

Application for resource consent or fast-track resource consent

Or Associated Consent Pursuant to the Resource Management Act 1991 (RMA)) (If applying for a Resource Consent pursuant to Section 87AAC or 88 of the RMA, this form can be used to satisfy the requirements of [Form 9](#)). Prior to, and during, completion of this application form, please refer to [Resource Consent Guidance Notes](#) and [Schedule of Fees and Charges](#) — both available on the Council's web page.

1. Pre-Lodgement Meeting

Have you met with a council Resource Consent representative to discuss this application prior to lodgement?

☐ Yes ☐ No

2. Type of consent being applied for

(more than one circle can be ticked):

- | | |
|---|---|
| ☐ Land Use | ☐ Discharge: Total volume = <input type="text" value=""/> m ³ |
| ☐ Fast Track Land Use* | <i>Note; volumes >3m³ requires NRC Consent.</i> |
| ☐ Change of Consent Notice (s.221(3)) | ☐ Subdivision |
| ☐ Certificate of Compliance (s.139) | ☐ Existing Use Certificate (s.139A) |
| ☐ Extension of time (s.125) | ☐ Consent under National Environmental Standard
(e.g. Assessing and Managing Contaminants in Soil) |

☐ Other (please specify)

**The fast track is for simple land use consents and is restricted to consents with a controlled activity status.*

3. Would you like to opt out of the fast track process?

☐ Yes ☐ No

4. Consultation

Have you consulted with iwi/Hapū? ☐ Yes ☐ No

If yes, which groups have you consulted with?

Who else have you consulted with?

For any questions or information regarding iwi/hapū consultation, please contact:
The Resource Consents Planning Technicians, planning_technicians@fndc.govt.nz

5. Applicant details

Name/s:

Far North District Council c/- Infrastructure Consents

Email:

Phone number:

Postal address:

(or alternative method
of service under section
352 of the act)

Have you been the subject of abatement notices, enforcement orders, infringement notices and/or convictions under the Resource Management Act 1991? ☐ Yes ☒ No

If yes, please provide details.

6. Address for correspondence

Name and address for service and correspondence (if using an Agent write their details here)

Name/s:

Shawn Baker

Email:

Phone number:

Postal address:

(or alternative method of
service under section 352
of the act)

All correspondence will be sent by email in the first instance. Please advise us if you would prefer an alternative means of communication.

Email is preferred

7. Details of property owner/s and occupier/s

Name and Address of the owner/occupiers of the land to which this application relates (where there are multiple owners or occupiers please list on a separate sheet if required)

Name/s:

Property address/
location:

8. Application site details

Location and/or property street address of the proposed activity:

Name/s:

Site address/
location:

Postcode

Legal description:

Val Number:

Certificate of title:

Please remember to attach a copy of your Certificate of Title to the application, along with relevant consent notices and/or easements and encumbrances (search copy must be less than 6 months old)

Site visit requirements:

Is there a locked gate or security system restricting access by Council staff? ☐ Yes ☐ No

Is there a dog on the property? ☐ Yes ☐ No

Please provide details of any other entry restrictions that Council staff should be aware of, e.g. health and safety, caretaker's details. This is important to avoid a wasted trip and having to re-arrange a second visit.

9. Description of the proposal

Please enter a brief description of the proposal here. Please refer to Chapter 4 of the *District Plan, and Guidance Notes*, for further details of information requirements.

If this is an application for a Change or Cancellation of Consent Notice conditions (s.221(3)), please quote relevant existing Resource Consents and Consent Notice identifiers and provide details of the change(s), with reasons for requesting them.

The proposal has been prepared in accordance with the following version of the FNDC Engineering Standards:

☐ 2009 ☐ 2023

10. Would you like to request public notification?

☐ Yes ☐ No

11. Other consent required/being applied for under different legislation

(more than one circle can be ticked):

☐ Building Consent

☐ Regional Council Consent (ref # if known)

☐ National Environmental Standard Consent

☐ Other (please specify)

12. National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health:

The site and proposal may be subject to the above NES. In order to determine whether regard needs to be had to the NES please answer the following:

Is the piece of land currently being used or has it historically ever been used for an activity or industry on the Hazardous Industries and Activities List (HAIL)? ☐ Yes ☐ No ☐ Don't know

Is the proposed activity an activity covered by the NES? Please tick if any of the following apply to your proposal, as the NESCS may apply as a result? ☐ Yes ☐ No ☐ Don't know

☐ Subdividing land

☐ Disturbing, removing or sampling soil

☐ Changing the use of a piece of land

☐ Removing or replacing a fuel storage system

13. Natural hazards (National Policy Statement for Natural Hazards 2025)

Is the site subject to known or potential natural hazards (for example, flooding, coastal inundation, erosion, or unstable land), as contemplated by the National Policy Statement for Natural Hazards 2025? ☐ Yes ☐ No

If yes, please identify the relevant natural hazard(s) by ticking the applicable box(es) below:

☐ Flooding

☐ Active Faults

☐ Landslips

☐ Liquefaction

☐ Coastal Erosion

☐ Tsunami

☐ Coastal Inundation

Please ensure all relevant technical reports are submitted with the application.

14. Assessment of environmental effects:

Every application for resource consent must be accompanied by an Assessment of Environmental Effects (AEE). This is a requirement of Schedule 4 of the Resource Management Act 1991 and an application can be rejected if an adequate AEE is not provided. The information in an AEE must be specified in sufficient detail to satisfy the purpose for which it is required. Your AEE may include additional information such as written approvals from adjoining property owners, or affected parties.

Your AEE is attached to this application ☐ Yes

15. Draft conditions:

Do you wish to see the draft conditions prior to the release of the resource consent decision? ☐ Yes ☐ No

If yes, please be advised that the timeframe will be suspended for 5 working days as per s107G of the RMA to enable consideration for the draft conditions.

16. Billing Details:

This identifies the person or entity that will be responsible for paying any invoices or receiving any refunds associated with processing this resource consent. Please also refer to Council's Fees and Charges Schedule.

Name/s: (please write in full)

Simone Elsmore

Email:

Phone number:

Postal address:

(or alternative method of service under section 352 of the act)

Fees Information

An instalment fee for processing this application is payable at the time of lodgement and must accompany your application in order for it to be lodged. Please note that if the instalment fee is insufficient to cover the actual and reasonable costs of work undertaken to process the application you will be required to pay any additional costs. Invoiced amounts are payable by the 20th of the month following invoice date. You may also be required to make additional payments if your application requires notification.

Declaration concerning Payment of Fees

I/we understand that the Council may charge me/us for all costs actually and reasonably incurred in processing this application. Subject to my/our rights under Sections 357B and 358 of the RMA, to object to any costs, I/we undertake to pay all and future processing costs incurred by the Council. Without limiting the Far North District Council's legal rights if any steps (including the use of debt collection agencies) are necessary to recover unpaid processing costs I/we agree to pay all costs of recovering those processing costs. If this application is made on behalf of a trust (private or family), a society (incorporated or unincorporated) or a company in signing this application I/we are binding the trust, society or company to pay all the above costs and guaranteeing to pay all the above costs in my/our personal capacity.

Name: (please write in full)

Simone Elsmore

Signature:

(signature of bill payer)

Date 17/08/2026

MANDATORY

17. Important Information:

Note to applicant

You must include all information required by this form. The information must be specified in sufficient detail to satisfy the purpose for which it is required.

You may apply for 2 or more resource consents that are needed for the same activity on the same form.

You must pay the charge payable to the consent authority for the resource consent application under the Resource Management Act 1991.

Fast-track application

Under the fast-track resource consent process, notice of the decision must be given within 10 working days after the date the application was first lodged with the authority, unless the applicant opts out of that process at the time of lodgement.

A fast-track application may cease to be a fast-track application under section 87AAC(2) of the RMA.

Privacy Information:

Once this application is lodged with the Council it becomes public information. Please advise Council if there is sensitive information in the proposal. The information you have provided on this form is required so that your application for consent pursuant to the Resource Management Act 1991 can be processed under that Act. The information will be stored on a public register and held by the Far North District Council. The details of your application may also be made available to the public on the Council's website, www.fndc.govt.nz. These details are collected to inform the general public and community groups about all consents which have been issued through the Far North District Council.

18. Declaration

The information I have supplied with this application is true and complete to the best of my knowledge.

Name (please write in full)

Liam Cubeles-Conway

Signature

Date 17/08/2026

A signature is not required if the application is made by electronic means

See overleaf for a checklist of your information...

Checklist of your information

Please tick if information is provided

- ☐ Payment (cheques payable to Far North District Council)
- ☐ A current Certificate of Title (Search Copy not more than 6 months old)
- ☐ Details of your consultation with Iwi and hapū
- ☐ Copies of any listed encumbrances, easements and/or consent notices relevant to the application
- ☐ Applicant / Agent / Property Owner / Bill Payer details provided
- ☐ Location of property and description of proposal
- ☐ Assessment of Environmental Effects
- ☐ Written Approvals / correspondence from consulted parties
- ☐ Reports from technical experts (if required)
- ☐ Copies of other relevant consents associated with this application
- ☐ Location and Site plans (land use) AND/OR
- ☐ Location and Scheme Plan (subdivision)
- ☐ Elevations / Floor plans
- ☐ Topographical / contour plans

*Please refer to Chapter 4 of the District Plan for details of the information that must be provided with an application.
Please also refer to the RC Checklist available on the Council's website. This contains more helpful hints as to what information needs to be shown on plans.*

Kawakawa Wastewater Treatment Plant Upgrade

Resource Consent Application to Far North District Council
for Boundary Setbacks and Enabling Earthworks (HAIL) for
Kawakawa WWTP Upgrades.

August 2026



Photo - Kawakawa WWTP view of proposed earthworks site from the bioreactor tank

Report Information and Quality Control

Prepared for:	Far North District Council
Author:	Shawn Baker, Senior Infrastructure Planner, Infrastructure Consenting, FNDC  Date: 17 August 2026
Reviewer:	Shanay Howard, Intermediate Planner, Infrastructure Consenting, FNDC  Date: 22/06/2026
Approved:	Simone Elsemore, Team Leader, Infrastructure Consenting FNDC Date: 3/08/2026
Document Name:	Resource Consents Application to Far North District Council (FNDC) for Boundary Setbacks and Enabling Earthworks (HAIL) for Kawakawa WWTP Upgrades, June 2026.

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1. Applicant and property details.

Applicant:	Far North District Council (FNDC) Infrastructure Consenting Attn: Shawn Baker
Address for Service:	Far North District Council Memorial Avenue Private Bag 752 Kaikohe 0440
Site Address	No associated street address identified
Legal Description:	Section 1 Survey Office Plan 70768
Site Area:	2.62ha
Owner of Site:	Far North District Council
Occupiers of Site:	NA – Wastewater Treatment Plant

Table 1: Applicant and site information

2. Proposal

Far North District Council (FNDC), has obtained funding through the Infrastructure Acceleration Fund (IAF) to facilitate upgrades at the Kawakawa Wastewater Treatment Plant (WWTP).

The upgrades will

- Increase the capacity of the WWTP enabling more affordable housing in Kawakawa.
- Improve wastewater treatment and discharge quality.

The overall concept design is set out in figure 1 below and in Appendix C. It is noted that the current design is a concept design only. It is expected that a design build contract will be let, as such the final design may differ from that provided below.

Although the detailed design may differ, the proposed location of buildings will remain within 10m of the eastern site boundary. In addition, any earthworks will remain within Permitted Activity criteria, with the exception of the site being a HAIL site.

The upgrade will be undertaken as a Design Build Contract and will require the following activities to be undertaken on the site (Figure 1):

- Construct a diversion drain and retaining around the sides of the new treatment plant foundation pad to protect from a 1:100year flood event.
- Cut to 1m below the existing surface across works area (~ 1360 m³). The cut material will be re-used on-site as fill material wherever appropriate. Where cut material is not utilized on-site, the material will be disposed of at a suitably licensed facility.
- Fill hard stand area (~965 m³) and install ground stabilization piles.
- Construct concrete slab for new Wastewater Treatment Plant (~ 270m³)
- Install services and pipelines, install wastewater treatment plant.
- Connect and commission.

The new wastewater treatment plant will be located less than 10m from the eastern boundary. The location of the plant is required to take advantage of the better ground conditions on the eastern part of the site.

There is a functional need to locate the containers at the proposed location.

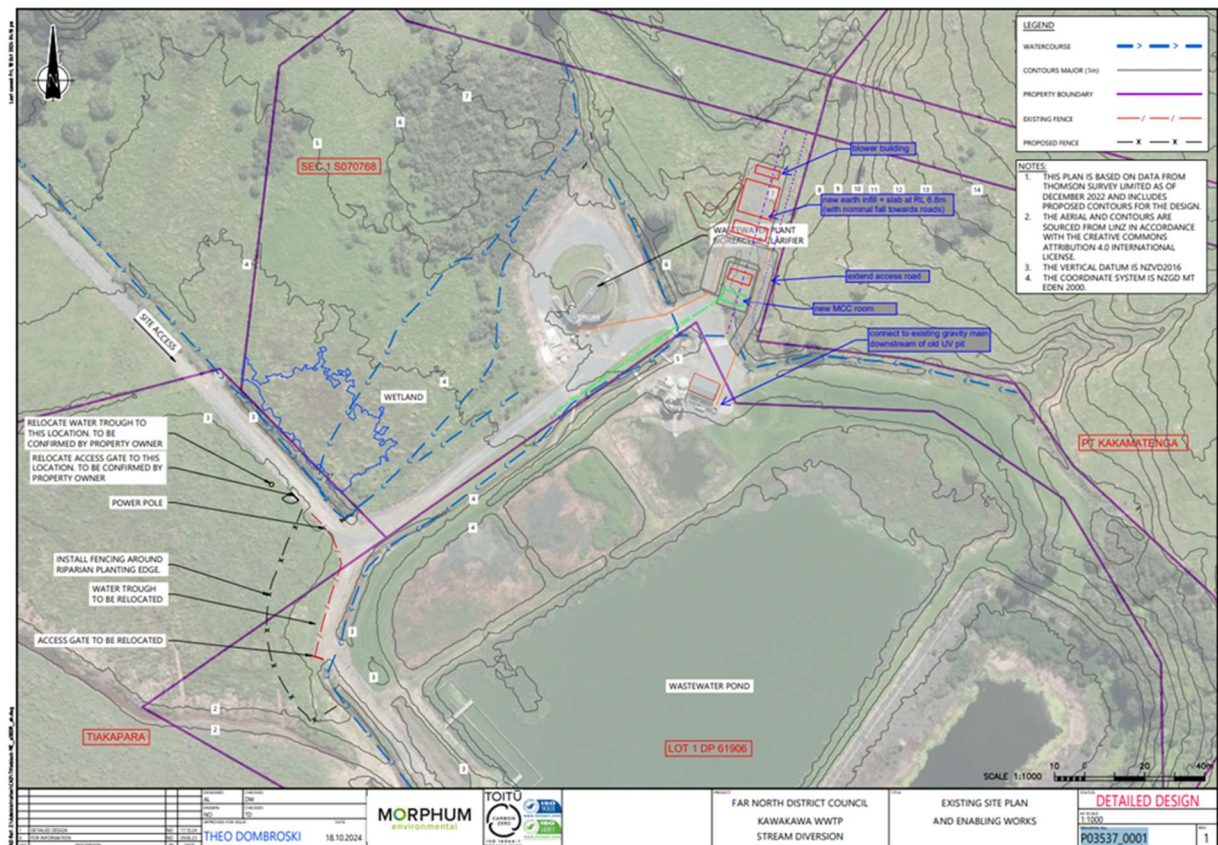


Figure 1: Site plan showing location of earthworks - also refer Appendix C

3. Far North District Plan(s)

3.1 Operative District Plan

The following applies to the subject site:

Zoning:	Rural Production
Overlays:	There are no overlays for this site.
Designations:	There are no Designations on the site.
Other:	N/A

3.2 Proposed District Plan

The Proposed District Plan – Decisions Version (PDP) was approved on 29 June 2026. The rules within the PDP Decisions Version now have legal effect. (Section 5).

The following applies to the subject site:

Zoning:	Rural Production
Overlays:	There are no overlays for this site.
Designations:	There are no Designations on the site.
Other:	N/A

4. Other Statutory Documents

The proposal has been assessed against the following statutory documents (Section 8):

- Regional Policy Statement for Northland 2016 (RPS).
- Regional Plan for Northland – February 2024 (PRPN).
- National Policy Statement for Infrastructure 2025.
- National Policy Statement for Highly Productive Land (NPS-HPL)
- National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health 2011 (NESCS).
- Water Services (Wastewater Environmental Performance Standards) Regulations 2025.

5. Consents Required

5.1 Consents Required

The following consents are required under the Far North Operative District Plan:

Rule	Status	Reason
8.6.5.1.4 <i>Setback from Boundaries</i>	Restricted discretionary	Buildings in the Rural Production zone to be set back 10m from site boundaries. The proposed Wastewater treatment plant containers are within 10m of the eastern boundary.
12.3.6.1.1. Earthworks	Permitted	The proposed earthworks volume is less than 5000m ³ and the cut and fill height is less than 1.5m.

The following rules in the Proposed District Plan – Decisions Version are applicable:

Rule	Status	Reason
EW-R12	Permitted	Earthworks and the discovery of suspected sensitive material. The applicant will include an Accidental Discovery Protocol in the Site Management Plan.
EW-R13	Permitted	Earthworks and erosion and sediment control. The applicant will be compliant with: <i>Erosion and Sediment Control Guidelines for Land Disturbing Activities in the Auckland Region 2016</i> (Auckland Council Guideline Document GD2016/005);
I-R17	Restricted Discretionary	Construction and upgrading of above ground water supply, wastewater systems, or stormwater infrastructure. The applicant seeks to construct and upgrade an above ground wastewater system.
NH-R9	Restricted Discretionary	New structures (excluding buildings) or infrastructure, and extensions or alterations that increase the footprint of an existing structure (excluding buildings) or infrastructure (excluding structural mitigation assets)

The following consent are required under the NES for Assessing and Managing Contaminants in Soil to Protect Human Health (NESCO).

Regulation	Status	Reason
NESCO Regulation 9(1)(c)	Controlled Activity	The NESCO describes a 'piece of land' as land that has had, currently has, or most likely has had, activities listed on the Hazardous Activities and Industries List (HAIL). The Kawakawa - WWTP is a HAIL site under category <i>G.6 - Waste recycling or waste or wastewater treatment</i> .

Overall, this Resource Consent has been assessed as a Restricted Discretionary Activity.

5.2 Consent Duration

Pursuant to s.125(1)(a) RMA land use consents have a default lapse period of 5 years, unless a different lapse date is specified in the consent. The lapse date only applies to when the consent must have been given effect too.

In this case, a 10-year lapse period is sought. The 10-year timeframe is sought for the following reasons:

- There is uncertainty as to how the current Three Waters reform will impact the timeframes for the overall Kawakawa WWTP upgrade.
- The overall scale of the project is significant, increasing the risk of unforeseen construction delays.
- The overall project is subject to government and other public funding, which is subject to influences outside of the projects control.

In addition to this consent, the proposal also requires consent from the NRC. Pursuant to s.123 RMA the application to NRC is seeking a 10-year lapse period.

6.Site Description

6.1 Subject Site

The subject site is located to the northeast of Kawakawa. The site is accessed via a Right of Way over Lot 3 DP 208523 from State Highway 1.

Legal Description:	Section 1 SO 70768.
Certificate of Title:	317977
Site area:	2.62ha

The site is adjacent to Lot 1, DP61906, Blk XII, Kawakawa SD, which is designated as the Kawakawa Sewage Treatment and Disposal (FN 170). There is a common boundary between the two sites located on the western and southern boundary of the subject site (Figure 2). It is noted that Designation FN 170 does not extend into the subject site.

The site is classified as a Hazardous Activity and Industry List (HAIL) site under category G.6 wastewater treatment. In accordance with the National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health (NESC) a preliminary site investigation and detailed site investigation (PSI/DSI) has been carried out (Appendix B). Sampling

undertaken extended into the proposed earthworks site. The PSI/DSI confirmed that there is no significant contaminated land restraint on development of the land for commercial / industrial purposes and that standard earthworks controls are appropriate (Section 7 and Appendix B).

The site topography of the subject site is flat and low lying with rough pasture and scattered trees.

The underlying geology is Tauranga Group Holocene River deposits and Kerikeri Volcanic Group – Neogene igneous rocks at the northeastern boundary of the subject site.

There is a consented sludge disposal area located within the subject site and to the north of the proposed earthworks (figure 2).

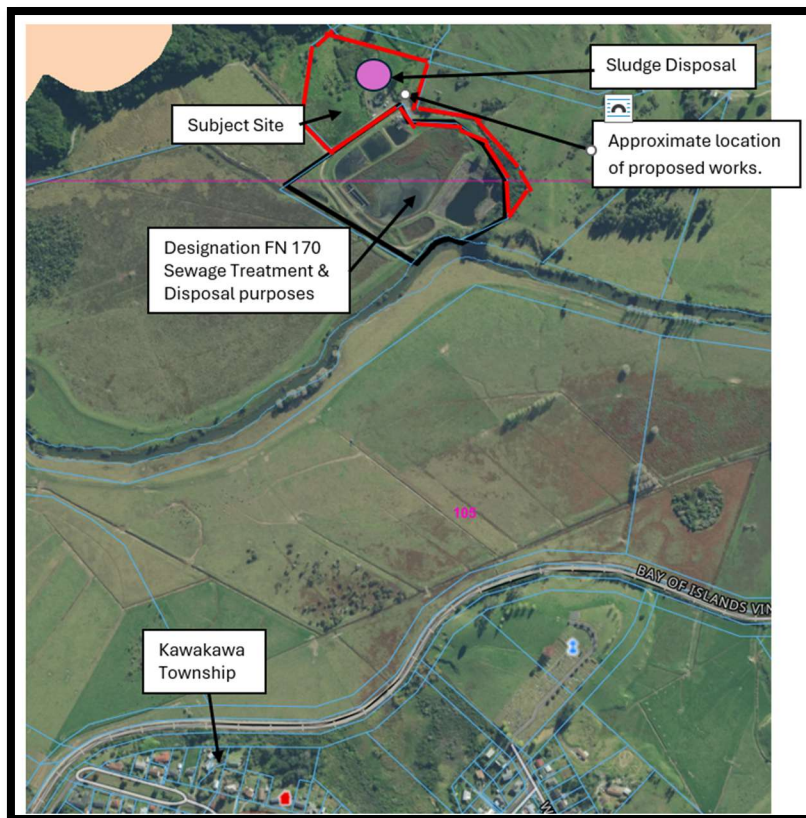


Figure 2: General site location and surrounds (Google maps)

The subject site is within the 1:100-year flood zone (Source NRC Flood Hazard maps – Figure 4). Neither the 1:10-year or 1:50-year modelled flood zones (Figure 3) encroach into the subject site, although it is noted that their extent does encroach into adjacent lots.

The subject site is located on the boundary of LUC3 and LUC4 land. The proposed earthworks site extends across both LUC 3 and LUC 4 land.



Figure 3: River flood hazard zone - Regionwide models (50 ear event: Source NRC Hazard maps



Figure 4: River flood hazard zone - Priority rivers (100-year event) - Source: NRC Hazard maps

6.2 Surrounding Environment

The subject site is generally located to the northeast of the Kawakawa township. The area is characterized by low lying pasture and rural production land. The Kawakawa River is located approximately 225m to the south of the site.

The topography rises sharply to the north, beyond the subject site. The bush clad range extends in a roughly east-west direction and is identified as an Outstanding Landscape Area.

There is a mapped “known wetland” on the adjacent property to the west. The mapped wetland is approximately 145m from the proposed earthwork location.

6.3 Receiving Environment

6.3.1 Receiving Environment Definition

Section 2 of the RMA defines the environment as including:

- (a) Ecosystems and their constituent parts, including people and communities; and
- (b) All natural and physical resources; and
- (c) Amenity values; and
- (d) The social, economic, aesthetic, and cultural conditions which affect the matters stated in paragraphs (a) to (c) or which are affected by those matters.

The receiving environment includes the existing environment and any reasonably foreseeable changes to the environment such as those resulting from permitted activities or from the continued implementation of existing consents.

The receiving environment is relevant in RMA planning assessments because it is the receiving environment that the proposed activity will affect. Effects that are anticipated and sustainable in some environments are not anticipated or sustainable in others.

An assessment of the receiving environment around the Kawakawa WWTP is provided below.

6.3.2 Existing Environment

The existing environment is the environment upon which a proposed activity may have effects.

In this case, the existing environment is the flood plain of the Kawakawa River. Surface water runoff from the site is anticipated to flow south toward the Kawakawa River. Based on the site and surrounding topography; groundwater flow direction beneath the site is also anticipated to be toward the Kawakawa River.

The Kawakawa River is approximately 225m from the work site. The river flows east, turning north before discharging into the Bay of Islands. There are no private wells or source water protection zones within 200m of the worksite. The site is not above any known significant aquifers (Appendix B).

The dominant landuse in the Kawakawa River valley is pastoral farming. The river flows into a mangrove estuary approximately 3km from the site, then into the Waikare Inlet. There is a marina, and some aquaculture farms in the Waikare Inlet.

6.3.3 Foreseeable Environment

The receiving environment includes reasonably foreseeable changes that could occur due to permitted activities.

The Kawakawa River Valley is subject to flooding, including during a 1:10-year flood event. Due to the flood risk and zoning, intensification of development in the Kawakawa River valley downstream of the Kawakawa WWTP is not anticipated.

Population growth and development in the town of Kawakawa is currently constrained by lack of wastewater and water infrastructure. Upgrading and future proofing the Kawakawa WWTP will enable FNDC to meet the reasonably foreseeable infrastructure needs of the Kawakawa community¹.

Climate change may lead to increased frequency of intensive storms and flooding². The proposed upgrades have been designed to anticipate climate change predictions.

An assessment of the effects of the proposed activity is provided in section 7 of this report.

¹ [Funding will enable hundreds of new houses in Kawakawa and Kaikohe | Far North District Council](#)

² [Northland's climate issues and emissions - Northland Regional Council](#)

7. Assessment of Environmental Effects

This assessment of environmental effects (AEE) provides the information required by Schedule 4 of the Act and is commensurate with the scale of the proposed activity.

7.1 Positive Effects

Kawakawa's current wastewater treatment plant is outdated, under-capacity and located in a flood hazard area. FNDC obtained funding from the Infrastructure Acceleration Fund (IAF) to address these issues and to support and enable the construction of new homes in the Kawakawa township.

7.1.1 Enabling Housing Development

The current Kawakawa WWTP does not have sufficient capacity to support further residential and commercial development in the Kawakawa township.

The proposed Kawakawa WWTP upgrades (alongside other infrastructure upgrades) are critical to improving the capacity of wastewater treatment in Kawakawa. Completing the upgrades will enable new housing projects and other future developments. This will improve socio-economic and housing outcomes in Kawakawa.

7.1.2 Protect Waterways

The project, which is subject to this consent application, will have the outcome of improving the overall treatment of wastewater in Kawakawa and increasing capacity of the treatment system.

Increasing the WWTP capacity will enable the Plant to more reliably treat the existing wastewater, and any future increases in wastewater generated by new development of the Kawakawa community.

Increased capacity and improvements to the treatment system enabled by this consent will significantly reduce the risk of poorly treated wastewater entering the environment and nearby waterways.

By reducing the risk of insufficiently treated wastewater entering the environment, the proposed upgrades will deliver tangible environmental benefits, support public health, and contribute to the long-term resilience and sustainability of the Kawakawa wastewater network.

7.2 Potential Adverse Effects

7.2.1 Background

This application is made for consent under the following rules in the Operative District Plan, Proposed District Plan – Decisions Version, and the NESCS:

- **Rule 8.6.5.1.4** – Restricted Discretionary Activity for setbacks from boundaries.
- **Rule I-R17** – Restricted Discretionary Activity for construction and upgrading of above ground water supply, wastewater systems, or stormwater infrastructure.
- **Rule NH-R9** - Restricted Discretionary Activity for new structures (excluding buildings) or infrastructure, and extensions or alterations that increase the footprint of an existing structure (excluding buildings) or infrastructure (excluding structural mitigation assets).
- **RPROZ-S3** – Restricted Discretionary Activity for setbacks less than 10m from boundary.
- **NESCS Regulation 9(1)(c)** - Controlled Activity for earthworks on a HAIL site.

Overall, the application is for a Restricted Discretionary Activity. The rules under which this application is made sets out the matters that Council has restricted its discretion. In the case of the Controlled Activities, the matters to which the NESCS retains control.

This assessment has been divided into two components:

- Section 7.2 addresses the matters that arise from the FNDC District Plan (Operative and Proposed).
- Section 7.3 addresses the matters that arise from NESCS Regulation 9(1)(c).

This Assessment of Environmental Effects (AEE) is restricted to the matters that Council has retained discretion, or control.

Overall, Council has retained discretion or control over the following matters:

Matter for Discretion or Control	Refer Section
Rule 8.6.5.1.4	
The extent to which the building(s) reduces outlook and privacy of adjacent properties	7.2.3
The extent to which the buildings restrict visibility for access and egress of vehicles.	7.2.4
The ability to mitigate any adverse effects on the surrounding environment, for example by way of planting	7.2.6

The extent to which the buildings and their use will impact on the public use and enjoyment of adjoining esplanade reserves and strips and adjacent coastal marine areas.	7.2.7
Rule I-R17	
The functional and operational need of, and benefits from, the network utility	7.2.2
The potential impact on the levels of service or health and safety if the work is not undertaken	7.1.1
The bulk, height , location and design of the network utility , including any associated building(s) or structures	7.2.5
The impact on the character and qualities of the surrounding area	7.2.6
Odour, noise , dust .	7.2.8
Any adverse effects on public health and/or safety	7.2.9
In the case of water supply, the PAS 4509:2008 New Zealand Fire Service Firefighting Water Supplies Code of Practice.	Not applicable
Rule NH-R9	
The effects of flood hazards on the integrity of the structure or infrastructure to the extent that such effects are not appropriately managed by the building consent process under the Building Act 2004.	7.2.10
Whether the works are likely to accelerate, worsen or result in material damage to that land , other land or any building or structure through inundation.	7.2.11
The effects of the development, including earthworks , on overland flow paths and flood depths, velocity or frequency within the site or on surrounding sites .	7.2.11 7.2.12
The ability to relocate the structure or infrastructure or adapt to the flood hazard over time or in response to direct effects of the hazard	7.2.13
The extent to which the risk to people and property from the flood hazard is avoided or managed.	7.2.12
The nature of the activity being undertaken and its vulnerability to the potential effects of flooding.	7.2.10
Provision of safe access and egress to the structure or infrastructure during a flood event.	7.2.4
Whether there is a functional or operational need for the structure or infrastructure to be located within the flood hazard area.	7.2.2
The proposed use of, necessity for and design of engineering solutions (soft or hard) to mitigate the hazard.	7.2.11
The resilience of the structure or infrastructure to the effects of the hazard.	7.2.11
The methods provided to manage activities and uses within the site , including safe egress from structures or infrastructure ,	7.2.12

or the site and the management of people and property during a flood event.	
RPROZ-S3	
The character and amenity values of the surrounding area	7.2.6
Screening, planting and landscaping on the site .	7.2.6
The design and siting of the building or structure with respect to privacy and shading	7.2.3 7.2.5
Natural hazard mitigation and site constraints	7.2.10
The effectiveness of the proposed method for controlling stormwater ;	7.2.13
The safety and efficiency of the current or future access, egress on site and the roading network	7.2.4
The impacts on existing and planned public walkways, reserves and esplanades	7.2.7
The health and amenity impacts of dust from unsealed roads on habitable buildings .	7.2.8
The location and design of the building as it relates to the ability to safely use, access and maintain buildings without requiring access on, above or over the rail corridor	Not applicable
The safe and efficient operation of the rail network.	Not applicable
NESCS Regulation 9(1)(c)	
The adequacy of the detailed site investigation,	Appendix B
How the activity must be managed (which may include the requirement of a site management plan); monitored; and reported on.	7.3.1 7.3.2
The transport, disposal, and tracking of soil and other materials taken away in the course of the activity:	7.3.2
The timing and nature of the review of the conditions in the resource consent	Not applicable
The duration of the resource consent	5.2

Table 2: Matters of Discretion cross references

7.2.2 Functional need and Location

There is a functional need for the proposed wastewater treatment plant to be located adjacent to the existing WWTP as both Plants will operate as a single treatment system to improve treatment quality and capacity.

The location of the proposed wastewater plant and associated earthworks provides the most efficient location for the ongoing operation of the WWTP and makes use of the most suitable soil and ground conditions for locating the proposed Wastewater Plant.

7.2.3 Outlook and Privacy

The proposed work and subject site are located adjacent to the existing Kawakawa WWTP, which includes oxidation ponds, tanks and ancillary buildings.

The proposed structures are >300m from the nearest residence. The adverse effect on any existing residence is therefore assessed as less than minor.

It is noted that the applicant does not propose landscape planting to mitigate the less than minor effect on outlook and privacy.

7.2.4 Visibility for Access and Egress

The proposed wastewater plant and associated enabling earthworks (permitted) are not expected to generate a significant increase in traffic.

There will be some additional traffic generated during the construction phase of the project. Traffic will include the delivery of machinery, construction material and Plant. Traffic will be temporary in nature for the duration of the construction and installation phase.

Following construction, the operation of the Plant is not expected to generate additional traffic beyond that which the current WWTP generates.

The proposed structures are approximately 600m from the nearest public road (State Highway 1). Consequently, visibility for access and egress will not be affected.

7.2.5 Sunlight Angles

The proposed site for the Wastewater Treatment Plant and associated buildings is adjacent to the existing Sewage Treatment Plant. In addition, the site is located within a flood zone. There are no nearby residential land uses, nor are there other buildings or land-uses that would be impacted by sunlight angles.

It is assessed that there will be no adverse effects arising from sunlight angles.

7.2.6 Mitigation and Landscaping

The proposed Wastewater Plant and associated structures are consistent with the adjacent designated land use of sewage treatment (FN 170). The addition of structures required to house or operate the proposed Plant will not alter the scale or effects of the existing WWTP complex.

Landscape effects are assessed as being less than minor as a result of the remote location of the site; topography; distance between structures; and the distance to the nearest residence.

With respect to landscape mitigation planting; the Wastewater Treatment Plant requires a clear unvegetated perimeter so all parts can be accessed for maintenance. It is also important to keep leaves and vegetation debris away from the Plant to avoid blockage of pumps and filters.

Following construction and installation, the surrounding area will be returned to the existing rough pasture character. Additional mitigation planting is not recommended.

7.2.7 Public Use and Enjoyment

The site is a Utilities Purpose Reserve under the Local Government Act 2002. Due to the nature of the existing WWTP and the associated health and safety risks, the public are discouraged from entering the site. The addition of the proposed Wastewater Treatment Plant will not change the existing access arrangements.

The site is surrounded by private property. There are no public access reserves, walkways or strips adjacent to the site. It is therefore assessed that public use and enjoyment will not be affected by the proposed addition of the Wastewater Treatment Plant.

7.2.8 Odour, Dust, Noise and Nuisance Effects

The proposed treatment plant is located approximately 1.4km to the east of State Highway 1; approximately 1.1km to the west of State Highway 11; and more than 900m from the nearest dwelling.

Once operational, the treatment plant will require periodic maintenance and inspection. Traffic generated to maintain and service the proposed treatment plant will not be discernable from the existing servicing and inspection of the existing WWTP.

It is noted that there are no habitable buildings on the site. The nearest unsealed public road is located approximately 1.75km to the west.

