IN THE MATTER of the Resource Management Act 1991

AND

IN THE MATTER of applications by Waka Kotahi NZ Transport Agency (Waka Kotahi) to Manawatū-Whanganui Regional Council, Greater Wellington Regional Council for resource consents, and notices of requirement to Horowhenua District Council and Kāpiti Coast District Council, to enable the construction, operation and maintenance of a new state highway, shared use path and associated infrastructure, between Taylors Road (to the north of Ōtaki) and Stage Highway 1 north of Levin.

SECTION 87F and 198D REPORT OF PETER WARWICK STACEY

AIR QUALITY

MANAWATŪ-WHANGANUI REGIONAL COUNCIL, GREATER WELLINGTON REGIONAL COUNCIL, HOROWHENUA DISTRICT COUNCIL AND KĀPITI COAST DISTRICT COUNCIL

28 APRIL 2023

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A. OUTLINE OF REPORT

1. This report, required by section 87F and 198D of the Resource Management Act 1991 (“**RMA**”), addresses the potential effects of discharges to air arising from the activities the subject of resource consent applications lodged with Manawatū-Whanganui Regional Council ("**Horizons**") and Greater Wellington Regional Council ("**GWRC**"), and notices of requirement ("**NoRs**") lodged with Horowhenua District Council and Kāpiti Coast District Council (the "**District Councils**"), respectively.

2. The NoRs and resource consents applied for by Waka Kotahi NZ Transport Agency ("**Waka Kotahi**") are required to authorise the construction, operation and maintenance and improvement of a new state highway, shared use path and associated infrastructure between Taylors Road (to the north of Ōtaki) and State Highway 1 north of Levin. The project is known as the Ōtaki to North of Levin Highway Project (the "**Ō2NL Project**").

3. In preparing this report, I have relied on the expert advice from the following experts advising Horizons and GWRC:

   (a) James Lambie – Terrestrial Ecology, and

   (b) Sarah Newall – Contaminated Land Discharges.

4. While this report is prepared for the purposes of sections 87F and 198D of the RMA, I have in accordance with sections 42A(1A) and (1B), attempted to minimise the repetition of information included in the application and where I have considered it appropriate, adopt that information. For completeness, I note that I refer to the four local authorities collectively as the "**regulatory authorities"** within my report.

B. QUALIFICATIONS / EXPERIENCE

5. My name is Peter Warwick Stacey. I am the Managing Director at Air Quality Consulting NZ Limited. I have been in that position since December 2021.

6. I hold a Bachelor of Science from The University of Auckland and a Graduate Diploma in Business from Auckland University of Technology.

7. I am a Member of the Clean Air Society of Australia and New Zealand and a Certified Air Quality Professional.

8. I have more than 20 years of experience assessing air discharges from a wide range of activities. My work experience relevant to the applications includes:

   (a) Expert witness for Agrifeeds, Glencore and ADM NZ Limited (s127 parties) as part of an appeal to the Environment Court regarding Bay of Plenty Regional Council's Plan Change 13. As part of this project, I undertook an independent assessment of the dust effects from bulk handling of stock food material. This information was then presented as evidence before the Court (2020-2022).

   (b) Expert witness for Waikato Regional Council as part of a direct referral application to the Environment Court in relation to Waka Kotahi's State Highway ("**SH**") 1 / SH29 Intersection Upgrade Project at Piarere. As part of this work, I reviewed Waka Kotahi's air quality assessment and prepared and presented evidence before the Court (2022).

   (c) Air Quality Assessment for Waka Kotahi in relation to the Peka Peka to Ōtaki ("**PP2Ō")** expressway project. As part of this project, I was responsible for undertaking atmospheric dispersion modelling of transport emissions and reporting the findings (2012-2014).

   (d) Expert witness for Doug's Opua Boatyard, presenting evidence before the Environment Court as part of an appeal against Northland Regional Council's decision to decline to grant an air discharge consent. As part of this work, I assessed dust and odour emissions from boatyard activities and determined the potential effects on the adjacent reserve, public walkway and nearby residential properties (2019-2022).

(e) Air quality delivery work plans for various stages of the City Rail Link works, including the design and implementation of a monitoring programme to determine whether works are causing significant nuisance dust effects (2018-2020).

(f) Air quality assessment of emissions from Ballance Agri-Nutrient's fertiliser manufacturing plant in Mount Maunganui. This project required a detailed study of emissions using atmospheric dispersion modelling and empirical analysis of monitoring results (2015-2019).

(g) Air quality assessment for Wellington International Airport's Runway Extension Project and development of appropriate dust mitigation measures (2017).

(h) Air quality assessment to support the application to expand the Brookby Quarry, where fugitive dust emissions were the primary pollutant of concern (2013-2014).

9. I am skilled in using a range of atmospheric dispersion models, such as CALPUFF/CALMET, TAPM, AERMOD, GRAL, CALROADS, LandGEM and AUSPLUME) and have applied these skills to air quality assessments for a broad range of clients.

10. In addition to the above, since 2010 (13 years), I have been responsible for obtaining air discharge consents for a large number of different activities within New Zealand.

11. I have been engaged by the regulatory authorities to provide air quality expertise in reviewing the NoRs and resource consent applications prepared by Waka Kotahi in relation to the construction and operation of the Ō2NL Project.

12. I am familiar with the site and surrounding area. I visited the site along with other Horizons and GWRC experts on 3 August 2021. I have also visited sections of the project alignment as part of my previous involvement with the PP2Ō Project.

C. CODE OF CONDUCT

13. I confirm that I have read and agree to comply with the Code of Conduct for Expert Witnesses contained in the Environment Court Practice Note 2023. I confirm that I have stated the reasons for my opinions I express in this report, and considered all the material facts that I am aware of that might alter or detract from those opinions.

14. I have addressed the following issues in this report:

    (a) The potential air quality effects on the surrounding environment relating to discharges from the construction and operation of the Ō2NL Project;

    (b) A review of the air quality assessment provided by Waka Kotahi and a summation of the effects of the proposal;

    (c) A review and provision of amendments to the resource consent conditions proposed by Waka Kotahi; and

    (d) Submissions as they relate to issues concerning air quality.

15. Statements expressed in this report are made within the scope of my expertise, except where I rely on the technical advice which I have referred to in paragraph 3 of this report.

16. I have all the information necessary to assess the application within the scope of my expertise and am not aware of any gaps in the information or my knowledge.

D. EXECUTIVE SUMMARY

17. The key conclusions of my report include:

Effects from Construction Activities

18. There are approximately 400 properties located within 200 m of the Ō2NL Project Area that have the potential to be affected by dust from construction activities.

19. Properties between 50m and 150m of the Ō2NL Project area have the greatest potential to be affected by dust, if the dust control measures recommended in the Air Quality Assessment are not implemented. For properties within 50m of Ō2NL Project areas, even with the use of these dust control measures there is the potential that residual dust effects at these properties will be such that residents are likely to notice increased dust levels and potentially be annoyed. Without understanding the proposed dust control measures for the construction phase of the Ō2NL Project, it is not possible to conclude that implementation of the Dust Management Plan will effectively mitigate the potential dust effects on the nearby properties.

