



Submission on a Change to the Tasman Resource Management Plan

Return your submission by the advertised closing date to:

Manager, Policy
Tasman District Council
Private Bag 4, Richmond 7050 OR
189 Queen Street, Richmond OR
Fax 03 543 9524 OR Email steve.markham@tasman.govt.nz

Cover Sheet

OFFICE USE

Date received stamp:

R 2.2.16

Initials:

Submitter No.

3961

Note:

This form is only for the purpose of making a submission on the Plan. It is NOT for making a further submission (i.e. in support or opposition to an original submission) or for making a submission on a resource consent or on Council's Annual Plan.

Submitter Name: Nigel Curtis
(organisation/individual)

Representative/Contact:
(if different from above)

Postal Address:

17 Bird Lane
Wakefield

Home Phone: 9280236

Bus. Phone: 027 4477122

Fax: 5443103

Email: nigel@curtisenterprises.co.nz

Date: 30-Jan-2016

Postal address for service of person making submission:
(if different from above)

Signature: _____

NOTE: A signature is not required if you make your submission by electronic means.

Total number of pages submitted (including this page): _____

IMPORTANT – Please state:

This submission relates to Change No.: _____

Change Title/Subject:

Request for zone change to residential for Bird Lane to the light industrial area.

- I/we wish to be heard in support of my/our submission.
- I/we would be prepared to consider presenting my/our submission in a joint case with others making a similar submission at any hearings.

Please attach this cover sheet to your supplementary sheet(s) outlining your submission request(s).

Supplementary Sheet

OFFICE USE Submitter Number: 3961

<p>(1) My submission relates to: Provision No or Planning Map No. <i>(Please specify, e.g. 34.2.20(a)(iii) or Zone Map 25)</i></p>	<p>(2) My submission is that: <i>(State concisely the nature of your submission and clearly indicate whether you: • support or oppose the specific provisions, or • wish to have amendments made, giving reasons)</i></p>	<p>(3) I seek the following decisions from the Tasman District Council: <i>(Give precise details of the nature of the decision you seek in relation to the variation number and provision/map number given in column (1), e.g. addition, deletion or alteration. The more specific you can be the easier it will be for Council to understand your concerns.)</i></p>	<p>OFFICE USE Submission No.</p>
<p>Tasman District Council Tasman Resource Management Plan Proposed Plan Change no 58</p> <p>Proposed Plan Change Zones Update Map 52/4</p>	<p>I OPPOSE;</p> <p>The current Rural zoning in the TRMP for the land from the corner of Bird lane/Whitby Road to the Light Industrial area on Bird lane.</p>	<p>I REQUEST;</p> <p>All of the Rural zoned land at the corner of Bird Lane/Whitby Road to be rezoned Residential. Combining the total block as residential would create a sensible cohesive residential zone/development boundary.</p> <p>We have 14 houses adjoining our property which makes it difficult to use the property as rural.</p> <p>I note you have already included logical boundary minimum lot sizes and setbacks in the TRMP to provide a buffer between the light industrial area and possible future residential development.</p> <p>This area was identified for potential growth and rezoning residential in the Wakefield Settlement Area 2014 as part of the Wakefield Strategic Review April 2015.</p> <p>The only reason it has been removed from the rezoning is because of possible contamination, We have undertaken contamination testing and I attach the report.</p> <p>The site is largely compliant and the small area of non compliance will be remediated and validated should any subdivision application be made for that part of the property.</p>	<p align="center">1</p>

14

Feel free to contact us:



Tasman District Council
Email info@tasman.govt.nz
Website www.tasman.govt.nz
24 hour assistance

Richmond
189 Queen Street
Private Bag 4
Richmond 7050
New Zealand
Phone 03 543 8400
Fax 03 543 9524

Murchison
92 Fairfax Street
Murchison 7007
New Zealand
Phone 03 523 1013
Fax 03 523 1012

Motueka
7 Hickmott Place
PO Box 123
Motueka 7143
New Zealand
Phone 03 528 2022
Fax 03 528 9751

Takaka
14 Junction Street
PO Box 74
Takaka 7142
New Zealand
Phone 03 525 0020
Fax 03 525 9972

Tasman Resource Management Plan Submission

Additional notes;

it is our intention to subdivide off part of our property to provide the revenue to build a retirement home for our future.

Good reasons for subdividing

1. We do not have a water right and the land has a rocky base so we have problems with it drying off during summer so cannot use it for intensive farming or horticulture. We have to supplement feed to our cows during summer which makes these unviable.
2. The development of Wakefield suggests a road going through our property, this will be achieved if we and our neighbours at number 19 subdivide off that part property to the east of the proposed roadway as it will be required by this development.
3. While there is no water right available for rural development, there is reticulated water and sewerage available for residential development.
4. We have 14 houses surrounding our property not good for rural property. We are subject to frequent request to cut trees down, quiet down our cows. We are good neighbour and generally at down our best to comply with our neighbour's wishes, but it is not a good way to run a rural property.

The minimal contamination found is on areas of 17 and 19 Bird Lane is located on part of the land that neither the neighbour nor or I want to subdivide. It is our and their intention to only sell off to the east of the proposed roadway through 17 and 19. We would request that the rezoning is to the east of this proposed roadway but without surveying it is probably not viable.

I look forward to providing further and any information required to assist this submission to a successful conclusion.

Thank you

Nigel Curtis.

DETAILED SITE INVESTIGATION REPORT

34879 / 17 Bird Lane, Wakefield / Nigel Curtis

T. 0800 999 333
E. hello@do.co.nz

11 Deans Ave, Addington
PO Box 589, Christchurch 8140

www.do.co.nz

Quality Assurance

Title: Detailed Site Investigation Report

Client: Nigel Curtis

Filename: T:\projects\34s\NN34879\151125.moc.34879.detailed site investigation.docx

Version: 1

Date: 25 November 2015

Project No: NN34879

Prepared By:	Martyn O'Cain Environmental Scientist	Signature: 
Reviewed By	Pauline Hadfield Planner	Signature: 
Approved for Issue by a	Martyn O'Cain Environmental Scientist	Signature: 

Disclaimer

This report has been prepared at the specific instructions of Nigel Curtis in connection with an environmental investigation at 17 Bird Lane (Lot 1 DP 14350 Title NL9A/839). The report is concerned specifically with requirements outlined in the National Environmental Standard for Assessing and Managing Contaminants in Soil for the Protection of Human Health (Ministry for the Environment, 2011) and the results of an investigation into surface soil contamination on the site. The report is solely for the purpose of assessing potential contaminants in the soil associated with the land being suitable for human occupation. It has purposely not assessed the possible impacts of contaminants on ecological values associated with the site. Any other investigations that are required to determine the suitability of this property are outside the scope of this report.

