

# 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 Schedule 4). 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
- Fast Track Land Use\*
- Subdivision
- Consent under National Environmental Standard  
(e.g. Assessing and Managing Contaminants in Soil)
- Other (please specify) \_\_\_\_\_
- Discharge
- Change of Consent Notice (s.221(3))
- Extension of time (s.125)

\* *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 Te Hono at Far North District Council [tehonosupport@fndc.govt.nz](mailto:tehonosupport@fndc.govt.nz)

## 5. Applicant Details

**Name/s:**

Reena Veralyne Kainamu

**Email:**

**Phone number:**

**Postal address:**

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

## 6. Address for Correspondence

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

**Name/s:**

Reena Veralyne Kainamu

**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.*

## 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:**

Reena Veralyne Kainamu

**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.

## 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
- Changing the use of a piece of land
- Disturbing, removing or sampling soil
- Removing or replacing a fuel storage system

## 13. 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

## 13. Draft Conditions:

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

If yes, do you agree to extend the processing timeframe pursuant to Section 37 of the Resource Management Act by 5 working days?  Yes  No

## 14. 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)

Reena Veralyne Kainamu

**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)

Reena Veralyne Kainamu

**Signature:**

(signature of bill payer)

**Date** 05-May-2026

**MANDATORY**

## 15. 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](http://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.

## 15. Important information continued...

### Declaration

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

**Name:** (please write in full)

Reena Veralyne Kainamu

**Signature:**

[Redacted Signature]

**Date** 05-May-2026

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

### Checklist (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.

# Resource Consent Application under National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health 2011 (NESCS).

May 2026

## 35C Tawanui Road, Kaikohe



Figure 1: 35C Tawanui Road, Kaikohe

## 1. Application and Property details

Applicant:	Reena Kainamu c/o NZ Environmental Management
Address for Service:	460 Kerikeri Road, Kerikeri
Legal Description:	Lot 20 DP 389986
Site Area:	660m2
Owner of Site:	Reena Verilynne Kainamu
Occupiers of Site:	NA

## 2. Information Requirement

This application has been prepared in accordance with the requirements of Schedule 4 of the Resource Management Act 1991 ('the Act') having particular regard to the relevant matters in the following documents;

- National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health 2011 (NESCS).
- The Assessment of Environmental Effects refers to the following:
- Appendix A – Detailed Site Investigation and Remediation Action Plan, NZ Environmental Management, March 2026
- Appendix B – Draft Consent Conditions

## 3. Background

The site is located at 35C Tawanui Road, Kaikohe and has the legal description of Lot 20 DP 389986. The owner proposes to build a residence on the site. The building consent process identified that the site was originally part of a larger property used as a plant nursery. Consequently, the site is within Hazardous Activity and Industry List (HAIL) category A10 and is land covered under Regulation 5 of the NESCS.

The proposed residential use is a change of land use activity under NESCS regulation 5(6). A detailed site investigation (DSI) determined that soil contamination exceeded the standard in regulation 7. Consequently, the change of use and associated remediation is a Restricted Discretionary Activity pursuant to regulation 10(2). A DSI and Remediation Action Plan (RAP) have been provided with this resource consent application and are referenced as Appendix A.

## 4. The Site and Surrounding Environment

The site is located at 35C Tawanui Road, Kaikohe and has the legal description of Lot 20 DP 389986. A copy of the record of title is provided in Appendix H of the DSI (see Appendix A). The site currently contains a temporary residence (see title page photo). The FNDP zoning is Residential. The PDP zoning is General Residential. There are no overlays or notations (see Figure 2Figure 1 below).



Figure 2: The site is zoned Residential/General Residential

The site is not the subject of any Regional Plan overlays or mapped hazards. The NRC selected landuse register records an adjacent verified HAIL site remediated and suitable for landuse (see Figure 3).

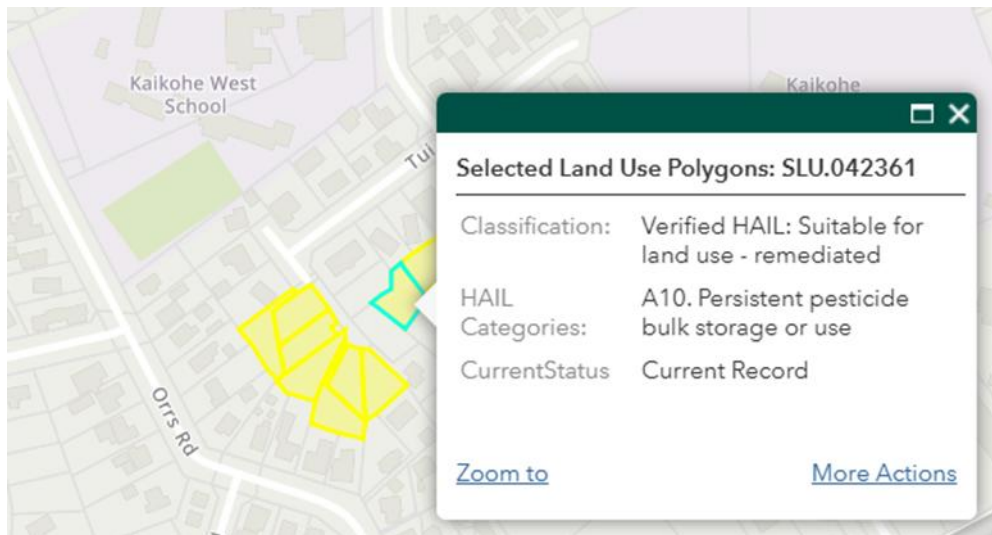


Figure 3: Selected Land-use Register accessed 24.04.26. Subject site adjacent to verified HAIL A10 site.

The receiving environment is residential in character and adjacent properties have already been developed for housing.

### 5. The proposal

It is proposed to remediate the site as per the Remediation Action Plan contained in the DSI (Appendix A). Remediation will require the removal of approximately 10m<sup>3</sup> of soil from within the Control Area (see Figure 4 below). This will consist of excavation and relocation to authorised landfill. This proposed activity is the most effective way to manage the small volume of contaminated soil in this location.



Figure 4: Control Area for Remediation

## 6. Reason for Application

### 6.1. Resource Management Act 1991 (RMA)

The following sections of the RMA are relevant to the proposed activities:

- Section 9(1)(a) - No person may use land in a manner that contravenes a national environmental standard unless the use is expressly allowed by a resource consent.

The proposed change of land use is not a permitted activity under the NESCS.

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

The owner proposes to build a residence on the site. The building consent process identified that the site was originally part of a larger property used as a plant nursery. Consequently, the site is within Hazardous Activity and Industry List (HAIL) category A10 and is land covered under Regulation 5 of the NESCS.

The proposed residential use is a change of land use activity under NESCS regulation 5(6). A detailed site investigation (DSI) determined that soil contamination exceeded the standard in regulation 7. Consequently, the change of use and associated remediation is a Restricted Discretionary Activity pursuant to regulation 10(2). A DSI and Remediation Action Plan (RAP) have been provided with this resource consent application and are referenced as Appendix A.

## 7. Assessment of Environmental Effects

This assessment of environmental effects (AEE) provides the information required by regulation 10 of the NESCS and is commensurate with the scale of the proposed activity. Regulation 10 states the matters of discretion to be assessed (see below).

### 10 Restricted discretionary activities

- (1) This regulation applies to an activity described in any of [regulation 5\(2\) to \(6\)](#) on a piece of land described in [regulation 5\(7\)](#) or (8) that is not a permitted activity or a controlled activity.
- (2) The activity is a restricted discretionary activity while the following requirements are met:
  - (a) a detailed site investigation of the piece of land must exist:
  - (b) the report on the detailed site investigation must state that the soil contamination exceeds the applicable standard in [regulation 7](#):
  - (c) the consent authority must have the report:
  - (d) conditions arising from the application of subclause (3), if there are any, must be complied with.
- (3) The matters over which discretion is restricted are as follows:
  - (a) the adequacy of the detailed site investigation, including—
    - (i) site sampling:
    - (ii) laboratory analysis:
    - (iii) risk assessment:
  - (b) the suitability of the piece of land for the proposed activity, given the amount and kind of soil contamination:
  - (c) the approach to the remediation or ongoing management of the piece of land, including—
    - (i) the remediation or management methods to address the risk posed by the contaminants to human health:
    - (ii) the timing of the remediation:
    - (iii) the standard of the remediation on completion:
    - (iv) the mitigation methods to address the risk posed by the contaminants to human health:
    - (v) the mitigation measures for the piece of land, including the frequency and location of monitoring of specified contaminants:
  - (d) the adequacy of the site management plan or the site validation report or both, as applicable:
  - (e) the transport, disposal, and tracking of soil and other materials taken away in the course of the activity:
  - (f) the requirement for and conditions of a financial bond:
  - (g) the timing and nature of the review of the conditions in the resource consent:
  - (h) the duration of the resource consent.

#### Adequacy of DSI

A DSI has been drafted by NZ Environmental and provided to the consent authority with this application (see Appendix A). The DSI has been conducted in accordance with Ministry for Environment (MFE) Guidelines for assessing and managing contaminated soil. The site sampling, laboratory analysis and risk assessment are provided in sections 6, 7 and 8 of the DSI.

#### Suitability of the Land

The site is zoned residential. Remediation has been successful on adjacent sites. Pursuant to regulation 10(3)(b) – given the small volume and type of soil contamination it is recommended that the piece of land is suitable for the activity (residential build) if appropriate remediation and validation of soil within the Control Area is undertaken.

#### Remediation Management and Validation Monitoring

Pursuant to regulation 10(3)(c) and (d), Section 15 of the DSI outlines the remediation methodology and Section 16 states the validation methodology. The following site validation method is proposed:

- Validation sampling on the excavated/cleared surface will be carried out to ensure that soil contamination has been removed and the concentration of arsenic in the control area is within: Residential 10% produce guideline values.

- If the remediation area allows, for statistical robustness, validation should include the collection of at least eleven samples including one duplicate. The samples will be tested by the laboratory for total recoverable arsenic.
- If it is found that the concentration of arsenic following remediation is still above the applicable standard, then further remediation or management should be carried out to manage the risk.
- Results will be reported to council in a Site Validation Report (SVR).

### Transport and Disposal

Pursuant to Regulation 10(3)(e) the site work, transport and disposal will be carried out in accordance with the Site Management Plan provided as Appendix K of the DSI. Receipts from the authorised landfills can be provided to the consent authority.

#### 7.1. Adverse Effects Assessment Summary

The potential adverse effects of the proposed activity have been assessed with reference to the relevant NESCS matters of discretion and technical advice from a suitably qualified and experienced person.

Subject to compliance with the draft remediation plan, site management plan, and validation strategy, 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. Draft consent conditions are provided in Appendix B of this report.

## 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 considered the adverse effects on the environment would be less 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 provisions of the NESCS have been assessed and the proposed activity is consistent with Part 2.

### 8.3. 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 relevant matters of discretion from the NESCS have been assessed. There are no other relevant matters 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.
- 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.

## 10. Conclusion

It is proposed to remediate 35C Tawanui Road to enable residential use. Resource consent is sought as a restricted discretionary activity pursuant to regulation 10 of the NESCS.

The potential adverse effects of the proposed activity have been assessed with reference to the relevant NESCS matters of discretion and technical advice from a suitably qualified and experienced person.

Subject to compliance with the draft remediation plan, site management plan, and validation strategy prepared by NZ Environmental, 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.

**Appendix A – Detailed Site Investigation & Remediation Action Plan, 35C  
Tawanui Road, Kaikohe, NZ Environmental Management, 30.03.2026.**

See DSI/RAP document provided with application

## Appendix B – Proposed Consent Conditions

1. The consent holder shall undertake the proposed remediation works in accordance with Detailed Site Investigation & Remediation Action Plan prepared by NZ Environmental dated 30.03.2026 (ref # NZEM2026.J202.DSI\_35C\_Tawanui\_Road).
2. Upon completion of the remediation works the consent holder shall provide for the approval of Council's Resource Consents Manager or duly delegated officer a Site Validation Report (SVR) prepared by a SQEP. The SVR report shall confirm that arsenic contaminant levels where remediation works have taken place are compliant with the Residential 10% produce guideline values. All testing shall be undertaken in accordance with guidelines set out within Contaminated Land Management Guideline No. 5.
3. The SVR shall include the following, where applicable, but not necessarily limited to:
  - (a) Conditions of the final site ground surface.
  - (b) Volume and nature of any soil removed from site, including disposal docket to confirm it has been removed to a suitably licensed facility.
  - (c) Any complaints or incidences during works.
  - (d) A log of any unknown or suspicious materials encountered during the earthworks.
  - (e) An ongoing site monitoring and management plan (SMMP) and location details, if contaminated soils are being managed on site.
  - (f) Full analytical results for residual soil contamination.



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



  
R.W. Muir  
Registrar-General  
of Land

**Identifier** **361095**  
**Land Registration District** **North Auckland**  
**Date Issued** 26 March 2010

**Prior References**

NA2C/539                NA9D/80

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**Estate**                    Fee Simple  
**Area**                     660 square metres more or less  
**Legal Description**    Lot 20 Deposited Plan 389986  
**Registered Owners**  
Reena Veralyne Kainamu

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**Estate**                    Fee Simple - 1/4 share  
**Area**                     466 square metres more or less  
**Legal Description**    Lot 32 Deposited Plan 389986  
**Registered Owners**  
Reena Veralyne Kainamu

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**Interests**

8453488.8 Consent Notice pursuant to Section 221 Resource Management Act 1991 (affects Lot 20 DP 389986) - 26.3.2010 at 1:12 pm

Subject to Section 241(2) Resource Management Act 1991 (affects DP 389986)

Subject to a right (in gross) to convey electricity over Lot 32 DP 389986 herein in favour of Top Energy Limited created by Easement Instrument 8453488.11 - 26.3.2010 at 1:12 pm

The easements created by Easement Instrument 8453488.11 are subject to Section 243 (a) Resource Management Act 1991

Subject to a right (in gross) to convey telecommunications and computer media over Lot 32 DP 389986 herein in favour of Telecom New Zealand Limited created by Easement Instrument 8453488.12 - 26.3.2010 at 1:12 pm

Some of the easements created by Easement Instrument 8453488.12 are subject to Section 243 (a) Resource Management Act 1991

Subject to a right (in gross) to convey water over Lot 32 DP 389986 herein in favour of the Far North District Council created by Easement Instrument 8453488.13 - 26.3.2010 at 1:12 pm

The easements created by Easement Instrument 8453488.13 are subject to Section 243 (a) Resource Management Act 1991

Subject to a right (in gross) to drain stormwater over Lot 32 DP 389986 herein in favour of the Far North District Council created by Easement Instrument 8453488.14 - 26.3.2010 at 1:12 pm

The easements created by Easement Instrument 8453488.14 are subject to Section 243 (a) Resource Management Act 1991

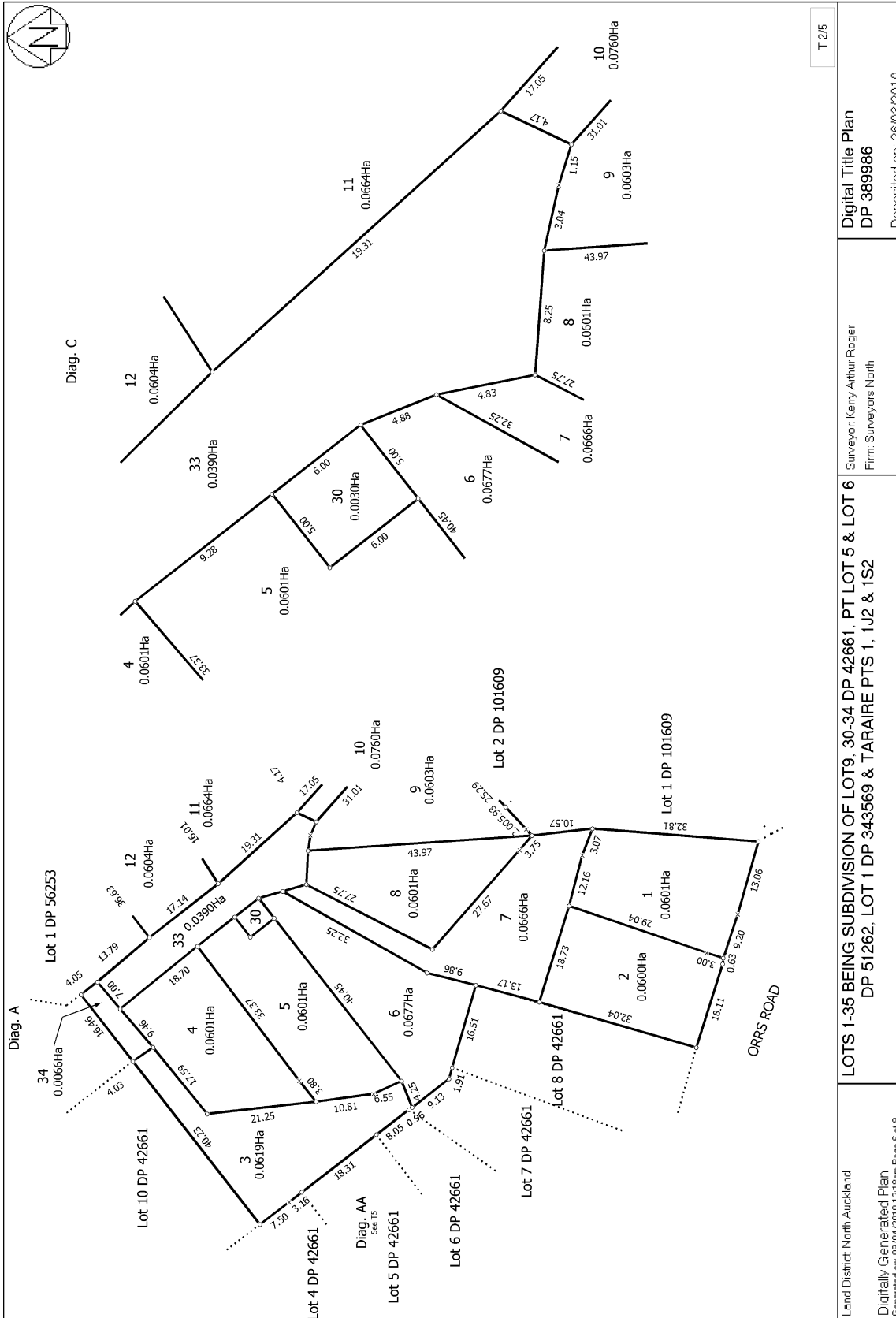
Subject to a right (in gross) to drain sewage over Lot 20 DP 389986 herein marked L on DP 389986 in favour of the Far North District Council created by Easement Instrument 8453488.16 - 26.3.2010 at 1:12 pm

