. Legal argument on what constitutes "at" the measurement point can undermine enforcement ability because of metrological reasons, ie which may affect legal measurement accuracy, any measurement of distance also has some degree of uncertainty. In enforcement proceedings the ability to test each point in defence is a matter of justice and drafting of rules should contemplate such contingencies.

The distance should be specified as 300 metres plus or minus 3.0 metres which allows for normal optical and other methods of determining distance by range finding instrumentation without highly specialised range finding instrumentation. The possible error in decibel measurement for such a distance would amount to about plus or minus 0.05 dB, an infinitesimal quantity of sound energy. Decibels are only calculated in tenths when necessary and are reported as integer numbers. One hundredth parts of a decibel are inconsequential. However if a rule states "at 300m" then there is a high burden of proof that the distance was actually 300m.

The amendment proposed resolves the issue in a practical manner which will facilitate monitoring by Council staff and reduce the monitoring burden and be within the existing range finding equipment capabilities of Council as used by its staff.

The decision required is:

A sub-clause (i) Amend the distance of 300m by adding after the numerals “300” the term “± 3” ie “300m ± 3m”

B sub-clause (ii) Delete the words, “at the notional boundary” and substitute, “At any point within the notional boundary...”

13. **The specific provision is:** Item 5 proposed new rule “Standards and terms” proposed new rule 36.2.7.1.1 i) and ii)_

The submission is: The Public Health Service supports the proposed new rule but with amendments. The distance 300m (± 3m as recommended) can be confounding factor in the presence of other noise sources such as other frost fans, helicopters or other aircraft or road traffic. The matter of cumulative effects is a known problem and a confounder of practical measurements. This is a manageable problem for documentation associated with making an application for resource consent where predictions can be made. However the rule itself is intended to be enforceable if necessary at law and its usage in that context needs to be accommodated by the methods of assessment provided.

NZS 6802:2008 is a document not part of the district plan, but cited by the district plan and only in the possession of a few institutions and consultants, or highly motivated members of the public and industry who can afford the cost. In making this rule provision Council needs to appreciate that assessment under NZS 6802 allows and provides for methods to avoid erroneous results due to intrusion from sound sources other than the sound source of interest. (See NZS 6802; 2008, the Foreword, and clauses 5.4.2, C6.1.2, 6.2.2 (c), Appendix B, and in particular clause B3.)

Such external indirect and esoteric references and qualifiers of application of a rule can cause confusion and it is suggested that it may be better to address this matter overtly in the rule by including a proviso which enables these measurement methods to be used to avoid erroneous results from other noise sources which are part of the residual noise in the rural landscape.

Such measures will allow for measurement of sound from a frost fan under investigation at distances closer than 300m so as to minimise the effects of sounds of extraneous noise events from other sources in the environment, including other frost fans. The standard for assessment makes provision for calculating the effect of extraneous noise source contributions where necessary but this may be impractical for frost fans in a locality so measurement closer to the fan of interest is necessary to minimise the effects of other fans or other noise sources. This is an important method to allow practical checking by Council staff of frost fan compliance with noise limits.

The method proposed below is designed to provide a simple rather than complex calculation approach and to ensure fairness to frost fan operators and to avoid technical arguments about the various factors affecting sound propagation outdoors.

The decision required is: Amend proposed rule 36.2.7.1.1 by adding the following new paragraph after the words “whichever is the least distance”.

“Provided that, for the purpose of minimising the effect of extraneous noise sources on measurements, the sound level of any frost fan at 300m distance from the assessment point may be calculated from measurements made at a closer location to the frost fan, with the resultant sound level reduced by the level reduction due to divergence alone. Such measurements shall not be made within 50m of the frost fan under investigation and calculation shall otherwise be in accordance with rule 30.2.9.1.2.”

14. **The specific provision is:** Item 5 proposed new rule “Standards and terms” proposed new rule 36.2.7.1.2

The submission is: The incorrect title is cited for NZS 6802:2008.

The decision required is: Amend the title to “Acoustics – Measurement of Environmental Sound”.

15. **The specific provision is:** Item 5 proposed new rule “Standards and terms” proposed new rule 36.2.7.1.3

The submission is: The Public Health Service supports the proposed new rule including air temperature threshold requirements but with amendments. The phrases “operated for frost protection” and “when the air temperature drops to 2°C.” are joined by the word “and”. This raises uncertainty as to the possible conjunctive or disjunctive meaning of the word. This creates legal uncertainty of a kind known to be rejected by the Environment Court because it allows possible legal defences in enforcement proceedings based on argument about the rule maker’s intent.

The drafted form can be argued to contradict the words “use of a frost fan” under the heading “Frost Fans (new controlled activity rule)” as commented upon elsewhere.

The couplet phrase “and when” is recognised as poor grammar and the use of the word is syntactically unnecessary. Its removal resolves the potential enforcement problem without affecting the meaning or intention.

The decision required is: Amend 36.2.7.1.3 by deleting the word “and” in the first sentence.

16. **The specific provision is:** Item 5 proposed new rule “Standards and terms” proposed new rule 36.2.7.1.3

The submission is: The Public Health Service supports the proposed new rule including air temperature threshold requirements but is concerned at the adequacy of the provision which in its present form may hinder enforcement. The requirement is for temperature measurement at 2 °C and at 0.8 meters above ground level. The temperature threshold is a critical parameter triggering the operation of frost fans and its measurement needs to have some rigor. There is an issue concerning where, when and how and with what degree of accuracy and in conjunction with other “near the ground” climatic parameters related to moisture content measurement that should be made. On sloping ground different factors apply than on flat ground, as does ground character, presence of surface features such as shelter belts, drains, and vegetation.

Regard should be paid to meteorological expert opinion on these matters. The Public Health Service concern is that if people in rural areas are to be subjected to frost fan noise for sustainable management reasons, then there must be a high duty to avoid false triggering and operation only when frost damage has a reasonable certainty of occurring.

It appears that the instrumentation requirements and measurement details in relation to temperature lack rigor or traceability to standards in the manner required for noise measurements. It would seem appropriate that expert meteorological advice should be sought on this matter (independent from such advice on behalf of or to vineyard operators) as it appears the proposed provision is inadequate in its present form

The decision required is: Review proposed new rule 36.2.7.1.3 and take independent expert advice on improving its certainty and an appropriate metrological (legal metrology not to be confused with meteorology), rigor and provide more detail on minimum parameters and location of measurement.

17. **The specific provision is:** Item 5 proposed new rule “Standards and terms” rule 36.2.7.1.4
- The submission is:** The Public Health Service strongly supports the 500m separation zone as the minimum that should be incorporated in this proposed rule, but also submits this is inadequate in relation to protection of urban areas. While 500m is an improvement on 300m, it is still inadequate in relation to that tiny portion of land area in the district specifically set aside for residential activities, in Blenheim and other townships compared to the total area of the district. The Public Health Service would prefer to see the distance as 1.0km rather than 500m from any land zoned Urban Residential or Township Residential in the District Plan. This is the only measure that can protect the bulk of the population from night-time sleep disturbance and the adverse health effects consequential to sleep disturbance.
- The decision required is:** Amend the rule to provide for a separation distance of 1.0 km from any land zoned Urban Residential, or Township Residential in the District Plan.
18. **The specific provision is:** Item 5 proposed new rule “Standards and terms” rule 36.2.7.1.
- The submission is:** A known issue is the need for maintenance testing of frost fans. Such testing should be restricted to defined daylight hours and the period 8am -5pm on any day except weekends and on any public holiday is recommended as appropriate. The proposed rule makes no provision for this and such provision is necessary in the experience of the Public Health Service.
- The decision required is:** Add a new rule sub-clause as follows:
- “36.2.7.1.5
- “No frost fan shall be operated for the purposes of testing mechanical or electrical components of the installation outside the hours of 8am -5pm on any day except weekends and on any public holiday.
19. **The specific provision is:** Item 5 proposed new rule “Matters Over Which the Council Will Exercise Control,” rule 36.2.7.1., proposed new clause.
- The submission is:** The term “Speed of frost fan” is inadequate because the definition, (as recommended to be amended), can include the mast and power source creating uncertainty whether engine speed or blade speed is intended to be controlled. All elements from engine through the drive train to and including the blades and exhaust need to be subject to control because of the number of possible components affecting noise emissions and aerodynamic efficiency. Some vision is required to contemplate coverage of future possible innovations. This can all be clarified by amendment.

The decision required is: Amend by deleting the words "Speed of Frost fan" and substitute the words, "Orientation, rotational constraints and speed of any frost fan power source or frost fan blade set and engine muffling."

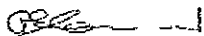
20. **The specific provision is:** Proposed clause 36.2.7.2 Under the heading "Matters Over Which the Council Will Exercise Control"

The submission is: Public Health Service experience is that monitoring requirements are generally complemented by reporting requirements and are required by the assessment and measurement standards cited.

The decision required is: Amend by adding the words "and reporting" after the word "monitoring".

21. Nelson Marlborough District Health Board Public Health Service will wish to be heard in support of these submissions, but will not consider presenting a joint case with other parties making a similar submission.

Dated at Nelson this 22nd day of October 2009



Signed

GE CAMERON

Designated by the Director General of Health under s.7A of the Health Act 1956

For and on behalf of Public Health Service

Nelson Marlborough District Health Board

Attention:

Geoff Cameron

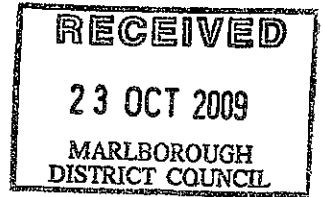
Senior Health Protection Officer

Public Health Service

Nelson Marlborough District Health Board

email : geoff.cameron@nmdhb.govt.nz

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Submission on Publicly Notified Proposal for Policy Statement or Plan

To: Marlborough District Council

Name of Submitter: Peter Constantine, Principal Planner, Marlborough District Council

This is a submission on proposed plan change 58 to the Wairau Awatere Resource Management Plan and proposed plan change 23 to the Marlborough Sounds Resource Management Plan.