20. To ensure certainty around the level of effect anticipated by the Air Quality Assessment (and therefore application), I am of the opinion that the conditions should be strengthened so as to provide for an appropriate level of air quality effect(s) across all phases of the Ō2NL Project. Consequently, I have recommended a number of changes to the resource consent conditions. In my view, these changes will provide a greater level of certainty that adverse effects on the environment can be mitigated. These recommendations include:

    (a) A requirement to undertake dust monitoring at high-risk locations (i.e. within 50m of dwellings or crops sensitive to dust,[1] where significant dust could be generated from the Ō2NL Project).

    (b) Dust monitoring triggers used to instigate investigations and implement contingency measures.

    (c) A requirement to upgrade roof-collected drinking water systems for properties within 200m of the Project Area.

    (d) Development of a procedure to undertake regular visual dust inspections and identify triggers for the implementation of appropriate remediation activities, such as regular house cleaning, laundry services etc.

[1] I consider that "sensitive crops" be defined as either: 1) crops where dust could adversely affect pollination or 2) crops that cannot be easily 'washed' and where the presence of visible dust is likely to adversely affect their market value when sold.

Effects from the implementation of the Ō2NL Project

21. It is estimated that there will be a reduction in concentrations of air contaminants as a result of the operational stage of the Ō2NL Project for most locations. For areas within 200m of the Ō2NL Project, there is predicted to be a relatively small increase in the ambient concentration of air pollutants as the Ō2NL Project moves closer to receptors. The concentrations of air pollutants at these locations are predicted to be below the relevant human health air quality assessment criteria, although concentrations are, however, generally predicted to reflect minor increases in areas located within 200m of the Ō2NL Project.

22. No mitigation measures have been proposed as part of the implementation of the Ō2NL Project and I agree that mitigation is not necessary.

23. Overall, I consider that the effects from vehicle emissions associated with the operation of the Ō2NL Project will have a less than minor effect.

E. SCOPE OF REPORT

24. My report focuses only on issues related to the potential effects associated with discharges to air and the necessary control measures to minimise the effects of these discharges. It covers the following topics:

    (a) Project Background;

    (b) Receiving Environment;

    (c) Regulatory Framework;

    (d) Assessment of the Potential Effects from the Ō2NL Project;

    (e) Draft Construction Air Quality Management Plan;

    (f) Resource Consent Conditions; and

    (g) Submissions.

25. I note that the management of discharges of contaminants to air associated with the construction and operation of the Ō2NL Project will

be subject to the provisions of the RMA. The Manawatū-Whanganui One Plan ("**One Plan**") and the Greater Wellington Proposed Natural Resources Plan (**"PNRP"**) set out the objectives and policies of Horizons and GWRC in relation to discharges to air. Similarly, the Kapiti Coast District Plan and Horowhenua District Plan contain provisions regarding the management of dust and odour beyond the boundary. Mr Curtis describes the plan requirements in his Air Quality Assessment for Waka Kotahi.[2] Mr St Clair and Ms Anderson address these requirements for the regulatory authorities in their s87F and s198D reports.

F. PROJECT BACKGROUND

26. The Ō2NL Project involves the construction, operation, use, maintenance, and improvement of approximately 24 kilometres of new four-lane median divided state highway (two lanes in each direction) and a Shared Use Path ("**SUP**") between Taylors Road, Ōtaki (and PP2Ō) and SH1 north of Levin.

27. Mr Curtis from Pattle Delamore Partners Limited, has prepared an air quality technical assessment for the Ō2NL Project (the **"Air Quality Assessment"**), which assesses the potential for effects associated with discharge to air. The Air Quality Assessment also includes a range of recommended measures to mitigate the effects of the air discharges.

28. The Air Quality Assessment provides a comprehensive assessment of the potential effects from the following aspects of the project, which include:

    (a) Discharges (primarily dust) from construction activities; and

    (b) Discharges from vehicles once the project is operational, including nitrogen dioxide ("**NO_2**"), carbon monoxide ("**CO**"), volatile organic compounds ("**VOCs**") such as benzene, and particulate matter in different size fractions – e.g. PM_{10} and $PM_{2.5}$.

[2] At paragraphs 92 to 107.

29. I have also reviewed and relied on the following information from Waka Kotahi:

(a) Ō2NL Project, Volume II - Notices of Requirement for a Designation and Application for Resource Consents: Supporting Information and Assessment of Effects on the Environment, 1 November 2022 ("**AEE**").

(b) Ōtaki to North of Levin Highway Project Drawings Set.

(c) Ō2NL Project – Response to request for additional information pursuant to section 92 of the Resource Management Act 1991, 23 December 2022 (the "**Section 92 Response**").

30. My review of the NoRs and resource consent applications primarily focuses on the Air Quality Assessment and the conditions proposed by Waka Kotahi. Together, they provide all of the necessary information to assess air discharges associated with the Ō2NL Project and determine the potential for adverse effects.

G. RECEIVING ENVIRONMENT

31. The receiving environment is well described in the Air Quality Assessment.[3] This description includes information on the surrounding land use, topography, meteorology and existing air quality. Having reviewed this information, I consider Mr Curtis has appropriately characterised the existing environment for the purposes of informing the air quality assessment.

32. Regarding the existing air quality, I agree with Mr Curtis' conclusion that for some of the pollutants, the estimation of ambient concentrations is likely to be conservative, i.e. an overestimate of actual concentrations.[4] This provides for a conservative baseline to assess the change in air quality associated with the Ō2NL Project.

33. Sensitive receptors have been defined based on the definition provided in the One Plan (Policy 15-2), being a location where people or

[3] At paragraphs 108 to 142.
[4] At paragraphs 138 and 141.

surroundings may be particularly sensitive to the effects of air pollution. This definition is also consistent with the guidance provided in the Ministry for the Environment ("**MfE**") Good Practice Guide for assessing discharges to air from industry ("**MfE GPG Industry**") which is typically adopted when undertaking air quality assessments in New Zealand.[5]

34. In my opinion, Mr Curtis has appropriately captured within his assessment all of the receptors within 200m of the designation that fall under the One Plan and MfE GPG Industry definition. This includes the location of a number of submitters on the application in relation to air quality, including the proposed Tara-Ika residential development and locations of heritage value, such as the Prouse Homestead.

35. I also agree that it is appropriate to only include receptors within 200m of the designation boundary as effects beyond this distance are unlikely. Not only will nuisance dust settle out of the air within this distance, but mitigation is also proposed to be implemented to reduce dust discharges.

H. REGULATORY FRAMEWORK

36. The One Plan and the PNRP include guidelines for a number of air pollutants relevant to this project. The guidelines essentially reflect those set out in the National Environmental Standards for Air Quality ("**NES-AQ**"), MfE Ambient Air Quality Guidelines (**"NZAAQG**") and World Health Organisation Air Quality Guidelines. The standards/guidelines have been reviewed and adopted as assessment criteria in Mr Curtis' assessment in the order of priority recommended in MfE GPG Industry.

37. In addition to these regional guidelines, there are the following regional standards/objectives that are relevant to the Ō2NL Project:

    (a) One Plan – Table C.3: In relation to dust, *"a discharge must not cause any noxious, offensive or objectionable dust beyond the property boundary."*

[5] Ministry for the Environment Good Practice Guide for Assessing Discharges to Air from Industry, November 2016.

