

**ENVIRONMENT COURT OF NEW ZEALAND
WELLINGTON REGISTRY**

**I MUA I TE KOOTI TAIAO O AOTEAROA
TE WHANGANUI-A-TARA**

ENV-2023-WLG-000005

Under the Resource Management Act 1991

In the matter of the direct referral of applications for resource consent and notices of requirement under sections 87G and 198E of the Act for the Ōtaki to North of Levin Project

By Waka Kotahi NZ Transport Agency

**STATEMENT OF EVIDENCE OF KATHRYN ANNE HALDER
ON BEHALF OF WAKA KOTAHI NZ TRANSPORT AGENCY**

CONTAMINATED LAND

Dated: 4 July 2023

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INTRODUCTION

1. My full name is **Kathryn Anne Halder**.
2. I am a Principal Environment Scientist at Stantec. I have 20 years of consulting experience in contaminated land, with most of this having been carried out in New Zealand.
3. I prepared Technical Assessment I: Contaminated Land (**Technical Assessment I**) as part of Volume IV of the Assessment of Environmental Effects (**AEE**), which accompanied the application for resource consents and notices of requirement for designations (**NoRs**) lodged with Manawatū-Whanganui Regional Council (**Horizons**), Greater Wellington Regional Council (**GWRC**), Horowhenua District Council (**HDC**) and Kāpiti Coast District Council (**KCDC**) in November 2022 in respect of the Ōtaki to north of Levin highway Project (**Ō2NL Project** or **Project**).
 - (a) My qualifications and experience are set out in paragraphs 31 to 34 of Technical Assessment I. Since my Technical Assessment I have become a full member of the Environment Institute of Australia and New Zealand (EIANZ). My evidence is supplementary to Technical Assessment I.
4. In preparing Technical Assessment I and my evidence:
 - (a) I have provided advice on contaminated land matters related to the Project to Waka Kotahi since January 2022;
 - (b) I reviewed the sources of historical and current land use information set out in paragraph 49 of Technical Assessment I.
 - (c) I undertook a site visit on 16 September 2022 to verify ground features or current site uses and note any variations from what is visible on the photographic evidence.
5. Since the consent applications and NoRs were lodged, I have:
 - (a) Contributed to the section 92 request response to queries relating to contaminated land matters.
 - (b) I have assisted with responses to submitters who have raised contaminated land concerns.

Code of conduct

6. I confirm that I have read the Code of Conduct for expert witnesses contained in section 9 of the Environment Court Practice Note 2023. This evidence has been prepared in compliance with that Code. In particular, unless I state otherwise, this evidence is within my area of expertise and I have not omitted to consider material facts known to me that might alter or detract from the opinions I express.

Purpose and scope of the evidence

7. The objective of Technical Assessment I was to identify any past or present Hazardous Substances and Industries List (**HAIL**)¹ activities, or other activities that may result in contaminants being present within or adjacent to the indicative alignment; and to assess the potential risk to human health and the environment from contaminants within soils that may be disturbed by the Ō2NL Project. This was in large part to inform a future application for resource consent for the Project under the Resource Management (National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health) Regulations 2011 (**NESCS**).
8. My evidence does not repeat in detail the matters discussed in Technical Assessment I. Rather, in this evidence I:
 - (a) present the key findings of Technical Assessment I in an executive summary, updated to factor in the additional work carried out since lodgement;
 - (b) comment on issues raised in submissions received in respect of the Project; and
 - (c) comment on the section 87F/198D reports prepared by Horizons, GWRC, HDC and KCDC (**council reports**).

¹ The Hazardous Substances and Industries List is promulgated by the Ministry for the Environment.

