

**From:** Philip Barrett  
**Sent:** 19 Jul 2019 14:51:34 +1200  
**To:** Cameron Aplin  
**Subject:** G & S Singleton PSI Addendum Lot 1  
**Attachments:** PSI 635 SH23 Whatawhata Road Addendum.pdf, PSI 635 SH23 Whatawhata Road Hill Lab Report 2192446.pdf

Hi Cameron,

Please find attached a soil contamination report addendum. The original report mentioned the need for further testing of Lot 1 for background cadmium levels.

I have spoken with Heather Thomson Ngati Mahaanga a couple of days ago. There is likely to be site visit next week and a formal consult reply to follow. We shall not be consulting with any other Iwi / hapu or Marae. This is because Heather confirmed that Ngati Mahaanga has an agreement (MOU) with Council for their representative area that covers this site.

Kind Regards

**Philip Barrett**  
**Senior Planner**  
**Cheal Consultants Ltd**

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# Envirochem Evaluation Ltd

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Preliminary Site Investigation (PSI) Report

## Addendum

635 State Highway 23, Whatawhata

*Prepared for*

G. & S. Singleton Heritage Ltd

*Prepared by*

Envirochem Evaluation Ltd

021 990046

envirochemevaluation@gmail.com

July 2019

## Attachment

Hill Lab Report 2192446

## Addendum Scope

The PSI report for the proposed subdivision at 635 State Highway 23 (Envirochem Evaluation Ltd - May 2019) recommended further preliminary soil sampling for arsenic on Lot 1, to ascertain the significance of an elevated sampling result for arsenic (W1 - 26 mg/kg).

Subsequently, six extra soil samples were collected over the intended Lot 1 building site (WL1 R1-6; see red dots in Figure 1). WL1 R1-6 represented the topsoil from 0-10 cm depth and were tested for arsenic (Table 1 and see attached Hill Lab Report 2192446).



**Figure 1. Positions of six repeated soil samples (WL1 R1-6) over intended Lot 1**

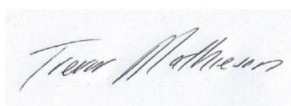
**Table 1. NES SCS and WL1 R1-6 analysis results**

<b>Values in mg/kg</b>	<b>Arsenic</b>
NES SCS Rural-Residential	17
Typical Waikato Background Concentrations <sup>1</sup>  (average)	1-25 (5.1)
WL1 R1	6
WL1 R2	6
WL1 R3	5
WL1 R4	6
WL1 R5	7
WL1 R6	9
<b>Average</b>	<b>7</b>

### Addendum Conclusion

Additional testing results indicate the average arsenic concentration at the intended residential site on Lot 1 is unlikely to breach applicable NES soil standards (Figure 1 & Table 1). The elevated arsenic level detected in sample W1 from the PSI (26 mg/kg) is not considered an accurate representation of the average arsenic levels in the topsoil at the intended residential site on Lot 1.

### Report prepared by Envirochem Evaluation Ltd



**Dr Trevor Mathieson (Director)**

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<sup>1</sup> M. D. Taylor and N. D. Kim. Dealumination as a mechanism for increased acid recoverable aluminium in Waikato mineral soils. *Australian Journal of Soil Research*, 2009, 47, 828–838



## Certificate of Analysis

<b>Client:</b>	Envirochem Evaluation (ECE) Limited	<b>Lab No:</b>	2192446	SPV1
<b>Contact:</b>	Trevor Mathieson C/- Envirochem Evaluation (ECE) Limited 31B Appleton Lane RD 7 Hamilton 3287	<b>Date Received:</b>	13-Jun-2019	
		<b>Date Reported:</b>	17-Jun-2019	
		<b>Quote No:</b>	99358	
		<b>Order No:</b>	128/3	
		<b>Client Reference:</b>	Whatawhata/3	
		<b>Submitted By:</b>	Trevor Mathieson	

