

*SOL Quarries
Joint Hearing
14 DEC 2020*

**Before the Decision Makers appointed by the
Canterbury Regional Council**

IN THE MATTER OF The Resource
Management Act 1991

AND

IN THE MATTER OF Resource Consent
Application CRC193563,
CRC193564 and
CRC193773 by Sol
Quarries Limited for a
land-use consent to
undertake quarrying
activities (extraction and
cleanfilling); discharge
permit to discharge
contaminants to air; and a
discharge permit to
discharge contaminants
(cleanfill) onto and into
land where they may
enter water.

Section 42A Officer's Report – Supplementary Report of Richard Leslie Chilton
Date of Hearing: 7 to 9 December 2020

SUMMARY OF SUPPLEMENTARY REPORT

1. I prepared the supplementary report to the Section 42A report detailing my technical review of air discharges associated with the application by SOL Quarries Limited (SOL) to extend its existing quarry.
2. My conclusions at the time of preparing my supplementary report are summarised as follows:
 - a. The proposed quarry extension will move closer to sensitive locations located along Conservators Road. However, an important consideration in my opinion is that the minimum separation distance will be maintained at:
 - i. 250 m to the notional boundary of the nearest house to where excavation will occur; and
 - ii. 500 m to the location of aggregate processingThese are distances are significant in my view.
 - b. Because of the reduced separation distances that will occur due to the existing quarry operation moving towards Conservators Road, there has been a greater focus on the adequacy of dust control measures, and particularly on whether there is sufficient water available for dust suppression.
 - c. Overall, I consider that the mitigation measures, if implemented as proposed and monitored for their effectiveness, should ensure dust effects

are kept to a low level. This is subject to additional water being sourced. At the time of preparing my supplementary report this was based on the need to obtain water from the Paparua Water Race Scheme (PWRC). I understand from the evidence of Mr Bluett and Mr Hedley that a further water take has since been secured for the site. Subject to that water supply being confirmed as additional to the permitted take limit, and being available for the purpose of dust suppression, I am satisfied that there will be sufficient water for dust suppression. I note that there is one area of disagreement in relation to the use of water for dust suppression:

- i. At paragraph 6.4 of Mr Bluett's evidence, he states that dampening of stockpiles is impractical for SOL as it can lower the quality of the product. Instead, Mr Bluett recommends that "Any stockpiles emitting significant amounts of dust be dampened with water". In my experience, routinely dampening stockpiles with water is standard practice at quarry operations. I consider it practicable to implement and I am not aware of it being an issue at other quarry sites in terms of product quality. Further, I do not consider it good practice to allow significant dust emissions from a source to occur prior to implementing measures to control those emissions.
- d. Regarding potential health effects, this is related to exposure of the fine fraction of particles (PM_{10} and $PM_{2.5}$) as well as exposure to respirable crystalline silica (RCS). In my opinion, the effects of these can be reasonably inferred from the Yaldhurst Study (Mote 2018), which was:
 - i. for monitoring locations much closer than is the case for this application;
 - ii. for quarry activities that are significantly larger and more expansive than those proposed by SOL;
 - iii. for monitoring locations that surrounded the quarry zone (not just downwind in one direction).

Based on the findings of the Yaldhurst Study and given the proposed mitigation for SOL, I agree with the Applicant that potential exposure to fine particulate and RCS will be within relevant guidelines and standards to protect human health.

3. I would like to acknowledge a typographical error in my supplementary report at Paragraph 25, where I incorrectly refer to written approval having been obtained for the residence located at 119 Conservators Road. This property is that of the Emmersons and Ms Kibblewhite (submitters). I had meant to refer to the property at 133 Conservators Road where written approval had been obtained. This error does not change the conclusion that I reach.

MATTER ARISING DURING HEARING PROCEEDINGS

4. In response to questions from the Commissioners, Mr Brokenshire from Waterforce commented that the amount of water required for dust suppression was determined by T+T. I would like to clarify that T+T's involvement has been to review the information supplied by the applicant and that any reliance on the amount of water required should be based on the information provided by the Applicant and its consultants PDP.
5. Regarding the mitigation measures and conditions arising, I provide the following comments:

- a. Although the use of a K-Line irrigation system is proposed as the means for applying water for dust suppression, I note that the same effect could be readily achieved during operating hours using a water cart. Furthermore, the use of a watercart during periods when the K-Line system is not in use is a reasonable alternative method. A key benefit of the K-Line method proposed by the Applicant is its ability to be operated outside of operating hours to suppress dust during periods when there is a high risk of wind erosion (i.e., strong dry winds).
 - b. In terms of monitoring requirements and trigger thresholds that would be used to govern the automated use of the K-Line system outside of operating hours I note the following:
 - i. The current set of conditions include provision for both wind speed and PM₁₀ concentration triggers. In practice either method would be sufficient in my view.
 - ii. Any such triggers should focus on conditions when the winds are from the quarry towards the sensitive locations along Conservators Road. Other wind conditions are less important in my view given the significant separation distances to sensitive locations in other wind conditions.
 - iii. The Commissioners have sought clarification regarding the adaptive management framework anticipated by the air quality / dust management plan. In my opinion, this is achieved using real-time monitoring, trigger alerts, and a reactive response framework to address elevated dust emissions to minimise effects.
 - c. I am familiar with the PM₁₀ triggers as currently set out in the draft set of conditions, as these were adopted in two other recent quarry applications (Fulton Hogan's proposed Roydon Quarry near Templeton and the extension to Road Metals Yaldhurst quarry). I note that the PM₁₀ trigger concentration values under consideration (55 and 65 µg/m³ as a 1-hour average) are substantially lower than the values given in the Ministry for the Environment's Good Practice Guide for Managing Dust (1-hour average of 150 µg/m³). In my opinion, this illustrates that the concentration trigger limits under consideration are (appropriately) conservatively low.
6. The Commissioners have asked questions of Mr Bluett regarding the "*lived experience*" of the residents in terms of the effects of dust and how that compares with his expectation. These questions are relevant to a concern that arose during the Environment Court proceedings for the application by Harewood Gravels. In that case, the Court noted a paucity of monitoring data and favoured the evidence of the residents in that instance. Since that time, the Yaldhurst monitoring study has been carried out, including for a rural background location. More recently additional monitoring has been undertaken by SOL, as summarised by Mr Bluett. In my opinion, the "*Lived experience*" reported by the neighbours does not reconcile with the monitoring results that suggest a low potential for effects when the quarries are being well managed. My opinion on this takes into account the following:
- a. The monitoring undertaken at the background site as part of the Yaldhurst Study;
 - b. The monitoring undertaken by SOL and presented by Mr Bluett in his evidence in chief, which now I understand was for PM₁₀ and not TSP as originally indicated in Mr Bluett's evidence-in-chief;

- c. The significant separation distances to existing consented quarry and clean fill operations (currently greater than 700 m). This is a much greater distance than recommended in various separation distance guidelines that I am aware of for gravel quarries.

Richard Leslie Chilton
8 December 2020