The specific provisions of the proposal that my submission relates to are:

1. The whole of proposed plan change 58 to the Wairau Awatere Resource Management Plan and proposed plan change 23 to the Marlborough Sounds Resource Management Plan.
2. The lack of appropriate policy support for the proposed suite of rules in each of the two plans.
3. The lack of a rule in each of the two plans establishing basic information requirements for resource consent applications for proposed frost fans.
4. The incorrect descriptor associated with the noise level standards.
5. The exclusion of "maintenance" from the description of the activity in proposed rules 30.2.9, 30.2.7 and 2.3.3.
6. The omission of a specific date reference in proposed rules 30.2.9.1.1 (ii), 30.2.7.1.1 (ii) and 2.3.3.2 (ii) that identifies when "existing" commences.
7. The omission of a reference to "maintenance purposes" in proposed rules 30.2.9.1.3, 30.2.7.1.3 and 2.3.3.4.
8. In proposed rules 30.2.9.2, 30.2.7.2 and 2.3.3.5 (a), (c) and (d) the wording should refer to "any" frost fan.
9. In proposed rules 30.2.9.2, 30.2.7.2 and 2.3.3.5 clause (b) the omission of a reference to "operating" speed.
10. The proposed inclusion of rules in respect of frost fans in Appendix K Marlborough Ridge Zone of the Wairau Awatere Resource Management Plan.

My submission is:

1. Except to the extent identified in the following paragraphs, both plan changes 58 and 23 are supported because they introduce provisions into the two resource management plans that address a resource management issue of some moment and that it is necessary to address if the purpose of the Resource Management Act is to be attained.
2. The absence of clear policy in respect of the establishment, use and maintenance of frost fans in the rural zones of the district deprives the two resource management plans of appropriate context for

- the rules and any exceptions to the standards and terms that may be sought through applications for resource consent.
3. Establishing specific information requirements for resource consent applications for frost fans would ensure two outcomes: first, that Council is furnished with the information it requires to determine any proposal; and secondly, that applicants consider the environmental effects of proposals and, if appropriate, provide clear reasons why the standards and terms cannot be achieved.
 4. It is important that the resource management plans use correct technical terms. In this instance it appears as though the letters have been transposed and they require correction.
 5. There is an acknowledged need for scheduled maintenance of frost fans if optimum performance is to be achieved. Further, the proposed plan changes make reference to maintenance as a matter over which Council reserves control and may impose conditions. It is therefore appropriate that "maintenance" is part of the description of the activity to which the proposed suites of rules (PC 58 and PC 23) apply.
 6. In proposed rules 30.2.9.1.1, 30.2.7.1.1 and 2.3.3.2 there is reference to "any existing dwelling" and that is appropriate. However, without the inclusion of a specific date at which the "existing" environment is settled, for the purpose of these rules, there is a significant lack of certainty. The proposed rules should record that "existing" is taken to be the date on which the proposed plan changes were publicly notified.
 7. Proposed rules 30.2.9.1.3, 30.2.7.1.3 and 2.3.3.4 restrict the operation of frost fans. As drafted, the rules do not provide for operation of the frost fan for maintenance purposes unless a resource consent for a discretionary activity is obtained. This is inconsistent with the matters over which Council has reserved its discretion and would create unnecessary plan administration difficulties. The solution is to provide an exception for maintenance in these two proposed rules.
 8. Proposed rules 30.2.9.2, 30.2.7.2 and 2.3.3.5 (a), (c) and (d) should be written in the singular so that it is clear that the focus of attention throughout the rules is individual frost fans. Council is not in a position, and neither is it appropriate, to be considering cumulative effects because of the known significant variability in effects through the district.
 9. Proposed rules 30.2.9.2 (b), 30.2.7.2 (b) and 2.3.3.5 (b) refer to "speed of frost fan". This is considered imprecise and may lead to difficulties in application. The rule would be improved if it referred specifically to the speed at which the frost fan is operated.
 10. Proposed plan change 58 includes an internal inconsistency. It establishes, as a Standard and Term, that any proposed frost fan must be located no closer to the Marlborough Ridge Zone than 500 metres but then proceeds to introduce a new suite of rules that enable, as a controlled activity, the establishment and use of frost fans within this particular zone. In simple planning terms this can only be reconciled by either deleting the provisions proposed to be added to the Marlborough Ridge Zone or the reference to the Marlborough Ridge Zone in proposed rule 30.2.9.1.4. The preferred solution, given the nature of development and its spatial distribution in the general locality, is to delete the reference to the Marlborough Ridge Zone from proposed rule 30.2.9.1.4.

I seek the following decision from the local authority:

1. Except as required by the amendments set out below, confirm proposed plan change 58 to the Wairau Awatere Resource Management Plan and proposed plan change 23 to the Marlborough Sounds Resource Management Plan.
2. Add the following new policies, or policies to like effect:

- (a) After objective 12.2.2.2 (WARMP).

To recognise that the rural areas of the district are dynamic in terms of the characteristics and spatial location of crops grown and the needs of those crops for protection from the adverse effects of climate at particular times during the growing cycle.

- (b) After objective 11.3.1 (MSRMP).

To recognise that the rural areas of the district are dynamic in terms of the characteristics and spatial location of crops grown and the needs of those crops for protection from the adverse effects of climate at particular times during the growing cycle.

3. Add a new rule to both the Wairau Awatere Resource Management Plan and the Marlborough Sounds Resource Management Plan as follows or to like effect:

Any application for a resource consent for the erection and use of a frost fan shall include the following information in addition to that required by s88 Resource Management Act 1991.

- *Details of the proposed frost fan(s).*
- *A plan showing the location of the proposed frost fan(s) and the area it is designed to cover.*
- *A report prepared by a recognised acoustic consultant setting out a full and detailed description of the proposed equipment, a prediction of the noise footprint of the proposed frost fan machine based upon stated operational parameters, and an assessment of the proposal against the Standards and Terms set out in the relevant Plan rules. The report should also detail all methods to be employed that will ensure the performance of the frost fan machine and noise levels generated remain as predicted.*

4. At each place where it occurs in proposed plan change 58 and 23, delete “dB LAeq” and replace with “dBA Leq”.

5. Delete the second sentence in proposed rules 30.2.9, 30.2.7 and 2.3.3 and replace with the following:

The construction, use and maintenance of a frost fan is a Controlled Activity provided that the activity conforms to the following standards and terms:

6. Delete the word “existing” from proposed rules 30.2.9.1.1 (ii), 30.2.7.1.1 (ii) and 2.3.3.2 (ii) and add the following after the word “situated”:

existing at 24 September 2009.

7. Add the following words after the word “2°C” in proposed rules 30.2.9.1.3, 30.2.7.1.3 and 2.3.3.4.

except for maintenance purposes

8. Delete the text at (a), (b), (c) and (d) in proposed rules 30.2.9.2, 30.2.7.2 and 2.3.3.5 and replace with the following:

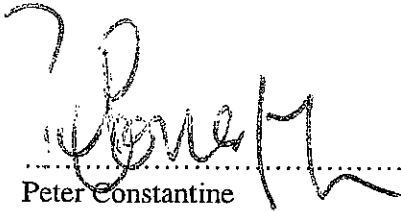
(a) *Operational requirements of any frost fan.*

(b) *Speed at which any frost fan is operated.*

Submission on Publicly Notified Proposal for Policy Statement or Plan

- (c) *Operation of any frost fan for maintenance purposes.*
 - (d) *Recording information about the use of any frost fan.*
9. Delete the words "or the Marlborough Ridge Zone" from proposed rule 30.2.9.1.4 and insert the word "and" before the word "Rural".
10. Any subsequent or consequential changes required to give effect to the amendments set out above.

I wish to be heard in support of my submission.



.....

Peter Constantine

Date

23.10.09

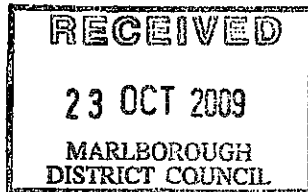
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SUBMISSION ON PUBLICLY NOTIFIED PROPOSED PLAN CHANGE 58 AND PROPOSED PLAN CHANGE 23 UNDER CLAUSE 6 OF THE FIRST SCHEDULE TO THE RESOURCE MANAGEMENT ACT 1991

TO: Marlborough District Council

SUBMISSION ON: Proposed Plan Change 58 to the Wairau/Awatere Resource Management Plan and Proposed Plan Change 23 to the Marlborough Sounds Resource Management Plan ("**Plan Changes**").

NAME: Wither Hills Vineyards Marlborough Limited ("**Wither Hills**")

ADDRESS: C/- Russell McVeagh, at the address for service listed below

Background

1. The Wither Hills vineyard includes 350 hectares of viticulture land in the Wairau Valley. It is an important part of the Marlborough community and a significant contributor to the local economy.
2. Wither Hills operates over 20 frost fans on its properties for the purposes of mitigating the effects of frosts on grapes. Frost fans are essential for the defence against the frosts damaging the grapes. While Marlborough is suitable for grape growing, it is also susceptible to frosts that cause damage to the grape vines. The operation of the frost fans is the most common and effective means of preventing grapes from being damaged and potentially destroyed by the frost.
3. Wither Hills manages the operation of the frost fans under a strict regime. It manually controls the frost fans so that the fans are only turned on when required and often only for a few hours at a time. On average the frost fans operate for around 10 days of the year, and on each of those days only for 2-3 hours at a time.
4. Wither Hills is very concerned about the effects of the Plan Changes on its business.

Scope of submission

5. This submission relates to the Plan Changes in their entirety.

Nature of submission

6. In general, Wither Hills opposes the Plan Changes as they:
 - (a) will not promote sustainable management of resources, will not achieve the purpose of the Resource Management Act 1991 ("**Act**");

- (b) are inconsistent with the Wairau/Awatere Resource Management Plan and the Marlborough Sounds Resource Management Plan;
 - (c) will not enable social, economic and cultural well being;
 - (d) are otherwise contrary to the purposes and provisions of the Act and other relevant planning documents; and
 - (e) are inappropriate and inconsistent with the purpose and principles of the Act.
7. Without limiting the generality of paragraph 6 above, Wither Hills opposes the Plan Changes for the reasons set out below.

Deficient s32 analysis

8. Wither Hills considers that the Plan Changes are not supported by a sufficient s32 analysis. The Plan Changes have been promulgated without an adequate investigation as to whether the changes to the rules are appropriate.
9. It is evident from the s32 report that the Plan Changes have been initiated to deal with immediate issues that have arisen through a small number of complaints from the public around the noise of the frost fans. The Council has not, in notifying these provisions, had regard to the actual or potential effects of the activity on the environment, as is required.
10. Further, the Council has failed to adequately consider, and/or has failed to obtain sufficient information in relation to, the following matters:
- (a) there has been no adequate assessment of the costs to the rural community arising from the additional regulatory tests to apply across the Rural zone;
 - (b) there has been no adequate analysis undertaken in relation to the requirement for the community to seek resource consent to erect frost fans; and
 - (c) there has been no assessment of the proposed changes by a noise expert to determine whether the changes to the noise levels are appropriate. For example, the s32 Report records that "there is some debate as to whether or not all types of frost fans exhibit special audible characteristics".
11. This lack of consideration and analysis is inappropriate, unreasonable and unlawful. In particular, the use of the plan change process to insert rules so as to "enable the Council to be able to more effectively gather information about the noise generated by wind machines" (Introduction to the Plan Change), rather than the Council undertaking a proper technical evaluation is ultra vires.