EXECUTIVE SUMMARY

Ō2NL Project overview and future consenting processes

9. The NESCS addresses the investigation and remediation of contaminants in soil in advance of development. The overall intention of the NESCS is to ensure that contaminants in soil do not affect environmental or human health. There are also Regional Plan rules in play that address contaminated soil.
10. As explained in Technical Assessment I and the AEE, resource consents under the NESCS and Regional Plans are not being sought in these proceedings. The necessary application(s) will be made at a later time. However, Stantec was engaged to carry out initial investigations into potential soil contamination across the Project area, in order to inform the ongoing design process and ultimately to lead into the formal NESCS consenting process.
11. To that end, a Preliminary Site Investigation (**PSI**) has been undertaken over the full extent of the Ō2NL Project, focussing on historic and current land uses on properties along the proposed designations and, in particular, the indicative footprint of the new road where disturbance of soil will occur. The PSI was intended to follow what is required under the NESCS.
12. As required under the NESCS, the PSI identifies potential HAIL sites where use or deposition of hazardous substances has, or may have, occurred historically. It then assesses the actual and potential impacts on human health and the environment from the Ō2NL Project, due to soil disturbance that has the potential to cause migration of contaminants.
13. As per the NESCS framework, the PSI will then inform further detailed site investigations (**DSIs**), as I have recommended. Resource consents in respect of contaminated soil will be sought once the DSIs and any further assessments identified have been completed.
14. Based on current and historic land uses, observed from historical photos, and their associated activities being potentially present within the 'Project corridor' (by which I mean the land area encompassed by the proposed designations for the Project), I consider that potential for contaminated land exists within the Project corridor.

15. I also consider that, for some locations within the Project corridor, the PSI cannot conclude that risk to human health or the environment is highly unlikely if these sites are disturbed during the construction.
16. When carrying out the investigations to date, I have been able to engage with Ms Sarah Newall, the contaminated land technical expert for the regional and district councils.
17. These discussions have been helpful, including to inform the future NESCS and Regional Plan consenting processes.
18. The initial conditions set included with the Project application included Condition REW4. Condition REW4 was included to reflect the fact a PSI had been completed, and would inform later, necessary, DSIs, as required by the NESCS.
19. Ms Newall's technical reporting has indicated a level of discomfort with the proposed drafting of Condition REW4. She has proposed alternative drafting. Having reviewed that drafting, it largely restates the required process for seeking consents under the NESCS and Regional Plan(s). With that in mind, I consider that on reflection, there is no need to include Condition REW4. Any necessary conditions in respect of contaminated soils can be provided for in the future consenting processes.

Identification of HAIL sites

20. The Ō2NL Project passes through typically gently undulating pastoral farmland located along the Horowhenua plains, with the Tararua Range / foothills to the east, and the Tasman Sea sand-dune country to the west.
21. The current land use can be characterised as agricultural, comprising dairy farming, extensive areas of market gardening, pockets of orchards, glasshouses, poultry farms, and a vineyard. Some of these land uses are identified as HAIL activities. The existing State Highway 1, and the North Island Main Trunk Railway, between Wellington and Palmerston North are generally located to the west of the Ō2NL Project.

22. The PSI identified 35 potential HAIL sites which might be affected by the Ō2NL Project (30 of which are located within the Project corridor, with the remaining 5 being within the vicinity). To summarise these:
- (a) 26 of these HAIL sites are identified as market gardens and orchards. 'Market Gardens' and 'Orchards' are listed as HAIL (A10) activities as there may have historically been bulk storage and use of persistent pesticides and herbicides such as Dichlorodiphenyltrichloroethane (DDT) (which was banned in New Zealand in 1989), where residual contaminants may remain in soils.
 - (b) There are several dwellings and associated outbuildings (including sheds) that will be removed as part of the proposed construction work. There is potential for lead and asbestos to have been used in these buildings, especially if they were built or renovated between 1940 and 1990.
 - (c) Sheep dips and ofal pits may be present on some farm properties.
 - (d) A historical landfill (G3) has also been identified within the general location of the south bank approach to the proposed Ohau River bridge that will be part of the Ō2NL Project works. An active quarry is also located next to this site.
23. An investigation of Horizons list of HAIL sites identified three sites adjacent to the proposed designations and a further two in close proximity to two of the material supply sites next to the Waikawa Stream. These sites are outside the proposed designations and hydraulically downgradient in terms of groundwater flow direction and therefore possible contamination migration from any of these sites is likely to be away from the proposed works. No HAIL sites were identified on the GWRC Selected Land Use Register (**SLUR**) list within, or close to, the proposed designations.
24. The inclusion of a property on the HAIL does not, of itself, demonstrate the presence of land contamination at that property. However, it does provide an alert that land in and around that property may be contaminated and, on that basis, and with the support of associated supplementary evidence (if available), allows a conclusion as to whether further site investigation of the levels of possible land contamination should be undertaken.