The easements created by Easement Instrument 8453488.16 are subject to Section 243 (a) Resource Management Act 1991

Land Covenant in Easement Instrument 8453488.18 - 26.3.2010 at 1:12 pm

Fencing Covenant in Easement Instrument 8453488.18 (affects Lot 20 DP 389986) - 12.4.2010 at 9:00 am





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Digital Title Plan  
DP 389986

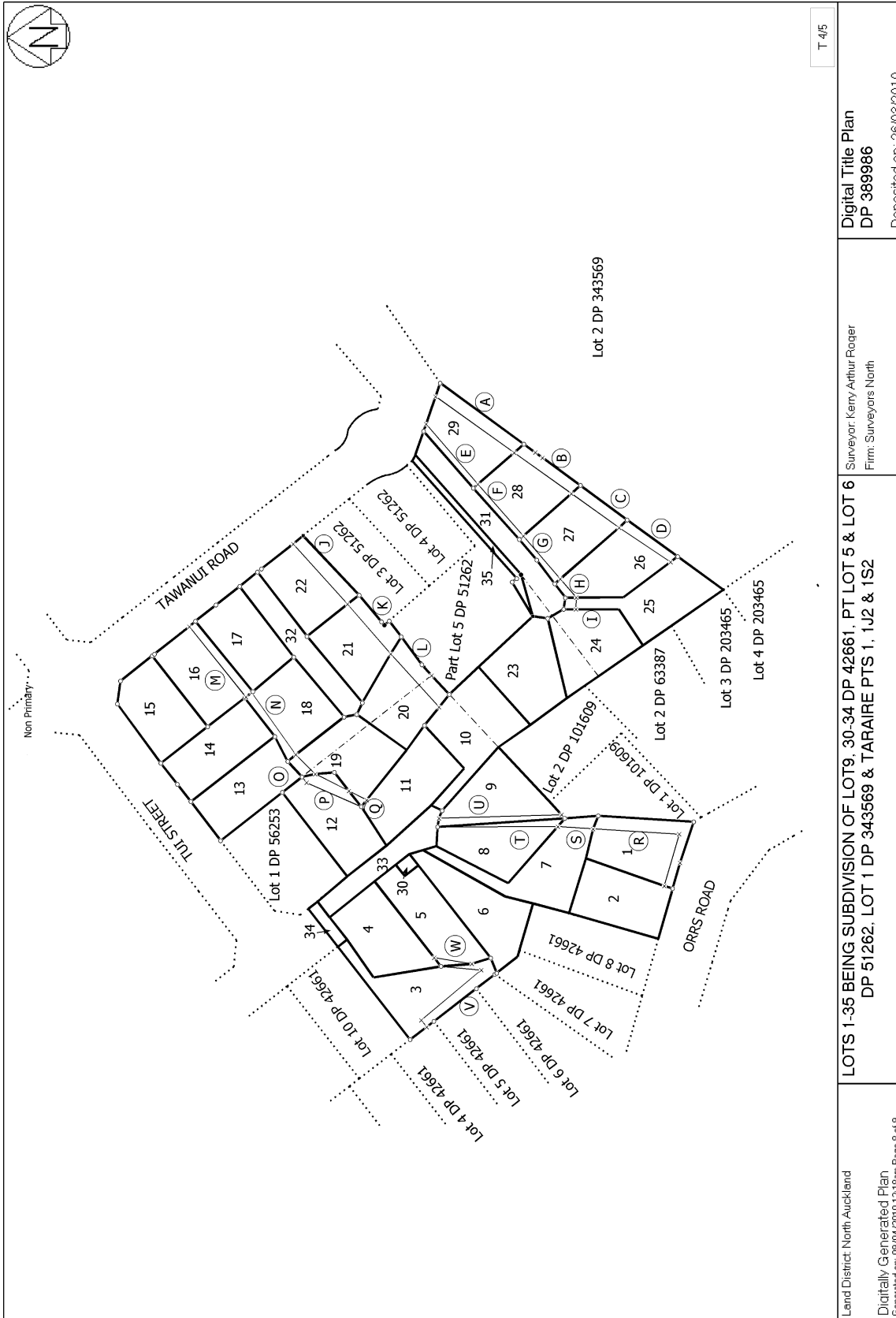
Surveyor: Kerry Arthur Rogier  
Firm: Surveyors North

LOTS 1-35 BEING SUBDIVISION OF LOTS 30-34 DP 42661, PT LOT 5 & LOT 6  
DP 51262, LOT 1 DP 343569 & TARAIRE PTS 1, 1J2 & 1S2

Land District: North Auckland  
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Deposited on: 28/03/2010





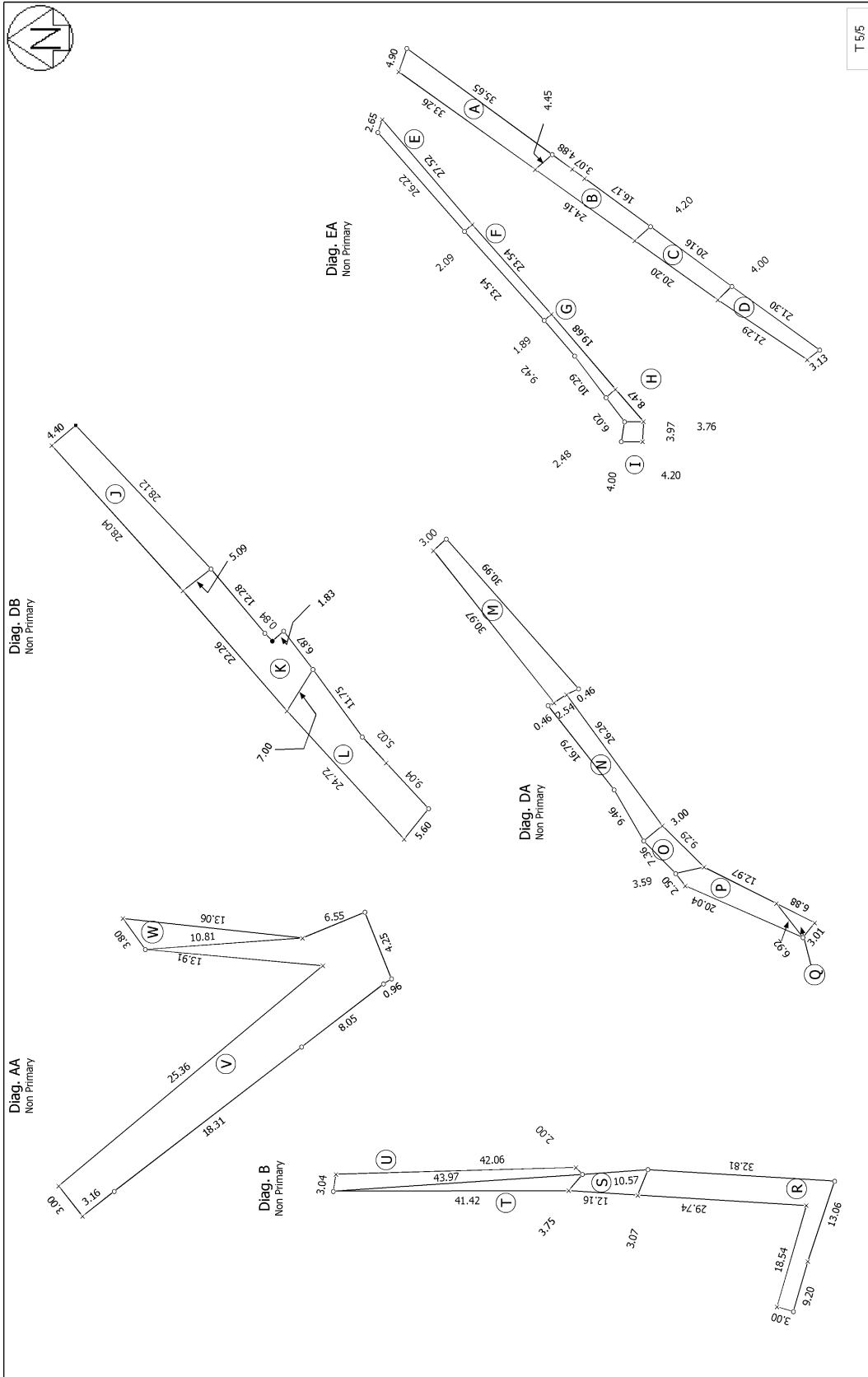
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Digital Title Plan  
DP 369986  
Deposited on: 26/03/2010

Surveyor: Kerry Arthur Rogier  
Firm: Surveyors North

LOTS 1-35 BEING SUBDIVISION OF LOTS 30-34 DP 42661, PT LOT 5 & LOT 6  
DP 51262, LOT 1 DP 343569 & TARAIRE PTS 1, 1J2 & 1S2

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Land District: North Auckland  
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Diag. AA  
Non Primary

Diag. B  
Non Primary

Diag. DA  
Non Primary

Diag. DB  
Non Primary

Diag. EA  
Non Primary

Surveyor: Kerry Arthur Rogier  
Firm: Surveyors North

LOTS 1-35 BEING SUBDIVISION OF LOTS 30-34 DP 42661, PT LOT 5 & LOT 6  
DP 51262, LOT 1 DP 343569 & TARAIRE PTS 1, 1J2 & 1S2

Digital Title Plan  
DP 369986

Deposited on: 26/03/2010

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Prepared for Dr R Kainamu

# Detailed Site Investigation & Remediation Action Plan

## 35C Tawanui Road, Kaikohe

Report NZEMJ202.DSI\_35C\_Tawanui\_Rd. Draft

## TABLE OF CONTENTS

## SECTIONS

<b>1.</b>	<b>EXECUTIVE SUMMARY DETAILED SITE INVESTIGATION .....</b>	<b>1-1</b>
<b>2.</b>	<b>INTRODUCTION .....</b>	<b>2-1</b>
2.1	INVESTIGATION OBJECTIVES .....	2-1
2.2	INVESTIGATION SCOPE .....	2-1
2.3	SITE IDENTIFICATION .....	2-2
2.4	PROPOSED SITE USE.....	2-2
<b>3.</b>	<b>SITE DESCRIPTION AND ENVIRONMENTAL SETTING .....</b>	<b>3-3</b>
3.1	SITE INSPECTION .....	3-3
3.2	SURROUNDING LANDUSE .....	3-3
<b>4.</b>	<b>GEOLOGY AND HYDROLOGY.....</b>	<b>4-4</b>
<b>5.</b>	<b>HISTORICAL SITE USE .....</b>	<b>5-5</b>
5.1	SUMMARY OF SITE HISTORY .....	5-5
<b>6.</b>	<b>SAMPLING AND ANALYSIS PLAN SUMMARY.....</b>	<b>6-8</b>
6.1	SAMPLING DESIGN PLAN .....	6-8
6.2	FIELD AND LABORATORY QUALITY ASSURANCE/QUALITY CONTROL .....	6-9
<b>7.</b>	<b>SAMPLING RESULTS .....</b>	<b>7-10</b>
7.1	SOIL SAMPLING AND FIELD OBSERVATIONS .....	7-10
7.2	BASIS FOR GUIDELINE VALUES .....	7-10
7.3	BACKGROUND CONCENTRATIONS .....	7-10
7.4	RESULTS .....	7-11
7.5	STATISTICAL ANALYSIS OF RESULTS .....	7-13
7.6	HOTSPOT CHARACTERISATION.....	7-13
<b>8.</b>	<b>SOIL DISTURBANCE AND DISPOSAL .....</b>	<b>8-14</b>
<b>9.</b>	<b>RISK ASSESSMENT .....</b>	<b>9-15</b>
9.1	CONCEPTUAL SITE MODEL .....	9-15
9.2	CHARACTERISATION OF POTENTIAL PATHWAYS .....	9-15
9.3	CONTAMINANT CHARACTERISATION AND PROBABILITY .....	9-15
9.4	RISK SUMMARY .....	9-16
<b>10.</b>	<b>DISCUSSION .....</b>	<b>10-1</b>
<b>11.</b>	<b>CONCLUSION .....</b>	<b>11-2</b>
<b>12.</b>	<b>REMEDIATION ACTION PLAN EXECUTIVE SUMMARY .....</b>	<b>12-1</b>
<b>13.</b>	<b>INTRODUCTION .....</b>	<b>13-2</b>
13.1	SCOPE OF WORK – SITE DESCRIPTION .....	13-2
13.2	REPORT PURPOSE.....	13-2

13.3	REGULATORY CONTEXT .....	13-2
<b>14.</b>	<b>SCOPE AND PURPOSE OF REMEDIATION .....</b>	<b>14-3</b>
14.1	SUMMARY OF CONTAMINATION .....	14-3
14.2	REMEDICATION STRATEGY AND OBJECTIVES.....	14-3
14.3	SUMMARY OF REMEDIATION OPTIONS .....	14-3
<b>15.</b>	<b>REMEDICATION METHODS.....</b>	<b>15-4</b>
15.1	PROPOSED REMEDIATION METHOD .....	15-4
15.2	PROPOSED TIMING OF THE REMEDIATION (SCHEDULE OF WORKS).....	15-4
15.3	PROPOSED MITIGATION METHODS AND/OR CONTROLS .....	15-4
15.4	PROPOSED CONTAMINATION MANAGEMENT MEASURES.....	15-5
15.5	PROPOSED REMEDIATION ACTIVITY RECORD KEEPING .....	15-5
<b>16.</b>	<b>STANDARD OF REMEDIATION .....</b>	<b>16-6</b>
16.1	PROPOSED STANDARD OF REMEDIATION ON COMPLETION .....	16-6
16.2	PROPOSED SITE VALIDATION STRATEGY AND METHODS.....	16-6
<b>17.</b>	<b>UNEXPECTED DISCOVERY PROTOCOL .....</b>	<b>17-7</b>
<b>18.</b>	<b>REPORT LIMITATIONS.....</b>	<b>18-8</b>
<b>19.</b>	<b>SQEP CERTIFICATION OF REPORT .....</b>	<b>19-9</b>
<b>20.</b>	<b>BIBLIOGRAPHY AND REFERENCES.....</b>	<b>20-10</b>
<b>21.</b>	<b>GLOSSARY .....</b>	<b>21-12</b>
<b>22.</b>	<b>APPENDICES.....</b>	<b>22-13</b>
22.1	APPENDIX A: FIGURES .....	22-13
22.2	APPENDIX B: CONCEPTUAL SITE MODEL.....	22-20
22.3	APPENDIX C: AERIAL PHOTOGRAPHS AND DOCUMENTATION.....	22-22
22.4	APPENDIX D: CONTEMPORARY SITE PHOTOGRAPHS .....	22-29
22.5	APPENDIX E: SUPPORTING TABLES AND DOCUMENTS.....	22-31
22.6	APPENDIX F: NRC SELECTED LAND USE REGISTER & FNDC PROPERTY FILE.....	22-35
22.7	APPENDIX G: LABORATORY RESULTS AND CHAIN OF CUSTODY .....	22-37
22.8	APPENDIX H: PROPERTY TITLE .....	22-42
22.9	APPENDIX I: SAMPLING AND ANALYSIS PLAN .....	22-50
22.10	APPENDIX J: STATEMENT OF QUALIFICATION AS A SQEP .....	22-52
22.11	APPENDIX K: DRAFT SITE MANAGEMENT PLAN.....	22-53

**DOCUMENT CONTROL**

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# 1. Executive summary Detailed Site Investigation

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The property is located at 35C Tawanui Road, Kaikohe and has the legal description of Lot 20 DP 389986.

The property was originally part of a larger property used as a plant nursery. All of the property would be assessed as the 'Piece of Land'. The HAIL category considered were:

- A10 - Persistent pesticide bulk storage or use including sport turfs, market gardens, orchards, glass houses or spray sheds.
- I - Any land that has been subject to the intentional or accidental release of a hazardous substance in sufficient quantity that it could be a risk

Category A10 was found to be applicable.

This report goes to inform a building consent application and any earthwork requirements. The use of the site for residential living would be considered a change of land use.

Stratified sampling was carried out across the whole Site. Judgemental sampling identified contamination which was characterised using systematic sampling.

Minimal earthworks will be required for the build, as the house will be moved pre-built onto the Site and services are existing.

A review of conceptual site model shows the source – pathway – receptor linkage to be complete within a small (<5% of the Site area) Control Area where arsenic contamination was characterised as being present above guideline values.

A Remediation Action Plan is appended to this report. A separate executive summary is provided in that section.

