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| **BEFORE** | Independent Commissioners appointed by Tasman District Council |
| **IN THE MATTER** | of the Resource Management Act 1991 |
| **AND** | |
| **IN THE MATTER** | of an application by CJ Industries Ltd for land use consent RM200488 for gravel extraction and associated site rehabilitation and amenity planting and for land use consent RM200489 to establish and use vehicle access on an unformed legal road and erect associated signage |

**REPLY EVIDENCE OF JEFFREY GEORGE BLUETT ON BEHALF OF CJ INDUSTRIES LIMITED**
**AIR QUALITY**

## 1. INTRODUCTION

1.1 My full name is Jeffrey George Bluett. I am a Technical Director: Air Quality at Pattle Delamore Partners Limited (PDP).

1.2 The applicant has applied for resource consents authorising the extraction of gravel, stockpiling of topsoil, and reinstatement of quarried land, with associated amenity planting, signage and access formation at 134 Peach Island Road, Motueka:

(a) RM200488 land use consent for gravel extraction and associated site rehabilitation and amenity planting; and

(b) RM200489 land use consent to establish and use a vehicle access on an unformed legal road and erect associated signage.

1.3 The applicant has also subsequently applied for a discharge permit (RM 220578).

1.4 My evidence in chief (dated 14 July 2022) detailed my qualifications and experience, provided a summary of my assessment of the effects of the dust discharged from the

proposed quarry, commented on the consistency of the application with policy direction, addressed matters raised in submissions and considered matters raised in Tasman District Council's (TDC) s42A report.

1.5 My supplementary evidence (dated 4 November 2022) provided: a brief summary of the findings from my site visit; clarified a discrepancy between my evidence in chief and the draft Dust Management and Monitoring Plan (DMMP); highlighted a correction needed in the DMMP, reviewed TDC's s42A Addendum Report and commented on TDC's reporting of the key issues (Susi B Solly), proposed consent conditions and TDC's Supplementary Technical Review - Dust Assessment (Leif Piggot).

1.6 During the hearing process a number of questions and points of clarification were raised by the commissioner, council and submitters. This reply evidence addresses those questions and points of clarification and responds to the submitter and Council comments dated 7 April and 14 April respectively.

## 2. SCOPE OF REPLY EVIDENCE

2.1 The scope of my supplementary evidence is to:

(a) Respond to matters raised at the hearing:

(i) Assess the risk and level of dust impacts on collected roof water at133 Motueka Valley Highway (Section 4 – paragraphs 4.1 to 4.10);

(ii) Assess the risk and level of dust impacts on the Yoga Retreat located at 520 Motueka West Bank Road (Section 4 – paragraphs 4.11 to 4.12);

(iii) Provide information to support the proposed changes to the consent condition which defines the site location of the meteorological monitoring station (Section 4 – paragraphs 4.13 to 4.14);

(iv) Provide information to support the proposed changes to the consent condition which defines the windspeed limit for earthworks activities ((Section 4 – paragraphs 4.15 to 4.10);

(b) Identify and provide a brief commentary on the proposed changes to consent conditions which relate to dust discharges (Section 5);

(c) Identify and provide a brief commentary on the proposed changes to the DMMP (Section 6);

(d) Address submitter comments on the updated consent conditions and DMMP and other issues (Section 7);

(e) Address Council Officer comments on the updated consent conditions and DMMP (Section 8).

## 3. EXECUTIVE SUMMARY

3.1 Having addressed each of these issues, I conclude that:

(a) Any impacts the dust discharge from the proposed quarry will have on the roof water supply systems at 133 Motueka Valley Highway will be less than minor;

(b) Any impacts the dust discharge from the proposed quarry will have on the Yoga Retreat proposed to be located at 520 Motueka West Band Road will be less than minor;

(c) The proposed consent condition which defines the site location of the meteorological monitoring station will provide certainty that the site will provide the data required for the effective dust mitigation and will meet the needs of the council compliance officer;

(d) A value of 7.5 m/s as a windspeed limit for earthworks activities can be implemented without any more than minor adverse dust impacts being caused and simplifies compliance with this condition;

(e) The proposed changes to consent conditions which relate to dust discharges will enhance the effectiveness of the consent conditions and will simplify the consent compliance process;

(f) The changes made to the DMMP are positive and improve the transparency, enforceability and effectiveness of the DMMP;

(g) The pertinent submitter comments have been addressed and the remaining submitter comments demonstrated as not relevant; and

(h) There are no points of difference between the Council Officer's and my opinion on the updated consent conditions or DMMP.

3.2 Conditions numbers referenced are the condition numbers in the proposed land use conditions filed by the applicant on 23 February 2023. Where relevant, condition numbers in the conditions filed with the applicant's right of reply are also given.

## 4. RESPONSE TO MATTERS RAISED AT THE HEARING

**Dust impacts on collected roof water**

4.1 I understand that a number of properties in the Motueka Valley collect roof water for domestic use purposes. My experience at other quarry sites has shown that the potential dust impacts on collected roof water have been less than minor. Based on that experience, the potential effect of dust emissions from the proposed quarry on the quality of water collected from roofs was not considered in the Peach Island Quarry – Assessment of Air Quality Effects[1].

4.2 During the hearing process a submitter raised their concerns about the potential impact of quarry dust on collected roof water. To address these submissions, I have assessed the potential impact of dust discharged from the proposed quarry on collected roof water at 133 Motueka Valley Highway.

4.3 The location of 133 Motueka Valley Highway in relation to the proposed Peach Island Quarry are shown in **Error! Reference source not found.**. 133 Motueka Valley Highway is located 440 m to the southeast of the closest boundary point to proposed Peach Island Quarry.

4.4 The submission does not detail their specific concerns around the potential impact of quarry dust on roof collected water. In my experience the two most frequently occurring concerns are human health of drinking contaminated water and the adverse amenity impact of water containing large amounts of suspended particles which in extreme cases can appear murky (rather than clear).

[1] Peach Island Quarry – Assessment of Air Quality Effects. PDP report number C04627800R001, 15 July 2022.

4.5 As noted in the AEE[1], the recommended buffer distance for a quarry without blasting is 250 m (EPA Victoria, 2013[2]). The 250 m distance represents the maximum distance dust is likely to travel from a quarry if no mitigation has been implemented. The amount of dust and travel distances are reduced by mitigation measures. Therefore this distance cannot be used a baseline to define where adverse dust effects may occur. In my experience any receptor that is 250 m or greater from any dust source is highly unlikely to experience a detrimental effect on amenity values ~~of water~~. Based on separation distance alone even without dust mitigation being implemented at the proposed quarry, I do not consider that any roof water collected at this address will be adversely impacted by dust discharged from the quarry.

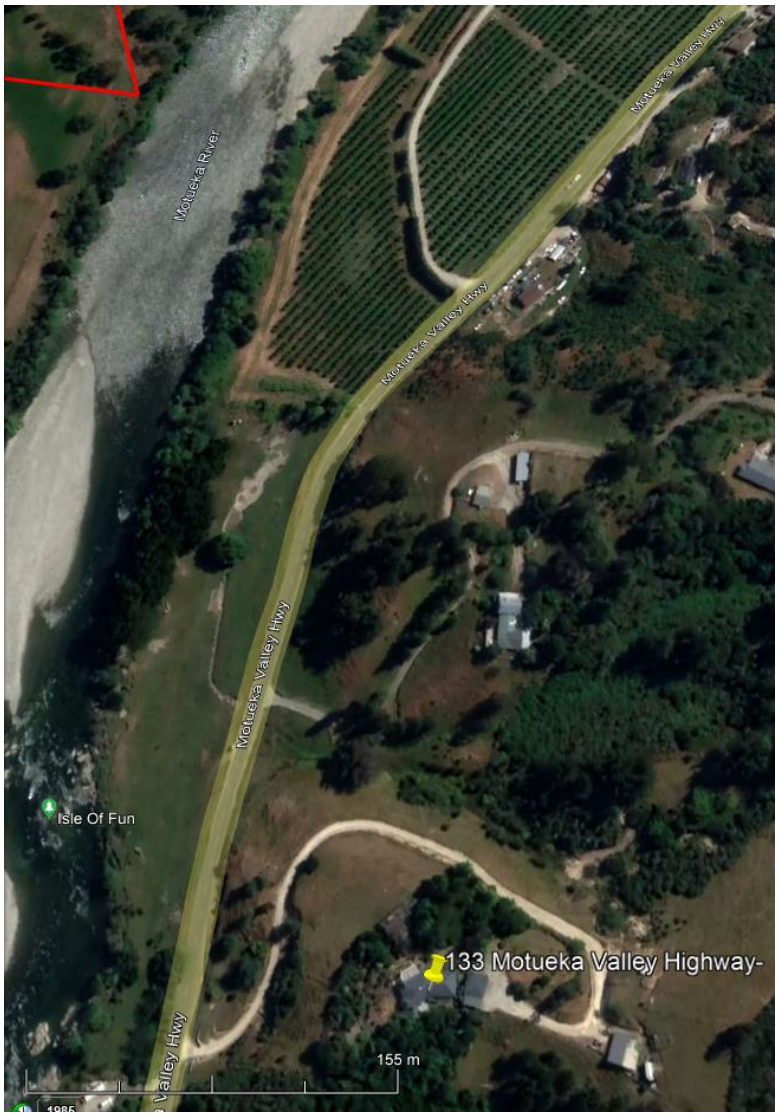


*Figure 1. Location of roof water collection at 133 Motueka Valley Highway and proposed Peach Island Quarry boundary (shown as a red line)*

[2] EPA Victoria. (2013). Recommended Separation Distances for Industrial Residual Air Emissions – Guideline. Melbourne.