Initial qualitative screening and recommended actions

25. The 35 HAIL sites identified within, or adjacent to, the proposed designations or material supply sites were assessed in terms of a conceptual site model to assess the potential likelihood that there will be a risk to human and/or environmental health as a result of the Project. An initial qualitative screening, based on the likelihood and the nature of contamination existing at the site from a particular activity and potential for exposure, has been assigned to each HAIL site.
26. A high-risk rating indicates a high potential for disturbance of contaminated soils that would require additional management and validation testing as part of the proposed works. A low-risk rating indicates a low potential for contamination to have occurred; or low potential of exposure pathways, as the site will not be disturbed as part of the work. A medium-risk rating indicates an uncertainty in whether an activity will have resulted in site contamination and further investigation is required to quantify these risks and determine the potential for reuse within the construction footprint. Land that was observed to be used for market gardens and orchards prior to 1989, when DDT was in use in New Zealand, are considered a higher risk than more recent horticultural land.
27. Eight sites were identified as medium risk (though some activities crossed multiple property boundaries), based on the fact that market gardens were observed in historical photos prior to 1989. I recommend that a DSI be undertaken once access to the land designated for the Project becomes more readily available, and once the construction methodology is finalised, to determine the likely concentrations of residual pesticides and metals within the top and sub soils that may be disturbed as part of the Ō2NL Project. The DSI will assess if the soil to be disturbed as part of the works are within background levels and therefore not considered HAIL material and can be reused as general fill or topsoil within the Project; are within NESCS or other appropriate guideline values; and can be encapsulated as part of the road embankments within the overall project site; or whether the material should be appropriately disposed of offsite. This is in line with the approach taken in other Waka Kotahi projects such as Te Ahu a Turanga – Manawatū Tararua Highway.

28. The DSI and the NESCS process generally will, as and if required, inform the development of a contaminated soils management plan prior to construction works.
29. One site (an historical landfill / waste disposal site) was identified as high-risk and needing further investigation and management as part of the proposed works. A review of previous site investigations was undertaken as part of the PSI. A contamination investigation undertaken by Stantec in 2021 involved systematic soil sampling and analysis within the southern Ohau River bridge approach.² Geophysical assessment of the site was also undertaken. This confirmed the presence of fill material at this location, although the soil analysis showed concentrations only slightly above the background concentration range (soil type 1) for chromium, copper and zinc.
30. The geophysical assessment also noted the potential for leachate to be present. This is water that has percolated through the landfill material and leached out some of the contaminants. The quality of this water depends on the type of material it has moved through and how well those contaminants are bound to the soil. There is potential for this to migrate to the Ohau River or groundwater, if not adequately contained, and have a negative impact on the water quality.
31. The presence of historical landfill material within the road alignment has a potential to impact on the structure of the new bridge and roadway at Ohau River. Consideration should be given within the design to either:
 - (a) leaving the material undisturbed in situ, ensuring it is adequately contained and capped, and constructing the road over the top; or
 - (b) removal and disposal of all unsuitable material offsite.
32. If the Ō2NL Project is able to avoid disturbing the material within the landfill site, the Project should ensure that any historical fill is adequately contained and protected from erosion from the Ohau river. If it is not practicable to avoid disturbance, any unsuitable material should be disposed of at a facility authorised to take the material. In such a case, and depending on the extent of the disturbance, it may be that remediation works will be appropriate to remove all historical landfill material and dispose of it properly. Any leachate should be collected and treated appropriately. This will reduce the potential for future discharge of contaminants to the Ohau River from this site. Once a

² Section 3.2, page 20, of the PSI (Appendix I.1).

designation is place, I recommend a DSI be undertaken at this site and, if contaminants are found above background levels, a remedial action plan developed. This can be addressed in the future NESCS / Regional Plan consenting process.