## 2. Introduction

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### 2.1 Investigation Objectives

NZ Environmental Management Ltd (NZEM) was engaged by the landowner to undertake a Detailed Site Investigation (DSI) at 35C Tawanui Road, Kaikohe to support a building application on the Site.

The DSI seeks to assess whether past or present land use activities may have resulted in soil contamination that could pose a risk to human health or the environment in accordance with the National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health (NESCS, 2011).

Specifically, the investigation aims to:

- Identify past and present land uses to determine the likelihood of hazardous activities and industries (HAIL activities) occurring on-site.
- Assess the presence and potential sources of contaminants of interest (COI) related to historical and current chemical or hazardous material use.
- Characterise the location, nature, extent, and potential risk of any contamination.
- Assess whether the Site is suitable for its intended future land use within the context of the NESCS guidelines.
- Evaluate whether further investigation, remediation, or management measures (e.g., Site Management Plan (SMP)) are necessary.

### 2.2 Investigation scope

To achieve the objectives, the scope of this investigation comprised the following:

Objective	Actions Undertaken
<b>Review of historical records</b>	Examination of available aerial photographs and property records to identify potential HAIL activities.
<b>Regulatory database review</b>	Review of the Northland Regional Council (NRC) Selected Land Use Register (SLR) and other publicly available sources to identify records of potential historical contamination, as well as soil and hydrogeological conditions.
<b>Site inspection and sampling</b>	A site walkover was conducted to observe current conditions, alongside the collection of soil samples in accordance with nationally recognised guidelines and the rationale outlined in this report.
<b>Laboratory analysis</b>	Collected soil samples were analysed for contaminants of interest (COIs), based on identified site history and potential contamination sources.
<b>Data evaluation</b>	Laboratory results were reviewed to determine the presence and concentration of contaminants.
<b>Conceptual Site Model (CSM) development</b>	A Conceptual Site Model was developed to assess contaminant sources, pathways, potential receptors, and associated risks.

This DSI report is based on the proposed building plan provided by the landowner at the time of an initial investigation in 2023. Sampling locations were identified as per the site layout plan (Appendix A, Figure 1 Original site plan Figure 1 ). The site plan was updated in 2026 (Appendix A, Figure 2) and the sample locations are still considered to be representative of the intended land use at the Site.

### **2.3 Site identification**

The property is legally described as Lot 20 Deposited Plan 389986 with the certificate of title identifier 361095. The property is located at 35C Tawanui Road with approximate coordinates of: -35.408074° 173.793110°.

The 660m<sup>2</sup> property is located at the south-west end of Tawanui Road in Kaikohe, and is listed by the Far North District Council as having *Residential* zoning.

The rohe map on Te Puni Kokiri shows the location of the property as being within the Nga Puhi rohe.

Aerial photographs are given in Appendix C.

Certificate of Title is given in Appendix H.

### **2.4 Proposed site use**

It is proposed to relocate a new pre-built 55m<sup>2</sup> home onto the Site (Appendix A, Figure 2).

For the purposes of this DSI the portion the whole site was considered a piece of land.

## 3. Site Description and Environmental Setting

---

Lot 20 DP 389986 has an irregular shape and has flat to gently rolling topography. All boundaries are fenced with new 6-foot timber fences.

### 3.1 Site Inspection

A site inspection (walkover) was carried out by H Windsor on 10 July 2023. Weather conditions at the time of inspection were overcast with passing showers. Photographs were taken and shown in Appendix D.

The entrance to the property is at the end of Tawanui Road and located in the northern corner of the section. The property is currently maintained by a commercial property management company.

No surface drainage features were observed. A town sewer runs under the eastern side of the property. Tawanui Road has kerb and channeling for stormwater.

No staining or odour was noted during the site visit

### 3.2 Surrounding Landuse

The neighbouring land use is Residential.

## 4. Geology and Hydrology

**Table 1: Site geology and hydrology.**

Parameter	Description	Source
Soil Type	Orthic Allophanic soil mapped as Kiripaka boulder silt loam	<i>soils-maps.landcareresearch.co.nz , nrcgis.maps</i>
Parent rock	Kerikeri volcanics basalt	<i>data.gns.cri.nz/geology</i>
Contour	Flat to gently rolling	
Drinking water	Town supply	
Aquifer	Kaikohe	<i>data.gns.cri.nz/geology</i>
Catchment	Waima	<i>data.gns.cri.nz/geology</i>
Closest water body	Tributary of Mangamutu Stream located 390m to North	<i>data.gns.cri.nz/geology</i>
Groundwater wells	Closest; 41m to west of Site (LOC.203172) static water level 21.9m bgl	<i>data.gns.cri.nz/geology</i>
Flood Risk	Not impacted by 1:100 flood event (Appendix A)	<i>data.gns.cri.nz/geology</i>
Erosion Risk	According to NRC maps the land is not erosion prone <sup>1</sup>	<i>nrc.govt.nz/localmapsviwer</i>

.

<sup>1</sup>

<https://localmaps.nrc.govt.nz/localmapsviwer/?map=79f54a18dcae4fbd9e1cf774aa2de871#>

## 5. Historical Site Use

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### 5.1 Summary of Site History

The history of the land was obtained by reviewing council property files, aerial photographs, and title information and from discussions with the current and past landowners, and neighbours.

Information regarding the title information is summarised in Appendix Table 12. Aerial photographs are provided in Appendix C.

The title history has the registered owner of the property as Johnsons Plant's Ltd from 1963 until 2010.

Mr S J Johnson started the nursery business after he moved to Kaikohe in 1929. Two glasshouses and a small plant nursery were established by 1937 and Mr Johnson sold "fruit, vegetables and some plants" in a building opposite the post office in Kaikohe (Appendix E, Figure 13).

Mr Johnson's two sons further developed the nursery. In a photograph taken in 1969 a much larger area can be seen covered in crops and glasshouses including glasshouses over the area of Lot 20 (Appendix C, Figure 8). The FNDC file did not include information about any buildings. No other information is known about the crops grown and management prior to 1996.

Maurice Macken was the owner of the Johnson's nursery from 1996 until 2005. During Mr Macken's ownership, the glasshouses located on Lot 20 grew a variety of vegetable and ornamental seedlings.

The area where Lot 20 is now located was formerly covered in glasshouses for raising flowers and vegetables. The floors under the glasshouses were concrete and the structures were constructed out of steel and fibreglass. The glasshouses were dismantled and sold in ~2007. The purchaser tested the structures for asbestos with none reported<sup>2</sup>.

Maurice Macken described the management practice of the nursery as minimal spray and/or chemical use. Those that were used were the type to be bought "off the shelf" from a garden centre such as slug pellets. A shed for storage of chemicals was located approximately 40m to the west of the location of Lot 20 (Appendix A,).

The plant nursery was decommissioned and the buildings on the site were removed or demolished with materials including the concrete floors removed from the location. The land was subdivided into several smaller lots including Lot 20 in 2010.

Since taking over ownership of the property in January 2021, the owner has used a contractor to maintain the property. Spraying has occurred in the driveway area for weed control (pers. comm. R. Kainamu (the land owner)). A summary of land use history is shown in Appendix E, Table 7.

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<sup>2</sup> Maurice Macken history provided in NZEM PSI 35A Tawanui Road, Report 2019 324

No incidents were lodged against this property in the NRC property file when queried in July 2023 (Appendix F), since that time the landowner (who lives on the property) has reported land use has been exclusively residential with no environmental incidents occurring. A review of aerial photos indicates no other land use in this time.

The Site is not listed on the NRC selected land use register, however three other properties located in Tawanui Road with the same land use history are listed under category A10.

NZ Environmental has investigated three other properties in Tawanui Road.

A Preliminary Site Investigation on 35A Tawanui Road, Kaikohe was undertaken in 2019 (Job 2020 324). Soil sampling was undertaken. The report concluded that *it is highly unlikely that residential use (currently zoned residential) and the associated soil disturbance would pose a risk to human health.*

A Preliminary Site Investigation and Detailed Site Investigation was carried out on 35E Tawanui Road, Kaikohe in 2019 (Job 2019 336). Soil sampling was undertaken. The DSI report concluded that *it is highly unlikely that residential use (currently zoned residential) and the associated soil disturbance would pose a risk to human health.*

A Detailed Site Investigation was carried out at 35B Tawanui Road, Kaikohe in 2020 (Job 2020 375). Soil sampling was undertaken and arsenic contamination was identified attributable to the stacking of demolition rubbish in this location during the decommissioning of the plant nursery. Remediation by soil removal to landfill was carried out with site validation certifying remaining soils on site complied with residential 10% guideline values.

### **5.1.1 Potential HAIL activity considered**

As a result of historic land uses on the property, the potential HAIL activities considered in this DSI were:

- *A10 – Persistent pesticide bulk storage or use including sport turfs, market gardens, orchards, glass houses or spray sheds, and*
- *I – Any land that has been subject to the intentional or accidental release of a hazardous substance in sufficient quantity that it could be a risk*

### **5.1.2 Preliminary Sampling**

Preliminary sampling was not carried out, however analysis of the collected soil samples was carried out in two stages to establish if the investigation would warrant a preliminary or detailed site investigation.

- This method was chosen as it was known that arsenic contamination on the neighbouring property (35B Tawanui Road) was identified at the shared boundary with potential for the contamination to extend to this Site.
- Judgemental samples (2401 – 2408) were collected over the whole site and analysed as composites. The returned results indicated that arsenic contamination was likely present at the boundary area and some of these samples were analysed individually for arsenic.

- Systematic samples (2409 – 2420) were collected at the same time but only analysed once contamination was identified in judgemental samples. These samples included depth samples.

## 6. Sampling and analysis plan summary

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### 6.1 Sampling design plan

The 'Piece of Land' identified in this investigation includes all of the Site.

Sampling and analysis (of the identified contaminants of concern) was undertaken as part of the DSI. The aim of the sampling is to:

- determine the presence of and/or general extent of any soil contamination and the potential adverse impact of such contamination on human health, and
- obtain sufficient information to make an estimate of risk posed by contamination to human health.

As per NESCS 2012 requirements, standards only need to be developed for the contaminants of interest (COI) for the piece of land, given the activities and industries that have occurred or likely to have occurred. Based on the land use summary, the following NESCS priority contaminants were considered as potential COI for 35C Tawanui Road.

- Metals (including arsenic, cadmium and copper)
- Pesticides (including organochlorines (OCP's))

There were no indications of likely fuel storage in or around the Lot and as such hydrocarbons were not considered contaminants of interest (COI).<sup>3</sup>

NZEM utilise a qualitative screening approach to the selection of the COI that although does not guarantee that other hazardous substances are not present in the land, it does indicate a lower probability that those contaminants will occur in the soil (MfE 2011).

The land-use history obtained as part of this investigation indicates that potential contaminants would likely be heterogeneous in distribution and confined to the area of use.

- Stratified sampling was carried out on the Site due to the proximity of the property to the location of arsenic contamination identified in 2020 on neighbouring 35B Tawanui Road.
- Stratified sampling was utilised to inform the conceptual site model and the risk assessment.
- The Soil Investigation Design Plan is shown in Appendix I.
- Surface sampling was carried out using a stainless-steel spade (grab technique).
- Surface samples were collected from a depth of between 0-150mm.

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<sup>3</sup> Other potential COI such as BaP, dioxins and PCP were not considered applicable as orchards are not considered as one of the hazardous activities or industries such as timber treatment, coal fired power generation, chemical manufacture etc that are more normally associated with BaP, dioxins and PCP.

- Depth samples were collected at 0.3m, 0.4m and 0.5m below ground level using an auger, with some samples held pending results.
- Field screening techniques were not utilised.
- Background samples were not collected.

## 6.2 Field and laboratory Quality Assurance/Quality Control

To avoid cross contamination, disposable nitrile gloves were worn during sampling and changed between every sample. Sampling equipment was cleaned between each sample as per section 5.3 of MfE 2021, Contaminated Land Management Guidelines No 5.

The labelled samples were couriered to Hill Laboratories under chain of custody documentation (Appendix G). As per the contaminants of interest identified as part of the PSI, the laboratory was instructed, where applicable, to analyse the sample for NESCS metals and pesticides.

- Eight judgemental samples were collected and composited by the laboratory into four samples and tested for heavy metals.
- Two of the judgemental samples were composited by the lab onto one sample and tested for organochlorine pesticides.
- More pesticide samples were not collected due to previous pesticide screening which had been carried out at 35A, 35B and 35E Tawanui Road and that did not return results of concern.
- Ten additional systematic samples were collected and held pending results of judgemental sampling. Eight of the systematic samples were subsequently analysed for total recoverable arsenic.

Laboratory testing was carried out by Hills Laboratories Ltd. The lab is an NZS/ISO/IEC 17025:2017 accredited laboratory which incorporates the aspects of ISO 9000 relevant to testing laboratories. Original laboratory transcripts are attached to this report (Appendix G).

One duplicate was collected as part of this DSI. Sample 2413 was collected as a duplicate of sample 2412 however was not analysed by the laboratory as the client decided not to continue the investigation at that time. Samples are kept in storage for only two months by the laboratory in case re-analysis of the samples is required so could not be analysed at this time.

## 7. Sampling Results

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### 7.1 Soil sampling and field observations

A total of twenty samples were collected over the site. Samples were collected by H Windsor on the 13 July 2023. Samples were collected as stratified samples as per Soil Investigation Design Plan (Appendix I).

Soils were collected as per the plan. Eight judgemental samples were collected over the whole of the Site, with an additional ten (systematic) samples collected in the proximity to the North-west boundary. One duplicate and three depth samples were collected (some held pending laboratory results).

Sampling data including soil descriptions is given in Appendix E, Table 8.

### 7.2 Basis for guideline values

The laboratory results are compared to the Soil Contaminant Standards, ( $SCS_{\text{health}}$ ), at which exposure is judged to be acceptable because any adverse effects on human health for most people are likely to be no more than minor. The  $SCS_{\text{health}}$ , have been calculated for five generic land-use exposure types to reflect different land use scenarios.

The scenario used for assessing  $SCS_{\text{health}}$  in this DSI was: Residential land use, including home-grown produce consumption (10 percent). Applicable to a single dwelling with gardens (NES 2012).

$SCS_{\text{(health)}}$ , have two functions:

- 1) Health-based trigger values -  $SCS_{\text{health}}$ , represent a human health risk threshold above which:
  - a) The effects on human health may be unacceptable over time;
  - b) Further assessment of a site is required to be undertaken.
- 2) Remediation targets -  $SCS_{\text{health}}$ , represent the maximum concentrations of contaminants at or beneath which land is considered 'safe for human use' and the risk to people is considered to be acceptable.

### 7.3 Background concentrations

Predicted Background Concentration (PBC) estimates of the background concentration (mg/kg) of arsenic, cadmium, chromium, copper, lead, nickel and zinc across New Zealand are available by Landcare Research on the Land Resource Information Systems portal NZ<sup>4</sup>. The effective median, and 95th quantile is calculated based on geological unit classification (Appendix A, Table

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<sup>4</sup> <https://iris.scinfo.org.nz/layer/48470-pbc-predicted-background-soil-concentrations-new-zealand/>

4). For Northland, however the numbers of samples these values are based on are limited and the FNDC do not accept these background figures at this time.

More statistically robust background concentrations are available for volcanic soils for the Auckland region, and these are shown in Appendix A, Table 5.

## 7.4 Results

The laboratory tests undertaken show the concentrations of the selected NESCS analytes. The results are summarised in Table 2 below. All values are mg/kg dry weight. The laboratory report is given in Appendix G.

The laboratory results were compared to the NESCS 2012 soil contaminant standard values, at which exposure is judged to be acceptable because any adverse effects on human health for most people are likely to be no more than minor.

- A total of twenty samples were collected across the site, with three held pending results.
- When compared to the NESCS applicable guideline Residential 10% produce (2012), soil chemistry results were compliant for all COI except for total recoverable arsenic in three samples.

**Table 2: Summary of laboratory results**

	Total Recoverable Arsenic	Total Recoverable Cadmium	Total Recoverable Chromium	Total Recoverable Copper	Total Recoverable Lead	Total Recoverable Nickel	Total Recoverable Zinc	Dieldrin	Total Reported DDT Isomers
composite 2401, 2402	52	0.19	52	49	35	15	107		
composite 2403, 2404	10	0.17	47	33	27	12	111		
composite 2405, 2406	18	0.16	43	42	34	16	260		
composite 2407, 2408	11	0.18	30	35	33	15	187		
composite 2401, 2406								<0.015	0.10
2401	44								
2402	26								
2405	17								
2406	10								
2409	8								
2410	10								
2411	21								
2412	10								
2413									
2414	17								
2415	7								
2417	7								
2418 (0.3 depth under 2401)	20								
<b>NES Soil Guideline Values April 2012 Residential 10% produce</b>	20	3.0	460	>10000	210		310	3	70
<b>Puera Landfill acceptance Criteria</b>	100	20.00	100	100	100	200	200		

## 7.5 Statistical analysis of results

Eleven<sup>5</sup> of the returned results from the systematic sampling were used to calculate the mean, standard deviation and 95% concentration of arsenic in the soil (depth sample not included). This number was above the minimum number of samples required to identify a contaminant hotspot of radius 1 m within the 30m<sup>2</sup> area identified as contaminated (soil design plan Appendix I).

- The Soil Guideline Value (NESCS 2012) for arsenic applicable to the residential 10% scenario is 20 mg/kg.
- The average concentration of arsenic was 16.09 mg/kg (n=11) within the Control Area, below the applicable SGV of 20 mg/kg.
- The maximum concentration of arsenic was 44 mg/kg within the Control Area, more than twice the applicable SGV of 20 mg/kg.
- The 95% confidence level was 22.19 mg/kg above the applicable SGV of 20 mg/kg.
- The ProUCL statistical output is given in Appendix E, Table 10.