4.6 In my experience with applications for air discharge consents at quarry sites the issue of roof collected water being impacted by quarry dust emissions is frequently raised as a potential adverse effect. For those quarries accepted good practice dust mitigation measures have been implemented to address the stakeholder concerns. I have also had experience with consent compliance at these quarries. To date I have not been made aware of any complaints or evidence demonstrating that the adverse effect of dust on roof water have actually occurred. Based on my experience at other quarries I am confident the dust control measures proposed by CJ Industries will mitigate the dust risk to roof collected water at residences beyond the boundary of the proposed quarry.

4.7 Even if some dust from the quarry did land on either of this roof, I understand quarry dust suspended in water is inert and non-toxic to any animal, consequently I am unaware of any adverse health impact of drinking water that contains small amounts of quarry dust.

4.8 To make the roof water milky, any quarry dust would need to remain on the roof until it next rained, i.e. not be blown away by subsequent winds, and be present in sufficient quantities to be noticeable above the normal detritus that collects on roofs from vegetation, animals and non-quarry ambient dust (for example from the Motueka River bed).

4.9 There are rainwater collection systems which include a first flush design which effectively diverts the first tranche of rainwater, including any detritus it may contain, away from collection tanks. Even if a first flush system is not fitted to the houses, the particle settling processes that occur in collection water tanks, mean that larger particles (like quarry dust) collect on the bottom of the tank and if the system is designed correctly are not drawn into the reticulation systems within the house and consequently not have any form of amenity effect.

4.10 Based on the separation distance between the submitter's residence and proposed quarry and considering the dust mitigation and monitoring proposed by CJ Industries, it is my opinion that the deposition of quarry dust which may occur on the submitter's property or on other roofs beyond the boundary will be well below rates that could give rise to health or amenity effects on roof collected drinking water. Therefore, I conclude that the operation of the Peach Island Quarry will not affect roof collected drinking water.

**Dust impacts on yoga retreat at 520 Motueka River West Bank Road.**

4.11 During the hearing process a submitter raised their concerns about the potential impact of quarry dust on a Yoga Retreat located at 520 Motueka West Bank Road. The location of 520 Motueka West Band Road in relation to the proposed Peach Island Quarry is shown in Figure 2. Figure 2 shows that 520 Motueka West Bank Road is located 1,250 m southeast of the closest boundary point of the proposed quarry site.

4.12 Based on separation distance alone, which is five times the buffer distance recommended by EPA Victoria for a quarry which does not use blasting, I do not consider that the Yoga Retreat will be impacted by dust discharged from the quarry.


*Figure 2. Location of Yoga Retreat at 520 Motueka West Bank Road and proposed Peach Island Quarry boundary (shown as a red line)*

**Consent condition: Siting of the meteorological monitoring station**

4.13 During the hearing the Commissioner suggested a consent condition which clearly defined the siting of the meteorological monitoring station would be helpful. In response

to the Commissioner's suggestion, I suggested the following yellow highlighted text be incorporated into condition 54.

*The consent holder shall undertake meteorological monitoring (i.e., wind direction, wind speed, temperature and relative humidity) on site and store this data electronically and it shall be made available to the Council's Team Leader - Monitoring & Enforcement on request. The meteorological monitoring station shall be located and established so as to be, to the extent practicable on site, consistent with AS/NZS 3580.1.1:2016.*

4.14 I am aware of a number of locations on the proposed quarry site which would meet the requirements of AS/NZS 3580.1.1:2016. The actual site has not yet been selected. Monitoring site selection usually occurs during the preparation period before the quarry begins to be operated. This is because at that stage of quarry development the staging of the extraction zones is confirmed and the site with the best logistics and longest uninterrupted life becomes clear.

**Consent condition: Windspeed limit for earthworks activites**

4.15 In the set of draft consent conditions presented in Mr Taylor's supplementary evidence, the following windspeed activity limits were proposed:

(a) 5.0 m/s for removing topsoil or creating bunds;

(b) 7.5 m/s for extracting gravel.

4.16 The workability of the different speeds was an issue raised at the hearing. Upon reflection I consider that having different windspeed limits for these two activities is an unnecessary complication which will provide very little environmental benefit. Figure 3 shows the impact of windspeed on $PM_{10}$[3] concentrations measured downwind of a dust source. Figure 3 shows that the concentration of $PM_{10}$ increases:

(a) Only slightly as wind speed increases from 5 m/s to 7 m/s; and

(b) Quickly for windspeeds greater than 7 m/s.

[3] Particulate matter with an aerodynamic diameter of less than 10 micrometres.

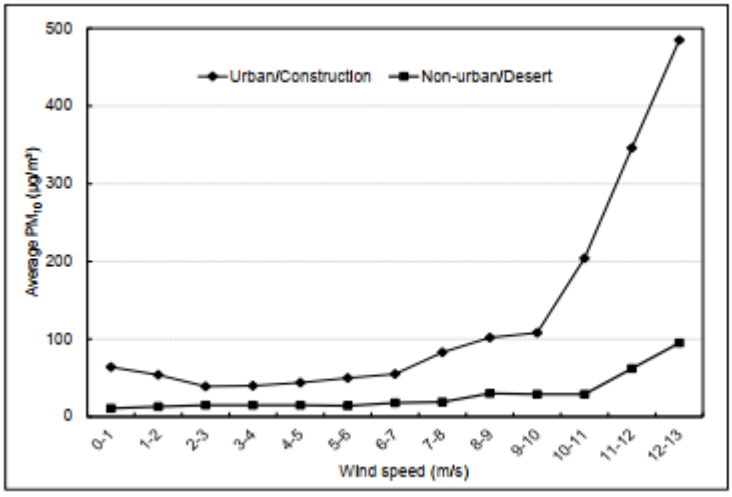


*Figure 3. Variation of $PM_{10}$ concentration with windspeed (reproduced from Watson et al 2000)[4].*

4.17 It is important to note that the particulate matter concentrations shown in Figure 3 is $PM_{10}$. Dust which will be discharged from the proposed Peach Island Quarry will generally be larger than $PM_{10}$ and therefore need higher windspeeds to mobilise. Therefore 7.5 m/s windspeed activity limit will provide good protection for downwind receptors at the proposed Peach Island Quarry.

4.18 The information presented in Figure 3 supports a simpler but just as effective alternative consent condition with only one wind speed activity limit. I therefore recommended the following amendment, which was made to condition 50.

*No material shall be disturbed during periods of high wind (>7.5m/s) and where there are sensitive receptors within 250m in a downwind direction. No excavations shall be undertaken if high wind is forecast in the period before measures can be implemented to secure the excavated area and any stockpiles from the effects of dust generation.*

4.19 The 5 m/s windspeed criteria would still be retained in the DMMP and used as an alert for the quarry operators to proactively prepare for mitigation actions, visual inspection of dust discharges and implement water application for dust suppression if required, rather than as a limit.

## 5. REVISED CONSENT CONDITIONS

5.1 Condition 53 has been added to the recommended consent conditions which limits the substances to be applied to surfaces for the purposes of dust suppression to only water.

[4] Watson et al. 2000. Impact of windspeed on PM10 concentrations.

Condition 53 prohibits the use of polymer or chemical stabilization methods, including Waste Oil or Reprocessed Oil for control dust. I am confident despite the removal of this dust mitigation option that CJ Industries' dust mitigation strategy will be effective.

5.2 Volunteered consent condition number 51 provides that no quarrying activities shall take place within 100m of orcharding activities on neighbouring properties between the months of January and May (inclusive). A previous version of this condition had incorrectly defined the seasonal restriction on quarrying within 100 m of an orchard as October to May inclusive. TDC have proposed a further amendment (condition 50 in their Memorandum) which clarifies that Stage 1 quarrying and placement of clean fill, subsoil and soil within 100m of orcharding activities can only take place in October, November and December (due to the overlapping effect of a restriction on Stage 1 works to October – March for erosion risk reasons) and a definition of "orcharding activities" which I address below at paragraph ~~8.3.~~

5.3 In closing comments at the hearing, TDC amended a condition to require dust control measures be undertaken in accordance with the best practicable option. It was always the intent of the applicant to apply the dust control measures detailed in the DMMP in accordance with the best practicable option, therefore I have no problem with this amendment to the condition, which was made in the applicant's conditions dated 23 March (condition 49).