33. The presence of asbestos-cement sheet roofing material has been identified at one site and the removal of this material will need to be managed by a licensed operator. I recommend that all buildings built or renovated between 1940 and 1990 that are to be removed as part of the works be inspected for the presence of asbestos by a Suitably Qualified and Experienced Practitioner (**SQEP**) prior to being demolished. Where the presence of asbestos is confirmed, then soil validation testing should also be undertaken. Again, this can be addressed in the future consent processes.
34. There is always the possibility that currently unknown / unrecorded areas of historical contamination might be encountered during the Ō2NL Project works or discovered by other disciplines carrying out investigative activities, most particularly the geotechnical experts or within historical building inspections.
35. If unexpected, potentially contaminated, material is disturbed during Ō2NL Project works, an unexpected discovery protocol should be implemented; the consequences of this may be that the nature and extent of suspected contamination needs to be promptly investigated, including by sampling and analysis of potentially contaminated material. This should be undertaken under the guidance of a SQEP and, based on the results, appropriate management measures put in place to manage the contaminants onsite or to remove and dispose of the contaminated material to an authorised facility. Again, this is an expected outcome of the NESCS and Regional Plan consenting process and conditions flowing from this.

WORK SINCE LODGEMENT

36. Since the application was lodged, I have been involved in further work related to contaminated land as set out below.

Response to section 92 requests for further information

37. I assisted with the response to further information requests from the Councils related to Technical Assessment I. In summary the requests focused on the procedures and mitigation measures that will be used to manage any discharges of contaminated material, should it be encountered during

construction. My responses referred to the form of Condition REW4 as it was then proposed. In any event, depending on the findings of the DSI(s), all necessary resource consent for the works, including associated discharges, shall be sought separately and the most appropriate method to manage the material agreed.

COMMENTS ON SUBMISSIONS

Prouse Trust Partnership / SJ &KM Prouse, 1024 Queen Street East, Levin

38. The Prouse Trust Partnership, 1024 Queen Street East, Levin, has provided comment that *“there is a large asbestos shed – previously painted with high possibility of contaminated soil”* located at 1015 Queen Street East.
39. I have reviewed my field records and historical imagery relating to this property, and while an inspection of the buildings was not possible at the time, I acknowledge the additional information provided by the submitter.



Figure 1: 1015 Queen Street East 2022 and historical imagery (Retrolens 1939-1942)

40. Technical Assessment I notes that there are several dwellings and associated outbuildings (including sheds) that will be removed as part of the proposed construction work, and that there is potential for lead and asbestos to have been used in these buildings - especially for asbestos if they were built or renovated between 1940 and 1990. The historical images of 1015 Queen Street East show some of the buildings on this property being present around this time (shown above on Figure 1).
41. The Technical Assessment I propose that all buildings built or renovated between 1940 and 1990 that are to be removed as part of the works are inspected for the presence of asbestos by a SQEP prior to being demolished. Where asbestos is identified the demolition of buildings is then managed by the Health and Safety at Work (Asbestos) Regulations 2016 to ensure its safe

handling, removal and disposal. This property would fall under this requirement.

42. With the additional information provided by the submitter I would recommend that in addition to the building inspection for the presence of asbestos, soil validation testing be undertaken on this property to assess if residual contaminants remain in the soil from historical buildings that have previously been removed. This quantitative analysis of soils close to the historical buildings should also be undertaken at any other sites where asbestos is identified as being present as part of the building inspections.

Chris Corke, 19 Avenue North Road, Levin 5510

43. Mr Corke made two points, one of which commented that approval of the application “*will include permission to pollute the local soil with discharge of contaminants*”.
44. In relation to the management of contaminated soil there were four properties within the Project corridor located in the vicinity of the submitters property that were identified as ‘pieces of land where an activity or industry described in the Hazardous Activities and Industries List (“HAIL”) is or has been undertaken’ (shown in Figure 2 below).



Figure 2: Land parcels located within the designation of the Project and in the vicinity of the submitters property where HAIL activities are or have been undertaken.

45. These were identified as having been used as orchard / market garden or horticultural land, however a review of historical images show that these land

activities were established post 2000. Market gardens, orchards, glasshouses and spray sheds are listed as HAIL activities due to the potential for bulk storage and use of 'persistent pesticides' including organochlorine pesticides (such as DDT), which were available for use in NZ prior to the 1970's. Given that the market gardens / orchards seen today were established at these properties post 2000, the potential risk of persistent pesticides having been used on these properties is considered 'low'.