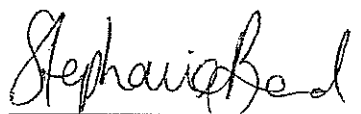
Part II

12. Wither Hills also considers that the Plan Changes:
- (a) will not enable the efficient use and development of resources within Marlborough, and will not enable economic well being of people and communities. The Plan Changes create a short term fix for the Council but result in short to long term uncertainty for a large sector of the rural community; and
 - (b) are not the most appropriate way to achieve the objectives and policies of the Marlborough Sounds Resource Management Plan and the Wairau/Awatere Resource Management Plan relating to rural areas, namely those that promote the productivity of land and viticulture in the area.
13. Overall the Plan Changes will not promote the sustainable management of resources, will not achieve the purpose of the Act, and are not consistent with Part II and other provisions of the Act.

Relief sought

14. The Appellant seeks that the Plan Changes be declined in their entirety.
15. Wither Hills wishes to be heard in support of this submission.

Signature: **WITHER HILLS VINEYARDS
MARLBOROUGH LIMITED** by its solicitors
and authorised agents Russell McVeagh:



Christian Whata / Stephanie Bond

Date: 23 October 2009

Address for Service: C/- Stephanie Bond
Russell McVeagh
Barristers and Solicitors
Level 30
Vero Centre
48 Shortland Street
PO Box 8/DX CX10085
AUCKLAND 1140

Telephone: (09) 367 8000

Facsimile: (09) 367 8163



Submission Form for Plan Changes 23 and 58 to the
**Wairau/Awatere & Marlborough Sounds
 Resource Management Plans**
Frost Fan Plan Changes

Richard Ryan

3585 S463
 RDI - Wairau Valley
 Blenheim 7271

035722782
 0274987715

1

RmH

23 October 2009

Office Use
 Participant No.
 26.
 Submission Point No.

File Refs
 W045-15-58
 M13-15-23

Date Received Stamp

Submissions Close:
 5.00 pm Friday
 23 October 2009

Return your submission to:
 Marlborough District Council
 PO Box 443
 Blenheim 7240
 Attention: Mark Caldwell
 Fax: (03) 520 7496
 E-Mail:
frostfans@marlborough.govt.nz

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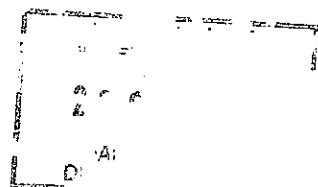
REMEMBER - the clearer you can be, the easier it will be for the Council to understand your concerns and take them into account.

Submissions for Frost Fan Plan Changes

I, Richard Malcolm Ryan Support a plan change as per above, submission, and want it ammended

The reasons I want it ammended is that I have approx 63 Wind Fans across the road from me & approx 200 within 5 kilometres of my house. Sometimes going from 7.30pm 9.30am per night. It is like living on the tarmac of a helicopter airport - It is unbearable

I would like the MD Council to:-



Restrict all Frost Fans to a minimum of 185 metres from their boundary where houses are located within 3 kilometres of frost fans - including existing - as recommended by OSH in written letter sent to MDC dated May 2006. Stating this recommendation but totally ignored by MDC -

Resource Consent - needed before erecting of fan towers publicly notifiable to all residents in that area for consultation process & queries, objections etc etc

Noise Monitoring levels set at 35 decibels inside the houses in proximity or noise objectors, be the house noise proofed or non noise proofed

Councilists prior to Season starting for Frost Fans, employ & train appropriate numbers of people to respond to noise control complaints - (not using the excuse we do not have enough personnel to do this) - as is at present - and to respond immediately to caller complaint, ~~check decibel levels~~ recorded a copy given to complainant.

Fines of minimum of \$5000 per night, for each fan reaching to Noise levels for every night after recorded excess levels

Submission Form for Plan Changes 23 and 58 to the
**Wairau/Awatere & Marlborough Sounds
 Resource Management Plans**
Frost Fan Plan Changes

MEADOWBANK HOLDINGS LTD

WILLIAM GRIGG

P.O. Box 90

BLenheim

5784174

2

William Grigg

22/10/09

Office Use

Participant No.

27

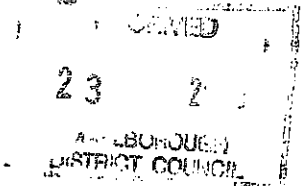
Submission Point No.

File Refs

W045-15-58

M13-15-23

Date Received Stamp



Submissions Close:

5.00 pm Friday

23 October 2009

Return your submission to:

Marlborough District Council

PO Box 443

Blenheim 7240

Attention: Mark Caldwell

Fax: (03) 520 7496

E-Mail:

frostfans@marlborough.govt.nz

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Please indicate the plan change(s) that your submission relates to:

Plan Change 23 (Frost Fans) to the Marlborough Sounds Resource Management Plan

Plan Change 58 (Frost Fans) to the Wairau/Awatere Resource Management Plan

If you wish to provide a submission for more than one of the plan changes, you can use the same form so long as you clearly indicate which plan change your comments relate to.

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Plan Change No. Volume, Section of Plan, Page Number	Details of your submission and specific changes or decisions requested
Example: Plan Change 23 New policy 1.9	Example: I oppose this policy because... I would like the Council to change wording of this policy to "suggest change"
New Rule 30.2.9	Meadowbank Holdings Ltd (MBH) opposes this proposed plan change and believes the use of frost fans should remain a permitted activity.
	The number of complaints received by Council when compared with the number of people residing in the rural area suggest that it is very much the minority of the rural population that have an issue with frost fan use. As in all aspects of society, it is often the minority (or extremists) that make themselves most heard. This does not warrant a plan change especially when regard is given to the following Plan Policies 22.3.1.3, 12.2.2.1.3, 12.4.2.1, 12.5.2.1 and 12.2.2.2.8.
	The right to farm land sustainably into the future should not preclude the use of new technologies otherwise that very sustainability will be undermined.
	MBH believes that little regard has been given in the proposed changes to the associated costs to producers of such a change. MBH considers the proposed plan change and associated consent costs an unnecessary impact.

Plan Change 58 and 23

30.2.9.1.1

Meadowbank Holdings Ltd (MBH) opposes this plan change and believes the current 60dB standard should remain until forensic testing is completed but supports a change to the standards as outlined in 30.2.9.1.1 i) and ii) to allow for technological advances in frost fans.

Plan Change 58 & 23

30.2.9.1.4

MBH does not support this rule. This rule should allow that should new technology in frost fans become available that enables their use within 500m of the said areas without disturbance to these areas then this is permitted given standards are met.

Plan Change 58 & 23

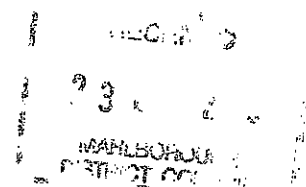
30.2.9.2

MBH opposes the new rule 30.2.9.2 as this effectively gives Council the unfettered control of imposing conditions on producers as to how frost fans are used which gives no certainty to the producer with respect to effective and efficient use of these fans. Such uncertainty is untenable.

MBH would expect detailed specifications of standards to be outlined for use of frost fans and for this not to be at the Council's discretion. This set of standards should be devised in conjunction with New Zealand Winegrowers and/or other wine and viticultural industry bodies and participants with the major weighting given to the opinions of the industry rather than those of the minority complainants in order that primary regard be given to producers who should have the "right too farm".

Plan Change 58 & 23

New rule 31.1.5.1 a) This rule should exclude dwellings on the property that frost fans are operating on. It should include that any dwelling house or other habitable building built in a rural residential zone should be built so that the noise level inside any bedroom of the dwelling should not exceed 30dB from a frost fan 100m away. This gives producers the ability to protect a far greater portion of their land in accordance with the Wairau/Awatere Plan policy framework which gives significant recognition to protecting the productive capacity of rural areas.



If people wish to live in a rural area the onus should be on them to build a dwelling that meets the 30dB criteria. MBH recognises that there are practicalities that need to be accounted for when devising such rules and would require input from experienced acoustic engineers.

MBH views holds the same views as it has stated above with regard to Appendix K Marlborough Ridge Zone.

Submission Form for Plan Changes 23 and 58 to the Wairau/Awatere & Marlborough Sounds Resource Management Plans Frost Fan Plan Changes

Name/Description	Michael Hyson
Contact Name <small>(if different from above)</small>	
Address of Office	195 Shandon Road RD 6 Waihopai Blenheim 7276
Phone Number	572 4246
Fax Number	

Office Use

Participant No.
28

Submission Point No.

File Refs
W045-15-58
M13-15-23

Date Received Stamp

RECEIVED

23 OCT 2009

MARLBOROUGH
DISTRICT COUNCIL

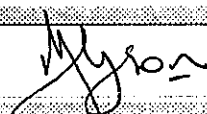
Submissions Close:

**5.00 pm Friday
23 October 2009**

Printed (checked) I am submitting a submission

Do you wish to be named in support of your submission? YES NO

Do you wish to be named as opposing your submission? YES NO

Signature:  Date: 23/10/2009

Return your submission to:

Marlborough District Council
PO Box 443
Blenheim 7240
Attention: Mark Caldwell
Fax: (03) 520 7496
E-Mail: frostfans@marlborough.govt.nz

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PLAN
CHANGE
58
(Frost Fan)

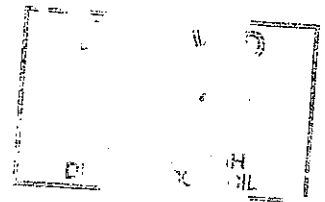
Please refer to suggested changes
in attached documents.



Reset Form

A Formal Submission regarding the proposed Frost Fan Noise Rule Changes:

It is possible to fight frost with Frost Fans quietly.



By the Hyson Family:
Submission of 5 Pages (includes title page)

Attached:
An Aerodynamic Research Engineer's Paper on
the "Effects of Running Frost Fans in Ambient Wind"

23rd October 2009.