5.4 At the hearing, TDC proposed amending the condition requires works (disturbing materials) to be stopped when windspeeds exceed 7.5 m/s and there is a sensitive receptor within 250 m downwind of the works, to require disturbing materials to be stopped when windspeeds exceed 7.5 m/s regardless of wind direction and regardless, if there is a sensitive receptor within 250 m of the source or not. Given the low frequency of high windspeeds in the area this suggested change would in reality have little impact on site operations. But in my opinion this amendment is not consistent with the objective of setting effects-based consent conditions. Potentially this change could be quite restrictive for the operator without having any benefit on the adverse dust impacts. For this reason, I did not support removing the wind direction and sensitive receptor criteria and this amendment was not made in the applicant's conditions dated 23 March (condition 50). Council's Memorandum of 14 April no longer seeks this amendment.

5.5 At the hearing, TDC recommended an amendment to require that temperature and relative humidity be included in the on-site meteorological monitoring. In my experience while temperature and relative humidity are not the key meteorological factors in determining dust risk, these two variables can help refine the planning of dust mitigation measures. The two sensors required to measure temperature and relative humidity come as standard with the type of instrumentation that will be installed. For these reasons I have no objection to the TDC proposed amendment and it was made in the applicant's conditions dated 23 March (condition 54).

## 6. REVISED DUST MANAGEMENT AND MONITORING PLAN

6.1 To ensure that the dust discharged from the quarry does not cause any offensive or objectional effects, CJ Industries engaged PDP to develop a draft Dust Management and Monitoring Plan (DMMP)[5]. The draft DMMP was submitted to the Tasman District Council as Appendix B to PDP Assessment of Air Quality Effects[1].

6.2 During the TDC hearing process the DMMP was reviewed and commented on by TDC, submitters and the Commissioner. The DMMP has been updated (March 2023) to incorporate the amendments required from:

(a) My supplementary evidence[6];

(b) Amendments made to the draft consent conditions; and

(c) My responses to the Commissioner's questions and comments.

6.3 The changes made to the DMMP are detailed in the following paragraphs.

6.4 The text in Section 1.1, Purpose, Section 8, Environmental Monitoring Programme and Appendix B, Complaints Records of the DMMP has been amended to emphasise that dust control measures be undertaken in accordance with the best practicable option.

6.5 The text in Section 1.3 Description of Activity and Dust Sources, Table 3 Dust Risk Levels, and Section 3, Consent Compliance Requirements, of the DMMP have been

[5] Dust Management and Monitoring Plan – Peach Island Quarry (July 2022). Appendix B of Peach Island Quarry – Assessment of Air Quality Effects. PDP report number C04627800R001, 15 July 2022.
[6] Supplementary Evidence of Jeffrey George Bluett on Behalf of CJ Industries Limited Air Quality (4 November 2022).

updated to reflect my recommendation for a seasonal restriction (January to May inclusive) on quarrying activities within 100 m of any orchard.

6.6 The text in Section 3, Consent Compliance Requirements, Table 2, Sources of Dust and Tiered Controls to be Employed and Section 8.1, Dust Monitoring, of the DMMP have been amended to redefine "works being carried out" to "disturbing materials".

6.7 Table 2, Sources of Dust and Tiered Controls to be Employed of the Draft DMMP details the sources of dust and the tiered dust controls to be employed. In 23 March 2023 draft of the DMMP Tier 1 (Routine) controls for stockpiles have been updated as noted below:

(a) Maintain the height of gravel stockpiles to a practical **maximum** of 4 m;

(b) Maintain the height of unvegetated topsoil stockpiles to a practical **maximum** of 3 m;

(c) Remove the use of polymers/chemical stabilisation as optional dust control measure; and

(d) Reflect the recommended change to use a single 7.5 m/s wind speed limit.

6.8 Changes have been made to Table 4, Monitoring Programme Activities and Frequency, in the DMMP to reflect the recommended change to use a single 7.5 m/s wind speed limit.

6.9 The changes made to the DMMP incorporate the information provided in my supplementary evidence, the answers to the Commissioner's questions and comments, amendments made to the draft consent conditions. These changes also address the submitter and council comments on the updated consent conditions and DMMP. Having made these changes to the DMMP I conclude they are positive and improve the transparency, enforceability and effectiveness of the DMMP.

## 7. SUBMITTER COMMENTS ON UPDATED CONDITIONS AND MANAGEMENT PLANS

**Webster, Sundbye, Le Frantz**

7.1 The comments cover six key dust-related issues:

(a) Suppression of dust out of quarry operational hours;

(b) The construction of the Noise bund will create large amounts of dust;

(c) Frequency and timing of TDC council monitoring visits;

(d) All work should cease until it can be managed adequately during unexpected weather events; and

(e) The requirement for real time dust monitoring; and

(f) Health impacts of dust on children.

7.2 I acknowledge the DMMP does not currently expressly detail out of hours (including weekend) application of water for dust suppression, so this is a good question for the submitter to ask.

7.3 It is important to note the potential dust risk out of hours is relatively low due to two factors:

(a) There will be no quarrying activities disturbing materials which can generate dust. Any dust discharged will be limited to that from the small unconsolidated areas which are currently being quarried and any stockpiles.

(b) With the exception of when weather fronts pass through, windspeeds follow a diurnal pattern where they are relatively low before 10:00 am, increase during the day until a peak about 3:00 pm and then slowly decrease to a night-time low by 7:00 pm. Therefore the majority of the out of hours times will coincide with relatively low risk meteorological conditions.

7.4 However, clearly there will out of hours daytime periods during weekends and public holidays when the windspeeds can be relatively high.

7.5 The monitoring and equipment required to implement out of hours application of water are included in the DMMP. The monitoring of windspeeds and text alerts for periods

when windspeeds are above 7.5 m/s occurs 24/7. The equipment needed to apply out of our hours water for dust suppression is listed in the DMMP as fixed sprinklers and mobile k-line sprinkler systems. The key factor that is currently missing in the DMMP is the process which will be applied to decide if and when water is required for out of hours dust suppression.

7.6 To address this gap I propose that the following process (or similar) is added to the DMMP: During the months of October to April if there are any areas or stockpiles of unconsolidated materials which have the potential to be the source of significant amounts of dust then:

(a) These areas are watered at the end of each working day;

(b) A mobile k-line sprinkler network is deployed next to the potential dust source/s;

(c) The mobile k-line sprinkler is activated remotely if and when the windspeed limit is exceeded; and

(d) The watering from the k-line system occurs for 15 minutes every hour that the windspeed alert limit is exceeded.

7.7 Based on my experience at other quarries and considering the small size and separation distances achieved by the proposed Peach Island Quarry, I anticipate that the need for out of hours application of water for dust suppression will be very infrequent. Notwithstanding this, I concur with the submitters that including this potential dust mitigation process in the DMMP would be helpful.

7.8 In my experience the dust generated during bund construction can be very well controlled. If practical, the bund can be constructed during the months of the year when the dust risk from the overburden material is low because it contains relatively high moisture levels (typically May to October). Fixed sprinklers or mobile k-line sprinkler can easily be set up to water the surfaces of bunds during the drier months of the year while the vegetated surface is established. I have seen these bund construction dust mitigation approaches used very successfully. In my opinion the submitter's suggestion that the construction of the bund will create large amounts of dust is incorrect.

7.9 The primary purpose of the bund is for noise mitigation. I consider that having the bund in place is a bonus dust mitigation measure. If it were not constructed I am confident that dust can still be well controlled with the other dust suppression strategies and equipment that will be implemented.

7.10 The frequency and timing of TDC council monitoring visits is not a matter I can usefully comment on.

7.11 I consider that the DMMP already clearly highlights and explains when work should stop if certain environmental or complaints criteria are breached. Section 8.2, Meteorological Monitoring, states that staff will stop work on dust generating activities when windspeeds exceed 7.5 m/s. Section 10.1 Complaints, notes that if a complaint is received the staff will stop work and initiate any remedial action necessary. To better highlight these stop work criteria, they could be added to the Tier 2 Controls detailed in Table 2, Sources of Dust and Tiered Controls to be Employed.

7.12 The submitter suggests that real-time dust monitoring should be put in place by CJ Industries at the start of any quarrying activity rather than only being required after four validated complaints have been received within one year. For the sake of clarity, I understand that the validation of any complaints will be a council responsibility. I anticipate that if a complaint is received council staff will weigh up evidenced presented by CJ Industries to make an informed decision if the complaint is valid or not. The evidence presented by CJ Industries to inform the council investigation will most likely focus on the meteorological conditions, onsite dust generating activities and the onsite daily log and CJ Industries staff observations at the time of the complaint.

7.13 In my experience to establish a real-time dust monitoring site would typically costs $10k. Running a real-time dust monitoring station would typically cost $3-4k per year. So requiring this type of monitoring has a large associated financial investment. In my experience real time dust monitoring is only justified in high-risk situations and/or if adverse dust effects actually occur. Given the low dust risk of the operation, and the requirement to install a monitor if required, it is my opinion is that this is a fair and fiscally responsible starting point that is consistent with adoption of the best practicable option to manage dust.