## 7.6 Hotspot characterisation

- Sampling identified an area of soil with elevated arsenic constrained to an ~30m<sup>2</sup> area located along the north-west boundary fence under an existing ornamental garden and driveway. This area was designated a Control Area.
- The source of the arsenic is likely from the uncovered storage of demolishing materials from the plant nursery buildings.
- The depth of arsenic contamination is < 0.3m.
- The volume of soil requiring remediation is calculated at 10m<sup>3</sup>.

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<sup>5</sup> Some of the judgmental samples fitted within the systematic sample grid and were used for statistical analysis.

## 8. Soil disturbance and disposal

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Soil Regulation 8(3) of the NESCS does allow for relatively small-scale soil disturbance that may occur on land, such as minor landscaping, foundation excavations, and replacement of underground services, to occur without the need for resource consent (MfE 2011). Providing the requirements around controlling exposure and disposal are met, the disturbance and removal of lower volumes of soil is considered a low-risk activity.

The NESCS requirements include:

- a) Controls are in place to minimise people's contact (for example, in dust or water) with the soil and kept in place until soil is reinstated
- b) Soil reinstated to erosion resistant state within 1 month (for example, foundations laid, access metalled, grass sown or garden mulched)
- c) Integrity of soil containing structures are not compromised
- d) Soil disturbed is less than 25 m<sup>3</sup> (in-situ volume) per 500 m<sup>2</sup> of land per year (not including samples for lab testing)
- e) Soil removed is less than 5 m<sup>3</sup> (in-situ volume) per 500 m<sup>2</sup> of land per year
- f) Activity duration less than 2 months.
- g) Any soil removed from site must be disposed of at a facility authorised to receive soil of that kind (regulation 8(3 e)), the closest is Puwera Landfill

For this site:

- As the new residence is pre-built and services are already existing on site minimal earthworks will be required for the new house build.
- Approximately 10 m<sup>3</sup> earthworks would be required for remediating the arsenic contamination in the Control Area.
- Calculated allowable earthworks volumes as per e) and f) above are tabled in Appendix E, Table 9.
- A Site Management Plan (SMP) will be required for remediation and a draft SMP is supplied in Appendix K.

## 9. Risk Assessment

The NESCS identifies contaminants as a problem when the contaminants are at a concentration and a place where they have, or are reasonably likely to have, an adverse effect on human health and the environment (NESCS 2012). The NESCS 2012 further states that a key decider under the NESCS is whether, under the intended land-use, the exposure to soil is reasonably likely to harm human health.

### 9.1 Conceptual site model

A Conceptual Site Model (CSM) was developed and shown in Appendix B with a summary shown below in Table 3.

The CSM for 35C Tawanui Road was based on a review of available title information, aerial photographs, the site history, council records, a site inspection and soil sampling results.

The potential pathways considered are outlined in section 9.2 and Appendix B.

**Table 3: Summary of Conceptual Site Model**

Source	Pathway	Receptor
Arsenic from historic land use	Dermal during maintenance and play Accidental ingestion during maintenance and play Produce ingestion Inhalation	Adult and child resident

### 9.2 Characterisation of potential pathways

- Pathway considered is direct dermal contact with chemicals in soil through play or contact with soil during maintenance.
- Pathway considered is crop uptake of chemicals from soil leading to ingestion.
- Pathway considered is accidental ingestion of chemicals in soil during play or maintenance.
- Pathway considered is dust inhalation associated with earthworks. Considered low risk.
- A stormwater/septic pipeline to the east of the Site was identified as a potential priority pathway, however this was located away from the identified Control Area.

### 9.3 Contaminant characterisation and probability

This DSI was undertaken to ascertain if there is any potential contamination from past HAIL land use in the soil on Site.

This DSI was undertaken to characterise the extent of any elevated contaminant within the soil on the site. Soil sampling results indicated soils would be considered as contaminated under the NESCS within the characterised 30 m<sup>2</sup> Control Area, but not on the remaining ~630 m<sup>2</sup> of the Site with respect to the Residential 10% land use guideline values.

The likelihood that the contaminant poses a risk to any receptor is assessed as low due to the relatively low concentration of the arsenic contamination (complies with the more conservative high-density residential guidelines), its location under the driveway and ornamental garden (barked) and relatively small extent.

#### 9.4 Risk summary

The risk to human health on 35C Tawanui Road is assessed in the context of the proposed site use: that of Residential living (10%).

- Soils disturbance volumes as part of build would be negligible. Volumes are within the permitted regulation 8(3) volumes.
- The concentrations of COI were well below the applicable residential 10% guideline land use scenario except for arsenic within a characterised Control Area.
- A review of the Conceptual Site Model shows the source – pathway – receptor linkage to be complete within the Control Area as source contamination (arsenic) was identified as present, but incomplete outside the Control Area.
- The soil samples collected were considered to adequately represent the soils present to adequately inform to the CSM.
- Remediation is required within the Control Area by removal to landfill. The volume for removal is  $\sim 10\text{m}^3$ , above the regulation 8(3) requirements removal volume of  $6.6\text{m}^3$ .
- Pursuant to regulation 10(2)(b): - soil contamination exceeds the applicable standard in regulation 7 within the Control Area.
- Pursuant to regulation 10(3)(b) – given the small volume and kind of soil contamination on site it is recommended that the piece of *land is suitable for the activity (residential build) if appropriate remediation and validation are undertaken.*

## 10. Discussion

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This DSI was undertaken to determine if soil at 35C Tawanui Road (Lot 20 DP 389986) is contaminated, and information contained within this report is considered appropriate to the nature of the proposed activity, the level of certainty and availability of information about the past use of the land, the contaminants present (or potentially present), and the level of risk posed.

The information collated in this DSI indicates the following results:

- The land has a history of plant nursery use.
- The site is not listed on NRC Selected Land Use Register.
- The HAIL category in the Area of Interest was identified as A10 - Persistent pesticide bulk storage or use including sport turfs, market gardens, orchards, glass houses or spray sheds.
- The piece of land Identified as HAIL site under categories: A10 comprises all of the 660m<sup>2</sup> lot. As such 33m<sup>3</sup> of soil disturbance is permitted and 6.6m<sup>3</sup> of soil removal is permitted per year to meet the requirements of Section 8 (regulation 8(3)).
- Earth works disturbance volumes for the house build will be negligible and will not exceed regulation 8(3) requirements.
- A total of twenty samples were collected in soils at the site (with three held pending results). As per the identified contaminants of interest, metals and pesticides were analysed by Hill Laboratories.
- The applicable standard is Residential - Standard residential Lot, for single dwelling sites with gardens, including homegrown produce consumption (10 per cent).
- The soil chemistry shows all results below the applicable guideline values except for arsenic within a characterised ~30m<sup>2</sup> x 0.3m depth Control Area which will require remediation.
- A review of the conceptual site model following this investigation shows that the source – exposure – receptor linkages are incomplete over ~630m<sup>2</sup> of the site, with no source contamination identified
- A review of the conceptual site model following this investigation shows that the source – exposure – receptor linkages are complete within the ~30m<sup>2</sup> x 0.3m deep Control Area.
- Remediation volumes are estimated at ~10m<sup>3</sup>, within regulation 8(3) soil disturbance volumes of 33m<sup>3</sup> but above soil removal volumes of 6.6m<sup>3</sup> and as such a resource consent is required.

## 11. Conclusion

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A study of the history of the land, including sampling and analysis of the soils, on 35C Tawanui Road, Kaikohe was undertaken in July 2023.

- The data set is appropriate for statistical calculations as per Contaminated Land Management Guideline No.5 (2021).
- All reported concentrations of COI's are below the applicable guideline values except for arsenic *within* the characterised Control Area.
- Pursuant to regulation 10(2)(b) – *soil contamination exceeds the applicable standard in regulation 7* within the Control Area.
- As per regulation 9 (3)(b) – *it is demonstrated that soil contamination does not exceed the applicable standard in NESCS regulation 7* outside the Control Area.
- Pursuant to regulation 10(3)(b) – *given the small volume and kind of soil contamination on site it is recommended that the piece of land is suitable for the activity (residential build) if appropriate remediation and validation of soil within the Control Area is undertaken.*
- A Remediation Action Plan (RAP) and Site Management Plan (SMP) are required for remediation of the soil from within the Control Area. The RAP and draft SMP are appended to this report.

# Remediation Action Plan

## 12. Remediation Action Plan Executive Summary

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The property is located at 35C Tawanui Road, Kaikohe and has legal description of Lot 20 DP 389986.

NZ Environmental Management Ltd was contracted by the landowner to assess the property and soil on the property prior to a residential build in accordance with the National Environmental Standards (2011).

This report is appended to DSI Report No. J202, some sections required by both reports have not been duplicated.

The DSI identified an area of arsenic contamination which was characterised and designated as a Control Area. The Control Area was confined within a 30 m<sup>2</sup> area and restricted to <0.3 m depth with an in-situ volume of ~10 m<sup>3</sup>. Pursuant to regulation 10(2)(b) – soil contamination exceeds the applicable standard in regulation 7 *within* the Control Area.

The reported arsenic in sample 2401 (44 mg/kg) is more than twice the applicable residential standard of 20 mg/kg and the 95% UCL is also above the guideline value, therefore the COI is at a concentration where it is judged to be of risk and remediation is required. Remediation comprising removal of the soils from within the Control Area is recommended. This will consist of excavation and relocation to landfill. This is proposed as the most effective management for the small volume of contaminated soil in this location.

This RAP outlines the proposed remediation, mitigation and validation requirements for arsenic contaminated soils within the Control Area.

Upon confirming the site complies with the  $SCS_{\text{health}}$  for the proposed residential 10% land-use scenario, a Site Validation Report (SVR) will be submitted to council.

## 13. Introduction

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### 13.1 Scope of Work – Site description

A discrete Control Area was identified along the north-west boundary of the Site, under the location of the driveway and nearby ornamental garden (Appendix A, Figure 4)Figure 3 Soil sampling locations. Three soil samples within the Control Area, 2401 (44 mg/kg), 2402 (26 mg/kg) and 2411 (21 mg/kg) returned results for arsenic above the guideline value of 20 mg/kg. All other results from within the control area, were at or below the applicable guideline value including a depth sample taken at 0.3 m below the location of sample 2401.

The applicant has considered what to do to make the land safe for the intended residential land-use. The landowner has elected to remediate the land by removal to landfill to ensure the risk to health from elevated arsenic in the soil is acceptable (NES 2012).

### 13.2 Report purpose

This Remediation Action Plan (RAP) is provided in support of the remediation of soils contaminated with arsenic exceeding the  $SCS_{(health)}$  for the proposed residential build on of Lot 20 DP 389986 to meet the Residential Standard, for single dwelling sites with gardens, including homegrown produce consumption (10 per cent) (NES 2012).

The objective of the Remediation Action Plan is to outline a suitable remediation method to manage the risk to human health from the contaminated surface soils so that it is *highly unlikely* that there will be a risk to human health if the proposed activity (future residential build) is carried out on the piece of land.

### 13.3 Regulatory context

Preparation of this plan is pre-emptive to obtaining Resource Consent for remediation. This Remedial Action Plan has been drafted by NZ Environmental Management Ltd pursuant to the National Environmental Standards for Assessing and Managing Contaminants in Soil to Protect Human Health Regulations Guideline No.1, Revised 2021 (Reporting on Contaminated Sites in New Zealand).

Once remediated, a validation report (SVR) from a suitably qualified and experienced practitioner will be provided which verifies to the Council's satisfaction that the soil on existing Lot 20 DP 389986 has been remediated in such a manner that the land can be utilised for its intended residential land use.

## 14. Scope and purpose of remediation

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### 14.1 Summary of contamination

Twenty samples were collected across the site using stratified sampling. The results identified one location (around location of samples 2401, 2402 and 2411) with an elevated concentration of arsenic.

An area of ~12 m x 2.5 m was delineated, this area was designated a Control Area. The arsenic contamination was confined to less than 0.3 m depth.

Statistical analysis of the surface arsenic results within the Control Area showed the mean arsenic concentration was 16 mg/kg with a maximum of 44 mg/kg (Appendix E, Table 10).

Outside the Control Area the mean concentration of arsenic was ~12 mg/kg, which would be considered within background for an Auckland volcanic soil (Table 5).

### 14.2 Remediation strategy and objectives

The objective is to design a Remediation Action Plan which will ensure removal of soils with concentration of arsenic above the applicable guideline to a location where it will be unlikely to pose a risk to human health under the intended land use. The remediation strategy is to;

- use the most practical, timely, safe and cost-effective method to achieve the objective.
- remove the contaminated soil from the control area, and manage it so the source – pathway – receptor linkage is incomplete for Residential 10% produce consumption land use scenario.

### 14.3 Summary of remediation options

Remediation options considered included:

- Removal to landfill<sup>6</sup>

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<sup>6</sup> This was only method proposed as an alternate remediation option of burial under driveway and geotechnical marker layer was proposed on neighbouring property 35B Tawanui Road and this was not accepted by the FNDC.

## 15. Remediation methods

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### 15.1 Proposed remediation method

The soil from the Control Area will be removed by a digger directly into a truck and transported to Puwera Landfill.

### 15.2 Proposed timing of the remediation (schedule of works)

- Remedial activity should be carried out only after receipt of appropriate Resource Consent.
- The duration of remediation earthwork's activity should not exceed a period of one month.
- The remediation should be carried out under the supervision of NZ Environmental Management staff with validation samples collected immediately following relocation of the soils.
- Earthworks should only be carried out in appropriate weather to minimise any runoff of contaminants and dust nuisance.

### 15.3 Proposed mitigation methods and/or controls

- The site management plan (SMP) for remediation should be discussed and agreed with everyone involved in remediation work prior to work being undertaken. A draft SMP is shown in Appendix K.
- The location of First Aid station should be identified and communicated to everyone involved in remediation work.
- Monitor weather before carrying out earthworks to avoid significant weather events. Remediation work should not be carried out in rain when runoff could occur.
- Work should be undertaken on damp soil to mitigate any dust issues. If for any reason dust is a concern, P2 level masks must be worn.
- Workers should wear appropriate PPE when exposed to the contaminated soil including waterproof footwear and nitrile gloves.
- If heavy machinery is involved PPE should include high visibility vests, steel cap boots and hard hats. Parameters for working with diggers and trucks should be agreed with machinery operators and understood prior to starting work.
- Noise should be maintained at acceptable levels and work undertaken in daylight hours acceptable to any neighbours.
- Clean water diversion measures to divert surface water around work site should not be required due to the flatness, small size of remediation works and likely duration. However, due care should be taken. Retain existing vegetation, where possible.

- The excavated/cleared Control Area surface to be covered with tarpaulin or hay until validation results are received. Rehabilitate disturbed areas as soon as possible after all-clear is given.
- Do not stockpile any contaminated material. Remove straight to truck.
- Truck loads should be covered for road transport.

#### **15.4 Proposed contamination management measures**

Ensure any vehicles exiting the site are clean.

#### **15.5 Proposed remediation activity record keeping**

- Document remediation with photos.
- Document start and finish time and weather conditions during remediation.
- Document and issues encountered or complaints.

## 16. Standard of remediation

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### 16.1 Proposed standard of remediation on completion

- The aim of the remediation is to achieve Residential 10% produce land use standard within the remediation area (the Control Area).

### 16.2 Proposed site validation strategy and methods

- Validation sampling on the excavated/cleared surface will be carried out to ensure that soil contamination has been removed and the concentration of arsenic in the control area is within: Residential 10% produce guideline values.
- If the remediation area allows, for statistical robustness, validation should include the collection of at least eleven samples including one duplicate. The samples will be tested by the laboratory for total recoverable arsenic.
- If it is found that the concentration of arsenic following remediation is still above the applicable standard, then further remediation or management should be carried out to manage the risk.
- Results will be reported to council in a Site Validation Report (SVR).

## 17. Unexpected discovery protocol

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- If an unexpected find is identified, work should stop immediately and SMP updated.
- PPE available on site should include full body coverall microporous coveralls with Type 5 protection, P2 masks, eye protection and hazard tape for use for marking and isolating any unexpected finds.

## 18. Report limitations

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This DSI report was carried out to characterise soil chemistry on 35C Tawanui Road to inform a residential build application (Appendix A, Figure 2). The report was based on evidence gathered during a site walkover, by soil sampling, by studying council and historic records and by interviews with present landowner. The information in this document is based on publicly available documents which were assumed to be accurate.

The laboratory test results are subject to the limitations inherent to the laboratory techniques used.

Depth sampling at 0.3 m, 0.4 m and 0.5 m was undertaken under the location of sample 2401 the sample which returned the highest arsenic concentration. As the arsenic result at 0.3 m depth was compliant with residential guidelines the other samples were not analysed.

One duplicate (sample 2413) was collected but not analysed. Due QA will be undertaken as part of Site Validation sampling.

With time the site conditions and applicable environmental standards may change and as such the report conclusions may not apply at a future date.

Any future land use change on the Site may require further investigation.

NZ Environmental Management will not be held liable for any future discovery of isolated hot spots or discharge unknown at the time of sampling, such as buried drums of chemicals.

## 19. SQEP certification of report

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### DETAILED SITE INVESTIGATION CERTIFYING STATEMENT

I, Heather Windsor of NZ Environmental Management Ltd, certify that:

1. 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 NESCS) because it has been:

- done by a suitably qualified and experienced practitioner, and
- done in accordance with the current edition of Contaminated land management guidelines No 5 – Site investigation and analysis of soils, and
- 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 is certified by a suitably qualified and experienced practitioner.