The time has come.
For the Council to accept all its citizens need to sleep.
To use WHO 'critical health' maximum noise limits as the basis for the District Rules
The reality of Actual Frost Fan Noise must be faced.
Not theory.
Not in idealistic calm conditions.

Frost fighting with Frost Fans can be done quietly, so it must be.

We offer new research with this submission. Then necessary solutions that, if heeded, will go a long way to making Frost Fans an acceptable part of Marlborough's Rural Environment.

Noise doesn't affect crop

Like many of the grape growers and Philip Gregan, NZ Winegrowers CEO both quoted in *The Marlborough Express*, your newspaper has to stop muddling the facts. Noise issues are not and will not affect production of Marlborough's grape crop.

The fact is that nobody is in any way asking to put any halt on the grape production of Marlborough by asking for relief from noisy frost fans. No noise complainants are muddling the issue as your headings do. It is simply a matter of sleep. Quiet methods of frost protection are available and always have been.

There is not, and never has been, any excuse to put any noisy frost fan anywhere.

But worse than your newspaper are those growers such as Mr Buchanan of Mt Riley Wines, who sleep soundly in Auckland, the first who put noisy two blade machines over their neighbour's house, when quieter versions were available.

They are the cause of the noise problems, resentment, sleep problems and frost fan issues throughout Marlborough because others thought it was okay and copied. It's not okay.

This has nothing at all to do with the grape crop. Stop trying to confuse the matter!

The RMA says the most practicable noise solution from the neighbours' perspective must be used. Patently in many cases this has not been considered at all.

MICHAEL HYSON
Blenheim

Suggested Changes to the Proposed Plan:

Re Section 32 Report: Comments on the schedule of proposed changes.

Regarding the definition of a frost fan:

To include all frost fans the definition must include land based device "fixed or mobile".

Under the Rule 30.2.9.1.1

This should read "Cumulative" Noise from frost fans shall not exceed

30.2.9.2

(e) "The Operator will be required to meet changing Council" Monitoring requirements.

Clearly 55 dB Leq outside assumes an attenuation of 25 dB. Why so high?

To give protection for existing older dwellings with the arrival of new frost fans the following addition is necessary:

30.2.9.1.1

Cumulative Noise from frost fans shall not exceed the lower of: 30 dBA Leq in the bedroom of any existing dwelling, visitor accommodation or other habitable building (Other than on the property on which the frost fan is situated) or Cumulative Noise exceed 45 dB: LAeq when measured:

- (i) at a distance of 300 metres; or
- (ii) at the notional boundary of any existing dwelling, visitor accommodation or other habitable building (Other than on the property on which the frost fan is situated)

New Rules must be written:

1. A compulsory "excessive wind" shut-down switch must be fitted to the Fan engine.

(i) This must disable the fan blades in winds exceeding 8 -10 kph. (see attached report)

2. Not-with-standing the noise distances permitted in the Rules above: No fan is to be positioned within a "minimum safety zone" calculated for that configuration of machine.

Therefore a reference to a "minimal safety zone" recommended around residences should be included in these Rules

3. Because audible characteristics are the sleep destroying portion of the noise from these fans. They must be "designed out". To give the incentive for this, the Rule they apply as a penalty must be retained. "audible characteristics if present are to cause a 5 dB penalty greater restriction on allowable noises."

4. The new noise Rules must reference a need to "meet the changing requirements for any Compliance Monitoring by council."

I attach a report by an Aerodynamic Research Engineer that is perhaps the first honest look at the problem of increased noise from frost fans in ambient wind. It addresses safety issues as well.

(Disclaimer): We have no association with Frost Boss Wind Machines, other than we noted they are a NZ company that has gone out of its way to manufacture an Environmentally Friendly Frost Fan that is quiet and has a safety feature that prevents it from running in ambient wind. Therefore we called them and asked their consulting Research Engineer if he would summarize the problems of noise and wind with frost fans for us. He kindly produced the attached document.

It confirms an increase in noise with any amount of breeze or wind on these Fan blades.

This is reality, not theory:

1. This report covers extra noises with wind from a “quieter” four blade Fan. So the “much worse” increases of noise, in wind, that we have long complained of, from the 2 blade Fans near our house are explained. The worst was 88 decibels during wind at our kiddies bedroom window.

2. However it is now clearly shown here that even only light operating breezes increase the noise by up to ten decibels. As occurred when Hunt Acoustics noise tested the Fans beside our home recently for the MDC. Questions raised about a set of measurements are easily explained now.

3. These Frost Boss fans are deliberately stopped, when wind rises, because of the danger of damage. No such stoppages have happened when during almost all nights of operation beside our house the winds gusted, sometimes as strong as 21 kph.

Other Councils (Notably the Hurunui District Council) have used the “Acoustics Industry Standard” of 55 dBA Leq outside a neighbours dwelling as an acceptable level. As we understand the MDC is looking closely at what they have done. We wish to strongly suggest 55 dBA is inadequate because although normally acceptable, it is not related to the problem of Frost Fan noise.

- The MD Council must take into account the increase in noise of ten decibels shown now to be a normal part of the effect of light breezes, on even the quietest of frost fans.
- Therefore 45 dBA Leq must be the permitted cumulative maximum at the notional boundary of the nearest neighbour’s dwelling.
- This should give a cumulative maximum of 55 dBA Leq at a notional boundary given normal breezes. (But this number must no longer be in the proposed Rules).

55 dBA Leq seems to be the accepted outside maximum. But we are dealing with Frost Fans. These are new to the Acoustics industry. The Reality is that Frost Fans give off an extra 10 decibels that are not in sound reports of Fans recorded in ideal calm conditions. Reality is that there are always ambient winds in almost every environment. The 10 dB increase shows in both the attached report and under the calm conditions when Hunt Acoustics measured for the MDC at our property. Noise jumps of 10 decibels are normal and must be accounted for in the District Rules.

Only with this '45' limit can the Marlborough District Council show it is serious about protecting the sleep of it's citizens. Making the basis of the Noise Rules, in all cases, relate directly to the "WHO critical health cumulative noise limit" of 30 dBA L_{eq} in the bedroom of any neighbour is essential. Then linking it to the outdoor noise with the suggested "45" limit outside is vital.

Further submissions:

1. We the Hyson's have measured an attenuation of the noise from the frost fan outside our home, of only 14 dBA, from the outside to the inside, by the walls of our bedroom.
 - Including the 30 dBA L_{eq} WHO Critical Health Limit in the bedrooms of Marlborough in the New Rules removes the possibility of opinions and slanted "expert" submissions (assuming high attenuation rates) resulting in Rules that fail to protect the need for sleep.
2. All citizens are supposed to have noise protection by this Council.
 - Noise can move unusually great distances at night.
 - There must be no "cutoff" distance beyond which complaints cannot be considered and action taken by Council if the 30 dBA L_{eq} in a bedroom is being exceeded, caused by these Frost Fans.
 - This is a district wide problem.
 - The solution must be district wide.
3. Cumulative noise must be assessed.
 - Without using cumulative noise, no Noise Rules will make any difference to those they are intended to protect.
4. A compulsory "excessive wind" shut-down switch must be fitted to all Frost Fans

These fans create greatly increased noise in any wind. (See attached report)

 - Therefore this is a noise issue regardless of whether grape growers should or would not be using the fans in wind. Because it is a noise issue it must be included in these Rules.
 - Bitter experience from Marlborough and the Hurunui District has shown operators keep these machines running despite lack of wisdom in doing so.
 - 7 or 8 kph of wind seems to be the most publicized maximum speeds these fans should be allowed to operate in. See the OSH incident/accident report Feb 2006. They suggest 7 kph.

5. A “minimum safety zone” is recommended by OSH around residences and should be included in these Rules. I have sent Council numerous copies of OSH recommendations about this.

- Although the catastrophic failure of these machines is not a noise issue there should be no Rule promulgated here, that infringes upon calculated safety zones around residences.
- Although these *minimum safety zones* may differ according to a different machine’s speed and fan diameter, it would be unwise to say a Fan can be a certain distance from a residence under this set of noise Rules, then, have to say it has to be further away, in another, due to this problem.
- A Rule that said “*but at beyond the distance of a calculated “minimum safety zone” from a residence*” would allow for technology and safety changes in the future.
- This is a recognized safety concern and even as this submission is being written another brand of Fan is making news for flying apart.

6. The new noise Rules must reference a need to “meet the requirements for any compliance monitoring by Council.” The compliance monitoring and enforcement must be pragmatic with minimal cost to Council and Fan Operators. Given that the frost fan noise is a public concern, district-wide, it must be able to be publically monitored (to avoid needless complaints), in an open 21st Century manner on the Internet.

- With well over 1000 frost fans already present in Marlborough it would be impossible to cheaply monitor compliance without the internet. Given that is true, then “how” is the only question that needs answering.
- Here is one suggestion that Stuart Smith of the Grape Growers said at the Frost Fan Workshop was along the lines of what was needed in the industry: Utilizing the fact that most, if not all, Vineyards are paying for access to the Harvest NZ meteorological website, and at no extra running cost, this company can include engine speed of the operating frost fans. These relate to noise.
 1. So long as the individual machine’s operating speed is shown and the engine, gearbox(s) and blade configuration are shown on the particular machines web page. (Placed there by an independent Council Warrant of Fitness or Code of Compliance)
 2. That records are kept independent by Harvest NZ (their modus operandi at present.)
 3. Then it would be a straight forward operation for the MD Council to Monitor the machines on any given property and all properties cheaply and remotely.
 4. Any non-compliance is immediately obvious and complaints seen if legitimate or not.
 5. The only necessary requirement would be that if the machines data did not appear without good reason on its own web site it would face a hefty Council fine.
 6. Wind records district wide must be stored.
 7. I have discussed this with Mr. Munn, CEO of Harvest NZ, and he said after setup costs, further costs would be minimal. I can pass a summary of this conversation to Council upon request.

