

Te Tohu O Te Ora O Ngati Awa

30A HUNA ROAD, COASTLANDS WHAKĀTANE

PRELIMINARY AND DETAILED SITE INVESTIGATION REPORT

18 MAY 2023




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30A HUNA ROAD, COASTLANDS WHAKĀTANE PRELIMINARY AND DETAILED SITE INVESTIGATION REPORT

Te Tohu O Te Ora O Ngati Awa

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This report ('Report') has been prepared by WSP exclusively for Te Tohu o Te Ora Ngati Awa ('Client') in relation to the assessment of contaminated land risks relating to the proposed residential development of the Site ('Purpose') and in accordance with with the signed Short Form Agreement with the Client 21st March 2023. The findings in this Report are based on and are subject to the assumptions specified in the Short Form Agreement with the Client 21st March 2023. WSP accepts no liability whatsoever for any reliance on or use of this Report, in whole or in part, for any use or purpose other than the Purpose or any use or reliance on the Report by any third party.



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EXECUTIVE SUMMARY

WSP New Zealand Limited (WSP) have undertaken a Preliminary Site Investigation (PSI) and Detailed Site Investigation (DSI) on behalf of the Te Tohu O Te Ora O Ngati Awa for 30A Huna Road, Coastlands, Whakatāne (Figure 1, Appendix A) (the “site”).

It is understood by WSP that Te Tohu O Te Ora O Ngati Awa are intending to develop the site into a residential area comprised of up to 70 papakāinga dwellings, multiple common areas, including a homestead, and various other residential/community features, such as māra kai. To complete the residential development soil disturbance, excavation, and potential re-use and disposal of soil will be required.

This PSI and DSI was undertaken to assess the suitability of the site for the proposed development, in relation to potential contamination issues. For a proposed development, the completion of a PSI is a requirement if it is more likely than not that any of the Ministry for the Environment (MfE) Hazardous Activities and Industries List (HAIL) (MfE, 2022) activities have been undertaken on the Site. The PSI is required to determine if the Resource Management Act (National Environmental Standards for Assessing and Managing Contaminants in Soil to Protect Human Health) Regulations 2011 (NES-CS) (NES-CS, 2011) will apply.

Additionally, the completion of the PSI and a DSI is required to inform development implications applicable under the Whakatāne District Council Operative Plan (WDC-OP) (WDC, 2017). Under the WDC-OP, soil testing is required prior to the subdivision and development of sites that have a history of land use that could have resulted in contamination of the soil to confirm that the land is fit for the intended use. Furthermore, if land is found to be contaminated, it is required that it is managed so that significant risk to human health is avoided, remedied, or mitigated for its proposed use.

The PSI review identified two Ministry for the Environment (MfE) Hazardous Activities and Industries List (HAIL) activities associated with nearby properties, with the potential to impact soil quality at the site:

- **HAIL A10: Persistent pesticide bulk storage or use including sport turfs, market gardens, orchards, glass houses or spray sheds.**
 - 30 m southeast an orchard was present from circa 2002 to 2018, when the area underwent redevelopment for residential use.
 - 90 m southwest a strawberry farm has been present since circa 1970.

Given the potential for pesticides spray associated with these HAIL sites to have impacted the site, the following HAIL activity is considered to apply to the site:

- **HAIL H: Any land that has been subject to the migration of hazardous substances from adjacent land in sufficient quantity that it could be a risk to human health or the environment.**

Therefore, a DSI was undertaken at the site, involving the collection of 16 shallow soil samples and analysis for potential contaminants of concern; heavy metals and pesticides. No soil results were reported above adopted background (BOPRC, 2011) or human health assessment criteria (residential (10% produce)(MfE, 2011)).

Based on the reported soil results, the Site is not considered to comprise land containing elevated levels of contaminants and HAIL H is not considered to apply to the site. Therefore, the NESCS **does not** to apply to the Site under Regulation 5 (9) of the NES-CS.

The WDC-OP also **does not** apply to the Site given the findings of the DSI.

Based on the findings of this investigation, soil on site can be considered as cleanfill material. Therefore, it is applicable for reuse on site. If material is required to be disposed of off-site during the proposed development, acceptance may be dependent on the receiving facility and will need prior approval to ensure the material meets the requirements of the receiving facility.

1 INTRODUCTION

1.1 PROJECT BACKGROUND

WSP New Zealand Limited (WSP) have undertaken a combined Preliminary Site Investigation (PSI) and Detailed Site Investigation (DSI) on behalf of Te Tohu O Te Ora O Ngati Awa for their property at 30A Huna Road, Coastlands, Whakatāne (Appendix A, Figure 1) (the “Site”). It is understood by WSP that Te Tohu O Te Ora O Ngati Awa are intending to develop the site into a residential area comprised on up to 70 papakāianga dwellings, multiple common areas, including a homestead, and various other residential/community features, such as māra kai. To complete the residential development soil disturbance, excavation, and potential re-use and disposal of soil will be required.

1.2 REGULATORY FRAMEWORK

Disturbance of soil associated with developments on potentially contaminated land is a regulated activity under the Resource Management (National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health) Regulations 2011 (NES-CS, 2011).

Additionally, the completion of the PSI and a DSI is required to inform development implications applicable under the Whakatāne District Council Operative Plan (WDC-OP) (WDC, 2017). Under the WDC-OP, soil testing is required prior to the subdivision and development of sites that have a history of land use that could have resulted in contamination of the soil to confirm that the land is fit for the intended use. Furthermore, if land is found to be contaminated, it is required that it is managed so that significant risk to human health is avoided, remedied, or mitigated for its proposed use.

Both frameworks require a risk assessment to assess the likelihood of site contamination and determine if the development may result in adverse effects to human health or the environment, whether they can be remediated or managed, or whether further investigative work is required.

All assessments and related reports should be carried out in accordance with the Ministry for the Environment (MfE), Contaminated Land Management Guidelines (CLMG).

1.3 PURPOSE

The purpose of this combined PSI and DSI is to determine whether it is more likely than not that any of the Ministry for the Environment (MfE) Hazardous Activities and Industries List (HAIL) (MfE, 2022) activities have been undertaken on the site, assess the implications under the NES-CS and the WDC-OP, and make recommendations for further assessment (if required).

1.4 SCOPE OF WORKS

This combined PSI and DSI report was prepared in accordance with the MfE Contaminated Land Management Guidelines (CLMG) No.1: Reporting on Contaminated Sites in New Zealand (MfE, 2021a) and comprised a:

- Preliminary Site Investigation:
 - Desktop review of environmental setting from publicly available maps and databases
 - Review of information relating to geological, hydrological, and topographic conditions of the site
 - Review of historical information and evidence from:
 - Historical aerial photography
 - Whakatāne District Council property files
- Detailed Site Investigation:
 - Collection of 16 soil samples from 16 locations across the proposed site
 - Analysis of selected representative soil samples for potential contaminants of concern, including heavy metals (arsenic, cadmium, chromium, copper, lead, nickel, and zinc) and a broad suite of pesticides (multiresidue analysis).
 - Site characterisation indicating determination of HAIL status
 - Determination of the applicability of the NES-CS and WDC-OP to the Site
 - Provision of recommendations for future works.

1.5 STATEMENT OF QUALIFICATION

WSP confirms that this PSI 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) (NES-CS, 2011) because it has been:

- Reported on in accordance with the current edition of Contaminated Land Management Guidelines No 1 – Reporting on Contaminated Sites in New Zealand (MfE, 2021a), and
- The report has been reviewed and approved by a Suitably Qualified and Experienced Practitioner (SQEP).

Evidence of the qualifications and experience of the SQEP(s) who have done this investigation and reviewed this report are provided in Table 1-5 below.