Davis Ogilvie did not perform a complete assessment of all possible conditions or circumstances that may exist at the site. Conditions may exist which were undetectable given the limited investigation of the site. There may be conditions onsite which have not been revealed by the investigation, which have not been taken into account in the report.

Davis Ogilvie's opinions are based upon information that existed at the time of the production of the document. Assessments made in this report are based on the conditions found onsite and published sources detailing the recommended investigation methodologies described. No warranty is included; either expressed or implied that the actual conditions will conform to the assessments contained in this report. Davis Ogilvie has provided an opinion based on observations, site investigations, and analysis methodologies current at the time of reporting. The report cannot be used by any third party and cannot be used if there are changes in the referenced publications, analysis methodologies, laws or regulations.

Only Nigel Curtis, and the Local and Regional Territorial Authorities are entitled to rely upon this report. Davis Ogilvie & Partners Ltd accepts no liability to anyone other than Nigel Curtis in any way in relation to this report and the content of it and any direct or indirect effect this report may have. Davis Ogilvie & Partners Ltd does not contemplate anyone else relying on this report or that it will be used for any other purpose.

Should anyone wish to discuss the content of this report with Davis Ogilvie & Partners Ltd, they are welcome to contact us on (03) 548 4425 or at 277 Hardy St, Nelson.

Table of Contents

1.0	Introduction	1
2.0	Proposed Activity & Objective of the Investigation.....	2
3.0	Site Identification	3
4.0	Site Conditions and Surrounding Environment.....	4
5.0	Site History	5
6.0	Conceptual Site Model.....	8
7.0	Sampling Methodology and Analysis	10
8.0	Results	12
9.0	Quality Assurance.....	14
10.0	Site Characterisation and Summary	15
11.0	Regulatory Requirements	17
12.0	Recommendations	19
13.0	References	20

Appendix A – Hill Laboratories Analysis Report

1.0 Introduction

Following discussions with Tasman District Council, Mr Nigel Curtis is proposing to assist with the rezoning and development of 17, 19 and 21A Bird Lane, and 171 Whitby Road, Wakefield. The land will be rezoned to 'residential'. Mr Curtis is considering the rezoning of the land with the agreement of the adjoining landowners that are involved.

The National Environmental Standard (NESCS) for Assessing and Managing Contaminants in Soil to Protect Human Health (2011) requires a site investigation to be undertaken on properties that are undergoing a subdivision or change of land use. Before the local Council can authorise such changes an assessment of the history of the site must be undertaken. The land use history of the site will be assessed against the Hazardous Activities and Industries List (HAIL). The HAIL is a list of activities and industries that have the potential to contaminate soil. The investigation will indicate whether or not the site is fit for the proposed purpose or additional information is required.

Initial information identified that the land in question has been used for the bulk storage of treated timber as it was once part of H Baigent & Sons Brookside operation. Baigent & Sons were a timber merchant that included treatment and processing. Land associated with this type of activity is susceptible to soil contamination from the leaching and migration of persistent chemicals derived from the timber treatment process. An investigation is therefore required on the area being developed to identify whether or not there will be a risk to human health if the proposed activity is to go ahead.

2.0 Proposed Activity & Objective of the Investigation

The land being considered for rezoning includes Lot 1 DP 14350, Lot 3 DP 453132 and Lot 2 DP 3241. The total property area is approximately 4.5 ha. No subdivision scheme plan is available at this time as this report has been prepared to support a plan change with regard to the zoning of the land.

This investigation will consider the history of the site and assess the existing surface materials within the area being rezoned that was associated with the bulk storage of timber. A number of soil sample locations will be analysed for a suite of contaminants that are associated with any former and/or current land use activities. The results of the analysis will be compared to the NESCS priority contaminants, associated with such activities, for a residential land use.

3.0 Site Identification

Site address & Owner: 17 – 19 Bird Lane (NR & CJ Curtis)
21A Bird Lane (MJ & KA Phillips)
171 Whitby Road (SP Mattesen *et al*)

Locality: Wakefield

Legal description: Lot 1 DP 14350
Lot 3 DP 453132
Lot 2 DP 2341

Total Area 4.61 ha

Map reference: Latitude: -41.399034 Longitude: 173.057014 (Figure 1)