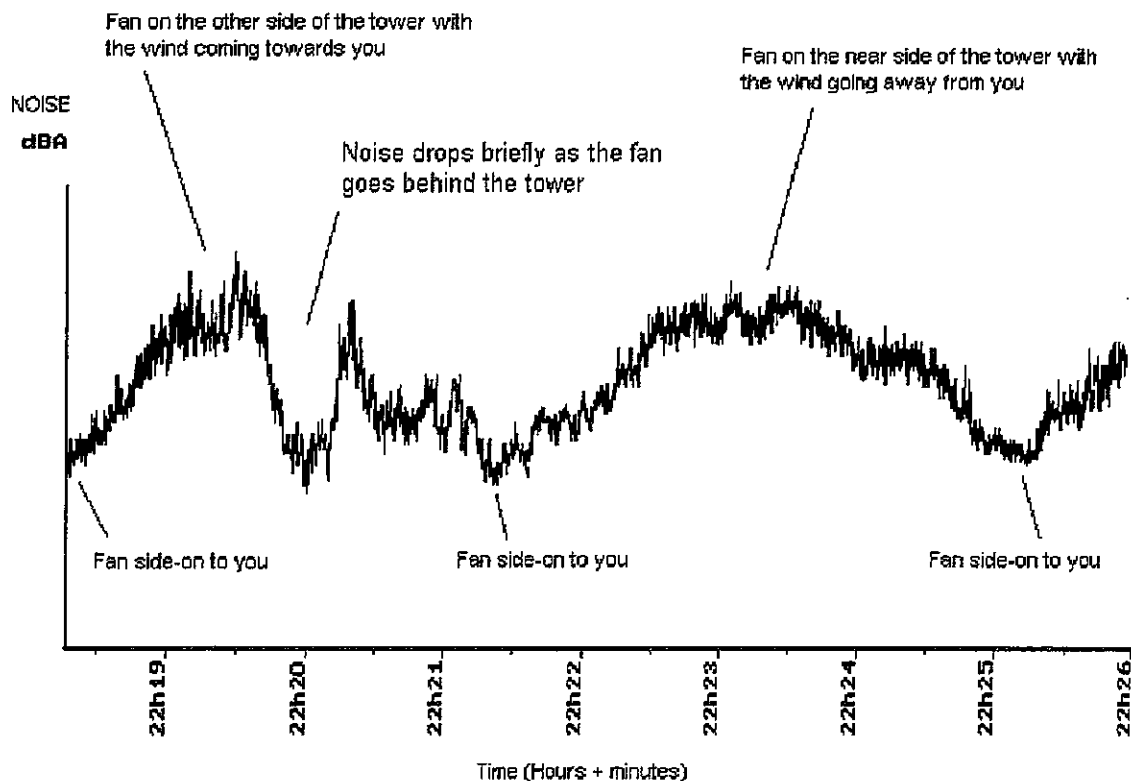
Effects of running Frost Fans in Ambient Wind

Frost fans are designed to run on still, frosty nights. During these conditions the aerodynamic loads on the fan are predictable and manageable.

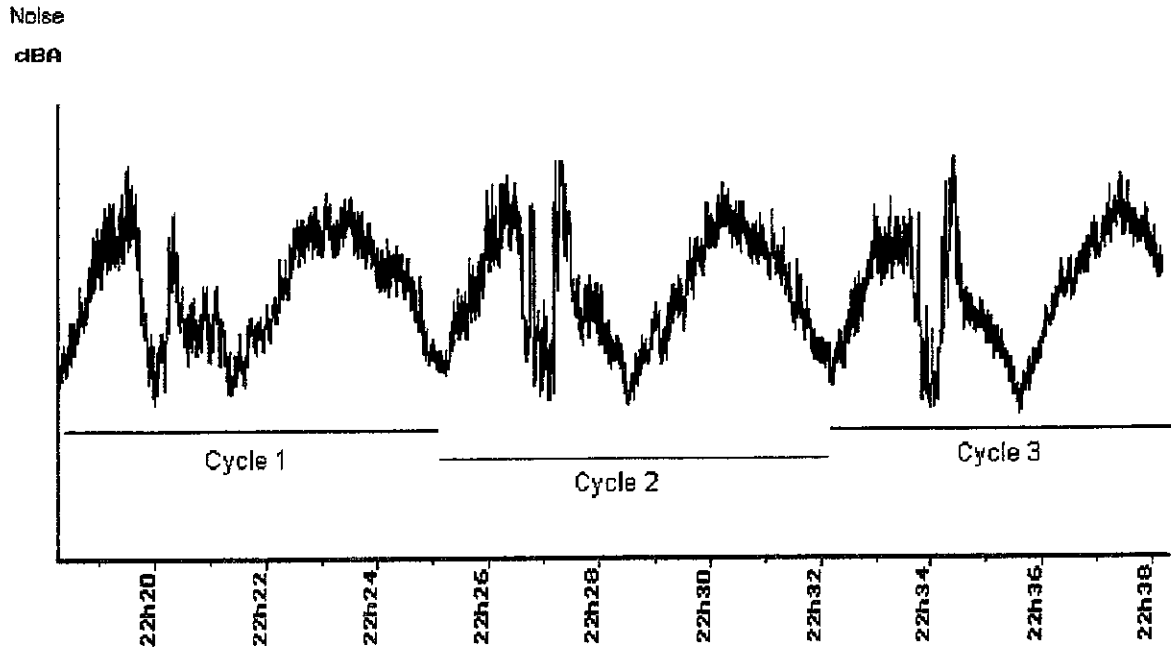
If frost fans are run in even the slightest ambient wind, the aerodynamic loads on the blades change significantly. This change in loading is very audible and can be clearly observed on a Noise versus Time plot.

This change in noise level reflects the increased aerodynamic loads on the fan and gearboxes, which can be quite significant and random. The stronger the ambient wind, the higher the additional noise and the higher the adverse aerodynamic loads on the blades. In some instances, the random load changes on the fan can induce unpredictable oscillations in the tower.

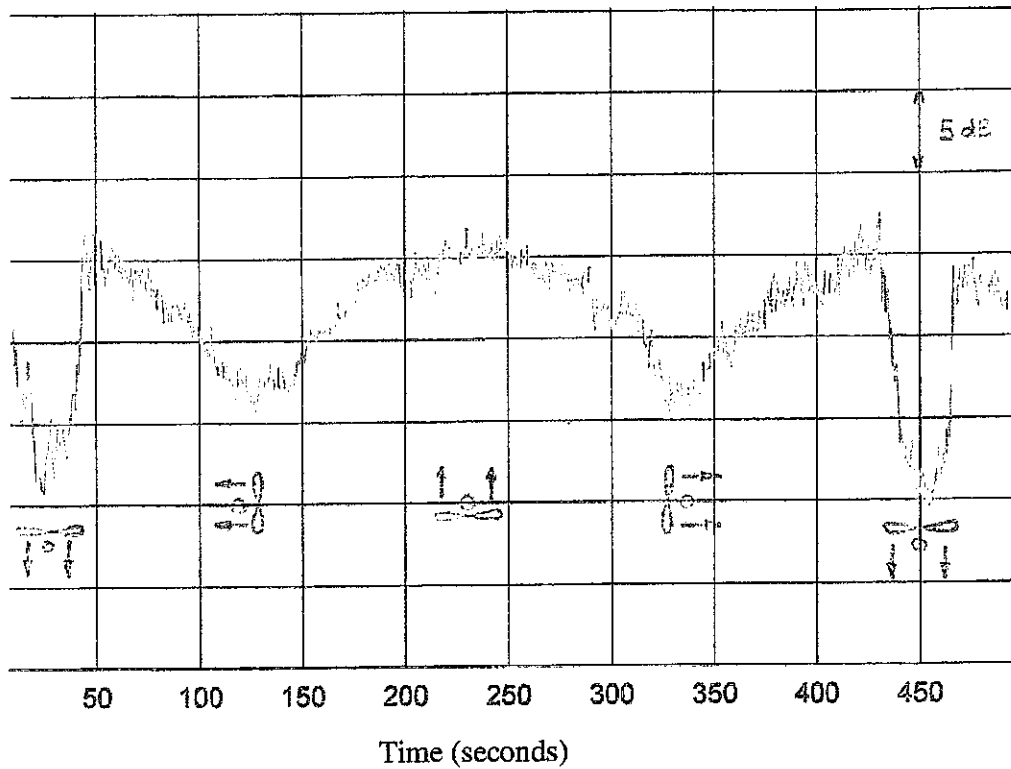
The noise versus time plot for a frost fan, in still air, produces a cyclical noise signature that varies depending on where the fan is, relative to the observer. The plot below shows a typical 4 blade, aluminium alloy fan at 100m from the observer. The fan is rotating slowly around the tower, in a clockwise direction, when observed from above. The periodic cycle time for this particular fan is about 7 minutes. The fan is the quietest when it is side on to the observer and loudest when the fan blast is going away from the observer.



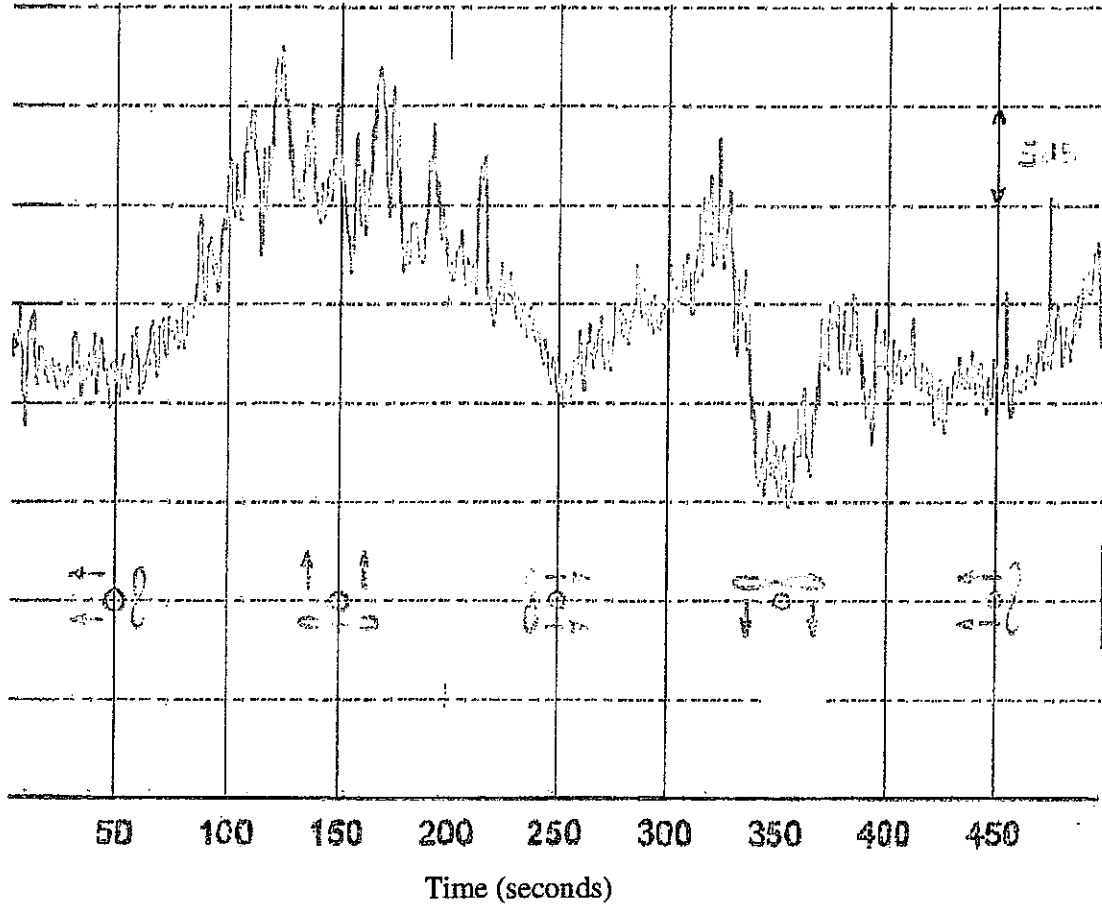
When the fan completes quite a few cycles, a uniform, repeating, noise signature becomes apparent. The plot below shows 3 cycles of a 4 blade fan, running in still air, at a distance of 100m from the observer. The noise signature is clear and repeatable.