Table 1-5 Suitably Qualified and Experienced Practitioner details

ITEM	DETAILS
Author	
Name	Jade Cross
Job title	Graduate Environmental Scientist
Years' industry experience	0.5
Author	
Name	Laurence Shotliff

ITEM	DETAILS
Job Title	Environmental Scientist
Years' industry experience	4
Reviewer	
Name	Stephen Thomson
Job title	Principal Environmental Scientist
Years' industry experience	26

This document has been prepared exclusively for the To Tohu o Te Ora Ngati Awa by WSP New Zealand Limited as a deliverable under the contract between WSP and To Tohu o Te Ora Ngati Awa dated 21st March 2023. This document remains subject to the terms and conditions detailed in that contract, including but not limited to any limitations therein. Any use or any reliance on this document by any third party is at its sole risk without recourse to WSP. Third parties must make their own enquiries and obtain independent advice in relation to any matter dealt with or any conclusion expressed in this document.

2 SITE AND ENVIRONMENTAL SETTING

2.1 SITE IDENTIFICATION/LOCATION

The Site is located at 30A Huna Road, approximately 3 km northwest of Whakatāne (see Figure 1, Appendix A). The following site details in Table 2-1 were acquired using the WDC mapping service (WDC, 2023), and Land Information New Zealand (LINZ) NZ Property Tile Map (LINZ, 2023).

Table 2-1 Summary of Site Details

ITEM	DESCRIPTION
Address	30A Huna Road, Coastlands, Whakatāne 3191
Legal Description	Lot 28B No. 6B Sec. 2 Parish of Rangitaiki
Titles	332805
Owner	Te Tohu O Te Ora O Ngati Awa
Approximate Site Area	3 hectares
Territorial Authority	Whakatāne District Council
Current Site Use	The site is not currently in use
Proposed Site Use	Residential development comprising up to 70 papakāianga dwellings, multiple common areas, and various other residential/community features

2.2 GEOLOGY

A review of the GNS Geology Web Map 1:250,000 scale (GNS, 2023) indicates that the site is underlain by Holocene swamp deposits consisting of soft, dark brown to black, organic mud, muddy peat and woody peat with minor overbank sand, silt, and mud.

2.3 HYDROGEOLOGY AND SURFACE WATER

The BOPRC Water Catchment – Surface Drainage Map (BOPRC, 2023a) indicates that the Site is located within the Whakatāne Catchment, and above a coastal aquifer.

There are several surface water bodies in proximity to the Site. Aerial images indicate that the nearest surface water body is the Kopeopeo Canal, located approximately 330 m south of the site. The Kopeopeo Canal was contaminated between the 1950s and late 1980s as a result of stormwater discharges from a former sawmill downstream, which treated timber using Pentachlorophenol (PCP) (BOPRC, 2023b; WSP Golder, 2020). The dioxins posed a serious risk to

human health, especially for Ngāti Awa who harvest tuna (eels) from the canal. Consequently, a 5.1 km stretch of the canal was remediated. Investigation for the remediation of the canal was conducted between 2005 and 2015. The remediation of the canal was undertaken between 2016 and 2019, with the project now in the monitoring phase (BOPRC, 2023b; WSP Golder, 2020). Due to the remediation of the canal being completed in 2019, and its distance to the Site, it is unlikely that there has been contaminant crossover to the Site.

Aerial images also show four large, manmade ponds located approximately 900 m east of the site. These are sewage treatment ponds relating to the Whakatane Sewage Treatment Plant operated by Whakatane District Council.

Additionally, the Whakatāne District Council mapping tool (WDC , 2023) identifies the Whakatāne River located approximately 1.3 km southeast of the site.

2.4 TOPOGRAPHY

The WDC mapping service (WDC , 2023) has a contour overlay. The overlay indicates that the site is situated at approximately 4 m above mean sea level (amsl). Land immediately adjacent to the north lies at 2m amsl and to the south rises to 8 amsl.

Site observations made during the site work of the DSI noted that the site forms a shallow valley, land rising gently to the south at the southern border, and to the north at the northern border. At the northern boundary, the site slopes gently downwards again towards the adjacent agricultural fields adjacent to the north. Observations are generally in line with the WDC mapping service.

3 DESKTOP REVIEW

3.1 HISTORICAL AERIAL REVIEW

WSP has reviewed historical aerial photographs sourced from Retrolens (2023) and Google Earth Pro (2023). A summary of observations is provided in Table 3-1 with aerial photographs presented in Appendix B.

Table 3-1: Summary of Historical Aerial Photography Review

YEAR (SOURCE)	SITE OBSERVATIONS	SURROUNDING ENVIRONMENT
1944 (Retrolens)	<p>The site is primarily grassed and has been sectioned into paddocks for agricultural use. A line of established trees follows the southern border of the site.</p> <p>In the north-western corner of the site a small farm outbuilding is depicted.</p> <p>A track follows the northern border of the site, running from Huna Road.</p>	<p>The immediate surrounding environment to the site is cleared, grassed areas that have been sectioned into paddocks/various fields for agricultural use.</p> <p>To the immediate west of the site, there is a residential building. The building is bordered by well-established trees and small outbuildings are nearby to the south of the building.</p> <p>To the immediate north of the site a smaller building is depicted, likely a farm outbuilding. Similarly, to the immediate south and east of the site there are residential dwellings and several smaller buildings that service the farm and land adjacent to the site.</p> <p>Huna Road is located west of the site.</p>
1961 (Retrolens)	No significant change to the site or surrounding environment since 1944.	
1971 (Retrolens)	<p>The trees established along the southern border of the site have mostly been removed.</p> <p>No other significant changes to the site since 1961.</p>	Part of the land to the immediate west of the site has changed land use and is now rugby fields.
1982 (Retrolens)	The structure in the north-western corner of the site has been removed.	Established vegetation around the residential building to the immediate west has been cleared.

YEAR (SOURCE)	SITE OBSERVATIONS	SURROUNDING ENVIRONMENT
1987 (Retrolens)	There are no significant changes to the site since 1982.	West of the site, the current Paroa Rugby Club buildings have been constructed, adjacent to the Paroa rugby fields.
2002 (Google Earth Pro)	The track along the northern border of the site is no longer present and the trees established along the southern border of the site have been cleared.	Outbuildings adjacent to the residential building adjacent to the west of the site are no longer present. 30 m southeast of the site, an orchard has been established. 90 m southwest of the site a strawberry farm has been established, including a central building.
2011 (Google Earth Pro)	No significant changes to the site since 2002.	The central building of the strawberry farm has been extended.
2022 (Google Earth Pro)	No significant changes to the site since 2011.	The orchard southeast of the site has been developed into a residential area with over 30 residential buildings. No other significant changes to the surrounding environment since 2011.

3.2 WDC PROPERTY FILE

A property file for 30A Huna Road, Whakatāne was requested by WSP from WDC on 21 April 2023. WSP received a response from WDC stating that there is no information contained in the property file for 30A Huna Road as it is any empty plot of land and there have been no structures constructed on the site.

3.3 BOPRC HAIL SITE VIEWER

WSP reviewed the BOPRC HAIL Site Viewer Map for sites of interest within 250 m of the sites (BOPRC, 2023c) (see Figure 2, Appendix A). The viewer indicates that there are three verified HAIL sites located within 250 m of the site. The sites have been summarised in Table 3-2 below.