(b) PNRP – Objective O41 *"The adverse effects of odour, smoke and dust on amenity values and people's wellbeing are minimised".*

38. In terms of the One Plan standard, I consider that providing concentrations of PM_{10} and $PM_{2.5}$ associated with the Ō2NL Project do not cause the relevant ambient air quality criteria to be exceeded and that dust discharges do not cause nuisance effects (i.e. soiling effects on properties), therefore, this standard will be met.

39. To comply with the PNRP objective, air discharges would also need to comply with the ambient air quality assessment criteria identified in Mr Curtis' assessment and not cause nuisance effects.

40. In my view, the requirements of the One Plan and PNRP are captured by proposed resource consent condition, RAQ1(a). This condition provides:

> Discharges to air from works authorised by these resource consents must not cause noxious, dangerous, offensive or objectionable effects at any point beyond the boundary of the Project Area.

41. I note that the "Project Area" is defined as *"the area within the boundaries of the proposed designations and immediate surrounds",* which is consistent with other similar projects. In my view, this is appropriate to describe the Ō2NL Project boundary.

42. The Horowhenua District Plan and Kapiti Coast District Plan contain a variety of policies and objectives in relation to air quality. The following are of relevance to the Ō2NL Project:

(a) Kāpiti Coast District Plan

Relevant Objective: DO-O14: Access and Transport

"To ensure that the transport system in the District:

…

4) avoids, remedies or mitigates adverse effects on land uses;"

Relevant Policy: TR-P4 Effects of Transport on Land Use/Development

"The potential adverse effects of developments, operation, maintenance and upgrading of the transport network on land use and development will be avoided, remediated or mitigated by:

…

2) Avoiding the significant adverse effects of earthworks associated with the transport network;

3) Ensuring that the development will:

a) Minimise degradation of amenity values;

…

h) Avoid unacceptable levels of emissions to air"

Relevant Policy: EW-P1: Earthworks

"Earthworks activities excluding extractive industries, the removal and replacement of underground storage tanks, and earthworks defined in and regulated by the NESPF will:

4) be managed to ensure adverse effects on natural landforms, residential amenity values and rural character values are remedied or mitigated."

(b) Horowhenua District Council District Plan

Relevant Objective: Land Transport – Chapter 10 - 10.2.1 Managing Effects of Transport Infrastructure

"*To provide for a land transport network that is safe, convenient and efficient, and which avoids, remedies or mitigates the adverse effects to maintain the health and safety of people and communities, and the amenity and character of the environment."*

Relevant Policy: Land Transport – Chapter 10 Policy 10.2.2

"Require all extensions and upgrades to the land transport infrastructure, including roads, to avoid, remedy, or mitigate any adverse effects on the natural and physical resources, sensitive areas, and amenity and landscape values of the District."

43. Similar to my approach to the regional plan requirements, I consider that the district planning objectives and policies will be met if compliance with RAQ1(a) can be achieved, with the definition of effects in RAQ1(a) sufficiently broad to cover aspects such as 'smoke' and protects effects on 'amenity' and 'character' values. Methods for, and the feasibility of, achieving compliance with RAQ1(a) are discussed further below.

I. ASSESSMENT OF THE POTENTIAL EFFECTS FROM THE Ō2NL PROJECT

44. The key findings of the Air Quality Assessment are summarised below.

Construction

45. The primary potential air discharge from the construction of the Ō2NL Project will be dust. Specifically, dust has the potential to be generated from the following sources:

(a) stripping and stockpiling of topsoil;

(b) excavation of cut material;

(c) placement of fill;

(d) stockpiling of soil/cut material;

(e) material supply sites and stockpiling of sand and aggregate;

(f) traffic movements on the haul roads; and

(g) rehabilitation of completed areas.

46. Overall, Mr Curtis has determined that the Ō2NL Project has the potential to cause nuisance dust emissions over a wide area due to the scale of earthworks required and their spatial extent. Key findings from his assessment include:

(a) The receiving environment is likely to have a high sensitivity to dust-soiling effects. This classification is due to the relatively large number of people close to the proposed alignment (as outlined in Table C.22 of the Air Quality Assessment).[6]

(b) There are approximately 400 properties determined to be within 200m of the designation boundary. Mr Curtis' assessment has been undertaken on the basis that Waka Kotahi will acquire all properties within the designations.

(c) Properties beyond 200m of the designation boundary are unlikely to experience any construction dust-related nuisance as the dust settles within this distance.

(d) Properties within 200m of the designation boundary have the potential to be affected by construction dust, with the probability of being affected increasing as the distance from the designation boundary decreases.

(e) Properties between 50–200m from the designation boundary are unlikely to experience dust nuisance effects if the mitigation measures recommended are implemented.

(f) Approximately 130 properties could be located within 50m of the proposed designation boundary, and unmitigated dust discharges at these properties could result in nuisance effects that have the potential to be considered offensive or objectionable. The recommended mitigations are likely to reduce these effects, however, they are still likely to be more than minor. The assumed number of properties within 50m of dust-generating activities is considered "*highly conservative*" by Mr Curtis, as he notes that it does not account for the distance between construction works and the designation boundary.[7]

(g) Mr Curtis proposes that best practice mitigation measures will be used to control dust as proposed via resource consent conditions and a Construction Air Quality Management Plan ("**CAQMP**"),

[6] Technical Assessment C – Air Quality, Table C.22 (page 56).
[7] Technical Assessment C – Air Quality, paragraph 159.

which will reduce effects on properties within 50m. However, despite these measures, Mr Curtis concludes it is likely that the residual dust effects at these properties will be such that residents are likely to notice increased dust levels and potentially be annoyed.

(h) For the 270 properties (approximately) located more than 50m (but less than 200m) from the designation boundary, the unmitigated dust nuisance effects are unlikely to be considered offensive or objectionable. Regardless, these dust emissions should be mitigated through the consent conditions and the CAQMP to ensure that residents are unlikely to notice any changes in dust levels.

(i) Impacts on ecological areas are considered to be "Low" to "Very Low". This is based on information provided in the Terrestrial Ecology report (Technical Assessment J of the AEE), which notes that there are no locations identified that are highly sensitive to dust.

(j) Mr Curtis considers there is a low potential for crops to be affected by dust. However, it is possible that some crops, or portions thereof, grown extremely close (less than 20m) to construction activities, may be downgraded (seen as less desirable) if they are seen to be "dirty".

47. I agree with the conclusions that Mr Curtis has reached, on the basis that appropriate mitigation is implemented, as I discuss in more detail below. The only aspect I am unable to support is Mr Curtis' view that the number of receptors identified within 50m of dust-generating activities is "highly conservative". I would simply classify this approach as being "conservative", as there is insufficient detail in the application to determine the exact distances between receptors and dust-generating activities.

48. To reduce the potential for dust emissions to cause noxious, dangerous, offensive or objectionable effects, a range of mitigation measures have been recommended in the Air Quality Assessment, with the intent that

they will be required through consent conditions and detailed in the CAQMP.

49. The mitigation measures proposed by Mr Curtis are summarised in the Air Quality Assessment.[8] These measures are broadly categorised as follows:

(a) General Measures – project-wide control measures, such as vehicle speed restrictions.