Given the remoteness of the site, low level of operator involvement and the passive nature of the proposed treatment plant, it is assessed that odor, dust, noise and nuisance effects will be less than minor and negligible.

7.2.9 Public Health and Safety

The proposed Treatment Plant is located adjacent to the existing WWTP, which incorporates wastewater oxidation ponds. The site is remote from any public access.

It is assessed that the proposed treatment plant and associated enabling works will not have an adverse effect on public health and safety.

7.2.10 The effects of flood hazard

The modelled 1:50-year flood zone (NRC Flood maps) extends over approximately one third of the Lot. However, the proposed earthworks are located in an area outside of the 1:50-year flood zone (Figure 3). It is therefore assessed that there will be no adverse effects associated with a 1:50-year flood event.

The modelled 1:100-year flood zone extends over approximately half of the Lot. However, the proposed earthworks are located at the edge, and within the modelled 1:100-year flood zone (NRC flood maps Figure 4).

There is a functional need for the earthwork and the location of the proposed Treatment Plant. Given the overall size of the 1:100-year flood zone, and the limited encroachment of the earthworks and Treatment Plant into that flood zone, the impact of the proposed work on flood levels will be negligible.

The flood risk to the proposed Plant will be avoided by undertaking the following:

- The level of the platform to support the Package Treatment Plant will exceed the 1% AEP (1:100-year) flood level.
- Drainage will be installed around the site.

Given the above, it is assessed that the adverse effects on flood levels arising from the proposed works will be negligible. The effects of flooding on the proposed site, earthworks and Package Treatment Plant will be less than minor.

7.2.11 Effects on other Property

The site and surrounding environment have a flat topography. There is an overall gentle slope toward the Kawakawa River. It is assessed that sediment will not have an adverse effect on any waterbody due to the distance to any surface waterbody and overall topography. Given the topography and surrounding land use, it is assessed that there is no risk of the proposed works creating land instability or land subsidence on other properties.

Given the site topography, the proposed work to be undertaken and the Treatment Plant, it is assessed that adverse effects of sediment and erosion off-site will be less than minor. The following specific measures are proposed:

- An erosion and sediment control plan will be completed prior to works being undertaken.
- Earthworks will be undertaken in accordance with any additional requirements of the NESCS.
- Earthworks shall be carried out within the construction season, unless otherwise approved.

Erosion and sediment control mitigation measures will be undertaken, consistent with Proposed Far North District Plan Rule EW-R13 (Permitted Activity) and EW-S5.

Subject to compliance with proposed conditions the adverse effect of erosion will be temporary and no more than minor.

7.2.12 Managing Activities on-site during Floods

The proposed treatment plant is a passive facility in so far as it does not require permanent staffing to operate. However, staff are expected to visit the site on a regular basis for the purpose of inspection and maintenance.

It is proposed to construct a pad for the structures associated with the treatment plant. This pad will be built to an elevation that it is above the 1%AEP (1:100year) flood event. Although the site will be isolated from the main access point during a 1:50 year flood event, the actual plants will be above the flood level.

Access to the Plant will be restricted during a 1:50-year and 1:100-year flood event (Figure 5).

It is noted that access to the site entrance via State Highway 1 would also be restricted during a 1:59-year or 1:100-year flood event.

7.2.13 Stormwater

Stormwater will be managed on-site with the proposed layout identified in Drawing kawakawa-WWTP-ci-skt-0001Revision A set out in Appendix C.

Stormwater can be collected and discharged directly to land, alternatively, it can be collected and discharges to the nearby wetland along with the existing treated wastewater.

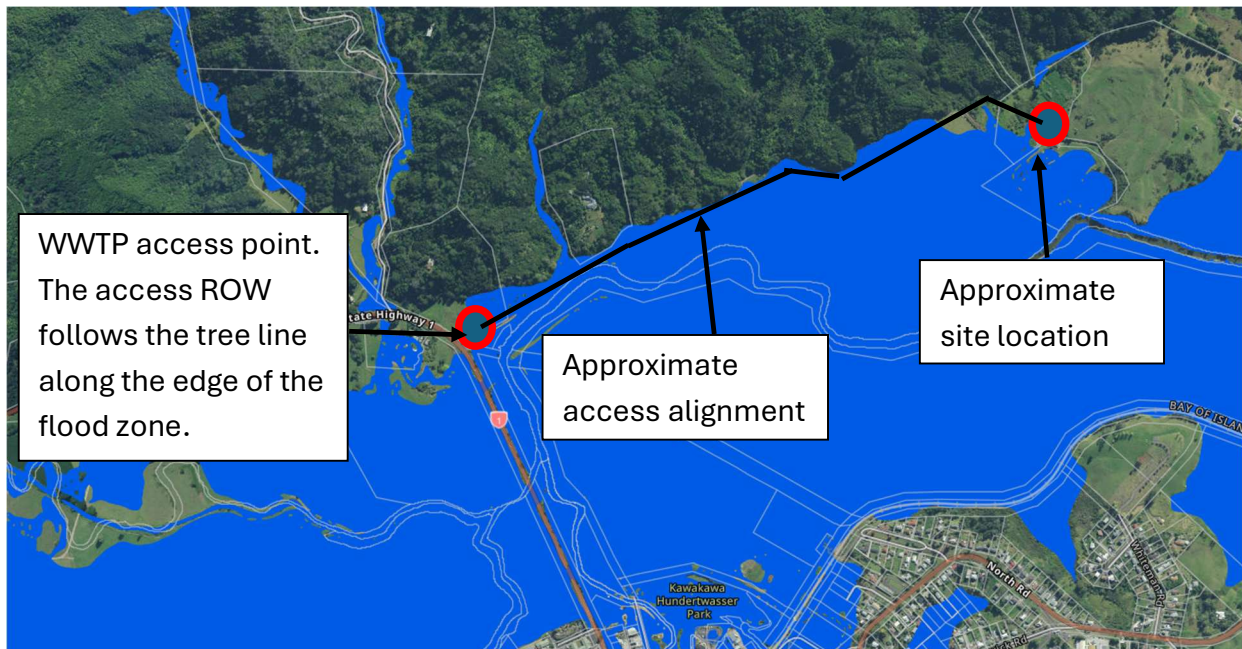


Figure 5: Modelled 1:50 year flood extent showing site access points - Source: NRC Flood Hazard maps

7.2.8 Summary of Assessment of Effects – District Plan Rules

In summary, the Assessment of Environmental Effects has been confined to those matters that Council has restricted its discretion to. Having assessed the effects of the proposed reduced boundary setback against the matters that Council maintains discretion over; it is considered that the proposed activity, including enabling works, installation and operation of the treatment plant will result in no more than minor, adverse effects on the environment.

7.3 NES for Assessing and Managing Contaminants in Soil to Protect Human Health 2011 (NESCS)

7.3.1 Soil Disturbance Effects

The proposed earthworks on the site meet the Permitted Activity criteria of the Operative FNDC District Plan and the Proposed District Plan – Decisions Version. The effects of soil disturbance are therefore within the permitted baseline, with the exception that the site is a piece of land under the NESCS and is described as a HAIL site. The potential effects on human health are addressed in 7.3.2 below.

The proposed activity meets all the criteria of a Permitted Activity, in Rule 12.3.6.1.1. In addition to meeting the Permitted Activity criteria, the applicant has suggested the following as part of the consent under the NESCS:

- A Site Management Plan (to be prepared as a condition of the NESCS Consent.)
- A Sediment and Erosion Control Plan (to be prepared as a condition of the NESCS Consent).

Given the above, and the matters set out in 7.3.2, it is assessed that the adverse effects of soil disturbance will be within the permitted baseline and less than minor.

7.3.2 Human Health

The principal purpose of NESCS is to manage contaminants in soil in such a way that they do not pose a risk to human health. Extensive soil sampling was undertaken as part of the preparation of the DSI. Soil sampling and analysis have concluded that:

- All Contaminants of Concern (CoC) concentrations were below applicable MfE NES-CS Commercial / Industrial Human Health criteria, and
- Metals concentrations were above Regional Background Level concentrations for all samples except one.

Soil sampling confirmed that there are no significant contaminated land related constraints on development of the land for commercial / industrial purposes. Standard earthworks controls are therefore appropriate on the site. Given the standard that the soil meets, it is assessed that the soil on-site does not pose a risk to human health, when considering the on-going use of the site.

Sampling identified that metals concentrations are above background levels for the area. Although the levels identified do not pose a risk to human health; the soil cannot be classified as clean fill. Material being removed from the site will need to be disposed of at a facility that is licensed to accept that material.

Where the material is suitable for the purpose; the DSI notes that material that exceeds background levels for metals can be re-used on-site as a sustainability and cost reduction option.

Where visual or olfactory evidence of contamination is discovered during the earthwork. The material should be segregated and subjected to additional testing prior to disposal.

Given the conclusions and recommendations set out in the DSI, it is assessed that there is no risk to human health associated with the disturbance, disposal, or re-use of the soil on-site, provided that the recommendations of the DSI are followed, including:

- That a Site Management Plan (SMP) be prepared for the site prior to earthworks and development. The SMP shall outline control measures to ensure site conditions are protective of Human Health and the Environment.
- Soil / fill material being removed from the site shall be disposed of to a suitably licensed facility.
- Suitable material can be re-used on-site.
- Where visual or olfactory evidence suggests that material being disturbed may be contaminated; that material shall be segregated on-site and tested by a suitably qualified and experienced person to determine the appropriate disposal and handling methodology.

7.3.3 Sediment and Erosion Control

The site and surrounding environment have a flat topography. There is an overall gentle slope toward the Kawakawa River. It is assessed that sediment will not have an adverse effect on any waterbody due to the distance to any surface waterbody and overall topography.

Given the site topography and the proposed work to be undertaken, it is assessed that adverse effects of sediment and erosion off-site will be less than minor. The following specific measures are proposed:

- An erosion and sediment control plan will be provided for approval prior to construction commencing. The plan will satisfy the requirements of GD05.
- Earthworks will be undertaken in accordance with any additional requirements of the NESCS.
- Earthworks shall be carried out within the construction season, unless otherwise approved.

Erosion and sediment control mitigation measures will be undertaken, consistent with Proposed Rule EW-R13 (Permitted Activity) and EW-S5.

Subject to compliance with proposed conditions the adverse effect of erosion will be temporary and no more than minor.

7.3.4 Wāhi Tapu, Sites of Significance to Tāngata Whenua and Accidental Discovery Protocol

There are no mapped wāhi tapu or sites of significance to Māori in the freshwater body near the earthworks. The proposed activity is part of a wider project to enable affordable housing in Kawakawa. FNDC has been working with Ngāti Hine on the Kawakawa IAF project and potential development sites.

Although there are no mapped or known Wāhi Tapu, or sites of Significance to Tāngata Whenua; it is recognized that the proposed works may give rise to the accidental discovery of sensitive items.

A Site Management Plan will be produced as part of the NESCS requirements. The Site Management Plan will include protocols for accidental discovery of sensitive items. Protocols will be consistent with Proposed District Plan Rule EW-R12 (Permitted Activity) and EW-S3.

7.3.5 Highly Productive Land

The subject site is located on LuC3 and LuC4 land (FNDC Land Cover and Landuse Maps). LuC3 land lies to the northeast of the site and extends over a small portion of the overall site. The remainder of the subject site, including the neighbouring WWTP oxidation ponds and bio-reactor is within LuC 4 land. The proposed earthwork incorporates a relatively small area of both LuC 3 and LuC 4 land.

The earthwork and associated Wastewater Treatment Plant is not considered inappropriate development of LuC 3 land for the following reasons:

- The subject site and proposed earthworks do not extend significantly into LuC 3 land.
- The site and immediate surrounds are currently used for sewage treatment purposes.
- There is a functional need for the new wastewater treatment plant to be located near, or adjacent to the existing wastewater oxidation ponds.
- There is an existing sludge storage and draining site located on the site at the boundary between LuC 3 and LuC 4 land.
- No subdivision is sought.
- The proposed Wastewater Treatment Plant will not adversely affect the existing neighbouring land uses.

7.3.6 Summary of Effects - NESCS

In summary, the Assessment of Environmental Effects (NESCS) has addressed the matters raised in the DSI. Having completed a DSI and assessed the effects of the proposed earthworks; it is considered that the proposed earthworks will result in no more than minor, and acceptable adverse effects on the environment, provided that the following proposed conditions are set:

- That a Site Management Plan (SMP) be prepared for the site prior to earthworks and development. The SMP shall outline control measures to ensure site conditions are protective of Human Health and the Environment.

- Soil / fill material being removed from the site shall be disposed of to a suitably licensed facility.
- Suitable fit for purposes material can be re-used on-site.

7.4 Adverse Effects Assessment Summary

The potential adverse effects of the proposed activity have been assessed with reference to the relevant District Plans and NESCS matters of control, DSI and technical advice. Subject to compliance with proposed consent conditions, the adverse effects on the wider environment will be less than minor and it is highly unlikely that the proposed activity will cause a risk to human health.

8. Statutory Assessment

8.1 Section 104(1)(a) of the Act

Section 104(1)(a) requires that when considering an application for a resource consent, the consent authority must, subject to Part 2, have regard to 'any actual and potential effects on the environment of allowing the activity'. An assessment of the adverse effects of the proposal is set out in Section 7 above, where it was assessed that the adverse effects on the environment were no more than minor.

8.2 Section 104(1)(b) of the Act

Section 104(1)(b) of the Act requires that when considering an application for a resource consent, the council must, subject to Part 2, have regard to:

any relevant provisions of—

- (i) a national environmental standard:
- (ii) other regulations:
- (iii) a national policy statement:
- (iv) a New Zealand coastal policy statement:
- (v) a regional policy statement or proposed regional policy statement:
- (vi) a plan or proposed plan;

The relevant documents to be assessed are:

- Regional Policy Statement for Northland 2016 (RPS)
- Regional Plan for Northland – February 2024 (RPN).
- National Policy Statement for Infrastructure 2025
- National Policy Statement for Highly Productive Land

- National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health 2011 (NESCS).
- Water Services (Wastewater Environmental Performance Standards) Regulations 2025

8.3 Regional Policy Statement for Northland 2016 (RPS)

The following provides an assessment of the RPS Objectives and Policies that are relevant to this consent application.

Objective 3.5 - Enabling economic wellbeing: Northland's natural and physical resources are sustainably managed in a way that is attractive for business and investment that will improve the economic wellbeing of Northland and its communities.

The proposed activity is consistent with RPS Objective 3.5 for the following reasons:

- Locating the proposed wastewater treatment plant within 10m of the boundary is designed to take advantage of better soil and ground conditions. Ideal ground conditions reduce the cost and risk of the proposed upgrade. The proximity to other existing Plant will enable more efficient operation of the treatment system.
- The upgrade to the WWTP, to which this consent relates will increase the capacity of the Kawakawa WWTP. The objective of increasing capacity is to enable additional housing development in Kawakawa. Improved community access to housing will have a positive effect on Kawakawa's social and economic wellbeing.³
- The IAF funding that is enabling the proposed upgrade provides for a significant upgrade for the community and improvement in environmental performance of infrastructure without placing financial pressure on ratepayers.
- The RPS (pg.39) states "*Regionally significant infrastructure is inherently important for the regional economy. Its development is generally very costly in terms of capital and in many cases routes or sites are secured years before the infrastructure is developed. Securing alternative sites for existing regionally significant infrastructure is extremely difficult*". The RPS intends that existing infrastructure sites are enabled, and future sites are secured.

³ [pc-inq-fcfa-sub-027-housing-foundation.pdf](#)

Objective 3.7 - Regionally significant infrastructure: Recognise and promote the benefits of regionally significant infrastructure, (a physical resource), which through its use of natural and physical resources can significantly enhance Northland's economic, cultural, environmental and social wellbeing.

The proposed activity is consistent with RPS Objective 3.7 for the following reasons:

- Kawakawa WWTP is recognized in Appendix 3 of the RPS as Regionally Significant Infrastructure.
- The RPS pg.104 states “*The second part of the policy supports maintenance and upgrading activities by recognising that these are important to the ongoing resilience of regionally significant infrastructure, for example, by improving its ability to function*”. The proposed upgrade is necessary to enable housing growth and to ensure the ongoing resilience of the Kawakawa WWTP.

Objective 3.8 Efficient and effective infrastructure - Manage resource use to:

- (a) Optimize the use of existing infrastructure;*
- (b) Ensure new infrastructure is flexible, adaptable, and resilient, and meets the reasonably foreseeable needs of the community; and*
- (c) Strategically enable infrastructure to lead or support regional economic development and community wellbeing.*

The proposed activity is consistent with RPS Objective 3.8 for the following reasons:

- The proposed upgrades will improve the resilience and effectiveness of the existing Kawakawa WWTP.
- The location of the proposed upgrades and associated earthworks will improve the Kawakawa WWTP resilience to ongoing climate change and flooding by ensuring the platform for the Wastewater treatment plant is located above the 1% AEP (Annual Exceedance Period) flood level.
- The upgrades are necessary to meet the reasonably foreseeable housing and development needs of the Kawakawa community.
- The IAF funding has the primary purpose of enabling infrastructure that supports community wellbeing and development.

Objective 3.12 Tangata whenua role in decision-making - Tangata whenua kaitiaki role is recognised and provided for in decision-making over natural and physical resources.

Ngāti Hine were not specifically consulted regarding this resource consent application. However, Ngāti Hine have been a stakeholder in discussions about housing developments in Kawakawa. The proposed upgrades are required to facilitate that development.

Objective 3.13 Natural hazard risk - The risks and impacts of natural hazard events (including the influence of climate change) on people, communities, property, natural systems, infrastructure and our regional economy are minimised by:

(b) Becoming better prepared for the consequences of natural hazard events;

(e) Enabling appropriate hazard mitigation measures to be created to protect existing vulnerable development; and

(g) Recognising that in justified circumstances, critical infrastructure may have to be located in natural hazard-prone areas

Kawakawa WWTP is subject to flooding in a 10-year flood event. The proposed site of the earthworks and proposed location of the new wastewater plant is not located within the 10-year flood zone. The subject site is, however, located within the 1:100-year modelled flood zone. The proposed work will ensure that the new treatment plant is elevated above the 1% AEP flood level. Proposed work will also improve access to the site during flood events.

It should be noted that there is an operational requirement to locate the proposed treatment plant within the 1% AEP flood zone. Locating the new plant outside the modelled flood zone would reduce the efficiency of the overall WWTP and significantly increase overall costs. It is therefore considered that the most appropriate option is to place the plant in the proposed location and undertake mitigation measures such as raising the platform above the 1% AEP flood level.

It is noted that a separate consent application has been prepared and submitted to Northland Regional Council for earthworks within a flood hazard zone.

Overall, it is assessed that the proposal is consistent with RPS Objective 3.13.

Overall, the proposed activity is consistent with the RPS and Objective 12. The proposal also gives effect to Objectives 5,7,8 and 13.

8.4 Operative Far North District Plan

The proposed location of the proposed treatment plant is a Restricted Discretionary activity under the FNDP. Pursuant to s.104C of the RMA, the consent authority must consider only those matters for which it has restricted the

exercise of its discretion in the plan or proposed plan. An assessment of the proposed activity against the relevant objectives and policies of the FNDP is set out below.

8.4.1 Rural Production Zone Objectives and Policies

The Kawakawa WWTP is located within the Rural Production Zone. It is therefore appropriate to assess the proposed activity against the Objectives and Policies of the Rural Production Zone. The most relevant Objectives and Policies that link to the matters of discretion retained by Council are:

Objective 8.3.3: To avoid, remedy or mitigate the adverse and cumulative effects of activities on the rural environment.

The proposed setback, earthwork and treatment plant enable an upgrade of the existing WWTP, which will have the outcome of increasing available capacity and improving overall discharge quality. The setback of less than 10m from the boundary enables the upgrade to ensure that the upgraded WWTP will operate efficiently. It is also noted that the proposed setback will have a less than minor adverse effect on the environment.

It is assessed that the proposed setback and earthworks are consistent with FNDC Objective 8.3.3.

Objective 8.3.6: To avoid actual and potential conflicts between land use activities in the rural environment.

The proposed setback, enabling works and proposed treatment plant are located adjacent to the existing WWTP. It has been assessed that the setback distance will have a less than minor effect on the rural environment.

Given the use and designation of the adjacent Lot for wastewater treatment purposes, the proposed activity is consistent with the neighbouring land use. It is not anticipated that the proposal will result in any conflict between land uses.

It is assessed that the proposal is consistent with FNDC Objective 8.3.6.

Objective 8.3.10: To enable the activities compatible with the amenity values of rural areas and rural production activities to establish in the rural environment.

The proposed activity and setbacks will enable infrastructure required to support affordable housing development within and around the nearby Kawakawa community. The proposed Treatment Plant has a functional need to be located in the rural environment.

It is assessed that the proposal is consistent with FNDC Objective 8.3.10.

Policy 8.4.3 That any new infrastructure for development in rural areas be designed and operated in a way that safeguards the life supporting capacity of air, water, soil and ecosystems while protecting areas of significant indigenous vegetation and significant habitats of indigenous fauna, outstanding natural features and landscapes.

The proposed upgrade of the Kawakawa WWTP, setbacks and enabling works will improve the overall wastewater treatment capacity and associated quality of discharge. The improvements will have an overall positive effect on the life supporting capacity of air, water, soil and ecosystems. The site is not located within an area of significant indigenous vegetation and significant habitats of indigenous fauna, outstanding natural features and landscape.

It is assessed that the proposal is consistent with FNDC Policy 8.4.3.

8.4.2 Designations and Utility Services Objectives and Policies

Objective 17.2.3.1: To provide for the efficient development, use, maintenance and upgrading of utility services to meet the reasonable needs of residents and businesses throughout the district while ensuring that significant adverse effects are avoided, remedied or mitigated.

The proposed upgrade of the Kawakawa WWTP that this consent will enable is funded through the governments IAF programme. The programme is specifically targeted at upgrading and expanding critical infrastructure to support or enable growth in communities, particularly residential housing. The proposed location of the new wastewater treatment plant within 10m of the site boundary will enable the ongoing efficient operation of the Plant, whilst reducing the risk of flooding.

It is assessed that the proposed setback and earthworks are consistent with FNDC Objective 17.2.3.1.

Policy 17.2.4.1: That the maintenance and upgrading of utility services and radio communication facilities is provided for.

Policy 17.2.4.3: That provision be made to enable new/upgraded utility services to meet growth demand.

Policies 17.2.4.1 and 17.2.4.3 provide for the upgrade of utility services and facilities to meet current and future growth. The proposed upgrade of the Kawakawa WWTP will improve overall treatment of wastewater in Kawakawa.

The IAF funding that enables the proposed upgrade is specifically targeted at supporting and enabling future growth enabled by this consent is consistent with Policies 17.2.4.1 and 17.2.4.2.

It is assessed that the proposed setback and earthworks are consistent with FNDC Policies 17.2.4.1 and 17.2.4.2

Overall, the FNDC designation and utilities Objectives and Policies direct that, provided adverse effects can be managed, the upgrading of utilities should be provided for; particularly if there is demand due to growth. In this instance the proposed upgrades are required to support the ongoing development of affordable housing in Kawakawa. This policy links to matter of discretion 8.6.5.3.4(c) because the adverse effects of the proposed upgrades can be mitigated to the extent that they will be less than minor.

8.5 Proposed Far North District Plan – Decisions Version

8.5.1 Proposed District Plan Legal Effect and Weighting

The Proposed District Plan – Decisions Version (PDP) was approved on 29 June 2026. The rules within the PDP Decisions Version now have legal effect and the Objectives and Policies must be considered.

8.5.2 Proposed District Plan Infrastructure Objectives

Objective I-O1: The district has safe, efficient and resilient infrastructure that services the current and future needs of people and communities in the district.

The proposed WWTP upgrade, including setbacks will allow for the upgrade and efficient use of a critical infrastructure facility for the Kawakawa community. In turn, the upgrade will provide for the current and future wastewater treatment and disposal needs of the Kawakawa community.

It is assessed that the proposed setback and earthworks are consistent with Proposed Far North District Plan Objective I-01

Objective I-O2: The economic and community benefits of infrastructure are recognized and provided for, including the benefits of regionally significant infrastructure to enhance economic, cultural, environmental and social well-being in the district.

The ability to meet the communities' reasonably foreseeable housing needs is dependent on infrastructure capacity upgrades. The proposed activity is consistent with, and gives effect to, PDP Objective I-02 regarding infrastructure.

8.5.3 Proposed District Plan Infrastructure Policies

Policy I-P1: Provide for the continued operation, maintenance, upgrading and replacement of existing infrastructure.

Policy I-P4: Provide for infrastructure where there are benefits such as:

- a. significant social, economic and cultural benefits associated with regionally significant infrastructure*
- b. improved:*
 - I. quality of life;*
 - II. standard of living;*
 - III. public health and safety;*
 - IV. access to latest technology, such as fibre and high-speed wireless internet;*
 - V. functioning of businesses; and*
 - VI. transportation of freight, goods, people.*
- c. growth and development of the district;*
- d. a reduction in the operation and maintenance costs of infrastructure;*
- e. integration of infrastructure with urban development; and*
- f. facilitating local, regional, national or international connectivity.*

Policy I-P8: Provide for resilient infrastructure that will meet the district's needs by considering:

- a. the impact on the network and levels of service if the work is not undertaken;*
- b. the need for the infrastructure in the context of the wider network; and*
- c. whether it is regionally significant infrastructure.*

The proposed upgrade, setback and enabling works are consistent with, and give effect to Proposed Policies I-P1, I-P4 and I-P8 by enabling an upgrade of the Kawakawa WWTP. The proposed upgrade will provide for new affordable housing and other developments in the Kawakawa community; which provides for the socio-economic development and the health and safety of the community.

8.5.4 Rural Production Zone Objectives

The PDP Rural Production zone provisions provide for activities that have a functional need to be in the rural environment provided character and amenity is maintained.

Objective RPROZ-O2 The Rural Production zone is used for primary production activities, ancillary activities that support primary production and other compatible activities that have a functional need to be in a rural environment.

Objective RPROZ-O4 The rural character and amenity associated with a rural working environment is maintained.

The proposed activity has a functional need to be located in the rural environment. As demonstrated in section 7 of this report, the adverse effect on rural character and amenity will be less than minor.

It is assessed that the proposed setback and earthworks are consistent with Proposed Far North District Plan Rural Production Zone Objectives RPROZ-O2 and RPROZ-O4.

Policy RPROZ-P5: Avoid land use that:

- a. is incompatible with the purpose, character and amenity of the Rural Production zone;*
- b. does not have a functional need to locate in the Rural Production zone and is more appropriately located in another zone;*
- c. would result in the loss of productive capacity of highly productive land;*
- d. would exacerbate natural hazards; and*
- e. cannot provide appropriate on-site infrastructure.*

As described above, the upgrade to the Kawakawa WWTP has a functional need to be located in the Rural Production Zone, and in particular, at the proposed site. The proposed location of the Wastewater Treatment Plant and associated setback does not result in the loss of rural production land. The design of the platform and associated earthworks will locate the proposed Plant above the 1% AEP flood level.

It is assessed that the proposed setback and earthworks are consistent with Proposed Far North District Plan Rural Production Zone Policy RPROZ – P5.

8.6 District Plan Assessment Summary

Having assessed the proposed setback and associated enabling works against the Objectives and Policies of the Far North District Plan and the Proposed Far North District Plan – Decisions Version, it has been assessed that:

- The Objectives and Policies of both the District and Proposed District Plan are consistent with each other.
- The proposed WWTP upgrade, including the proposed setback from the boundary of the Wastewater Treatment Plant is consistent with; and gives effect to the Objectives and Policies of both the Operative and Proposed District Plans.

8.7 National Policy Statement for Infrastructure 2025

The National Policy Statement for Infrastructure sets out the objectives and policies for infrastructure under the Resource Management Act 1991. The Objective of the National Policy Statement is to:

- Ensure the national, regional and local benefits of infrastructure are provided for;
- Enable infrastructure to support the social, economic and cultural wellbeing of people and communities and their health and safety;
- Enable infrastructure to support the development and change of urban and rural environments to meet the diverse and changing needs of present and future generations;
- Ensure infrastructure is well-functioning, resilient and compatible, as far as practicable, with other activities; and
- Ensure infrastructure is delivered in a timely and efficient manner while managing adverse effects from or on infrastructure.

The proposed upgrade and the proposed boundary setback of less than 10m, along with the proposed enabling earthworks is consistent with Objectives of the NPS (Infrastructure) for the following reasons:

- The upgrade will provide local benefits to the Kawakawa community through improved wastewater treatment capacity.
- The upgrade that this consent enables will result in an overall improvement in discharge quality, providing a regional benefit.
- The proposed setback and enabling earthworks will provide for the social, economic and cultural wellbeing of the Kawakawa community.
- The proposed upgrade that the setback provides for will enable a well-functioning and resilient wastewater treatment system.

The NPS Infrastructure sets out 11 key Policies that support and implement the Objective set out above. The Policies are:

- Policy 1: Providing for the benefits of infrastructure
- Policy 2: Operational need or functional need of infrastructure to be in particular locations and environments
- Policy 3: Considering spatial planning
- Policy 4: Enabling the efficient and timely operation and delivery of infrastructure activities
- Policy 5: Recognising and providing for infrastructure supporting activities
- Policy 6: Recognising and providing for Māori interests

- Policy 7: Assessing and managing the effects of proposed infrastructure activities
- Policy 8: Operation, maintenance and minor upgrade of existing infrastructure
- Policy 9: Managing the effects of new infrastructure and major upgrades
- Policy 10: Planning for and managing the interface and compatibility of infrastructure with other activities
- Policy 11: Assessing and managing the interface between infrastructure and other activities

It is assessed that the upgrade that the proposed boundary setback and earthworks (within a HAIL Site) enable is consistent with the NPS Infrastructure for the following reasons:

- The proposed boundary setback will allow an efficient upgrade to the Kawakawa WWTP that will provide measurable socio-economic benefits to the Kawakawa community.
- There is an operational need for the Wastewater Treatment Plant to be located at the proposed location, within 10m of the site boundary.
- The proposed upgrade will enable future development of affordable housing infrastructure in Kawakawa.
- Whilst Ngāti Hine have not been specifically consulted with respect to this application, it is noted that Ngāti Hine have been involved with the wider Infrastructure Acceleration Fund (IAF) program and the associated housing proposals that this proposal supports.

8.8 National Policy Statement for Highly Productive Land

The National Policy Statement for Highly Productive Land 2022 (NPS-HPL) sets out the objective and policies for the management of highly productive land under the Resource Management Act 1991. Highly Productive Land incorporates LUC Class 1, 2 and 3 land.

The NPS-HPL Objective is to ensure that highly productive land is protected for use in land-based primary production, both now and for the future. The NPS-HPL recognizes that highly productive land is a finite resource.

The proposed activity, subject to this consent application, seeks to locate a Wastewater Treatment Plant within the minimum setback distances identified in the District Plan. No subdivision is required. The proposed development is not considered inappropriate as there is a functional need for the Plant in the proposed location.

Overall, it is assessed that the proposal is consistent with the NPS for Highly Productive Land.

8.9 National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health 2011 (NESCS).

The NESCS is a nationally consistent set of planning controls and soil contaminant values. It ensures that land affected by contaminants in soil is appropriately identified and assessed before it is developed - and if necessary, the land is remediated or the contaminants contained to make the land safe for human use.

The applicant has undertaken a Preliminary and Detailed Site Investigation (Appendix B) in accordance with the NESCS. An application has been made under NESCS Regulation 9(1)(c) for a Controlled Activity Consent. This application has met all requirements of the NESCS and is therefore considered consistent with the NESCS.

8.9 Water Services (Wastewater Environmental Performance Standards) Regulations 2025

The Wastewater Environmental Performance Standards Regulations specify wastewater environmental performance standards that relate to:

- Discharging biosolids to land.
- Overflows and bypasses.
- Discharging wastewater into water.
- Discharging wastewater to land.

The Wastewater Environmental Performance Standards relate to the discharge of wastewater. This Resource Consent application is for a breach of boundary setback rules and for undertaking enabling earthworks within a HAIL Site. As this application does not contemplate a discharge of wastewater, the Regulations are not relevant to this application. However, it is noted that the specifications of the Wastewater Treatment Plant discharge will need to ensure compliance with the Regulations.

8.10 Section 104(1)(c) of the Act

Section 104(1)(c) of the Act states that consideration must be given to “any other matters that the consent authority considers relevant and reasonably necessary to determine the application”.

The above statutory assessments, alongside the AEE, demonstrate that the proposal is consistent with the relevant objectives and policies of the Operative and Proposed Far North District Plan, relevant National and Regional Policy Statements and National Environmental Standards.

There are no other relevant matters that need to be considered.

9. Notification Assessment – Sections 95A to 95G of the RMA

9.1 Public Notification Assessment

A public notification assessment has been conducted in accordance with Section 95A. Public notification is not required for the following reasons:

- The applicant has not requested notification.
- There is no mandatory requirement to notify
- There are no special circumstances requiring notification.
- The adverse effects on the wider environment will be less than minor (see AEE in section 7)

9.2 Limited Notification

A limited notification assessment has been conducted in accordance with Section 95B. Limited notification is not required for the following reasons:

- The proposed activity will not adversely affect any land or persons that are the subject of statutory acknowledgement.
- The adverse effects of the proposed activity will be less than minor and there are no affected persons.
- No special circumstances exist.

9.3 Tangata Whenua

The proposed activity is within the rohe of Ngāti Hine. The applicant has not engaged with Ngāti Hine directly regarding this application. However, Ngāti Hine have been involved with the wider Infrastructure Acceleration Fund (IAF) program and the associated housing proposals.

9.4 Written Approvals

No written approvals have been provided with the application.

9.5 Part 2 – Purpose of the Act

The High Court decision in *Davidson Family Trust and Marlborough District Council* confirmed the Environment Court decision, and the Court of Appeal decision held that there is a requirement to have regard to Part 2 when determining Resource Consent applications. However, this may be achieved by relying on planning documents that have passed the King Salmon test or by direct referral to Part 2 by the decision maker.

The *King Salmon* test applies to Resource Consent applications, where the planning documents are invalid, have incomplete coverage or uncertainty of meaning. Where the coverage by National and Regional Policies and Plans fails this test the decision maker should refer to Part 2 for assistance in determining the application.

This application has considered the relevant statutory documents (see section 8 of this report) and determined that coverage is both complete, certain and clear. A detailed assessment of Part 2 is therefore not required.

The proposed activity is consistent with the purpose of the RMA because it will enable the Kawakawa community to provide for their reasonably foreseeable infrastructure and housing needs while managing adverse effects on the environment.

10. Conclusion

FNDC Infrastructure seeks resource consent from FNDC for proposed upgrades at the Kawakawa WWTP. The proposed upgrade includes the placement of a new Wastewater Treatment Plant within 10m of the boundary of the Lot described as Section 1 SO 70768 and enabling earthworks within a HAIL site. The proposed upgrades will enable housing and development in Kawakawa.

This application is supported by expert advice from:

- Haigh Workman Consultant Engineers – Preliminary and Detailed Site Investigation for Proposed Development at Kawakawa Wastewater Treatment Plant Section 1 Survey Office Plan 70768 (Appendix B).

An assessment of environmental effects in Section 7 of this report concluded that if the proposed activity is carried out in accordance with the designs and recommendations provided in Appendix B, the adverse effects of the activity on the wider environment will be no more than minor and there are no affected persons (see section 9).

The proposed activity was assessed against the objectives and policies of the RPS, RPN and relevant NPS and NES documents. The activity was found to be consistent with objectives and policies, particularly policies regarding enabling regionally significant infrastructure and economic and social wellbeing (see section 8 of this report).

