Appendix I. Contaminated Land Review

Williamson Water & Land Advisory
Unit 5A Waimauku Village
11 Factory Road, Waimauku
Auckland, New Zealand

T +64 21 65 44 22
E jon.williamson@wwla.kiwi
W www.wwla.kiwi

Te Tai Tokerau Water Trust
Whangarei

Attention: Andrew Carvell

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Te Ruaotehauhau Water Storage Reservoir, Kaikohe – Ground Contamination Review

Williamson Water & Land Advisory (WWLA) has prepared this letter to support resource consent applications for a new water storage reservoir between Hariru and Remuera Settlement Roads, Kaikohe, referred to as site Te Ruaotehauhau Water Storage Reservoir.

1. Introduction

WWLA is assisting Te Tai Tokerau Water Trust with consenting of the Te Ruaotehauhau Water Storage Reservoir, one of four proposed reservoirs in the Mid-North Scheme: Matawii (MN10), MN16, and MN02. Te Ruaotehauhau Water Storage Reservoir was identified as a viable water storage option through the Northland Water Storage and Use Project (NWSUP), as a complementary part of a distributed community scheme. The four storage sites will be connected through a distribution system, with the Te Ruaotehauhau Water Storage Reservoir capable of delivering water to supply approximately 360 hectares of horticultural land.

This letter documents the work undertaken to inform the consenting process in terms of the National Environmental Standards for Assessing and Managing Contaminants in Soil to Protect Human Health (2011) Regulation (NESCS). In summary, this letter confirms that the NESCS does not apply to the Te Ruaotehauhau Water Storage Reservoir footprint as no potentially contaminating activities were identified within the footprint.

2. Scope of Work

The Te Ruaotehauhau Water Storage Reservoir ground contamination review was undertaken to determine whether land use activities with potential to cause ground contamination had occurred within the reservoir and dam embankment footprint. The following scope of works was undertaken:

- Review of available historical information including:
  - Historical aerial photographs from 1959 to 2019, readily available on Google Earth and Retrolens; and
  - Interviews with the landowner.
- Assessment of available geological information in the project database including from geotechnical, archaeological and ecological studies;
- Assessment of identified land use activities against the Hazardous Activity and Industries List (HAIL)[1]; and
- Site walkover by a WWLA contaminated land specialist.

[1] Ministry for the Environment Hazardous Activity and Industries List

Intrusive investigations were not part of this report.

This documentation is prepared in general accordance with CLMG 1[2] and industry best practice guidance whose use is directed by CLMG 2[3] in terms of assessing potential for contamination at the site and applicability of the NESCS.

3. Site Description and Setting

The footprint is located on properties along Hariru and Remuera Settlement Roads, Kaikohe, as described by **Table 1**. The proposed reservoir boundaries are shown in **Figure 1**. The bulk of the footprint is at approximately 200 m RL. Geologically, the site lies within Kerkeri Group basalts. Watercourses in the area drain to the Kerikeri inlet.

Table 1: Property details

Legal Description	Record of Title	Estate Type	Registered Owner
Lot 2 Deposited Plan 442506	552150	Fee Simple	D.G. Dixon & Son Limited
Lot 5 Deposited Plan 533953	878815	Fee Simple	Bruce Campbell Bell Helen Sheila Bell
Section 16S Remuera Settlement	NA1034/210	Fee Simple	Bruce Campbell Bell Helen Sheila Bell
Lot 3 Deposited Plan 97908	NA53B/976	Fee Simple	Mountain View Farms 2018 Limited
Okokako	NA768/20	Fee Simple	D.G. Dixon & Son Limited