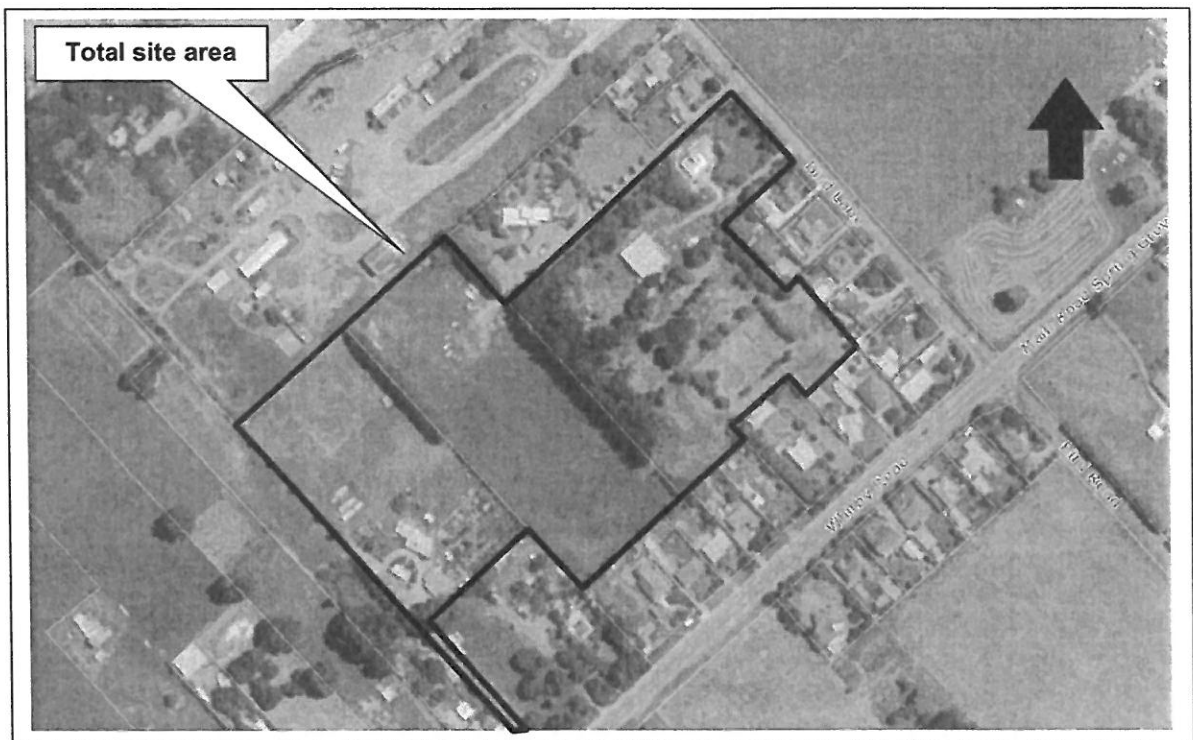


Figure 1: Bird Lane / Whitby Rd investigation area

4.0 Site Conditions and Surrounding Environment

The area being developed is made up of three rural residential properties. Each of the properties have a residential dwelling with associated farm related buildings. The dwelling at 21A Bird Lane is a relocated building that has been established on the site within the last two years. The house is not visible on the aerial photograph shown in Figure 1 but is located at the northwest end of the property.

The site is flat and located approximately 250 m northeast of Wakefield. They are all small holdings with limited grazing available. The investigation area is surrounded by residential, rural residential and rural land uses. Towards the northeast and southeast are residential properties while the balance of the land surrounding the investigation area is rural and rural residential.

The underlying geology is described by GNS Science 1:250,000 geological maps as Holocene river deposits of well sorted gravels forming modern flood plains and young fan gravels.

Groundwater depth was not specifically investigated. There are no surface waterways running through or adjacent to the investigation area. The nearest waterway is the Wai-iti River which is approximately 550 m northwest of the site.

5.0 Site History

Previous land uses associated with a site can be visually tracked through historical aerial photographs if they are available. The following aerial photos (Figures 2 - 4) show the site in 1948, 1971 and 1984. The 1984 photograph only shows the northern end of the of the investigation area. The photos have been sourced from the Tasman District Council's database.