2. This detailed site investigation concludes that: For activities under R10 of the NESCS (restricted discretionary activity) does 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

Evidence of the qualifications and experience of the suitably qualified and experienced practitioner(s) who have done this investigation and certified this report is appended to this detailed site investigation report (Appendix J).

Signed and dated:



Date: 30/3/2026

## 20. Bibliography and references

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## 21. Glossary

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**Control Area** An investigated and defined area of contaminated soil on a piece of land, with hazardous substances in or on it that are above the soil contaminant standards for the applicable land use scenario and where the contaminants are reasonably likely to have adverse effects on the human health. The control area is reported as an area requiring remediation or management.

**COI** Contaminants of Interest

**CSM** Conceptual Site Model

**DSI** Detailed Site Investigation

**FNDC** Far North District Council

**HAIL** Hazardous Activities and Industries List

**mg/kg** Milligrams per kilogram

**NES** National Environmental Standard

**NESCS** The National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health

**NZMS** New Zealand Map Series

**NRC** Northland Regional Council

**OCP** Organochlorine Pesticides

**Piece of Land** The NESCS applies to any piece of land on which an activity or industry described in the current edition of the Hazardous Activities and Industries List (HAIL) is being undertaken, has been undertaken or is more likely than not to have been undertaken (see regulation 5(7)).

**PSI** Preliminary Site Investigation

**RAP** Remediation Action Plan

**SVR** Site Validation Report

**Target Area** An area or target within the piece of land identified as potentially having hazardous activities or industries resulting in contaminants to be present at elevated levels or above background.

**UCL** Upper Confidence Limit



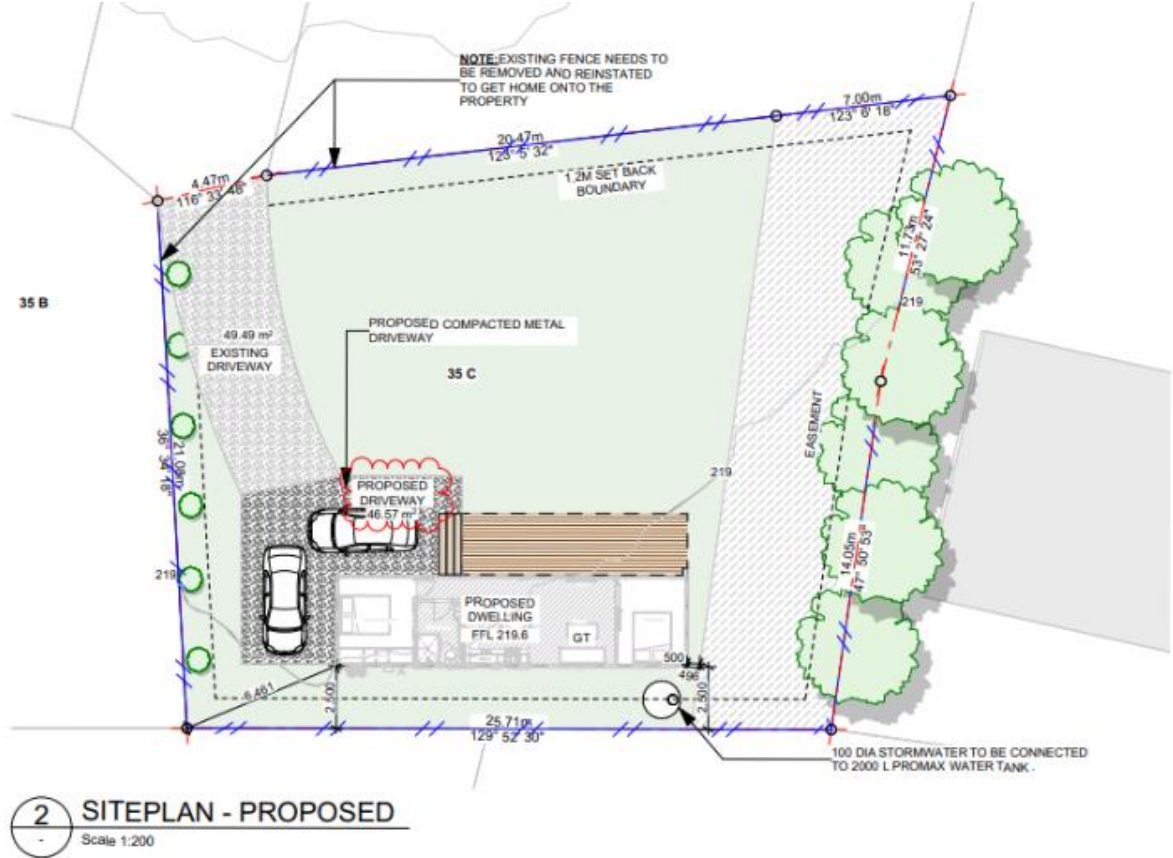


Figure 2 Contemporary site plan (2026)

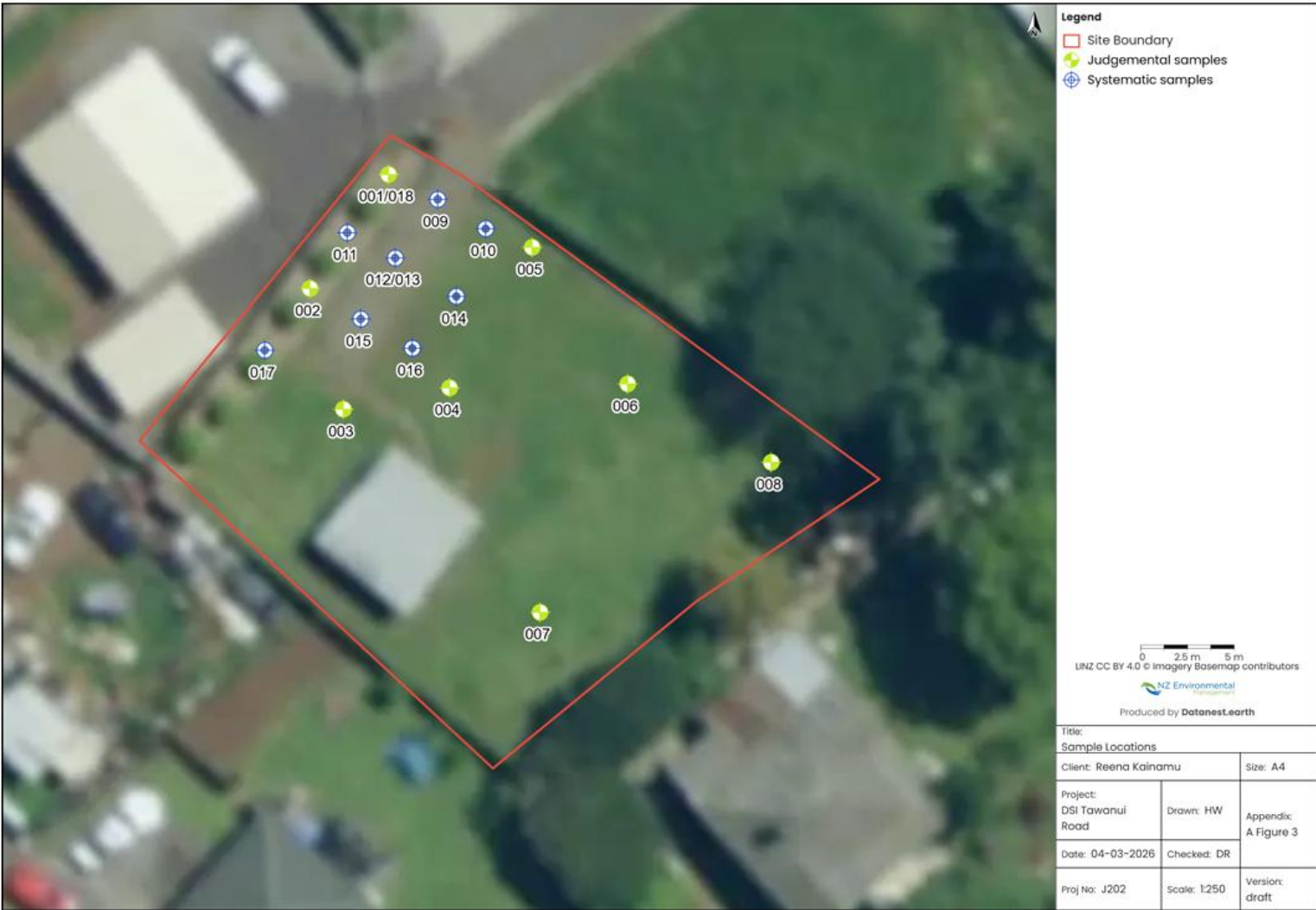


Figure 3 Soil sampling locations



Figure 4 Control Area

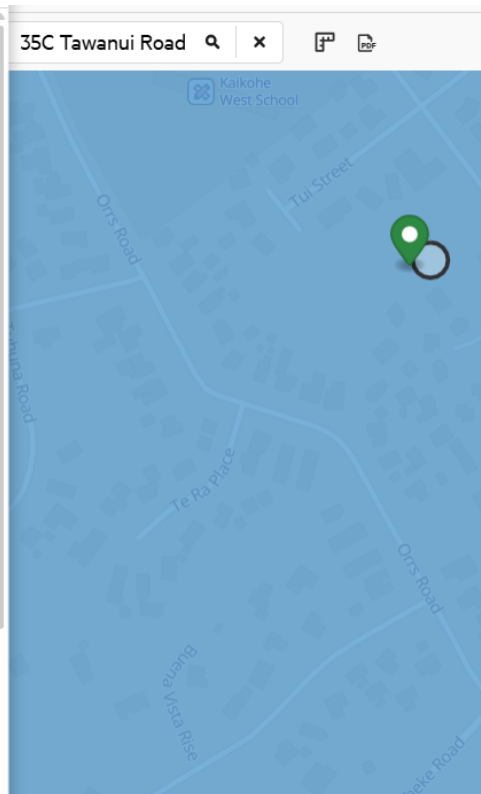


- **River Flood Hazard Zone 1** - one-in-10-year flood extent: an area with a 10% chance of flooding annually
- **River Flood Hazard Zone 2** - one-in-50-year flood extent: an area with a 2% chance of flooding annually
- **River Flood Hazard Zone 3** - one-in-100-year flood extent: an area with a 1% chance of flooding annually with the inclusion of potential Climate Change (CC) impact

**Figure 5 Flood Map**

**Table 4 Predicted background concentrations (LRIS)**

Chemical4	basalt
Chemical4a	basalt
Area_km2	5339.104805
As_n	41
As_Medpred	2.12
As_U95pred	8.87
Cd_n	18
Cd_Medpred	0.101
Cd_U95pred	0.51
Cu_n	35
Cu_Medpred	25.27
Cu_U95pred	108.3
Cr_n	76
Cr_Medpred	26.56
Cr_U95pred	128.5
Pb_n	52
Pb_Medpred	15.5
Pb_U95pred	56.34
Ni_n	72



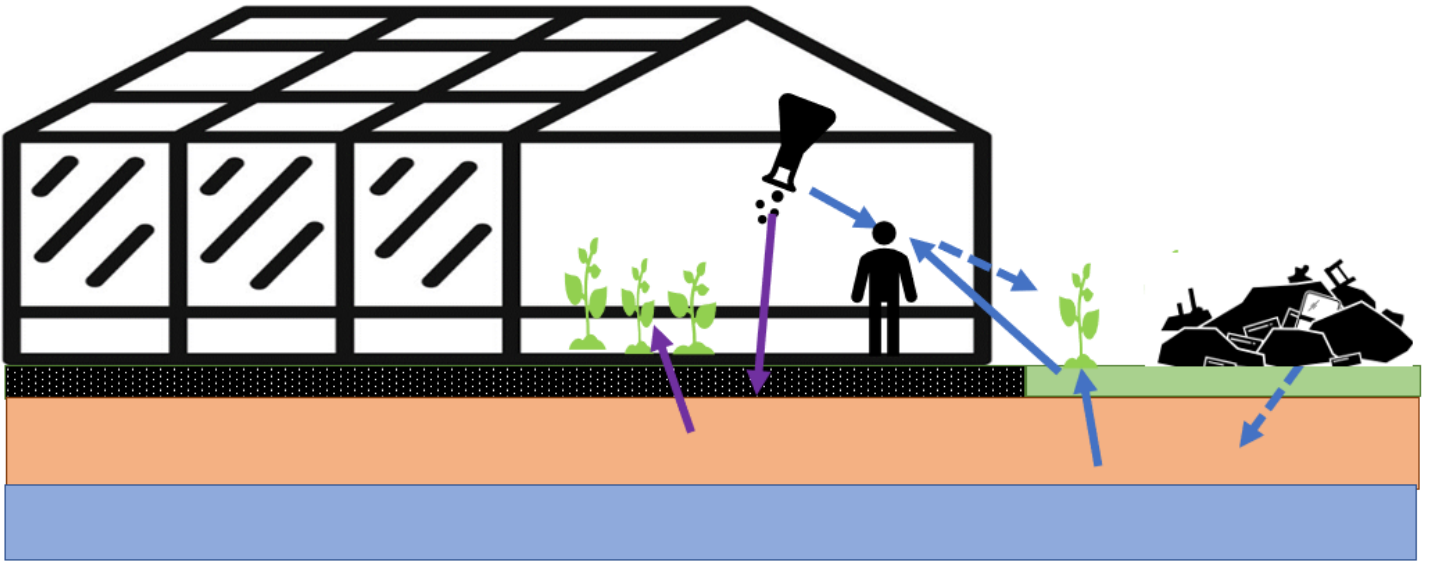
**Table 5 Background soil concentrations –soils in Auckland region**

<b>Element (<i>total recoverable</i>)</b>	<b>Non-volcanic range</b>	<b>Volcanic range</b>
<b>Arsenic (As)</b>	<b>0.4 - 12</b>	
<b>Barium (Ba)</b>	<b>8 - 350</b>	
<b>Boron (B)</b>	<b>2 - 45</b>	<b>&lt;2 - 260</b>
<b>Cadmium (Cd)</b>	<b>&lt;0.1 - 0.65</b>	
<b>Chromium (Cr)</b>	<b>2 - 55</b>	<b>3 - 125*</b>
<b>Cobalt (Co)</b>	<b>0.2 - 35</b>	<b>10 - 170</b>
<b>Copper (Cu)</b>	<b>1 - 45</b>	<b>20 - 90</b>
<b>Lead (Pb)</b>	<b>&lt;1.5 - 65*</b>	
<b>Magnesium (Mg)</b>	<b>470 - 10,300</b>	<b>190 - 76,600</b>
<b>Manganese (Mn)</b>	<b>10 - 2,500</b>	
<b>Mercury (Hg)</b>	<b>&lt;0.03 - 8,500</b>	
<b>Nickel (Ni)</b>	<b>0.9 - 35</b>	<b>4 - 320</b>
<b>Nitrogen (total, N)</b>	<b>300 - 8,500</b>	
<b>Phosphorus (P)</b>	<b>75 - 1,220</b>	<b>245 - 3,730</b>
<b>Potassium (K)</b>	<b>220 - 3,660</b>	
<b>Sulphur (S)</b>	<b>85 - 2,300</b>	
<b>Tin (Sn)</b>	<b>&lt;0.7 - 4*</b>	
<b>Vanadium (V)</b>	<b>8 - 160*</b>	<b>15 - 370</b>
<b>Zinc (Zn)</b>	<b>9 - 180</b>	<b>54 - 1,160</b>
<b>Total Organic Carbon (TOC)</b>	<b>0.6 - 14%</b>	
<b>Notes:</b>		
Background ranges for major elements (N, P, S, TOC) include statistical outlier and extreme values outside the non-outlier volcanic soil range. All other elements do not include values obtained that were statistical outliers or extremes outside the non-outlier volcanic soil range.		
Work suggests special cases have been found to apply for Ti Point Basalts (Cr), Mt Smart Volcanics (Pb, Sn), Franklin Basalts (Sn), and Awhitu-type Mineral Sands (Mn, V) and as such these lithologies need to be considered individually.		