The next plot shows the complete cycle for a 2009 model, FrostBoss C-49, 4 blade fan measured at 100m from the observer, in still air. The noise output from this fan is lower and much smoother than the previous model, 4 blade aluminium fan.



When this same fan is run in a light, puffy ambient wind, of less than 10 km/hr, it produces a totally different noise signature plot. The noise output becomes very spiky with sudden, random jumps in noise, of up to 10 dB. The clean uniformity of the noise signature is lost, and you would think it was the noise signature plot for a totally different fan.



These spikes in the noise output are generated by sudden changes in the apparent angle of attack of the airflow impinging the high speed sections of the fan blades. The airflow over these parts of the blade become unstable and can separate and reattach very suddenly. This manifests itself as a fluctuating change in the thrust developed by the blade and can be observed as an instantaneous increase in the fan noise and movement in the top of the tower.

A New Zealand manufacturer of frost fans, Frost Boss, has been pro-active in preventing their frost fans from running in ambient wind. For the past 3 years they have been supplying their fans with a wind speed sensor that shuts down the fan, if the ambient wind exceeds 10 km/hr, when averaged over a minute. Once shut down, the fan is re-armed, ready to run again, but it cannot restart until the one minute average wind speed has decreased to below 8 km/hr.

Field reports indicate the wind sensor has shut down many frost fans temporarily in areas where the fan owner said there is no wind during frost events. In some instances, frost fans have been shut down many times during one frost event, as the ambient wind comes and goes through the night. Some areas, with geographic peculiarities, are very susceptible to large pockets of wind passing through the vineyard on a frosty night.

If ambient wind does shut down the frost fan, for a period of time during a frost event, the crop is still protected because the incoming ambient wind is doing the job of the frost fan, by mixing the warmer air in the inversion layer with the colder air around the crop. This effect can be seen in the temperature data collected from vineyards with frost fans fitted with wind sensors. In addition, an ambient wind erodes the upwind and crosswind reach of the frost fan, reducing the effectiveness of the frost fan significantly.

If the frost event is accompanied by a polar blast of chilled air, and the inversion layer is pushed out by much colder, sub-zero air, the grower would want to shut the fan down regardless, to avoid blast-freezing his crop. The wind sensor will activate in these polar winds and prevent the fan from running for the duration of the polar wind passing through the area. This can happen in southern parts of New Zealand.

The wind sensor also protects an armed, auto-start, frost fan from inadvertently running in an ambient wind when it is not meant to. From time to time, the temperature sensing circuit may develop a fault, or be damaged by grazing stock or vineyard machinery. When this happens, the frost fan may get a signal to start, and it would be free to run until someone notices it running, or it runs out of fuel. At least with a wind sensor fitted, the fan is prevented from running during the day if there is anything more than a light breeze blowing past the fan.

Without a doubt, a wind sensor is a vital piece of control equipment for a frost fan. It can act when a human thinks it doesn't need to act. The wind sensor on a frost fan performs exactly the same function as a pressure relief valve in a hydraulic circuit. It prevents the equipment from being subjected to operating loads the equipment is not designed to take.

In conclusion, frost fans should not be run in ambient wind, because the wind subjects the fan to aerodynamic loads that it is not designed to withstand. These additional loads are both audible and visible. The first indicator of ambient wind is the increased random noise level from the fan. With the new breed of quieter fans coming on to the market this year, the increased noise created by ambient wind on the fan is even more noticeable.

Richard Karn B.E (Mech), M.E (Aero)

Aerodynamic Research Engineer



Disclosure Statement

Rikan Aeromarine Ltd is a specialist aerodynamic research company with over 30 years experience in all aspects of aerodynamic research and design. The company provides research consultancy services to Frost Boss Wind Machines Ltd, based in Hastings.

Rikan Aeromarine Ltd

20 October 2009

Submission Form for Plan Changes 23 and 58 to the
**Wairau/Awatere & Marlborough Sounds
 Resource Management Plans**
Frost Fan Plan Changes

Clenys Parsons

2020 State Highway 63
 "Whitelocks" Wairau Valley
 RDI

5722707

1

AK Parsons

22.10.09

Office Use
 Participant No.
 29
 Submission Point No.
 File Refs
 W045-15-58
 M13-15-23
 Date Received (Stamp)
 23 OCT 2009
 MARLBOROUGH
 DISTRICT COUNCIL

Submissions Close:
 5.00 pm Friday
 23 October 2009

Return your submission to:
 Marlborough District Council
 PO Box 443
 Blenheim 7240
 Attention: Mark Caldwell
 Fax: (03) 520 7496
 E-Mail:
frostfans@marlborough.govt.nz

How To Make A Submission

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REMEMBER - the clearer you can be, the easier it will be for the Council to understand your concerns and take them into account.

My name is Glenys Parsons and I have been part of the Wairau Valley Community for 23yrs. We purchased our bare 20 acre piece of paradise in 1986 and built our current home in 1988. Unfortunately 2 years ago the neighbouring farm was bought by the Highfield Estate and a vineyard planted. When this vineyard was established we were never contacted or informed that there were frost fans being erected, only coming home one day from town to have one sprout up out of the ground.

This part of my submission relates to the erection of a two bladed frost fan situated very close to our boundary and within 100-150metres to our home. When this frost fan is activated it not only causes an awful noise (ie, you could not have a conversation out the front door) but it makes the 3 large picture windows shudder. It sounds like an Iroquois helicopter landing on the front lawn.

I have OSH concerns as to the safety of this machine as if the blade was to become disconnected it would fly right thru the path of our house. The noise is something indescribable only to say that it gets into your ears and head and god help us if you do get back to sleep, you wake up with this sound still in your head and a feeling like you have a hang-over. I work as a District Nurse for the NMDHB and do find it very tiring after being kept awake between the hours of 12.00– 7.30am. Surely it is a safety issue when you have to have all your wits about you when dealing with peoples lives only to feel shattered before you even start.

I also own a horse which I compete successfully on Trail Rides who had become distressed and ran through the hot wires due to the horrible noise that these fans make. A known fact is that the humble horse has far more sensitive hearing than of us humans. I cannot begin to imagine what it would sound like it to them.

We have 13 fans around us and another 17 further down the valley in the next paddock. I can begrudgingly accept and put up with the fans down the bottom towards the river (even thou they are still noisy) but would urge the council to hear the people re these fan so close to our houses.

Please do something about it for us, that have to put up with this noise at ungodly hours of the morning on no certain days.

I except that Marlborough is a world wide wine making area but I feel that this industry has to answer for all the misery and discontentment that it is causing to people as it continues its greed. You would have thought that the powers to be would have done some homework to know that the Wairau Valley has severe frosts (-6 degrees) and continue right through till Nov with the Muller Frosts.

I invite the mayor and the head of the wine industry to a free nights accommodation at my place with the guarantee of a night of no sleep.

If you would like to discuss this submission with me I am only to happy to meet with you.

Yours sincerely,
Glenys Parsons
GK Parsons

Submission Form for Plan Changes 23 and 58 to the
**Wairau/Awatere & Marlborough Sounds
 Resource Management Plans**
Frost Fan Plan Changes

Name/Organisation

LIONS BACK VINEYARD.

Contact Name
 (if different from above)

ANDREW HAMMOND.

Address for
 Service

P.O. Box 144
 Seddon - 7247

Phone Number

03-5757551.

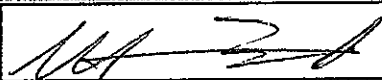
Fax Number

03-5757556.

I have attached pages to this submission.

Do you wish to be heard in support
 of your submission? YES NO

If you wish to be heard & others make a similar submission,
 would you be prepared to consider
 presenting a joint case? YES NO

Signature: 

Date: 23-10-09

Office Use

Participant No.

30

Submission Point No.

File Refs

W045-15-58

M13-15-23

Date Received Stamp



Submissions Close:

5.00 pm Friday

23 October 2009

Return your submission to:

Marlborough District Council

PO Box 443

Blenheim 7240

Attention: Mark Caldwell

Fax: (03) 520 7496

E-Mail:

frostfans@marlborough.govt.nz

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REMEMBER - the clearer you can be, the easier it will be for the Council to understand your concerns and take them into account.

Please indicate the plan change(s) that your submission relates to:

Plan Change 23 (Frost Fans) to the Marlborough Sounds Resource Management Plan

Plan Change 58 (Frost Fans) to the Wairau/Awatore Resource Management Plan

If you wish to provide a submission for more than one of the plan changes, you can use the same form so long as you clearly indicate which plan change your comments relate to.

Any submission received by the Council is considered to be public information.

Plan Change No. Volume, Section of Plan, Page Number	Details of your submission and specific changes or decisions requested
Example: Plan Change 23 New policy 1.9	Example: I oppose this policy because... I would like the Council to change wording of this policy to "suggest change"
	Wairau / Awatore Resource Management Plan.
30.2.9.	I oppose this policy because I have existing frost fans and do not want those to be made a Controlled Activity.
30.2.9.1.1	I oppose this policy because in our area the dwellings are only frost fan owners.
30.2.9.2.	I oppose this policy because I believe the Council is not capable of these a.b.c.d.e. My machines have a Resource Consent. And I am unwilling to spend money Retro-fitting requirements, that I have permission to use.
	I wish the council to not change in any way the existing rules on the existing Frost Fans.