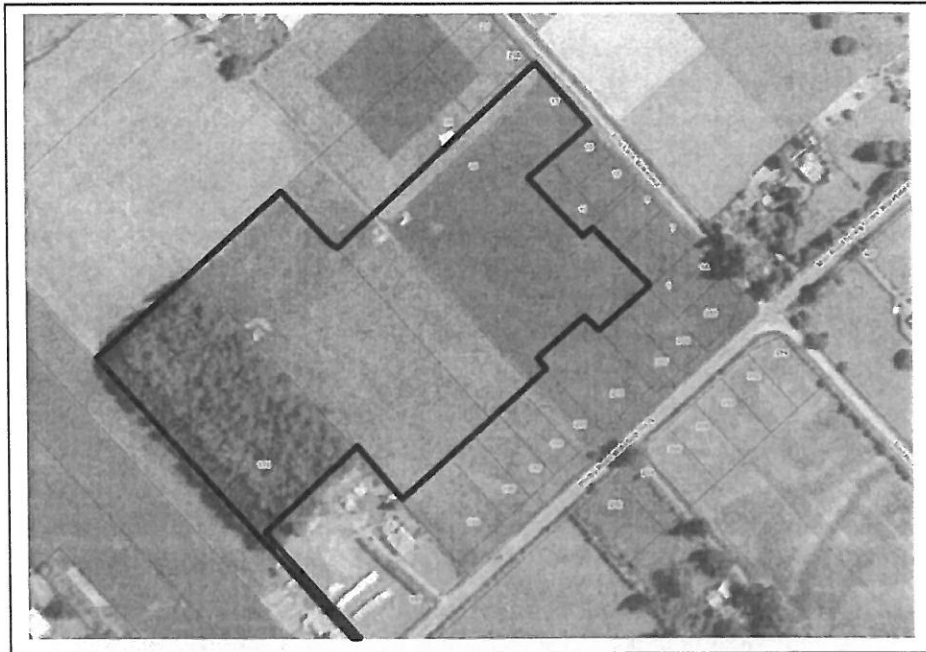


Figure 2: 1948 aerial photograph of the investigation area

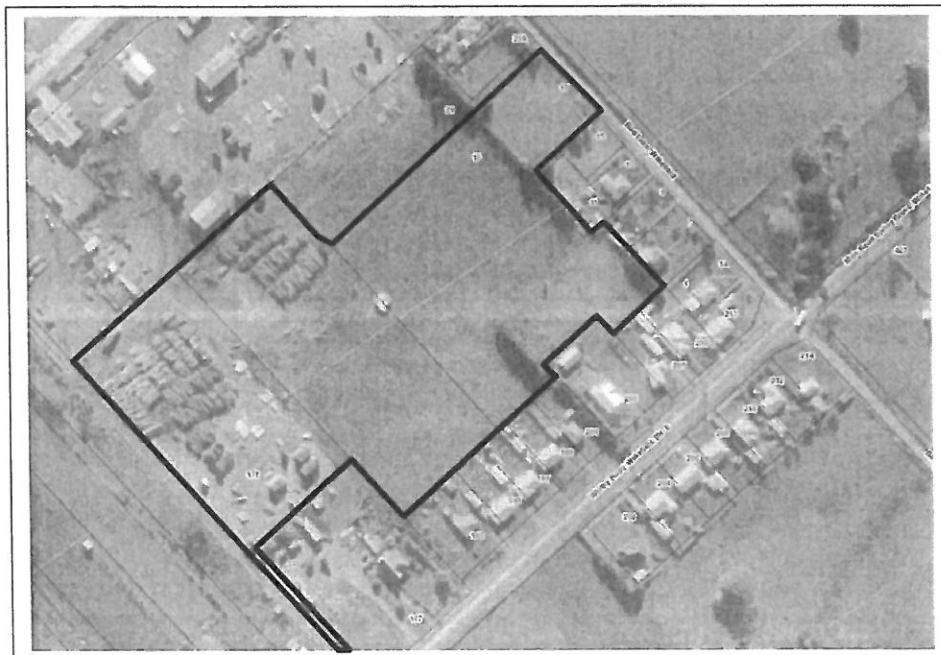


Figure 3: 1971 aerial photograph of the investigation area

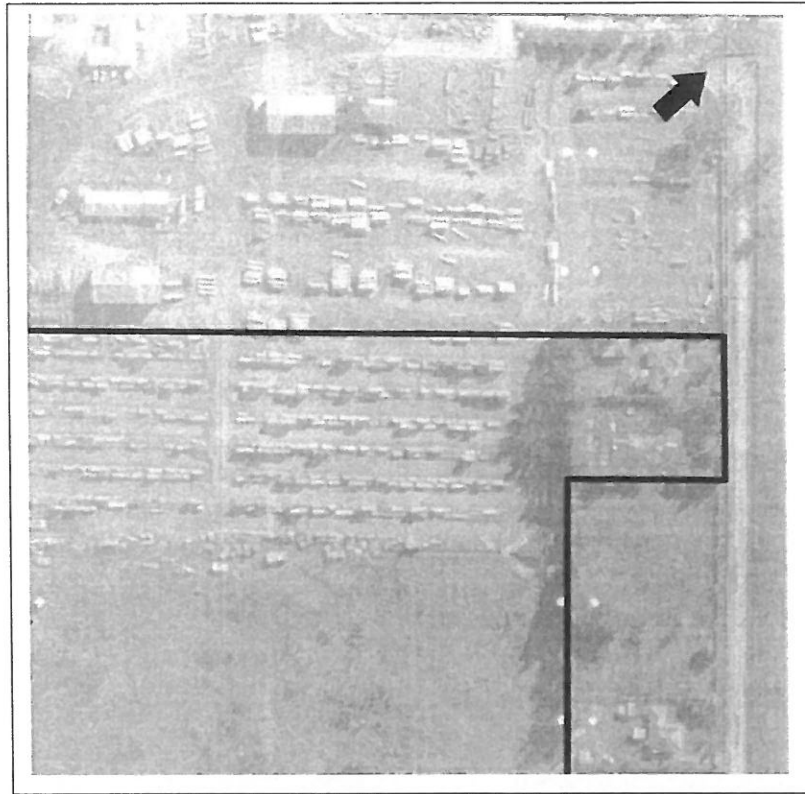


Figure 4: 1984 aerial photograph showing part of the investigation area

The 1948 photograph shows the area being investigated in pasture with a small amount of bush or forest along the southwest boundary. By 1971, Baigents Brookside Mill was well established. The area being investigated appears to mainly have been used for storing timber with the processing and treatment on the land towards the northwest. This is also evident in the 1984 aerial that shows part of the site. The mill is believed to have used copper, chromium and arsenic, and pentachlorophenol (PCP) during the treatment of the timber.

According to an article written by the Wakefield Village news in 2010, the Brookside Mill employed 50 staff in 1980 but by 1986 it began to be decommissioned as the owners established a much larger mill at Eves Valley.

Investigations began in 1994 to address the likely soil contamination at the site as a result of the process plant. The investigations lead to remedial action being undertaken in 2003 with over 2,300 tonne of soil being removed from the site.

The area being investigated is not known to have been within the area where the timber was processed however it is evident that it was used to store it. It is unknown if the timber was treated or untreated when it was stored within the investigation area.

Figure 5 shows the extent of the Brookside Mill around the early 1980's. The investigation area is also identified.

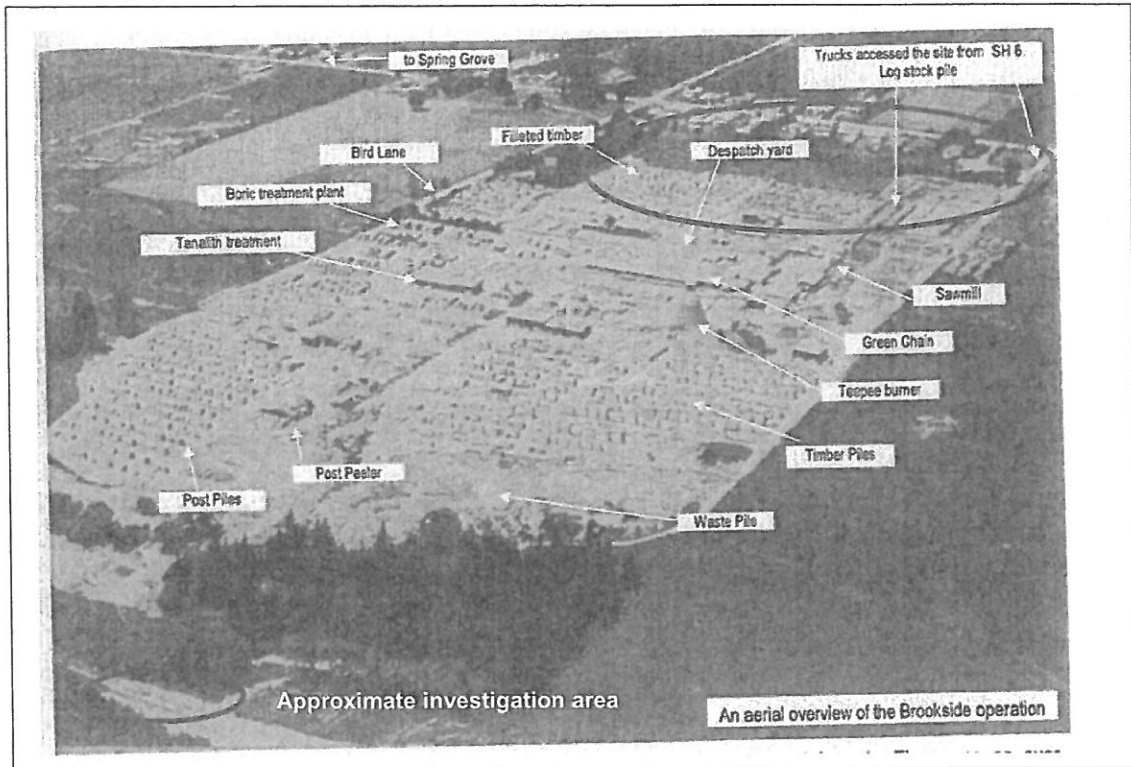


Figure 5: Extent of the Brookside Mill in the early 80's

6.0 Conceptual Site Model

The history of the site indicates that potential contaminant sources may be derived from the storage and use of timber treatment chemicals and by the bulk storage of timber after it has been treated. Based on the land use scenarios discussed above a conceptual site model has been prepared.