7.14 The submitter expresses concerns as to the adverse health impacts of dust on children in residential dwellings. PDP provided a comprehensive assessment of the impacts of $PM_{10}$ (the size fraction of dust which can cause adverse health impacts) and respirable crystalline silica (RCS) at offsite locations. The offsite health impact assessment concluded that based on the nature of the quarry dust, the separation distance to the nearest off-site dwelling and the implementation of the proposed management measures any adverse health impacts from RCS discharged from the proposed Quarry will be negligible and certainly less than minor. This assessment was reviewed and concurred with by TDC's air quality expert. In summary, I conclude that there is no evidential basis for the submitters' concerns about concern of the health effects of dust on children in residential dwellings.

**Hannah Mae**

7.15 Ms Mae's comments on dust cover seven key issues:

(a) Dust impacts on orchard activities other than ripening fruit;

(b) Whether the 100 m buffer distance provided during the months January to May is sufficiently large to mitigate dust impacts on orchard activities;

(c) Dust mitigation measures need to protect all orchard areas;

(d) A 250 m buffer would be more appropriate than a 100 m buffer;

(e) Suppression of dust out of quarry operational hours;

(f) Timing of the daily site walkover by the manager to make dust observations; and

(g) Remedial action to be undertaken on validation of dust complaints.

7.16 In her comments Ms Mae suggests that the dust assessment and the DMMP have not considered the impacts of dust on the orchard processes of flowering, pollination and fruit set. The information on reducing the impact of dust on orcharding has focused on high dust risk periods (higher windspeeds and lower soil moisture) of the year. Volunteered condition 51 defines a seasonal restriction on quarry activities within 100 m of any orchard for the months January to May inclusive. The months happen to coincide

with period over which fruit matures and then ripens and is harvested. The flowering, pollination and fruit set processes occur during lower dust risk periods of the year when lower windspeeds and higher soil moisture tend to persist. Therefore, I am confident that the Tier 1 dust control measures as detailed in Table 2, Sources of Dust and Tiered Controls to be Employed of the Draft DMMP will provide adequate mitigation June to December (inclusive) and there would be no benefit in implementing a year-round 100 m buffer to reduce the impact on the flowering, pollination and fruit set processes.

7.17 I am not a qualified horticulturalist, but my research into dust effects on flowering, pollination and fruit set processes did not detail any adverse effects dust could have on the flowering, pollination and fruit set processes.

7.18 Ms Mae suggests that the buffer should be put in place for all orchards not just the orchard located to the east of the proposed site. I agree with this suggestion. Condition 51 which requires the seasonal buffer is not location-specific and offers the wider protection that Ms Mae is seeking.

7.19 Ms Mae correctly notes that the assessment has used a distance of 250 m to identify potentially sensitive receptors and suggests that the buffer should also be 250 m. The 250 m distance is based on recommendations made by the EPA Victoria and which have been widely adopted in New Zealand. The 250 m distance represents the maximum distance dust is likely to travel from a quarry if no mitigation has been implemented. I am confident that the Tier 1 dust control measures as detailed in Table 2, Sources of Dust and Tiered Controls to be Employed of the Draft DMMP will provide very effective mitigation and when combined with a 100 m buffer for June to December (inclusive) any adverse dust impacts on orcharding processes will be less than minor. Therefore, my opinion is that there would be no benefit in extending the buffer distance to 250 m.

7.20 Ms Mae notes her concerns regarding dust suppression out of quarry operational hours. I have addressed this issue in detail in paragraphs 7.2 to 7.7 above.

7.21 Ms Mae suggests that the daily site walk over, during which dust observations are made, should occur in the afternoon of each working day to capture the part of the day when windy conditions are typical. Section 8.1, Dust Monitoring of the draft DMMP states, "*All staff are required to continuously visually monitor activities to identify dust events. The Site Manager or delegate undertakes a site walkover and visual dust monitoring at least once per day, in the*

*early afternoon, to assess the overall effectiveness of the DMMP and assess compliance with the requirements of the resource consent conditions*". Given this text I consider that the DMMP already includes this suggestion made by Ms Mae.

7.22 In her comments, Ms Mae asks "*What remedial action will be undertaken on validation of complaints to persons affected by dust effects*?" and goes on to suggest this issue needs to be considered and stated in the conditions of consent. Section 10, Complaints, of the DMMP details CJ Industries proposed approaches to receiving and responding to any complaint (Sections 10.1 and 10.2 respectively). The DMMP is encoded into the consent conditions. I believe the current drafts of the consent conditions and DMMP address the issue raised and solution sought by Ms Mae.

**April 2023 Update of the DMMP**

7.23 I have produced an April 2023 update of the DMMP. The amendments made to the March 2023 version are:

(a) Added new section 5.3 to detail process to apply out of hours dust suppression water; and

(b) Added stop work option Tier 2 Controls (Additional, as needed) in Table 2.

7.24 The April 2023 version of the DMMP is appended to this evidence and has tracked the changes listed above.

**Summary of Responses to Submitter Comments**

7.25 The information provided in this evidence addresses the issues raised in the submitter's comments on the updated consent conditions and DMMP and amendments have been recommended where appropriate. I conclude that the pertinent submitter comments have been addressed and the remaining comments do not raise any relevant issues requiring a response.

## 8. COUNCIL COMMENTS ON UPDATED CONDITIONS AND MANAGEMENT PLANS

8.1 I note that the updated DMMP has been reviewed by TDC's Mr Pigott who considers the DMMP to be in line with best practice.

8.2 I note that the volunteered conditions relating to the management of dust are considered appropriate by the Council Officer. I also note that the council officer has included a definition of '*orcharding activities'*. I consider this definition will help address some of submitter comments around dust mitigation being focused on ripening fruit. The definition is "*For the purpose of this consent, 'orcharding activities' shall include flowering pollination, fruit set, fruit growth and harvest of fruit*". To ensure the definition covers all orcharding processes I suggest "ripening" be added to the definition and be inserted between fruit growth and harvest.

8.3 The Council Officer notes the submitters comments regarding dust management out of hours and emphasises that the applicant may wish to detail more specific measures in their right of reply and at the reconvened hearing. I have done this in paragraphs 7.2 to 7.7 above.

8.4 The information provided in this reply evidence addresses the issues raised in the Council Officer's comments on the updated consent conditions and DMMP. I conclude that there are no significant points of difference between the Council Officer's and my opinion on the updated consent conditions or DMMP.

**JEFF BLUETT**

**21 APRIL 2022**

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# Dust Management and Monitoring Plan – Peach Island Quarry

- Prepared for

CJ Industries Limited

- April 2023

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# Quality Control Sheet

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**Limitations:**

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## Document Control

**Table 1: Amendment Register – Dust Management and Monitoring Plan**

| Date | Version | Description | Prepared by: | Reviewed/ Authorised by: |
|---|---|---|---|---|
| 14 July 2022 | 1 | Original Document | AVV | JB |
| 08 March 2023 | 2 | Updated to incorporate the changes to mitigation, monitoring and Draft consent conditions which arose during the TDC consent hearing.<br>The version is amended to incorporate updates from:<br>• JB supplementary evidence<br>• Commissioner's Questions<br>• Revised Set of draft consent conditions | JB | AVV |
| 21 April 2023 | 2 | Added new section 5.3 to detail process to apply out of hours dust suppression water.<br>Added stop work option Tier 2 Controls (Additional, as needed) in Table 2. | JB | TBC |

## Table of Contents


| SECTION | | PAGE |
|---|---|---|
| Document Control | | ii |
| 1.0 | Introduction | 1 |
| 1.1 | Purpose | 1 |
| 1.2 | Background Information | 1 |
| 1.3 | Description of Activity and Dust Sources | 1 |
| 1.4 | Objectives | 3 |
| 2.0 | Key Performance Indicator | 3 |
| 3.0 | Consent Compliance Requirements | 3 |
| 4.0 | Sources of Dust | 4 |
| 5.0 | Management and Mitigation Measures | 4 |
| 5.1 | Water Requirement for Dust Suppression | 4 |
| 5.2 | Water Application During Quarry Operational Hours | 5 |
| 5.3 | Water Application Outside Quarry Operational Hours | 5 |
| 5.4 | Tiered Mitigation Measures | 5 |
| 6.0 | Roles and Responsibilities | 10 |
| 6.1 | Site Manager and Staff | 10 |
| 6.2 | Staff Training | 10 |
| 7.0 | Implementation and Operation of DMMP | 11 |
| 8.0 | Environmental Monitoring Programme | 11 |
| 8.1 | Dust Monitoring | 11 |
| 8.2 | Meteorological Monitoring | 12 |
| 8.3 | Frequency of Monitoring | 14 |
| 8.4 | Reporting of Monitoring Programme | 14 |
| 9.0 | DMMP Review | 15 |
| 10.0 | Complaints | 15 |
| 10.1 | Receipt Procedure | 15 |
| 10.2 | Response Procedure | 16 |
| 11.0 | Emergency Contacts | 17 |
| 12.0 | Annual Report | 17 |


## Table of Figures

Figure 1: Location and boundary of the proposed gravel extraction site 2

Figure 2: Staging plans for the extraction of gravel at Peach Island Quarry 2

## Table of Tables

Table 1: Amendment Register – Dust Management and Monitoring Plan ii

Table 2: Sources of Dust and Tiered Controls to be Employed 6

Table 3: Dust Risk Levels, Meteorological Conditions and Responses 13

Table 4: Monitoring Programme Activities and Frequency 14

Table 5: Internal Environmental Emergency Contact Details 17

Table 6: External Environmental Emergency Contact Details 17

## Appendices

Appendix A: Daily Log Form

Appendix B: Complaints Records

# 1.0 Introduction

This Dust Management and Monitoring Plan - Peach Island Quarry (DMMP) has been prepared by Pattle Delamore Partners Ltd (PDP) on behalf of CJ Industries Limited (CJ Industries).