Table 3-2: Summary of verified HAIL sites within 250 m of the Site

SITE ID AND CLASSIFICATION	SITE LOCATION	HAIL CATEGORIES	CONTAMINANTS OF CONCERN	SITE COMMENTS
LUR-WHK-00428 At or Below Background	Approximately 30 m	HAIL A10: Persistent pesticide bulk storage or use including sport	Arsenic, lead, copper, mercury; wide range of organic compounds	The contaminants at this site are at or below background level as

SITE ID AND CLASSIFICATION	SITE LOCATION	HAIL CATEGORIES	CONTAMINANTS OF CONCERN	SITE COMMENTS
	southeast of the site	turfs, market gardens, orchards, glass houses or spray sheds.	including acidic herbicides, organophosphates, and organochlorines.	the site has been remediated and is now a residential development. Hence, it is unlikely to result in the migration of contaminants to the Site.
LUR-WHK-00427 Verified HAIL Site	Approximately 90 m southwest of the site	HAIL A10: Persistent pesticide bulk storage or use including sport turfs, market gardens, orchards, glass houses or spray sheds.	Arsenic, lead, copper, mercury; wide range of organic compounds including acidic herbicides, organophosphates, and organochlorines (e.g., endosulfan on golf and bowling greens)	Strawberry farm established in 1970.
LUR-WHK-0036 Managed for Site Use	Approximately 230 m west of the site	HAIL G5: Waste disposal to land (excluding where biosolids have been used as soil conditioners)	Depends on type of waste – biological hazards (bacteria, viruses), metals, PAHs, semi-volatile organic compounds, and solvents	The site has been managed for land use. It is now part of the Paroa Rugby Club grounds. Therefore, is unlikely to result in the migration of contaminants to the Site.

3.4 BOPRC HAIL SITE CONTAMINATION VIEWER

WSP requested a Site Contamination Enquiry from BOPRC on the 5 May 2023 (BOPRC, 2023d). The enquiry response confirms that the Site is not currently registered on the BOPRC's Land Use Information Register (LUIR).

The response provided to WSP by BOPRC is included in Appendix C.

4 SITE CHARACTERISATION

4.1 HAIL ACTIVITY DISCUSSION

HAIL activity G5 230 m west of the site is not considered to pose a potential contamination risk to the site given its distance from the site and that current and historical aerial images do not show any notable activity at this location.

Two HAIL activity sites identified by BOPRC are located nearby to the site that have potential to have impacted the soil quality at the Site:

- **HAIL A10:** 30 m southeast an orchard was present from circa 2002 to 2018, when development for the current residential area began.
- **HAIL A10:** 90 m southwest a strawberry farm has been present since circa 1970.

Given the potential for pesticides spray associated with these HAIL sites to have impacted the site, the following HAIL activity is considered to apply to the site:

- **HAIL H:** Any land that has been subject to the migration of hazardous substances from adjacent land in sufficient quantity that it could be a risk to human health or the environment.

Based on the desk-based study of historical land uses and activities undertaken adjacent to the site, the site is considered to meet the 'more likely than not' benchmark for applicability under NES-CS to have been or to currently be subject to contamination for adjacent HAIL activities. As such, the NES-CS applies to any ground disturbance above permitted activity levels undertaken on the site.

Furthermore, based on the desk-based study and of the evidence reviewed, the same conclusions can be reached regarding the applicability of the WDC-OP.

Potential contaminants of concern are heavy metals (arsenic, cadmium, chromium, copper, lead, nickel, and zinc) and pesticides which are harmful to human health if identified to be at concentrations above applicable soil contaminant standards.

In order to further quantify the risks to human health associated with future ground disturbance activities on site, a DSI was undertaken, and reported herein.

4.2 PRELIMINARY CONCEPTUAL SITE MODEL

A conceptual site model (CSM) is a systematic approach in which contaminant sources, routes of exposure and environmental receptors are identified. The CSM created for the site is presented in Table 4-2.

Table 4-2: Conceptual Site Model

Likely sources of impact	Potential historical sources of contamination have been identified near to the site: — HAIL A10: orchard located approximately 30 m southeast of site
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	<ul style="list-style-type: none"> — HAIL A10: strawberry farm located approximately 90 m southwest of site
Potentially impacted media	Impacted media are likely to be limited to shallow soils (< 0.5 m) as there have been no notable developments or excavation/soil disturbance on the site.
Contaminants of concern	<p>The identified contaminants of concern comprise:</p> <ul style="list-style-type: none"> — Arsenic, lead, copper; wide range of organic compounds including acidic herbicides, organophosphates, and organochlorines
Migration pathways	<p>Potential migration pathways for the contaminants of concern comprise:</p> <ul style="list-style-type: none"> — Airborne migration of dust, vapours, or fibres — Surface runoff containing impacted soil or dissolved contaminants — Infiltration of contaminants in soil — Migration of impacted groundwater
Potential exposure pathways	<p>Potential exposure pathways comprise:</p> <ul style="list-style-type: none"> — Inhalation of contaminated dust, vapours, or fibres — Dermal contact with contaminated soils/water — Ingestion of contaminated material — Leaching of contaminants through the soil matrix
Potential sensitive receptors	<p>Identified sensitive receptors comprise:</p> <ul style="list-style-type: none"> — End users of the site including site workers — Site contractors (during development) — Nearby or adjoining site users and visitors

5 DETAILED SITE INVESTIGATION

5.1 SAMPLING DESIGN AND RATIONALE

The MfE Contaminated Land Management Guideline No. 5: Site Investigation and Analysis of Soils (CLMG No. 5) (MfE, 2021b) outlines the three types of sampling patterns commonly used for the site investigations, comprising judgemental, systematic, and stratified sampling.

To achieve the sampling objectives of the DSI works, a systematic sampling pattern was adopted across the site to provide an even distribution of samples across the site and sufficient coverage of the residential development.

5.2 FIELDWORK

Prior to any intrusive works, service clearance was undertaken by the subcontractor Perry Geotech and Geoverse on 6 April 2023. Geotechnical investigations were undertaken (separate to the environmental sample collection) by Perry Geotech and Geoverse on the same day. A total of eight cone penetration tests (CPTs) (CPT01-CPT08) to depths of 20 m below ground level (bgl) and a total of eight hand augers (HA01-HA08) to depths of up to 5 m were undertaken using a manual hand auger tool. Hand auger logs of encountered ground conditions are provided in Appendix D. An aerial figure of geotechnical investigation locations taken from the geotechnical report is provided as Figure 3, in Appendix A.

Soil samples for environmental analysis were also collected on 6 April 2023. A total of 16 environmental samples (ES) (ES01-ES16) were collected from near surface soils (between 0.1 m to 0.3 m bgl) in a rough grid pattern across the site, refer to Figure 2 in Appendix A for a plan of sampled locations. Soil samples collected were taken directly from a hand trowel or hand auger by hand using dedicated nitrile gloves. All non-dedicated equipment was decontaminated between sampling locations using Decon-90™ to minimise the potential of cross contamination between locations.

Subsurface conditions were logged, and soil samples were placed in laboratory supplied jars, leaving minimal headspace, and closed using Teflon-coated lids. All samples were stored on ice in a sealed cooler and transported to the laboratory under chain of custody.

5.3 LABORATORY ANALYSIS

Selected soil samples were submitted to R J Hill Laboratories Limited (Hill Laboratories) for analysis of determined contaminants of concern including heavy metals and pesticides. Soil samples were selected for analysis based on sample depth and field observations.

Hill Laboratories are accredited by International Accreditation New Zealand (IANZ) for the analytical suites requested.

5.4 BASIS FOR GUIDELINE VALUES

WSP have adopted the following guideline criteria to classify soil at the site during the development, handling, and ongoing/future site use. Table 5-1 below outlines selected criteria for handling and land use.