A conceptual site model helps to identify whether or not a complete exposure pathway exists. An exposure pathway must include a contaminant source, a transport mechanism and a receptor. If one of these components does not exist or can be removed then the exposure path way is incomplete. If the exposure pathway is incomplete then there is little risk to human health at this location. A conceptual site model has been completed and is included as Figure 6. The model considers a number of potential HAIL activities that could be associated with the site based on the history.

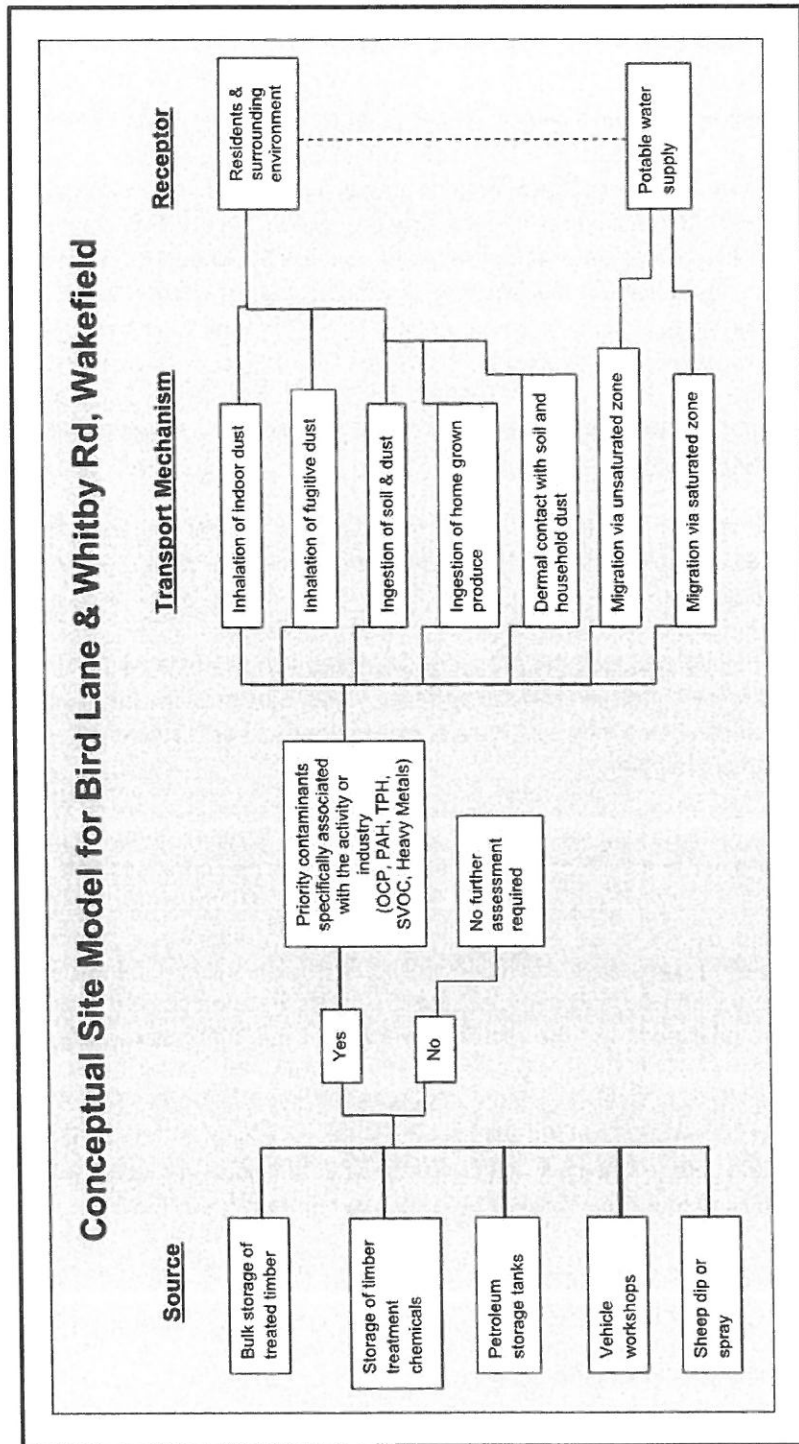


Figure 6: Conceptual Site Model

7.0 Sampling Methodology and Analysis

Based on the site history, the most likely source that could potentially contaminate the underlying soils is the bulk storage of treated timber. The main timber mill operation was to the north west of the investigation area. This is where the treatment chemicals would have been used and stored. It is also most likely where any workshop related activities would have taken place. There were some small buildings in the investigation area but they did not look big enough to support activities such as vehicle workshops. There was no indication of any stockyards or sheep dip on the property when it was being used for grazing.

The investigation site is limited to the area where the timber was being stored as determined by the old aerial photographs. There was a large area of land towards the southeast that did not appear to be used for the storage of timber.

A systematic or grid sampling methodology has been used to assess this area. Systematic sampling is a statistically based sampling strategy that selects sample locations at regular intervals throughout the site within a grid pattern.

Twenty six sample locations across the site were identified. One sample was collected from each grid area. Soil samples were collected from the surface to approximately 75 mm below the surface. The material was predominantly a sandy silty gravel. Large gravels were removed from the sample media prior to placing it in the container.

The samples were composited into sets of two creating thirteen samples for analysis. Each composite was analysed for a suite of heavy metals with six of the composites also being analysed for PCP.

Soil composite sampling consists of collecting individual samples from different locations and mixing an equal mass of the samples (sub-samples) together to form one composite sample. A composite sample can then be analysed, and the result will represent the arithmetic average of the constituent sub-samples.

In some circumstances an appropriate adjustment factor is applied to compensate for the potential 'averaging' or dilution effect that may occur to contaminant concentrations within each individual sample during the mixing process. This will be discussed further in Section 8.

Three control samples were also collected in the area that was not identified as being used for storing timber.

Approximate soil sample locations are shown in Figure 7.

The soil sample results are compared to the trigger values listed in Tables B2 & B3 (soil contaminant standards for health for inorganic substances and organic compounds) of the NESCS. The appropriate land use is 'residential (10% produce)'.