The proposed activity satisfies the requirement of s.104C of the RMA.

FNDC Infrastructure respectfully requests that FNDC grant resource consent on a non-notified basis for a 10-year lapse period.

Appendix A – Certificate of Title

Appendix B – Preliminary and Detailed Site Investigation

Appendix C - Preliminary Drawings



RECORD OF TITLE
UNDER LAND TRANSFER ACT 2017
FREEHOLD
Search Copy




R.W. Muir
Registrar-General
of Land

Identifier **317977**
Land Registration District **North Auckland**
Date Issued 13 October 2006

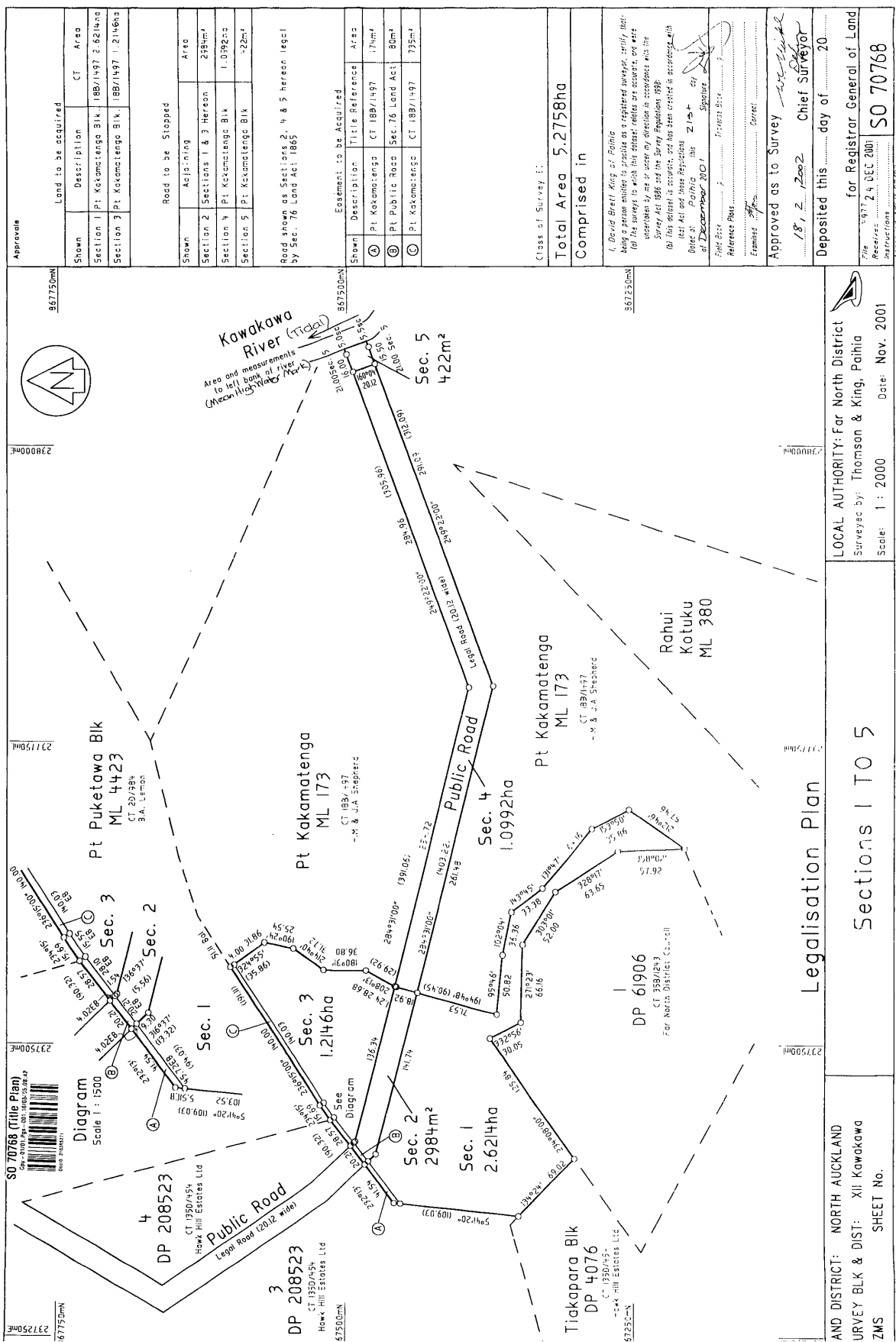
Prior References

284513 7071409.1

Estate Fee Simple
Area 4.1344 hectares more or less
Legal Description Section 1-3 Survey Office Plan 70768
Registered Owners
Far North District Council

Interests

Subject to rights of way over parts marked A, B and C on SO Plan 70768 created by Transfer 7071409.4 - 13.10.2006 at 9:00 am



Preliminary and Detailed Site Investigation
for
Proposed Development at

Kawakawa Wastewater Treatment Plant
Section 1 Survey Office Plan 70768

Far North District Council
Haigh Workman reference 25 128
Rev A

20 August 2025



Document History and Status

Revision N ^o	Date	Description	Issued By
A	20 August 2025	Preliminary and Detailed Site Investigation (PSI / DSI)	Joshua Cuming

Prepared / Certified by



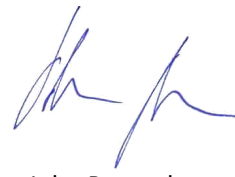
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Executive Summary

Haigh Workman Limited (Haigh Workman) were engaged by Far North District Council (FNDC) (the client) to undertake a Preliminary and Detailed Site Investigation (PSI / DSI) in association with the proposed development at Section 1 Survey Office Plan 70768.

The assessment of available information from our site walkover indicate that the following Hazardous Activities and Industries List activities have, or potentially have, occurred at the site.

- G.6 - Waste recycling or waste or wastewater treatment

Soil samples were collected from across the proposed development area and analysed for Contaminants of Concern, including (metals and PFAS). Laboratory analytical results reported:

- All CoC concentrations were below applicable MfE NES-CS Commercial / Industrial Human Health criteria, and
- Metals concentrations were above Background Soil Concentrations for all samples except one.

Based on these findings:

- Soil sampling has confirmed that there are no significant contaminated land restraint on development of the land for commercial / industrial purposes and that standard earthworks controls are appropriate,
- Prior to earthworks and site development, a Site Management Plan may be prepared for the site prior to earthworks and development, outlining control measures to be in place to ensure site conditions are protective of Human Health and the Environment,
- Soil / fill material with Metals concentrations above Background Levels is not considered as 'Cleanfill' for disposal purposes:
 - If material exceeding Background Level criteria must be removed from site it is to be disposed of a facility licensed to accept such materials,
 - Material exceeding Background Level criteria could be retained and re-used on-site as a sustainable option and to reduce disposal costs if suitable.
- Apart from soil / fill material with Metals concentrations above Background Level criteria, soil / fill material that are required to be removed from site could be disposed of as 'Cleanfill', with approval from the receiving fill operator, and
- Any soil with visual / olfactory evidence of contamination discovered during site works must be segregated and analysed by a Suitably Qualified and Experienced Practitioner prior to disposal.

It is considered that the proposed future development is covered under the National Environmental Standard for Contaminants in Soils regulations. The National Environmental Standard for Contaminants in Soils describes a '*piece of land*' as the piece of land that has had, or currently has, or most likely has had, activities listed on the Hazardous Activities and Industries List and soil disturbance is proposed.

Based on findings from this investigation, the proposal is a Controlled Activity (9) under the NES-CS as this DSI states the soil contamination does not exceed the applicable standard in regulation 7.

The '*piece of land*' for this investigation is the existing property, which is 1,057 m³. This allows for 52 m³ soil disturbance and 10 m³ soil removal (per year) as a Permitted Activity under the NES-CS.

Our findings, conclusions and recommendations are detailed in the following report and appendices.

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1 Introduction

Haigh Workman Limited (Haigh Workman) were engaged by Far North District Council (FNDC) (the client) to undertake a Preliminary and Detailed Site Investigation (PSI / DSI) in association with the proposed development at Section 1 Survey Office Plan 70768 accessed via State Highway 1 north of Kawakawa, the 'piece of land' is shown in Figure 1 below and provided in **Appendix A**.



Figure 1 - Site Location (Source: LINZ)

1.1 Legislative Requirements

An assessment has been conducted under the Hazardous Activities and Industries List (HAIL)¹ and the Resource Management (National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health) Regulations (NES-CS)².

Assessment of the land-uses and exposure scenarios has been carried out in accordance with Ministry for Environment (MfE) Contaminated Land Management Guidelines³ (CLMG), *Methodology for Deriving Contaminants for the Protection of Human Health*⁴ (Methodology) and the NES-CS.

¹ Ministry for Environment, *Hazardous Activities and Industries List (HAIL)*, March 2023.

² Resource Management (National Environmental Standards for Assessing and Managing Contaminants in Soil to Protect Human Health) Regulations, 2011

³ Ministry for Environment, *Contaminated Land Management Guidelines Nos. 1 to 5, 2011 (Guidelines Nos. 1 & 2, Revised 2021)*,

⁴ Ministry for Environment, *Methodology for Deriving Contaminants for Protection of Human Health*, 2011

The FNDC District Plan identifies the site zoning as: **Rural Production**.

The proposed future development comes under the adopted exposure scenario in the *Methodology* as: **Commercial / Industrial**.

1.2 Purpose and Scope

The purpose of the PSI / DSI investigation, under the NES-CS, is required:

1. To comply with regulation 3 of the NES-CS,
2. To establish whether or not the site is HAIL or has been HAIL (it is more likely than not that an activity or industry described in the HAIL is being or has been undertaken on it) (Regulation 5(7) or 6(3)), and
3. If the site is HAIL and the activity is a change of use or subdivision, to show the activity is permitted by demonstrating that it is highly unlikely that there will be a risk to human health in the particular circumstances of the site and proposed use or subdivision (Regulation 8(4)).

The investigation comprises a PSI / DSI, including the following:

- Site walkover,
- Review of environmental setting including topography, geology and hydrology,
- Review of historical aerial photographs, historical titles, Northland Regional Council (NRC) Contamination Enquiry and FNDC Property Files,
- Collection and laboratory analysis of soil samples for identified Contaminants of Concern (CoC),
- Interpretation of laboratory analytical results, and
- PSI / DSI reporting (this report).

This report comprises a PSI / DSI prepared by Haigh Workman in general accordance with MfE guidelines for contaminated site investigations, NES-CS and FNDC requirements. This investigation and reporting have been prepared, reviewed and authorised by Suitably Qualified and Experienced Practitioners (SQEP), in general accordance with MfE CLMG No. 1 Reporting on Contaminated Sites in New Zealand.

1.3 Limitations

This report has been prepared by Haigh Workman for the sole benefit of FNDC (the client), with respect to the brief outlined to us. This report is to be used by the client and their consultants and may be relied upon when considering geo-environmental advice. Furthermore, this report may be utilised in the preparation of building and / or resource consent applications with local authorities. The information and opinions contained within this report shall not be used in other context for any other purpose without prior review and agreement by Haigh Workman.

The comments and opinions presented in this report are based on the findings of a desktop study, and subsurface conditions encountered. Responsibility cannot be accepted for any conditions not revealed by this investigation. Should conditions encountered differ to those outlined in this report we should be notified. Allowance for a review of the design should be made should ground conditions vary from these assumed.

2 Site Description

The site is located at Kawakawa Wastewater Treatment Plant, Section 1 Survey Office Plan 70768 accessed via State Highway 1 north of Kawakawa. The legal descriptions for the site are provided in Table 1 below. The site is shown in Figure 1 above and provided in **Appendix A**.

Table 1 - Site Details

Street Address	No associated street address identified
Legal Description	Section 1 Survey Office Plan 70768
Certificate of Title(s)	317977
FNDC Zoning	Rural Production
Grid Reference NZTM	E 1697857, N 6085658
Approx. Site Area (m ²)	26,214 m ²
Piece of land under investigation (m ²)	1,057 m ²

The site is currently houses the bioreactor clarifier and access road for the Kawakawa wastewater treatment plant.

2.1 Proposed Development

Based on the information provided to Haigh Workman and drawings prepared by Morphum Environmental (dated 18 October 2024), it is understood that the proposed development will comprise the construction of wastewater infrastructure and an associated accessway, as shown below in Figure 2 and provided in **Appendix A**.

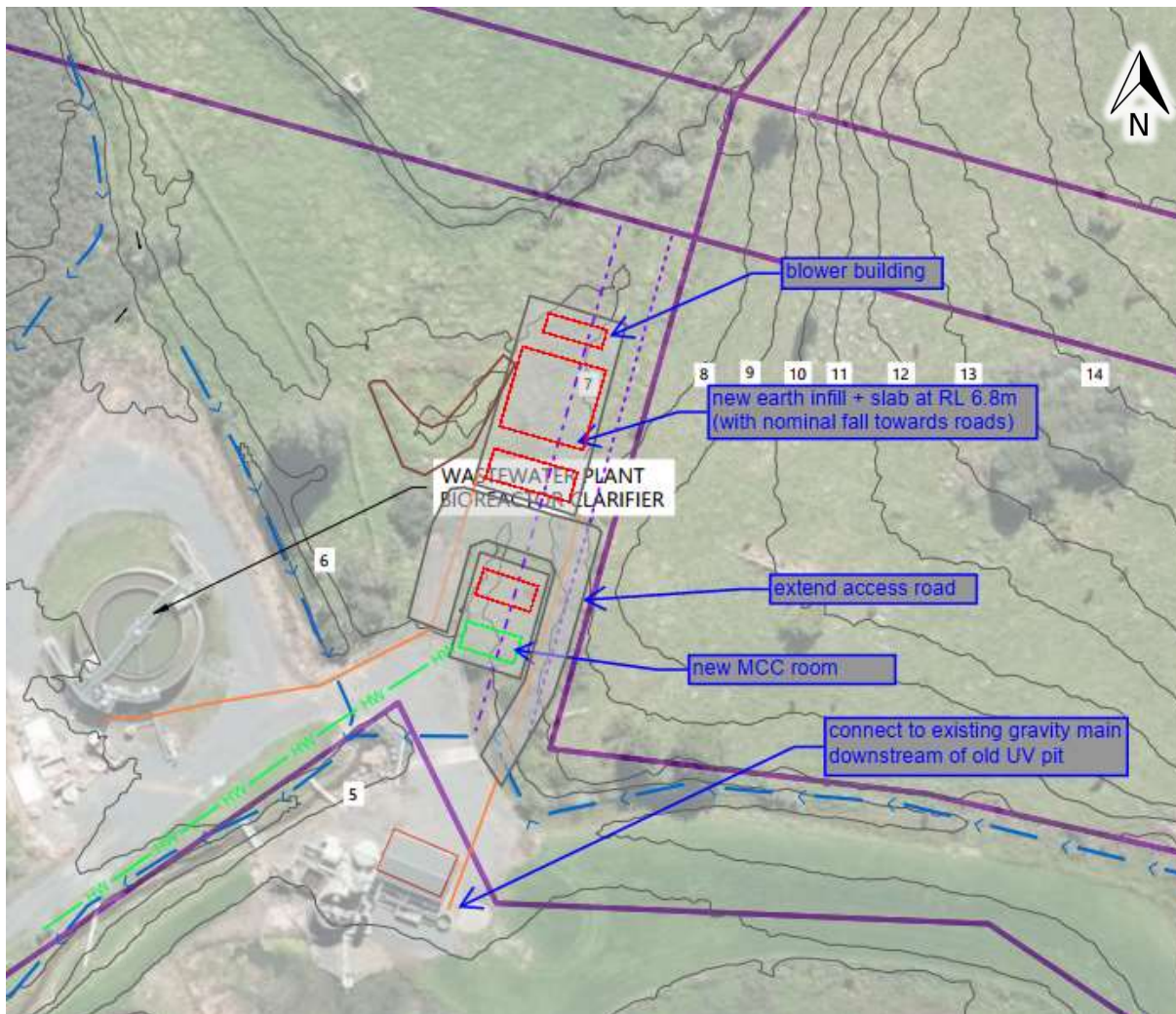


Figure 2 - Proposed Development Plan (Source: Morphem Environmental, dated 18 October 2024)

2.2 Site Interview

During the 10 July 2025 site walkover, the wastewater treatment plant supervisor was present. According to the supervisor no hazardous materials are used in the treatment of wastewater onsite.

3 Environmental Setting

3.1 Site Layout and Surrounds

A site walkover was undertaken on 10 July 2025. Photographs from the site walkover are provided in **Appendix B**.

The following was observed on the site:

- Site access is from State Highway 1 north of Kawakawa,
- Built development comprises bioreactor clarifier and associated access ways. Another building and oxidation ponds are part of the wastewater treatment facility but on a separate lot,
- The site surface is near level, with a slight slope towards the southeast,

- The dewatering of sludge pumped from the oxidation ponds is being undertaken to the north of the piece of land utilising geobags. Water from the dewatering process was being discharged to a spreader bar within the piece of land, and
- It was raining moderately throughout the site walkover and pooling water was present.

3.2 Geology, Hydrology and Hydrogeology

According to the GNS Science New Zealand Geology Web Map, 1:250,000 Scale, the piece of land is underlain by unconsolidated to poorly consolidated mud, sand, gravel and peat deposits of alluvial, colluvial and lacustrine origins (Holocene) of the Tauranga Group and Basalt lavas of the Kerikeri Volcanic Group.

A geological map of the site and surrounding area is provided below in Figure 3.

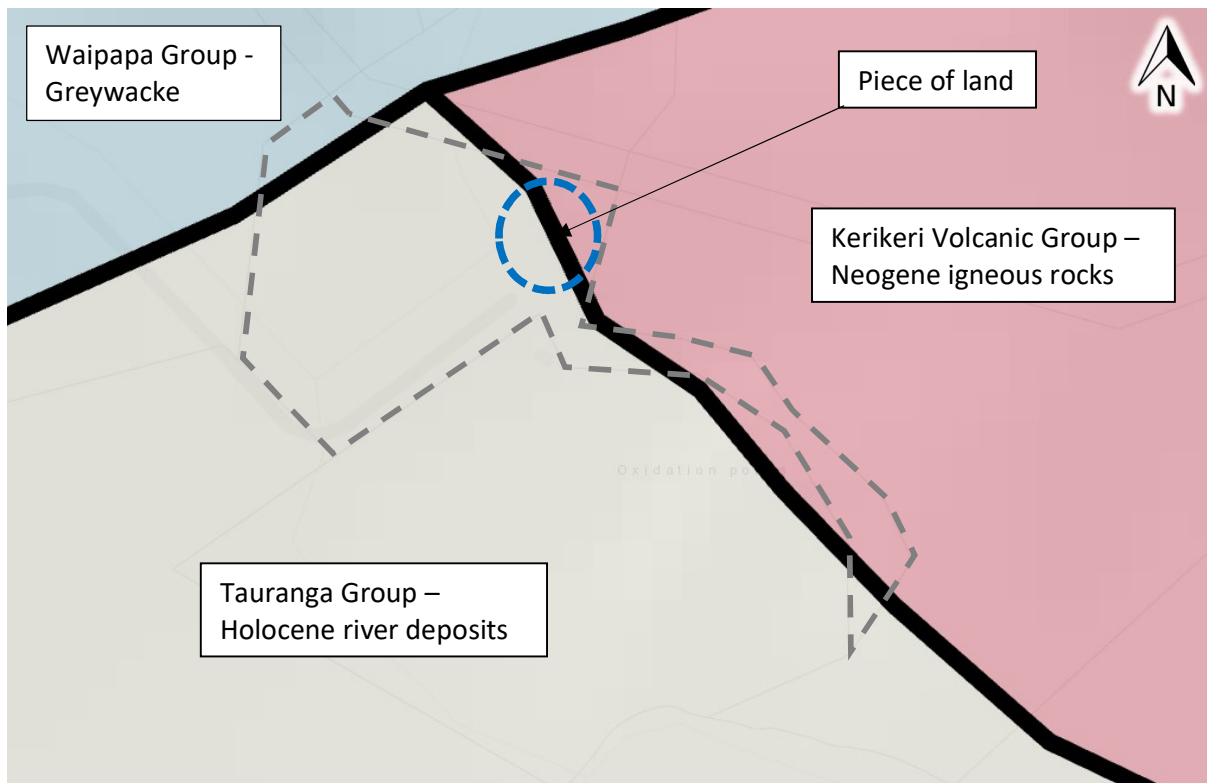


Figure 3 - Geological Map (Source: GNS Sciences Geology Website)

The nearest surface water to the site is a tributary to the Kawakawa river which runs through the piece of land. The site surface is gently sloping towards the southeast. Surface water runoff from the site is anticipated to flow into the Kawakawa River. Based on the site and surrounding topography, groundwater flow direction beneath the site is anticipated to be towards the Kawakawa River.

Relevant information relating to nearby hydrological sources and potential flood risks are provided in Table 2 below.

Table 2 - Hydrology and Flooding (Source: NRC GIS WebMaps)

	Presence / Location	Comments
Watercourses & Water Features within 200 m (Coast, rivers, lakes)	The Kawakawa River is located to the south of the site. At its closest point it is approximately 225m from the piece of land.	This Kawakawa River flows east turning north before discharging into the Bay of Islands.
Flood Risk	The southwest portion of the piece of land is mapped within the 100 year flood zone.	
Private wells within 200 m	No wells are mapped as being with in 200m of the piece of land.	
Source Protection Zones within 200 m	None recorded.	The site is not within the main three Northland aquifers.

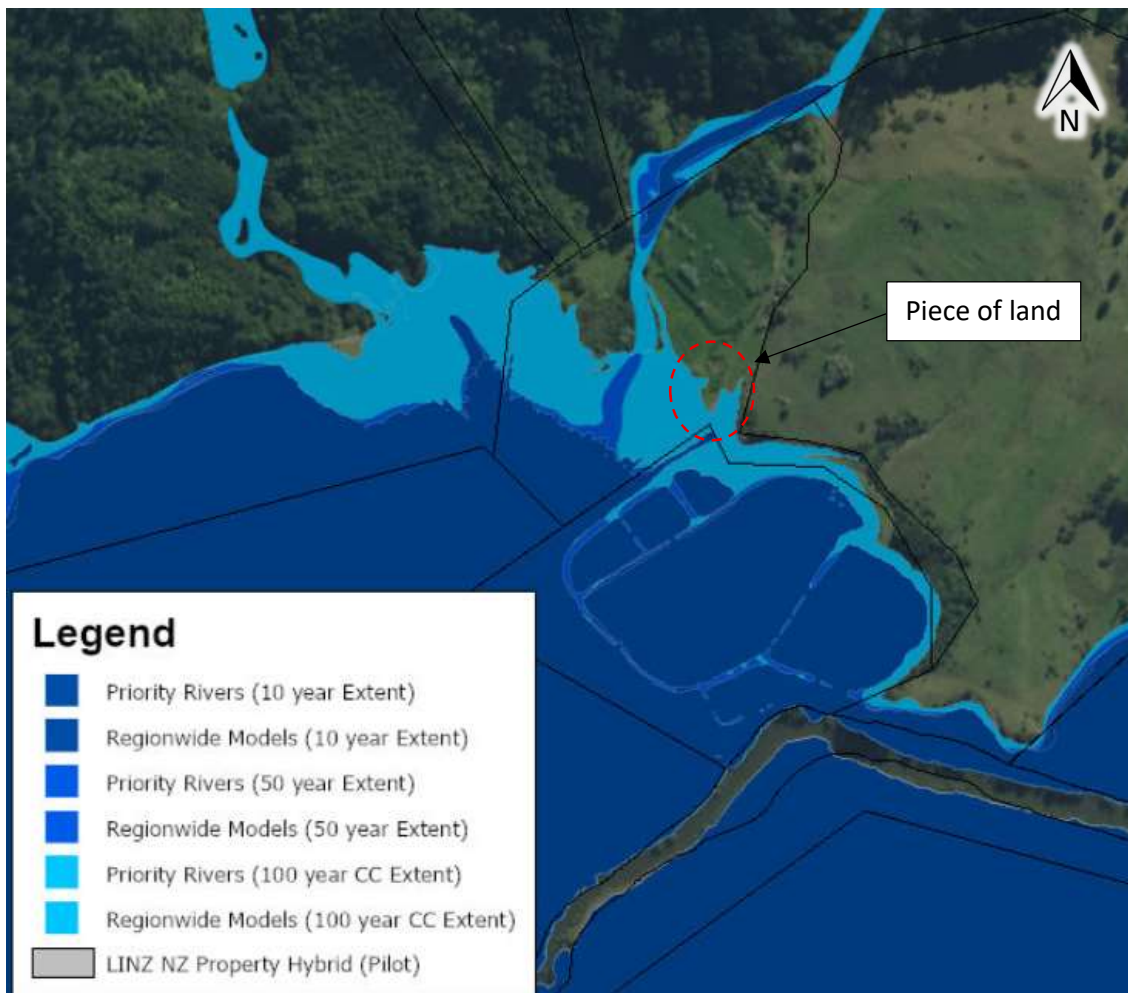


Figure 4 - Flood Modelled Areas (Source: Northland Regional Council GIS Website)

4 Historical Information

The history of the site was established through a review of historical aerial photography, Land Information New Zealand (LINZ) Certificates of Title, NRC Contamination Enquiry, and FNDC Property Files.

4.1 Historical Aerial Photography

Historical aerial photography of the site was obtained from the Retrolens website (<http://retrolens.nz/map>), and Google Earth Pro. Photographs available for the subject area are dated from 1968 to 2023. A review of the historical aerial photography is provided below in Table 3. Historical aerial photographs are provided in **Appendix C**.

Table 3 - Historical Aerial Photography review

Date	Source	Review
1968	Retrolens	- There are no dwellings / structures visible in the immediate and surrounding area, - The piece of land is in pasture, - To the north of the site is bush, the remaining surrounding land is in pasture, and - Oxidation ponds are present to the south of the site.
1971, 1981	Retrolens	No significant changes onsite or on surrounding properties.
2004	Google Earth Pro	- Access roads are present through the piece of land, - To the northeast of the piece of land a desludging area has been constructed, and - To the southwest of the piece of land a building has been constructed for the wastewater treatment plant.
2009	Google Earth Pro	- No significant changes to the piece of land, - The bioreactor is present to the west of the piece of land, and - To the south of the piece of land additional oxidation ponds have been constructed in the footprint of the former pond.
2011, 2016, 2016, 2018, 2019, 2020, 2022, 2023	Google Earth Pro	No significant changes to the piece of land or surrounding properties.

The most recent historical aerial photograph was sourced from Google Earth Pro and is dated July 2023. Site conditions observed in this aerial image are similar to those observed during site walkover.

4.2 Certificates of Title

A review of Certificates of Title held by LINZ was completed for the site. No additional potential HAIL activities were identified through the title review.

Copies of the Certificates of Title are provided in **Appendix D**.

4.3 Contamination Enquiry

A site contamination enquiry was requested from the NRC Contaminated Land Team. Information from the contamination enquiry specific to the site includes:

SITE ID: SLU.042593

Site Classification: Verified HAIL: Risk not quantified

Potential HAIL for the site identified in the Contamination Enquiry includes:

- Waste recycling or waste or wastewater treatment (HAIL Cat. G.6).

The Contamination Enquiry also reports records of pollution incidents, bores, contaminated site and air discharges and industrial trade process consents, closed landfills and air quality permitted activities within approximately 200m of the site. All incidents listed relate to the overflow of sewerage from the oxidation ponds on the adjacent site into the Kawakawa River. These incidents are not considered to likely to have caused contamination to the piece of land as they are located downslope.

A copy of the Contamination Enquiry is provided in **Appendix E**

4.4 Property File

A Property File request was lodged with FNDC. Relevant information including Resource Consents and Building Consents / Permits issued for developments that have occurred on-site is summarised below in Table 4.

Table 4 - Relevant Permits / Licences / Consents

Date	Details	Owner / Applicant	Description	Potential HAIL Category
December 2021	Resource consent ref. 2020108	FNDC	To undertake up to 14,000m ³ of earth to develop a sewage sludge disposal area for sludge from Kawakawa oxidation ponds and de-water sewage sludge from the ponds and dispose to the sludge disposal area.	G.6.

Due to the large size of the documents summarised in Table 4, documents will be made available on request.

5 HAIL Assessment

Based on previous land-use and development information for the property, Table 5 below summarises the potential for contamination associated with previous site activities and land-uses classified under the HAIL.

Table 5 - Site Activities / Land Uses and Potential HAIL categories

Date	HAIL Activity	Primary Source	Potential Contaminants	Investigation Locations
Pre 1986 - present	G.6 - Waste recycling or waste or wastewater treatment	Site walkover, Historical Aerial Photography, NRC Contamination Enquiry	Metals & PFAS	Piece of land

6 Contamination Investigation

6.1 Identified Contaminants of Concern

The site was identified for potential soil contamination during the review of historical documents and the site walkover. Relevant to the HAIL assessment and site history, the potential CoC for the site investigation area included:

- Metals, and
- Per- and polyfluoroalkyl substances (PFAS).

6.2 Soil Investigation

Soil sampling from the site investigation area was undertaken on 10 July 2025 and comprised soil sampling by a SQEP from Haigh Workman.

Following the initial sampling the development plan was altered, necessitating additional sampling. Additional sampling was undertaken on 31 July 2025.

Sampling locations are provided in **Appendix A**. Photographic documentation from the investigation is provided in **Appendix B**.

Minor ground disturbance for sampling activities was conducted as a permitted activity under NES-CS regulation 8(2), where soil sampling is defined within regulation 5(3).

Soil sampling consisted of targeted sampling of fill material and natural soils focusing the contamination assessment on the piece of land.

Twenty three soil samples (thirteen shallow soil samples, eight deep soil samples and two samples of a stockpile), including two duplicate soil sample for Quality Assurance / Quality Control (QA / QC) purposes were collected. All soil samples were submitted to the laboratory (Eurofins) for analysis of metals with one sample being analysed for PFAS. The two stockpile samples were tested as a composite sample for metals.

The concentration and distribution of contaminants can vary significantly at different depths in the soil or groundwater at a site. It is influenced by numerous factors including the nature of the contaminant source (point source, diffuse source, surface, subsurface, single or multiple releases etc.) and the nature of the breakdown products of primary contaminants.

The exposure scenarios for the priority contaminants listed in Section 6.1 include soil ingestion, dermal exposure, and inhalation, soil samples were retrieved from below the surface between 0-0.075m bgl, deeper samples were collected at 0.4m bgl.

- Encountered fill material was present in the accessways and comprised of compacted aggregate,
- Natural soils (topsoil) were encountered elsewhere onsite, the topsoil was underlain by clayey silt with trace fine angular gravel, and
- A stockpile of topsoil was present within the piece of land.

Soil sample descriptions are provided in **Appendix G**.

During the fieldwork access was made available to Haigh Workman across the whole investigation area.

6.3 Soil Sampling Protocol

Soil samples were collected from a spade or hand trowel from pre-determined sample locations across the site investigation area. Soil sampling equipment was decontaminated between sampling locations and disposable nitrile gloves were used and replaced between sampling locations in order to prevent cross-contamination. All samples were collected in accordance with strict environmental sampling protocols to ensure reliable and representative results.

All sample containers and preservatives, where applicable, were supplied by the subcontract laboratory and were consistent with the specifications provided in Section 6.4 – Sample Handling, of the Contaminated Land Management Guidelines No. 5 – Site Investigation and Analysis of Soils (MfE, Revised 2021). All samples were labelled with unique identifiers indicating the sampling location. Samples were couriered directly to the laboratory (Eurofins) under continuous Chain of Custody (COC) documentation. Each COC form had a unique laboratory number.

6.3.1 Composite Samples

Composite sampling involves collecting individual samples from different locations, typically between two and four samples, and mixing an equal mass of each of the samples (subsamples) together to form one composite sample (undertaken at the laboratory). A composite sample can then be analysed and the results will represent the average of the constituent sub-samples.

Composite sampling was appropriate for this investigation because:

- The investigation was focussed on non-volatile contaminants,
- Sub-samples were the same soil type, same exposure to contaminants and similar depth
- The maximum number of sub-samples composited together was less than four, and
- The composite was assembled in the laboratory and not in the field.

When the average concentration represented by the composite sample exceeds the adopted guideline criteria, analysis of individual samples should be undertaken to clarify the contaminant distribution.

6.3.2 Duplicate samples

A duplicate sample involves collecting two separate samples from a single sample location, storing these in separate containers, and submitting them for analysis to the laboratory as two separate samples. Samples are given separate sample numbers so the laboratory does not know the sample is a duplicate.

A duplicate sample measures the contaminant concentration difference between the two samples because of soil heterogeneity, the variability or error within the laboratory analysis and the variability or error related to field sampling technique. The results of duplicate variance analysis are presented in Section 9.1. One duplicate for every 20 samples was adopted.

7 Regulations

Within the Northland Region, investigations of contaminated and potentially contaminated sites are directed by rules under the following regulations:

- MfE NES-CS and Petroleum Hydrocarbon Guidelines (PHG) – National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health (MfE, Revised 2021) and

Guidelines for Assessing and Managing Petroleum Hydrocarbon Contaminated Sites in New Zealand (MfE, revised 2011),

- New Zealand Guidelines for Assessing and Managing Asbestos in Soil (2017).

7.1 National Environmental Standards – Contaminants in Soil

The Resource Management (National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health (NES-CS) 2011 Regulations, came into force on 1 January 2012, with Contaminated Land Management Guidelines revised in 2011 (No.2) and 2021 (No.1 and 5). The NES-CS for contaminants in soil incorporates by reference MfE contaminated land documents, including MfE Contaminated Land Management Guidelines for the investigation, assessment and reporting of contaminated land within New Zealand. These documents are aimed to provide national consistency in the reporting of contaminated site information. These documents are:

- Contaminated Land Management Guidelines (No. 1, 2 and 5),
- HAIL,
- Methodology of Deriving Soil Guideline Values Protective of Human Health,
- PFAS National Environmental Management Plan 2.0 (2020), and
- Guidelines for Assessing and Managing Petroleum Hydrocarbon Contaminated Sites in New Zealand.

Copies of the above guideline documents are available at www.mfe.govt.nz.

7.2 Background Concentrations Assessment

Background levels are particularly relevant when considering whether soils can be considered as 'Cleanfill'. Results have been assessed against the following criteria:

- Maanaki Whenua Landcare Research Information System (LRIS), Predicted Background Soil Concentrations.

7.3 New Zealand Guidelines for Assessing and Managing Asbestos in Soil.

The New Zealand Guidelines for Assessing and Managing Asbestos in Soil were published in 2017. The guidelines provide direction around identifying, assessing and managing Asbestos in soil in New Zealand and establish Human Health Soil Guideline Values (SGV) for Asbestos in soil.

Soil samples collected were not analysed for Asbestos as part of this investigation.

8 Assessment Criteria

The site is zoned 'Rural Production'. The site is currently a wastewater treatment plant and it is proposed that the wastewater treatment plant is expanded into the piece of land. For this assessment, soil analytical results were compared against:

- NES-CS Human Health criteria for Commercial / Industrial land-use, and
- LRIS Predicted Background Soil Concentrations.

Guideline assessment criteria is included with the soil analytical results provided in **Appendix H**.

9 Analytical Results

Twenty three soil samples (thirteen shallow soil samples, eight deep soil samples and two samples of a stockpile), including two duplicate soil sample for QA / QC purposes were collected. All soil samples were submitted to the laboratory (Eurofins) for analysis of metals with one sample being analysed for PFAS. The stockpile samples were tested as a composite sample for metals.