Table 5-1. Selection Criteria for Handling and Land Use Assessment

MATRIX	SOURCE GUIDELINES	CRITERIA	ANALYTES
Human Health			
Soil	Ministry for the Environment (2011). <i>Methodology for Deriving Standards for Contaminants in Soil to Protect Human Health</i> . Publication number ME 1055, June 2011 (MfE, 2011)	– Residential (10% produce)	Arsenic, cadmium, chromium, copper, lead
	National Environmental Protection Council (2013). <i>National Environment Protection (Assessment of Site Contamination) Measure 1999 (April 2013)</i> (NEPC, 2013). Included as NESCS does not have guideline values for the protection of human health for nickel and zinc.	– HIL-A (residential)	Nickel and zinc
Background Criteria			
Soil	Trace Elements in Bay of Plenty Soils, BOPRC, November 2011 (BOPRC, 2011)	– Mean topsoil (0-10 cm) trace element concentrations of maize cropping sites	Arsenic, cadmium, chromium, copper, lead, nickel, and zinc

5.5 SUBSURFACE CONDITIONS

Subsurface conditions encountered during this investigation generally comprised a thin layer of topsoil comprising silt and sand mixtures (0 – 0.4 m bgl), underlain by predominantly fine to coarse sand mixtures, with varying fractions of silt and gravel (0.4 – 6 m bgl). These underlying deposits are generally very loose to loose from 0.6 to 2 m, increasing to medium dense between 2 to 6 m bgl, and dense with interbedded loose and very dense layers beyond 6 m bgl.

It should be noted that at some of the HA locations (HA 03, 05, and 08) a layer of fill of varying thickness was recorded underlying the topsoil; between 0.3 m to 1.15 m in thickness. The fill material generally comprised very loose to loose sand and silt mixtures with some fine gravel. Given the absence of foreign material in the fill and its similar composition to the natural material encountered, it is likely to be reworked natural material and is not considered to pose a potential contamination risk.

Groundwater was encountered during the excavation of the hand auger locations of the geotechnical investigation, ranging between 2.95 and 4.7 m bgl.

See Appendix D for copies of the hand auger logs.

6 ANALYTICAL RESULTS

A summary of soil results is provided in Table 6-1 below. The following analytes comprise the table:

- Heavy metals (arsenic, cadmium, chromium, copper, lead, mercury, nickel, and zinc)

The following analytes were not included in the table due to not exceeding laboratory limits:

- Pesticides

Detailed tables and laboratory reports, including chain of custody, of the soil sampling results are provided in Appendix E

Table 6-1: Summary of soil sample results

NO. OF SAMPLES	ANALYTE	CONCENTRATION (MG/KG)		HUMAN HEALTH-BASED CRITERIA		BACKGROUND CRITERIA	
		Minimum	Maximum	Adopted criteria (mg/kg)	Samples exceeding adopted criteria	Adopted criteria (mg/kg)	Samples exceeding adopted criteria
Heavy Metals							
16	Arsenic	2	5	20	-	4.9	-
	Cadmium	<0.10	<0.10	3	-	0.29	-
	Chromium	2	3	460	-	8.3	-
	Copper	<2	6	>10,000	-	10.4	-
	Lead	2.6	4.1	210	-	9.2	-
	Nickel	<2	<2	400	-	6.2	-
	Zinc	15	27	8,000	-	41.1	-

7 QUALITY ASSESSMENT AND QUALITY CONTROL

Table 7-1 summarises the field quality program undertaken for the DSI.

Table 7-1. Summary of the field quality program

ITEM	DESCRIPTION
Environmental Consultant	The environmental consultant maintains Quality Assurance Systems certified to AS/NZS ISO 9001:2015. An experienced Environmental Scientist completed the field works under the supervision of a Suitably Qualified Environmental Professional (SQEP). As detailed in Table 1-2 of this report.
Procedures	All work was conducted in accordance with relevant statutory health, safety and environmental (HSE) sampling guidelines, as well as standard company HSE and environmental field procedures. Standard field sampling sheets were used. Details recorded included WSP staff and contractors present, time on/off site, weather conditions, calibration records and other observations relevant to the works.
Sampling	Collection of samples was undertaken by appropriately trained and experienced personnel following WSP standard field procedures which are based on industry accepted standard practice. Chain of custody was used to ensure the integrity of samples from collection to receipt by the laboratory.
Equipment Decontamination	Undertaken after each sampling episode where equipment used was not dedicated. Field sampling procedures conformed to WSP quality assurance/quality control (QA/QC) protocols to prevent cross contamination, preserve sample integrity, and allow for collection of a suitable data set from which to make technically sound and justifiable decisions with data of satisfactory usability.
Transportation	Samples were stored in chilled coolers on-site and during transport by the field scientist to the laboratory. Chain of custody forms were completed on-site and sent with the samples. Chain of custody forms are presented with laboratory receipts in Appendix E, and include the sampler's name, date of sampling, sample matrix, sample containers and preservation used, and analysis requested. The laboratory confirmed receipt of the samples and specified the condition on delivery and the scheduled analysis.
Reporting	Report completed in accordance with the MfE CLMG No. 1 and CLMG No.5

8 ANALYTICAL RESULTS AND DISCUSSION

8.1 HUMAN HEALTH CRITERIA

No human health criteria exceedances were reported for any soil samples submitted for analysis.

8.2 BACKGROUND CRITERIA

No background criteria exceedances were reported for any soil samples submitted for analysis.

9 CONCLUSIONS

9.1 HAIL SITES

A soil sampling investigation was undertaken by WSP at the site on 6 April 2023 to determine potential contaminant characteristics of near surface soils of the site. This was undertaken following the findings of the PSI section of the report, which indicated two HAIL sites are in the nearby vicinity of the site. An assessment of the risks to human health associated with potential contaminants of concern was required to satisfy the NES-CS.

Soil analysis results from the investigation works indicate that concentrations of contaminants were below adopted human health guidelines (residential (10% produce)) and adopted background criteria.

9.2 UNCERTAINTIES AND DATA GAPS

9.2.1 SAMPLE DEPTH

Soil samples were collected from near surface soils (between 0.1 m to 0.3 m bgl) at 16 locations across the site. No samples were taken below near surface soils given that pesticide associated contamination is most commonly concentrated in shallow soils and the site has remained undeveloped since the 1940s.

Due to no samples taken from depths greater than 0.3 m, we cannot be certain that soils greater than 0.3 m bgl are not contaminated. However, it is highly unlikely due to the undeveloped nature of the site, encountered ground conditions and soil analysis results.

9.3 APPLICABILITY OF NES-CS

Based on the reported soil results, the Site is not considered to comprise land containing elevated levels of contaminants and HAIL H is not considered to apply to the site. Therefore, the NESCS **does not** apply to the Site under Regulation 5 (9) of the NES-CS.

9.4 APPLICABILITY OF WDC-OP

Based on WSP's review of the available evidence and the reported soil results, the same conclusions can be reached with regard to the applicability of the WDC-OP. The WDC-OP **does not** apply to the Site given that the Site is not considered to comprise of land containing elevated levels of contaminants.

10 RECOMMENDATIONS

Based on the findings of this investigation, soil on site can be considered as cleanfill material. Therefore, it is applicable for reuse on site. If material is required to be disposed of off-site during the proposed development, acceptance may be dependent on the receiving facility and will need prior approval to ensure the material meets the requirements of the receiving facility.

11 LIMITATIONS

This report ('**Report**') has been prepared by WSP New Zealand Limited ('**WSP**') exclusively for Te Tohu O Te Ora O Ngati Awa ('**Client**') in accordance with the signed Short Form Agreement with the Client 21st March 2023 ('**Agreement**').

Permitted Purpose

This Report has been prepared expressly for the purpose of assessing and determining whether it is more likely than not that a HAIL activity has occurred on site through conducting a preliminary site investigation (PSI) ('**Permitted Purpose**'). WSP accepts no liability whatsoever for the use of the Report, in whole or in part, for any purpose other than the Permitted Purpose. Unless expressly stated otherwise, this Report has been prepared without regard to any special interest of any party other than the Client.

WSP accepts no liability whatsoever for any use of this Report, in whole or in part, by any party other than the Client. Unless WSP agrees otherwise in writing, any use or any reliance on this Report by a third party is at its sole risk without recourse to WSP. Third parties must make their own enquiries and obtain independent advice in relation to any matter dealt with or any conclusion expressed in this Report.