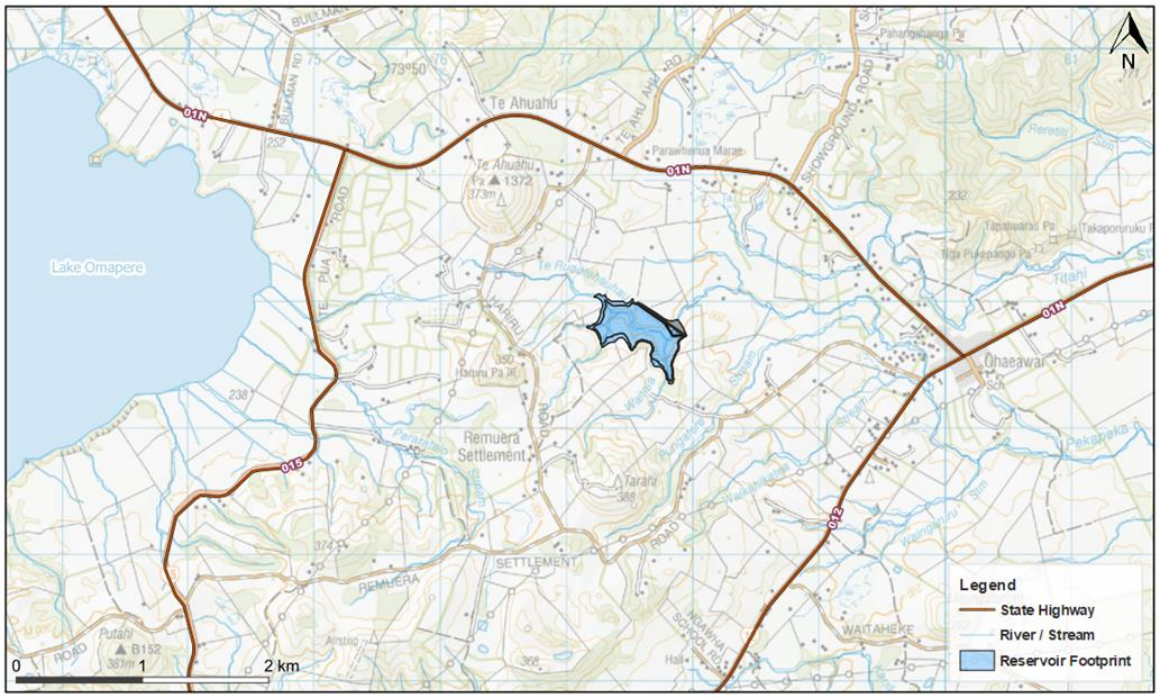


Figure 1: Location of Te Ruaotehauhau Water Storage Reservoir

[2] Ministry for the Environment, 2011: Contaminated Land Management Guideline (CLMG) No.1 – Reporting on Contaminated Sites in New Zealand.
[3] Ministry for the Environment, 2011: Contaminated Land Management Guideline No.2 – Hierarchy and Application of Guideline Values in New Zealand.

4. Land Use and History

The reservoir footprint is currently pastoral farmland and based on review of historical aerial imagery has been pasture since at least the 1950s. Aside from construction of fencing, access tracks, and rotational feed-cropping during the 2000s, no other activities were evident on the imagery. The aerial imagery review is provided as **Table A1**, **Attached**.

The site walkover confirmed the most recent aerial imagery review (Google Earth, 2020) with fencing present and no roadways or other structures identified. Use of herbicides was observed (strips of dead vegetation) along fence lines.

Photograph 1. Current features within the Te Ruaotehauhau Water Storage Reservoir footprint.

5. Potential for Contamination

The historical review confirms only a pastoral use within the proposed reservoir footprint, and within land immediately surrounding the footprint. We do not consider rotational stock feed cropping to be a HAIL activity in this context, given it has occurred post the period when persistent pesticides were used (pre-1980s) and due to its short duration. Use of herbicides are in this case not considered a HAIL as modern herbicides have a very short residual time in soils (<2 weeks).

Therefore, no contaminated land-related land uses included on the HAIL have been identified within the proposed reservoir footprint.

6. NESCS Applicability

The NESCS came into effect on 1 January 2012. The legislation sets out nationally consistent planning controls appropriate to district and city councils for assessing potential human health effects related to contaminants in soil. The regulation applies to specific activities (including land use change and soil disturbance, activities associated with reservoir development) on land where an activity included on the HAIL has occurred.

Our assessment of the NESCS applicability is set out in **Table 2**. The checklist review confirms the NESCS does not apply to the reservoir development works as it does not meet the applicability for *Land Covered* (Regulation 5, Clause 7).

Table 2. NESCS applicability checklist

NESCS Requirement	Applicable to site
Is an activity described on the HAIL currently being undertaken on the piece of land to which this application applies?	No
Has an activity described on the HAIL ever been undertaken on the piece of land to which this application applies?	No
Is it more likely than not that an activity described on HAIL is being or has been undertaken on the piece of land to which this application applies?	No
If 'Yes' to any of the above, then the NES Soil may apply. The five activities to which the NES applies are:	
Is the activity you propose to undertake removing or replacing a fuel storage system or parts of it?	No
Is the activity you propose to undertake sampling soil?	No
Is the activity you propose to undertake disturbing soil?	Yes
Is the activity you propose to undertake subdividing land?	Potentially
Is the activity you propose to undertake changing the use of the land?	Yes
CONCLUSION: The NESCS does not apply to the Te Ruaotehauhau Water Storage Reservoir development.	