46. In addition, the majority of the proposed works, particularly on the properties next to the railway line will involve building the land up as part of the rail overpass, limiting the amount of soil disturbance in this area. Any material imported to undertake these works would be verified as 'cleanfill' material.
47. In relation to other potential contaminated soil that could be disturbed as part of the proposed works, the application allows for further detailed site investigation works and building inspections to be undertaken at any sites initially assessed as a 'medium' or 'high' likelihood of potential contaminants being present based on historical land use. These site investigations and soil testing will quantify the level of potential contaminants present, if any, and determine if they are in concentrations above background levels. Once the DSI work has been completed, then the requirement for additional consents under the NESCS and relevant Regional Plan rules will be reviewed and applied for as required, and appropriated management measures put in place through those processes to either manage the material onsite within the Project works or to remove and dispose of the contaminated material to an authorised facility.
48. As noted above, if unexpected, contaminated, material is disturbed at any stage during Ō2NL Project works, the procedures of an unexpected discovery protocol will be implemented; and the nature and extent of suspected contamination promptly investigated, including sampling and analysis of potentially contaminated material and appropriate management measure put in place based on the findings.
49. I do not believe that the application seeks "*permission to pollute the local soil*" given the findings of the PSI assessment to date and the further DSI soil testing, building inspections and management processes that will follow from the NESCS and Regional Plan consenting processes.

COMMENTS ON THE COUNCIL REPORTS

50. I have reviewed the following reports provided by Council regarding the management of contaminated land.
- a) Section 198D Report of Helen Anderson – Planning;
 - b) Section 87F Report of Mark Leslie St.Clair – Planning;
 - c) Technical report of Sarah Newall (appended to both the section 87F and 198D report) on site contamination.
51. Both Ms Anderson's and Mr St. Clair's Council reports acknowledge that resource consents under the NES-CS and/or the One Plan and PNRP are not included as part of the application. They also accept all the matters raised by Ms Newall in her combined technical reporting, which both planning reports rely on.
52. Noting the site access constraints at the time of the application, Ms Newall's view is that the PSI is not complete because a full site walkover has not been able to be undertaken, and as such, not all HAIL sites within the Project area are identified. Ms Newall recommends that this is completed prior to the final list of sites to which the NESCS and regional rules may apply are identified.
53. While based on my experience, I would disagree that a PSI must contain a full site walk over to be considered 'complete', I acknowledge that for this project there could be more evidence to be gained once access is granted in terms of being able to look closer for evidence of HAIL activities such as sheep dips and burn pits that may be visible. Equally it is possible that no further HAIL activities will be identified by gaining additional access to that already achieved as part of my PSI.
54. The PSI submitted as part of the application is based on the conditions encountered and information reviewed at the time of preparation. As the Project design has progressed, more details are now available on the quantities and location of soil disturbance within each HAIL site identified, and more recent HAIL guidance provided by MfE, as referred to by Ms Newall in her review. I acknowledge the need for any assessment to be reviewed, where practicable, as new information or guidance comes available.

55. I also acknowledge that the findings of the asbestos survey, as recommended by the PSI, of all buildings built or renovated between 1940 and 1990 which will be disturbed as part of the works may lead to further soil validation testing if the presence of asbestos is confirmed. Based on the findings of this testing the NESCS may apply.
56. Given that resource consent for activities managed under the NESCS are not being sought at this stage of the process, it is considered that any other comments raised by Ms Newall relating to the contents of the PSI, including evidence of the wide search of historical images (including those available through Retrolens) that I reviewed as part of the PSI, and the screening methodology adopted to determine whether complete exposure pathways exists, will be further addressed as part of a NESCS application. Ms Newall has recommended amendments to proposed condition REW4, to reflect her review comments and recommendation for the PSI to be updated once a full site walkover can be completed. This revised PSI should also be informed in part by the asbestos survey.
57. Condition REW4 as originally proposed was intended to record that a PSI had been completed, and to note what specific sites require a DSI. I appreciate that Ms Newall is not comfortable with that approach.
58. The condition wording suggested by Ms Newall largely restates the requirements of the NESCS. Waka Kotahi understands that it will need to follow those requirements when applying for resource consents relating to disturbing contaminated soils for the Project. On that basis, in my view proposed condition REW4 can be deleted in its entirety.

Kathryn Anne Halder

4 July 2023