Qualifications and Assumptions

The services undertaken by WSP in preparing this Report were limited to those specifically detailed in the Agreement and the Report and are subject to the scope, qualifications, assumptions, and limitations set out in the Report and/or otherwise communicated to the Client. Except as otherwise stated in the Report and to the extent that statements, opinions, facts, conclusion and/or recommendations in the Report ('**Conclusions**') are based in whole or in part on information provided by the Client and other parties ('**Information**'). The Information has not been and have not been verified by WSP and WSP accepts no liability for the reliability, adequacy, accuracy, and completeness of the Information.

The data reported and Conclusions drawn by WSP in this Report are based solely on information made available to WSP at the time of preparing the Report. The passage of time; unexpected variations in ground conditions; manifestations of latent conditions; or the impact of future events (including (without limitation) changes in policy, legislation, guidelines, scientific knowledge; and changes in interpretation of policy by statutory authorities); may require further investigation or subsequent re-evaluation of the Conclusions.

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Disclaimer

No warranty, undertaking or guarantee whether expressed or implied, is made with respect to the data reported or the Conclusions drawn. To the fullest extent permitted at law, WSP, its related bodies corporate and its officers, employees and agents assumes no liability and will not be liable to any third party for, or in relation to any losses, damages or expenses (including any indirect, consequential losses or damages or any amounts for loss of profit, loss of revenue, loss of opportunity to earn profit, loss of production, loss of contract, increased operational costs, loss of business opportunity, site depredation costs, business interruption or economic loss) of any kind whatsoever, suffered on incurred by a third party.

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
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APPENDIX A – FIGURES



LEGEND

 Site Boundary

 HAIL Sites



Level 3, 100 Beaumont St, Auckland 1010 | Tel (09) 355 9500
Property of WSP NZ Ltd. All rights reserved

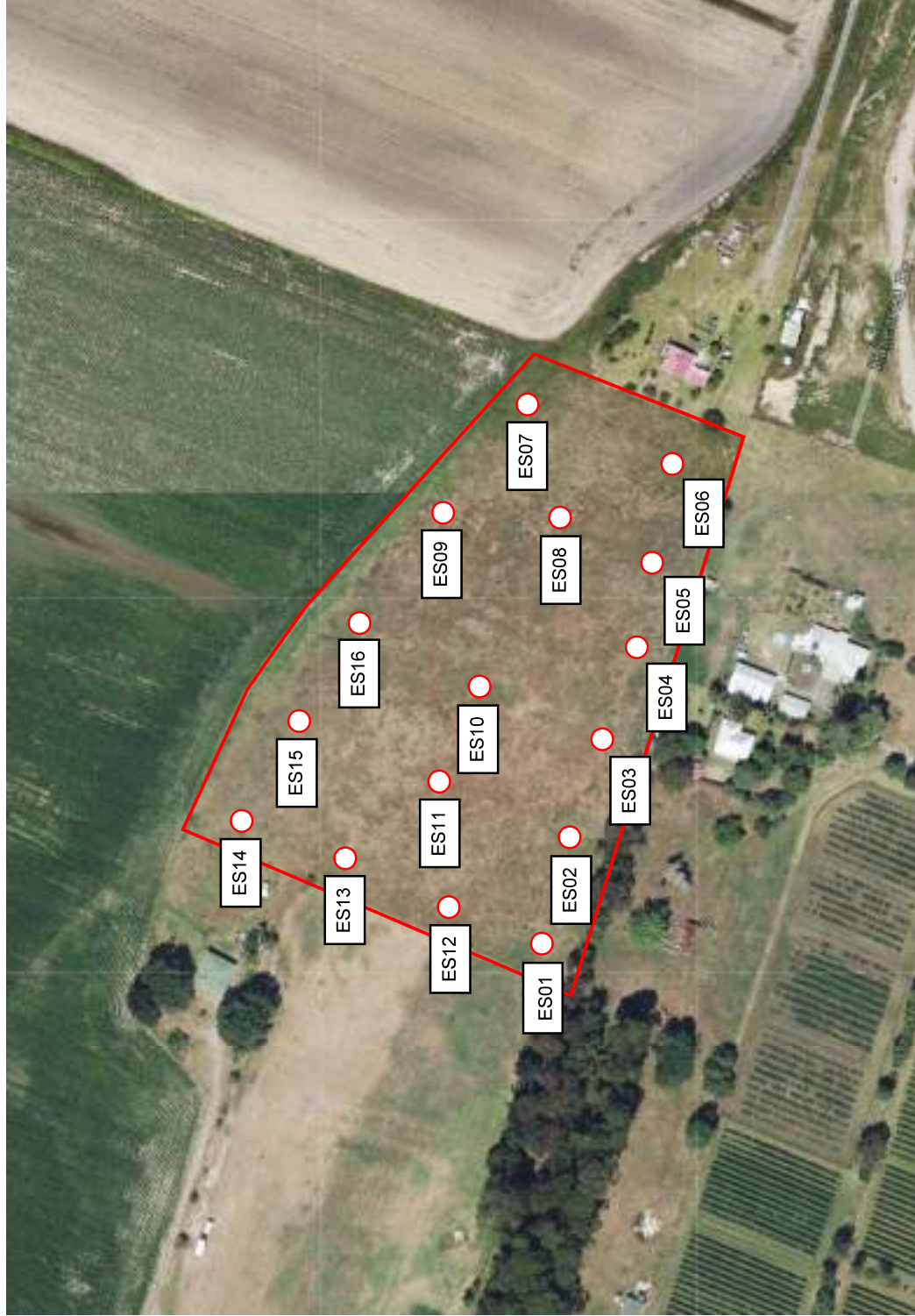
Figure 1 - Site Location and HAIL Sites

30A Huna Road, Whakatane

Source: Bay of Plenty Regional Council's Land Use Register

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Project Number: 2-34569.01	Author: LS	Client: Te Tohu O Te Ora O Ngati Awa
Date: 12/05/2023	Approved by: ST	



LEGEND

Site Boundary
 Environmental Sample Location



Level 3, 100 Beaumont St, Auckland 1010 | Tel (09) 355 9500
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Figure 2 - Environmental Sample Locations

30A Huna Road, Whakatane




Project Number: 2-34569.01	Author: LS	Client: Te Tohu o Te Ora o Ngati Awa
Date: 12/05/2023	Approved by: ST	

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Source: Bay of Plenty Regional Council's Land Use Register



KEY:

-  Hand Auger Scale (HA)
-  Cone Penetration Test (CPT)
-  Subject Site Extent

Printed from Bay of Plenty Regional Council GIS. HORIZONTAL DATUM: New Zealand Geodesic Datum 2000. For practical purposes, NZGD2000 equates to WGS84. VERTICAL DATUM: Mean Sea Level. PROJECTION: New Zealand Map Projection. SOURCE: Aerial photography, ground truthing, and data sourced from Land Information New Zealand data. © BAY OF PLENTY REGIONAL COUNCIL. ALL RIGHTS RESERVED.