(b) Complaints Analysis – measures to analyse and interpret complaints and determine if dust nuisance effects have occurred. The relevant section also includes a range of measures that are recommended to rectify dust nuisance, such as house cleaning, provision of laundry services, upgrades to roof drinking water systems and temporary relocation of residents.[9]

(c) Odour – measures for mitigating odour discharges should odorous material be encountered during excavation activities.

(d) Earthworks – measures to mitigate dust during earthworks. These include a range of measures such as minimising stockpile drop heights, using vehicle wheel washes etc.

(e) Stockpiled Materials – measures to minimise dust associated with stockpiled material: including minimising works during high-risk meteorological conditions, restricting stockpile heights etc.

(f) Construction Yards – measures to minimise fugitive dust emissions from activities undertaken in construction yards. These measures include storing fine material in bunkers, use of water misting systems etc.

(g) Haul Roads – mitigation measures to control fugitive dust discharges as vehicles travel along the haul roads. Measures include regular haul road watering, chemical stabilisers to bind dust, and vehicle speed restrictions.

[8] At paragraphs 276 to 288.
[9] At paragraph 277.

(h) Construction vehicle exhaust emissions – measures to minimise vehicle-related emissions. Measures include ensuring engines are appropriately maintained, tyres are correctly inflated and minimising haulage distances.

(i) Wind Monitoring – establishment of wind triggers that, if exceeded, trigger additional mitigation measures.

(j) Visual Monitoring – a visual monitoring programme to identify dust discharges, activities that could result in dust, and inspecting control measures to ensure that maintenance is not required.

50. As I discuss later in this report, I agree with all of the recommendations set out in the Air Quality Assessment.[10] However, while I support the mitigation recommended by Mr Curtis, there is insufficient information on the specific mitigation or monitoring proposed by Waka Kotahi to demonstrate the effectiveness of the mitigation to control dust and odour effects. I discuss this in greater detail below.

Implementation

51. The Air Quality Assessment includes a combination of screening-level and complex road traffic dispersion modelling to assess the change in air quality associated with vehicle emissions. Predicted ambient concentrations of the principal air pollutants related to vehicle emissions have been compared against the standards and guidelines contained in the NES-AQ and NZAAQG.

52. The findings of this assessment show reductions in the concentration of vehicle air pollutants in the township of Ōhau, along the existing SH1 and the Levin town centre. This reduction is primarily related to reduced traffic volumes along the existing SH1 and where the highway passes through Levin.

53. For areas within 200m of the Ō2NL Project, there is predicted to be a relatively small increase in the ambient concentration of air pollutants as the Ō2NL Project moves closer to receptors. The concentrations of air

[10] At paragraphs 276 to 288.

pollutants are predicted to be below the relevant human health air quality assessment criteria, although I note that concentrations are generally predicted to reflect minor increases in areas located within 200m of the Ō2NL Project.

54. No mitigation measures have been proposed by Mr Curtis to minimise the effects of vehicle emissions, as ambient concentrations are predicted to be well below levels that could cause adverse effects.

J. PRE-LODGEMENT REVIEW

55. During August 2022, prior to the lodgement of the application, I was provided with the opportunity to provide comments on the draft Air Quality Assessment. In response, Mr Curtis updated the report to reflect the majority of my recommendations. As a result, there are limited areas where I disagree with either the assessment methodology, assessment criteria, technical parameters adopted, the majority of the recommended mitigation measures or the overall findings of the assessment.

56. I generally agree with the statement at page 8 of the Air Quality Assessment that Mr Curtis' assessment has been undertaken using best practice methods, best available data, and adopting (mostly) recommendations of relevant best practice guides.

57. However, as I discuss further below, I have concerns that the resource consent conditions proposed by Waka Kotahi to mitigate the effects of the Ō2NL Project do not capture the breadth of mitigation measures recommended by Mr Curtis. In particular, there remains no firm commitment from Waka Kotahi that all recommended measures will be adopted and incorporated into the CAQMP. There is also uncertainty around how and when mitigation (when offered) will be delivered through management plans, and whether it will be sufficient to manage air quality effects.

58. When considering the management of air quality effects, as I note above, one resource consent condition provides a meaningful compliance standard. Condition RAQ1 provides that dust shall "…*not cause noxious, dangerous, offensive or objectionable effects at any point beyond the boundary of the Project Area"*. However, in my

experience, this type of condition is often challenging for regulatory authorities to enforce, and is generally triggered after some form of effect has already occurred.

K. REVIEW SUMMARY

59. The Air Quality Assessment has been prepared in accordance with a range of New Zealand-based guidance documents that have been used on similar construction projects in New Zealand, such as the PP2Ō and Mackays to Peka Peka expressways. These guidance documents are considered to represent best industry practice. On that basis, I am comfortable with the methodology adopted by Mr Curtis.

60. The measures recommended by Mr Curtis to control construction dust emissions are also largely consistent with my opinion of what constitutes industry best practice.

61. The one significant exception involves Mr Curtis' recommendations around dust monitoring. Mr Curtis has recommended dust monitoring only where it is necessary to respond to complaints/concerns from residents. However, as I discuss further below, I consider that dust monitors should be continuously available for use in order to provide valuable feedback to assess the effectiveness of control measures, establish baseline dust levels, and help identify if dust nuisance effects are occurring at receptor locations.

62. In addition to continuous dust monitoring, there should be more specificity via consent conditions in respect to how properties that rely on roof-collected water and could be affected by dust, will be protected from the potential for drinking water to be affected.

63. I also consider that there should be consent conditions which require measures to identify and respond to instances where dust has created some sort of nuisance effect i.e. triggers to instigate the cleaning of properties impacted by dust or identifying crops that have been downgraded due to dust deposition.

64. These additional conditions are discussed further below.

65. Overall, I agree with the conclusions Mr Curtis has reached in the Air Quality Assessment subject to the proviso that all of the mitigation measures recommended within his report are implemented, alongside the additional conditions (as per my recommendations) requiring the use of continuous dust monitors, upgrades to roof-collected water systems and methods for identifying and remediating properties significantly affected by dust. I have also made recommendations as to additional content that should be included in the CAQMP.

Residual Effects

66. Notwithstanding the proposed mitigation, as Mr Curtis acknowledges in the Air Quality Assessment: *"Despite these measures, in my opinion it is likely that the residual dust effects at these properties will be such that residents are likely to notice increased dust levels and potentially be annoyed."*[11]

67. I agree with this statement. Even when using best practice dust mitigation measures, there are likely to be times when the effective use of mitigation measures will lapse or be insufficient (such as during periods with very high wind speeds). This limitation, combined with the small buffer (<50m) at some locations along the alignment, will mean that there will always be the potential for some form of residual effect to occur.

68. In my opinion, if dust nuisance effects occur due to significant dust deposition, remediation measures will need to be employed, such as house cleaning and provision of laundry services, etc. While Mr Curtis has recommended these remedial measures are included in the CAQMP, I consider it more appropriate to have this requirement recorded within the resource consent conditions.

69. In addition to the use of dust monitors, I consider that the conditions of consent should better identify the triggers for identifying that dust is not being adequately controlled and that some form of effect has the potential to occur. This information could then be relayed to the Ō2NL Project team as SMS/email alerts to trigger additional dust

[11] At paragraph 5.

mitigation/contingency measures. I also recommend that the wind/rain and visible dust triggers identified in Table C.4 and PM_{10} trigger in C.5 of the Air Quality Assessment be captured as consent conditions.