Submission Form for Plan Changes 23 and 58 to the
**Wairau/Awatere & Marlborough Sounds
 Resource Management Plans
 Frost Fan Plan Changes**

Gary B. Jones

19 Opawa St,
 Blenheim

5784924

don't know

G B Jones

Office Use
 Participant No.
 31
 Submission Point No.
 File Refs
 W045-15-58
 M13-15-23
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Please indicate the plan change(s) that your submission relates to:

Plan Change 23 (Frost Fans) to the Marlborough Sounds Resource Management Plan

Plan Change 58 (Frost Fans) to the Wairau/Awatere Resource Management Plan

If you wish to provide a submission for more than one of the plan changes, you can use the same form so long as you clearly indicate which plan change your comments relate to.

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Plan Change No. Volume, Section of Plan, Page Number	Details of your submission and specific changes or decisions requested
--	--

Example:
Plan Change 23
New policy 1.9

Example:
I oppose this policy because...
I would like the Council to change wording of this policy to "suggest change"

L A
Plan Change
No 23
New Policy
2.3.3.2

I propose an amendment
Noise from an existing or new frost
fan shall not exceed 55 dB LAeq
when measured:
etc etc

A
Plan Change
No 58

(ie adding words "an existing or new"
where I have inserted. It
to cover existing frost fans as well as
new ones erected.

New Policy
30.2.9.11

Noise from an existing or new
frost fan shall not exceed 55 dB LAeq
when measured:
etc etc

(ie adding new words "an existing or
new"
to cover existing frost fans as
well as new ones erected.

Submission on Variation # to the

Resource Management Plan

Name/Organisation

McKean Estates Marlborough Ltd

Contact Name
(if different from above)

STEVE MECKIFF

Address for Service:

4061 SM 63 Rd 1

WAIKAWA VALLEY

BLENHEIM 7271

Phone Number

021 724 513

Fax Number

03 5722696

I have attached pages to this submission

Do you wish to be heard in support of your submission?

YES

NO

If you wish to be heard & others make a similar submission would you be prepared to consider presenting a joint case?

YES

NO

Signature:

Steve Meckiff

Date:

22/10/09

Office Use

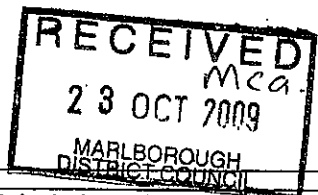
Participant No.

32.

Submission Point No.

File Ref

Date Received Stamp



Submissions Close:

Return your submission to:

Marlborough District Council
PO Box 443
Blenheim 7240

Attention:

Fax: (03) 520 7496

E-Mail:

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"My reasons for supporting (or opposing) this part of the plan change ..." - tell us what your concerns are and the reasons why you support or oppose the provisions in the plan change.

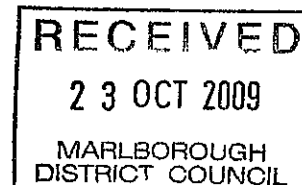
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REMEMBER - the clearer you can be, the easier it will be for the Council to understand your concerns and take them into account.

Any submission received by the Council is considered to be public information.

Plan Variation No. Volume, Section of Plan, Page Number	Details of your submission and specific changes or decisions requested
Example: Variation 50 New policy 1.9	Example: I oppose this policy because... I would like the Council to change wording of this policy to "suggest change"
PC 58	"I oppose the policy change"
WAIKAI	Whilst I agree that to appease both
AWATERE	residents & grapegrowers who are reliant
RMP.	of wind machines to protect their livelihood -
	The decision will not fit all parties.
	Take note of the Murumui District
	PC 18 proposal on the same matter.
	55 dba is proposed for all new installations
	however no change is able to be implemented
	on existing machines.
	Consider regulating the start & stop
	TEMPERATURES measured locally at the
	individual wind machine.
	2°C should be a maximum start up
	temperature.
	Current noise limitations have a 5 dba
	buffer. maintain this as every foot count
	is different with drift of noise & wind
	carry seemingly not being considered. An
	accumulation of noise is also very hard to
	measure / quantify & therefore enforce.
	Helicopter wind / frost control is NOT
	governed by the RMA but rather the civil
	aviation rules. Consider the alternative to
	wind machines - not a desirable outcome.
	The financial contribution of wine &
	therefore frost protection needs serious
	consideration as without well managed frost
	control - the \$1 billion wine industry is
	seriously jeopardised & therefore the prosperity
	of the region.

Reset form

Part N^o 33**SUBMISSION ON A PUBLICLY NOTIFIED PROPOSED PLAN CHANGE UNDER CLAUSE 6 OF THE RESOURCE MANAGEMENT ACT 1991****To: Marlborough District Council****P.O Bo 443****Blenheim 7240****Attention: Mark Caldwell****Fax (03) 520 7496****Submitter: Richard Guy Lissaman****Address: Trelawne Farm Limited****25 Old Ford Road****R.D 1 Seddon 7285****23.10.2009**

This is a submission on proposed Changes to the Wairau/Awatere and Marlborough Sounds Resource Management Plans:

Plan Change 23 – Use of wind machines for frost protection, and

Plan Change 58 – Use of wind machines for frost protection (“the Plan Change”), to the Wairau/Awatere and Marlborough Sounds Resource Management Plans

The specific provisions of the proposal that my submission relates to and recommendations to Marlborough District Council are:

1) The change of status of frost fans from permitted to controlled

The Council’s rationale for making this plan change is to ensure that landowners “demonstrate compliance with the noise standards before the wind machines are erected”.

Given that MDC is having difficulty enforcing the current noise standards it is hard to understand how it intends to demonstrate non-compliance of a windmachine prior to its installation.

Permitted Activity status allows Frost Fans to be installed where the effects are known to be acceptable without unnecessary costs associated with the resource consent process.

Recommend there be no change of status

2) The lowering in decibel level from 60 to 55 dB LAeq

The Plan Change appears to be based on the Maassen Report that the standards be reduced and a comment by a supplier of frost fans "that its four bladed frost fans meet the 55 dB LAeq requirement at 300 metres"

It is our firm belief that a proposed change of this nature needs to be justified by strong scientific evidence and a peer review process which haven't been undertaken.

Recommend no change in decibel level until scientific research has been conducted and peer review completed to justify a change.

3) Noise Measurement Distance

The "notional boundary" needs to be defined clearly in order to limit the area of productive land affected. Given that the focus is on the noise level in any bedroom in a dwelling then it would seem prudent that the external wall of the bedroom closest to the frost fan in question be used as the notional boundary.

Recommend clearly define the notional boundary as the external wall of the bedroom in a dwelling on a neighbouring property closest to the frost fan in question.

4) Setback Distances

Given that a frost fan could meet the current noise decibel limit of 60dBA at the boundary of these Zones at a distances less than the one prescribed in the rules, we do not support this proposed rule change. The proposed rule lacks any scientific basis and the Council acknowledges that separation distances between dwellings and frost fans should be determined by the point at which the prescribed noise level is achieved.

Recommend no change to the current setback distances.

5) The list of matters that the Council may impose conditions on:

Recommend: If the Council intends to impose further controls/conditions on growers in relation to operational requirements and monitoring then we request that these be based on technical evidence that has been robustly produced and peer reviewed, and it needs to be included within the Plan to allow thorough assessment and consultation.

- I am aware of and support the submission made by New Zealand Winegrowers. I oppose each of the provisions listed above for the reasons provided in that submission.
- I wish to be heard in support of my submission.
- If others make a similar submission I would be prepared to consider presenting a joint case with them at any hearing.

Signed: R Guy Lissaman

Director -Trelawne Farm Ltd

R. G. Lissaman 23/10/09

23 NOV 2009

MARLBOROUGH
DISTRICT COUNCIL

FORM 5

Part. N^o 34**SUBMISSION ON A PUBLICLY NOTIFIED PROPOSED PLAN CHANGE
UNDER CLAUSE 6 OF THE RESOURCE MANAGEMENT ACT 1991-**

To: Marlborough District Council
PO Box 443
Blenheim 7240
Attention: Mark Caldwell
Fax (03) 520 7496
frostfans@marlborough.govt.nz

Full name of submitter: Jane Buckman & John Kershaw – Kakariki Vineyard,
489 Brookby Road, Omaka Valley

Postal address: PO Box 48200
Renwick 7243
Marlborough

This is a submission on proposed Plan Change 23 – Use of wind machines for frost protection and Plan Change 58 – Use of wind machines for frost protection (“the Plan Change”).

The specific provisions of the proposal that our submission relates to are:

- the change of status of frost fans from permitted to controlled activity;
- the lowering in permitted decibel level from 60 to 55 dB LAeq;
- the rule that no frost fan shall be located within 500 metres of an Urban Residential, Township Residential, Rural Residential Zone or the Marlborough Ridge; and
- the list of matters that the Council may impose conditions on.

Our submission is:

That the actions that the Council are proposing, that of retrospectively changing the change of status of frost fans from a permitted to a controlled activity, lowering permitted noise to 55 dB LAeq and extending the exclusion zone between Urban Residential, Township Residential, Rural Residential Zone or the Marlborough Ridge and an existing vineyard site goes against natural justice and therefore we both wish to oppose the proposed changes.

The Marlborough District Council supported the development of vineyard activity in the Southern Valleys, (ours is in Omaka) with the introduction of the irrigation scheme, yet your proposed Plan Change 23 – Use of wind machines for frost protection {and Plan Change 58 – Use of wind machines for frost protection for Marlborough Sounds} (“the Plan Change”) will if enacted unchanged impact detrimentally on operation of our own and other vineyards of these regions. We are unable to use alternate water based protection due to lack of a suitable dam site, for us the use of a frost fan is critical to our staying in business.

At the periods covering vine bud burst and prior to grape harvest frosts are a reality of life and without frost protection the grapes are often ruined, or

significantly damaged. The flow on effects of these losses of production, income and subsequent expenditure and to employment in the region would be enormous. The Council's proposed changes to the plan would be forcing grape growers (rural farmers like those in the rest of the Marlborough region) to apply for resource consent for an activity that we have, until the Council's proposed Plan changes, been lawfully operating within the 60 dB LAeq requirement.

The increase in the Urban Residential, Township Residential, Rural Residential Zone separation to 500metres penalizes those future property developments who wish to incorporate the Marlborough "vineyard ambiance" without those properties having the associated land responsibilities. Proximity to a rural outlook is an asset, not a liability and the proposed extension from the current 300m to 500m for boundary separation to a frost fan is a major deterrent on this type of development. The greater separation distance proposed would make protecting and irregular shaped block such as our own impractical.