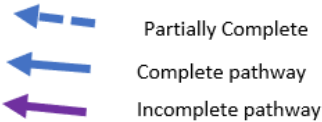
Figure 6 Location of historic chemical store

### 22.2 Appendix B: Conceptual site model

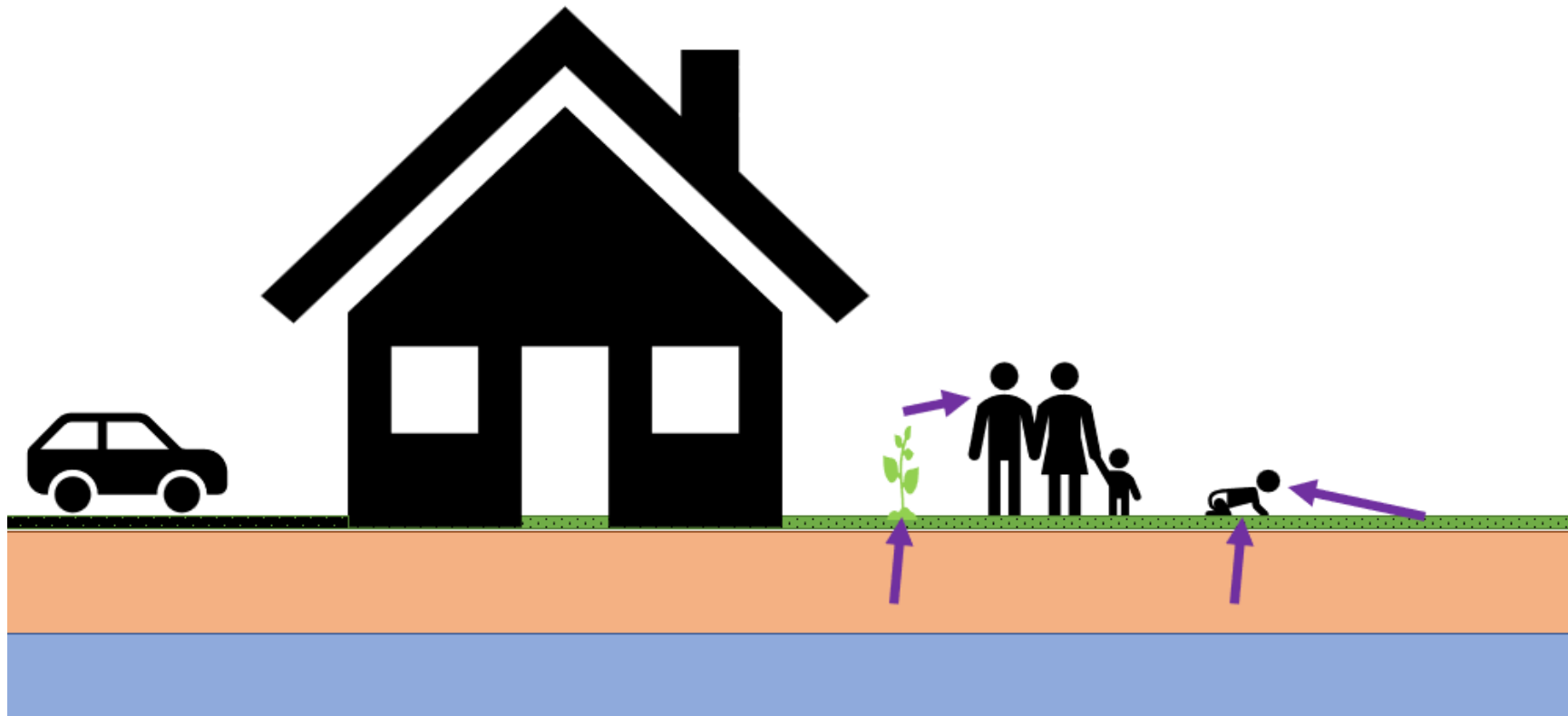


- Historic Chemical crop sprays or fertiliser to soil or groundwater.
- Crop uptake of chemicals from soil => ingestion
- Leaching from plant nursery demolition materials to ground
- Direct dermal contact with chemicals directly or through contact with soil
- Chemicals entering/exiting glasshouse through door

(incomplete due to contained inside glasshouse with impermeable floor)  
(incomplete no crops grown outside glasshouses)  
(partially complete depending on construction materials)  
(partially complete)



Conceptual Model Contemporary Planned Land-Use– 35C Tawanui Rd post remediation



- Crop uptake of chemicals from soil => ingestion (Incomplete soil compliant with applicable standard except in management area)
- Direct dermal contact with chemicals through contact with soil (Incomplete soil compliant with applicable standard except in management area where chemical passage to surface is limited by clean fill cover and vegetation)
- Ingestion of chemicals directly from soil (Incomplete soil compliant with applicable standard except in management area where chemical passage to surface is limited by clean fill cover and vegetation)

## 22.3 Appendix C: Aerial photographs and documentation

**Table 6 Summary of aerial photographs**

Date	Landuse description	Potential HAIL category
1950	Pastoral	
1969	Under glasshouses	A10
1987	Under glasshouses	A10
2002	Under glasshouses	A10
2004	Under glasshouses	A10
2007	Clear grassland	
2022 - present	Tiny house present	



**Figure 7 Land use 1950 (Retrolens)**



**Figure 8 Land use 1969 (Retrolens)**



Figure 9 Land use 1987 (Retrolens)



**Figure 10 Land use 2004 (Retrolens)**



Figure 11 Land use 2007 (Google Earth)



Figure 12 Land use 2023 (Google Earth)

## 22.4 Appendix D: Contemporary site photographs

Photo 1

Date 10 July 2023

**Photo:** Looking south from the road entrance across the site toward the tiny-home.



Photo 2

Date 10 July 2023

**Photo:** Looking north from the south-east corner toward the driveway entrance.



**Photo 3**

**Date 10 July 2023**

**Photo:** The location of the Control Area within the site.



## 22.5 Appendix E: Supporting tables and documents

**Table 7 Land use summary**

Date range	Landuse	Potential HAIL category
1937 - 1996	Part of larger property used as plant nursery	A10
1996 - 2005	Part of larger property used as plant nursery. Area of Lot 20 predominantly under concrete floored glasshouse for growing vegetables and flowers	A10
2007	Glasshouses removed and site cleared	A10, I
2010	Site subdivided into 660m <sup>2</sup> section and left fallow	I
2022 - present	Residential – location of tiny home.	I

**Table 8 Soil sample description and location**

Preliminary and systematic DSI samples				
Site	Location	Description	Latitude	Longitude
2401	Near entrance in barked garden	Red silty CLAY topsoil with plastic parcel tape and worms	-35.408061°	173.793088°
2402	In bark garden mid west boundary	Red silty CLAY topsoil + <5% medium sub-angular gravels + worms	-35.408135°	173.793027°
2403	In gravel drive area south west of site	Red silty CLAY topsoil with plastic parcel tape	-35.408184°	173.793032°
2404	Near entrance to existing building in grass lawn	Red brown silty CLAY topsoil with <5% medium sub-angular gravels	-35.408182°	173.793082°
2405	Near entrance by north fence in grass lawn	Red silty CLAY topsoil + <5% medium sub-angular gravels	-35.408096°	173.793165°
2406	Mid north of site in grass lawn	Red silty CLAY topsoil + <5% medium sub-angular gravels	-35.408168°	173.793210°
2407	On slight rise to south east of house	Red silty CLAY topsoil + 5% medium sub-angular gravels	-35.408285°	173.793152°
2408	In north east of site by container	Red silty CLAY topsoil + 5% medium-large sub-angular gravels	-35.408202°	173.793288°
2409	In driveway entrance	Red silty CLAY topsoil under gravel	-35.408071°	173.793118°
2410	In lawn grass near entrance to south of fence	Red silty CLAY topsoil + 5% medium sub-angular gravels	-35.408089°	173.793138°
2411	west garden area 5.5m from entry	Red silty CLAY topsoil under bark	-35.408112°	173.793061°
2412	In driveway area 5.5m from entry	Red silty CLAY topsoil under gravels	-35.408092°	173.793096°
2413	In driveway area 5.5m from entry, duplicate of 2412	Red silty CLAY topsoil under gravels	-35.408092°	173.793096°
2414	In lawn south east of entrance	Red silty CLAY topsoil + 5% medium sub-angular gravels	-35.408112°	173.793130°
2415	In lawn mid east of driveway	Red silty CLAY topsoil	-35.408147°	173.793065°
2416	In lawn mid east of driveway	Red silty CLAY topsoil + <5% medium sub-angular gravels + worms	-35.408156°	173.793083°
2417	In bark garden south west boundary	Red silty CLAY topsoil with plastic parcel tape	-35.408163°	173.793006°
2418	0.3m depth sample under location 2401	Red Silty CLAY	-35.408061°	173.793088°
2419	0.4m depth sample under location 2401 (held)	Red CLAY	-35.408061°	173.793088°
2420	0.5m depth sample under location 2401 (held)	Red CLAY	-35.408061°	173.793088°

**Table 9 Earthworks volumes under regulation 8.3**

Size of Lot (m <sup>2</sup> )	Approximate Area of Piece of Land (m <sup>2</sup> )	Earthworks disturbance volumes not requiring consent (annual) m <sup>3</sup>	Earthworks removal volumes not requiring consent (annual) m <sup>3</sup>
660	660	33	6.6

**Table 10 ProUCL statistics on systematic samples defining Control Area**

Normal UCL Statistics for Uncensored Full Data Sets			
User Selected Options			
Date/ Time of Computation	ProUCL 5.2 16/ 02/ 2026 10:57:58 am		
From File	WorkSheet.xls		
Full Precision	OFF		
Confidence Coefficient	95%		
<b>C0</b>			
<b>General Statistics</b>			
Total Number of Observations	11	Number of Distinct Observations	7
		Number of Missing Observations	1
Minimum	7	Mean	16.09
Maximum	44	Median	10
SD	11.16	SD of logged Data	0.594
Coefficient of Variation	0.693	Skewness	1.771
<b>Normal GOF Test</b>			
Shapiro Wilk Test Statistic	0.794	<b>Shapiro Wilk GOF Test</b>	
1% Shapiro Wilk Critical Value	0.792	Data appear Normal at 1% Significance Level	
Lilliefors Test Statistic	0.253	<b>Lilliefors GOF Test</b>	
1% Lilliefors Critical Value	0.291	Data appear Normal at 1% Significance Level	
<b>Data appear Normal at 1% Significance Level</b>			
<b>Assuming Normal Distribution</b>			
<b>95% Normal UCL</b>		<b>95% UCLs (Adjusted for Skewness)</b>	
95% Student's-t UCL	22.19	95% Adjusted-CLT UCL (Chen-1995)	23.54
		95% Modified-t UCL (Johnson-1978)	22.49
<b>Suggested UCL to Use</b>			
95% Student's-t UCL	22.19		
<p>Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.                      Recommendations are based upon data size, data distribution, and skewness using results from simulation studies.                      However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.</p>			

JOHNSON, S J. Mr Johnson, who had spent several years as a missionary in India, arrived in Kaikohe from Helensville in 1929 intending to start a market garden. However the deepening economic depression caused him to alter his plans. He first rented part of Mr Guy's old office building opposite the post office, where he sold fruit and vegetables and some plants. His main activity however was the manufacture of ice-cream. He would go to Moerewa in his Model T Ford to collect loads of ice. He would smash it up, make a brine solution and then pack it around his ice-cream for the journey to sports fields around the district, including Horeke and Opononi. In 1937 he erected his own premises on the corner of Broadway and Park Road. He continued to manufacture ice-cream until 1952 when competition from such as Tip Top made his operation uneconomic. Some residents remember Mr Johnson's delicious ice-blocks. In 1937 Mr Johnson was operating a small nursery in two glasshouses. His sons MILTON and LINDSAY have developed the nursery business (and the plant shop which has now been sold) into a large enterprise. Mrs MARY Johnson (wife of Lindsay) was a borough councillor, with interests in Union Church affairs, ITC (Toast-mistress Club) and other Kaikohe activities.

**Figure 13 Historic reference to plant nursery**

## 22.6 Appendix F: NRC Selected land use register & FNDC property file

**From:** Contaminated Land Management Team <contamination@nrc.govt.nz>

**Sent on:** Monday, July 3, 2023 1:50:25 AM

**To:** Heather Windsor <Heather@nzem.co.nz>

**Subject:** RE: property file check

Kia ora Heather

Regarding 35C Tawanui Road, Kaikohe, being Lot 20 DP 389986.

The property that you have enquired about is not listed on the NRC Selected Land-use Register (SLR) for any current or historical Hazardous Activities and Industries List (HAIL) activities. Please note that the SLR is not a comprehensive list of all sites that have a HAIL land use history. It is a live record and therefore continually being updated.

There are no environmental incidents or resource consents recorded on the property.

NRC has aerial images of the site for the following years that can be provided upon request: 2004, 2006, 2014.

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](mailto:contamination@nrc.govt.nz)

Kind regards,  
Heather

**Ngā mihi**

**Heather Giles**

Environmental Monitoring Officer – Waste Management

**Northland Regional Council » Te Kaunihera ā rohe o Te Taitokerau**

P 09 470 1210 ext 9212

M 027 615 3952



P 0800 002 004 » W [www.nrc.govt.nz](http://www.nrc.govt.nz)



**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.

**Table 11 Summary of FNDC property file**

Building/Resource Consent Number	Date	Activity	Applicable to Area of Investigation Y/N	Applicable HAIL category
60-RMAEPA		no information in file	NA	NA
EBC-2026-616/0	1/01/2026	contemporary build application (pre-built building)	N	NA
60-RMAEPA/B		Neighbouring property stormwater mgmt		

22.7 Appendix G: Laboratory results and chain of custody



**Hill Laboratories**  
TRIED, TESTED AND TRUSTED

Quote No 123123

Primary Contact Heather Windsor 293087

Submitted By Heather Windsor 293087

Client Name NZ Environmental Management Limited 293085

Address 350 Kerikeri Road, Kerikeri 0230

Phone \_\_\_\_\_ Mobile 021 075 1959

Email \_\_\_\_\_

Charge To NZ Environmental Management Limited 293085

Client Reference ~~XXXX~~ Kainamu

Order No \_\_\_\_\_

Results To Reports will be emailed to Primary Contact by default. Additional Reports will be sent as specified below.

Email Primary Contact  Email Submitter  Email Client

Email Other

Other

Dates of testing are not routinely included in the Certificates of Analysis. Please inform the laboratory if you would like this information reported.

**ANALYSIS REQUEST**


Job No: \_\_\_\_\_ Date Recv: 13-Jul-23 10:05

332 1711

R J Hill Laboratories Limited  
28 Duke Street Frankton 320  
Private Bag 3205  
Hamilton 3240 New Zealand

Received by: David Manson

T 0508 HILL LAB (44 555 ;  
T +64 7 858 2000  
E mail@hill-labs.co.nz  
W www.hill-laboratories.com.



3133217119

**CHAIN OF CUSTODY RECORD**

Sent to Hill Laboratories Date & Time: 10/7/23

Name: Heather Windsor

Tick if you require COC to be emailed back

Signature: *HW Windsor*

Received at Hill Laboratories Date & Time: \_\_\_\_\_

Name: \_\_\_\_\_

Signature: \_\_\_\_\_

Condition Room Temp  Chilled  Frozen  Temp: 13.1

Sample & Analysis details checked

Signature: \_\_\_\_\_

Priority  Low  Normal  High

Urgent (ASAP, extra charge applies, please contact lab first)

NOTE: The estimated turnaround time for the types and number of samples and analyses specified on this quote is by 4:30 pm, 3 working days following the day of receipt of the samples at the laboratory.

Requested Reporting Date: \_\_\_\_\_

**ADDITIONAL INFORMATION / KNOWN HAZARDS**

**Quoted Sample Types**

Soil (Soil)

No.	Sample Name	Sample Date/Time	Sample Type	Tests Required
1	composite 2401, 2402	10/7/23	soil	Heavy metals
2	composite 2403, 2404	↓	↓	↓
3	composite 2405, 2406	↓	↓	↓
4	composite 2407, 2408	↓	↓	↓
5	composite 2401, 2406	↓	↓	OCP's
6				
7				
8				
9				
10				



R J Hill Laboratories Limited  
 28 Duke Street Frankton 3204  
 Private Bag 3205  
 Hamilton 3240 New Zealand  
**0508 HILL LAB** (44 555 22)  
 +64 7 858 2000  
 mail@hill-labs.co.nz  
 www.hill-labs.co.nz

**Certificate of Analysis**

<b>Client:</b>	NZ Environmental Management Limited	<b>Lab No:</b>	3321711	SPV2
<b>Contact:</b>	Heather Windsor	<b>Date Received:</b>	13-Jul-2023	
	C/- NZ Environmental Management Limited	<b>Date Reported:</b>	04-Sep-2023	(Amended)
	350 Kerikeri Road	<b>Quote No:</b>	123123	
	Kerikeri 0230	<b>Order No:</b>		
		<b>Client Reference:</b>	Kainamu	
		<b>Submitted By:</b>	Heather Windsor	

**Sample Type: Soil**

Sample Name:	2401 10-Jul-2023	2402 10-Jul-2023	2405 10-Jul-2023	2406 10-Jul-2023	Composite of 2401 & 2402
Lab Number:	3321711.1	3321711.2	3321711.5	3321711.6	3321711.9

Individual Tests						
Total Recoverable Arsenic	mg/kg dry wt	44	26	17	10	-
Heavy Metals, Screen Level						
Total Recoverable Arsenic	mg/kg dry wt	-	-	-	-	52
Total Recoverable Cadmium	mg/kg dry wt	-	-	-	-	0.19
Total Recoverable Chromium	mg/kg dry wt	-	-	-	-	52
Total Recoverable Copper	mg/kg dry wt	-	-	-	-	49
Total Recoverable Lead	mg/kg dry wt	-	-	-	-	35
Total Recoverable Nickel	mg/kg dry wt	-	-	-	-	15
Total Recoverable Zinc	mg/kg dry wt	-	-	-	-	107

Sample Name:	Composite of 2403 & 2404	Composite of 2405 & 2406	Composite of 2407 & 2408	Composite of 2401 & 2406
Lab Number:	3321711.10	3321711.11	3321711.12	3321711.13

Individual Tests					
Dry Matter	g/100g as rcvd	-	-	-	68
Heavy Metals, Screen Level					
Total Recoverable Arsenic	mg/kg dry wt	10	18	11	-
Total Recoverable Cadmium	mg/kg dry wt	0.17	0.16	0.18	-
Total Recoverable Chromium	mg/kg dry wt	47	43	30	-
Total Recoverable Copper	mg/kg dry wt	33	42	35	-
Total Recoverable Lead	mg/kg dry wt	27	34	33	-
Total Recoverable Nickel	mg/kg dry wt	12	16	15	-
Total Recoverable Zinc	mg/kg dry wt	111	260	187	-

Organochlorine Pesticides Screening in Soil					
Aldrin	mg/kg dry wt	-	-	-	< 0.015
alpha-BHC	mg/kg dry wt	-	-	-	< 0.015
beta-BHC	mg/kg dry wt	-	-	-	< 0.015
delta-BHC	mg/kg dry wt	-	-	-	< 0.015
gamma-BHC (Lindane)	mg/kg dry wt	-	-	-	< 0.015
cis-Chlordane	mg/kg dry wt	-	-	-	< 0.015
trans-Chlordane	mg/kg dry wt	-	-	-	< 0.015
2,4'-DDD	mg/kg dry wt	-	-	-	< 0.015
4,4'-DDD	mg/kg dry wt	-	-	-	< 0.015
2,4'-DDE	mg/kg dry wt	-	-	-	< 0.015
4,4'-DDE	mg/kg dry wt	-	-	-	0.056
2,4'-DDT	mg/kg dry wt	-	-	-	< 0.015
4,4'-DDT	mg/kg dry wt	-	-	-	0.046
Total DDT Isomers	mg/kg dry wt	-	-	-	0.10



This Laboratory is accredited by International Accreditation New Zealand (IANZ), which represents New Zealand in the International Laboratory Accreditation Cooperation (ILAC). Through the ILAC Mutual Recognition Arrangement (ILAC-MRA) this accreditation is internationally recognised. The tests reported herein have been performed in accordance with the terms of accreditation, with the exception of tests marked \* or any comments and interpretations, which are not accredited.