30a Huna Road - Geotechnical Site Plan

Projection: NZSD_2000_New_Zealand_Transverse_Mercator SCALE: 1:1,000



Date Printed: 27 March 2023

APPENDIX B – HISTORICAL AERIAL IMAGES



1944



□ Approximate Site Location

Sourced from Retrolens (accessed April 2023)



1961



 Approximate Site Location

Sourced from Retrolens (accessed April 2023)

1971



 Approximate Site Location

Sourced from Retrolens (accessed April 2023)



1982



□ Approximate Site Location

Sourced from Retrolens (accessed April 2023)

1987



□ Approximate Site Location

Sourced from Retrolens (accessed April 2023)



2002



 Approximate Site Location

Sourced from Google Earth Pro (accessed April 2023)

2011



□ Approximate Site Location

Sourced from Google Earth Pro (accessed April 2023)



2022



□ Approximate Site Location

Sourced from Google Earth Pro (accessed April 2023)

APPENDIX C – REGULATORY ENQUIRY

Shotliff, Laurence

From: Land Use Communication <LandUseCommunication@boprc.govt.nz>
Sent: Friday, 5 May 2023 11:07 am
To: Cross, Jade
Subject: RE: HAIL request
Attachments: HAIL Request Map - 30A Huna Road, Paroa (Allot 28B6B2 Rangitaiki PSH, Allot 28B6B1B Rangitaiki PSH).pdf

Dear Jade,

RE: Site Contamination Enquiry for **30A Huna Road, Paroa (Allot 28B6B2 Rangitaiki PSH, Allot 28B6B1B Rangitaiki PSH)**

Thank you for your enquiry. We can confirm that the site is **NOT** currently registered on the Bay of Plenty Regional Council's Land Use Register.

To support the identification of land that may be contaminated, the Ministry for the Environment (MfE) has compiled a list of activities and industries that are considered likely to cause land contamination. This list is called the Hazardous Activities and Industries List (most commonly referred to as the HAIL) and is intended to identify most situations in New Zealand where hazardous substances could cause land contamination. For more information on the MfE HAIL please visit their website [HERE](#).

The Bay of Plenty Regional Council's Land Use Register has been developed to try and identify where many of the activities and industries listed on the MfE HAIL have taken place or are taking place within the Region. However, the information we hold may not be exhaustive and we have not been able to assess every site in the Region therefore it is possible that an activity or industry from the MfE HAIL has previously taken place or is currently taking place at the site in question.

We recommend you also contact **Whakatāne District Council**, which may hold additional information about this site that we are not aware of yet, and if you are concerned that an activity or industry from the MfE HAIL may have taken place at the site, the cautious way to proceed would be to undertake an independent audit of the site.

If you wish to discuss the matter further, please email LandUseCommunication@boprc.govt.nz.

Yours faithfully

The Land Use Register Team
Bay of Plenty Regional Council Toi Moana

From: noreply@boprc.govt.nz <noreply@boprc.govt.nz>
Sent: Friday, 5 May 2023 10:44 am
To: Web Info Requests <WebInfo.Requests@boprc.govt.nz>; Zendesk Contact Centre <support@boprc.zendesk.com>
Subject: HAIL request

Online submission

The form Hail/Property request form was submitted, this is the list of values it contained.

The following details were submitted:

Contact name	Jade Cross
Company name (if applicable)	WSP NZ Ltd
Postal address	100 Beaumont Street, Auckland CBD, Auckland, New Zealand, 1010
Phone	0273297437
Email address	jade.cross@wsp.com
Address of property of interest	30A Huna Road, Coastlands, Whakatāne, New Zealand, 3191

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HORIZONTAL DATUM: New Zealand Geodetic Datum 2000 For practical purposes, NZGD2000 equates to WGS84 VERTICAL DATUM: Mean Sea Level PROJECTION: New Zealand Transverse Mercator 2000 © Bay of Plenty Regional Council, 2013 © Sourced from Land Information New Zealand data. CROWN COPYRIGHT RESERVED



HAIL Request Map - 30A Huna Road, Paroa
(Allot 28B6B2 Rangitaiki PSH, Allot 28B6B1B Rangitaiki PSH)

Projection: NZGD_2000_New_Zealand_Transverse_Mercator

SCALE 1:5,000

Date Printed:
5 May 2023

APPENDIX D – HAND AUGER LOGS

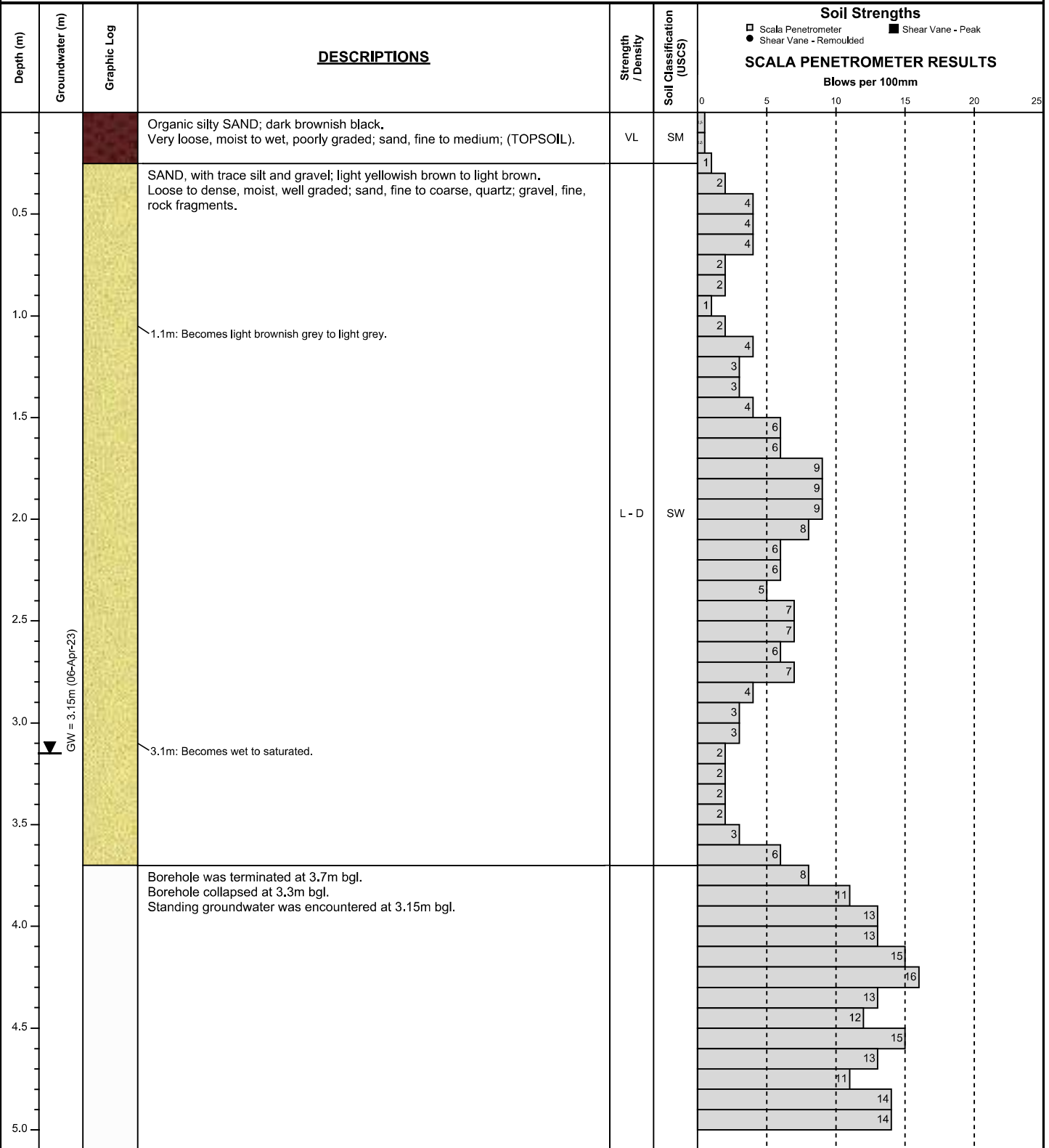
Project: Geotechnical Investigation
 Client: WSP
 Address: 30A Huna Road, Coastlands, Whakatane
 Job No.: 23-2-34569.01