Laboratory analytical results reported:

- All CoC concentrations were below applicable MfE NES-CS Commercial / Industrial Human Health criteria, and
- Metals concentrations were above Background Soil Concentrations for all samples except one.

Laboratory analytical results are summarised **Appendix H**. Soil sampling locations are provided in **Appendix A**. Laboratory analytical results and COC documentation are provided in **Appendix I**.

10 Quality Assurance / Quality Control

Quality assurance (QA) and quality control (QC) are essential elements for site investigation. QA relates to the planned activities implemented so that quality requirements will be met, and QC relates to the observation techniques and activities used to demonstrate the quality requirements have been met. Soils were inspected for visual and olfactory indicators of contamination and logged with soil descriptions attached in **Appendix G**.

Between samples equipment was decontaminated by brushing, spraying with clean potable water and rinsing with high purity de-ionised water. To reduce the potential for cross-contamination, each sample was taken using disposable nitrile gloves that were discarded following the collection of each sample.

Appropriate Personal Protective Equipment (PPE) was used by Haigh Workman staff including disposable nitrile gloves, highly visible vest and steel toe capped boots. All disposable PPE was treated as contaminated and disposed of appropriately.

Soil samples were placed in sample containers supplied by Eurofins Laboratories, which were then capped, labelled with a unique identifier and placed in a chilly bin prior to transport by Courier. Standard chain of custody documentation is enclosed in **Appendix I**.

Any laboratory analysing samples of contaminated media must be able to show it has in-house quality assurance procedures and quality control checks (QA / QC) to ensure accurate testing and reporting of analyses. IANZ, or equivalent overseas accreditation, provides confidence that the receiving laboratory has appropriate QA / QC procedures in place. Eurofins Environmental Testing NZ Limited⁵ is IANZ and NZS/ISO/IEC 17025:2018 accredited, and was the laboratory elected for testing.

Following receipt of the samples by Eurofins Laboratories, the samples were scheduled for analysis of the identified contaminants of concern. Records of laboratory QA / QC and the results of chemical testing including methodologies as received from the laboratory are presented in **Appendix I**.

⁵ Eurofins Environmental Testing NZ Limited, an IANZ⁵ and NZS/ISO/IEC 17025:2018⁵ accredited laboratory incorporating the aspects of ISO 9000:2015⁵ relevant to testing laboratories. International Accreditation New Zealand which represents New Zealand in the International Laboratory Accreditation Cooperation (ILAC). New Zealand Standard, General Requirements for the Competence of Testing and Calibration Laboratories, 2018. ISO9000: Quality Management Systems.

10.1 QA / QC Relative Percentage Difference

One duplicate soil sample sets (HA13 0.075, duplicate of HA10 0.075 and HA9 0.075, duplicate of HA3 0.075) were collected for QA / QC purposes. The duplicate soil samples were collected using the same soil sampling procedures and analysed at the laboratory (Eurofins) using the same sample preparation and analysis procedures as the original soil samples. One QA / QC sample was collected for every 20 soil samples collected.

Relative Percentage Difference (RPD) calculations for analytes reported above the laboratory MDL ranged from 0.0 to 28.1%. RPD values for the duplicate pairs met Haigh Workman QA / QC acceptance criteria of less than 50%.

QA / QC results are presented in Table 6 below. Laboratory analytical results are provided in **Appendix H**.

Table 6 – Quality Assurance / Quality Control Results

Contaminants of Concern		Results (mg/kg)		RPD (%)	Results (mg/kg)		RPD (%)
		HA10 0.075	HA13 0.075		HA3 0.075	HA9 0.075	
Heavy Metals	Arsenic	3.21	2.56	22.53%	4.69	4.51	3.91%
	Boron	-	-	-	< 3	< 3	-
	Cadmium	0.27	0.35	25.81%	0.07	0.07	0%
	Chromium	138	104	28.1%	7.8	6.9	12.24%
	Copper	31	25.9	17.93%	14.8	15.2	2.67%
	Lead	9.6	8.4	13.33%	14.1	14.3	1.41%
	Mercury	-	-	-	< 0.1	< 0.1	-
	Nickel	32.1	27.1	16.89%	6.6	6.5	1.53%
	Zinc	50	48	4.08%	58	62	6.67%

MDL – Method Detection Limit

mg/kg – milligrams per kilogram

RPD – Relative Percentage Difference

ND / D – Non-detect / Detect

11 Discussion

11.1 Conceptual Site Model

The assessment provided below in Table 7 expands on the potential sources of contamination identified within the area of the proposed development and exposure pathways. It is based on the potential effects of the proposed land use and soil disturbance activities on human health and the environment associated with the commercial / industrial land-use (no change).

Table 7 - Conceptual Site Model

Potential Source	Potential Receptors	Potential Pathways	Assessment
Contaminated Soil (Metals and PFAS)	Construction, maintenance / excavation workers.	Inhalation of dust / ingestion and dermal contact.	<u>Incomplete Pathway:</u> Contaminant concentrations are below applicable Human Health criteria.
	Future site user(s).	Inhalation of dust / ingestion and dermal contact.	

12 Regulatory Requirements

12.1 NES - CS

It is considered that the piece of land and proposed development are covered under the NES-CS regulations.

The NES-CS describes a 'piece of land' as the piece of land that has had, currently has, or most likely has had activities listed on the HAIL and soil disturbance is proposed.

12.1.1 Subdividing or changing use

Based on findings from this investigation, this proposal is a Controlled Activity (9) under the NES-CS as this DSI states the soil contamination does not exceed the applicable standard in regulation 7.

Table 8 below presents potential Resource Consent requirements for the proposed activity under the provisions of the NES-CS. This investigation presents factual information for the site. Matters of control and discretion, however, rest with the consenting authority (FNDC) based on their assessment of this report. It would be appropriate to seek clarification of FNDC or an Environmental Planning Specialist for further information on resource consenting requirements.

Table 8 –Potential Resource Consent Requirements

Potential Source	Potential Applicable Planning Rules
NES-CS	CONTROLLED ACTIVITY (subject to requirements under Rule 9) - A DSI report (this investigation) has been prepared, - The consent authority must have the report, - Contamination concentrations comply with NES-CS Commercial / Industrial Human Health criteria, and - Controlled Activity status may require a Site Management Plan be prepared for the site. Rule 9 conditions must be complied with.

12.1.2 Soil disturbance

The NES-CS describes a 'piece of land' as the area that has had, currently has, or has most likely has had activities listed on the HAIL:

8(3) Disturbing Soil

- 8(3)(c) *The volume of the disturbance of soil of the piece of land must be no more than 25m³ per 500m².*
- 8(3)(d)(ii) *Soil must not be taken away in the course of the activity, except that for all other purposes combined, a maximum of 5m³ per 500m² of soil may be taken away per year.*

The 'piece of land' for this investigation is the existing property, which is 1,057 m³. This allows for 52 m³ soil disturbance and 10 m³ soil removal (per year) as a Permitted Activity under the NES-CS.

12.2 Northland Regional Council

As per Rule C.6.8.1 of the Proposed Regional Plan for Northland, copies of site investigation reports must be provided to the regional council within three months of completion of the investigation (reports can be sent to: contamination@nrc.govt.nz).

13 Conclusion & Recommendations

This PSI / DSI was carried out for the investigation site in accordance with the scope of work and current applicable regulations. This report has been prepared in accordance with MfE Guidelines for Contaminated Site Investigations and FNDC requirements. This investigation and reporting have been prepared, reviewed and authorised by a SQEP, as required under the NES-CS.

Historical information available for the site and observations from the 10 July 2025 site walkover indicate that the following HAIL activities have, or potentially have, occurred at the site:

- Waste recycling or waste or wastewater treatment Undocumented fill (HAIL Cat. G.6).

Twenty three soil samples (thirteen shallow soil samples, eight deep soil samples and two samples of a stockpile), including two duplicate soil sample for Quality Assurance / Quality Control (QA / QC) purposes were collected. All soil samples were submitted to the laboratory (Eurofins) for analysis of metals with one sample being analysed for PFAS. The two stockpile samples were tested as a composite sample for metals.

Laboratory analytical results reported:

- All CoC concentrations were below applicable MfE NES-CS Commercial / Industrial Human Health criteria, and
- Metals concentrations were above Regional Background Level concentrations for all samples except one.

Based on these findings:

- Soil sampling has confirmed that there are no significant contaminated land related constraints on development of the land for commercial / industrial purposes and that standard earthworks controls are appropriate,
- Soil with Metals concentrations above Background Levels is not considered as 'Cleanfill' for disposal purposes:
 - If material exceeding Background Level criteria must be removed from site it is to be disposed of a facility licensed to accept such materials,
 - Material exceeding Background Level criteria could be retained and re-used on-site as a sustainability option and to reduce disposal costs if suitable,
- Apart from fill soils with Metals concentrations above Background Level criteria, soils that are required to be removed from site could be disposed of as 'Cleanfill', with approval from the receiving fill operator, and
- Any visual / olfactory evidence of contamination discovered during site works must be segregated and analysed by a SQEP prior to disposal.

It is considered that future proposed redevelopment is covered under the National Environmental Standard for Contaminants in Soils regulations. The National Environmental Standard for Contaminants in Soils describes a 'piece of land' as the piece of land that has had, or currently has, or most likely has had, activities listed on the Hazardous Activities and Industries List and soil disturbance is proposed.

14 Unverified Material Discovery

Should visual and / or olfactory evidence of gross contamination be identified during excavation works. It is recommended that works cease in that area and a SQEP familiar with the site attends to inspect the impacted soils. If required, the SQEP will undertake sampling to confirm the level and scope of contamination. The area should also be physically isolated using a high visibility fence if practicable.

Indications that uncontrolled filling with waste and / or unverified material may have occurred on site include:

- Buried Rubbish,
- Buried construction or demolition waste,
- Un-anticipated soil colours or odours,
- Buried tanks or drums, and
- Encountering materials that may contain Asbestos, including fibrous building materials and fibre cement construction products.

Site management should brief operatives onsite of the above signs during site inductions.

15 Practitioner Certifying Statement

I, Joshua Cuming of Haigh Workman Limited certify that:

This Detailed Site Investigation meets the requirements of the Resource Management (National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health) Regulations 2011 (the NES-CS) because it has been:

- Undertaken by a Suitably Qualified and Experienced Practitioner, and
- Reported on in accordance with the current edition of Contaminated Land Management Guidelines No. 5 – Site Investigation and Analysis of Soils,
- Reported on in accordance with the current edition of Contaminated Land Management Guidelines No. 1 – Reporting on contaminated sites in New Zealand, and
- The report has been certified by a Suitably Qualified and Experienced Practitioner.

This Detailed Site Investigation concludes that:

- [For activities under R9 of the NESCS] does not exceed the applicable standard in Regulation 7 of the Resource Management (National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health) Regulations,

I have completed a Bachelor of Science (Geology and Environmental Studies). I have over 10 years' experience in contaminated land management across New Zealand and overseas.

End of Report – Appendices to follow

Appendix A – Site Investigation Plans

Drawing No.	Title
25 128 / 1	Piece of Land Plan
25 128 / 2	Sample Investigation Plan



Legend

-  Piece of land
-  Site Boundary

0 25 m 50 m

LINZ CC BY 4.0 © Imagery Basemap contributors



Produced by **Datanest.earth**

Title: Piece of Land Plan

Client: FNDC		Size: A3
Project: Kawakawa Wastewater Treatment Plant	Drawn: JCum	Drawing No.: 1
Date: 14-08-2025	Checked: AT	
Proj No: 25 128	Scale: 1:2000	Version: REV1



Legend

- Site Boundary
- Hand Auger Locations
- Stockpile 1
- Piece of land

0 5 m 10 m

LINZ CC BY 4.0 © Imagery Basemap contributors



Produced by **Datanest.earth**

Title: Site Investigation Plan

Client: FNDC		Size: A3
Project: Kawakawa Wastewater Treatment Plant	Drawn: JCum	Drawing No.: 2
Date: 14-08-2025	Checked: AT	
Proj No: 25 128	Scale: 1:500	Version: REV1

Appendix B – Photographic Documentation



1. Piece of land



2. Desludging area



3. Leachate disposal spreader bar

Appendix C - Historical Aerial Photography

NOTE: Site boundaries indicative only



1968 (Retrolens)



1971, Retrolens



1981, Retrolens



2004, Google Earth Pro



2009, Google Earth Pro



2011, Google Earth Pro



2014, Google Earth Pro



2016, Google Earth Pro



2018, Google Earth Pro



2019, Google Earth Pro



2020, Google Earth Pro



2022, Google Earth Pro



2023, Google Earth Pro

Appendix D – Certificate of Title



RECORD OF TITLE
UNDER LAND TRANSFER ACT 2017
FREEHOLD
Search Copy




R.W. Muir
Registrar-General
of Land

Identifier **317977**
Land Registration District **North Auckland**
Date Issued 13 October 2006

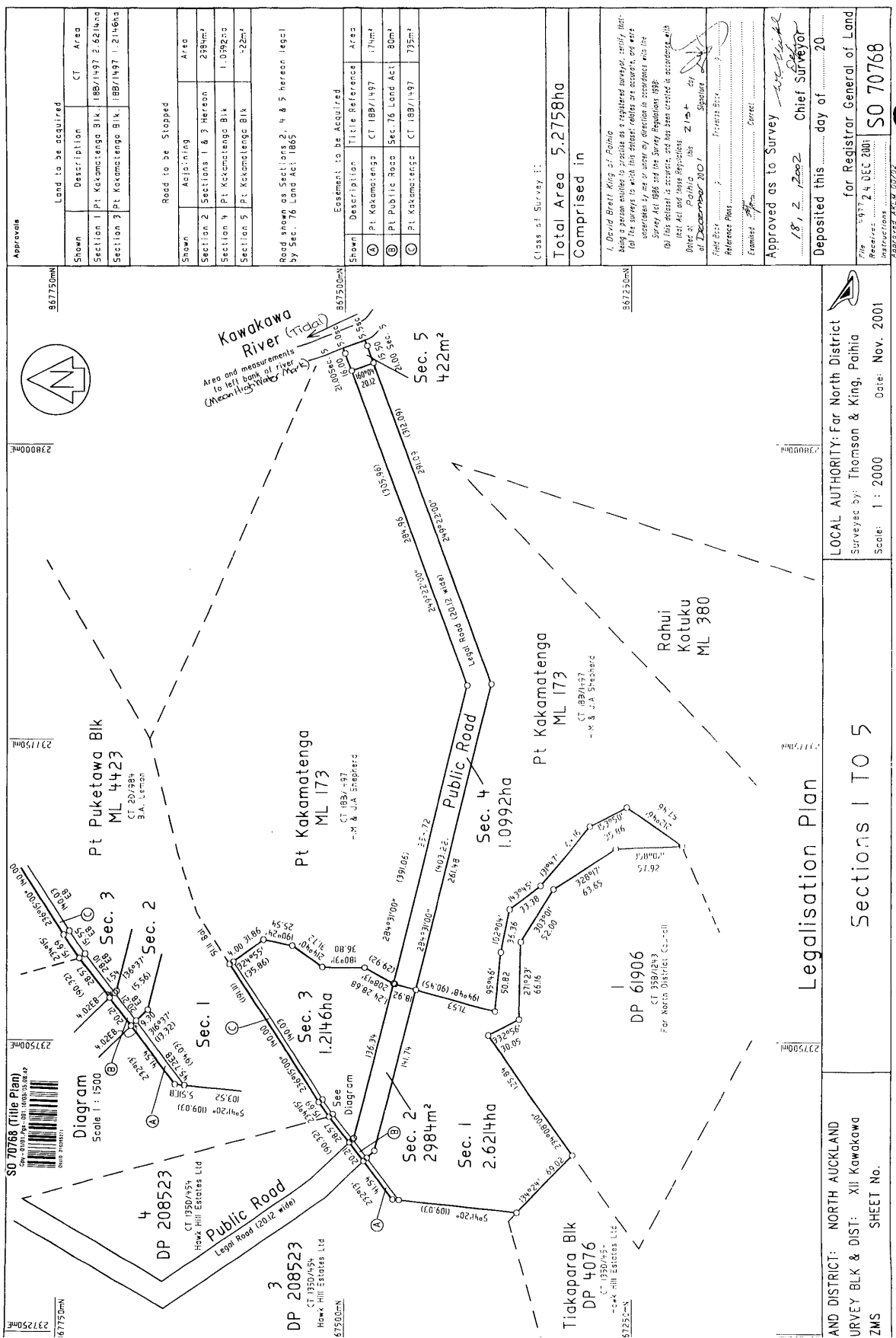
Prior References

284513 7071409.1

Estate Fee Simple
Area 4.1344 hectares more or less
Legal Description Section 1-3 Survey Office Plan 70768
Registered Owners
Far North District Council

Interests

Subject to rights of way over parts marked A, B and C on SO Plan 70768 created by Transfer 7071409.4 - 13.10.2006 at 9:00 am





**RECORD OF TITLE
UNDER LAND TRANSFER ACT 2017
FREEHOLD
Historical Search Copy**




R.W. Muir
Registrar-General
of Land

Constituted as a Record of Title pursuant to Sections 7 and 12 of the Land Transfer Act 2017 - 12 November 2018

Identifier 317977
Land Registration District North Auckland
Date Issued 13 October 2006

Prior References
284513 7071409.1

Estate Fee Simple
Area 4.1344 hectares more or less
Legal Description Section 1-3 Survey Office Plan 70768
Original Registered Owners
Far North District Council

Interests

Subject to rights of way over parts marked A, B and C on SO Plan 70768 created by Transfer 7071409.4 - 13.10.2006 at 9:00 am

Appendix E – Northland Regional Council Contamination Enquiry

Josh Cuming

From: Contaminated Land Management Team <contamination@nrc.govt.nz>
Sent: Tuesday, 1 July 2025 10:00 am
To: Josh Cuming
Subject: RE: Contamination enquiry (NRC Reference: REQ.626735)
Attachments: Sludge disposal area.JPG

Regarding your site query for Section 1 Survey Office Plan 70768

The property that you have enquired about is listed on the NRC Selected Land-use Register (SLR) for any current or historical Hazardous Activities and Industries List (HAIL) activities as follows:

Reference Number: SLU.042593

Site Name: Wastewater treatment plant – State Highway 1, kawakawa

Site Description: 5630 State Highway 1, Kawakawa. Site is the location of the Kawakawa wastewater treatment plant. This plant is consented and monitored under REG.001168.01

Site Classification: Verified HAIL: Risk not quantified

HAIL Activities: G6. Waste recycling or waste or wastewater treatment

Filenotes:

05/12/2023: Site added to the SLR as this is the location of the Kawakawa wastewater treatment plant. The site is consented and is monitored by NRC under REG.001168.01.

There is 1 environmental incident recorded on the property as detailed below. If you require any further information on any of these please let me know quoting the reference number.

Reference number	Date	Subject	Description	Further information from file
REQ.408917	13/05/2003	Environmental incident - Sewage	Alleged direct discharge of wastewater from Pond 1 of the Treatment System to the Kawakawa River.	Effluent from Pond 1 is being pumped to a channel which then discharges to the river as alleged.

There is 1 current resource consent recorded on the property as detailed below. If you require any further information on any of these please let me know quoting the reference number. There is also an expired consent (AUT.001168.08.01 & AUT.001168.09.01) for the discharge of sewage sludge and leachate to land. The sludge disposal area is in the Northeast quadrant of the property (map attached to this email).

Reference number	Type - Subtype	Authorisation Description
AUT.001168.01.06	Water Discharge- Sewage	To discharge treated wastewater into the Kawakawa River, at or about location co-ordinates 1697904E 6085453N.
AUT.001168.02.02	Land Discharge - Sewage	To discharge contaminants into land beneath the treatment system, at or about location co-ordinates 1697850E 6085550N.
AUT.001168.03.02	Air Discharge - Sewage	To discharge contaminants into air associated with the treatment and disposal of wastewater, at or about location co-ordinates 1697850E 6085550N.

Incidents within 100m.

Reference number	Date	Subject	Description	Further information from file
REQ.409154	08/07/2003	Environmental incident - Sewage	Overflow from Pond 1 to the wetland treatment component of the Kawakawa STP.	FNDC advised NRC of overflow of Pond 1 to the Wetland Kawakawa STP
REQ.409526	13/10/2003	Environmental incident - Sewage	Advice from FNDC contractor that partially treated effluent from the Kawakawa sewerage treatment plant.	Impact services rang to advise that the first pond was ab second pond.
REQ.410707	29/06/2004	Environmental incident - Sewage	Notification of overflow from pond one to the wetland area.	Advised that the Kawakawa sewage pond is about to dis to the wetland area. Final effluent discharge volume has been calculated at 18200 cubic meters
REQ.413845	27/04/2006	Environmental incident - Sewage	FNDC informing NRC of actions they intend to take to minimise the potential for a bypass discharge.	Created a lined temporary storage area up by the sludge and would pump effluent from pond 1 up into that stor

Please note, as per Rule C.6.8.1 of the [Proposed Regional Plan for Northland](#), copies of site investigation reports, where land disturbance has occurred, must be provided to the regional council within three months of completion of the investigation.

Reports can be sent to contamination@nrc.govt.nz.

If I can be of any further assistance, please do not hesitate to contact me.

Regards

Kyle Richards

Environmental Monitoring Officer – Industrial & Trade Activities

Northland Regional Council » Te Kaunihera ā rohe o Te Taitokerau

M 027 268 8938



P 0800 002 004 » W www.nrc.govt.nz





Reduce your water use
Make it last

Disclaimer

Unless specifically included in the response above, council warns that information is not available about building materials that can cause land contamination at any property, including, but not limited to, wood that has been chemically treated, lead-based paint and asbestos containing materials. Caution is advised with regard to these materials, including undertaking a comprehensive due diligence investigation to establish whether these materials are or have been present at any time, past and present.

The information provided in this email is information from the Selected Land Use Register and Northland Regional Council Incident Records only, unless otherwise specified. Council may hold information about the site in other registers or databases. A full search of council records will need to be undertaken to determine if this is the case, and which the requestor must specifically request this, and cover council's reasonable costs. The information supplied in this email should not be solely relied upon for determining whether there is contamination at a site, for remediation of the site or any other purpose. Compliance with R6.2 of the Resource Management (National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health) Regulations 2011 ('NES') requires that territorial authority records are searched, and any information supplied in this e-mail is required to form part of that search. If contamination is confirmed, there may be contaminant guideline values that apply to the land, in addition to the NES soil contamination guidelines. We cannot accept any liability arising from the absence of information from our registers. We advise clients to engage the services of a suitably qualified and experienced contaminated land specialist where uncertainty exists.

From: Josh Cuming <joshcuming@haighworkman.co.nz>
Sent: Thursday, 19 June 2025 4:17 pm
To: Contaminated Land Management Team <contamination@nrc.govt.nz>
Subject: Contamination enquiry

Hi

Please may we have any information on file regarding HAIL and environmental incidents onsite and within 100 m of the below site?

- Section 1 Survey Office Plan 70768

The site houses the Kawakawa wastewater treatment plant.



If I haven't included enough information please let me know.

Kind regards

Josh Cuming

Environmental Geologist

CEnvP, MEIANZ.

Phone 09 407 8327

joshcuming@haighworkman.co.nz



HAIGH WORKMAN
Civil & Structural Engineers

[Website](#) . [LinkedIn](#) . [Careers](#)

Appendix F – Far North District Council Property Files (Available on request)

Appendix G – Soil Sample Descriptions

Date	Sample #	Depth (m bgl)	Soil Description	Analysis
10 July 2025	HA1	0-0.075	SILT, brown, moist (Topsoil)	Metals
	HA1	0.4	SILT, light brown with mottling, moist	
	HA2	0-0.075	SILT, brown, moist (Topsoil)	
	HA2	0.4	SILT, light brown with mottling, moist	
	HA3	0-0.075	SILT and fine GRAVEL	
	HA4	0-0.075	SILT and fine GRAVEL	
	HA5	0-0.075	SILT, brown, moist (Topsoil)	
	HA5	0.4	SILT, light brown with mottling, moist	
	HA6	0-0.075	SILT, brown, moist	Metals and PFAS
	HA7	0-0.075	SILT, brown, moist (Topsoil)	Metals
	HA7	0.4	SILT, light brown with mottling, moist	
	HA8	0-0.075	SILT, brown, moist (Topsoil)	
	HA8	0.4	SILT, light brown with mottling, moist	
	HA9 (dup of HA3 0.075m)	0-0.075	SILT and fine GRAVEL	
31 July 2025	HA10	0-0.075	SILT, brown, moist (Topsoil)	Metals
	HA10	0.4	SILT, light brown with mottling, moist	
	HA11	0-0.075	SILT, brown, moist (Topsoil)	
	HA11	0.4	SILT, light brown with mottling, moist	
	HA12	0-0.075	SILT, brown, moist (Topsoil)	
	HA12	0.4	SILT, light brown with mottling, moist	
	HA13 (dup of HA10 0.075m)	0-0.075	SILT, brown, moist (Topsoil)	

HA– Hand auger

dup – Duplicate sample

m bgl – meters below ground level

Appendix H – Laboratory Analytical Results Table(s)

Analyte	Units	HA1	HA1	HA2	HA2	HA3	HA4	HA5	HA5	HA6	HA7	HA7	HA8	HA8	HA9	HA10	HA10	HA11	HA11	HA12	HA12	HA13	Comp of SP1 S1+SP1 S2	Human Health, Industrial	Adopted Background levels
Depth		0.075m	0.4m	0.075m	0.4m	0.075m	0.075m	0.075m	0.4m	0.075m	0.075m	0.4m	0.075m	0.4m	0.075m	0.075m	0.3m	0.075m	0.3m	0.075m	0.3m	0.075m	NA		
Sampled Date		11-07-2025	11-07-2025	11-07-2025	11-07-2025	11-07-2025	11-07-2025	11-07-2025	11-07-2025	11-07-2025	11-07-2025	11-07-2025	11-07-2025	11-07-2025	11-07-2025	31-07-2025	31-07-2025	31-07-2025	31-07-2025	31-07-2025	31-07-2025	31-07-2025	11-07-2025		
Metals (mg/kg)																									
Arsenic	mg/kg	2.93	2.43	4.97	3.95	4.69	3.84	4.06	2.62	4.64	8.71	2.65	3.78	8.7	4.51	3.21	3.9	3.32	4.18	5.04	3.08	2.56	3.89	70 ^{1,3}	5.90
Chromium (III+VI)	mg/kg	8.6	6.6	9	8.2	7.8	6.7	8.4	6.4	8.8	10.5	7.5	7.9	8.7	6.9	138	165	47.9	63.1	21.3	15.4	104	8	6,300 ¹	15.5
Boron	mg/kg	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	-	-	-	-	-	-	-	< 3	-	11.70
Cadmium	mg/kg	0.22	0.03	0.12	0.06	0.07	0.21	0.06	0.06	0.2	0.2	0.02	0.07	0.12	0.07	0.27	0.2	0.26	0.12	0.19	0.03	0.35	0.08	1,300 ^{1,3,4}	0.08
Copper	mg/kg	13.5	11	14.7	11.6	14.8	18.9	12.1	8.7	13	12.6	12.5	17.9	26.9	15.2	31	32.9	18.8	19.1	13.8	13.5	25.9	11.6	10,000 ^{1,5}	15.7
Mercury	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	-	-	-	-	-	-	-	< 0.1	4,200 ¹	
Nickel	mg/kg	6.5	4.7	7.2	6.4	6.6	6.8	5.9	4.2	6.9	6.1	5.3	17.9	16.3	6.5	32.1	32.3	15.5	17.5	7.3	7.7	27.1	6.5	6,000 ⁷	9.5
Lead	mg/kg	14.2	14	14.3	14.4	14.1	16.3	14.1	10.2	13.9	16.8	16.8	14.5	24.4	14.3	9.6	7.5	10.8	12.4	10.4	12	8.4	12	3,300 ¹	11.4
Zinc	mg/kg	75	45	63	56	58	97	50	43	89	56	50	52	80	62	50	43	36	39	39	52	48	57	400,000 ²	47.5

Scenarios:

Shaded

Indicates result exceeds for Human Health, Industrial

Shaded

Indicates a non-detect exceedance

Shaded

Indicates a above non-detect

Bold

Exceeds background levels

Criteria adopted from the following guideline

¹Methodology for Deriving Soil Guideline Values Protective of Human Health (NES, 2011) Criteria for Human Health, Industrial

²NEPM 2013 Criteria for Human Health, Industrial from table Table 1A(1)

Notes:

This table does not represent the full analytical results, please refer to the laboratory results for full details.

Guideline Notes:

³Human health

⁴pH 5. Concentrations increase with increasing pH.

⁵No limit – the derived value exceeds 10,000 mg/kg, a concentration that is unlikely to be exceeded in practice.

Analyte	Units	HA6	Human Health, Industrial
Depth		0.075m	
Sampled Date		11-07-2025	
(13C2-4:2FTS) Surrogate	%	75	-
(13C2-6:2FTS) Surrogate	%	43	-
(13C2-8:2FTS) Surrogate	%	34	-
(13C2-PFTeDA) Surrogate	%	97	-
(13C3-PFBS) Surrogate	%	37	-
(13C4-PFBA) Surrogate	%	32	-
(13C4-PFHpA) Surrogate	µg/kg	< 5	-
(13C5-PFHxA) Surrogate	%	56	-
(13C5-PFPeA) Surrogate	%	104	-
(13C6-PFDA) Surrogate	%	54	-
13C2-10:2 FTSA (surr.)	%	121	-
13C2-PFDoDA (surr.)	%	121	-
13C2-PFUnDA (surr.)	%	69	-
13C4-PFHpA (surr.)	%	51	-
13C5-PFNA (surr.)	%	59	-
13C8-FOSA (surr.)	%	41	-
13C8-PFOA	%	46	-
13C8-PFOS (surr.)	%	50	-
18O2-PFHxS (surr.)	%	42	-
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2FTSA)	µg/kg	< 5	-
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	µg/kg	< 5	-
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	µg/kg	< 5	-
ammonium perfluoro decansulfonate (NH4 PFDS)	µg/kg	< 5	-
D3-N-MeFOSA (surr.)	%	53	-
D3-N-MeFOSAA (surr.)	%	36	-
D5-N-EtFOSA (surr.)	%	52	-
D5-N-EtFOSAA (surr.)	%	40	-
D7-N-MeFOSE (surr.)	%	47	-
D9-N-EtFOSE (surr.)	%	65	-
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	µg/kg	< 5	-
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	µg/kg	< 5	-
N-Methyl perfluorooctane sulfonamide (MeFOSA)	µg/kg	< 5	-
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	µg/kg	< 5	-
N-methyl perfluorooctane sulfonamidoethanol (MeFOSE)	µg/kg	< 5	-
Perfluorobutane sulfonic acid (PFBS)	µg/kg	< 5	250,000 ⁴
Perfluorobutanoic acid (PFBA)	µg/kg	< 5	1,200,000 ⁴
Perfluorodecanoic acid (PFDA)	µg/kg	< 5	-
Perfluorododecane sulfonic acid (PFDoDS)	µg/kg	< 5	-
Perfluorododecanoic acid (PFDoDA)	µg/kg	< 5	-
Perfluoroheptane sulfonic acid (PFHpS)	µg/kg	< 5	-
Perfluorohexane sulfonic acid (PFHxS)	µg/kg	< 5	20,000 ^{3,8,9,10,11}
Perfluorohexanoic acid (PFHxA)	µg/kg	< 5	410,000 ⁴
Perfluorononanesulfonic acid (PFNS)	µg/kg	< 5	-
Perfluorononanoic acid (PFNA)	µg/kg	< 5	2,500 ⁴
Perfluorooctane sulfonamide (FOSA)	µg/kg	< 5	-
Perfluorooctane sulfonamidoacetic acid (FOSAA)	µg/kg	< 5	-
Perfluorooctane sulfonic acid (PFOS)	µg/kg	< 5	20,000 ^{3,8,9,10,11}
Perfluorooctanoic acid (PFOA)	µg/kg	< 5	50,000 ^{3,8,9,10,11}
Perfluoropentane sulfonic acid (PFPeS)	µg/kg	< 5	-
Perfluoropentanoic acid (PFPeA)	µg/kg	< 5	-
Perfluoropropanesulfonic acid (PFPrS)	µg/kg	< 5	-
Perfluorotetradecanoic acid (PFTeDA)	µg/kg	< 5	-
Perfluorotridecanoic acid (PFTrDA)	µg/kg	< 5	-
Perfluoroundecanoic acid (PFUnDA)	µg/kg	< 5	-
Sum (PFHxS (Total) + PFOS (Total) + PFOA)*	µg/kg	< 5	-
Sum (PFHxS (Total) + PFOS (Total))*	µg/kg	< 5	-
Sum (PFOS (Total) + PFOA (Total))*	µg/kg	< 5	-
Sum of PFASs	µg/kg	< 5	-

Scenarios:	
Shaded	Indicates result exceeds for Human Health, Industrial
Shaded	Indicates a non-detect exceedance
Shaded	Indicates a above non-detect

Criteria adopted from the following guidelines:

¹Methodology for Deriving Soil Guideline Values Protective of Human Health (NES, 2011) Criteria for Human Health, Industrial

²NEPM 2013 Criteria for Human Health, Industrial from table Table 1A(1)

³PFAS NEMP 2020 Criteria for Human Health, Industrial

⁴Environmental Protection Agency – Regional Screening Levels (May 2023) Criteria for Human Health, Industrial

Notes:

This table does not represent the full analytical results, please refer to the laboratory results for full details.

Guideline Notes:

⁵Human health

⁶pH 5. Concentrations increase with increasing pH.

⁷No limit – the derived value exceeds 10,000 mg/kg, a concentration that is unlikely to be exceeded in practice.