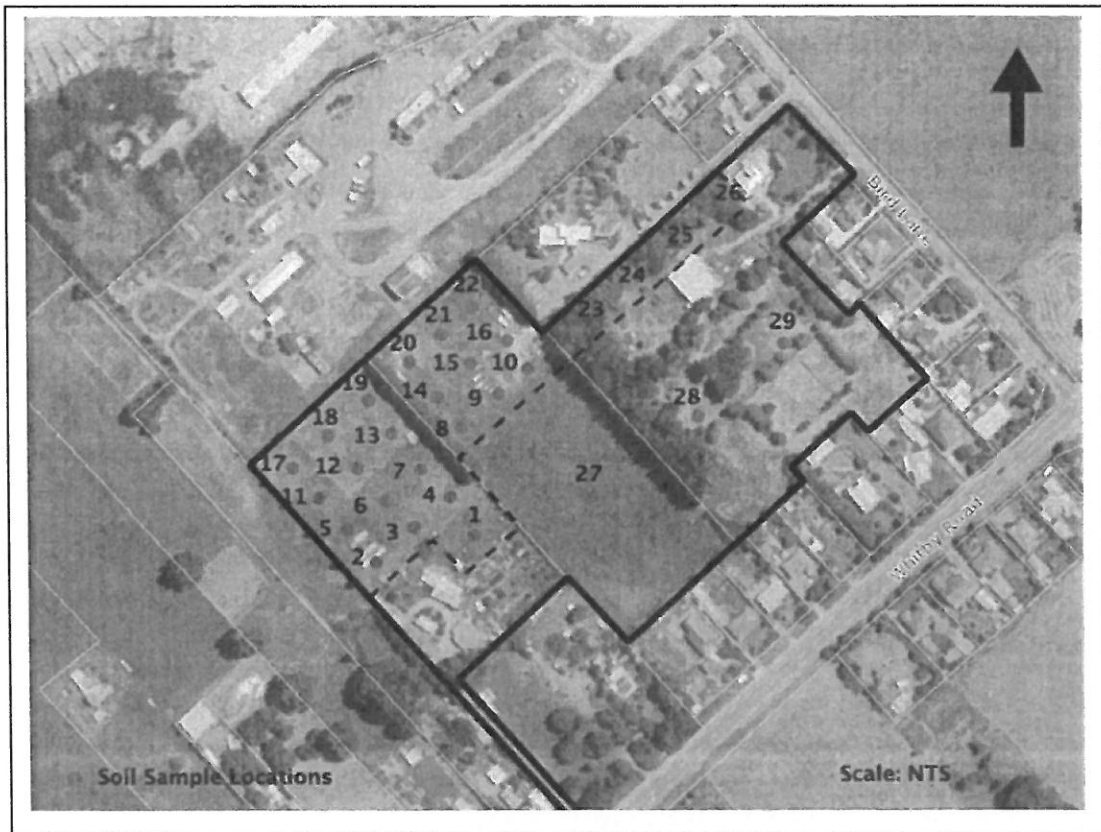


Figure 7: Approximate soil sample locations

8.0 Results

Table 1 shows the composite results for the soil samples collected from across the site. The results are compared to the trigger values listed in the NESCS for a residential and rural residential land use.

When soil samples are composited, an adjustment to the final result is sometimes required to compensate for the potential 'averaging' or dilution effect that may occur to contaminant concentrations within each individual sample during the mixing process.

The Ministry for the Environment Contaminated Land Management Guidelines #5 (2011) state that when comparing composite results against guideline values, the guideline value must be adjusted by dividing the value by the number of sub-samples in the composite:

$$\text{Adjusted guideline value} = \frac{\text{Guideline Value}}{\text{Number of subsamples in composite}}$$

This approach does not allow for the natural background concentrations that will be present in the soil and therefore does not necessarily provide a true representation of the actual concentrations in each sample. It assumes that one sample may have no concentration of a particular contaminant which is unlikely when assessing heavy metals. However as a precautionary approach all composite sample results that showed a value that is greater or equal to half the appropriate trigger value for a residential land use, was reanalysed as individual samples for that particular contaminant.

This approach identified that seven composite samples would require each of the individual samples to be analysed for arsenic only. These soil samples are highlighted in Table 1. The individual results are shown in Table 2.

The analysis of the individual samples shows that the trigger value for arsenic concentrations exceeds the residential land use acceptance criteria on four occasions (BL9, BL14, BL21 & BL24) and noticeably elevated at two further locations (BL8 & BL15).

All other soil sample results were below the adjusted trigger value or below the laboratory detection limit. The Hill Laboratories analysis report is attached as Appendix A.

Table 1: Composite soil sample results					
Composite (mg/kg)	Lead	Arsenic	Chromium	Copper	PCP
BL1 & 4	64	6	24	22	-
BL2 & 3	17.5	5	27	24	< 0.05
BL5 & 6	34	4	26	20	-
BL7 & 8	14.1	10	35	21	-
BL9 & 10	15.8	17	32	28	< 0.05
BL11 & 12	12.9	4	23	18	-
BL13 & 14	17.7	11	30	21	< 0.05
BL15 & 16	14	11	31	30	-
BL17 & 18	15.3	5	22	20	-
BL19 & 20	15.3	9	26	21	< 0.05
BL21 & 22	14.2	28	45	35	-
BL23 & 24	45	10	26	24	-
BL25 & 26	14.9	10	27	20	< 0.05
BL27	16.7	5	25	16	-
BL28	23	4	24	16	< 0.05
BL29	11.3	3	23	14	-
NESCS Residential	210	20	460	>10,000	55
NESCS Rural Residential	160	17	290	>10,000	55

Table 2: Results for selected composite samples showing individual arsenic concentrations								
mg/kg	BL7	BL8	BL9	BL10	BL13	BL14	BL15	
Arsenic	8	18	22	13	5	25	16	
mg/kg	BL16	BL21	BL22	BL23	BL24	BL25	BL26	Trig. Value
Arsenic	11	35	12	5	26	8	11	20

9.0 Quality Assurance

Sampling was undertaken on 19 October 2015. The soil samples were collected using a stainless steel trowel and placed directly into clean sealable plastic bags.

All sampling equipment was cleaned in Decon 90 and rinsed in freshwater before collecting the sample. Field staff wore clean gloves when collecting the sample to minimise the potential for cross contamination. The samples were couriered to Hill Laboratories in Hamilton the same day they were collected. Hill Laboratories are an internationally recognised laboratory that is endorsed by International Accreditation New Zealand (IANZ).

10.0 Site Characterisation and Summary

Mr Nigel Curtis, with assistance from TDC and neighboring property owners is looking to have 17, 19, 21A Bird Lane and 171 Whitby Rd rezoned from rural to residential. The land was formerly used by Baigent & Sons as a mill where timber was processed and treated. The area that is being considered for rezoning looks to have only been used for the bulk storage of timber. The processing and treatment of the timber was carried out at a different location.