70. Mr Curtis notes that approximately 130 properties could be located within 50m of the proposed designation boundary. Given the potential risk associated with the large number of receptors, I consider that there needs to be a higher level of certainty that the mitigation measures proposed by Mr Curtis will be adopted and implemented on the project. I consider that this is best achieved through a CAQMP, as defined by detailed consent conditions, with 'bottom lines' which the activity must achieve.

71. I have discussed the potential for ecological areas to be affected by dust with James Lambie, who addresses terrestrial ecology for Horizons and GWRC. He agrees with the Air Quality Assessment conclusion that there are no areas which are particularly sensitive to dust deposition. Mr Lambie's general view is that as long as dust is managed below nuisance thresholds then dust deposition is likely to have only a minor effect on ecological areas.

72. I discussed with Ms Newell the possibility for areas along the alignment to contain contaminated material and the potential for dust generated from construction activities at these locations to cause adverse effects.[12] I understand that prior to any earthworks or land disturbance, preliminary site investigations will be updated based on a 'full' walk-over of the project alignment. Should contaminated areas be identified, Waka Kotahi will be required to obtain the necessary consents to remove this material.

73. As part of these consent applications a Contaminated Soil Management Plan ("**CSMP**") will need to be prepared. My expectation is that the CSMP will be required to include appropriate mitigation measures to ensure that dust containing contaminated material will not cause adverse effects. However, I consider it would also be prudent to include these measures in the CAQMP. I would recommend that this should

[12] Ms Newall has prepared the s87F and 198D reports for the Regulatory Authorities regarding contaminated land.

include measures such as pre-wetting material prior to excavation and covering of trucks.

L. DRAFT CONSTRUCTION AIR QUALITY MANAGEMENT PLAN

74. While I agree with the overall findings of Mr Curtis that construction effects can in principle be managed, I have not been able to assess the surety of those conclusions through review of the management measures proposed to form part of any plan. I am unable to determine whether it is possible for effects to be managed to an appropriate level without review of a draft management plan. To ensure certainty of outcome, I am of the opinion that the conditions should be strengthened so as to provide for an appropriate level of air quality effect(s) across all phases of the Ō2NL Project.

75. Among other things, I requested as part of a section 92 request by Horizons and GWRC that Waka Kotahi provide a draft CAQMP for review to ensure that the mitigation measures proposed by Mr Curtis are carried forward and adopted as part of the Ō2NL Project. This information was considered important, in part, because the assessment of the effects prepared by Mr Curtis is contingent on these being adopted.

76. Waka Kotahi responded with the following response.

> The potential impacts of construction activities on air quality are managed through the conditions of consent that establish standards that must be achieved. The methods and monitoring necessary to achieve these standards are to be included in a Construction Air Quality Management Plan. The content of this Plan is specified in Schedule 2 to the Conditions.
>
> Waka Kotahi anticipates that, because the Construction Air Quality Management Plan relates to construction management, the Plan will be prepared by the construction contractor for the Project. At this time, the certification of the Construction Air Quality Management Plan provides the reassurance that the relevant standards are achieved through appropriate management and monitoring practices.

77. While I appreciate some of the difficulties associated with providing a draft CAQMP at this point in the process, I understand that draft CAQMPs were provided as part of the resource consent applications for the other sections of the Kāpiti Expressway (namely PP2Ō and Mackays to Peka Peka) and the Transmission Gully motorway. All of these projects share various similarities to the Ō2NL Project, such as the types of dust-generating activities, relative scale and duration of activities and the proximity to receptors and SUP's. I do not see any reason for this project to be treated differently.

78. The resource consent conditions proposed by Waka Kotahi relating to air discharges are RAQ1, RAQ2, RAQ3, RAQ4, and RAQ5, together with sections of Schedule 2, which set out the CAQMP objectives.

79. Essentially, Waka Kotahi's recommendation is that a CAQMP is to be prepared, in accordance with Schedule 2, immediately before construction, with the CAQMP to be certified by the Regional Councils.

80. While I appreciate that this certification approach has been successfully adopted on other Waka Kotahi projects, given the number of receptors (upwards of 130) that could be affected by dust discharges and so as to provide submitters with a greater level of assurance that appropriate mitigation will be implemented, I remain of the opinion that a CAQMP should be provided at this stage of the Ō2NL Project.

81. In my view, this information would provide more certainty that discharges can be mitigated in a manner that prevents adverse effects. Furthermore, given the community concern regarding the Ō2NL Project, I consider this approach provides a greater level of transparency and comfort to the various stakeholders that air discharges will be appropriately managed and dust effects mitigated.

M. RESOURCE CONSENT CONDITIONS RECOMMENDED BY WAKA KOTAHI

82. I have reviewed the resource conditions proposed by Waka Kotahi and as previously mentioned the only one significant performance standard that I can identify is RAQ1: *"Discharges to air from works authorised by these resource consents must not cause noxious, dangerous, offensive*

or objectionable effects at any point beyond the boundary of the Project Area".

83. Based on my experience with other similar types of projects, I understand that this type of condition has been historically difficult to enforce, given the subjective nature of the performance standard. As I have noted above, the adverse effects will often also already have occurred on the environment.

84. To provide the various stakeholders more certainty that this requirement will be met, I have recommended that additional triggers be developed and incorporated as standalone consent conditions. These additional conditions include:

    (a) A requirement to undertake dust monitoring at high-risk locations (i.e. within 50m of dwellings or crops sensitive to dust, where significant dust could be generated from the Ō2NL Project).

    (b) The use of dust monitoring triggers to instigate investigations and implement contingency measures.

    (c) A requirement to upgrade roof-collected drinking water systems for properties within 200m of the Ō2NL Project Area.

    (d) Develop a procedure to undertake regular visual dust inspections and identify triggers for the implementation of appropriate remediation activities, such as regular house cleaning, laundry services etc.

85. Mr Curtis states, at paragraph 228 of the Air Quality Assessment, that real-time monitoring has not been proposed as he considers the proposed visual monitoring to be sufficient and appropriate. However, Mr Curtis acknowledges that it could be used to respond to any serious and validated concerns raised through visual monitoring or in the event of repetitive complaints. If this monitoring was required, Mr Curtis recommends that this is in the form of PM_{10}, wind speed and wind direction monitoring.

86. I agree with Mr Curtis that this type of monitoring is appropriate for the Ō2NL Project. In my opinion, PM_{10} monitoring can be used to cover both

the potential health effects associated with dust and to identify whether dust concentrations are at levels that could lead to nuisance effects.

87. I consider that this form of monitoring should be undertaken for locations within 50m of construction activities that are likely to be difficult to manage i.e. in the case of large, exposed areas, intensive activities, receptors predominately downwind of construction areas etc.

88. Given the large number of receptors that might fall within the scope of this definition, the number of monitors required might need to be rationalised (i.e. 3 to 4 mobile monitors available for the Ō2NL Project), with monitors only placed at locations most likely to be affected by dust. If dust concentrations can be managed to acceptable levels at these locations, it provides confidence that dust can be managed across the wider Ō2NL Project area. I consider that the location and timing of monitoring should be defined in a monitoring plan appended to the CAQMP, and certified by the Regional Councils.