### Sample Type: Soil

Sample Name:	WL1 R1	WL1 R2	WL1 R3	WL1 R4	WL1 R5
	13-Jun-2019	13-Jun-2019	13-Jun-2019	13-Jun-2019	13-Jun-2019
	10:00 am	10:00 am	10:00 am	10:00 am	10:00 am
Lab Number:	2192446.1	2192446.2	2192446.3	2192446.4	2192446.5

### Heavy Metals, Screen Level

Element	Unit	WL1 R1	WL1 R2	WL1 R3	WL1 R4	WL1 R5
Total Recoverable Arsenic	mg/kg dry wt	6	6	5	6	7
Total Recoverable Cadmium	mg/kg dry wt	0.23	0.30	0.48	0.36	0.23
Total Recoverable Chromium	mg/kg dry wt	7	7	7	8	8
Total Recoverable Copper	mg/kg dry wt	8	8	6	8	8
Total Recoverable Lead	mg/kg dry wt	13.1	16.1	15.1	19.8	17.4
Total Recoverable Nickel	mg/kg dry wt	3	3	2	3	3
Total Recoverable Zinc	mg/kg dry wt	38	30	27	28	32

Sample Name:	WL1 R6				
	13-Jun-2019				
	10:00 am				
Lab Number:	2192446.6				

### Heavy Metals, Screen Level

Element	Unit	WL1 R6	WL1 R2	WL1 R3	WL1 R4	WL1 R5
Total Recoverable Arsenic	mg/kg dry wt	9	-	-	-	-
Total Recoverable Cadmium	mg/kg dry wt	0.24	-	-	-	-
Total Recoverable Chromium	mg/kg dry wt	7	-	-	-	-
Total Recoverable Copper	mg/kg dry wt	11	-	-	-	-
Total Recoverable Lead	mg/kg dry wt	13.2	-	-	-	-
Total Recoverable Nickel	mg/kg dry wt	3	-	-	-	-
Total Recoverable Zinc	mg/kg dry wt	31	-	-	-	-

### Analyst's Comments

Appendix No.1 - Chain of Custody

## 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. Unless otherwise indicated, analyses were performed at Hill Laboratories, 28 Duke Street, Frankton, Hamilton 3204.

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%.	-	1-6
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	1-6



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 \*, which are not accredited.

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.

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

# Hill Laboratories

TRIED, TESTED AND TRUSTED

## ANALYSIS REQUEST

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

Job No: **219 2446**  
 Date Recv: 13-Jun-19 10:44

T 0508 HILL LAB (44 555 2  
 T +64 7 858 2000  
 E mail@hill-labs.co.nz  
 W www.hill-laboratories.com

Received by: Jonas Eyskens



Quote No 99358

Primary Contact Trevor Mathieson 180501

Submitted By Trevor Mathieson 180501

Client Name Envirochem Evaluation (ECE) Limited 180500

Address 31B Appleton Lane, RD 7  
 Hamilton 3287

Phone \_\_\_\_\_ Mobile 021 990 046

Email envirochemevaluation@gmail.com

Charge To Envirochem Evaluation (ECE) Limited 180500

Client Reference Whatawhata/3

Order No 128/3

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 \_\_\_\_\_

## CHAIN OF CUSTODY RECORD

Sent to Hill Laboratories Date & Time: 13/6/19 10am

Tick if you require COC to be emailed back Name: Trevor Mathieson

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

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

Condition  Room Temp  Chilled  Frozen Temp: 15.1

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, 2 working days following the day of receipt of the samples at the laboratory.

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

## ADDITIONAL INFORMATION

### Quoted Sample Types

Soil (Soil)

No.	Sample Name	Sample Date/Time	Sample Type	Tests Required
1	WL1 R1-6	13/06/19 10am	Soil	HM & Soil in 6 samples
2				
3				
4				
5				
6				
7				
8				
9				
10				