## 1.1 Purpose

The purpose of the DMMP is to provide a framework for the quarry and restoration operations and site personnel, in particular to:

- Provide the information defined in consent condition number 18;
- facilitate the avoidance, remediation, and mitigation of any adverse effects of discharges of dust generated from the operation of the Peach Island Quarry;
- promote proactive solutions to the control of dust discharges from the site; and
- present industry best practice option for dust controls.

## 1.2 Background Information

CJ Industries intend to undertake the extraction of gravel, stockpiling of topsoil, and reinstatement of quarried land in three stages at Peach Island Road.

An assessment of the sensitivity of the receiving environment and identification of the location of highly sensitive receptors is provided in Air Quality Assessment of Environmental Effects (AEE), dated July 2022. The location of the quarry and the location of the sensitive receptors within 500 m of the boundary of the site are shown in are in Figure A-1.

A key focus of the management plan is to avoid adverse effects at the nearest neighbouring residential dwellings and apple and kiwifruit orchards.

## 1.3 Description of Activity and Dust Sources

CJ Industries propose to operate a gravel quarry at 134 Peach Island in Motueka (Lot 2 DP 2357 and Lot 2 DP 432236), the area of which is shown Figure 1 below.

**Figure 1: Location and boundary of the proposed gravel extraction site**

Hours of operation will be limited to **7.30 am to 5 pm Monday to Friday**, with no work during weekends or on public holidays.

The extraction and handling of gravel, including truck movements to and from the site, has potential for discharges of fugitive dust and odour.

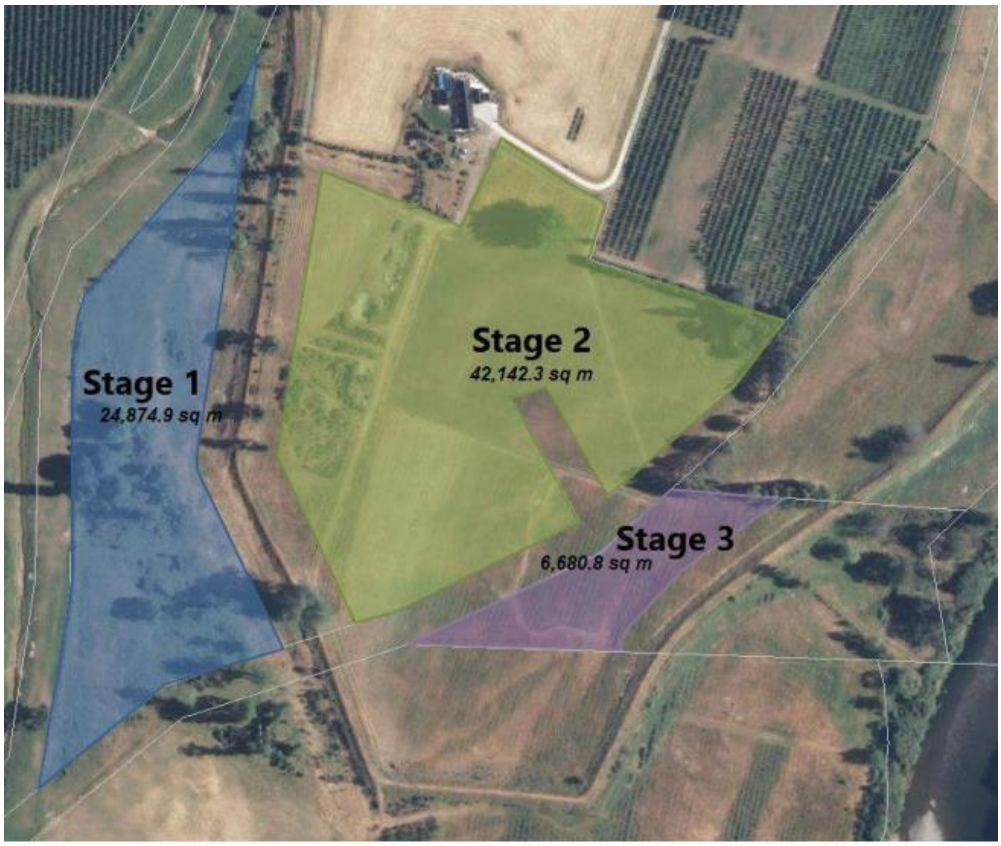



**Figure 2: Staging plans for the extraction of gravel at Peach Island Quarry**

No processing, crushing or screening of materials will occur on the application site.

Up to 15 truck and trailer units will enter/exit the site each day for the import of clean fill and the export of aggregate. Trucks or truck-and-trailer units will carry up to 38 tonnes of material each, with a maximum of 570 tonnes of gravel transported each day. Trucks will return with back fill material as often as possible, in order to keep traffic down. The existing paper road and area of marginal strip that is proposed to be used as a haul road is currently in pasture and will be formed into a sealed road. An existing ROW will also be utilised to access the marginal strip and paper road. This too will be upgraded to a sealed surface. The access will be adequately maintained by CJ Industries. This means that the only unsealed roads with potential for dust generation are the internal haul roads within each of stages 1, 2 and 3.

There is an apple orchard that is located on the northern eastern boundary of the Stage 2 area. Quarrying within 100 m of this orchard boundary only occurs over the months of June to December (the wet less windy time of the year). CJ Industries moves between stages 2 and 3 to suit the time of the year.

### 1.4 Objectives

The objectives of the DMMP are to inform the quarry operations and site personnel of management and mitigation measures for quarry activities to minimise the adverse impacts of potential dust discharges on the receiving environment.

The DMMP methods are designed to be practical for CJ Industries to implement, while the document is intended to be continuously improved to adapt mitigation where needed to ensure the required outcomes.

## 2.0 Key Performance Indicator

The key performance indicator for this DMMP is to ensure that there shall be no noxious, dangerous, objectionable or offensive dust beyond the boundary of the site.

## 3.0 Consent Compliance Requirements

The environmental objective of the DMMP is to ensure that the site will be managed to comply with consent conditions related to the discharge of dust to air. The consent conditions relevant to the DMMP follow below.

48. Specific dust control measures described in the application and DMMP shall be implemented. These dust control measures shall reflect best practical option and be undertaken in accordance with the accepted best practice.

49. No works shall be carried out material shall be disturbed during periods of high wind (>7.5m/s) and where there are sensitive receptors within 250m in a downwind direction. No excavations shall be undertaken if high wind is forecast

in the period before measures can be implemented to secure the excavated area and any stockpiles from the effects of dust generation.

50. No quarrying activities shall take place within 100m of horticultural activities on neighbouring properties between the months of January and May (inclusive).

51. No soil stockpiles may be placed within 100 m of horticultural activities on neighbouring properties.

52. Only water will be used for dust suppression. The Consent Holder will not use polymer or chemical stabilization methods, including Waste Oil or Reprocessed Oil to control dust.

53. The consent holder shall undertake meteorological monitoring (i.e., wind direction, wind speed, temperature and relative humidity) on site and store this data electronically and it shall be made available to the Council's Team Leader - Monitoring & Enforcement on request. The meteorological monitoring station shall be located and established so as to be, to the extent practicable on site, consistent with AS/NZS 3580.1.1:2016.

## 4.0 Sources of Dust

The Site's key dust sources are as follows:

- Development and remediation of the site;
- Excavation of gravel;
- Site access road and other unsealed surfaces;
- Disturbing stockpiles; and
- Stockpiling.

## 5.0 Management and Mitigation Measures

### 5.1 Water ~~Suppression~~Requirement for Dust Suppression

As a benchmark for dust suppression the Ministry for the Environment Good practice guide on assessing and managing dust recommends a water application rate 1 mm/hour (or 1 litre/$m^2$) per hour. Using 1 mm per hour over 3,000 $m^2$ requires 3 $m^3$ of water per hour. Over a 10-hour working day the total volume of water required could be 30 $m^3$. However, it is unlikely that dust suppression would be required over a full day.

CJ Industries must ensure that 30 $m^3$ of water is available daily for potential dust suppression purposes. Water is sourced from water permit RM171337 which has a current application to vary this consent to allow use for dust suppression. This consent provides for 8.33 L/s and 2625 cubic metres per week from an on-site

bore. Restrictions can be implemented by Council during times of low river levels, in this circumstance water will be trucked in from an external provider. In circumstances where the sprinkler system cannot be extended to all appropriate areas, CJ Industries must ensure there is one 15 $m^3$ dust suppression cart on site which can provide water for dust suppression. Both systems can be refilled from the site's water supply, the site provides access to ample water for typical and for high demand dust suppression.