Sample Type: Soil				
Sample Name:	Composite of 2403 & 2404	Composite of 2405 & 2406	Composite of 2407 & 2408	Composite of 2401 & 2406
Lab Number:	3321711.10	3321711.11	3321711.12	3321711.13
Organochlorine Pesticides Screening in Soil				
Dieldrin	mg/kg dry wt	-	-	< 0.015
Endosulfan I	mg/kg dry wt	-	-	< 0.015
Endosulfan II	mg/kg dry wt	-	-	< 0.015
Endosulfan sulphate	mg/kg dry wt	-	-	< 0.015
Endrin	mg/kg dry wt	-	-	< 0.015
Endrin aldehyde	mg/kg dry wt	-	-	< 0.015
Endrin ketone	mg/kg dry wt	-	-	< 0.015
Heptachlor	mg/kg dry wt	-	-	< 0.015
Heptachlor epoxide	mg/kg dry wt	-	-	< 0.015
Hexachlorobenzene	mg/kg dry wt	-	-	< 0.015
Methoxychlor	mg/kg dry wt	-	-	< 0.015

**Analyst's Comments**

**Amended Report:** This certificate of analysis replaces report '3321711-SPv1' issued on 20-Jul-2023 at 4:26 pm. Reason for amendment: At the client's request, arsenic testing has been added to four samples.

**Summary of Methods**

The following table(s) gives a brief description of the methods used to conduct the analyses for this job. The detection limits given below are those attainable in a relatively simple matrix. Detection limits may be higher for individual samples should insufficient sample be available, or if the matrix requires that dilutions be performed during analysis. A detection limit range indicates the lowest and highest detection limits in the associated suite of analytes. A full listing of compounds and detection limits are available from the laboratory upon request. Unless otherwise indicated, analyses were performed at Hill Labs, 28 Duke Street, Franklin, Hamilton 3204.

Sample Type: Soil			
Test	Method Description	Default Detection Limit	Sample No
Environmental Solids Sample Drying*	Air dried at 35°C Used for sample preparation. May contain a residual moisture content of 2-5%.	-	1-2, 5-6, 9-12
Environmental Solids Sample Preparation	Air dried at 35°C and sieved, <2mm fraction. Used for sample preparation May contain a residual moisture content of 2-5%.	-	1-2, 5-6
Heavy Metals, Screen Level	Dried sample, < 2mm fraction. Nitric/Hydrochloric acid digestion US EPA 200.2. Complies with NES Regulations. ICP-MS screen level, interference removal by Kinetic Energy Discrimination if required.	0.10 - 4 mg/kg dry wt	9-12
Organochlorine Pesticides Screening in Soil	Sonication extraction, GC-ECD analysis. Tested on as received sample. In-house based on US EPA 8081.	0.010 - 0.06 mg/kg dry wt	13
Dry Matter	Dried at 103°C for 4-22hr (removes 3-5% more water than air dry) , gravimetry. (Free water removed before analysis, non-soil objects such as sticks, leaves, grass and stones also removed). US EPA 3550.	0.10 g/100g as rcvd	13
Total Recoverable digestion	Nitric / hydrochloric acid digestion. US EPA 200.2.	-	1-2, 5-6
Composite Environmental Solid Samples*	Individual sample fractions mixed together to form a composite fraction.	-	1-8
Total Recoverable Arsenic	Dried sample, sieved as specified (if required). Nitric/Hydrochloric acid digestion, ICP-MS, screen level. US EPA 200.2.	2 mg/kg dry wt	1-2, 5-6

These samples were collected by yourselves (or your agent) and analysed as received at the laboratory.

Testing was completed between 13-Jul-2023 and 04-Sep-2023. For completion dates of individual analyses please contact the laboratory.

Samples are held at the laboratory after reporting for a length of time based on the stability of the samples and analytes being tested (considering any preservation used), and the storage space available. Once the storage period is completed, the samples are discarded unless otherwise agreed with the customer. Extended storage times may incur additional charges.

This certificate of analysis must not be reproduced, except in full, without the written consent of the signatory.



Ara Heron BSc (Tech)  
Client Services Manager - Environmental



**Quote No** 123123  
**Primary Contact** Heather Windsor 293087  
**Submitted By** Heather Windsor 293087  
**Client Name** NZ Environmental Management Limited 293085  
**Address** 350 Kerikeri Road, Kerikeri 0230

**Phone** \_\_\_\_\_ **Mobile** 021 075 1959

**Email** \_\_\_\_\_

**Charge To** NZ Environmental Management Limited 293085

**Client Reference** ~~XXXX~~ Kainamu

**Order No** \_\_\_\_\_

**Results To** *Reports will be emailed to Primary Contact by default. Additional Reports will be sent as specified below.*  
 **Email Primary Contact**  **Email Submitter**  **Email Client**  
 **Email Other** \_\_\_\_\_  
 **Other** \_\_\_\_\_

*Dates of testing are not routinely included in the Certificates of Analysis. Please inform the laboratory if you would like this information reported.*

**ADDITIONAL INFORMATION / KNOWN HAZARDS**

**Quoted Sample Types**

Soil (Soil)

No.	Sample Name	Sample Date/Time	Sample Type	Tests Required
1	2409	10/7/23	soil	TR Arsenic
2	2410	↓	↓	↓
3	2411	↓	↓	↓
4	2412	↓	↓	↓
5	2414	↓	↓	↓
6	2415	↓	↓	↓
7	2417	↓	↓	↓
8	2418	↓	↓	↓
9				
10				

**ANALYSIS REQUEST**

R J Hill Laboratories Limited  
 28 Duke Street Frankton 3204  
 Private Bag 3205  
 Hamilton 3240 New Zealand

Job No: \_\_\_\_\_ Date Recv: 31-Aug-23 06:10  
**335 3820**

Received by: Jonas Eyskens

**0508 HILL LAB** (44 555 22)  
 +64 7 858 2000  
 mail@hill-labs.co.nz  
 www.hill-labs.co.nz

**CHAIN OF CUSTODY RECORD**

**Sent to Hill Labs** **Date & Time:** 10/7/23

*Tick if you require COC to be emailed back* **Name:** Heather Windsor  
**Signature:**

**Received at Hill Labs** **Date & Time:** \_\_\_\_\_

**Name:** \_\_\_\_\_  
**Signature:** \_\_\_\_\_

**Condition** **Temp:** 14  
 Room Temp  Chilled  Frozen

**Sample & Analysis details checked**  
**Signature:** \_\_\_\_\_

**Priority**  Low  Normal  High  
 **Urgent** (ASAP, extra charge applies, please contact lab first)

**NOTE:** The estimated turnaround time for the types and number of samples and analysis specified on this quote is by 4:30 pm, 3 working days following the day of receipt of the samples at the laboratory.

**Requested Reporting Date:** \_\_\_\_\_



R J Hill Laboratories Limited  
28 Duke Street Frankton 3204  
Private Bag 3205  
Hamilton 3240 New Zealand

0508 HILL LAB (44 555 22)  
+64 7 858 2000  
mail@hill-labs.co.nz  
www.hill-labs.co.nz

## Certificate of Analysis

Page 1 of 1

<b>Client:</b>	NZ Environmental Management Limited	<b>Lab No:</b>	3353820	SPv1
<b>Contact:</b>	Heather Windsor C/- NZ Environmental Management Limited 350 Kerikeri Road Kerikeri 0230	<b>Date Received:</b>	31-Aug-2023	
		<b>Date Reported:</b>	05-Sep-2023	
		<b>Quote No:</b>	123123	
		<b>Order No:</b>		
		<b>Client Reference:</b>	Kainamu	
		<b>Submitted By:</b>	Heather Windsor	

Sample Type: Soil					
Sample Name:	2409 10-Jul-2023	2410 10-Jul-2023	2411 10-Jul-2023	2412 10-Jul-2023	2414 10-Jul-2023
Lab Number:	3353820.1	3353820.2	3353820.3	3353820.4	3353820.5
Total Recoverable Arsenic mg/kg dry wt	8	10	21	10	17
Sample Name:	2415 10-Jul-2023	2417 10-Jul-2023	2418 10-Jul-2023		
Lab Number:	3353820.6	3353820.7	3353820.8		
Total Recoverable Arsenic mg/kg dry wt	7	7	20		

## Summary of Methods

The following table(s) gives a brief description of the methods used to conduct the analyses for this job. The detection limits given below are those attainable in a relatively simple matrix. Detection limits may be higher for individual samples should insufficient sample be available, or if the matrix requires that dilutions be performed during analysis. A detection limit range indicates the lowest and highest detection limits in the associated suite of analytes. A full listing of compounds and detection limits are available from the laboratory upon request. Unless otherwise indicated, analyses were performed at Hill Labs, 28 Duke Street, Frankton, Hamilton, 3204.

Sample Type: Soil			
Test	Method Description	Default Detection Limit	Sample No
Environmental Solids Sample Drying*	Air dried at 35°C Used for sample preparation. May contain a residual moisture content of 2-5%.	-	1-8
Environmental Solids Sample Preparation	Air dried at 35°C and sieved, <2mm fraction. Used for sample preparation May contain a residual moisture content of 2-5%.	-	1-8
Total Recoverable digestion	Nitric / hydrochloric acid digestion. US EPA 200.2.	-	1-8
Total Recoverable Arsenic	Dried sample, sieved as specified (if required). Nitric/Hydrochloric acid digestion, ICP-MS, screen level. US EPA 200.2.	2 mg/kg dry wt	1-8

These samples were collected by yourselves (or your agent) and analysed as received at the laboratory.

Testing was completed between 31-Aug-2023 and 05-Sep-2023. For completion dates of individual analyses please contact the laboratory.

Samples are held at the laboratory after reporting for a length of time based on the stability of the samples and analytes being tested (considering any preservation used), and the storage space available. Once the storage period is completed, the samples are discarded unless otherwise agreed with the customer. Extended storage times may incur additional charges.

This certificate of analysis must not be reproduced, except in full, without the written consent of the signatory.

Ara Heron BSc (Tech)  
Client Services Manager - Environmental



This Laboratory is accredited by International Accreditation New Zealand (IANZ), which represents New Zealand in the International Laboratory Accreditation Cooperation (ILAC). Through the ILAC Mutual Recognition Arrangement (ILAC-MRA) this accreditation is internationally recognised. The tests reported herein have been performed in accordance with the terms of accreditation, with the exception of tests marked \* or any comments and interpretations, which are not accredited.

## 22.8 Appendix H: Property title

**Table 12 Title history**

Certificate of Title	From	Registered Owners	Occupation	Area
NA2C/539	12/11/1963	Johnsons Plants Limited		0.5801ha
361095	26/03/2010	Forward Momentum Ltd		660m <sup>2</sup>
361095	31/01/2020	Wayne Clarkson		660m <sup>2</sup>
361095	15/10/2021	Reena Kainamu		660m <sup>2</sup>



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



**Identifier**                    **361095**  
**Land Registration District**   **North Auckland**  
**Date Issued**                    26 March 2010

**Prior References**  
 NA2C/539                    NA9D/80

**Estate**                    Fee Simple  
**Area**                    660 square metres more or less  
**Legal Description**       Lot 20 Deposited Plan 389986

**Registered Owners**  
 Reena Veralyne Kainamu

**Estate**                    Fee Simple - 1/4 share  
**Area**                    466 square metres more or less  
**Legal Description**       Lot 32 Deposited Plan 389986

**Registered Owners**  
 Reena Veralyne Kainamu

**Interests**

8453488.8 Consent Notice pursuant to Section 221 Resource Management Act 1991 (affects Lot 20 DP 389986) - 26.3.2010 at 1:12 pm

Subject to Section 241(2) Resource Management Act 1991 (affects DP 389986)

Subject to a right (in gross) to convey electricity over Lot 32 DP 389986 herein in favour of Top Energy Limited created by Easement Instrument 8453488.11 - 26.3.2010 at 1:12 pm

The easements created by Easement Instrument 8453488.11 are subject to Section 243 (a) Resource Management Act 1991

Subject to a right (in gross) to convey telecommunications and computer media over Lot 32 DP 389986 herein in favour of Telecom New Zealand Limited created by Easement Instrument 8453488.12 - 26.3.2010 at 1:12 pm

Some of the easements created by Easement Instrument 8453488.12 are subject to Section 243 (a) Resource Management Act 1991

Subject to a right (in gross) to convey water over Lot 32 DP 389986 herein in favour of the Far North District Council created by Easement Instrument 8453488.13 - 26.3.2010 at 1:12 pm

The easements created by Easement Instrument 8453488.13 are subject to Section 243 (a) Resource Management Act 1991

Subject to a right (in gross) to drain stormwater over Lot 32 DP 389986 herein in favour of the Far North District Council created by Easement Instrument 8453488.14 - 26.3.2010 at 1:12 pm

The easements created by Easement Instrument 8453488.14 are subject to Section 243 (a) Resource Management Act 1991

Subject to a right (in gross) to drain sewage over Lot 20 DP 389986 herein marked L on DP 389986 in favour of the Far North District Council created by Easement Instrument 8453488.16 - 26.3.2010 at 1:12 pm

The easements created by Easement Instrument 8453488.16 are subject to Section 243 (a) Resource Management Act 1991

*Transaction ID*    1209548  
*Client Reference*

*Search Copy Dated 22/06/23 2:10 pm, Page 1 of 7  
 Register Only*

**Identifier**                      **361095**

---

Land Covenant in Easement Instrument 8453488.18 - 26.3.2010 at 1:12 pm

Fencing Covenant in Easement Instrument 8453488.18 (affects Lot 20 DP 389986) - 12.4.2010 at 9:00 am

Identifier

361095



Land District North Auckland  
 Digitally Generated Plan  
 Generated on 03/04/2013 11:00:00 AM Page 4 of 5

LOT 1-35 BEING SUBDIVISION OF LOT 9, 30-34 DP 42861, PT LOT 5 & LOT 6  
 DP 51262, LOT 1 DP 343589 & TARAIRE PTS 1, 1J2 & 1S2