89. In terms of a PM_{10} trigger value, I consider that a value of 150 µg/m³ as a 1-hour average, should be adopted, as this is consistent with the recommendation provided in MfE Good Practice Guide for Assessing and Managing Dust ("**MfE GPG Dust**").[13]

N. RECOMMENDED AMENDMENTS TO RESOURCE CONSENT CONDITIONS

90. The following section of this report provides my recommended amendments to the proposed resource consent conditions.

Construction Air Quality Management Plan Conditions

91. I have recommended a number of changes to the conditions proposed by Waka Kotahi. I have set these out further below. In particular, I have focused on the content of the management plan and the triggers to assess the performance of mitigation measures, to implement additional mitigation and to rectify dust nuisance effects.

[13] Ministry for the Environment Good Practice Guide for Assessing and Managing Dust, November 2016.

92. First, the CAQMP should make reference to the construction air quality management guidance contained in the following documents, which has been relied on for the purpose of the Air Quality Assessment and will be implemented in the Ō2NL Project:

(a) MfE GPG Dust; and

(b) Guide to assessing air quality impacts from state highway projects (version 2.3) published by Waka Kotahi, October 2019.

93. Secondly, I consider that Condition RAQ3 should be redrafted so that, in addition to the requirements of Schedule 2, the CAQMP should be prepared *"in general accordance with the mitigation measures presented in the Air Quality Assessment".* This will link the mitigation measures recommended by Mr Curtis, which the Air Quality Assessment was contingent on, with the actual measures that are to be used on the project to control air discharges and their effects.

94. Thirdly, I have recommended some additional requirements that should be included in the scope of the CAQMP, in addition to Schedule 2 of the proposed conditions. I have reproduced Schedule 2 below and added my recommendations.

95. Some rationalisation of the requirements may need to be undertaken as there may be some overlap between the two sets of requirements (NOR and resource consents).

Schedule 2 requirements:

The Construction Air Quality Management Plan must include, but not be limited to:

(a) methods and procedures to manage dust as a result of construction activities, including triggers for the implementation of such measures, that may include:

(i) chemical stabilisation or suppression;

(ii) revegetation of exposed surfaces;

(iii) the use of water;

(iv) the covering or otherwise enclosing of materials;

(v) approaches to the location and management of stockpiles;

(vi) methods and timeframes to stabilise earthworks;

(b) the identification of triggers and contingency measures to address identified and verified adverse effects on sensitive receptors;

(c) procedures for assessing, mitigating and remedying the effects any odorous material that is discovered as a result of construction activities, including methods to:

(i) remove the material to reduce the exposure of odorous sources; and

(ii) mask the odour;

(d) procedures for responding to process malfunctions and accidental dust discharges;

(e) reference to the complaints management procedures set out in Condition RCM2 and details of contingency measures to respond to complaints;

(f) reference to the construction vehicle management and maintenance procedures in the Construction Traffic Management Plan;

(g) methods for on-going visual dust monitoring, including the visual inspection of surfaces on neighbouring sites and the maintenance of records alongside observed weather conditions.

(h) methods to monitor and contingency measures to respond to effects of dust deposition:

(i) at the dwelling, known as 'Ashleigh', located at 1024 Queen Street East where the design and implementation of this monitoring is undertaken in conjunction with a

suitably qualified and experienced conservation architect; and

(ii) ii. at any rainwater collection tank that is used for drinking water purposes.

Additional recommended CAQMP requirements

96. I am of the opinion that a number of additional requirements should be included in the CAQMP. These include:

(a) A description of the construction works as they relate to potential effects on air quality;

(b) Environmental purposes and key performance indicators of the CAQMP;

(c) Identification and characterisation of air contaminants and potential emissions sources associated with the works (including dust, odour and engine emissions);

(d) A description of the environmental setting of the works, and local meteorological conditions;

(e) A review of the risk of air quality impacts associated with emission sources;

(f) Specific measures to identify and mitigate the potential for dust emissions to cause visibility effects on trains using the north island main trunk line;[14]

(g) Procedures and measures to control air emissions, at a minimum, these should be based on the procedures and measures described in the Air Quality Assessment;[15]

(h) Details of an air quality monitoring plan, including:

[14] In response to a concern by Kiwirail Holdings Ltd – see the section on submissions below

[15] At paragraphs 276 to 288.

(i) Provision for the use of continuous particulate monitors across the Ō2NL Project area, to provide continuous feedback in real-time to Ō2NL Project staff;

(ii) Identification of the monitoring methods, principles for siting monitors, and/or areas where continuous monitors and weather monitors will be located;

(iii) Establishment of a project weather monitoring station – as set out in RAQ2; and

(iv) Trigger levels for continuous monitoring of wind speed and particulate matter concentrations (PM_{10}) and describe procedures for the notification to staff of trigger level exceedances, investigation of causes of the exceedance and implementation of response actions. The trigger levels should align with those set out in Tables C.4 and C.5 of the Air Quality Assessment. However, should these not provide adequate protection, with effects being observed at a value below these limits, a review process should be initiated to establish more appropriate values.

(i) Contingency measures for responding to dust triggers, accidental or unforeseen emissions to air, plant or equipment malfunctions causing air quality impacts or ineffectiveness of measures in controlling dust and air quality emissions which may cause adverse effects;

(j) Specific procedures for responding to discharges of odour (including in the event of excavation of contaminated sites);

(k) Specific procedures for identifying contaminated material and implementing suitable measures to mitigate dust from this source;

(l) Procedures for managing dust generating activities located close (<50m) to locations where crops are being grown that are

sensitive to dust. This should include measures to identify and remediate effects on crops adversely affected by dust deposition;

(m) Roles and responsibilities for implementing the procedures and measures described in the CAQMP; and

(n) A quality assurance/quality control programme for the procedures and measures described in the CAQMP to ensure risks of air quality impacts are appropriately managed, including procedures for review, audit and update or procedures and measures described in the CAQMP.

Dust and Wind Monitoring Conditions

97. As discussed previously, I recommend that dust monitoring should be used to understand the effectiveness of mitigation measures and trigger the use of additional mitigation should concentrations exceed a value of 150 µg/m³ as a 1-hour average.

98. In addition to dust monitoring, I consider that if weather conditions breach the MfE GPG Dust trigger limits (defined in Table C.4 of the Air Quality Assessment) and dust generating activities are being undertaken within 50m of sensitive receptors or crops sensitive to dust, additional mitigation measures should be implemented.

99. In my opinion, new conditions should be imposed on the resource consents to deal with the following matters:

(a) Preparation of a monitoring plan: which covers at a minimum, the dust monitoring programme methods, including background monitoring, calibration and maintenance of dust monitors (as required); the location and maintenance and operation of the meteorological station.

The monitoring plan should be shared with community liaison group before the start of the project. Monitoring data must be provided on an ongoing six monthly basis.

The monitoring plan should ensure that monitoring is undertaken whenever significant dust generating activities are located within

50m of activities that have the potential to cause nuisance effects.

The monitors shall be placed between construction activities and the nearest sensitive receptor locations. It may be appropriate to use one monitor to achieve this for locations with numerous sensitive receptors are close to construction activities providing that it represents worst-case dust concentrations. The monitoring plan should be included within the CAQMP.