### 5.2 Water Application During Quarry Operational Hours

Fixed sprinklers, mobile k-line sprinkler system, water truck with cannon may be used along haul roads and active quarry areas in addition to a water cart. This equipment is only required if sprinklers and cannons are not able to service the unconsolidated surface areas. All mitigation installed must be designed to ensure 1 mm water per hour over 3,000 $m^2$ can be achieved by the quarry operations on dry days at any stage.

### 5.3 Water Application Outside Quarry Operational Hours

During the months of October to April if there are any areas or stockpiles of unconsolidated materials which have the potential to be the source of significant amounts of dust then dust control outside of quarry operational hours will be managed using the following steps:

(a) Areas are watered at the end of each working day;

(b) A mobile k-line sprinkler network is deployed next to the potential dust source/s;

(c) The mobile k-line sprinkler is activated remotely if and when the windspeed limit is exceeded; and

(d) The watering from the k-line system occurs for 15 minutes every hour that the windspeed alert limit is exceeded.

### ~~5.3~~5.4 Tiered Mitigation Measures

Dust prevention on site uses a two-tiered approach. Tier 1 controls are employed routinely, and Tier 2 controls are implemented additionally in the unlikely situation that the Tier 1 controls do not prove to be fully effective. These control measures are summarised in Table 2.

Application of water for dust suppression as described in the Tier 1 and Tier 2 controls must be prioritised as shown in Table 2.

| Table 2: Sources of Dust and Tiered Controls to be Employed | | |
|---|---|---|
| **Source of Dust** | **Tier 1 Controls (Routine, must be employed)** | **Tier 2 Controls (Additional, as needed)** |
| Unpaved surfaces such as site access roads | • Limit the area of exposed surfaces as much as practical.<br>• Cover surfaces with coarse materials where practicable.<br>• Compact all unconsolidated surfaces where practicable.<br>• Trafficked unsealed surfaces will be watered on a regular basis using a k-line sprinkler, water cannon or water cart system.<br>• An onsite speed limit of 15 km/hr will be enforced. | • Increase water application rate to ensure that in-use unpaved roads are kept damp.<br>• Halt all vehicle and machine movements until the dust source can be controlled and the impact of the dust reduced to that allowed by the consent conditions. |
| Vehicles | • Limit load sizes and ensure even loading to avoid spillages.<br>• As far as practical minimise travel distances and/or maximise buffer distances between site access roads and site boundary through appropriate site layout and design.<br>• Deep sided trucks (dump trucks) are used for transport within the site to reduce spill<br>• As above, an onsite speed limit of 15 km/hr will be enforced.<br>• The main haul road into the site is sealed to prevent dust.<br>• Sweeping of the sealed road is undertaken weekly as needed in Summer.<br>• Any spills of soil from vehicles are swept up and washed down on the same day as the spill. | • Limit vehicle speeds on unsealed surfaces to 10 km/hr when traveling within 250 m of the site boundary or when vehicle generated dust plumes approach the boundary of the site.<br>• A wheel wash can be installed if sweeping is not effective to prevent tracking of material offsite.<br>• Dry soil material in trucks will be covered or wetted.<br>• Halt all vehicle and machine movements until the dust source can be controlled and the impact of the dust reduced to that allowed by the consent conditions. |

| Table 2: Sources of Dust and Tiered Controls to be Employed | | |
|---|---|---|
| **Source of Dust** | **Tier 1 Controls (Routine, must be employed)** | **Tier 2 Controls (Additional, as needed)** |
| Disturbing materials | • Good practice machine operation will be implemented including minimizing drop heights and wetting dusty materials.<br>• For the purposes of site preparation, gravel extraction gravel export off site or site remediation, the loading on to or removal of material from stockpiles or other activities which may disturb materials must only be undertaken during low dust risk wind conditions (one hour average windspeed below7.5 m/s).<br>  ○ Disturbing materials to allow backfilling of the quarry for the purposes of maintaining a gravel separation between the surface and ground water during times of rising groundwater may be undertaken when windspeeds are above 7.5 m/s<br>• No materials may be disturbed when wind speeds are above 7.5 m/s and there is a sensitive receptor located within 250 m in the downwind direction.<br>• Quarrying in Stage 2 within 100 m of the apple orchard boundary may only occur over the months of June to December.<br>• A 3 m high bund to provide a dust screen between the quarry and the orchard located on the northern boundary of Stage 2. Where practical the bund will be built so that it is backed by existing mature trees. | • Adequate water suppression systems must be available at the site to dampen areas that are to be worked prior to any earthworks or material disturbance commencing and shall be used on the site until further earthworks or material disturbance in that area are not required.<br>• Stop quarrying activities which are disturbing materials until the dust source can be controlled and the impact of the dust reduced to that allowed by the consent conditions. |
| Stockpiles (including | • Locate stockpiles as far away as practicable from identified sensitive receptors. | • Further limit the height and slope of stockpiles to reduce wind entrainment. |

| Table 2: Sources of Dust and Tiered Controls to be Employed | | |
|---|---|---|
| **Source of Dust** | **Tier 1 Controls (Routine, must be employed)** | **Tier 2 Controls (Additional, as needed)** |
| placement and removal) | • Orientate stockpiles to maximise wind sheltering as much as possible.<br>• Maintain the height of gravel stockpiles to a practical maximum of 4 m.<br>• Maintain the height of unvegetated topsoil stockpiles to a practical maximum of 3 m.<br>• Load and remove stockpiled material from site as soon as practical.<br>• Stockpiles in the Stage 2 area must not be constructed with 100 m of the apple orchard boundary. | • Vegetation of long-term stockpiles.<br>• Dampen stockpiles if they are producing visible dust emissions.<br>• Stop stockpile disturbance until the dust source can be controlled and the impact of the dust reduced to that allowed by the consent conditions. |
| Soil removal and replacement | • Areas are incrementally backfilled at regular intervals and re-grassed with suitable grass species as soon as practicable to limit potential for dust generation from exposed surfaces. | • Addition of nutrients (fertiliser) to increase fertility and promote and maintain even revegetation.<br>• Soil moisture management via irrigation (if available) to promote and maintain even revegetation.<br>• Stop soil disturbance until the dust source can be controlled and the impact of the dust reduced to that allowed by the consent conditions. |
| Miscellaneous | • Plan site layout so that mobile machinery and dust causing activities are located away from receptors as far as is practicable.<br>• Ensure sufficient water is available on site.<br>• Take account of daily forecast wind speed, wind direction and soil conditions before commencing an operation that has a high dust potential. | • Targeted watering on areas identified as high-risk for dust discharge as a result of visual inspections. |

| Table 2: Sources of Dust and Tiered Controls to be Employed | | |
|---|---|---|
| **Source of Dust** | **Tier 1 Controls (Routine, must be employed)** | **Tier 2 Controls (Additional, as needed)** |
| | • All site machinery must be regularly maintained to ensure optimal operation.<br>• Targeted watering on areas within 250 m of sensitive receptors during high dust risk conditions (see Table 3). | |

# 6.0 Roles and Responsibilities

## 6.1 Site Manager and Staff

The Site Manager has the day-to-day responsibility for implementing the DMMP. The Site Manager has the responsibility to ensure that:

- the conditions of all relevant resource consents are complied with at all times;
- the dust control and mitigation measures and procedures outlined in the DMMP are implemented effectively;
- there are adequate personnel and equipment on site at all times to implement the dust control;
- the meteorological and dust monitoring programmes are carried out as required, including recording of daily observations;
- any complaints received are investigated and resolved as far as practicable; and
- all records are kept and are available to the relevant regulatory authorities.

All personnel working on the Project have responsibility for following the requirements of the air discharge consent conditions and the DMMP and reporting to the Site Manager on these issues.

## 6.2 Staff Training

Successful dust management depends on appropriate actions by site personnel in day-to-day operations of the site. Environmental training for all staff will be undertaken as part of the site induction programme. The environmental induction will include the following information specific to this DMMP:

- Information about the activities that may cause dust discharges within the site with the potential to impact neighbouring areas;
- Consent requirements;
- Dust mitigation procedures;
- Description of dust and meteorological monitoring for the site; and
- Complaints management procedures.

Staff training records will be maintained on site. The records will include:

- Who was trained;
- When the person was trained; and

- General description of training content and whether follow up/refresher courses are required at a later date.

## 7.0 Implementation and Operation of DMMP

The Site Manager is responsible for implementing the DMMP including to:

- Identify key staff responsible for dust management and assign roles;
- Undertake staff training focusing on the objectives, responsibilities and actions defined by the DMMP;
- Establish daily processes and scheduling activities;
- Implement a daily briefing meeting; and
- Undertake regular debriefs and reviews of the DMMP.

The Site Manager is responsible for reviewing the effectiveness of the DMMP and if necessary, revising it to improve management and mitigation measures to reduce any dust impacts.

## 8.0 Environmental Monitoring Programme

### 8.1 Dust Monitoring

Visual monitoring of dust must be undertaken to assess the level of dust emissions on the site and beyond its boundary. The visual monitoring will:

- Identity source(s) of dust (e.g. from heavy machinery, stockpiles, earthworks or material disturbance, etc.);
- Identify any areas of deposited dust from the site on surrounding roads and properties;
- Assess the extent and direction of any dust plumes (e.g. within boundary, cross-boundary, or covering a large extent);
- Identify receptors potentially impacted by the plume (e.g. properties downwind to the northeast);
- Assess offensiveness as high, medium, or low; and
- Assess overall impact as high, medium, or low.