The analytical results show that a number of soil sample locations have elevated arsenic concentrations that are above the NESCS trigger value for a residential land use. These areas are shown in Figure 8. All other contaminants that were tested are well below the NESCS trigger value.

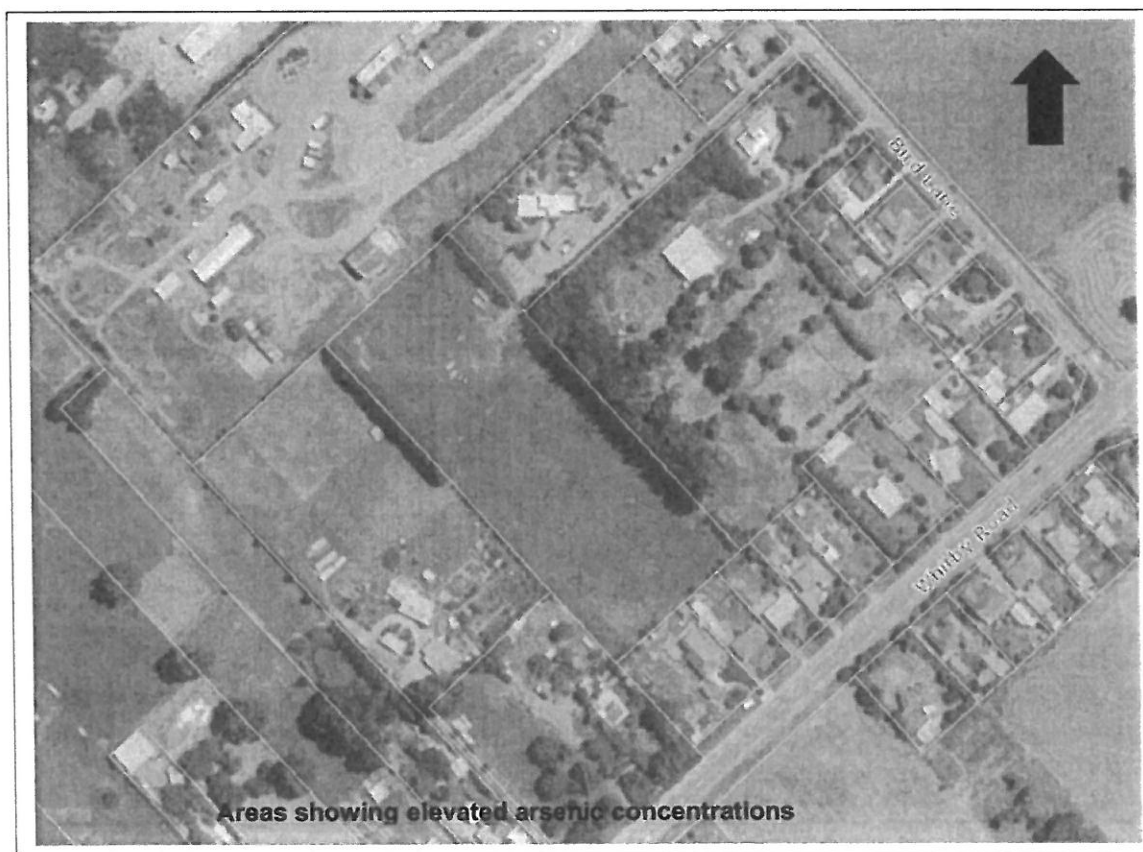


Figure 8: Areas with elevated arsenic concentrations

It is important to note that soil sample locations BL27, BL28 and BL29 were collected from an area of the property that is believed not to have been used for the bulk storage of timber. The analytical results at these locations were well below the appropriate NESCS trigger values for a residential land use and could be considered as representing typical background concentrations. What is unknown however is the extent of the elevated arsenic concentration within the properties being rezoned. It is likely that elevated arsenic concentrations do not extend far beyond the area that has been assessed as this is the area that was being used to store the timber, however this will need to be confirmed by collecting additional samples at an appropriate time.

Based on the conceptual site model, parts of the investigation area are shown to have elevated arsenic concentrations that exceed the NESCS trigger value therefore a complete exposure pathway exists at these locations (Figure 8). The balance of the land is suitable for residential development.

Within the investigation area, there was no evidence from the historical aerial photographs or observations undertaken on site of underground storage tanks, vehicle workshops or a sheep spray or dip.

11.0 Regulatory Requirements

Because soil contaminant concentrations have been detected that exceed the applicable standard in Regulation 7 of the NESCS, the proposed change in land use and eventual subdivision is a restricted discretionary activity as described in Regulation 10. A resource consent is required. The requirements of Regulation 10 and matters over which discretion is reserved are as follows:

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.*

Given the detection of elevated arsenic in specific areas of the property, a remedial action plan (RAP) will be required before the commencement of the subdivision or change of land use. The RAP will accompany any resource consent applications required under the NESCS.

The NESCS also includes resource consent requirements for the disturbance and removal of soil from a contaminated site. It is highly likely that a requirement of any resource consent that is granted is that all material that is removed from the site can only be disposed of at either Eves Valley Landfill or York Valley Landfill. This requirement will need further consideration if and when earthworks are required.

12.0 Recommendations

Based on the site investigation results the following recommendations are suggested:

- 171 Whitby Rd (Lot 2 DP 2341) is suitable for residential land use;
- The extent of the elevated arsenic concentrations on 17 – 19 Bird Lane (Lot 1 DP 14350) and 21A Bird Lane (Lot 3 DP 453132) needs to be determined prior to the commencement of any proposed earthworks;
- A remedial action plan shall be prepared to address the elevated arsenic concentrations detected in the areas represented in Figure 8.

13.0 References

Ministry for the Environment (2004). Contaminated Land Management Guidelines #5: Site investigation and analysis of soils.

Ministry for the Environment (2011). National Environmental Standard (NES) for Assessing and Managing Contaminants in Soil to Protect Human Health.

3961

Appendix A
Hill Laboratories Report



ANALYSIS REPORT

Client: Tasman Environmental Management	Lab No: 1490572	SPv2
Contact: M O'Cain	Date Registered: 20-Oct-2015	
C/- Tasman Environmental Management	Date Reported: 05-Nov-2015	
29 Wilkie Street	Quote No: 72017	
MOTUEKA 7120	Order No:	
	Client Reference: Bird Lane	
	Submitted By: M O'Cain	

Amended Report

This report replaces an earlier report issued on the 29 Oct 2015 at 11:22 am
At the client's request, arsenic has been added to fourteen individual samples.