Date: 6/04/2023
 Logged By: SDR
 Checked By: HPS



HAND AUGERED BOREHOLE

Borehole No.: HA01 Coordinates: NZTM: E1946908, N5792778
 Scala Penetrometer No.: SP01 Reduced Level:



Notes: Client Project ID: 2-34569.01

SHEAR VANE RESULTS
 In Situ Strength (kPa)
 Shear Vane No.: Calibration Factor:

Cohesive Material		Non-Cohesive Material		Description and Testing Notes
VS	Very Soft	VL	Very Loose	Material Descriptions: Soil description in accordance with Guideline for the Field Classification and Description of Soil and Rock for Engineering Purposes, NZ Geotechnical Society Inc, 2005 Scala Penetrometer Testing: NZS 4402:1988, Test 6.5.2. Dynamic Cone Penetrometer Shear Vane Testing: Guideline for Hand Held Shear Vane Test, NZGS, August 2001
S	Soft	L	Loose	
F	Firm	MD	Medium Dense	
St	Stiff	D	Dense	
Vst	Very Stiff	VD	Very Dense	
H	Hard			

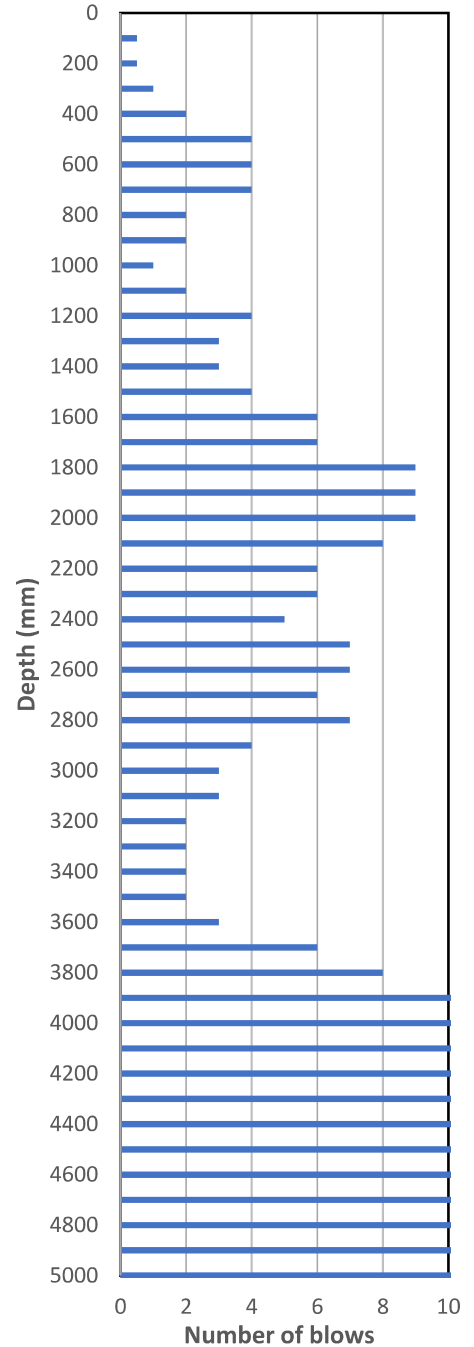


82 Adler Drive
Ohauti
Tauranga 3112
m. 0272014029

NZS 4402: 1998 Test 6.5.2 Dynamic Cone Penetrometer - Scala

Project Name	TGA WSP 30A Huna Road SI	Project ID	23-2-34569.01
Client Project ID	2-34569.01	Equipment ID	TGA 001
Site Location	30A Huna Road, Whakatane	Test Number	SP01
Depth from ground level to start of penetration (mm)		0	Tested by
			SDR
			Checked by
			HPS

Depth (mm)	Number of blows	Depth (mm)	Number of blows	Depth (mm)	Number of blows
0	-	1700	6	3400	2
100	0.5	1800	9	3500	2
200	0.5	1900	9	3600	3
300	1	2000	9	3700	6
400	2	2100	8	3800	8
500	4	2200	6	3900	11
600	4	2300	6	4000	13
700	4	2400	5	4100	13
800	2	2500	7	4200	15
900	2	2600	7	4300	16
1000	1	2700	6	4400	13
1100	2	2800	7	4500	12
1200	4	2900	4	4600	15
1300	3	3000	3	4700	13
1400	3	3100	3	4800	11
1500	4	3200	2	4900	14
1600	6	3300	2	5000	14



Test Notes

--

Project: Geotechnical Investigation
 Client: WSP
 Address: 30A Huna Road, Coastlands, Whakatane
 Job No.: 23-2-34569.01

Date: 6/04/2023
 Logged By: HPS
 Checked By: SDR



HAND AUGERED BOREHOLE

Borehole No.: HA02 Coordinates: NZTM: E1946900, N5792700
 Scala Penetrometer No.: SP02 Reduced Level:

Depth (m)	Groundwater (m)	Graphic Log	DESCRIPTIONS	Strength / Density	Soil Classification (USCS)	Soil Strengths					
						□ Scala Penetrometer ● Shear Vane - Remoulded	■ Shear Vane - Peak				
						SCALA PENETROMETER RESULTS					
						Blows per 100mm					
						0	5	10	15	20	25
0.0 - 0.5			Organic silty SAND; dark brownish grey to dark brown. Very loose to loose, moist, poorly graded; sand, fine to medium; (TOPSOIL).	VL - L	SM	1					
0.5 - 1.0			SAND, with trace silt; light grey to dark grey. Loose to dense, moist to saturated, well graded; sand, fine to coarse, quartz, rock fragments.			2					
1.0 - 1.5			0.9m - 1.4m: Becomes light greyish orange with some light grey staining.			3					
1.5 - 2.0						3					
2.0 - 2.5			2.1m: Minor light orange staining.			3					
2.5 - 3.0						4					
3.0 - 3.5						7					
3.5 - 4.0			3.5m: Becomes dark grey, saturated.			6					
4.0 - 4.5						6					
4.5 - 5.0			Borehole was terminated at 4.1m bgl. Borehole collapsed at 4.1m bgl. Standing groundwater was encountered at 3.73m bgl.			7					
5.0 - 5.5						9					
5.5 - 6.0						8					
6.0 - 6.5						12					
6.5 - 7.0						10					
7.0 - 7.5						10					
7.5 - 8.0						10					
8.0 - 8.5						9					
8.5 - 9.0						11					
9.0 - 9.5						11					

Notes: Client Project ID: 2-34569.01

SHEAR VANE RESULTS	
In Situ Strength (kPa)	
Shear Vane No.:	Calibration Factor:
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	
11	
12	

Cohesive Material		Non-Cohesive Material		Description and Testing Notes
VS	Very Soft	VL	Very Loose	Material Descriptions: Soil description in accordance with Guideline for the Field Classification and Description of Soil and Rock for Engineering Purposes, NZ Geotechnical Society Inc, 2005 Scala Penetrometer Testing: NZS 4402:1988, Test 6.5.2. Dynamic Cone Penetrometer Shear Vane Testing: Guideline for Hand Held Shear Vane Test, NZGS, August 2001
S	Soft	L	Loose	
F	Firm	MD	Medium Dense	
St	Stiff	D	Dense	
Vst	Very Stiff	VD	Very Dense	