(b) Trigger concentration: which indicates the potential for excessive construction-related dust at or beyond the Ō2NL Project area is a real time PM_{10} concentration of ≥ 150 micrograms per cubic metre, as a rolling 1-hour average, which is updated every ten minutes.

(c) Visible dust/dust or wind monitoring triggers: If at any time, including outside normal operating hours, visible dust is blowing beyond the Ō2NL Project area boundary, or if the dust or wind monitoring triggers are breached Waka Kotahi must:

(i) Cease all activities except dust suppression measures;

(ii) Continue all dust suppression activities including but not limited to the immediate watering of both active and inactive exposed surfaces;

(iii) Investigate possible sources of the dust; and

(iv) Only resume activities (other than dust suppression) once there is no longer visible dust blowing beyond the site boundaries and when the monitoring trigger in Condition 9 is no longer being breached or it has been established that the breech of the trigger was related to other sources i.e. cropping activities.

(d) Dust generating activities: dust generating activities (except dust suppression measures) within 50 metres of a sensitive receptor location must not be undertaken when:

(i) Wind speed reaches or exceeds 10 m/s (during two consecutive 10-minute periods);

(ii) Dust generating activities would be directly upwind of a sensitive receptor (10-minute average wind direction); and

(iii) There has been no rain in the previous 12 hours.

(e) Suspension of activities: If the available mitigation methods are unsuccessful in controlling dust emissions and may cause significant adverse effects on receptors beyond the Ō2NL Project area, the activities causing the discharge shall be suspended until adequate mitigation can be put in place.

Roof Collected Water Systems

100. The Air Quality Assessment provides recommendations that on a case-by-case basis, roof-collected water systems could be upgraded to minimise the impact of construction dust on drinking water supply.[16] However, in my opinion, the nature and scale dust generating activities, proximity of construction works to properties and the level of community concern regarding this issue, as observed based on the number of submissions raised on this issue, means more certainly needs to be provided that the Ō2NL Project will not cause roof-collected water systems to be adversely affected.

101. This would be best achieved through a resource consent condition, requiring roof-collected water systems for properties located within 200m of the designation boundary to be upgraded to an appropriate standard. I understand that at a minimum this is likely to require a first flush system and tanks to be fitted with a floating inlet.

102. By implementing these improvements, I consider that any dust deposition associated with the Ō2NL Project is unlikely to affect the

[16] See section 277b(i).

quality of residences' drinking water the condition I recommend should satisfy the concerns raised regarding this issue.[17]

Dust Nuisance Effects

103. Mr Curtis concludes that even with the use of best practice mitigation, there is the potential for properties located within 50m of construction activities to experience dust nuisance effects. I have recommended a resource consent condition requiring regular visual inspections of properties and where a significant adverse effect has been observed requiring that these effects are rectified i.e. cleaning of gutters, windows etc.

104. I consider that as part of the CAQMP a procedure should be developed to undertake regular visual inspections and identify triggers for the implementation of appropriate remediation activities, such as regular house cleaning, laundry services, etc.

105. I note that Schedule 2 outlines methods to monitor and contingency measures to respond to effects of dust deposition at the Ashleigh homestead. Again, this requirement should form a condition to provide more certainty that the requirements will be undertaken.

O. SUBMISSIONS

Review of Submissions

106. A review of the submissions shows there are 19 submissions that reference effects on air quality, primarily from dust. Of these submissions, four are in support, three are neutral and 12 are opposed to the application.

107. The main issues raised in the submissions include the following:

(a) Effects of dust on roof-collected water systems;

[17] Submissions: 9 (Mrs Helen Naylor), 11 (Adam & Richard McCallum), 23 (Stephen and Miriam Main), 29 (Maria Storey), 36 (Dakin and Ally Branwell), 40 (Rochelle and Matthew Apatu), 47 (Janice Jakeman), 48 (Kevin Daly), 49 (Karen and Stephen Prouse).

(b) Effects of nuisance dust on properties;

(c) Amenity effects from construction dust;

(d) Effects on air pollution, and health and wellbeing;

(e) Dust from heavy vehicle movements;

(f) More specificity around dust control measures;

(g) Traffic along Tararua Road;

(h) Operational emissions from the SH1N/SH57 intersection;

(i) Effect of road gradient at Queens Street East Overpass on air quality modelling; and

(j) Dust affecting the visibility of trains.

108. I have provided a summary of each submission received in relation to air quality effects in Appendix A.

Response to Submissions

109. Of the 19 submissions concerned with air quality effects, 9 raise concerns regarding the effect of dust deposition contaminating their roof-collected water supply. I share a similar concern based on the lack of certainty around the outcomes to be achieved through conditions put forward by Waka Kotahi. However, I am comfortable that if a new resource consent condition is included, requiring all properties within 200m of the Ō2NL Project area to be upgraded to a sufficient standard that will prevent dust from affecting their fresh water supply, that this concern will mitigate those concerns.

110. A number of the submissions raise concerns that dust discharges will cause either nuisance, amenity or health effects. These submissions often mention a lack of specificity around the dust control measures that will be used on the Ō2NL Project.

111. While I consider that the effects from dust can be managed to prevent adverse effects, I acknowledge that, for some properties located very

close to the Ō2NL Project, alignment there could still be residual effects. I agree there is a lack of certainty over the dust effects. For this reason, I have recommended a range of changes to the resource consent conditions, including (as detailed above):

(a) Additional conditions regarding the requirements of the CAQMP to ensure that they are consistent with the measures recommended in the Air Quality Assessment.

(b) Requirement to undertake dust monitoring at high-risk locations (i.e. within 50m of dwellings or crops sensitive to dust, where significant dust could be generated from the Ō2NL Project).

(c) Dust and weather monitoring triggers used to instigate investigations and implement contingency measures.

(d) A requirement to upgrade roof-collected drinking water systems for properties within 200m of the Project Area.

(e) Develop a procedure to undertake regular visual dust inspections and identify triggers for the implementation of appropriate remediation activities, such as regular house cleaning, laundry services etc.

112. Some of the submissions raised concerns regarding pollution from the vehicles once the project is operational. These related to the Tararua Road interchange, the SH1N/SH57 intersection and the effect of the road gradient at Queens Street East Overpass. While these project features have the potential to cause localised increases in air quality at these locations, the findings presented in the Air Quality Assessment showed air quality to be within acceptable 'safe' limits. On the information before me, I agree that any increases are unlikely to result in adverse effects. However, I recommend that further information from Mr Curtis is provided with regard to these particular locations to better understand the magnitude of the effect. This would provide a greater level of assurance that air discharges will not cause adverse effects.

113. I note that the gradient of the Queen Street East Overpass was not considered in the atmospheric dispersion model (i.e. road was assumed

to be flat) and therefore air pollutant predictions near this location are likely to be under-reported. However, based on my experience, even if this parameter was included in the model the predicted increase in pollutant concentrations is likely to be low, noting that some of the increase emission is offset by the increased height of discharge and improved dispersion. I do not have access to the atmospheric dispersion model. It would be helpful when addressing this submission if Mr Curtis provided updated modelling to confirm that emissions from vehicles using the overpass will not cause adverse effects.

114. KiwiRail Holdings Limited are concerned that dust emissions may cause visibility issues for trains using the North Island main truck line. In my experience, ambient dust concentrations would have to be at very high levels for visibility effects to occur. Furthermore, I would not expect dust concentrations to reach these levels providing the control measures recommended by Mr Curtis are appropriately implemented on the Ō2NL Project.