All staff are required to continuously visually monitor activities to identify dust events. The Site Manager or delegate undertakes a site walkover and visual dust monitoring at least once per day, in the early afternoon, to assess the overall effectiveness of the DMMP and assess compliance with the requirements of the resource consent conditions.

Site observations are recorded in a daily log form, an example of which is provided as Appendix B. The daily log forms will be kept for at least 5 years.

Recording relevant inspection results, as well as the conditions of external and internal factors on the log forms, must be used to help assess if control measures are effective and to define appropriate corrective or preventative actions in the event that adverse effects occur.

Should CJ Industries receive four validated dust complaints from surrounding neighbours or council (validated meaning the quarry activities are the confirmed source of dust) within any 12-month period, this DMMP must be revised to incorporate real time dust monitoring. Specific issues to be considered in the updated DMMP include:

- Type of monitor;
- Location of monitor;
- Dust mitigation trigger alerts;
- Responses to dust trigger mitigation alerts; and
- Reporting of dust monitoring data.

## 8.2 Meteorological Monitoring

Monitoring of weather forecasts will be undertaken daily and used to inform the potential need for additional mitigation measures (e.g. in the event that strong winds are forecast).

Before the daily briefing meeting, the Site Manager must obtain the weather forecast for the day and identify whether high dust risk conditions (see Table 3) may occur. If high dust risk conditions are forecast, the Site Manager will highlight this to other on-site staff and instruct whether any additional dust mitigation is to be implemented for that day.

The forecast occurrence of high dust risk conditions shall be noted in the daily log along with any outcomes from the daily briefing meeting.

A meteorological station that will measure wind direction, wind speed, temperature and relative humidity must be set up on site. The location of the meteorological station must be, as far as practical, consistent with the AS/NZS 3580.1.1:2016.

The meteorological station will provide real time data to the site staff. This information will be used to assist with the dust management of the site. The meteorological system must be set up to send email and SMS text alerts to site staff. An alert will be sent when 1-hour average windspeeds exceed 5 m/s which must prompt site staff to carefully monitor dust sources and implement additional mitigation measures if required. An alert will be sent when 1-hour average windspeeds exceed 7.5 m/s, which must prompt site staff to stop work on dust generating activities.

The meteorological data will be archived and be available for reviewing and responding to any dust and odour complaints received by the site staff.

Table 3 shows a summary of the meteorological conditions contributing to different dust risk levels, the associated notifications, and required responses.

**Table 3: Dust Risk Levels, Meteorological Conditions and Responses**

| Dust Risk Level | Wind Speed | Wind Direction (blowing from) | Notification | Response |
|---|---|---|---|---|
| Low | < 5 m/s | All directions | - | - |
| Medium | 5 – 7.5 m/s | | Text & email | Prepare for mitigation actions, visual inspection of dust discharges and implement water application for dust suppression if required |
| High | ≥ 7.5 m/s | | Text & email | Operators to visually identify potentially sensitive receptors within 250 m in downwind direction and to use Tier 1 & Tier 2 dust mitigation measures as appropriate. |

Through use of real-time meteorological data to target dust suppression, combined with the two-tier approach to dust prevention detailed in Section 5.4, dust suppression water application will be carefully targeted. This approach will ensure that the objective of mitigating adverse effects of dust discharges without exceedance of the water take limit can be achieved.

Meteorological data will be logged and archived and will be used in the complaints response procedure (see Section 10.2).

## 8.3 Frequency of Monitoring

Table 4 outlines the frequency of the activities undertaken as part of the monitoring programme.

**Table 4: Monitoring Programme Activities and Frequency**

| Monitoring Activities | Frequency |
|---|---|
| Check weather forecasts for strong winds and rainfall to plan appropriate activities and dust management response (7-day forecasts also available on www.metvuw.com and www.metservice.com). | Daily and as conditions change |
| Visual dust monitoring early afternoon site walkover. | Daily |
| Inspect site access and egress points to ensure dust is being contained to within the site. | Daily |
| Daily log form for visual monitoring of dust. | Daily |
| Inspect watering systems (water cannon, sprinklers, water carts and any other spray system) to ensure equipment is maintained and functioning to effectively dampen exposed areas. | Weekly |
| Inspect dust generating activities (as listed in Section 1.3) to ensure dust emissions are effectively controlled. | Ongoing |
| Monitor dust generating activities and water application rate. | In winds over 7.5 m/s blowing all directions. |

## 8.4 Reporting of Monitoring Programme

The following information must be recorded in a daily log or equivalent system (an example of the type of detail that may comprise the daily log is provided in Appendix B of this DMMP):

- Results of the daily site inspections of visible dust emissions;
- Likely source(s) of any observed dust;
- General weather conditions during the day (i.e., windy, calm, warm, rain etc.);
- The frequency of use of the sprinkler system, water cannon and any water carts (if needed);
- Dust control equipment malfunctions and any remedial action(s) taken;

- Any unusual on-site activities; and
- Records of any complaints or other community feedback regarding the waste transfer and processing activities.

The log forms will be collated and stored on site and will be made available to TDC staff upon request.

## 9.0 DMMP Review

The DMMP will be reviewed and updated, with the necessary approval, throughout the course of the quarrying activity timeline to reflect changes in dust management techniques, staging of excavation and fill areas, or changes to the receiving environment. Approval from the TDC will be required for any relevant revisions of a material nature for the DMMP. The review will take into consideration:

- Any significant changes to dust management activities or methods;
- Key changes to roles and responsibilities;
- Changes in industry best practice option for dust controls;
- Results of inspection and maintenance programmes, logs of incidents, corrective actions, internal or external assessments; and
- The outcome of investigations into discharges of dust/odour/air pollutants.

Reasons for making changes to the DMMP will be documented and version tracking will be recorded in the 'Document Control' register at the start of this report. A copy of the original DMMP document and subsequent versions will be kept for the project records and marked as obsolete. Each new/updated version of the DMMP documentation will be issued with a version number and date.

## 10.0 Complaints

### 10.1 Receipt Procedure

CJ Industries acknowledges the importance of ensuring that any complaints are recorded and promptly investigated to identify and resolve the cause of the complaint. Requirements and procedures for complaints are detailed below.

The Site Manager is responsible for response to and follow up all complaints regarding dust or any other air quality matters, and to ensure that suitable trained personnel are available to respond to complaints at all times.

Following the receipt of a complaint the Site Manager must, as soon as is possible, respond as follows:

- Undertake a site inspection. Note all dust-producing activities taking place and the mitigation methods being used, take photographs for reference as appropriate. If the complaint was related to an event in the recent past, where possible, note any dust-producing activities taking place at that time and review on site weather records and daily log;
- Initiate any remedial action necessary, which may include a stop work period;
- Note the time and date of the complaint/s and (unless the complainant refuses to provide them) the identity and contact details of the complainant. Ask the complainant to describe the discharge:
  - Is it constant or intermittent?
  - How long has it been going on for?
  - Is it worse at any time of day?
  - Does it come from an identifiable source?
- Review meteorological data from the on-site station;
- Note if the complaint has been referred to the TDC;
- As soon as possible (within 1 hour, where practicable), visit the area from where the complaint originated to ascertain if dust is still a problem;
- If it becomes apparent that there may be a source of dust other than the quarry activities causing the complaint, it is important to verify this, for example, photograph the source and emissions and/or make notes;
- As soon as possible after initial investigations have been completed, contact the complainant to explain any problems found and remedial actions taken; and
- If necessary, update any relevant procedures to prevent any recurrence of problems and record any remedial action taken.

## 10.2 Response Procedure

Following the receipt of the complaint, the following actions will be undertaken:

- Fill out the appropriate complaint form, attached as Appendix C to this DMMP;
- Advise site personnel as soon as is practicable that a complaint has been received, what the findings of the investigation were, and any remedial action taken; and

- Call or visit the complainant to update them on the actions taken and to check that the issue has been resolved.

## 11.0 Emergency Contacts

Internal contacts for the site in the event of an emergency of other problems are provided in Table 5 and Table 6 below.

**Table 5: Internal Environmental Emergency Contact Details**

| Role | Name | Organisation | Phone |
|---|---|---|---|
| Site Manager | TBC | CJ Industries | TBC |
| Environmental and Consents Officer | TBC | CJ Industries | TBC |
| After Hours Contact | TBC | TBC | TBC |

**Table 6: External Environmental Emergency Contact Details**

| Role | Name | Organisation | Phone | Email |
|---|---|---|---|---|
| Consents Compliance Team | TBC | Tasman District Council | TBC | TBC |

## 12.0 Annual Report

CJ Industries must prepare an annual monitoring report for the period of 1 July to 30 June and provide to the TDC on request. The annual monitoring report shall include but not be limited to:

1. A record of any maintenance of the meteorological monitoring system undertaken over the proceeding 12-month period.
2. The annual complaints record and any investigation, remediation or additional monitoring undertaken as a result of the complaint.