⁸Assumes 8 hours is spent indoors and 1 hour spent outdoors at a site such as a shop, office, factory or industrial site

⁹If the typical exposure for a site is predominantly outdoors with significant earthen areas, recalculation of a site-specific value is recommended

¹⁰These were derived using the methodology consistent with assumptions set out in the ASC NEPM for HIL D

¹¹Note: the industrial/commercial direct exposure criterion for PFOA (including its salts and related compounds) has been set as 50 mg/kg in anticipation of the Stockholm Convention low content limit of 50 mg/kg

Environment Testing NZ

ANALYTICAL REPORT

REPORT CODE **AR-25-NU-073367-01** REPORT DATE **08/08/2025**

Attention Haigh Workman Limited
 Josh Cuming
 6 Fairway Drive
 230 Kerikeri
 NEW ZEALAND

Phone +642885160190

Email joshcuming@haighworkman.co.nz

Contact for your orders: Frances Gilvray **Order code:** EUNZAU-00819983
Reception Date & Time: 04/08/2025 12:00:00am
Submission Reference: 25128, Kawakawa Wastewater Treatment Plant

SAMPLE CODE:			816-2025-00200919	816-2025-00200920	816-2025-00200921	816-2025-00200922
Sample Name:			HA10 0.075	HA10 0.3	HA11 0.075	HA11 0.3
Product Type:			Soil	Soil	Soil	Soil
Analysis Started on:			04/08/2025	04/08/2025	04/08/2025	04/08/2025
Analysis Ending Date:			08/08/2025	08/08/2025	08/08/2025	08/08/2025
Sampled Date & Time			31/07/2025 00:00	31/07/2025 00:00	31/07/2025 00:00	31/07/2025 00:00
Sampled By			Joshua Cuming	Joshua Cuming	Joshua Cuming	Joshua Cuming
Attempt to Chill was evident			No	No	No	No
Sample correctly preserved			Yes	Yes	Yes	Yes
Appropriate sample containers used			Yes	Yes	Yes	Yes
	LOQ	Unit				
② NW499 Arsenic - Total	0.05	mg/kg	3.21	3.90	3.32	4.18
② NW504 Cadmium - Total	0.01	mg/kg	0.27	0.20	0.26	0.12
② NW507 Chromium - Total	0.2	mg/kg	138	165	47.9	63.1
② NW509 Copper - Total	0.3	mg/kg	31.0	32.9	18.8	19.1
② NW511 Lead - Total	0.1	mg/kg	9.6	7.5	10.8	12.4
② NW517 Nickel - Total	0.2	mg/kg	32.1	32.3	15.5	17.5
② NW528 Zinc - Total	1	mg/kg	50	43	36	39

Environment Testing NZ

SAMPLE CODE:			816-2025-00200923	816-2025-00200924	816-2025-00200925	
Sample Name:			HA12 0.075	HA12 0.3	HA13 0.075	
Product Type:			Soil	Soil	Soil	
Analysis Started on:			04/08/2025	04/08/2025	04/08/2025	
Analysis Ending Date:			08/08/2025	08/08/2025	08/08/2025	
Sampled Date & Time			31/07/2025 00:00	31/07/2025 00:00	31/07/2025 00:00	
Sampled By			Joshua Cuming	Joshua Cuming	Joshua Cuming	
Attempt to Chill was evident			No	No	No	
Sample correctly preserved			Yes	Yes	Yes	
Appropriate sample containers used			Yes	Yes	Yes	
	LOQ	Unit				
② NW499 Arsenic - Total	0.05	mg/kg	5.04	3.08	2.56	
② NW504 Cadmium - Total	0.01	mg/kg	0.19	0.03	0.35	
② NW507 Chromium - Total	0.2	mg/kg	21.3	15.4	104	
② NW509 Copper - Total	0.3	mg/kg	13.8	13.5	25.9	
② NW511 Lead - Total	0.1	mg/kg	10.4	12.0	8.4	
② NW517 Nickel - Total	0.2	mg/kg	7.3	7.7	27.1	
② NW528 Zinc - Total	1	mg/kg	39	52	48	

Environment Testing NZ

HOLDING TIMES

816-2025-00200919 HA10 0.075

Test	Sampling Date	Holding End	Effective Holding (days)	Requirement (days)	Compliance
NW499 Arsenic - Total	31/07/2025	08/08/2025	8	180	Yes
NW504 Cadmium - Total	31/07/2025	08/08/2025	8	180	Yes
NW507 Chromium - Total	31/07/2025	08/08/2025	8	180	Yes
NW509 Copper - Total	31/07/2025	08/08/2025	8	180	Yes
NW511 Lead - Total	31/07/2025	08/08/2025	8	180	Yes
NW517 Nickel - Total	31/07/2025	08/08/2025	8	180	Yes
NW528 Zinc - Total	31/07/2025	08/08/2025	8	180	Yes

816-2025-00200920 HA10 0.3

Test	Sampling Date	Holding End	Effective Holding (days)	Requirement (days)	Compliance
NW499 Arsenic - Total	31/07/2025	08/08/2025	8	180	Yes
NW504 Cadmium - Total	31/07/2025	08/08/2025	8	180	Yes
NW507 Chromium - Total	31/07/2025	08/08/2025	8	180	Yes
NW509 Copper - Total	31/07/2025	08/08/2025	8	180	Yes
NW511 Lead - Total	31/07/2025	08/08/2025	8	180	Yes
NW517 Nickel - Total	31/07/2025	08/08/2025	8	180	Yes
NW528 Zinc - Total	31/07/2025	08/08/2025	8	180	Yes

816-2025-00200921 HA11 0.075

Test	Sampling Date	Holding End	Effective Holding (days)	Requirement (days)	Compliance
NW499 Arsenic - Total	31/07/2025	08/08/2025	8	180	Yes
NW504 Cadmium - Total	31/07/2025	08/08/2025	8	180	Yes
NW507 Chromium - Total	31/07/2025	08/08/2025	8	180	Yes
NW509 Copper - Total	31/07/2025	08/08/2025	8	180	Yes
NW511 Lead - Total	31/07/2025	08/08/2025	8	180	Yes
NW517 Nickel - Total	31/07/2025	08/08/2025	8	180	Yes
NW528 Zinc - Total	31/07/2025	08/08/2025	8	180	Yes

816-2025-00200922 HA11 0.3

Test	Sampling Date	Holding End	Effective Holding (days)	Requirement (days)	Compliance
NW499 Arsenic - Total	31/07/2025	08/08/2025	8	180	Yes
NW504 Cadmium - Total	31/07/2025	08/08/2025	8	180	Yes
NW507 Chromium - Total	31/07/2025	08/08/2025	8	180	Yes
NW509 Copper - Total	31/07/2025	08/08/2025	8	180	Yes
NW511 Lead - Total	31/07/2025	08/08/2025	8	180	Yes
NW517 Nickel - Total	31/07/2025	08/08/2025	8	180	Yes
NW528 Zinc - Total	31/07/2025	08/08/2025	8	180	Yes

816-2025-00200923 HA12 0.075

Test	Sampling Date	Holding End	Effective Holding (days)	Requirement (days)	Compliance
NW499 Arsenic - Total	31/07/2025	08/08/2025	8	180	Yes
NW504 Cadmium - Total	31/07/2025	08/08/2025	8	180	Yes
NW507 Chromium - Total	31/07/2025	08/08/2025	8	180	Yes
NW509 Copper - Total	31/07/2025	08/08/2025	8	180	Yes
NW511 Lead - Total	31/07/2025	08/08/2025	8	180	Yes
NW517 Nickel - Total	31/07/2025	08/08/2025	8	180	Yes
NW528 Zinc - Total	31/07/2025	08/08/2025	8	180	Yes

816-2025-00200924 HA12 0.3

Test	Sampling Date	Holding End	Effective Holding (days)	Requirement (days)	Compliance
NW499 Arsenic - Total	31/07/2025	08/08/2025	8	180	Yes

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NW504	Cadmium - Total	31/07/2025	08/08/2025	8	180	Yes
NW507	Chromium - Total	31/07/2025	08/08/2025	8	180	Yes
NW509	Copper - Total	31/07/2025	08/08/2025	8	180	Yes
NW511	Lead - Total	31/07/2025	08/08/2025	8	180	Yes
NW517	Nickel - Total	31/07/2025	08/08/2025	8	180	Yes
NW528	Zinc - Total	31/07/2025	08/08/2025	8	180	Yes

816-2025-00200925 HA13 0.075

Test	Sampling Date	Holding End	Effective Holding (days)	Requirement (days)	Compliance
NW499 Arsenic - Total	31/07/2025	08/08/2025	8	180	Yes
NW504 Cadmium - Total	31/07/2025	08/08/2025	8	180	Yes
NW507 Chromium - Total	31/07/2025	08/08/2025	8	180	Yes
NW509 Copper - Total	31/07/2025	08/08/2025	8	180	Yes
NW511 Lead - Total	31/07/2025	08/08/2025	8	180	Yes
NW517 Nickel - Total	31/07/2025	08/08/2025	8	180	Yes
NW528 Zinc - Total	31/07/2025	08/08/2025	8	180	Yes

LIST OF METHODS

NW499 Arsenic - Total: APHA Online Edition 3125 B mod.	NW504 Cadmium - Total: APHA Online Edition 3125 B mod.
NW507 Chromium - Total: APHA Online Edition 3125 B mod.	NW509 Copper - Total: APHA Online Edition 3125 B mod.
NW511 Lead - Total: APHA Online Edition 3125 B mod.	NW517 Nickel - Total: APHA Online Edition 3125 B mod.
NW528 Zinc - Total: APHA Online Edition 3125 B mod.	

Signature



Gabriela
Carvalhaes Business Unit Manager
Eurofins ELS Limited

EXPLANATORY NOTE

- ① Test is not accredited
- ② Test is subcontracted within Eurofins group and is accredited
- ③ Test is subcontracted within Eurofins group and is not accredited
- ④ Test is subcontracted outside Eurofins group and is accredited
- ⑤ Test is subcontracted outside Eurofins group and is not accredited
- ⑥ Test result is provided by the customer and is not accredited
- ⑦ Tested at the sampling point by Eurofins and is not accredited
- ⑧ Tested at the sampling point by Eurofins and is accredited
- ⑨ Test is RLP accredited
- ⑩ Test is subcontracted within Eurofins group and is RLP accredited

N/A means Not Applicable

Not Detected means not detected at or above the Limit of Quantification (LOQ)

LOQ means Limit of Quantification and the unit of LOQ is the same as the result unit

Symbol - in result column means not tested

General

1. Unless otherwise stated, all soil/sediment/solid results are reported on a dry weight basis.
2. Unless otherwise stated, all biota/food results are reported on a wet weight basis on the edible portion.
3. Actual LOQs are matrix dependent. Quoted LOQs may be raised where sample extracts are diluted due to interferences.
4. Results are uncorrected for matrix spikes or surrogate recoveries except for PFAS compounds where annotated.
5. Analysis on waters is performed on homogenised, unfiltered samples unless noted otherwise.
6. Samples were analysed on an 'as received' basis.

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Holding Times

Please refer to the 'Sample Preservation and Container Guide' for holding times (QS3001).

If the Laboratory did not receive the information in the required timeframe, and despite any other integrity issues, suitably qualified results may still be reported.

Holding times apply from the sampling date; therefore, compliance with these may be outside the laboratory's control.

For VOCs containing vinyl chloride, styrene and 2-chloroethyl vinyl ether, the holding time is seven days; however, for all other VOCs, such as BTEX or C6-10 TRH, the holding time is 14 days.

Holding times are expressed in days.

Units

mg/kg: milligrams per kilogram
µg/L: micrograms per litre
org/100 mL: Organisms per 100 millilitres
CFU: Colony Forming Unit

mg/L: milligrams per litre
ppb: parts per billion
NTU: Nephelometric Turbidity Units
Colour: Pt-Co Units (CU)

ppm: parts per million
%: Percentage
MPN/100 mL: Most Probable Number of organisms per 100 millilitres

Terms

APHA American Public Health Association
TCLP Toxicity Characteristic Leaching Procedure
US EPA United States Environmental Protection Agency

Quality Controls

All test method Quality Controls including method blanks, reference samples, spikes, surrogates and duplicate sample testing have passed and are within the control limits.

The Customer acknowledges and accepts that: (a) where Eurofins is not responsible for sampling, the test result(s) in this report apply only to the sample as received. Customer is solely responsible for the sampling process and warrants that the sample provided to Eurofins is representative of the lot / batch from which the samples were drawn; and (b) Eurofins expresses no opinion and accepts no liability in respect of the Customer's production process or homogeneity of the product. The tests are identified by a five-digit code, their description is available on request.

Accreditation does not apply to comments or graphical representations.

Unless otherwise stated, all tests in this analytical report (except for subcontracted tests) are performed at Eurofins Environment Testing NZ Limited - Auckland, 35 O'rorke Road, Penrose, Auckland, New Zealand.

The laboratory is not responsible for the information provided by the customer which can affect the validity of the results, for example: sampling information such as date/time, field data etc.

Eurofins may subcontract the performance of part or all of the Services to a third party and the Customer authorises the release of all information necessary to the third party for the provision of the Services.

All samples become the property of Eurofins to the extent necessary for the performance of the Services.

Eurofins will not be required to store samples and may destroy or otherwise dispose of the samples or return the samples to the Customer (at the Customer's cost in all respects) immediately following analysis of the samples.

If the Customer pays for storage of the samples Eurofins will take commercially reasonable steps to store the samples for the agreed period in terms of industry practice.

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The Customer acknowledges that the Services are provided using the current state of technology and methods developed and generally applied by Eurofins and involve analysis, interpretations, consulting work and conclusions. Eurofins shall use commercially reasonable degree of care in providing the Services.

This report is produced and issued on the basis of information, documents and/or samples provided by, or on behalf of, the Customer and solely for the benefit of the Customer who is responsible for acting as it sees fit on the basis of this report. Neither Eurofins nor any of its officers, employees, agents or subcontractors shall be liable to the Customer nor any third party for any actions taken or not taken on the basis of this report nor for any incorrect results arising from unclear, erroneous, incomplete, misleading or false information provided to Eurofins.

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Eurofins General Terms and Conditions apply.

END OF REPORT

Environment Testing NZ

ANALYTICAL REPORT

REPORT CODE **AR-25-NU-066655-01** REPORT DATE **18/07/2025**

Attention Haigh Workman Limited
 Josh Cuming
 6 Fairway Drive
 230 Kerikeri
 NEW ZEALAND
Phone +642885160190
Email joshcuming@haighworkman.co.nz

Contact for your orders: Frances Gilvray **Order code:** EUNZAU-00813796
Reception Date & Time: 11/07/2025 12:00:00am
Submission Reference: 25107, Kingi Road

SAMPLE CODE:	816-2025-00180005	816-2025-00180006	816-2025-00180007	816-2025-00180008
Sample Name:	TP8 0.1	TP8 0.4	TP8 1.1	TP9 0.1
Product Type:	Soil	Soil	Soil	Soil
Analysis Started on:	15/07/2025	15/07/2025	15/07/2025	15/07/2025
Analysis Ending Date:	18/07/2025	18/07/2025	18/07/2025	18/07/2025
Sampled Date & Time	08/07/2025 00:00	08/07/2025 00:00	08/07/2025 00:00	08/07/2025 00:00
Sampled By	Josh Cuming	Josh Cuming	Josh Cuming	Josh Cuming
Attempt to Chill was evident	No	No	No	No
Sample correctly preserved	Yes	Yes	Yes	Yes
Appropriate sample containers used	Yes	Yes	Yes	Yes

	LOQ	Unit				
② NW499 Arsenic - Total	0.05	mg/kg	4.65	5.07	5.03	6.25
② NW503 Boron - Total	3	mg/kg	7	5	6	13
② NW504 Cadmium - Total	0.01	mg/kg	0.63	0.47	0.42	0.58
② NW507 Chromium - Total	0.2	mg/kg	41.3	57.1	60.4	18.2
② NW509 Copper - Total	0.3	mg/kg	45.3	62.8	65.1	48.8
② NW511 Lead - Total	0.1	mg/kg	183	22.7	28.3	249
② NW515 Mercury - Total	0.1	mg/kg	0.3	0.5	0.4	0.2
② NW517 Nickel - Total	0.2	mg/kg	37.1	44.8	46.9	33.6
②NWEBH PAH BaP TEQ						
Acenaphthene	0.02	mg/kg	<0.02	-	-	<0.02
Acenaphthylene	0.02	mg/kg	<0.02	-	-	0.05
Anthracene	0.02	mg/kg	<0.02	-	-	0.04
benz (a) anthracene	0.02	mg/kg	<0.02	-	-	0.25
Benzo(a)pyrene	0.02	mg/kg	0.04	-	-	0.36
Benzo(a)pyrene TEQ (lower bound)	0.02	mg/kg	0.05	-	-	0.57
Benzo(a)pyrene TEQ (medium bound)	0.02	mg/kg	0.06	-	-	0.57
Benzo(a)pyrene TEQ (upper bound)	0.02	mg/kg	0.07	-	-	0.57
Benzo(b+k)fluoranthene	0.02	mg/kg	0.06	-	-	0.58
Benzo(g,h,i)perylene	0.02	mg/kg	0.04	-	-	0.30
Chrysene	0.02	mg/kg	0.03	-	-	0.21

Environment Testing NZ

SAMPLE CODE:			816-2025-00180005	816-2025-00180006	816-2025-00180007	816-2025-00180008
Sample Name:			TP8 0.1	TP8 0.4	TP8 1.1	TP9 0.1
Dibenz(a,h)anthracene	0.02	mg/kg	<0.02	-	-	0.09
Fluoranthene	0.02	mg/kg	0.03	-	-	0.28
Fluorene	0.02	mg/kg	<0.02	-	-	<0.02
Indeno(1,2,3-cd)pyrene	0.02	mg/kg	0.03	-	-	0.26
Naphthalene	0.02	mg/kg	<0.02	-	-	<0.02
Phenanthrene	0.02	mg/kg	<0.02	-	-	0.09
Pyrene	0.02	mg/kg	0.03	-	-	0.32
②NW37K TRH C7 - C36						
TRH C10-C14	0.1	mg/kg	<1	-	-	<1
TRH C15-C36	0.1	mg/kg	<1	-	-	13
TRH C7 - C9	0.1	mg/kg	<1	-	-	1.3
TRH C7-C36 (total)	0.1	mg/kg	<1	-	-	15
② NW528 Zinc - Total	1	mg/kg	163	115	117	311

Environment Testing NZ

SAMPLE CODE:			816-2025-00180009	816-2025-00180011	816-2025-00180013	816-2025-00180015
Sample Name:			TP9 0.6	TP10 0.1	TP11 0.1	TP12 0.1
Product Type:			Soil	Soil	Soil	Soil
Analysis Started on:			15/07/2025	15/07/2025	15/07/2025	15/07/2025
Analysis Ending Date:			18/07/2025	18/07/2025	18/07/2025	18/07/2025
Sampled Date & Time			08/07/2025 00:00	08/07/2025 00:00	08/07/2025 00:00	08/07/2025 00:00
Sampled By			Josh Cuming	Josh Cuming	Josh Cuming	Josh Cuming
Attempt to Chill was evident			No	No	No	No
Sample correctly preserved			Yes	Yes	Yes	Yes
Appropriate sample containers used			Yes	Yes	Yes	Yes
	LOQ	Unit				
② NW499 Arsenic - Total	0.05	mg/kg	2.42	2.42	3.83	2.99
② NW503 Boron - Total	3	mg/kg	6	7	8	<3
② NW504 Cadmium - Total	0.01	mg/kg	0.33	0.17	0.43	0.13
② NW507 Chromium - Total	0.2	mg/kg	29.1	15.2	19.6	13.0
② NW509 Copper - Total	0.3	mg/kg	40.0	27.6	34.8	15.1
② NW511 Lead - Total	0.1	mg/kg	5.9	21.8	38.6	14.0
② NW515 Mercury - Total	0.1	mg/kg	0.3	0.2	0.2	0.2
② NW517 Nickel - Total	0.2	mg/kg	27.4	26.9	34.8	10.5
②NWEBH PAH BaP TEQ						
Acenaphthene	0.02	mg/kg	-	<0.02	<0.02	-
Acenaphthylene	0.02	mg/kg	-	<0.02	<0.02	-
Anthracene	0.02	mg/kg	-	<0.02	<0.02	-
benz (a) anthracene	0.02	mg/kg	-	0.04	<0.02	-
Benzo(a)pyrene	0.02	mg/kg	-	0.06	0.03	-
Benzo(a)pyrene TEQ (lower bound)	0.02	mg/kg	-	0.08	0.04	-
Benzo(a)pyrene TEQ (medium bound)	0.02	mg/kg	-	0.09	0.05	-
Benzo(a)pyrene TEQ (upper bound)	0.02	mg/kg	-	0.10	0.06	-
Benzo(b+k)fluoranthene	0.02	mg/kg	-	0.10	0.05	-
Benzo(g,h,i)perylene	0.02	mg/kg	-	0.06	0.03	-
Chrysene	0.02	mg/kg	-	0.04	<0.02	-
Dibenz(a,h)anthracene	0.02	mg/kg	-	<0.02	<0.02	-
Fluoranthene	0.02	mg/kg	-	0.05	<0.02	-
Fluorene	0.02	mg/kg	-	<0.02	<0.02	-
Indeno(1,2,3-cd)pyrene	0.02	mg/kg	-	0.04	0.03	-
Naphthalene	0.02	mg/kg	-	<0.02	<0.02	-
Phenanthrene	0.02	mg/kg	-	<0.02	<0.02	-
Pyrene	0.02	mg/kg	-	0.05	<0.02	-
②NW37K TRH C7 - C36						
TRH C10-C14	0.1	mg/kg	-	<1	<1	-
TRH C15-C36	0.1	mg/kg	-	<1	<1	-
TRH C7 - C9	0.1	mg/kg	-	<1	<1	-
TRH C7-C36 (total)	0.1	mg/kg	-	<1	<1	-

Environment Testing NZ

SAMPLE CODE:		816-2025-00180009	816-2025-00180011	816-2025-00180013	816-2025-00180015
Sample Name:		TP9 0.6	TP10 0.1	TP11 0.1	TP12 0.1
② NW528 Zinc - Total	1 mg/kg	51	53	81	46

Environment Testing NZ

SAMPLE CODE:			816-2025-00180017	816-2025-00180018	816-2025-00180019	816-2025-00180020
Sample Name:			TP12 1.0	TP13 0.3	TP14 0.4	TP15 0.2
Product Type:			Soil	Soil	Soil	Soil
Analysis Started on:			15/07/2025	15/07/2025	15/07/2025	15/07/2025
Analysis Ending Date:			18/07/2025	18/07/2025	18/07/2025	18/07/2025
Sampled Date & Time			08/07/2025 00:00	08/07/2025 00:00	08/07/2025 00:00	08/07/2025 00:00
Sampled By			Josh Cuming	Josh Cuming	Josh Cuming	Josh Cuming
Attempt to Chill was evident			No	No	No	No
Sample correctly preserved			Yes	Yes	Yes	Yes
Appropriate sample containers used			Yes	Yes	Yes	Yes
	LOQ	Unit				
② NW499 Arsenic - Total	0.05	mg/kg	2.78	2.77	3.69	3.24
② NW503 Boron - Total	3	mg/kg	3	6	7	4
② NW504 Cadmium - Total	0.01	mg/kg	0.15	0.21	0.31	0.18
② NW507 Chromium - Total	0.2	mg/kg	13.7	13.7	19.8	14.2
② NW509 Copper - Total	0.3	mg/kg	21.1	26.6	32.3	28.3
② NW511 Lead - Total	0.1	mg/kg	14.2	26.6	33.6	24.4
② NW515 Mercury - Total	0.1	mg/kg	0.2	0.2	0.1	0.1
② NW517 Nickel - Total	0.2	mg/kg	14.5	20.2	26.6	30.5
②NWEBH PAH BaP TEQ						
Acenaphthene	0.02	mg/kg	-	<0.02	-	-
Acenaphthylene	0.02	mg/kg	-	<0.02	-	-
Anthracene	0.02	mg/kg	-	<0.02	-	-
benz (a) anthracene	0.02	mg/kg	-	0.02	-	-
Benzo(a)pyrene	0.02	mg/kg	-	0.03	-	-
Benzo(a)pyrene TEQ (lower bound)	0.02	mg/kg	-	0.05	-	-
Benzo(a)pyrene TEQ (medium bound)	0.02	mg/kg	-	0.06	-	-
Benzo(a)pyrene TEQ (upper bound)	0.02	mg/kg	-	0.07	-	-
Benzo(b+k)fluoranthene	0.02	mg/kg	-	0.06	-	-
Benzo(g,h,i)perylene	0.02	mg/kg	-	0.03	-	-
Chrysene	0.02	mg/kg	-	0.03	-	-
Dibenz(a,h)anthracene	0.02	mg/kg	-	<0.02	-	-
Fluoranthene	0.02	mg/kg	-	0.03	-	-
Fluorene	0.02	mg/kg	-	<0.02	-	-
Indeno(1,2,3-cd)pyrene	0.02	mg/kg	-	0.03	-	-
Naphthalene	0.02	mg/kg	-	<0.02	-	-
Phenanthrene	0.02	mg/kg	-	<0.02	-	-
Pyrene	0.02	mg/kg	-	0.02	-	-
②NW37K TRH C7 - C36						
TRH C10-C14	0.1	mg/kg	-	<1	-	-
TRH C15-C36	0.1	mg/kg	-	<1	-	-
TRH C7 - C9	0.1	mg/kg	-	<1	-	-
TRH C7-C36 (total)	0.1	mg/kg	-	<1	-	-

Environment Testing NZ

SAMPLE CODE:		816-2025-00180017	816-2025-00180018	816-2025-00180019	816-2025-00180020
Sample Name:		TP12 1.0	TP13 0.3	TP14 0.4	TP15 0.2
② NW528 Zinc - Total	1 mg/kg	52	68	77	70

Environment Testing NZ

SAMPLE CODE:			816-2025-00180021	816-2025-00180022	816-2025-00180023	816-2025-00180024
Sample Name:			TP15 1.1	TP15 1.3	TP16 0.2	TP16 0.45
Product Type:			Soil	Soil	Soil	Soil
Analysis Started on:			15/07/2025	16/07/2025	15/07/2025	16/07/2025
Analysis Ending Date:			18/07/2025	18/07/2025	18/07/2025	18/07/2025
Sampled Date & Time			08/07/2025 00:00	08/07/2025 00:00	08/07/2025 00:00	08/07/2025 00:00
Sampled By			Josh Cuming	Josh Cuming	Josh Cuming	Josh Cuming
Attempt to Chill was evident			No	No	No	No
Sample correctly preserved			Yes	Yes	Yes	Yes
Appropriate sample containers used			Yes	Yes	Yes	Yes
	LOQ	Unit				
② NW499 Arsenic - Total	0.05	mg/kg	1.45	-	0.96	-
② NW503 Boron - Total	3	mg/kg	<3	-	<3	-
② NW504 Cadmium - Total	0.01	mg/kg	0.13	-	0.05	-
② NW507 Chromium - Total	0.2	mg/kg	14.7	-	15.3	-
② NW509 Copper - Total	0.3	mg/kg	23.0	-	29.5	-
② NW511 Lead - Total	0.1	mg/kg	7.5	-	2.0	-
② NW515 Mercury - Total	0.1	mg/kg	0.2	-	0.1	-
② NW517 Nickel - Total	0.2	mg/kg	16.2	-	22.4	-
②NWEBH PAH BaP TEQ						
Acenaphthene	0.02	mg/kg	-	<0.02	<0.02	<0.02
Acenaphthylene	0.02	mg/kg	-	<0.02	<0.02	<0.02
Anthracene	0.02	mg/kg	-	<0.02	<0.02	<0.02
benz (a) anthracene	0.02	mg/kg	-	<0.02	<0.02	<0.02
Benzo(a)pyrene	0.02	mg/kg	-	<0.02	<0.02	<0.02
Benzo(a)pyrene TEQ (lower bound)	0.02	mg/kg	-	<0.02	<0.02	<0.02
Benzo(a)pyrene TEQ (medium bound)	0.02	mg/kg	-	0.02	0.02	0.02
Benzo(a)pyrene TEQ (upper bound)	0.02	mg/kg	-	0.05	0.05	0.05
Benzo(b+k)fluoranthene	0.02	mg/kg	-	<0.02	<0.02	<0.02
Benzo(g,h,i)perylene	0.02	mg/kg	-	<0.02	<0.02	<0.02
Chrysene	0.02	mg/kg	-	<0.02	<0.02	<0.02
Dibenz(a,h)anthracene	0.02	mg/kg	-	<0.02	<0.02	<0.02
Fluoranthene	0.02	mg/kg	-	<0.02	<0.02	<0.02
Fluorene	0.02	mg/kg	-	<0.02	<0.02	<0.02
Indeno(1,2,3-cd)pyrene	0.02	mg/kg	-	<0.02	<0.02	<0.02
Naphthalene	0.02	mg/kg	-	<0.02	<0.02	<0.02
Phenanthrene	0.02	mg/kg	-	<0.02	<0.02	<0.02
Pyrene	0.02	mg/kg	-	<0.02	<0.02	<0.02
②NW37K TRH C7 - C36						
TRH C10-C14	0.1	mg/kg	-	<1	<1	<1
TRH C15-C36	0.1	mg/kg	-	<1	<1	<1
TRH C7 - C9	0.1	mg/kg	-	<1	<1	<1
TRH C7-C36 (total)	0.1	mg/kg	-	<1	<1	<1

Environment Testing NZ

SAMPLE CODE:		816-2025-00180021	816-2025-00180022	816-2025-00180023	816-2025-00180024
Sample Name:		TP15 1.1	TP15 1.3	TP16 0.2	TP16 0.45
② NW528 Zinc - Total	1 mg/kg	46	-	32	-

Environment Testing NZ

SAMPLE CODE:			816-2025-00180026	816-2025-00180029	816-2025-00180030	816-2025-00180032
Sample Name:			TP17 0.2	TP18 0.2	TP18 0.5	TP19 0.075
Product Type:			Soil	Soil	Soil	Soil
Analysis Started on:			15/07/2025	15/07/2025	16/07/2025	15/07/2025
Analysis Ending Date:			18/07/2025	18/07/2025	18/07/2025	18/07/2025
Sampled Date & Time			08/07/2025 00:00	08/07/2025 00:00	08/07/2025 00:00	08/07/2025 00:00
Sampled By			Josh Cuming	Josh Cuming	Josh Cuming	Josh Cuming
Attempt to Chill was evident			No	No	No	No
Sample correctly preserved			Yes	Yes	Yes	Yes
Appropriate sample containers used			Yes	Yes	Yes	Yes
	LOQ	Unit				
② NW499 Arsenic - Total	0.05	mg/kg	0.88	1.45	-	20.6
② NW503 Boron - Total	3	mg/kg	<3	<3	-	5
② NW504 Cadmium - Total	0.01	mg/kg	0.05	0.06	-	0.30
② NW507 Chromium - Total	0.2	mg/kg	10.9	12.0	-	26.1
② NW509 Copper - Total	0.3	mg/kg	22.3	22.2	-	43.1
② NW511 Lead - Total	0.1	mg/kg	3.8	6.2	-	101
② NW515 Mercury - Total	0.1	mg/kg	0.2	0.2	-	0.2
② NW517 Nickel - Total	0.2	mg/kg	16.5	18.9	-	19.9
②NWEBH PAH BaP TEQ						
Acenaphthene	0.02	mg/kg	<0.02	<0.02	<0.02	-
Acenaphthylene	0.02	mg/kg	<0.02	<0.02	<0.02	-
Anthracene	0.02	mg/kg	<0.02	<0.02	<0.02	-
benz (a) anthracene	0.02	mg/kg	<0.02	<0.02	<0.02	-
Benzo(a)pyrene	0.02	mg/kg	<0.02	<0.02	0.02	-
Benzo(a)pyrene TEQ (lower bound)	0.02	mg/kg	<0.02	<0.02	0.03	-
Benzo(a)pyrene TEQ (medium bound)	0.02	mg/kg	0.02	0.02	0.04	-
Benzo(a)pyrene TEQ (upper bound)	0.02	mg/kg	0.05	0.05	0.05	-
Benzo(b+k)fluoranthene	0.02	mg/kg	<0.02	<0.02	0.05	-
Benzo(g,h,i)perylene	0.02	mg/kg	<0.02	<0.02	0.03	-
Chrysene	0.02	mg/kg	<0.02	<0.02	0.02	-
Dibenz(a,h)anthracene	0.02	mg/kg	<0.02	<0.02	<0.02	-
Fluoranthene	0.02	mg/kg	<0.02	<0.02	0.05	-
Fluorene	0.02	mg/kg	<0.02	<0.02	<0.02	-
Indeno(1,2,3-cd)pyrene	0.02	mg/kg	<0.02	<0.02	<0.02	-
Naphthalene	0.02	mg/kg	<0.02	<0.02	<0.02	-
Phenanthrene	0.02	mg/kg	<0.02	<0.02	0.03	-
Pyrene	0.02	mg/kg	<0.02	<0.02	0.04	-
②NW37K TRH C7 - C36						
TRH C10-C14	0.1	mg/kg	<1	<1	<1	-
TRH C15-C36	0.1	mg/kg	<1	<1	<1	-
TRH C7 - C9	0.1	mg/kg	<1	<1	<1	-
TRH C7-C36 (total)	0.1	mg/kg	<1	<1	<1	-

Environment Testing NZ

SAMPLE CODE:		816-2025-00180026	816-2025-00180029	816-2025-00180030	816-2025-00180032
Sample Name:		TP17 0.2	TP18 0.2	TP18 0.5	TP19 0.075
② NW528 Zinc - Total	1 mg/kg	24	39	-	144

Environment Testing NZ

SAMPLE CODE: Sample Name: Product Type: Analysis Started on: Analysis Ending Date: Sampled Date & Time Sampled By Attempt to Chill was evident Sample correctly preserved Appropriate sample containers used			816-2025-00180033 TP19 1.0 Soil 15/07/2025 18/07/2025 08/07/2025 00:00 Josh Cuming No Yes Yes			
	LOQ	Unit				
② NW499 Arsenic - Total	0.05	mg/kg	25.2			
② NW503 Boron - Total	3	mg/kg	6			
② NW504 Cadmium - Total	0.01	mg/kg	0.44			
② NW507 Chromium - Total	0.2	mg/kg	31.2			
② NW509 Copper - Total	0.3	mg/kg	50.3			
② NW511 Lead - Total	0.1	mg/kg	118			
② NW515 Mercury - Total	0.1	mg/kg	0.2			
② NW517 Nickel - Total	0.2	mg/kg	26.2			
② NW528 Zinc - Total	1	mg/kg	219			

Environment Testing NZ

HOLDING TIMES

816-2025-00180005 TP8 0.1

Test	Sampling Date	Holding End	Effective Holding (days)	Requirement (days)	Compliance
NW499 Arsenic - Total	08/07/2025	16/07/2025	8	180	Yes
NW503 Boron - Total	08/07/2025	16/07/2025	8	180	Yes
NW504 Cadmium - Total	08/07/2025	16/07/2025	8	180	Yes
NW507 Chromium - Total	08/07/2025	16/07/2025	8	180	Yes
NW509 Copper - Total	08/07/2025	16/07/2025	8	180	Yes
NW511 Lead - Total	08/07/2025	16/07/2025	8	180	Yes
NW515 Mercury - Total	08/07/2025	18/07/2025	10	28	Yes
NW517 Nickel - Total	08/07/2025	16/07/2025	8	180	Yes
NWEBH PAH BaP TEQ	08/07/2025	18/07/2025	10	14	Yes
NW37K TRH C7 - C36	08/07/2025	18/07/2025	10	14	Yes
NW528 Zinc - Total	08/07/2025	16/07/2025	8	180	Yes

816-2025-00180006 TP8 0.4

Test	Sampling Date	Holding End	Effective Holding (days)	Requirement (days)	Compliance
NW499 Arsenic - Total	08/07/2025	16/07/2025	8	180	Yes
NW503 Boron - Total	08/07/2025	16/07/2025	8	180	Yes
NW504 Cadmium - Total	08/07/2025	16/07/2025	8	180	Yes
NW507 Chromium - Total	08/07/2025	16/07/2025	8	180	Yes
NW509 Copper - Total	08/07/2025	16/07/2025	8	180	Yes
NW511 Lead - Total	08/07/2025	16/07/2025	8	180	Yes
NW515 Mercury - Total	08/07/2025	18/07/2025	10	28	Yes
NW517 Nickel - Total	08/07/2025	16/07/2025	8	180	Yes
NW528 Zinc - Total	08/07/2025	16/07/2025	8	180	Yes

816-2025-00180007 TP8 1.1

Test	Sampling Date	Holding End	Effective Holding (days)	Requirement (days)	Compliance
NW499 Arsenic - Total	08/07/2025	16/07/2025	8	180	Yes
NW503 Boron - Total	08/07/2025	16/07/2025	8	180	Yes
NW504 Cadmium - Total	08/07/2025	16/07/2025	8	180	Yes
NW507 Chromium - Total	08/07/2025	16/07/2025	8	180	Yes
NW509 Copper - Total	08/07/2025	16/07/2025	8	180	Yes
NW511 Lead - Total	08/07/2025	16/07/2025	8	180	Yes
NW515 Mercury - Total	08/07/2025	18/07/2025	10	28	Yes
NW517 Nickel - Total	08/07/2025	16/07/2025	8	180	Yes
NW528 Zinc - Total	08/07/2025	16/07/2025	8	180	Yes