115. To address this concern, I recommend that the CAQMP include specific measures to identify and mitigate the potential for dust emissions that could cause visibility effects on trains using the north island main trunk line. This requirement is noted under the list of additional requirements I have recommended for inclusion in the CAQMP.[18]

Peter Warwick Stacey

28 April 2023

[18] See paragraph 95.

APPENDIX A

Summary of Submissions relating to Air Quality

#	Submitter Name and Address	Position	Summary	Comments
1	Ben Summers (Nestbox) – 217 Kimberley Road/345 Arapaepae South Road, Levin	Opposes the application	Concerned of the effects of dust during and after construction. Requests that sufficient preventative measures are implemented to avoid effects.	I estimate that this submitter is approximately 50–100m from the designation boundary.
2	Sjaan Henry Miles – 82 Waihou Road, Levin	Opposes the application	Concerned about the impact of air pollution on health and the surrounding environment.	I estimate that this receptor is approximately 50–100m from the designation boundary.
8	Wendy McAlister–Miles and Dion Miles – 195 Muhunoa East Road, Ōhau	Opposes the application	Concerned regarding amenity effects from dust during construction**.**	I estimate that this receptor is <50m from the designation boundary.
9	Mrs Helen Naylor – 45 Wi Tako Street, Manakau Levin	Both supports and opposes application	While Ms Naylor supports the overall objectives of the project, she is concerned that dust from construction activities will contaminate roof–collected tank water. She is also concerned about the costs of cleaning tanks/replacement of pumps. Furthermore, she would like Waka Kotahi to provide preventative measures to all households that rely on roof water supply in the 'dust risk zone'. These could include isolating the tanks from the roof and providing tanker water during construction or installing filters.	I estimate this receptor is 150–200m from the designation boundary.
10	Mr Gary Williams – 107 South Manakau Road	Supports the application	Concerns regarding dust from heavy vehicle movements – would like more specific mitigation measures and communication with communities as works are undertaken.	I estimate this receptor is >200m from the designation boundary.

#	Submitter Name and Address	Position	Summary	Comments
11	Adam & Richard McCallum – 213a Muhunoa East Road, Ōhau	Opposes the application	They are concerned that dust will contaminate their roof-collected water system. If dust cannot be adequately controlled, they want their tank and filters to be cleaned on a six monthly basis and have any contaminated water replaced.	I estimate that this submitter is approximately 100m from the designation boundary.
22	Glenys Anderson – 413 Arapaepae South Road, RD1, Levin	Opposes the application	They sight concerns that dust discharges will prevent them from being able to open their windows and doors for fresh air and to enjoy their outside living spaces. They have requested that Waka Kotahi provide solutions to mitigate this potential, such as installing double glazing and ventilation (heat pump).	This submitter is approximately <50m from the designation boundary.
23	Stephen and Miriam Main – 28 Mountain View Drive, RD 3 Otaki	Neutral (neither supports or opposes the application)	Concerned that dust concentrations will increase during construction. They note that while mitigation will be in place, it will not eliminate dust. They are concerned that the increased concentration of dust in the air will cause a build-up of particulate matter in the water guttering and water storage tanks, leading to an extra burden on the filtration system. Filters and UV light systems will have reduced life and tanks will require cleaning at increased cycles. Consequently, there will be an increased financial burden on the householder.	I estimate this receptor is 100–150m from the designation boundary.
25	Maria Storey – 24 Arapaepae Road North, Levin	(not specifically stated – however I assume she Opposes the application)	Concerned that dust will cause adverse effects on health and wellbeing.	I estimate this receptor is 150–200m from the designation boundary.
29	Maria Storey – 677a State Highway 1, Levin	Opposes the application	Concerned that dust will contaminate the roof–collected water supply. Requests that measures are implemented to stop dust from nearby spoil areas.	I estimate this receptor is >200m from the designation boundary.
36	Dakin and Ally Branwell – Location not specified	Opposes the application	Concerned regarding the dust pollution generated by construction earthworks and the effects of nuisance dust and contamination of roof–collected drinking water. They are also concerned that increased traffic movements on Tararua Road will cause increased air pollution. They request that dust emissions are kept to near–zero levels. They requested that a	

#	Submitter Name and Address	Position	Summary	Comments
			'sound and safe' construction plan that allows pollution to be kept to a minimum.	
40	Rochelle and Matthew Apatu – 73 Wakefield Road, RD1, Levin	Neutral (neither supports or opposes the application)	Concerned that dust will contaminate the roof-collected water supply.	I estimate this receptor is 150–200m from the designation boundary.
47	Janice Jakeman – 197 Muhunoa East Road, Ohau	Opposes the application	Concerned that dust will contaminate the roof–collected water supply. Requested water filters for collection water and house and wind washing and gutters cleaned as required.	I estimate this receptor is <50m from the designation boundary.
48	Kevin Daly – 257 and 267 Tararua Road, Levin	Opposes the application	Concerned that dust will cause nuisance effects (soiling of houses and vehicles) and the effect on roof collected drinking water. Requested a resource consent condition requiring house and roof washdown services during construction.	I estimate this receptor is <50m from the designation boundary**.**
49	Karen and Stephen Prouse – 1024 Queen Street East, Levin	Opposes the application	Concerned that modelling shows a 'negative effect' on air quality at their property. They note that there were no modelled changes in air quality on the ascent and descent approaches to the overbridge at Queen St East. They have recommended that this issue is investigated and mitigated. In terms of construction dust, they consider that there will be increased emissions near the Ashleigh property and homestead. Furthermore, they are concerned that roof water collection will be affected by dust. They are also concerned that construction dust will negatively impact the exterior paint of Ashleigh and cause premature deterioration of the paint surface. To mitigate effects, they seek screening for dust, roof washes and water tank cleans, and repainting of Ashleigh if dust and water blasting deteriorate paint surfacing and shorten the life expectancy of recent paint restoration.	I estimate this receptor is approximately 100m from the designation boundary.
52	Mr Roger McLeay – 260 Somme Parade, Aramoho, Whanganui	Supports application	Concerns regarding using a roundabout at the SH1N/SH57 intersection. Considers that a grade–separated interchange would provide a better option from an air quality perspective.	This submitter appears to live outside the Ō2NL Project area.

#	Submitter Name and Address	Position	Summary	Comments
60	Emma and Carl Chalmers – 366 Arapaepae, South Road, RD1, Levin	Neutral (neither supports or opposes the application)	Concerned that they will be unable to open windows to ventilate their property.	I estimate this receptor is approximately 100m from the designation boundary.
70	Sam Hadley–Jones (Electra Limited) – 25 Bristol Street, Levin	Supports application	The submitter sights improved air quality as one of the reasons for supporting the application.	I estimate this receptor is approximately 2,000m from the designation boundary.
73	KiwiRail Holdings Limited (Michelle Grinlinton–Hancock)	Conditional Support of the application	Concerned that excess dust could impact visibility for trains moving along the north island main trunk. The submitted recommended that the proposal is approved with appropriate conditions of consent. The north island main truck line runs through the designation near where a new roundabout will be constructed, which connects the Current SH1 at Heatherlead East Road, north of Levin	