7. Conclusions

A desk-study and site walkover review within the proposed Te Ruaotehauhau Water Storage Reservoir footprint shows the site has been pastoral farmland over most of its history, with no current or previously occurring HAIL activities present.

There are also no HAIL activities identified immediately outside the current reservoir footprint, thus any modifications to the reservoir footprint will not trigger additional considerations from a contaminated land perspective.

No contaminated land related mitigation or management is required for consenting or construction based on the information available at this time.

Please do not hesitate to contact the undersigned should you require any further clarification.

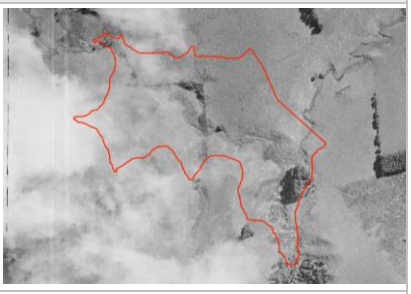
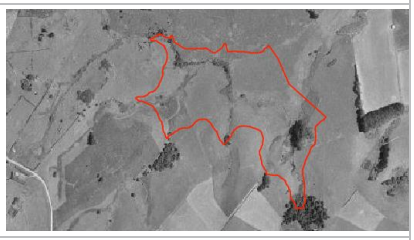
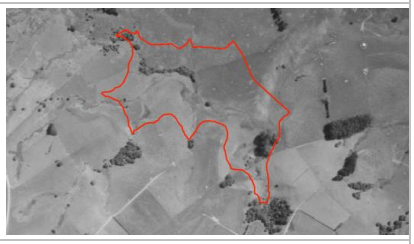
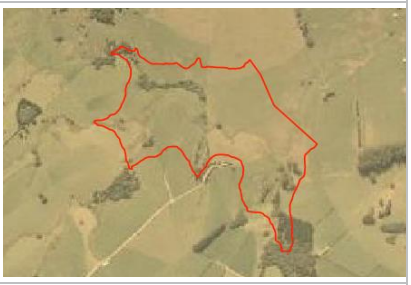
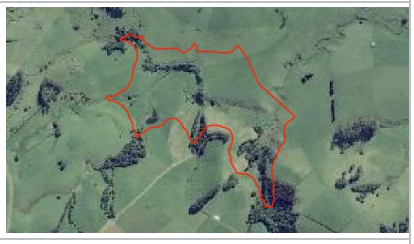
Yours sincerely,

Wendi Williamson
Principal Contaminated Land Advisor
+64 21 613 408 | wendi.williamson@wwla.kiwi

Attached:

Table A1. Historical aerial imagery review

Table A1. Historical aerial photograph review.

Photograph date (source)	Activities	Aerial image
1955 Retrolens	The footprint is partially obscured by cloud in the western side. The land appears undeveloped bare pastoral. A watercourse runs from the northwest to the southest corner and is vegetated in patches with shrubs and large trees in the west. Potential slope instability visible in the central east of the site directly north of the large trees.	
1969 Retrolens	No significant changes are apparent. The western portion of the site is now visible, with evidence of basic road tracks loosely following watercourse channel contours.	
1981 Retrolens	Basic roading appears to no longer be visible. Watercourse channels are mostly dry and unvegetated, with vegetation unchanged since the 1955 imagery. Fences can be seen in the northwest.	
2000 Far North District Council Geomaps	Roading has been extended approaching the centre of the footprint. No changes are apparent within the footprint.	
2006 Far North District Council Geomaps	Vegetation appears to have intensified along watercourse channels.	
2009 Google Earth	New roading tracks can be seen leading into the northwest corner. Extensive planting or irrigating has been undertaken in the central segment of the site. A narrow road is present through the segment.	

Photograph date (source)	Activities	Aerial image
2013 Google Earth	No significant changes are apparent. Roading has not progressed into the site, and several tracks appear to no longer be in use.	
2019 Google Earth	Very little has changed in the area between 2013 and the most recent aerial images. Slope instability