816-2025-00180008 TP9 0.1

Test	Sampling Date	Holding End	Effective Holding (days)	Requirement (days)	Compliance
NW499 Arsenic - Total	08/07/2025	16/07/2025	8	180	Yes
NW503 Boron - Total	08/07/2025	16/07/2025	8	180	Yes
NW504 Cadmium - Total	08/07/2025	16/07/2025	8	180	Yes
NW507 Chromium - Total	08/07/2025	16/07/2025	8	180	Yes
NW509 Copper - Total	08/07/2025	16/07/2025	8	180	Yes
NW511 Lead - Total	08/07/2025	16/07/2025	8	180	Yes
NW515 Mercury - Total	08/07/2025	18/07/2025	10	28	Yes
NW517 Nickel - Total	08/07/2025	16/07/2025	8	180	Yes
NWEBH PAH BaP TEQ	08/07/2025	18/07/2025	10	14	Yes
NW37K TRH C7 - C36	08/07/2025	18/07/2025	10	14	Yes
NW528 Zinc - Total	08/07/2025	16/07/2025	8	180	Yes

816-2025-00180009 TP9 0.6

Test	Sampling Date	Holding End	Effective Holding (days)	Requirement (days)	Compliance
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Environment Testing NZ

NW499	Arsenic - Total	08/07/2025	16/07/2025	8	180	Yes
NW503	Boron - Total	08/07/2025	16/07/2025	8	180	Yes
NW504	Cadmium - Total	08/07/2025	16/07/2025	8	180	Yes
NW507	Chromium - Total	08/07/2025	16/07/2025	8	180	Yes
NW509	Copper - Total	08/07/2025	16/07/2025	8	180	Yes
NW511	Lead - Total	08/07/2025	16/07/2025	8	180	Yes
NW515	Mercury - Total	08/07/2025	18/07/2025	10	28	Yes
NW517	Nickel - Total	08/07/2025	16/07/2025	8	180	Yes
NW528	Zinc - Total	08/07/2025	16/07/2025	8	180	Yes

816-2025-00180011 TP10 0.1

Test		Sampling Date	Holding End	Effective Holding (days)	Requirement (days)	Compliance
NW499	Arsenic - Total	08/07/2025	16/07/2025	8	180	Yes
NW503	Boron - Total	08/07/2025	16/07/2025	8	180	Yes
NW504	Cadmium - Total	08/07/2025	16/07/2025	8	180	Yes
NW507	Chromium - Total	08/07/2025	16/07/2025	8	180	Yes
NW509	Copper - Total	08/07/2025	16/07/2025	8	180	Yes
NW511	Lead - Total	08/07/2025	16/07/2025	8	180	Yes
NW515	Mercury - Total	08/07/2025	18/07/2025	10	28	Yes
NW517	Nickel - Total	08/07/2025	16/07/2025	8	180	Yes
NWEBH	PAH BaP TEQ	08/07/2025	18/07/2025	10	14	Yes
NW37K	TRH C7 - C36	08/07/2025	18/07/2025	10	14	Yes
NW528	Zinc - Total	08/07/2025	16/07/2025	8	180	Yes

816-2025-00180013 TP11 0.1

Test		Sampling Date	Holding End	Effective Holding (days)	Requirement (days)	Compliance
NW499	Arsenic - Total	08/07/2025	16/07/2025	8	180	Yes
NW503	Boron - Total	08/07/2025	16/07/2025	8	180	Yes
NW504	Cadmium - Total	08/07/2025	16/07/2025	8	180	Yes
NW507	Chromium - Total	08/07/2025	16/07/2025	8	180	Yes
NW509	Copper - Total	08/07/2025	16/07/2025	8	180	Yes
NW511	Lead - Total	08/07/2025	16/07/2025	8	180	Yes
NW515	Mercury - Total	08/07/2025	18/07/2025	10	28	Yes
NW517	Nickel - Total	08/07/2025	16/07/2025	8	180	Yes
NWEBH	PAH BaP TEQ	08/07/2025	18/07/2025	10	14	Yes
NW37K	TRH C7 - C36	08/07/2025	18/07/2025	10	14	Yes
NW528	Zinc - Total	08/07/2025	16/07/2025	8	180	Yes

816-2025-00180015 TP12 0.1

Test		Sampling Date	Holding End	Effective Holding (days)	Requirement (days)	Compliance
NW499	Arsenic - Total	08/07/2025	16/07/2025	8	180	Yes
NW503	Boron - Total	08/07/2025	16/07/2025	8	180	Yes
NW504	Cadmium - Total	08/07/2025	16/07/2025	8	180	Yes
NW507	Chromium - Total	08/07/2025	16/07/2025	8	180	Yes
NW509	Copper - Total	08/07/2025	16/07/2025	8	180	Yes
NW511	Lead - Total	08/07/2025	16/07/2025	8	180	Yes
NW515	Mercury - Total	08/07/2025	18/07/2025	10	28	Yes
NW517	Nickel - Total	08/07/2025	16/07/2025	8	180	Yes
NW528	Zinc - Total	08/07/2025	16/07/2025	8	180	Yes

816-2025-00180017 TP12 1.0

Test		Sampling Date	Holding End	Effective Holding (days)	Requirement (days)	Compliance
NW499	Arsenic - Total	08/07/2025	16/07/2025	8	180	Yes
NW503	Boron - Total	08/07/2025	16/07/2025	8	180	Yes
NW504	Cadmium - Total	08/07/2025	16/07/2025	8	180	Yes

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NW507	Chromium - Total	08/07/2025	16/07/2025	8	180	Yes
NW509	Copper - Total	08/07/2025	16/07/2025	8	180	Yes
NW511	Lead - Total	08/07/2025	16/07/2025	8	180	Yes
NW515	Mercury - Total	08/07/2025	18/07/2025	10	28	Yes
NW517	Nickel - Total	08/07/2025	16/07/2025	8	180	Yes
NW528	Zinc - Total	08/07/2025	16/07/2025	8	180	Yes

816-2025-00180018 TP13 0.3

Test	Sampling Date	Holding End	Effective Holding (days)	Requirement (days)	Compliance
NW499 Arsenic - Total	08/07/2025	16/07/2025	8	180	Yes
NW503 Boron - Total	08/07/2025	16/07/2025	8	180	Yes
NW504 Cadmium - Total	08/07/2025	16/07/2025	8	180	Yes
NW507 Chromium - Total	08/07/2025	16/07/2025	8	180	Yes
NW509 Copper - Total	08/07/2025	16/07/2025	8	180	Yes
NW511 Lead - Total	08/07/2025	16/07/2025	8	180	Yes
NW515 Mercury - Total	08/07/2025	18/07/2025	10	28	Yes
NW517 Nickel - Total	08/07/2025	16/07/2025	8	180	Yes
NWEBH PAH BaP TEQ	08/07/2025	18/07/2025	10	14	Yes
NW37K TRH C7 - C36	08/07/2025	18/07/2025	10	14	Yes
NW528 Zinc - Total	08/07/2025	16/07/2025	8	180	Yes

816-2025-00180019 TP14 0.4

Test	Sampling Date	Holding End	Effective Holding (days)	Requirement (days)	Compliance
NW499 Arsenic - Total	08/07/2025	16/07/2025	8	180	Yes
NW503 Boron - Total	08/07/2025	16/07/2025	8	180	Yes
NW504 Cadmium - Total	08/07/2025	16/07/2025	8	180	Yes
NW507 Chromium - Total	08/07/2025	16/07/2025	8	180	Yes
NW509 Copper - Total	08/07/2025	16/07/2025	8	180	Yes
NW511 Lead - Total	08/07/2025	16/07/2025	8	180	Yes
NW515 Mercury - Total	08/07/2025	18/07/2025	10	28	Yes
NW517 Nickel - Total	08/07/2025	16/07/2025	8	180	Yes
NW528 Zinc - Total	08/07/2025	16/07/2025	8	180	Yes

816-2025-00180020 TP15 0.2

Test	Sampling Date	Holding End	Effective Holding (days)	Requirement (days)	Compliance
NW499 Arsenic - Total	08/07/2025	16/07/2025	8	180	Yes
NW503 Boron - Total	08/07/2025	16/07/2025	8	180	Yes
NW504 Cadmium - Total	08/07/2025	16/07/2025	8	180	Yes
NW507 Chromium - Total	08/07/2025	16/07/2025	8	180	Yes
NW509 Copper - Total	08/07/2025	16/07/2025	8	180	Yes
NW511 Lead - Total	08/07/2025	16/07/2025	8	180	Yes
NW515 Mercury - Total	08/07/2025	18/07/2025	10	28	Yes
NW517 Nickel - Total	08/07/2025	16/07/2025	8	180	Yes
NW528 Zinc - Total	08/07/2025	16/07/2025	8	180	Yes

816-2025-00180021 TP15 1.1

Test	Sampling Date	Holding End	Effective Holding (days)	Requirement (days)	Compliance
NW499 Arsenic - Total	08/07/2025	16/07/2025	8	180	Yes
NW503 Boron - Total	08/07/2025	16/07/2025	8	180	Yes
NW504 Cadmium - Total	08/07/2025	16/07/2025	8	180	Yes
NW507 Chromium - Total	08/07/2025	16/07/2025	8	180	Yes
NW509 Copper - Total	08/07/2025	16/07/2025	8	180	Yes
NW511 Lead - Total	08/07/2025	16/07/2025	8	180	Yes
NW515 Mercury - Total	08/07/2025	18/07/2025	10	28	Yes
NW517 Nickel - Total	08/07/2025	16/07/2025	8	180	Yes

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NW528	Zinc - Total	08/07/2025	16/07/2025	8	180	Yes
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816-2025-00180022 TP15 1.3

Test		Sampling Date	Holding End	Effective Holding (days)	Requirement (days)	Compliance
NWEBH	PAH BaP TEQ	08/07/2025	18/07/2025	10	14	Yes
NW37K	TRH C7 - C36	08/07/2025	18/07/2025	10	14	Yes

816-2025-00180023 TP16 0.2

Test		Sampling Date	Holding End	Effective Holding (days)	Requirement (days)	Compliance
NW499	Arsenic - Total	08/07/2025	16/07/2025	8	180	Yes
NW503	Boron - Total	08/07/2025	16/07/2025	8	180	Yes
NW504	Cadmium - Total	08/07/2025	16/07/2025	8	180	Yes
NW507	Chromium - Total	08/07/2025	16/07/2025	8	180	Yes
NW509	Copper - Total	08/07/2025	16/07/2025	8	180	Yes
NW511	Lead - Total	08/07/2025	16/07/2025	8	180	Yes
NW515	Mercury - Total	08/07/2025	18/07/2025	10	28	Yes
NW517	Nickel - Total	08/07/2025	16/07/2025	8	180	Yes
NWEBH	PAH BaP TEQ	08/07/2025	18/07/2025	10	14	Yes
NW37K	TRH C7 - C36	08/07/2025	18/07/2025	10	14	Yes
NW528	Zinc - Total	08/07/2025	16/07/2025	8	180	Yes

816-2025-00180024 TP16 0.45

Test		Sampling Date	Holding End	Effective Holding (days)	Requirement (days)	Compliance
NWEBH	PAH BaP TEQ	08/07/2025	18/07/2025	10	14	Yes
NW37K	TRH C7 - C36	08/07/2025	18/07/2025	10	14	Yes

816-2025-00180026 TP17 0.2

Test		Sampling Date	Holding End	Effective Holding (days)	Requirement (days)	Compliance
NW499	Arsenic - Total	08/07/2025	16/07/2025	8	180	Yes
NW503	Boron - Total	08/07/2025	16/07/2025	8	180	Yes
NW504	Cadmium - Total	08/07/2025	16/07/2025	8	180	Yes
NW507	Chromium - Total	08/07/2025	16/07/2025	8	180	Yes
NW509	Copper - Total	08/07/2025	16/07/2025	8	180	Yes
NW511	Lead - Total	08/07/2025	16/07/2025	8	180	Yes
NW515	Mercury - Total	08/07/2025	18/07/2025	10	28	Yes
NW517	Nickel - Total	08/07/2025	16/07/2025	8	180	Yes
NWEBH	PAH BaP TEQ	08/07/2025	18/07/2025	10	14	Yes
NW37K	TRH C7 - C36	08/07/2025	18/07/2025	10	14	Yes
NW528	Zinc - Total	08/07/2025	16/07/2025	8	180	Yes

816-2025-00180029 TP18 0.2

Test		Sampling Date	Holding End	Effective Holding (days)	Requirement (days)	Compliance
NW499	Arsenic - Total	08/07/2025	16/07/2025	8	180	Yes
NW503	Boron - Total	08/07/2025	16/07/2025	8	180	Yes
NW504	Cadmium - Total	08/07/2025	16/07/2025	8	180	Yes
NW507	Chromium - Total	08/07/2025	16/07/2025	8	180	Yes
NW509	Copper - Total	08/07/2025	16/07/2025	8	180	Yes
NW511	Lead - Total	08/07/2025	16/07/2025	8	180	Yes
NW515	Mercury - Total	08/07/2025	18/07/2025	10	28	Yes
NW517	Nickel - Total	08/07/2025	16/07/2025	8	180	Yes
NWEBH	PAH BaP TEQ	08/07/2025	18/07/2025	10	14	Yes
NW37K	TRH C7 - C36	08/07/2025	18/07/2025	10	14	Yes
NW528	Zinc - Total	08/07/2025	16/07/2025	8	180	Yes

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816-2025-00180030 TP18 0.5

Test	Sampling Date	Holding End	Effective Holding (days)	Requirement (days)	Compliance
NWEBH PAH BaP TEQ	08/07/2025	18/07/2025	10	14	Yes
NW37K TRH C7 - C36	08/07/2025	18/07/2025	10	14	Yes

816-2025-00180032 TP19 0.075

Test	Sampling Date	Holding End	Effective Holding (days)	Requirement (days)	Compliance
NW499 Arsenic - Total	08/07/2025	16/07/2025	8	180	Yes
NW503 Boron - Total	08/07/2025	16/07/2025	8	180	Yes
NW504 Cadmium - Total	08/07/2025	16/07/2025	8	180	Yes
NW507 Chromium - Total	08/07/2025	16/07/2025	8	180	Yes
NW509 Copper - Total	08/07/2025	16/07/2025	8	180	Yes
NW511 Lead - Total	08/07/2025	16/07/2025	8	180	Yes
NW515 Mercury - Total	08/07/2025	18/07/2025	10	28	Yes
NW517 Nickel - Total	08/07/2025	16/07/2025	8	180	Yes
NW528 Zinc - Total	08/07/2025	16/07/2025	8	180	Yes

816-2025-00180033 TP19 1.0

Test	Sampling Date	Holding End	Effective Holding (days)	Requirement (days)	Compliance
NW499 Arsenic - Total	08/07/2025	16/07/2025	8	180	Yes
NW503 Boron - Total	08/07/2025	16/07/2025	8	180	Yes
NW504 Cadmium - Total	08/07/2025	16/07/2025	8	180	Yes
NW507 Chromium - Total	08/07/2025	16/07/2025	8	180	Yes
NW509 Copper - Total	08/07/2025	16/07/2025	8	180	Yes
NW511 Lead - Total	08/07/2025	16/07/2025	8	180	Yes
NW515 Mercury - Total	08/07/2025	18/07/2025	10	28	Yes
NW517 Nickel - Total	08/07/2025	16/07/2025	8	180	Yes
NW528 Zinc - Total	08/07/2025	16/07/2025	8	180	Yes

LIST OF METHODS

NW37K TRH C7 - C36: Internal Method, GC-FID	NW499 Arsenic - Total: APHA Online Edition 3125 B mod.
NW503 Boron - Total: APHA Online Edition 3125 B mod.	NW504 Cadmium - Total: APHA Online Edition 3125 B mod.
NW507 Chromium - Total: APHA Online Edition 3125 B mod.	NW509 Copper - Total: APHA Online Edition 3125 B mod.
NW511 Lead - Total: APHA Online Edition 3125 B mod.	NW515 Mercury - Total: APHA Online Edition 3125 B mod.
NW517 Nickel - Total: APHA Online Edition 3125 B mod.	NW528 Zinc - Total: APHA Online Edition 3125 B mod.
NWEBH PAH BaP TEQ: Internal Method, GC-MS	

Signature



Gabriela
Carvalhaes Business Unit Manager
Eurofins ELS Limited

EXPLANATORY NOTE

Environment Testing NZ

- ① Test is not accredited
- ② Test is subcontracted within Eurofins group and is accredited
- ③ Test is subcontracted within Eurofins group and is not accredited
- ④ Test is subcontracted outside Eurofins group and is accredited
- ⑤ Test is subcontracted outside Eurofins group and is not accredited
- ⑥ Test result is provided by the customer and is not accredited
- ⑦ Tested at the sampling point by Eurofins and is not accredited
- ⑧ Tested at the sampling point by Eurofins and is accredited
- ⑨ Test is RLP accredited
- ⑩ Test is subcontracted within Eurofins group and is RLP accredited

N/A means Not Applicable

Not Detected means not detected at or above the Limit of Quantification (LOQ)

LOQ means Limit of Quantification and the unit of LOQ is the same as the result unit

Symbol - in result column means not tested

General

1. Unless otherwise stated, all soil/sediment/solid results are reported on a dry weight basis.
2. Unless otherwise stated, all biota/food results are reported on a wet weight basis on the edible portion.
3. Actual LOQs are matrix dependent. Quoted LOQs may be raised where sample extracts are diluted due to interferences.
4. Results are uncorrected for matrix spikes or surrogate recoveries except for PFAS compounds where annotated.
5. Analysis on waters is performed on homogenised, unfiltered samples unless noted otherwise.
6. Samples were analysed on an 'as received' basis.

Holding Times

Please refer to the 'Sample Preservation and Container Guide' for holding times (QS3001).

If the Laboratory did not receive the information in the required timeframe, and despite any other integrity issues, suitably qualified results may still be reported.

Holding times apply from the sampling date; therefore, compliance with these may be outside the laboratory's control.

For VOCs containing vinyl chloride, styrene and 2-chloroethyl vinyl ether, the holding time is seven days; however, for all other VOCs, such as BTEX or C6-10 TRH, the holding time is 14 days.

Holding times are expressed in days.

Units

mg/kg: milligrams per kilogram
µg/L: micrograms per litre
org/100 mL: Organisms per 100 millilitres
CFU: Colony Forming Unit

mg/L: milligrams per litre
ppb: parts per billion
NTU: Nephelometric Turbidity Units
Colour: Pt-Co Units (CU)

ppm: parts per million
%: Percentage
MPN/100 mL: Most Probable Number of organisms per 100 millilitres

Terms

APHA: American Public Health Association
TCLP: Toxicity Characteristic Leaching Procedure
US EPA: United States Environmental Protection Agency

Quality Controls

All test method Quality Controls including method blanks, reference samples, spikes, surrogates and duplicate sample testing have passed and are within the control limits.

The Customer acknowledges and accepts that: (a) where Eurofins is not responsible for sampling, the test result(s) in this report apply only to the sample as received. Customer is solely responsible for the sampling process and warrants that the sample provided to Eurofins is representative of the lot / batch from which the samples were drawn; and (b) Eurofins expresses no opinion and accepts no liability in respect of the Customer's production process or homogeneity of the product.

The tests are identified by a five-digit code, their description is available on request.

Accreditation does not apply to comments or graphical representations.

Unless otherwise stated, all tests in this analytical report (except for subcontracted tests) are performed at 35 O'Rorke Road, Penrose, Auckland, NEW ZEALAND.

The laboratory is not responsible for the information provided by the customer which can affect the validity of the results, for example: sampling information such as date/time, field data etc.

Eurofins may subcontract the performance of part or all of the Services to a third party and the Customer authorises the release of all information necessary to the third party for the provision of the Services.

All samples become the property of Eurofins to the extent necessary for the performance of the Services.

Eurofins will not be required to store samples and may destroy or otherwise dispose of the samples or return the samples to the Customer (at the Customer's cost in all respects) immediately following analysis of the samples.

If the Customer pays for storage of the samples Eurofins will take commercially reasonable steps to store the samples for the agreed period in terms of industry practice.

The Eurofins water sampling service follows methodology based on AS/NZS 5667 and / or best practice to collect and transport samples that are fit for the purpose of analytical testing. The laboratory is not responsible for sampling activities unless explicitly indicated by the statement "Sampled by Eurofins" on the report for water samples.

The Customer acknowledges that the Services are provided using the current state of technology and methods developed and generally applied by Eurofins and involve analysis, interpretations, consulting work and conclusions. Eurofins shall use commercially reasonable degree of care in providing the Services.

This report is produced and issued on the basis of information, documents and/or samples provided by, or on behalf of, the Customer and solely for the benefit of the Customer who is responsible for acting as it sees fit on the basis of this report. Neither Eurofins nor any of its officers, employees, agents or subcontractors shall be liable to the Customer nor any third party for any actions taken or not taken on the basis of this report nor for any incorrect results arising from unclear, erroneous, incomplete, misleading or false information provided to Eurofins.

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Eurofins shall have no liability for any indirect or consequential loss including, without limitation, loss of production, loss of contracts, loss of profits, loss of business or costs incurred from business interruption, loss of opportunity, loss of goodwill or damage to reputation and cost of product recall (including any losses suffered as a result of distribution of the Customer's products subject of the Services prior to the report being released by Eurofins). It shall further have no liability for any loss, damage or expenses arising from the claims of any third party (including, without limitation, product liability claims) that may be incurred by the Customer.

Eurofins General Terms and Conditions apply.

Environment Testing NZ

END OF REPORT

Appendix I – Laboratory Analytical Results (Eurofins) and Chain of Custody Documentation

Environment Testing NZ

ANALYTICAL REPORT

REPORT CODE		AR-25-NU-066656-01		REPORT DATE		18/07/2025	
Attention	Haigh Workman Limited Josh Cuming 6 Fairway Drive 230 Kerikeri NEW ZEALAND						
Phone	+642885160190						
Email	joshcuming@haighworkman.co.nz						
Contact for your orders:		Frances Gilvray		Order code:		EUNZAU-00813639	
Reception Date & Time:		11/07/2025 9:00:00am					
Submission Reference:		25128, Kawakawa Wastewater Treatment Plant					
SAMPLE CODE:			816-2025-00180138	816-2025-00180139	816-2025-00180140	816-2025-00180141	
Sample Name:			HA1 0.075	HA1 0.4	HA2 0.075	HA2 0.4	
Product Type:			Soil	Soil	Soil	Soil	
Analysis Started on:			11/07/2025	11/07/2025	11/07/2025	11/07/2025	
Analysis Ending Date:			18/07/2025	18/07/2025	18/07/2025	18/07/2025	
Sampled By			Josh Cuming	Josh Cuming	Josh Cuming	Josh Cuming	
Attempt to Chill was evident			No	No	No	No	
Sample correctly preserved			Yes	Yes	Yes	Yes	
Appropriate sample containers used			Yes	Yes	Yes	Yes	
LOQ Unit							
② NW499 Arsenic - Total			0.05 mg/kg	2.93	2.43	4.97	3.95
② NW503 Boron - Total			3 mg/kg	<3	<3	<3	<3
② NW504 Cadmium - Total			0.01 mg/kg	0.22	0.03	0.12	0.06
② NW507 Chromium - Total			0.2 mg/kg	8.6	6.6	9.0	8.2
② NW509 Copper - Total			0.3 mg/kg	13.5	11.0	14.7	11.6
② NW511 Lead - Total			0.1 mg/kg	14.2	14.0	14.3	14.4
② NW515 Mercury - Total			0.1 mg/kg	<0.1	<0.1	<0.1	<0.1
② NW517 Nickel - Total			0.2 mg/kg	6.5	4.7	7.2	6.4
② NW528 Zinc - Total			1 mg/kg	75	45	63	56

Environment Testing NZ

SAMPLE CODE:			816-2025-00180142	816-2025-00180143	816-2025-00180144	816-2025-00180145
Sample Name:			HA3 0.075	HA9 0.075	HA4 0.075	HA5 0.075
Product Type:			Soil	Soil	Soil	Soil
Analysis Started on:			11/07/2025	11/07/2025	11/07/2025	11/07/2025
Analysis Ending Date:			18/07/2025	18/07/2025	18/07/2025	18/07/2025
Sampled By			Josh Cuming	Josh Cuming	Josh Cuming	Josh Cuming
Attempt to Chill was evident			No	No	No	No
Sample correctly preserved			Yes	Yes	Yes	Yes
Appropriate sample containers used			Yes	Yes	Yes	Yes
	LOQ	Unit				
② NW499 Arsenic - Total	0.05	mg/kg	4.69	4.51	3.84	4.06
② NW503 Boron - Total	3	mg/kg	<3	<3	<3	<3
② NW504 Cadmium - Total	0.01	mg/kg	0.07	0.07	0.21	0.06
② NW507 Chromium - Total	0.2	mg/kg	7.8	6.9	6.7	8.4
② NW509 Copper - Total	0.3	mg/kg	14.8	15.2	18.9	12.1
② NW511 Lead - Total	0.1	mg/kg	14.1	14.3	16.3	14.1
② NW515 Mercury - Total	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1
② NW517 Nickel - Total	0.2	mg/kg	6.6	6.5	6.8	5.9
② NW528 Zinc - Total	1	mg/kg	58	62	97	50

Environment Testing NZ

SAMPLE CODE:			816-2025-00180146	816-2025-00180147	816-2025-00180148	816-2025-00180149
Sample Name:			HA5 0.4	HA6 0.075	HA7 0.075	HA7 0.4
Product Type:			Soil	Soil	Soil	Soil
Analysis Started on:			11/07/2025	11/07/2025	11/07/2025	11/07/2025
Analysis Ending Date:			18/07/2025	18/07/2025	18/07/2025	18/07/2025
Sampled By			Josh Cuming	Josh Cuming	Josh Cuming	Josh Cuming
Attempt to Chill was evident			No	No	No	No
Sample correctly preserved			Yes	Yes	Yes	Yes
Appropriate sample containers used			Yes	Yes	Yes	Yes
LOQ Unit						
PFAS						
②NW07P Per- and Polyfluoroalkyl Substances (PFAS)						
Perfluorobutanoic acid (PFBA) ***	5	µg/kg	-	<5	-	-
Perfluoropentanoic acid (PFPeA) ***	5	µg/kg	-	<5	-	-
Perfluorohexanoic acid (PFHxA) ***	5	µg/kg	-	<5	-	-
Perfluorheptanoic acid (PFHpA) ***	5	µg/kg	-	<5	-	-
Perfluorooctanoic acid (PFOA) ***	5	µg/kg	-	<5	-	-
Perfluorononanoic acid (PFNA) ***	5	µg/kg	-	<5	-	-
Perfluorodecanoic acid (PFDA) ***	5	µg/kg	-	<5	-	-
Perfluoroundecanoic acid (PFUnDA) ***	5	µg/kg	-	<5	-	-
Perfluorododecanoic acid (PFDoDA) ***	5	µg/kg	-	<5	-	-
Perfluorotridecanoic acid (PFTTrDA) ****	5	µg/kg	-	<5	-	-
Perfluorotetradecanoic acid (PFTeDA) ***	5	µg/kg	-	<5	-	-
13C4-PFBA (surr.)	N/A	%	-	32	-	-
13C5-PFPeA (surr.)	N/A	%	-	104	-	-
13C5-PFHxA (surr.)	N/A	%	-	56	-	-
13C4-PFHpA (surr.)	N/A	%	-	51	-	-
13C8-PFOA (surr.)	N/A	%	-	46	-	-
13C5-PFNA (surr.)	N/A	%	-	59	-	-
13C6-PFDA (surr.)	N/A	%	-	54	-	-
13C2-PFUnDA (surr.)	N/A	%	-	69	-	-
13C2-PFDoDA (surr.)	N/A	%	-	121	-	-
13C2-PFTeDA (surr.)	N/A	%	-	97	-	-
Perfluorooctane sulfonamide (FOSA) ***	5	µg/kg	-	<5	-	-
N-methylperfluoro-1-octanes ulfonamide (N-MeFOSA) ***	5	µg/kg	-	<5	-	-
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA) ***	5	µg/kg	-	<5	-	-

Environment Testing NZ

SAMPLE CODE:			816-2025-00180146	816-2025-00180147	816-2025-00180148	816-2025-00180149
Sample Name:			HA5 0.4	HA6 0.075	HA7 0.075	HA7 0.4
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol (N-MeFOSE) ***	5	µg/kg	-	<5	-	-
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol (N-EtFOSE) ***	5	µg/kg	-	<5	-	-
N-ethyl-perfluorooctanesulfonamidoacetic acid (NEtFOSAA) **, ***	5	µg/kg	-	<5	-	-
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA) **, ***	5	µg/kg	-	<5	-	-
13C8-FOSA (surr.)	N/A	%	-	41	-	-
D3-N-MeFOSA (surr.)	N/A	%	-	53	-	-
D5-N-EtFOSA (surr.)	N/A	%	-	52	-	-
D7-N-MeFOSE (surr.)	N/A	%	-	47	-	-
D9-N-EtFOSE (surr.)	N/A	%	-	65	-	-
D5-N-EtFOSAA (surr.)	N/A	%	-	40	-	-
D3-N-MeFOSAA (surr.)	N/A	%	-	36	-	-
Perfluorobutanesulfonic acid (PFBS) ***	5	µg/kg	-	<5	-	-
Perfluorononanesulfonic acid (PFNS) ****	5	µg/kg	-	<5	-	-
Perfluoropropanesulfonic acid (PFPrS) ****	5	µg/kg	-	<5	-	-
Perfluoropentanesulfonic acid (PFPeS) ****	5	µg/kg	-	<5	-	-
Perfluorhexanesulfonic acid (PFHxS) **, ***	5	µg/kg	-	<5	-	-
Perfluoroheptanesulfonic acid (PFHpS) ****	5	µg/kg	-	<5	-	-
Perfluorooctanesulfonic acid (PFOS) **, ***	5	µg/kg	-	<5	-	-
Perfluorodecanesulfonic acid (PFDS) ****	5	µg/kg	-	<5	-	-
13C3-PFBS (surr.)	N/A	%	-	37	-	-
18O2-PFHxS (surr.)	N/A	%	-	42	-	-
13C8-PFOS (surr.)	N/A	%	-	50	-	-
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2FTSA) ***	5	µg/kg	-	<5	-	-
1H.1H.2H.2H-perfluorooctanesulfonic acid (6:2FTSA) ***	5	µg/kg	-	<5	-	-
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2FTSA) ***	5	µg/kg	-	<5	-	-
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2FTSA) ****	5	µg/kg	-	<5	-	-
13C2-4:2 FTSA (surr.)	N/A	%	-	75	-	-
13C2-6:2 FTSA (surr.)	N/A	%	-	43	-	-

Environment Testing NZ

SAMPLE CODE:			816-2025-00180146	816-2025-00180147	816-2025-00180148	816-2025-00180149
Sample Name:			HA5 0.4	HA6 0.075	HA7 0.075	HA7 0.4
13C2-8:2 FTSA (surr.)	N/A	%	-	34	-	-
13C2-10:2 FTSA (surr.)	N/A	%	-	121	-	-
Sum (PFHxS + PFOS)	5	µg/kg	-	<5	-	-
Sum of PFOS + PFOA	5	µg/kg	-	<5	-	-
Sum of PFHxS + PFOS + PFOA	5	µg/kg	-	<5	-	-
Sum of PFASs	5	µg/kg	-	<5	-	-
② NW499 Arsenic - Total	0.05	mg/kg	2.62	4.64	8.71	2.65
② NW503 Boron - Total	3	mg/kg	<3	<3	<3	<3
② NW504 Cadmium - Total	0.01	mg/kg	0.06	0.20	0.20	0.02
② NW507 Chromium - Total	0.2	mg/kg	6.4	8.8	10.5	7.5
② NW509 Copper - Total	0.3	mg/kg	8.7	13.0	12.6	12.5
② NW511 Lead - Total	0.1	mg/kg	10.2	13.9	16.8	16.8
② NW515 Mercury - Total	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1
② NW517 Nickel - Total	0.2	mg/kg	4.2	6.9	6.1	5.3
② NW528 Zinc - Total	1	mg/kg	43	89	56	50

Environment Testing NZ

SAMPLE CODE:			816-2025-00180150	816-2025-00180151	816-2025-00180152	
Sample Name:			HA8 0.075	HA8 0.4	Comp of SP1 S1+SP1 S2 Soil	
Product Type:			Soil	Soil	Soil	
Analysis Started on:			11/07/2025	11/07/2025	11/07/2025	
Analysis Ending Date:			18/07/2025	18/07/2025	18/07/2025	
Sampled By			Josh Cuming	Josh Cuming	Josh Cuming	
Attempt to Chill was evident			No	No	No	
Sample correctly preserved			Yes	Yes	Yes	
Appropriate sample containers used			Yes	Yes	Yes	
	LOQ	Unit				
② NW499 Arsenic - Total	0.05	mg/kg	3.78	8.70	3.89	
② NW503 Boron - Total	3	mg/kg	<3	<3	<3	
② NW504 Cadmium - Total	0.01	mg/kg	0.07	0.12	0.08	
② NW507 Chromium - Total	0.2	mg/kg	7.9	8.7	8.0	
② NW509 Copper - Total	0.3	mg/kg	17.9	26.9	11.6	
② NW511 Lead - Total	0.1	mg/kg	14.5	24.4	12.0	
② NW515 Mercury - Total	0.1	mg/kg	<0.1	<0.1	<0.1	
② NW517 Nickel - Total	0.2	mg/kg	17.9	16.3	6.5	
② NW528 Zinc - Total	1	mg/kg	52	80	57	

Environment Testing NZ

HOLDING TIMES

816-2025-00180138 HA1 0.075

Test	Sampling Date	Holding End	Effective Holding (days)	Requirement (days)	Compliance
NW499 Arsenic - Total	Not supplied	N/A	N/A	180	N/A
NW503 Boron - Total	Not supplied	N/A	N/A	180	N/A
NW504 Cadmium - Total	Not supplied	N/A	N/A	180	N/A
NW507 Chromium - Total	Not supplied	N/A	N/A	180	N/A
NW509 Copper - Total	Not supplied	N/A	N/A	180	N/A
NW511 Lead - Total	Not supplied	N/A	N/A	180	N/A
NW515 Mercury - Total	Not supplied	N/A	N/A	28	N/A
NW517 Nickel - Total	Not supplied	N/A	N/A	180	N/A
NW528 Zinc - Total	Not supplied	N/A	N/A	180	N/A

816-2025-00180139 HA1 0.4

Test	Sampling Date	Holding End	Effective Holding (days)	Requirement (days)	Compliance
NW499 Arsenic - Total	Not supplied	N/A	N/A	180	N/A
NW503 Boron - Total	Not supplied	N/A	N/A	180	N/A
NW504 Cadmium - Total	Not supplied	N/A	N/A	180	N/A
NW507 Chromium - Total	Not supplied	N/A	N/A	180	N/A
NW509 Copper - Total	Not supplied	N/A	N/A	180	N/A
NW511 Lead - Total	Not supplied	N/A	N/A	180	N/A
NW515 Mercury - Total	Not supplied	N/A	N/A	28	N/A
NW517 Nickel - Total	Not supplied	N/A	N/A	180	N/A
NW528 Zinc - Total	Not supplied	N/A	N/A	180	N/A