# Appendix A: Daily Log Form

***Daily Dust Inspection Log***

Date: _____ Time: _____

Inspection by: _____

Current weather conditions (e.g. sunny, cloudy, rainy): _____

Wind speed and direction (e.g. light, moderate, strong): _____

Weather forecast for next 24 hours (e.g. rainy, windy): _____

Area(s) inspected: _____

| Scope of Inspection | Circle Relevant Item | Comments |
|---|---|---|
| Is there visible dust from site work activities, stockpiles, earthworks areas, or material disturbance areas or site access roads? | Y N N/A | |
| Are unsealed surfaces dry and need spraying with water? | Y N N/A | |
| Are any exposed earthworks or or material disturbance areas visibly dry and need water spray? | Y N N/A | |
| Stockpiles covered/stabilised where needed? | Y N N/A | |
| Are there any signs of dust going off site as a result of site activities?<br>[Inspect land adjacent to the site exits and adjoining roads for the presence of dust deposits.] | Y N N/A | |
| If wind speeds are strong or forecast to be strong (over 5 m/s) are additional inspection and mitigation measures being put in place? (e.g. increase water application, restrictions on dusty activities) | Y N N/A | |
| Are watering systems (e.g. sprinklers, water carts, wheel wash) operating effectively to minimise dust? | Y N N/A | |
| Are trucks carrying loose (uncovered) material entering or leaving the site? | Y N N/A | |
| How frequently has water sprinkling/spraying been used today (i.e. | | |

| Scope of Inspection | Circle Relevant Item | Comments |
|---|---|---|
| number of sprinklers, cannons, time, area watered) | | |
| Note and dust control equipment malfunctions (and remedial actions taken as appropriate) | | |
| Any unusual on-site activities today? | | |
| Complaints received / community feedback | | |

# Appendix B: Complaints Records

# DUST COMPLAINT & ASSESSMENT FORM

## PART A: Complaint Details

Date: Time:

Complaint Received By:

Name:

Address:

Contact phone numbers:

Possible source:

Anonymous: Y/N

Is dust occurring now?

Complaint details (include impacts/effects experienced by complainant:

## PART B: Complainant Location Assessment

Date: Time:

Assessors Name:

Person spoken to at complaint location:

Reason for investigation: COMPLAINT/PROACTIVE

Complaint details (include impacts/effects experienced by complainant:

**INITIAL IMPRESSIONS:**

Type of dust

Time of the intial impression:

Any visible dust deposits: Y/N

Plume width (if known):

**VISIBLE DUST DEPOSITS**

Describe approximate quantites and extent

When was surface last cleaned?

Frequency of cleaning:

Describe the appearance of the deposits:

| | | | |
|---|---|---|---|
| Colour | | Any odour | |
| Shape | | Water soluble | |
| Size | | Other | |
| Crystalline or powdery | | | |
| Hard, soft | | | |

**Weather Data (see over)**

| |
|---|
| Wind direction: |
| Wind velocity: |
| Cloud cover: |
| Temperature: |
| Rainfall in past 24 hrs: |

Photos Taken: Y/N Samples taken Y/N

Diagram/description of where photos were taken.

Diagram/description of where samples were taken:

Sample collection: Use a small paintbrush (clean) to sweep samples of the dust onto a sheet of paper and then into a clean plastic bag. At least half a teaspoonful will be required for analysis. Lesser amounts may be colected on strips of clear cellotape, which should then be stuck onto sheets of clear plastic to preserve the samples. Label all samples and record date, time, location, etc on a separate sheet of paper if required.

***Based on your assessment on this occasion, which of the following applies:***

- ☐ I did not find any dust
- ☐ I did find dust and consider it would not be objectionable at any location for any duration or frequency
- ☐ I did find dust and consider it would be objectionable if it became continuous
- ☐ I did find dust and consider it would be objectionable if it occurred on a regular or frequent basis
- ☐ I did detect dust and consider it to be objectionable even in periods of short duration.

**FINAL CHECKLIST**

- ☐ Upwind assessment completed. Record details below. If not, detail reason: _____
- ☐ Aerial photo/sketch showing location of assessment and upwind assessment attached
- ☐ Are there potential witness statements to obtain YES/NO

**REMARKS**

## PART C: Off-site dust and 360° assessment

Assess the dust upwind of the suspected source and if possible conduct a 360° sweep around the source assessing the odour at different points

**OTHER POTENTIAL SOURCES** **Time:** _____

Check for road works, ploughing, construction activities, burn-offs, unsealed roads, unsealed sites

**Site 1:**

Wind direction: Wind strength: Wind stability: GPS Loc:

Visible dust: Desciption of dust

Comment:

**Site 2:**

Wind direction: Wind strength: Wind stability: GPS Loc:

Visible dust: Desciption of dust:

Comment:

**Site 3:**

Wind direction: Wind strength: Wind stability: GPS Loc:

Visible dust: Description of dust:

Comment:

**Diagram of Suspected source, dust assessment sites and dust plume:**

N

**COMMENTS**

## PART D: Source On-site Investigation

If source of dust identified, visit site, identify yourself and show warrant. Explain the findings of your investigation to staff.

Date: Time: Source Identified:

Staff spoken to:: Position:

Staff contact phone number:

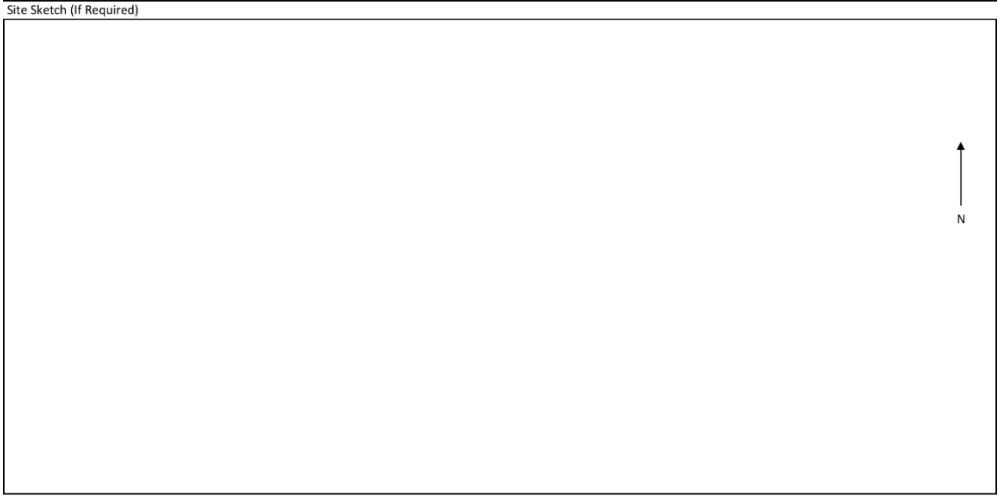
Current site operations:

Reason/explanation given for dust

Other Comments

Monitoring results/samples/other records

Site Sketch (If Required)




SIGNED BY ASSESSOR _____ DATE: _____

## PART E: Dust Reference Sheet

**Definitions**

**Objectionable** The term objectionable is the term used in consent conditions and is an ingredient of any subsequent enforcement action. It is a subjective term and is open to interpretation. There is guidance from case law which defines objectionable as: unpleasant or offensive or repugnant; open to objection or undesirable or disapproved of; noxious or dangerous. A test will be applied by the court that the term objectionable will be as it applies to "the minds of a significant cross section of reasonable people in the community". The assessor must bear this test in mind when completing their assessment.

**Frequency** How often an individual is exposed to dust nuisance events

**Intensity** As indicated by dust quantity/concentration and the degree of nuisance

**Duration** The length of the particular dust event

**Character** How objectionable the dust is, having regard to the nature of the dust

**Land Beaufort Wind Scale**

| B. No. | Description | How to Recognise |
|---|---|---|
| 0 | Calm | Smoke rises straight up |
| 1 | Light Air | Smoke drifts |
| 2 | Light Breeze | Wind felt on face; leaves rustle |
| 3 | Gentle Breeze | Flags flap; twigs move all the time |
| 4 | Moderate Breeze | Papers blow; small branches move |
| 5 | Fresh Breeze | Small trees sway |
| 6 | Strong Breeze | Large branches move, wind whistles |
| 7 | Near Gale | Whole trees sway |

**Measuring Temperature**

Use descriptions below or obtain local meterological data, especially temperature from websites such as www.metservice.govt.nz

| |
|---|
| Cold |
| Cool |
| Mild |
| Warm |
| Hot |

**Measuring Cloud Cover**

| Okta No. | Description |
|---|---|
| 0 | Clear Sky |
| 1 | Sunny |
| 2 | Mostly sunny |
| 3 | |
| 4 | Half the sky is covered in cloud |
| 5 | |
| 6 | Mostly cloudy |
| 7 | Considerable cloudiness |
| 8 | Overcast |
| F | Fog / Mist |

During the day the sun is always shining, so the amount of sunshine reaching the ground depends on the amount and duration of any cloud cover. The amount of cloud cover is usually given in units called oktas. Each okta represents one eighth of the sky covered by cloud.