We feel that it is important that all new rural residents as part of their planning consent process were made aware that they would be moving into a productive working environment, one which operates 24/7 unlike a purely urban existence.

We are aware of and support the submission made by New Zealand Winegrowers. We oppose each of the provisions listed above for the reasons provided in that submission.

In addition, we would like to state that while current economic times are hard for the wine industry, grape growing and wine production will recover and continue to be one of the cornerstones of Marlborough's prosperity and should therefore be supported by the Council wherever possible.

I seek the following decision from the Marlborough District Council:

Either: Withdraw the variation until the programme of forensic monitoring is completed; OR

Should the Council proceed with the Plan Change, then the amendments requested are set out in the submission of New Zealand Winegrowers.

I wish to be heard in support of my submission

I do not wish to be heard in support of my submission

(tick one box)

If others make a similar submission **we would** be prepared to consider presenting a joint case with them at any hearing

Jane Buckman

&

John Kershaw

23rd October 2009

Signature of person making submission or authorized agent

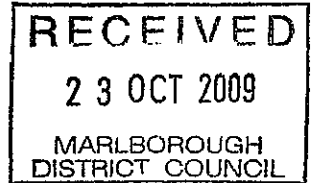
Date

Part. N^o 35

FORM 5

**SUBMISSION ON A PUBLICLY NOTIFIED PROPOSED PLAN CHANGE
UNDER CLAUSE 6 OF THE RESOURCE MANAGEMENT ACT 1991-**

To: Marlborough District Council
 PO Box 443
 Blenheim 7240
 Attention: Mark Caldwell
 Fax (03) 520 7496
frostfans@marlborough.govt.nz



Full name of submitter: Blair Gibbs

Postal address: 37 Lake Timara Road
Blenheim 7276

This is a submission on proposed Plan Change 23 – Use of wind machines for frost protection and Plan Change 58 – Use of wind machines for frost protection (“the Plan Change”).

**The specific provisions of the proposal that my submission relates to are:
 (give details)**

- the change of status of frost fans from permitted to controlled;
- the lowering in decibel level from 60 to 55 dB LAeq;
- the rule that no frost fan shall be located within 500 metres of an Urban Residential, Township Residential, Rural Residential Zone or the Marlborough Ridge; and
- the list of matters that the Council may impose conditions on.

My submission is:

I am aware of and support the submission made by New Zealand Winegrowers. I oppose each of the provisions listed above for the reasons provided in that submission.

In addition, I would like to state

I seek the following decision from the Marlborough District Council:
 (give precise details)

Either: Withdraw the variation until the programme of forensic monitoring is completed; OR

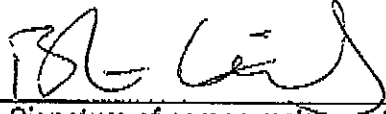
Should the Council proceed with the Plan Change, then the amendments requested are set out in the submission of New Zealand Winegrowers.

I wish to be heard in support of my submission

I do not wish to be heard in support of my submission

(tick one box)

If others make a similar submission I **would** be prepared to consider presenting a joint case with them at any hearing



Signature of person making submission or authorized agent

23/10/09

Date

Submissions close on Friday 23 October 2009 at 5.00pm

Submission Form for Plan Changes 23 and 58 to the
**Wairau/Awatere & Marlborough Sounds
 Resource Management Plans
 Frost Fan Plan Changes**

Office Use
 Participant No.
 36.
 Submission Point No.
 File Refs
 W045-15-58
 M13-15-23
 Date Received Stamp
RECEIVED
 23 OCT 2009
 MARLBOROUGH
 DISTRICT COUNCIL

Name/Organisation: JANET & WAYNE BOUCE
 Contact Name (if different from above):
 Address for Service:
73 AWATERE VALLEY ROAD
RD 4
BLENHEIM
 Phone Number: 035757370
 Fax Number:

Submissions Close:
 5.00 pm Friday
 23 October 2009

I have attached pages to this submission.
 Do you wish to be heard in support of your submission? YES NO
 If you wish to be heard if others make a similar submission, would you be prepared to consider presenting a joint case? YES NO
 Signature: Janet Bouce Date: 23/10/09

Return your submission to:
 Marlborough District Council
 PO Box 443
 Blenheim 7240
 Attention: Mark Caldwell
 Fax: (03) 520 7496
 E-Mail: frostfans@marlborough.govt.nz

How To Make A Submission
 Anyone is welcome to make a submission, either as an individual or on behalf of an organisation. You may use this form or prepare your own submission so long as you are careful to provide all of the information identified on this form. [These information requirements are per Form 5 of the Resource Management (Forms, Fees and Procedures) Regulations 2003]. If you run out of room here, please continue on a separate page. When preparing your submission you need to include the following:
 "This part of my submission relates to ..." - state the name of the plan change and the part(s) of the plan change that is/are the subject of your submission.
 "I support (or oppose) this part of the plan change." - state whether you support or oppose (in full or part).
 "My reasons for supporting (or opposing) this part of the plan change ..." - tell us what your concerns are and the reasons why you support or oppose the provisions in the plan change.
 "The decision I seek from the Council is ..." - How do you want the Council to respond to your submission? It is very important that you clearly state the decision you wish the Council to make as the Council cannot make changes which have not been specifically requested. Start by indicating if you want the provision to be retained, deleted or amended. If you want an amendment (including additional provisions) then specify what wording changes you would like to see.
REMEMBER - the clearer you can be, the easier it will be for the Council to understand your concerns and take them into account.

Please indicate the plan change(s) that your submission relates to:

Plan Change 23 (Frost Fans) to the Marlborough Sounds Resource Management Plan

Plan Change 58 (Frost Fans) to the Wairau/Awatere Resource Management Plan

If you wish to provide a submission for more than one of the plan changes, you can use the same form so long as you clearly indicate which plan change your comments relate to.

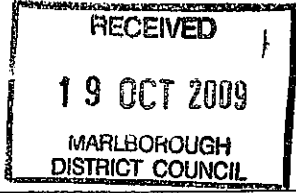
Any submission received by the Council is considered to be public information.

Plan Change No. Volume, Section of Plan, Page Number	Details of your submission and specific changes or decisions requested
Example: Plan Change 23 New policy 1.9	Example: I oppose this policy because... I would like the Council to change wording of this policy to "suggest change"
PLAN CHANGE 58	<p>I support the changes proposed, as currently the location to a residential dwelling in a rural zone is unreasonable.</p> <p>The current monitoring or lack of is not acceptable, aren't rates/charges funding compliance to do this for ratepayers? Monitoring frost fans is a must to ensure all frost fans comply.</p> <p>All frost fans should obtain a resource consent to enable conditions to be imposed.</p> <p>The lowering of the decibel level is also recommended as currently the noise level is unacceptable for existing use of neighbouring property to operate their business e.g. stock are startled when frost fans are operating. Also the type of frost fans installed near dwellings should be of ^{the} type that are more in harmony to neighbouring relations e.g. less impact on the environment of those residing or managing stock.</p> <p>Unfortunately the majority are installed & these are the ones causing the issues.</p> <p>I think we are all entitled to operate in a reasonable manner without affecting the ability of neighbours sleep! I accept reasonable noise in a rural area as part of the lifestyle but not to the extent of unacceptable noise levels during hours of the early morning. This is not normal operating hours of a rural environment.</p>

Submission Form for Plan Changes 23 and 58 to the
**Wairau/Awatere & Marlborough Sounds
 Resource Management Plans
 Frost Fan Plan Changes**

Office Use
 Participant No.
 37.
 Submission Point No.

File Refs
 W045-15-58
 M13-15-23

Date Received Stamp


Submissions Close:
 5.00 pm Friday
 23 October 2009

Return your submission to:
 Marlborough District Council
 PO Box 443
 Blenheim 7240
 Attention: Mark Caldwell
 Fax: (03) 520 7496
 E-Mail: frostfans@marlborough.govt.nz

Name/Organisation: KEVIN CATON + SARA STRINGER

Contact Name: _____
 (if different from above)

Address for Service:
1050 STATE /H/W 63
RD 1
BLENHEIM

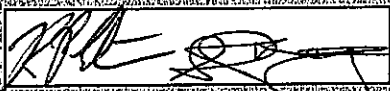
Phone Number: 5727124 021501449

Fax Number: _____

I have attached pages to this submission.

Do you wish to be heard in support of your submission? YES NO

If you wish to be heard if others make a similar submission, would you be prepared to consider presenting your case? YES NO

Signature:  Date: 18-10-09

How To Make A Submission

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Example: Plan Change 23 New policy 1.9	Example: I oppose this policy because... I would like the Council to change wording of this policy to "suggest change"
13	23 CHANGES TO THIS POLICY SHOULD INCLUDE
	1/ NO FROST FAN TO BE INSTALLED ANY CLOSER THAN 300MTRS FROM ANY BOUNDARY
	2/ TO BAN ALL 2 BLADED FROST FANS
	3/ ANY EXISTING 2 BLADED FROST FANS TO BE RETROFITTED WITH FOUR BLADES (FROSTBOSS OR QUIETEST BLADES ACCEPTABLE) -
	4/ TO REMOVE ANY FROST FAN INSTALLED CLOSER THAN 300MTRS TO A NEIGHBOURS DWELLING
	5/ ALL FROST FANS TO BE FITTED WITH DATA LOGGERS
	6/ VINEYARD OWNERS TO BE GIVEN INSTANT FINES IF LAWS BROKEN
	7/ PERSON TO BE APPOINTED TO ACT ON ANY COMPLAINTS ABOUT FROST FANS BEING NON COMPLIANT (DAY OR NIGHT)
	8/ VINEYARD OWNERS TO BE CHARGED A LEVY PER FROST FAN TO PAY FOR POLICING OF NEW LAWS
	9/ VINEYARD OWNERS MUST NOTIFY NEIGHBOURS IF THERE IS A CHANCE OF FROST FAN COMING ON
	10/ VINEYARD OWNER MUST HAVE SOMEONE ON PROPERTY WHEN THEY ARE RUNNING FANS
	11/ NOISE LEVEL TO BE NO HIGHER THAN 50 DECIBELS AT ANY BOUNDARY OR ^{Twenty} 20 DECIBELS IN A BEDROOM
	12/ ALL NEW LAWS MUST BE RETROSPECTIVE