Surveyor Tarryn Arthur Popper  
 Firm Surveyors North

Digital Title Plan  
 DP 389986  
 Deposited on: 20/02/2010

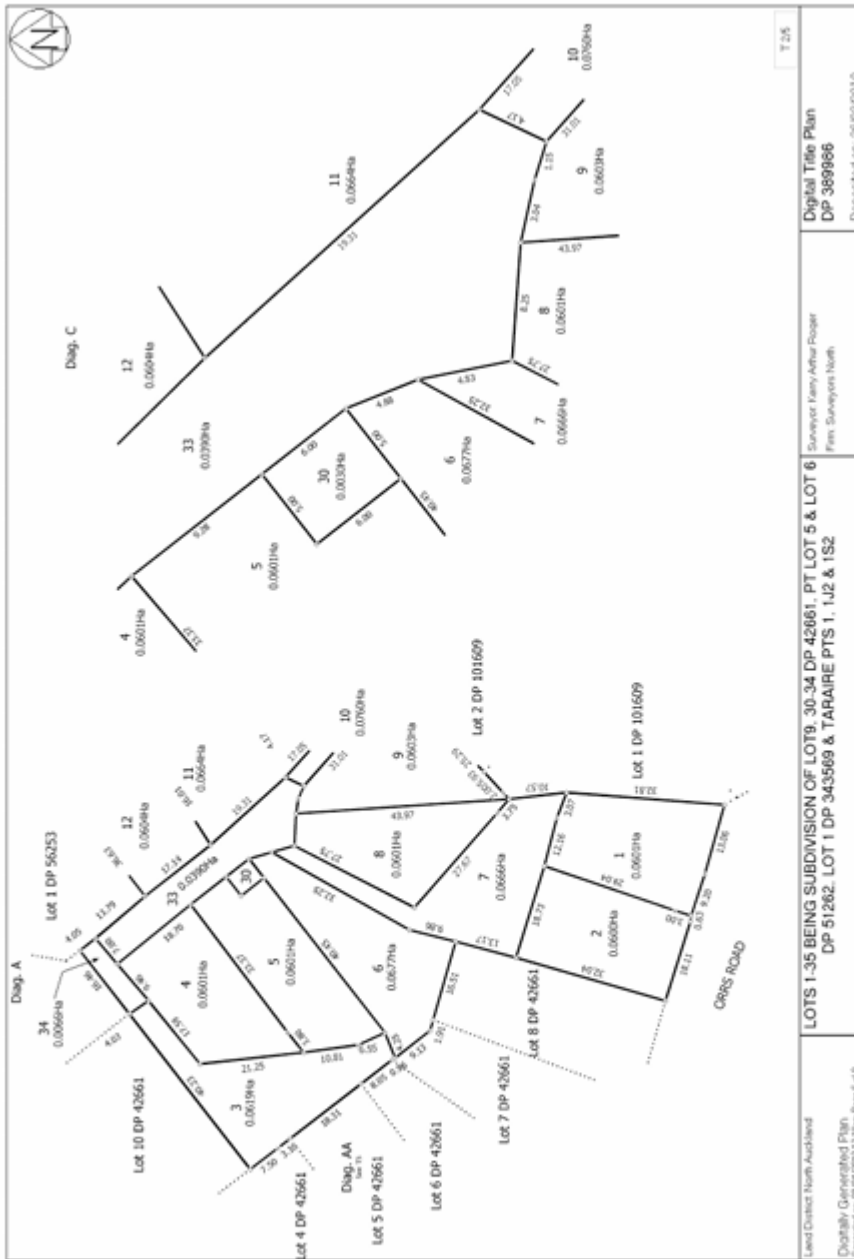
T 1/6

Transaction ID 1209548  
 Client Reference

Search Copy Dated 22/06/23 2:10 pm, Page 3 of 7  
 Register Only

Identifier

361095

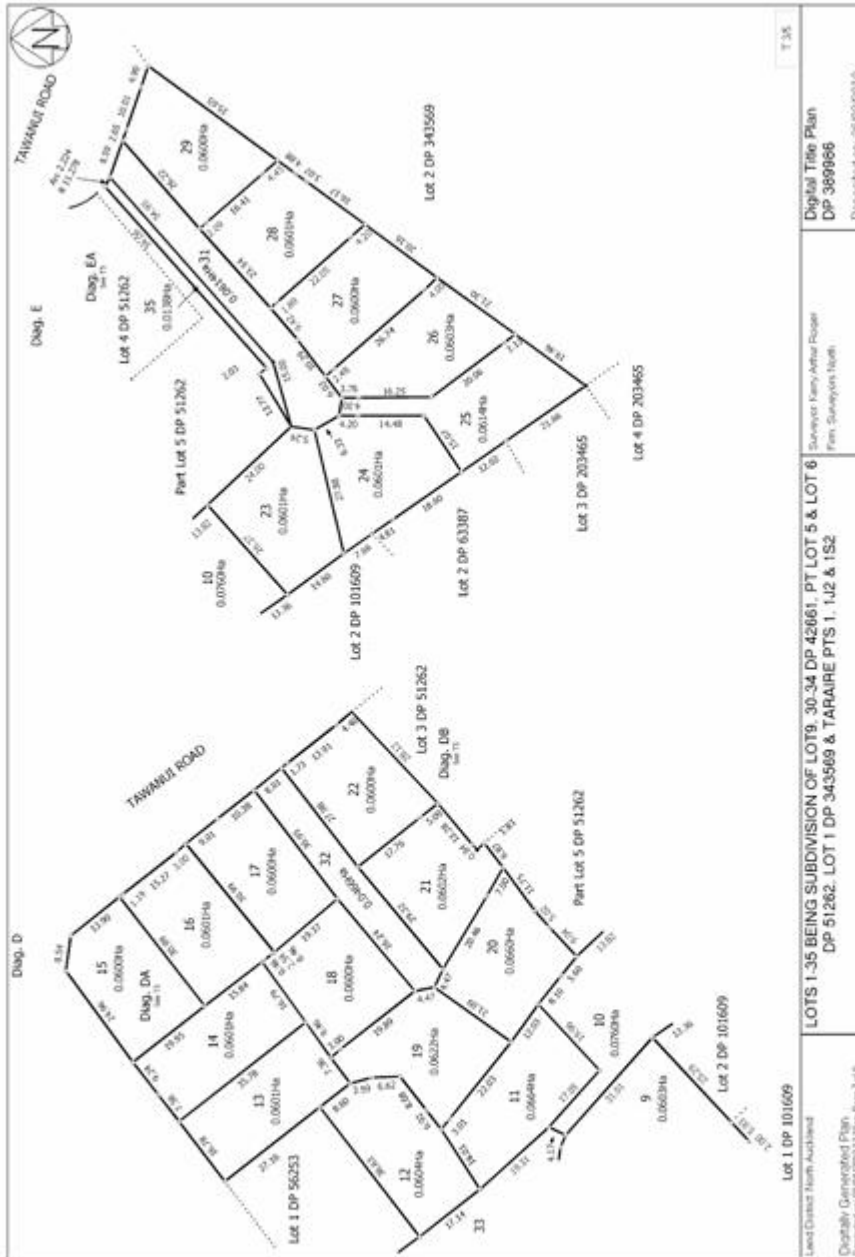


Transaction ID 1209548  
Client Reference

Search Copy Dated 22/06/23 2:10 pm, Page 4 of 7  
Register Only

Identifier

361095



Lot 1 DP 101609 Land District North Auckland Digitally Generated Plan Generated on: 05/04/2012 12:11:00 Page 7 of 9	Lot 1, 35 BEING SUBDIVISION OF LOTS 30-34 DP 42661, PT LOT 5 & LOT 6 DP 51262, LOT 1 DP 343569 & TARAIRE PTS 1, 1J2 & 1S2	Surveyor Kerry Arthur Rogge Firm: Surveyors North	Digital Title Plan DP 389886 Deposition: 28/03/2010
--	---	--	---

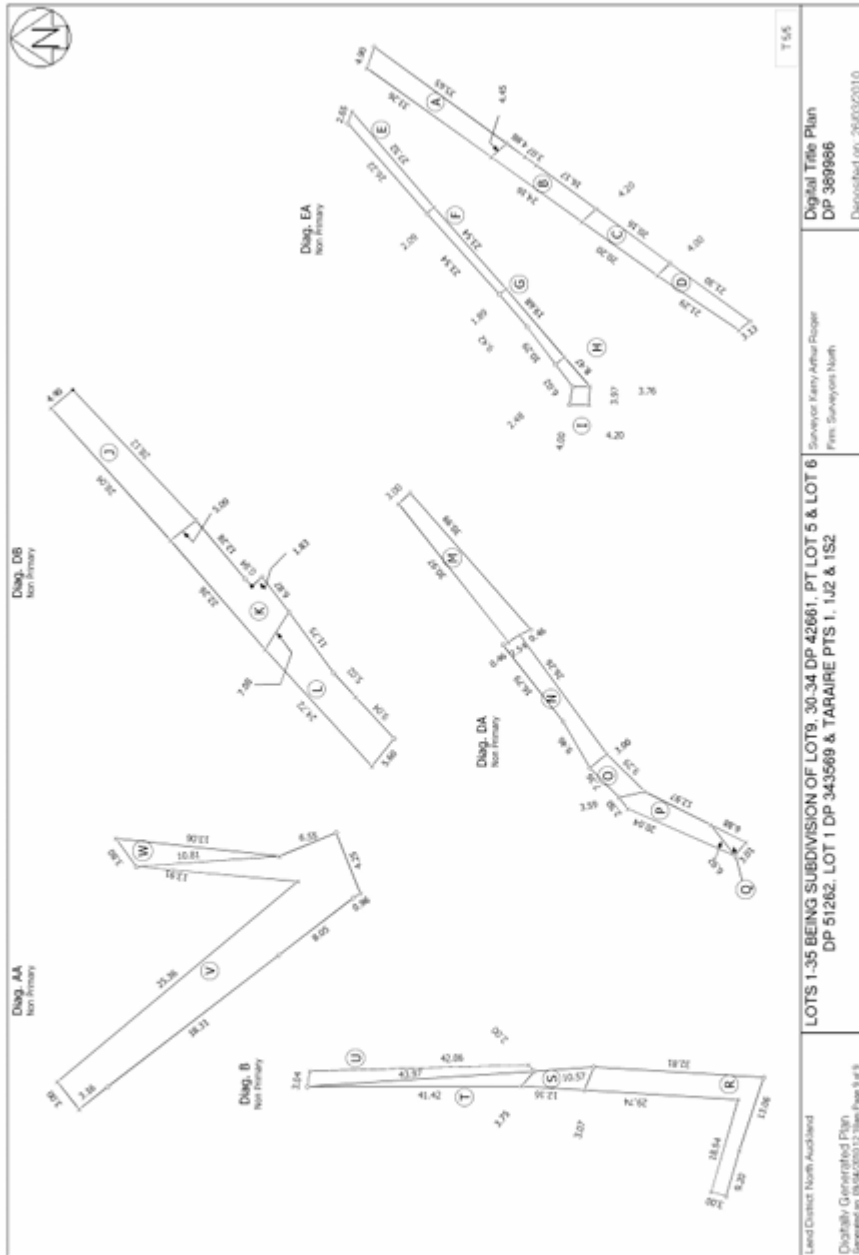
Transaction ID: 1209548  
Client Reference

Search Copy Dated 22/06/23 2:10 pm, Page 5 of 7  
Register Only



Identifier

361095



Transaction ID 1209548  
Client Reference

Search Copy Dated 22/06/23 2:10 pm, Page 7 of 7  
Register Only

## 22.9 Appendix I: Sampling and analysis plan

Sampling and Analysis Plan - Job # 202324		Date:10/7/2023					
Site Location:	Address:	Grid Reference:					
	35C Tawanui Road	-35.408074° 173.793110°					
Objectives:	Investigation Objectives: To identify if any contaminant of concern is present on site and characterise with respect to the proposed new dwelling. Evaluate whether further investigation, remediation, or management measures are necessary. Assess site as to disposal of soil from site Sampling Objectives: Identify distribution of any COI across the area of investigation as per proposed site plan.						
Site History:	Market garden/plant nursery with glass houses						
Current Landuse:	Residential						
Intended Landuse:	Residential						
CSM Summary: Refer CSM:	Source	Pathway	Receptor				
	Chemicals used during historic market garden/plant nursery use	soil and produce ingestion. Inhalation.	Child and adult resident				
Media investigated:	soil						
Analytes:	Heavy metals and pesticides (OCP's)						
Reference Background Concentration:	Cavanagh, J E, 2016. User Guide: Background soil concentrations and soil guideline values for the protection of ecological receptors (Eco-SGVs) –Consultation Draft <a href="https://iris.scinfo.org.nz/layer/48470-pbc-predicted-background-soil-concentrations-new-zealand/">https://iris.scinfo.org.nz/layer/48470-pbc-predicted-background-soil-concentrations-new-zealand/</a>						
Number of samples - statistical spacial sampling:	$G = \frac{R}{0.59} \quad (1)$ $N = \frac{A}{G^2} \quad (2)$ <p>*</p>	G=	$\frac{5}{0.59}$	N=	$\frac{600}{71.78}$	Number of sampling points=	8
Sampling Pattern:	Stratified						
Sample Depths:	Surface and 0.3m						
Composites:	Preliminary sampling 4 comps of two. Systematic sampling individual						
Quality Assurance/Quality Control:	1 x QA						
Sampling Method & Equipment:	shovel						
Decontamination:	Additional detail:						
	Digger: Spade/auger/trowel:	As per section 5.3 Contaminated land management guidelines No 5, 2021					

<p>Soil Investigation Design Plan - Stratified:</p>					
<p>Control Area (30m<sup>2</sup>) Hotspot calculation</p>	<p>G= <math>\frac{1}{0.59}</math></p>		<p>N= <math>\frac{30}{2.87}</math></p>	<p>Number of sampling points=</p>	<p>10</p>
<p>Sampling preferred order:</p>	<p>Circle Samples (1-8) collected judgemental in numeric order. Surface Systematic Samples 9-17 collected in number order. Depth samples collected numerically</p>				
<p>Lab Details:</p>	<p>Name of Lab: Hills</p>	<p>Containers required: Psoil 250, Glass300</p>	<p>Analysis required: HM, OCP's (prelim sampling), Arsenic</p>	<p>Other:</p>	
<p>Courier Details:</p>	<p>Name of Courier:</p>	<p>Date sent:</p>	<p>Container used:</p>	<p>Track Number:</p>	

## 22.10 Appendix J: Statement of qualification as a SQEP

As per the NESCS User Guide Suitably Qualified and Experienced Practitioner requirements Heather Windsor holds a Bachelor of Science degree. She has over 10 years experience investigating and reporting on contaminated land and is a Certified Environmental Practitioner (CEnvP).



## 22.11 Appendix K: Draft Site Management Plan

**Site Management Plan**  
(Earthworks – Arsenic contamination)  
Residential lifestyle Living – 35C Tawanui Road  
(Lot 20 DP 389986)

**INTRODUCTION:**

**Description** -The remediation area is located in flat driveway and garden area. A residential build is proposed. Arsenic contamination was identified which will be excavated removed to Puwera landfill.

**Purpose** – This site management plan provides a framework for the control of any hazards associated with remediation earthworks at 35C Tawanui Road, Kaikohe (herein referred to as the site).

**RESPONSIBILITIES AND DOCUMENT CONTROL:**

This Site Management Plan (SMP) was prepared by NZ Environmental for Dr R Kainamu (the landowner). The plan is based on site plans provided by the landowner and a Detailed Site Investigation carried out on the property in July 2023 (J202).

- It is the landowner’s responsibility to make this documentation available to any site contractors.
- Contractors will be responsible for locating all onsite services before work is undertaken.
- Contractors will have a contingency plan to deal with discharge to land or air and unexpected contamination (eg hay bales, silt fence material, dust suppressant).
- Contractors will have a plan to deal with incidents and emergencies (eg fires and spills).

**SUMMARY OF PROPOSED WORKS:**

10m³ of earthworks to a depth of 0.3m to be removed directly from one identified Control Area

**SUMMARY OF ACTUAL OR EXPECTED CONTAMINANT CONDITIONS:**

The Detailed Site Investigations identified one area with arsenic contamination in surface soils in a location designated a Control Area. Arsenic in the soil in the Control Area has a mean concentration of 25mg/kg and max concentration of 44mg/kg, below commercial/industrial outdoor worker guideline values. The risk is considered minor.

**SITE CONTROL PROCEDURES:**

- Access on and off the site should be through the legal driveway only.
- Power to the site is available.
- Town-supply water is available on site
- The Contractor will be responsible for locating site office and facilities in clean area of site. The First Aid station should be at this location.

**Maintenance and Excavation Worker Activities:** Before work on site commences all contractors shall be briefed regarding the identified COI (arsenic) and potential exposure to unexpected finds such as asbestos containing material or archaeological materials.

**ENVIRONMENTAL MANAGEMENT PROCEDURES:**

- NZEM staff are required to be on site to supervise remediation earthworks
- Monitoring requirements other than remediation as per RC requirements
- Overall earthwork’s activity should not exceed a period of two months.
- Establish run off paths and identify receiving environments such as drains, before designing earthworks management plan.
- Monitor weather before carrying out earthworks to avoid significant weather events.
- No stockpiles should be made of this material.
- Construct clean water diversion measures to divert surface water around work site (eg bunds or sandbags).
- Retain existing vegetation, where possible.
- Rehabilitate disturbed areas as soon as possible.
- Install stormwater catchpit measures, such as silt filters and geotextile material as a secondary control.
- Check sediment control measures daily and clean as required.
- Ensure any vehicles exiting the site are clean.
- The production of dust during earthworks should be minimized by application of a dust suppressant such as water.
- Noise should be maintained at acceptable levels.

**HEALTH AND SAFETY PROTECTION MEASURES:**

- NZEM staff are required to be on site to mark out and supervise remediation earthworks and finalise this SMP with contractors
  - PPE required for soil handling within remediation area include minimum High-vis, full limb coverage (Tyvek Type 5), hardhat and use of nitrile gloves, eye protection and P2 mask.
  - In the event of any emergency on site, emergency services should be contacted immediately. Where there is not a significant risk to personal health and safety the onsite personnel should take all practicable steps to secure the site and react to the emergency.
- |                                      |              |
|--------------------------------------|--------------|
| - Fire and emergency                 | 111          |
| - WorkSafe                           | 0800 030 040 |
| - National Poisons/Chemicals Hotline | 0800 764 766 |
| - Far North District Council         | 0800 920 029 |
| - Northland Regional Council         | 0800 504 639 |

**UNEXPECTED CONTAMINATION DISCOVERY PROTOCOL:**

If unexpected find is identified, work should stop immediately and SMP updated.

**ACCIDENTAL DISCOVERY PROTOCOL:**

If remains or archaeological features are discovered:

- Work should stop immediately, and an archaeologist consulted
- Heritage NZ northland office 09 407 0470
- NZ Police 111

**SOIL TESTING AND DISPOSAL REQUIREMENTS: CONCEPTUAL SITE MODEL:**



- Validation soil testing is required following remediation.
- Arsenic contaminated soil must be disposed of within on-site disposal area

**WORKS ORDER:**

- of successful removal of contamination, the Control Areas can be filled in with clean fill obtained from on site or certified imported clean fill such as quarry gravels.

**SITE PLAN:**



Heather Windsor

18 March 2026



As per the NES User Guide Suitably Qualified and Experienced Practitioner [requirements](#) Heather Windsor holds a Bachelor of Science degree. She has over 10 years' experience investigating and reporting on contaminated land and is a Certified Environmental Practitioner (CEnvP).

Party name:	Contact name:	Number:
Landowner	Reena Kaimanu	021 02610101
NZ Environmental Management	Heather Windsor	027 2771513
Rock River contracting	Brett Alexander	021 407 139

**GENERAL/LIMITATIONS:**

The mitigation measures presented above relate only to the hazards associated with working in an area with a history of HAIL use, with identified arsenic soil contamination. All works should be carried out in compliance with any applicable permits or consent conditions, relevant legislation and current best practice. This would include Health and Safety at Work Act 2015. Works may also have to comply with the statutory regulations which may include the Building Act (2004) and Far North District Council and Northland Regional Council Plans.