816-2025-00180140 HA2 0.075

Test	Sampling Date	Holding End	Effective Holding (days)	Requirement (days)	Compliance
NW499 Arsenic - Total	Not supplied	N/A	N/A	180	N/A
NW503 Boron - Total	Not supplied	N/A	N/A	180	N/A
NW504 Cadmium - Total	Not supplied	N/A	N/A	180	N/A
NW507 Chromium - Total	Not supplied	N/A	N/A	180	N/A
NW509 Copper - Total	Not supplied	N/A	N/A	180	N/A
NW511 Lead - Total	Not supplied	N/A	N/A	180	N/A
NW515 Mercury - Total	Not supplied	N/A	N/A	28	N/A
NW517 Nickel - Total	Not supplied	N/A	N/A	180	N/A
NW528 Zinc - Total	Not supplied	N/A	N/A	180	N/A

816-2025-00180141 HA2 0.4

Test	Sampling Date	Holding End	Effective Holding (days)	Requirement (days)	Compliance
NW499 Arsenic - Total	Not supplied	N/A	N/A	180	N/A
NW503 Boron - Total	Not supplied	N/A	N/A	180	N/A
NW504 Cadmium - Total	Not supplied	N/A	N/A	180	N/A
NW507 Chromium - Total	Not supplied	N/A	N/A	180	N/A
NW509 Copper - Total	Not supplied	N/A	N/A	180	N/A
NW511 Lead - Total	Not supplied	N/A	N/A	180	N/A
NW515 Mercury - Total	Not supplied	N/A	N/A	28	N/A
NW517 Nickel - Total	Not supplied	N/A	N/A	180	N/A
NW528 Zinc - Total	Not supplied	N/A	N/A	180	N/A

816-2025-00180142 HA3 0.075

Test	Sampling Date	Holding End	Effective Holding (days)	Requirement (days)	Compliance
NW499 Arsenic - Total	Not supplied	N/A	N/A	180	N/A
NW503 Boron - Total	Not supplied	N/A	N/A	180	N/A
NW504 Cadmium - Total	Not supplied	N/A	N/A	180	N/A
NW507 Chromium - Total	Not supplied	N/A	N/A	180	N/A

Environment Testing NZ

NW509	Copper - Total	Not supplied	N/A	N/A	180	N/A
NW511	Lead - Total	Not supplied	N/A	N/A	180	N/A
NW515	Mercury - Total	Not supplied	N/A	N/A	28	N/A
NW517	Nickel - Total	Not supplied	N/A	N/A	180	N/A
NW528	Zinc - Total	Not supplied	N/A	N/A	180	N/A

816-2025-00180143 HA9 0.075

Test	Sampling Date	Holding End	Effective Holding (days)	Requirement (days)	Compliance
NW499 Arsenic - Total	Not supplied	N/A	N/A	180	N/A
NW503 Boron - Total	Not supplied	N/A	N/A	180	N/A
NW504 Cadmium - Total	Not supplied	N/A	N/A	180	N/A
NW507 Chromium - Total	Not supplied	N/A	N/A	180	N/A
NW509 Copper - Total	Not supplied	N/A	N/A	180	N/A
NW511 Lead - Total	Not supplied	N/A	N/A	180	N/A
NW515 Mercury - Total	Not supplied	N/A	N/A	28	N/A
NW517 Nickel - Total	Not supplied	N/A	N/A	180	N/A
NW528 Zinc - Total	Not supplied	N/A	N/A	180	N/A

816-2025-00180144 HA4 0.075

Test	Sampling Date	Holding End	Effective Holding (days)	Requirement (days)	Compliance
NW499 Arsenic - Total	Not supplied	N/A	N/A	180	N/A
NW503 Boron - Total	Not supplied	N/A	N/A	180	N/A
NW504 Cadmium - Total	Not supplied	N/A	N/A	180	N/A
NW507 Chromium - Total	Not supplied	N/A	N/A	180	N/A
NW509 Copper - Total	Not supplied	N/A	N/A	180	N/A
NW511 Lead - Total	Not supplied	N/A	N/A	180	N/A
NW515 Mercury - Total	Not supplied	N/A	N/A	28	N/A
NW517 Nickel - Total	Not supplied	N/A	N/A	180	N/A
NW528 Zinc - Total	Not supplied	N/A	N/A	180	N/A

816-2025-00180145 HA5 0.075

Test	Sampling Date	Holding End	Effective Holding (days)	Requirement (days)	Compliance
NW499 Arsenic - Total	Not supplied	N/A	N/A	180	N/A
NW503 Boron - Total	Not supplied	N/A	N/A	180	N/A
NW504 Cadmium - Total	Not supplied	N/A	N/A	180	N/A
NW507 Chromium - Total	Not supplied	N/A	N/A	180	N/A
NW509 Copper - Total	Not supplied	N/A	N/A	180	N/A
NW511 Lead - Total	Not supplied	N/A	N/A	180	N/A
NW515 Mercury - Total	Not supplied	N/A	N/A	28	N/A
NW517 Nickel - Total	Not supplied	N/A	N/A	180	N/A
NW528 Zinc - Total	Not supplied	N/A	N/A	180	N/A

816-2025-00180146 HA5 0.4

Test	Sampling Date	Holding End	Effective Holding (days)	Requirement (days)	Compliance
NW499 Arsenic - Total	Not supplied	N/A	N/A	180	N/A
NW503 Boron - Total	Not supplied	N/A	N/A	180	N/A
NW504 Cadmium - Total	Not supplied	N/A	N/A	180	N/A
NW507 Chromium - Total	Not supplied	N/A	N/A	180	N/A
NW509 Copper - Total	Not supplied	N/A	N/A	180	N/A
NW511 Lead - Total	Not supplied	N/A	N/A	180	N/A
NW515 Mercury - Total	Not supplied	N/A	N/A	28	N/A
NW517 Nickel - Total	Not supplied	N/A	N/A	180	N/A
NW528 Zinc - Total	Not supplied	N/A	N/A	180	N/A

Environment Testing NZ

816-2025-00180147 HA6 0.075

Test	Sampling Date	Holding End	Effective Holding (days)	Requirement (days)	Compliance
NW499 Arsenic - Total	Not supplied	N/A	N/A	180	N/A
NW503 Boron - Total	Not supplied	N/A	N/A	180	N/A
NW504 Cadmium - Total	Not supplied	N/A	N/A	180	N/A
NW507 Chromium - Total	Not supplied	N/A	N/A	180	N/A
NW509 Copper - Total	Not supplied	N/A	N/A	180	N/A
NW511 Lead - Total	Not supplied	N/A	N/A	180	N/A
NW515 Mercury - Total	Not supplied	N/A	N/A	28	N/A
NW517 Nickel - Total	Not supplied	N/A	N/A	180	N/A
NW07P Per- and Polyfluoroalkyl Substances (PFAS)	Not supplied	N/A	N/A	28	N/A
NW528 Zinc - Total	Not supplied	N/A	N/A	180	N/A

816-2025-00180148 HA7 0.075

Test	Sampling Date	Holding End	Effective Holding (days)	Requirement (days)	Compliance
NW499 Arsenic - Total	Not supplied	N/A	N/A	180	N/A
NW503 Boron - Total	Not supplied	N/A	N/A	180	N/A
NW504 Cadmium - Total	Not supplied	N/A	N/A	180	N/A
NW507 Chromium - Total	Not supplied	N/A	N/A	180	N/A
NW509 Copper - Total	Not supplied	N/A	N/A	180	N/A
NW511 Lead - Total	Not supplied	N/A	N/A	180	N/A
NW515 Mercury - Total	Not supplied	N/A	N/A	28	N/A
NW517 Nickel - Total	Not supplied	N/A	N/A	180	N/A
NW528 Zinc - Total	Not supplied	N/A	N/A	180	N/A

816-2025-00180149 HA7 0.4

Test	Sampling Date	Holding End	Effective Holding (days)	Requirement (days)	Compliance
NW499 Arsenic - Total	Not supplied	N/A	N/A	180	N/A
NW503 Boron - Total	Not supplied	N/A	N/A	180	N/A
NW504 Cadmium - Total	Not supplied	N/A	N/A	180	N/A
NW507 Chromium - Total	Not supplied	N/A	N/A	180	N/A
NW509 Copper - Total	Not supplied	N/A	N/A	180	N/A
NW511 Lead - Total	Not supplied	N/A	N/A	180	N/A
NW515 Mercury - Total	Not supplied	N/A	N/A	28	N/A
NW517 Nickel - Total	Not supplied	N/A	N/A	180	N/A
NW528 Zinc - Total	Not supplied	N/A	N/A	180	N/A

816-2025-00180150 HA8 0.075

Test	Sampling Date	Holding End	Effective Holding (days)	Requirement (days)	Compliance
NW499 Arsenic - Total	Not supplied	N/A	N/A	180	N/A
NW503 Boron - Total	Not supplied	N/A	N/A	180	N/A
NW504 Cadmium - Total	Not supplied	N/A	N/A	180	N/A
NW507 Chromium - Total	Not supplied	N/A	N/A	180	N/A
NW509 Copper - Total	Not supplied	N/A	N/A	180	N/A
NW511 Lead - Total	Not supplied	N/A	N/A	180	N/A
NW515 Mercury - Total	Not supplied	N/A	N/A	28	N/A
NW517 Nickel - Total	Not supplied	N/A	N/A	180	N/A
NW528 Zinc - Total	Not supplied	N/A	N/A	180	N/A

816-2025-00180151 HA8 0.4

Test	Sampling Date	Holding End	Effective Holding (days)	Requirement (days)	Compliance
NW499 Arsenic - Total	Not supplied	N/A	N/A	180	N/A
NW503 Boron - Total	Not supplied	N/A	N/A	180	N/A
NW504 Cadmium - Total	Not supplied	N/A	N/A	180	N/A

Environment Testing NZ

NW507	Chromium - Total	Not supplied	N/A	N/A	180	N/A
NW509	Copper - Total	Not supplied	N/A	N/A	180	N/A
NW511	Lead - Total	Not supplied	N/A	N/A	180	N/A
NW515	Mercury - Total	Not supplied	N/A	N/A	28	N/A
NW517	Nickel - Total	Not supplied	N/A	N/A	180	N/A
NW528	Zinc - Total	Not supplied	N/A	N/A	180	N/A

816-2025-00180152 Comp of SP1 S1+SP1 S2

Test	Sampling Date	Holding End	Effective Holding (days)	Requirement (days)	Compliance
NW499 Arsenic - Total	Not supplied	N/A	N/A	180	N/A
NW503 Boron - Total	Not supplied	N/A	N/A	180	N/A
NW504 Cadmium - Total	Not supplied	N/A	N/A	180	N/A
NW507 Chromium - Total	Not supplied	N/A	N/A	180	N/A
NW509 Copper - Total	Not supplied	N/A	N/A	180	N/A
NW511 Lead - Total	Not supplied	N/A	N/A	180	N/A
NW515 Mercury - Total	Not supplied	N/A	N/A	28	N/A
NW517 Nickel - Total	Not supplied	N/A	N/A	180	N/A
NW528 Zinc - Total	Not supplied	N/A	N/A	180	N/A

If the date and time of sampling are not provided the laboratory will not be responsible for compromised results should testing be performed outside the recommended holding time.

REPORT INFORMATION

PFAS note:

** Quantification of linear and branched isomers has been conducted as a single total response using the relative response factor for the corresponding linear/branched standard.

*** Isotope dilution is used for calibration of each native compound for which an extract labelled analogue is available (Isotope Dilution Quantitation). The isotopically labelled analogues allow identification and recovery correction of the concentration of the associated native PFAS compounds.

**** Where the native PFAS compound does not have labelled analogue then the quantification is made using the Extracted Internal Standard Analyte with the closest retention time to the analyte and no recovery correction has been made (Internal Standard Quantitation).

LIST OF METHODS

NW07P Per- and Polyfluoroalkyl Substances (PFAS): Internal Method, LC-MS/MS	NW499 Arsenic - Total: APHA Online Edition 3125 B mod.
NW503 Boron - Total: APHA Online Edition 3125 B mod.	NW504 Cadmium - Total: APHA Online Edition 3125 B mod.
NW507 Chromium - Total: APHA Online Edition 3125 B mod.	NW509 Copper - Total: APHA Online Edition 3125 B mod.
NW511 Lead - Total: APHA Online Edition 3125 B mod.	NW515 Mercury - Total: APHA Online Edition 3125 B mod.
NW517 Nickel - Total: APHA Online Edition 3125 B mod.	NW528 Zinc - Total: APHA Online Edition 3125 B mod.

Signature



Gabriela
Carvalhaes Business Unit Manager
Eurofins ELS Limited

EXPLANATORY NOTE

Environment Testing NZ

- ① Test is not accredited
- ② Test is subcontracted within Eurofins group and is accredited
- ③ Test is subcontracted within Eurofins group and is not accredited
- ④ Test is subcontracted outside Eurofins group and is accredited
- ⑤ Test is subcontracted outside Eurofins group and is not accredited
- ⑥ Test result is provided by the customer and is not accredited
- ⑦ Tested at the sampling point by Eurofins and is not accredited
- ⑧ Tested at the sampling point by Eurofins and is accredited
- ⑨ Test is RLP accredited
- ⑩ Test is subcontracted within Eurofins group and is RLP accredited

N/A means Not Applicable

Not Detected means not detected at or above the Limit of Quantification (LOQ)

LOQ means Limit of Quantification and the unit of LOQ is the same as the result unit

Symbol - in result column means not tested

General

1. Unless otherwise stated, all soil/sediment/solid results are reported on a dry weight basis.
2. Unless otherwise stated, all biota/food results are reported on a wet weight basis on the edible portion.
3. Actual LOQs are matrix dependent. Quoted LOQs may be raised where sample extracts are diluted due to interferences.
4. Results are uncorrected for matrix spikes or surrogate recoveries except for PFAS compounds where annotated.
5. Analysis on waters is performed on homogenised, unfiltered samples unless noted otherwise.
6. Samples were analysed on an 'as received' basis.

Holding Times

Please refer to the 'Sample Preservation and Container Guide' for holding times (QS3001).

If the Laboratory did not receive the information in the required timeframe, and despite any other integrity issues, suitably qualified results may still be reported.

Holding times apply from the sampling date; therefore, compliance with these may be outside the laboratory's control.

For VOCs containing vinyl chloride, styrene and 2-chloroethyl vinyl ether, the holding time is seven days; however, for all other VOCs, such as BTEX or C6-10 TRH, the holding time is 14 days.

Holding times are expressed in days.

Units

mg/kg: milligrams per kilogram
µg/L: micrograms per litre
org/100 mL: Organisms per 100 millilitres
CFU: Colony Forming Unit

mg/L: milligrams per litre
ppb: parts per billion
NTU: Nephelometric Turbidity Units
Colour: Pt-Co Units (CU)

ppm: parts per million
%: Percentage
MPN/100 mL: Most Probable Number of organisms per 100 millilitres

Terms

APHA: American Public Health Association
TCLP: Toxicity Characteristic Leaching Procedure
US EPA: United States Environmental Protection Agency

Quality Controls

All test method Quality Controls including method blanks, reference samples, spikes, surrogates and duplicate sample testing have passed and are within the control limits.

The Customer acknowledges and accepts that: (a) where Eurofins is not responsible for sampling, the test result(s) in this report apply only to the sample as received. Customer is solely responsible for the sampling process and warrants that the sample provided to Eurofins is representative of the lot / batch from which the samples were drawn; and (b) Eurofins expresses no opinion and accepts no liability in respect of the Customer's production process or homogeneity of the product.

The tests are identified by a five-digit code, their description is available on request.

Accreditation does not apply to comments or graphical representations.

Unless otherwise stated, all tests in this analytical report (except for subcontracted tests) are performed at 35 O'Rorke Road, Penrose, Auckland, NEW ZEALAND.

The laboratory is not responsible for the information provided by the customer which can affect the validity of the results, for example: sampling information such as date/time, field data etc.

Eurofins may subcontract the performance of part or all of the Services to a third party and the Customer authorises the release of all information necessary to the third party for the provision of the Services.

All samples become the property of Eurofins to the extent necessary for the performance of the Services.

Eurofins will not be required to store samples and may destroy or otherwise dispose of the samples or return the samples to the Customer (at the Customer's cost in all respects) immediately following analysis of the samples.

If the Customer pays for storage of the samples Eurofins will take commercially reasonable steps to store the samples for the agreed period in terms of industry practice.

The Eurofins water sampling service follows methodology based on AS/NZS 5667 and / or best practice to collect and transport samples that are fit for the purpose of analytical testing. The laboratory is not responsible for sampling activities unless explicitly indicated by the statement "Sampled by Eurofins" on the report for water samples.

The Customer acknowledges that the Services are provided using the current state of technology and methods developed and generally applied by Eurofins and involve analysis, interpretations, consulting work and conclusions. Eurofins shall use commercially reasonable degree of care in providing the Services.

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Eurofins shall have no liability for any indirect or consequential loss including, without limitation, loss of production, loss of contracts, loss of profits, loss of business or costs incurred from business interruption, loss of opportunity, loss of goodwill or damage to reputation and cost of product recall (including any losses suffered as a result of distribution of the Customer's products subject of the Services prior to the report being released by Eurofins). It shall further have no liability for any loss, damage or expenses arising from the claims of any third party (including, without limitation, product liability claims) that may be incurred by the Customer.

Eurofins General Terms and Conditions apply.

- NW511/Lead | MS | TS/J01:RAW PRODUCT
Amount required for test: Minimum 2 g, Optimal 200 g
 - NW778/Metals Digestion-Soil/Sludge/Misc Solid/Dry weight/J01:RAW PRODUCT
Amount required for test: Minimum 2 g, Optimal 200 g
 - NW517/Nickel | MS | TS/J01:RAW PRODUCT
Amount required for test: Minimum 2 g, Optimal 200 g
 - NW528/Zinc | MS | TS/J01:RAW PRODUCT
Amount required for test: Minimum 2 g, Optimal 200 g
- <(-eQual=-)>
- NW08G/Soil/other solids preparation/J01:RAW PRODUCT

Sample amount required: Minimum 16 g Optimal 1,600 g

Sample: 816-2025-00200924



Description: Soil

Reference:

Client Sample Code: HA12 0.3

Sampling Date: 31/07/2025 00:00:00

Environmental

Analyses requested

-eLIMS'-

PNW0Q Amount required for test: Minimum 2 g, Optimal 200 g

- NW499/Arsenic | MS | TS/J01:RAW PRODUCT
Amount required for test: Minimum 2 g, Optimal 200 g
- NW504/Cadmium | MS | TS/J01:RAW PRODUCT
Amount required for test: Minimum 2 g, Optimal 200 g
- NW507/Chromium | MS | TS/J01:RAW PRODUCT
Amount required for test: Minimum 2 g, Optimal 200 g
- NW509/Copper | MS | TS/J01:RAW PRODUCT
Amount required for test: Minimum 2 g, Optimal 200 g
- NW511/Lead | MS | TS/J01:RAW PRODUCT
Amount required for test: Minimum 2 g, Optimal 200 g
- NW778/Metals Digestion-Soil/Sludge/Misc Solid/Dry weight/J01:RAW PRODUCT
Amount required for test: Minimum 2 g, Optimal 200 g
- NW517/Nickel | MS | TS/J01:RAW PRODUCT
Amount required for test: Minimum 2 g, Optimal 200 g
- NW528/Zinc | MS | TS/J01:RAW PRODUCT
Amount required for test: Minimum 2 g, Optimal 200 g

<(-eQual=-)>

- NW08G/Soil/other solids preparation/J01:RAW PRODUCT

Sample amount required: Minimum 16 g Optimal 1,600 g

Sample: 816-2025-00200925



Description: Soil

Reference:

Client Sample Code: HA13 0.075

Sampling Date: 31/07/2025 00:00:00

Environmental

Analyses requested

-eLIMS'-

PNW0Q Amount required for test: Minimum 2 g, Optimal 200 g

- NW499/Arsenic | MS | TS/J01:RAW PRODUCT
Amount required for test: Minimum 2 g, Optimal 200 g
- NW504/Cadmium | MS | TS/J01:RAW PRODUCT
Amount required for test: Minimum 2 g, Optimal 200 g
- NW507/Chromium | MS | TS/J01:RAW PRODUCT
Amount required for test: Minimum 2 g, Optimal 200 g
- NW509/Copper | MS | TS/J01:RAW PRODUCT
Amount required for test: Minimum 2 g, Optimal 200 g
- NW511/Lead | MS | TS/J01:RAW PRODUCT
Amount required for test: Minimum 2 g, Optimal 200 g
- NW778/Metals Digestion-Soil/Sludge/Misc Solid/Dry weight/J01:RAW PRODUCT
Amount required for test: Minimum 2 g, Optimal 200 g
- NW517/Nickel | MS | TS/J01:RAW PRODUCT
Amount required for test: Minimum 2 g, Optimal 200 g
- NW528/Zinc | MS | TS/J01:RAW PRODUCT
Amount required for test: Minimum 2 g, Optimal 200 g

<(-eQual=-)>

- NW08G/Soil/other solids preparation/J01:RAW PRODUCT

Sample amount required: Minimum 16 g Optimal 1,600 g



Rini Dadheech



Date: 04/08/2025

From: EUNZAU: Eurofins Environment Testing
NZ, Auckland

To: Eurofins ELS (Wellington)
Sample Reception

85 Port Road,
Seaview
Lower Hutt
NZ-5045 Wellington
NEW ZEALAND

EUNZAU: Eurofins Environment Testing NZ, Auckland

Sample: 816-2025-00200919



Description: Soil

Reference:

Client Sample Code: HA10 0.075

Sampling Date: 31/07/2025 00:00:00

Environmental

Analyses requested

-eLIMS'-

PNW0Q Amount required for test: Minmum 2 g, Optimal 200 g

- **NW499/Arsenic** | MS | TS/J01:RAW PRODUCT
Amount required for test: Minmum 2 g, Optimal 200 g
- **NW504/Cadmium** | MS | TS/J01:RAW PRODUCT
Amount required for test: Minmum 2 g, Optimal 200 g
- **NW507/Chromium** | MS | TS/J01:RAW PRODUCT
Amount required for test: Minmum 2 g, Optimal 200 g
- **NW509/Copper** | MS | TS/J01:RAW PRODUCT
Amount required for test: Minmum 2 g, Optimal 200 g
- **NW511/Lead** | MS | TS/J01:RAW PRODUCT
Amount required for test: Minmum 2 g, Optimal 200 g
- **NW778/Metals Digestion-Soil/Sludge/Misc Solid/Dry weight/J01:RAW PRODUCT**
Amount required for test: Minmum 2 g, Optimal 200 g
- **NW517/Nickel** | MS | TS/J01:RAW PRODUCT
Amount required for test: Minmum 2 g, Optimal 200 g
- **NW528/Zinc** | MS | TS/J01:RAW PRODUCT
Amount required for test: Minmum 2 g, Optimal 200 g

<(-eQual=-)>

- **NW08G/Soil/other solids preparation/J01:RAW PRODUCT**

Sample amount required: Minimum 16 g Optimal 1,600 g

Sample: 816-2025-00200920



Description: Soil

Reference:

Client Sample Code: HA10 0.3

Sampling Date: 31/07/2025 00:00:00

Environmental

Analyses requested

-eLIMS'-

PNW0Q Amount required for test: Minmum 2 g, Optimal 200 g

- **NW499/Arsenic** | MS | TS/J01:RAW PRODUCT
Amount required for test: Minmum 2 g, Optimal 200 g
- **NW504/Cadmium** | MS | TS/J01:RAW PRODUCT
Amount required for test: Minmum 2 g, Optimal 200 g
- **NW507/Chromium** | MS | TS/J01:RAW PRODUCT
Amount required for test: Minmum 2 g, Optimal 200 g
- **NW509/Copper** | MS | TS/J01:RAW PRODUCT
Amount required for test: Minmum 2 g, Optimal 200 g
- **NW511/Lead** | MS | TS/J01:RAW PRODUCT
Amount required for test: Minmum 2 g, Optimal 200 g
- **NW778/Metals Digestion-Soil/Sludge/Misc Solid/Dry weight/J01:RAW PRODUCT**
Amount required for test: Minmum 2 g, Optimal 200 g
- **NW517/Nickel** | MS | TS/J01:RAW PRODUCT
Amount required for test: Minmum 2 g, Optimal 200 g
- **NW528/Zinc** | MS | TS/J01:RAW PRODUCT
Amount required for test: Minmum 2 g, Optimal 200 g

<(-eQual=-)>

- **NW08G/Soil/other solids preparation/J01:RAW PRODUCT**



Sample amount required: Minimum 16 g Optimal 1,600 g

Sample: 816-2025-00200921



Description: Soil

Reference:

Client Sample Code: HA11 0.075

Sampling Date: 31/07/2025 00:00:00

Environmental

Analyses requested

-'eLIMS'-

PNW0Q Amount required for test: Minimum 2 g, Optimal 200 g

- NW499/Arsenic | MS | TS/J01:RAW PRODUCT

Amount required for test: Minimum 2 g, Optimal 200 g

- NW504/Cadmium | MS | TS/J01:RAW PRODUCT

Amount required for test: Minimum 2 g, Optimal 200 g

- NW507/Chromium | MS | TS/J01:RAW PRODUCT

Amount required for test: Minimum 2 g, Optimal 200 g

- NW509/Copper | MS | TS/J01:RAW PRODUCT

Amount required for test: Minimum 2 g, Optimal 200 g

- NW511/Lead | MS | TS/J01:RAW PRODUCT

Amount required for test: Minimum 2 g, Optimal 200 g

- NW778/Metals Digestion-Soil/Sludge/Misc Solid/Dry weight/J01:RAW PRODUCT

Amount required for test: Minimum 2 g, Optimal 200 g

- NW517/Nickel | MS | TS/J01:RAW PRODUCT

Amount required for test: Minimum 2 g, Optimal 200 g

- NW528/Zinc | MS | TS/J01:RAW PRODUCT

Amount required for test: Minimum 2 g, Optimal 200 g

<(-eQual=-)>

- NW08G/Soil/other solids preparation/J01:RAW PRODUCT

Sample amount required: Minimum 16 g Optimal 1,600 g

Sample: 816-2025-00200922



Description: Soil

Reference:

Client Sample Code: HA11 0.3

Sampling Date: 31/07/2025 00:00:00

Environmental

Analyses requested

-'eLIMS'-

PNW0Q Amount required for test: Minimum 2 g, Optimal 200 g

- NW499/Arsenic | MS | TS/J01:RAW PRODUCT

Amount required for test: Minimum 2 g, Optimal 200 g

- NW504/Cadmium | MS | TS/J01:RAW PRODUCT

Amount required for test: Minimum 2 g, Optimal 200 g

- NW507/Chromium | MS | TS/J01:RAW PRODUCT

Amount required for test: Minimum 2 g, Optimal 200 g

- NW509/Copper | MS | TS/J01:RAW PRODUCT

Amount required for test: Minimum 2 g, Optimal 200 g

- NW511/Lead | MS | TS/J01:RAW PRODUCT

Amount required for test: Minimum 2 g, Optimal 200 g

- NW778/Metals Digestion-Soil/Sludge/Misc Solid/Dry weight/J01:RAW PRODUCT

Amount required for test: Minimum 2 g, Optimal 200 g

- NW517/Nickel | MS | TS/J01:RAW PRODUCT

Amount required for test: Minimum 2 g, Optimal 200 g

- NW528/Zinc | MS | TS/J01:RAW PRODUCT

Amount required for test: Minimum 2 g, Optimal 200 g

<(-eQual=-)>

- NW08G/Soil/other solids preparation/J01:RAW PRODUCT

Sample amount required: Minimum 16 g Optimal 1,600 g

Sample: 816-2025-00200923



Description: Soil

Reference:

Client Sample Code: HA12 0.075

Sampling Date: 31/07/2025 00:00:00

Environmental

Analyses requested

-'eLIMS'-

PNW0Q Amount required for test: Minimum 2 g, Optimal 200 g

- NW499/Arsenic | MS | TS/J01:RAW PRODUCT

Amount required for test: Minimum 2 g, Optimal 200 g

- NW504/Cadmium | MS | TS/J01:RAW PRODUCT

Amount required for test: Minimum 2 g, Optimal 200 g

- NW507/Chromium | MS | TS/J01:RAW PRODUCT

Amount required for test: Minimum 2 g, Optimal 200 g

- NW509/Copper | MS | TS/J01:RAW PRODUCT

Amount required for test: Minimum 2 g, Optimal 200 g

- NW511/Lead | MS | TS/J01:RAW PRODUCT
Amount required for test: Minimum 2 g, Optimal 200 g
 - NW778/Metals Digestion-Soil/Sludge/Misc Solid/Dry weight/J01:RAW PRODUCT
Amount required for test: Minimum 2 g, Optimal 200 g
 - NW517/Nickel | MS | TS/J01:RAW PRODUCT
Amount required for test: Minimum 2 g, Optimal 200 g
 - NW528/Zinc | MS | TS/J01:RAW PRODUCT
Amount required for test: Minimum 2 g, Optimal 200 g
- <(-eQual=-)>

- NW08G/Soil/other solids preparation/J01:RAW PRODUCT

Sample amount required: Minimum 16 g Optimal 1,600 g

Sample: 816-2025-00200924



Description: Soil

Reference:

Client Sample Code: HA12 0.3

Sampling Date: 31/07/2025 00:00:00

Environmental

Analyses requested

__-eLIMS'-__

PNW0Q Amount required for test: Minimum 2 g, Optimal 200 g

- NW499/Arsenic | MS | TS/J01:RAW PRODUCT
Amount required for test: Minimum 2 g, Optimal 200 g
- NW504/Cadmium | MS | TS/J01:RAW PRODUCT
Amount required for test: Minimum 2 g, Optimal 200 g
- NW507/Chromium | MS | TS/J01:RAW PRODUCT
Amount required for test: Minimum 2 g, Optimal 200 g
- NW509/Copper | MS | TS/J01:RAW PRODUCT
Amount required for test: Minimum 2 g, Optimal 200 g
- NW511/Lead | MS | TS/J01:RAW PRODUCT
Amount required for test: Minimum 2 g, Optimal 200 g
- NW778/Metals Digestion-Soil/Sludge/Misc Solid/Dry weight/J01:RAW PRODUCT
Amount required for test: Minimum 2 g, Optimal 200 g
- NW517/Nickel | MS | TS/J01:RAW PRODUCT
Amount required for test: Minimum 2 g, Optimal 200 g
- NW528/Zinc | MS | TS/J01:RAW PRODUCT
Amount required for test: Minimum 2 g, Optimal 200 g

<(-eQual=-)>

- NW08G/Soil/other solids preparation/J01:RAW PRODUCT

Sample amount required: Minimum 16 g Optimal 1,600 g

Sample: 816-2025-00200925



Description: Soil

Reference:

Client Sample Code: HA13 0.075

Sampling Date: 31/07/2025 00:00:00

Environmental

Analyses requested

__-eLIMS'-__

PNW0Q Amount required for test: Minimum 2 g, Optimal 200 g

- NW499/Arsenic | MS | TS/J01:RAW PRODUCT
Amount required for test: Minimum 2 g, Optimal 200 g
- NW504/Cadmium | MS | TS/J01:RAW PRODUCT
Amount required for test: Minimum 2 g, Optimal 200 g
- NW507/Chromium | MS | TS/J01:RAW PRODUCT
Amount required for test: Minimum 2 g, Optimal 200 g
- NW509/Copper | MS | TS/J01:RAW PRODUCT
Amount required for test: Minimum 2 g, Optimal 200 g
- NW511/Lead | MS | TS/J01:RAW PRODUCT
Amount required for test: Minimum 2 g, Optimal 200 g
- NW778/Metals Digestion-Soil/Sludge/Misc Solid/Dry weight/J01:RAW PRODUCT
Amount required for test: Minimum 2 g, Optimal 200 g
- NW517/Nickel | MS | TS/J01:RAW PRODUCT
Amount required for test: Minimum 2 g, Optimal 200 g
- NW528/Zinc | MS | TS/J01:RAW PRODUCT
Amount required for test: Minimum 2 g, Optimal 200 g

<(-eQual=-)>

- NW08G/Soil/other solids preparation/J01:RAW PRODUCT

Sample amount required: Minimum 16 g Optimal 1,600 g



Rini Dadheech


Date: 04/08/2025

From: EUNZAU: Eurofins Environment Testing
NZ, Auckland

To: Eurofins ELS (Wellington)
Sample Reception

85 Port Road,
Seaview
Lower Hutt
NZ-5045 Wellington
NEW ZEALAND

EUNZAU: Eurofins Environment Testing NZ, Auckland

Sample: 816-2025-00200919

Description: Soil

Reference:
Client Sample Code: HA10 0.075

Sampling Date: 31/07/2025 00:00:00

Environmental

Analyses requested

-'eLIMS'-

PNW0Q Amount required for test: Minimum 2 g, Optimal 200 g

- **NW499/Arsenic** | MS | TS/J01:RAW PRODUCT
Amount required for test: Minimum 2 g, Optimal 200 g
- **NW504/Cadmium** | MS | TS/J01:RAW PRODUCT
Amount required for test: Minimum 2 g, Optimal 200 g
- **NW507/Chromium** | MS | TS/J01:RAW PRODUCT
Amount required for test: Minimum 2 g, Optimal 200 g
- **NW509/Copper** | MS | TS/J01:RAW PRODUCT
Amount required for test: Minimum 2 g, Optimal 200 g
- **NW511/Lead** | MS | TS/J01:RAW PRODUCT
Amount required for test: Minimum 2 g, Optimal 200 g
- **NW778/Metals Digestion-Soil/Sludge/Misc Solid/Dry weight/J01:RAW PRODUCT**
Amount required for test: Minimum 2 g, Optimal 200 g
- **NW517/Nickel** | MS | TS/J01:RAW PRODUCT
Amount required for test: Minimum 2 g, Optimal 200 g
- **NW528/Zinc** | MS | TS/J01:RAW PRODUCT
Amount required for test: Minimum 2 g, Optimal 200 g

<(-eQual=-)>

- **NW08G/Soil/other solids preparation/J01:RAW PRODUCT**

Sample amount required: Minimum **16 g** Optimal **1,600 g**
Sample: 816-2025-00200920

Description: Soil

Reference:
Client Sample Code: HA10 0.3

Sampling Date: 31/07/2025 00:00:00

Environmental

Analyses requested

-'eLIMS'-

PNW0Q Amount required for test: Minimum 2 g, Optimal 200 g

- **NW499/Arsenic** | MS | TS/J01:RAW PRODUCT
Amount required for test: Minimum 2 g, Optimal 200 g
- **NW504/Cadmium** | MS | TS/J01:RAW PRODUCT
Amount required for test: Minimum 2 g, Optimal 200 g
- **NW507/Chromium** | MS | TS/J01:RAW PRODUCT
Amount required for test: Minimum 2 g, Optimal 200 g
- **NW509/Copper** | MS | TS/J01:RAW PRODUCT
Amount required for test: Minimum 2 g, Optimal 200 g
- **NW511/Lead** | MS | TS/J01:RAW PRODUCT
Amount required for test: Minimum 2 g, Optimal 200 g
- **NW778/Metals Digestion-Soil/Sludge/Misc Solid/Dry weight/J01:RAW PRODUCT**
Amount required for test: Minimum 2 g, Optimal 200 g
- **NW517/Nickel** | MS | TS/J01:RAW PRODUCT
Amount required for test: Minimum 2 g, Optimal 200 g
- **NW528/Zinc** | MS | TS/J01:RAW PRODUCT
Amount required for test: Minimum 2 g, Optimal 200 g

<(-eQual=-)>

- **NW08G/Soil/other solids preparation/J01:RAW PRODUCT**



Environment Testing NZ

END OF REPORT

Description: Soil

Reference:

Client Sample Code: TP15 1.1

Sampling Date: 08/07/2025 12:00:00AM

-'eLIMS'-

PNW0S Amount required for test: Minimum 2 g, Optimal 200 g

- NW499/Arsenic | MS | TS/J01:RAW PRODUCT

Amount required for test: Minimum 2 g, Optimal 200 g

- NW503/Boron | MS | TS/J01:RAW PRODUCT

Amount required for test: Minimum 2 g, Optimal 200 g

- NW504/Cadmium | MS | TS/J01:RAW PRODUCT

Amount required for test: Minimum 2 g, Optimal 200 g

- NW507/Chromium | MS | TS/J01:RAW PRODUCT

Amount required for test: Minimum 2 g, Optimal 200 g

- NW509/Copper | MS | TS/J01:RAW PRODUCT

Amount required for test: Minimum 2 g, Optimal 200 g

- NW511/Lead | MS | TS/J01:RAW PRODUCT

Amount required for test: Minimum 2 g, Optimal 200 g

- NW515/Mercury | MS | TS/J01:RAW PRODUCT

Amount required for test: Minimum 2 g, Optimal 200 g

- NW778/Metals Digestion-Soil/Sludge/Misc Solid/Dry weight/J01:RAW PRODUCT

Amount required for test: Minimum 2 g, Optimal 200 g

- NW517/Nickel | MS | TS/J01:RAW PRODUCT

Amount required for test: Minimum 2 g, Optimal 200 g

- NW528/Zinc | MS | TS/J01:RAW PRODUCT

Amount required for test: Minimum 2 g, Optimal 200 g

<(<=<eQual=<=>

- NW08G/Soil/other solids preparation/J01:RAW PRODUCT

Sample amount required: Minimum 20 g Optimal 2,000 g

Sample: 816-2025-00180022

Environmental

Analyses requested

<(<=<eQual=<=>

- NWEBH/PAH BaP TEQ/J01:RAW PRODUCT

Amount required for test: Minimum 100 g, Optimal 200 g

- NW08G/Soil/other solids preparation/J01:RAW PRODUCT

- NW37K/TRH C7 - C36/J01:RAW PRODUCT

Amount required for test: Minimum 125 ml, Optimal 250 ml

Sample amount required: Minimum 225 ml Optimal 450 ml

Sample: 816-2025-00180023

Environmental

Analyses requested

-'eLIMS'-

PNW0S Amount required for test: Minimum 2 g, Optimal 200 g

- NW499/Arsenic | MS | TS/J01:RAW PRODUCT

Amount required for test: Minimum 2 g, Optimal 200 g

- NW503/Boron | MS | TS/J01:RAW PRODUCT

Amount required for test: Minimum 2 g, Optimal 200 g

- NW504/Cadmium | MS | TS/J01:RAW PRODUCT

Amount required for test: Minimum 2 g, Optimal 200 g

- NW507/Chromium | MS | TS/J01:RAW PRODUCT

Amount required for test: Minimum 2 g, Optimal 200 g

- NW509/Copper | MS | TS/J01:RAW PRODUCT

Amount required for test: Minimum 2 g, Optimal 200 g

- NW511/Lead | MS | TS/J01:RAW PRODUCT

Amount required for test: Minimum 2 g, Optimal 200 g

- NW515/Mercury | MS | TS/J01:RAW PRODUCT

Amount required for test: Minimum 2 g, Optimal 200 g

- NW778/Metals Digestion-Soil/Sludge/Misc Solid/Dry weight/J01:RAW PRODUCT

Amount required for test: Minimum 2 g, Optimal 200 g

- NW517/Nickel | MS | TS/J01:RAW PRODUCT

Amount required for test: Minimum 2 g, Optimal 200 g

- NW528/Zinc | MS | TS/J01:RAW PRODUCT

Amount required for test: Minimum 2 g, Optimal 200 g

<(<=<eQual=<=>

- NWEBH/PAH BaP TEQ/J01:RAW PRODUCT

Amount required for test: Minimum 100 g, Optimal 200 g

Description: Soil

Reference:

Client Sample Code: TP16 0.2

Sampling Date: 08/07/2025 12:00:00AM

EUNZAU
00813796

Order



051-32762-945418-93

Sample: 816-2025-00180019



Description: Soil

Reference:

Client Sample Code: TP14 0.4

Sampling Date: 08/07/2025 12:00:00AM

Environmental

Analyses requested

-'eLIMS'-

PNW0S Amount required for test: Minimum 2 g, Optimal 200 g

- **NW499/Arsenic** | MS | TS/J01:RAW PRODUCT

Amount required for test: Minimum 2 g, Optimal 200 g

- **NW503/Boron** | MS | TS/J01:RAW PRODUCT

Amount required for test: Minimum 2 g, Optimal 200 g

- **NW504/Cadmium** | MS | TS/J01:RAW PRODUCT

Amount required for test: Minimum 2 g, Optimal 200 g

- **NW507/Chromium** | MS | TS/J01:RAW PRODUCT

Amount required for test: Minimum 2 g, Optimal 200 g

- **NW509/Copper** | MS | TS/J01:RAW PRODUCT

Amount required for test: Minimum 2 g, Optimal 200 g

- **NW511/Lead** | MS | TS/J01:RAW PRODUCT

Amount required for test: Minimum 2 g, Optimal 200 g

- **NW515/Mercury** | MS | TS/J01:RAW PRODUCT

Amount required for test: Minimum 2 g, Optimal 200 g

- **NW778/Metals Digestion-Soil/Sludge/Misc Solid/Dry weight/J01:RAW PRODUCT**

Amount required for test: Minimum 2 g, Optimal 200 g

- **NW517/Nickel** | MS | TS/J01:RAW PRODUCT

Amount required for test: Minimum 2 g, Optimal 200 g

- **NW528/Zinc** | MS | TS/J01:RAW PRODUCT

Amount required for test: Minimum 2 g, Optimal 200 g

<(<=eQual=)>

- **NW08G/Soil/other solids preparation/J01:RAW PRODUCT**

Sample amount required: Minimum 20 g Optimal 2,000 g

Sample: 816-2025-00180020



Description: Soil

Reference:

Client Sample Code: TP15 0.2

Sampling Date: 08/07/2025 12:00:00AM

Environmental

Analyses requested

-'eLIMS'-

PNW0S Amount required for test: Minimum 2 g, Optimal 200 g

- **NW499/Arsenic** | MS | TS/J01:RAW PRODUCT

Amount required for test: Minimum 2 g, Optimal 200 g

- **NW503/Boron** | MS | TS/J01:RAW PRODUCT

Amount required for test: Minimum 2 g, Optimal 200 g

- **NW504/Cadmium** | MS | TS/J01:RAW PRODUCT

Amount required for test: Minimum 2 g, Optimal 200 g

- **NW507/Chromium** | MS | TS/J01:RAW PRODUCT

Amount required for test: Minimum 2 g, Optimal 200 g

- **NW509/Copper** | MS | TS/J01:RAW PRODUCT

Amount required for test: Minimum 2 g, Optimal 200 g

- **NW511/Lead** | MS | TS/J01:RAW PRODUCT

Amount required for test: Minimum 2 g, Optimal 200 g

- **NW515/Mercury** | MS | TS/J01:RAW PRODUCT

Amount required for test: Minimum 2 g, Optimal 200 g

- **NW778/Metals Digestion-Soil/Sludge/Misc Solid/Dry weight/J01:RAW PRODUCT**

Amount required for test: Minimum 2 g, Optimal 200 g

- **NW517/Nickel** | MS | TS/J01:RAW PRODUCT

Amount required for test: Minimum 2 g, Optimal 200 g

- **NW528/Zinc** | MS | TS/J01:RAW PRODUCT

Amount required for test: Minimum 2 g, Optimal 200 g

<(<=eQual=)>

- **NW08G/Soil/other solids preparation/J01:RAW PRODUCT**

Sample amount required: Minimum 20 g Optimal 2,000 g

Sample: 816-2025-00180021



Environmental

Analyses requested

Sample amount required: Minimum 20 g Optimal 2,000 g

Sample: 816-2025-00180017



Description: Soil

Reference:

Client Sample Code: TP12 1.0

Sampling Date: 08/07/2025 12:00:00AM

Environmental

Analyses requested

- 'eLIMS' -

PNW0S Amount required for test: Minmum 2 g, Optimal 200 g

- NW499/Arsenic | MS | TS/J01:RAW PRODUCT

Amount required for test: Minmum 2 g, Optimal 200 g

- NW503/Boron | MS | TS/J01:RAW PRODUCT

Amount required for test: Minmum 2 g, Optimal 200 g

- NW504/Cadmium | MS | TS/J01:RAW PRODUCT

Amount required for test: Minmum 2 g, Optimal 200 g

- NW507/Chromium | MS | TS/J01:RAW PRODUCT

Amount required for test: Minmum 2 g, Optimal 200 g

- NW509/Copper | MS | TS/J01:RAW PRODUCT

Amount required for test: Minmum 2 g, Optimal 200 g

- NW511/Lead | MS | TS/J01:RAW PRODUCT

Amount required for test: Minmum 2 g, Optimal 200 g

- NW515/Mercury | MS | TS/J01:RAW PRODUCT

Amount required for test: Minmum 2 g, Optimal 200 g

- NW778/Metals Digestion-Soil/Sludge/Misc Solid/Dry weight/J01:RAW PRODUCT

Amount required for test: Minmum 2 g, Optimal 200 g

- NW517/Nickel | MS | TS/J01:RAW PRODUCT

Amount required for test: Minmum 2 g, Optimal 200 g

- NW528/Zinc | MS | TS/J01:RAW PRODUCT

Amount required for test: Minmum 2 g, Optimal 200 g

< (=eQual=) >

- NW08G/Soil/other solids preparation/J01:RAW PRODUCT

Sample amount required: Minimum 20 g Optimal 2,000 g

Sample: 816-2025-00180018



Description: Soil

Reference:

Client Sample Code: TP13 0.3

Sampling Date: 08/07/2025 12:00:00AM

Environmental

Analyses requested

- 'eLIMS' -

PNW0S Amount required for test: Minmum 2 g, Optimal 200 g

- NW499/Arsenic | MS | TS/J01:RAW PRODUCT

Amount required for test: Minmum 2 g, Optimal 200 g

- NW503/Boron | MS | TS/J01:RAW PRODUCT

Amount required for test: Minmum 2 g, Optimal 200 g

- NW504/Cadmium | MS | TS/J01:RAW PRODUCT

Amount required for test: Minmum 2 g, Optimal 200 g

- NW507/Chromium | MS | TS/J01:RAW PRODUCT

Amount required for test: Minmum 2 g, Optimal 200 g

- NW509/Copper | MS | TS/J01:RAW PRODUCT

Amount required for test: Minmum 2 g, Optimal 200 g

- NW511/Lead | MS | TS/J01:RAW PRODUCT

Amount required for test: Minmum 2 g, Optimal 200 g

- NW515/Mercury | MS | TS/J01:RAW PRODUCT

Amount required for test: Minmum 2 g, Optimal 200 g

- NW778/Metals Digestion-Soil/Sludge/Misc Solid/Dry weight/J01:RAW PRODUCT

Amount required for test: Minmum 2 g, Optimal 200 g

- NW517/Nickel | MS | TS/J01:RAW PRODUCT

Amount required for test: Minmum 2 g, Optimal 200 g

- NW528/Zinc | MS | TS/J01:RAW PRODUCT

Amount required for test: Minmum 2 g, Optimal 200 g

< (=eQual=) >

- NWEBH/PAH BaP TEQ/J01:RAW PRODUCT

Amount required for test: Minmum 100 g, Optimal 200 g

- NW08G/Soil/other solids preparation/J01:RAW PRODUCT

- NW37K/TRH C7 - C36/J01:RAW PRODUCT

Amount required for test: Minmum 125 ml, Optimal 250 ml

Sample amount required: Minimum 245 ml Optimal 2,450 ml



051-32762-945418-93

- NWEBH/PAH BaP TEQ/J01:RAW PRODUCT
Amount required for test: Minmum 100 g, Optimal 200 g
- NW08G/Soil/other solids preparation/J01:RAW PRODUCT
- NW37K/TRH C7 - C36/J01:RAW PRODUCT
Amount required for test: Minmum 125 ml, Optimal 250 ml

Sample amount required: Minimum **245 ml** Optimal **2,450 ml**

Sample: 816-2025-00180013



Description: Soil

Reference:

Client Sample Code: TP11.0.1

Sampling Date: 08/07/2025 12:00:00AM

Environmental

Analyses requested

__-'eLIMS'-__

PNW0S Amount required for test: Minmum 2 g, Optimal 200 g

- NW499/Arsenic | MS | TS/J01:RAW PRODUCT
Amount required for test: Minmum 2 g, Optimal 200 g
- NW503/Boron | MS | TS/J01:RAW PRODUCT
Amount required for test: Minmum 2 g, Optimal 200 g
- NW504/Cadmium | MS | TS/J01:RAW PRODUCT
Amount required for test: Minmum 2 g, Optimal 200 g
- NW507/Chromium | MS | TS/J01:RAW PRODUCT
Amount required for test: Minmum 2 g, Optimal 200 g
- NW509/Copper | MS | TS/J01:RAW PRODUCT
Amount required for test: Minmum 2 g, Optimal 200 g
- NW511/Lead | MS | TS/J01:RAW PRODUCT
Amount required for test: Minmum 2 g, Optimal 200 g
- NW515/Mercury | MS | TS/J01:RAW PRODUCT
Amount required for test: Minmum 2 g, Optimal 200 g
- NW778/Metals Digestion-Soil/Sludge/Misc Solid/Dry weight/J01:RAW PRODUCT
Amount required for test: Minmum 2 g, Optimal 200 g
- NW517/Nickel | MS | TS/J01:RAW PRODUCT
Amount required for test: Minmum 2 g, Optimal 200 g
- NW528/Zinc | MS | TS/J01:RAW PRODUCT
Amount required for test: Minmum 2 g, Optimal 200 g

<(-eQual=-)>

- NWEBH/PAH BaP TEQ/J01:RAW PRODUCT
Amount required for test: Minmum 100 g, Optimal 200 g
- NW08G/Soil/other solids preparation/J01:RAW PRODUCT
- NW37K/TRH C7 - C36/J01:RAW PRODUCT
Amount required for test: Minmum 125 ml, Optimal 250 ml

Sample amount required: Minimum **245 ml** Optimal **2,450 ml**

Sample: 816-2025-00180015



Description: Soil

Reference:

Client Sample Code: TP12.0.1

Sampling Date: 08/07/2025 12:00:00AM

Environmental

Analyses requested

__-'eLIMS'-__

PNW0S Amount required for test: Minmum 2 g, Optimal 200 g

- NW499/Arsenic | MS | TS/J01:RAW PRODUCT
Amount required for test: Minmum 2 g, Optimal 200 g
- NW503/Boron | MS | TS/J01:RAW PRODUCT
Amount required for test: Minmum 2 g, Optimal 200 g
- NW504/Cadmium | MS | TS/J01:RAW PRODUCT
Amount required for test: Minmum 2 g, Optimal 200 g
- NW507/Chromium | MS | TS/J01:RAW PRODUCT
Amount required for test: Minmum 2 g, Optimal 200 g
- NW509/Copper | MS | TS/J01:RAW PRODUCT
Amount required for test: Minmum 2 g, Optimal 200 g
- NW511/Lead | MS | TS/J01:RAW PRODUCT
Amount required for test: Minmum 2 g, Optimal 200 g
- NW515/Mercury | MS | TS/J01:RAW PRODUCT
Amount required for test: Minmum 2 g, Optimal 200 g
- NW778/Metals Digestion-Soil/Sludge/Misc Solid/Dry weight/J01:RAW PRODUCT
Amount required for test: Minmum 2 g, Optimal 200 g
- NW517/Nickel | MS | TS/J01:RAW PRODUCT
Amount required for test: Minmum 2 g, Optimal 200 g
- NW528/Zinc | MS | TS/J01:RAW PRODUCT
Amount required for test: Minmum 2 g, Optimal 200 g

<(-eQual=-)>



- NW528/Zinc | MS | TS/J01:RAW PRODUCT
Amount required for test: Minnum 2 g, Optimal 200 g
- <(<=<eQual=<=>
- NWEBH/PAH BaP TEQ/J01:RAW PRODUCT
Amount required for test: Minnum 100 g, Optimal 200 g
- NW08G/Soil/other solids preparation/J01:RAW PRODUCT
- NW37K/TRH C7 - C36/J01:RAW PRODUCT
Amount required for test: Minnum 125 ml, Optimal 250 ml

Sample amount required: Minimum 245 ml Optimal 2,450 ml

Sample: 816-2025-00180009



Description: Soil

Reference:

Client Sample Code: TP9 0.6

Sampling Date: 08/07/2025 12:00:00AM

Environmental

Analyses requested

- 'eLIMS' -

PNW0S Amount required for test: Minnum 2 g, Optimal 200 g

- NW499/Arsenic | MS | TS/J01:RAW PRODUCT
Amount required for test: Minnum 2 g, Optimal 200 g
- NW503/Boron | MS | TS/J01:RAW PRODUCT
Amount required for test: Minnum 2 g, Optimal 200 g
- NW504/Cadmium | MS | TS/J01:RAW PRODUCT
Amount required for test: Minnum 2 g, Optimal 200 g
- NW507/Chromium | MS | TS/J01:RAW PRODUCT
Amount required for test: Minnum 2 g, Optimal 200 g
- NW509/Copper | MS | TS/J01:RAW PRODUCT
Amount required for test: Minnum 2 g, Optimal 200 g
- NW511/Lead | MS | TS/J01:RAW PRODUCT
Amount required for test: Minnum 2 g, Optimal 200 g
- NW515/Mercury | MS | TS/J01:RAW PRODUCT
Amount required for test: Minnum 2 g, Optimal 200 g
- NW778/Metals Digestion-Soil/Sludge/Misc Solid/Dry weight/J01:RAW PRODUCT
Amount required for test: Minnum 2 g, Optimal 200 g
- NW517/Nickel | MS | TS/J01:RAW PRODUCT
Amount required for test: Minnum 2 g, Optimal 200 g
- NW528/Zinc | MS | TS/J01:RAW PRODUCT
Amount required for test: Minnum 2 g, Optimal 200 g

<(<=<eQual=<=>

- NW08G/Soil/other solids preparation/J01:RAW PRODUCT

Sample amount required: Minimum 20 g Optimal 2,000 g

Sample: 816-2025-00180011



Description: Soil

Reference:

Client Sample Code: TP10 0.1

Sampling Date: 08/07/2025 12:00:00AM

Environmental

Analyses requested

- 'eLIMS' -

PNW0S Amount required for test: Minnum 2 g, Optimal 200 g

- NW499/Arsenic | MS | TS/J01:RAW PRODUCT
Amount required for test: Minnum 2 g, Optimal 200 g
- NW503/Boron | MS | TS/J01:RAW PRODUCT
Amount required for test: Minnum 2 g, Optimal 200 g
- NW504/Cadmium | MS | TS/J01:RAW PRODUCT
Amount required for test: Minnum 2 g, Optimal 200 g
- NW507/Chromium | MS | TS/J01:RAW PRODUCT
Amount required for test: Minnum 2 g, Optimal 200 g
- NW509/Copper | MS | TS/J01:RAW PRODUCT
Amount required for test: Minnum 2 g, Optimal 200 g
- NW511/Lead | MS | TS/J01:RAW PRODUCT
Amount required for test: Minnum 2 g, Optimal 200 g
- NW515/Mercury | MS | TS/J01:RAW PRODUCT
Amount required for test: Minnum 2 g, Optimal 200 g
- NW778/Metals Digestion-Soil/Sludge/Misc Solid/Dry weight/J01:RAW PRODUCT
Amount required for test: Minnum 2 g, Optimal 200 g
- NW517/Nickel | MS | TS/J01:RAW PRODUCT
Amount required for test: Minnum 2 g, Optimal 200 g
- NW528/Zinc | MS | TS/J01:RAW PRODUCT
Amount required for test: Minnum 2 g, Optimal 200 g

<(<=<eQual=<=>

EUNZAU
00813796

Order



051-32762-945418-93

- Amount required for test: Minimum 2 g, Optimal 200 g
- NW515/Mercury | MS | TS/J01:RAW PRODUCT
Amount required for test: Minimum 2 g, Optimal 200 g
 - NW778/Metals Digestion-Soil/Sludge/Misc Solid/Dry weight/J01:RAW PRODUCT
Amount required for test: Minimum 2 g, Optimal 200 g
 - NW517/Nickel | MS | TS/J01:RAW PRODUCT
Amount required for test: Minimum 2 g, Optimal 200 g
 - NW528/Zinc | MS | TS/J01:RAW PRODUCT
Amount required for test: Minimum 2 g, Optimal 200 g
- <(<=<eQual=<=>
- NWEBH/PAH BaP TEQ/J01:RAW PRODUCT
Amount required for test: Minimum 100 g, Optimal 200 g
 - NW08G/Soil/other solids preparation/J01:RAW PRODUCT
 - NW37K/TRH C7 - C36/J01:RAW PRODUCT
Amount required for test: Minimum 125 ml, Optimal 250 ml

Sample amount required: Minimum 245 ml Optimal 2,450 ml

Sample: 816-2025-00180030



Description: Soil

Reference:

Client Sample Code: TP18 0.5

Sampling Date: 08/07/2025 12:00:00AM

Environmental

Analyses requested

<(<=<eQual=<=>

- NWEBH/PAH BaP TEQ/J01:RAW PRODUCT
Amount required for test: Minimum 100 g, Optimal 200 g
- NW08G/Soil/other solids preparation/J01:RAW PRODUCT
- NW37K/TRH C7 - C36/J01:RAW PRODUCT
Amount required for test: Minimum 125 ml, Optimal 250 ml

Sample amount required: Minimum 225 ml Optimal 450 ml

Sample: 816-2025-00180032



Description: Soil

Reference:

Client Sample Code: TP19 0.075

Sampling Date: 08/07/2025 12:00:00AM

Environmental

Analyses requested

'eLIMS''

- PNW0S Amount required for test: Minimum 2 g, Optimal 200 g
- NW499/Arsenic | MS | TS/J01:RAW PRODUCT
Amount required for test: Minimum 2 g, Optimal 200 g
 - NW503/Boron | MS | TS/J01:RAW PRODUCT
Amount required for test: Minimum 2 g, Optimal 200 g
 - NW504/Cadmium | MS | TS/J01:RAW PRODUCT
Amount required for test: Minimum 2 g, Optimal 200 g
 - NW507/Chromium | MS | TS/J01:RAW PRODUCT
Amount required for test: Minimum 2 g, Optimal 200 g
 - NW509/Copper | MS | TS/J01:RAW PRODUCT
Amount required for test: Minimum 2 g, Optimal 200 g
 - NW511/Lead | MS | TS/J01:RAW PRODUCT
Amount required for test: Minimum 2 g, Optimal 200 g
 - NW515/Mercury | MS | TS/J01:RAW PRODUCT
Amount required for test: Minimum 2 g, Optimal 200 g
 - NW778/Metals Digestion-Soil/Sludge/Misc Solid/Dry weight/J01:RAW PRODUCT
Amount required for test: Minimum 2 g, Optimal 200 g
 - NW517/Nickel | MS | TS/J01:RAW PRODUCT
Amount required for test: Minimum 2 g, Optimal 200 g
 - NW528/Zinc | MS | TS/J01:RAW PRODUCT
Amount required for test: Minimum 2 g, Optimal 200 g
- <(<=<eQual=<=>
- NW08G/Soil/other solids preparation/J01:RAW PRODUCT

EUNZAU
00813796
Order



051-32762-945418-93

Sample amount required: Minimum 20 g Optimal 2,000 g

Sample: 816-2025-00180033



Environmental

Analyses requested

Sample amount required: Minimum 16 g Optimal 1,600 g

Sample: 816-2025-00200921



Description: Soil

Reference:

Client Sample Code: HA11 0.075

Sampling Date: 31/07/2025 00:00:00

Environmental

Analyses requested

-'eLIMS'-

PNW0Q Amount required for test: Minmum 2 g, Optimal 200 g

- NW499/Arsenic | MS | TS/J01:RAW PRODUCT

Amount required for test: Minmum 2 g, Optimal 200 g

- NW504/Cadmium | MS | TS/J01:RAW PRODUCT

Amount required for test: Minmum 2 g, Optimal 200 g

- NW507/Chromium | MS | TS/J01:RAW PRODUCT

Amount required for test: Minmum 2 g, Optimal 200 g

- NW509/Copper | MS | TS/J01:RAW PRODUCT

Amount required for test: Minmum 2 g, Optimal 200 g

- NW511/Lead | MS | TS/J01:RAW PRODUCT

Amount required for test: Minmum 2 g, Optimal 200 g

- NW778/Metals Digestion-Soil/Sludge/Misc Solid/Dry weight/J01:RAW PRODUCT

Amount required for test: Minmum 2 g, Optimal 200 g

- NW517/Nickel | MS | TS/J01:RAW PRODUCT

Amount required for test: Minmum 2 g, Optimal 200 g

- NW528/Zinc | MS | TS/J01:RAW PRODUCT

Amount required for test: Minmum 2 g, Optimal 200 g

<(<=eQual=)>

- NW08G/Soil/other solids preparation/J01:RAW PRODUCT

Sample amount required: Minimum 16 g Optimal 1,600 g

Sample: 816-2025-00200922



Description: Soil

Reference:

Client Sample Code: HA11 0.3

Sampling Date: 31/07/2025 00:00:00

Environmental

Analyses requested

-'eLIMS'-

PNW0Q Amount required for test: Minmum 2 g, Optimal 200 g

- NW499/Arsenic | MS | TS/J01:RAW PRODUCT

Amount required for test: Minmum 2 g, Optimal 200 g

- NW504/Cadmium | MS | TS/J01:RAW PRODUCT

Amount required for test: Minmum 2 g, Optimal 200 g

- NW507/Chromium | MS | TS/J01:RAW PRODUCT

Amount required for test: Minmum 2 g, Optimal 200 g

- NW509/Copper | MS | TS/J01:RAW PRODUCT

Amount required for test: Minmum 2 g, Optimal 200 g

- NW511/Lead | MS | TS/J01:RAW PRODUCT

Amount required for test: Minmum 2 g, Optimal 200 g

- NW778/Metals Digestion-Soil/Sludge/Misc Solid/Dry weight/J01:RAW PRODUCT

Amount required for test: Minmum 2 g, Optimal 200 g

- NW517/Nickel | MS | TS/J01:RAW PRODUCT

Amount required for test: Minmum 2 g, Optimal 200 g

- NW528/Zinc | MS | TS/J01:RAW PRODUCT

Amount required for test: Minmum 2 g, Optimal 200 g

<(<=eQual=)>

- NW08G/Soil/other solids preparation/J01:RAW PRODUCT

Sample amount required: Minimum 16 g Optimal 1,600 g

Sample: 816-2025-00200923



Description: Soil

Reference:

Client Sample Code: HA12 0.075

Sampling Date: 31/07/2025 00:00:00

Environmental

Analyses requested

-'eLIMS'-

PNW0Q Amount required for test: Minmum 2 g, Optimal 200 g

- NW499/Arsenic | MS | TS/J01:RAW PRODUCT

Amount required for test: Minmum 2 g, Optimal 200 g

- NW504/Cadmium | MS | TS/J01:RAW PRODUCT

Amount required for test: Minmum 2 g, Optimal 200 g

- NW507/Chromium | MS | TS/J01:RAW PRODUCT

Amount required for test: Minmum 2 g, Optimal 200 g

- NW509/Copper | MS | TS/J01:RAW PRODUCT

Amount required for test: Minmum 2 g, Optimal 200 g

Description: Soil

Reference:

Client Sample Code: TP19 1.0

Sampling Date: 08/07/2025 12:00:00AM

_-eLIMS'-

PNW0S Amount required for test: Minimum 2 g, Optimal 200 g

- **NW499/Arsenic** | MS | TS/J01:RAW PRODUCT

Amount required for test: Minimum 2 g, Optimal 200 g

- **NW503/Boron** | MS | TS/J01:RAW PRODUCT

Amount required for test: Minimum 2 g, Optimal 200 g

- **NW504/Cadmium** | MS | TS/J01:RAW PRODUCT

Amount required for test: Minimum 2 g, Optimal 200 g

- **NW507/Chromium** | MS | TS/J01:RAW PRODUCT

Amount required for test: Minimum 2 g, Optimal 200 g

- **NW509/Copper** | MS | TS/J01:RAW PRODUCT

Amount required for test: Minimum 2 g, Optimal 200 g

- **NW511/Lead** | MS | TS/J01:RAW PRODUCT

Amount required for test: Minimum 2 g, Optimal 200 g

- **NW515/Mercury** | MS | TS/J01:RAW PRODUCT

Amount required for test: Minimum 2 g, Optimal 200 g

- **NW778/Metals Digestion-Soil/Sludge/Misc Solid/Dry weight/J01:RAW PRODUCT**

Amount required for test: Minimum 2 g, Optimal 200 g

- **NW517/Nickel** | MS | TS/J01:RAW PRODUCT

Amount required for test: Minimum 2 g, Optimal 200 g

- **NW528/Zinc** | MS | TS/J01:RAW PRODUCT

Amount required for test: Minimum 2 g, Optimal 200 g

<(-eQual-)=>

- **NW08G/Soil/other solids preparation/J01:RAW PRODUCT**

Sample amount required: Minimum **20 g** Optimal **2,000 g**

Rini Dadheech



For the attention of Josh Cuming joshcuming@haighworkman.co.nz	From : Frances Gilvray EUNZAUSampleReception@eurofinsanz.com Eurofins Environment Testing NZ Ltd Client Support Service
Company / organisation : Haigh Workman Limited 6 Fairway Drive 230 Kerikeri	Date 04/08/2025

Acknowledgement receipt of samples for analysis

Josh Cuming,

We have received the following sample(s) and we thank you for your order. Please check that all information has been included correctly in the reference, product description of the sample(s) and analyses requested and inform us of any modification. The reference shown here will also appear on the analytical report.

Our order Id EUNZAU-00819983

Our references	Your references
816-2025-00200919	HA10 0.075
Sampled Date & Time Attempt to Chill was evident Appropriate sample containers used	31/07/2025 00:00:00 false true Sampled By Sample correctly preserved Joshua Cuming true Analyses requested (code+name) Quotation nÂ° HASZ1624000988 PNW0Q: Metals 7 (As, Cd, Cr, Cu, Ni, Pb, Zn) NW08G: Soil/other solids preparation <u>Estimated date of results :</u> 09/08/2025
816-2025-00200920	HA10 0.3
Sampled Date & Time Attempt to Chill was evident Appropriate sample containers used	31/07/2025 00:00:00 false true Sampled By Sample correctly preserved Joshua Cuming true Analyses requested (code+name) Quotation nÂ° HASZ1624000988 PNW0Q: Metals 7 (As, Cd, Cr, Cu, Ni, Pb, Zn) NW08G: Soil/other solids preparation <u>Estimated date of results :</u> 09/08/2025
816-2025-00200921	HA11 0.075
Sampled Date & Time Attempt to Chill was evident Appropriate sample containers used	31/07/2025 00:00:00 false true Sampled By Sample correctly preserved Joshua Cuming true Analyses requested (code+name) Quotation nÂ° HASZ1624000988 PNW0Q: Metals 7 (As, Cd, Cr, Cu, Ni, Pb, Zn) NW08G: Soil/other solids preparation <u>Estimated date of results :</u> 09/08/2025

816-2025-00200922	HA11 0.3	Sampled Date & Time 31/07/2025 00:00:00 Attempt to Chill was evident false Appropriate sample containers used true	Sampled By Joshua Cuming Sample correctly preserved true	Analyses requested (code+name) Quotation nÂ° HASZ1624000988 PNW0Q: Metals 7 (As, Cd, Cr, Cu, Ni, Pb, Zn) NW08G: Soil/other solids preparation <u>Estimated date of results :</u> 09/08/2025
816-2025-00200923	HA12 0.075	Sampled Date & Time 31/07/2025 00:00:00 Attempt to Chill was evident false Appropriate sample containers used true	Sampled By Joshua Cuming Sample correctly preserved true	Analyses requested (code+name) Quotation nÂ° HASZ1624000988 PNW0Q: Metals 7 (As, Cd, Cr, Cu, Ni, Pb, Zn) NW08G: Soil/other solids preparation <u>Estimated date of results :</u> 09/08/2025
816-2025-00200924	HA12 0.3	Sampled Date & Time 31/07/2025 00:00:00 Attempt to Chill was evident false Appropriate sample containers used true	Sampled By Joshua Cuming Sample correctly preserved true	Analyses requested (code+name) Quotation nÂ° HASZ1624000988 PNW0Q: Metals 7 (As, Cd, Cr, Cu, Ni, Pb, Zn) NW08G: Soil/other solids preparation <u>Estimated date of results :</u> 09/08/2025
816-2025-00200925	HA13 0.075	Sampled Date & Time 31/07/2025 00:00:00 Attempt to Chill was evident false Appropriate sample containers used true	Sampled By Joshua Cuming Sample correctly preserved true	Analyses requested (code+name) Quotation nÂ° HASZ1624000988 PNW0Q: Metals 7 (As, Cd, Cr, Cu, Ni, Pb, Zn) NW08G: Soil/other solids preparation <u>Estimated date of results :</u> 09/08/2025

Thank you and best regards
Frances Gilvray

EUNZAU
00813639
Order



051-32762-945261-93

[illegible]

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Date/Time:

Chilled:

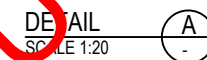
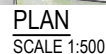
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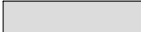
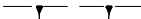
Correction:

Final Temp:

Yes / No

5.6



- | | |
|---|----------------------------------|
|  | CONCRETE PAD AREA |
|  | EARTHWORKS AREA |
|  | EARTHWORKS BATTER |
|  | PAD FINISHED SURFACE LEVEL |
|  | PROPOSED CATCH DRAIN |
|  | PROPOSED RETAINING WALL |
|  | PROPOSED DRAINAGE PIPE |
|  | PROPOSED WATER PIPELINE |
|  | PROPOSED COMMS CONDUIT |
|  | PROPOSED SLUDGE POND OUTLET PIPE |
|  | FALL OF LOT |
|  | EXISTING CONTOUR (0.2m INTERVAL) |
|  | EXISTING DRAIN |
|  | EXISTING LOT BOUNDARY |

4.00

24.60

BDY

TIMBER POST RETAINING WALL OR APPROVED EQUIVALENT

FINISHED SURFACE LEVEL

5.00

EXISTING SURFACE

CATCH DRAIN MIN 0.3 DEEP WITH 1 IN 4 SIDE SLOPES

APPROX. EXISTING FLOOD LEVEL: RL 6.75

600 WIDE CATCH DRAIN ALONG TOP OF WALL

NEW DRAINAGE PIPE 375 (RCP SHOWN)

EFFLUENT PIPE 200NB

EARTHWORKS FILL

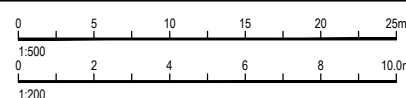
POND OVERFLOW PIPE 300NB

TYPICAL SECTION

SECTION 1
SCALE 1:200



A	20.08.25	RC		DRAFT - FOR REVIEW	
REV	DATE	DRWN	APP'D	DESCRIPTION	



12-16 Nicholls | n | Parnell, Auckland 1010 | New Zealand | T +64 9 9928 5500 | www.jacobs.co

PROJECT DATUMS
H: NZTM
V: NZDG2000

REVIEWED	
DATE	

EV	
A	