Sample Type: Soil						
Sample Name:	BL7 19-Oct-2015	BL8 19-Oct-2015	BL9 19-Oct-2015	BL10 19-Oct-2015	BL13 19-Oct-2015	
Lab Number:	1490572.7	1490572.8	1490572.9	1490572.10	1490572.13	
Individual Tests						
Total Recoverable Arsenic	mg/kg dry wt	4	18	22	13	5
Sample Name:	BL14 19-Oct-2015	BL15 19-Oct-2015	BL16 19-Oct-2015	BL21 19-Oct-2015	BL22 19-Oct-2015	
Lab Number:	1490572.14	1490572.15	1490572.16	1490572.21	1490572.22	
Individual Tests						
Total Recoverable Arsenic	mg/kg dry wt	25	16	11	35	12
Sample Name:	BL23 19-Oct-2015	BL24 19-Oct-2015	BL25 19-Oct-2015	BL26 19-Oct-2015	BL27 19-Oct-2015	
Lab Number:	1490572.23	1490572.24	1490572.25	1490572.26	1490572.27	
Individual Tests						
Total Recoverable Arsenic	mg/kg dry wt	5	26	8	11	-
Total Recoverable Lead	mg/kg dry wt	-	-	-	-	16.7
CCA by ICP-MS						
Total Recoverable Arsenic	mg/kg dry wt	-	-	-	-	5
Total Recoverable Chromium	mg/kg dry wt	-	-	-	-	25
Total Recoverable Copper	mg/kg dry wt	-	-	-	-	16
Sample Name:	BL28 19-Oct-2015	BL29 19-Oct-2015	Composite of BL1 & BL4	Composite of BL2 & BL3	Composite of BL5 & BL6	
Lab Number:	1490572.28	1490572.29	1490572.30	1490572.31	1490572.32	
Individual Tests						
Dry Matter	g/100g as rcvd	86	-	-	93	-
Total Recoverable Lead	mg/kg dry wt	23	11.3	64	17.5	34
CCA by ICP-MS						
Total Recoverable Arsenic	mg/kg dry wt	4	3	6	5	4
Total Recoverable Chromium	mg/kg dry wt	24	23	24	27	26
Total Recoverable Copper	mg/kg dry wt	16	14	22	24	20
Pentachlorophenol Screening in Soil by LCMSMS						
Pentachlorophenol (PCP)	mg/kg dry wt	< 0.05	-	-	< 0.05	-
2,3,4,6-Tetrachlorophenol (TCP)	mg/kg dry wt	< 0.05	-	-	< 0.05	-
Sample Name:	Composite of BL7 & BL8	Composite of BL9 & BL10	Composite of BL11 & BL12	Composite of BL13 & BL14	Composite of BL15 & BL16	
Lab Number:	1490572.33	1490572.34	1490572.35	1490572.36	1490572.37	
Individual Tests						
Dry Matter	g/100g as rcvd	-	86	-	86	-



Sample Type: Soil						
Sample Name:	Composite of BL7 & BL8	Composite of BL9 & BL10	Composite of BL11 & BL12	Composite of BL13 & BL14	Composite of BL15 & BL16	
Lab Number:	1490572.33	1490572.34	1490572.35	1490572.36	1490572.37	
Individual Tests						
Total Recoverable Lead	mg/kg dry wt	14.1	15.8	12.9	17.7	14.0
CCA by ICP-MS						
Total Recoverable Arsenic	mg/kg dry wt	10	17	4	11	11
Total Recoverable Chromium	mg/kg dry wt	35	32	23	30	31
Total Recoverable Copper	mg/kg dry wt	21	28	18	21	30
Pentachlorophenol Screening in Soil by LCMSMS						
Pentachlorophenol (PCP)	mg/kg dry wt	-	< 0.05	-	< 0.05	-
2,3,4,6-Tetrachlorophenol (TCP)	mg/kg dry wt	-	< 0.05	-	< 0.05	-
Sample Name:	Composite of BL17 & BL18	Composite of BL19 & BL20	Composite of BL21 & BL22	Composite of BL23 & BL24	Composite of BL25 & BL26	
Lab Number:	1490572.38	1490572.39	1490572.40	1490572.41	1490572.42	
Individual Tests						
Dry Matter	g/100g as rcvd	88	-	-	-	80
Total Recoverable Lead	mg/kg dry wt	15.3	15.3	14.2	45	14.9
CCA by ICP-MS						
Total Recoverable Arsenic	mg/kg dry wt	5	9	28	10	10
Total Recoverable Chromium	mg/kg dry wt	22	26	45	26	27
Total Recoverable Copper	mg/kg dry wt	20	21	35	24	20
Pentachlorophenol Screening in Soil by LCMSMS						
Pentachlorophenol (PCP)	mg/kg dry wt	< 0.05	-	-	-	< 0.05
2,3,4,6-Tetrachlorophenol (TCP)	mg/kg dry wt	< 0.05	-	-	-	< 0.05

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 clean 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.

Sample Type: Soil			
Test	Method Description	Default Detection Limit	Sample No
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%.	-	7-10, 13-16, 21-42
CCA by ICP-MS	Total recoverable digestion, ICP-MS, screen level.	2 mg/kg dry wt	27-42
Pentachlorophenol Screening in Soil by LCMSMS	Solvent extraction with sonication, dilution, analysis by LCMSMS with online SPE. Tested on dried sample	0.010 mg/kg dry wt	28, 31, 34, 36, 38, 42
Dry Matter (Env)	Dried at 103°C for 4-22hr (removes 3-5% more water than air dry), gravimetry. US EPA 3550. (Free water removed before analysis).	0.10 g/100g as rcvd	28, 31, 34, 36, 38, 42
Total Recoverable digestion	Nitric / hydrochloric acid digestion. US EPA 200.2.	-	7-10, 13-16, 21-42
Composite Environmental Solid Samples*	Individual sample fractions mixed together to form a composite fraction.	-	1-26
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	7-10, 13-16, 21-26
Total Recoverable Lead	Dried sample, sieved as specified (if required). Nitric/Hydrochloric acid digestion, ICP-MS, screen level. US EPA 200.2.	0.4 mg/kg dry wt	27-42

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

Samples are held at the laboratory after reporting for a length of time depending on the preservation used and the stability of the analytes being tested. Once the storage period is completed the samples are discarded unless otherwise advised by the client.

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Peter Robinson MSc (Hons), PhD, FNZIC
Client Services Manager - Environmental Division