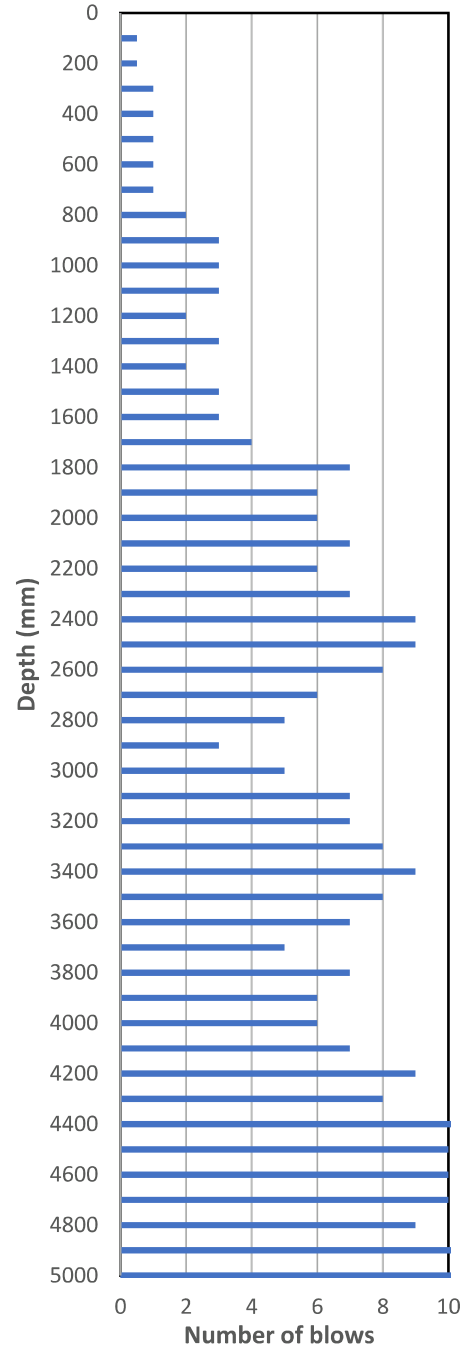


82 Adler Drive
 Ohauiti
 Tauranga 3112
 m. 0272014029

NZS 4402: 1998 Test 6.5.2 Dynamic Cone Penetrometer - Scala

Project Name	TGA WSP 30A Huna Road SI	Project ID	23-2-34569.01
Client Project ID	2-34569.01	Equipment ID	TGA 001
Site Location	30A Huna Road, Whakatane	Test Number	SP02
Depth from ground level to start of penetration (mm)	0	Tested by	SDR
		Checked by	HPS

Depth (mm)	Number of blows	Depth (mm)	Number of blows	Depth (mm)	Number of blows
0	-	1700	4	3400	9
100	0.5	1800	7	3500	8
200	0.5	1900	6	3600	7
300	1	2000	6	3700	5
400	1	2100	7	3800	7
500	1	2200	6	3900	6
600	1	2300	7	4000	6
700	1	2400	9	4100	7
800	2	2500	9	4200	9
900	3	2600	8	4300	8
1000	3	2700	6	4400	12
1100	3	2800	5	4500	10
1200	2	2900	3	4600	10
1300	3	3000	5	4700	10
1400	2	3100	7	4800	9
1500	3	3200	7	4900	11
1600	3	3300	8	5000	11



Test Notes

Project: Geotechnical Investigation
 Client: WSP
 Address: 30A Huna Road, Coastlands, Whakatane
 Job No.: 23-2-34569.01

Date: 6/04/2023
 Logged By: SDR
 Checked By: HPS



HAND AUGERED BOREHOLE

Borehole No.: HA03 Coordinates: NZTM: E1946964, N5792723
 Scala Penetrometer No.: SP03 Reduced Level:

Depth (m)	Groundwater (m)	Graphic Log	DESCRIPTIONS	Strength / Density	Soil Classification (USCS)	Soil Strengths	
						■ Scala Penetrometer ● Shear Vane - Remoulded	■ Shear Vane - Peak
						SCALA PENETROMETER RESULTS Blows per 100mm	
						0	5 10 15 20 25
0.0 - 0.5			SAND, with some organic silt, with trace gravel; dark brown with some brownish grey to light yellowish brown mottling. Very loose to loose, dry to moist, poorly graded; sand, fine to medium; gravel, fine, rock fragments; (FILL).	VL - L	SP	2	
0.5 - 1.5			SAND, with trace silt and gravel; light yellowish brown to light brown. Loose to medium dense, moist, well graded; sand, fine to coarse, quartz; gravel, fine, rock fragments.	L - MD		2, 2, 2, 2, 2, 2, 2, 3, 4, 5	
1.5 - 4.5			SAND, with trace silt and gravel; light brownish grey to light grey. Medium dense to very dense, moist to wet, well graded; sand, fine to coarse, quartz; gravel, fine, rock fragments.			3, 4, 5, 7, 6, 5, 8, 8, 8, 10, 14, 12, 8, 6, 6, 10, 9, 8, 6, 5, 8, 7, 9, 12, 17, 13, 8, 9, 6, 5, 5, 8	
4.5 - 5.0			End of borehole at 5.0m bgl. Standing groundwater was encountered at 4.7m bgl.				

Notes: Client Project ID: 2-34569.01

SHEAR VANE RESULTS	
In Situ Strength (kPa)	
Shear Vane No.:	Calibration Factor:

Cohesive Material		Non-Cohesive Material		Description and Testing Notes
VS Very Soft	H Hard	VL Very Loose		Material Descriptions: Soil description in accordance with Guideline for the Field Classification and Description of Soil and Rock for Engineering Purposes, NZ Geotechnical Society Inc, 2005 Scala Penetrometer Testing: NZS 4402:1988, Test 6.5.2. Dynamic Cone Penetrometer Shear Vane Testing: Guideline for Hand Held Shear Vane Test, NZGS, August 2001
S Soft		L Loose		
F Firm		MD Medium Dense		
St Stiff		D Dense		
Vst Very Stiff		VD Very Dense		

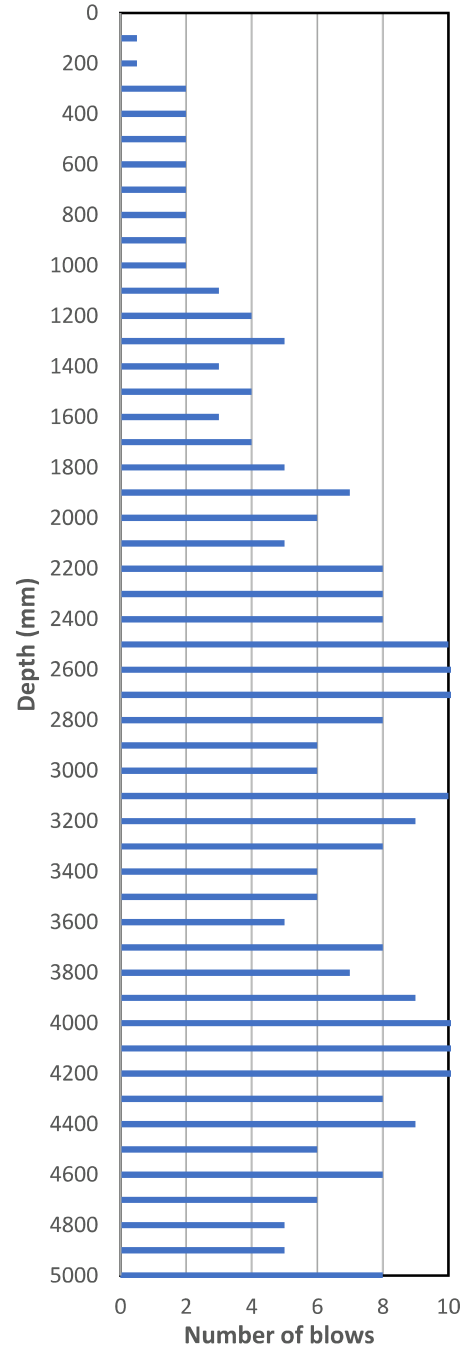


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Tauranga 3112
m. 0272014029

NZS 4402: 1998 Test 6.5.2 Dynamic Cone Penetrometer - Scala

Project Name	TGA WSP 30A Huna Road SI	Project ID	23-2-34569.01
Client Project ID	2-34569.01	Equipment ID	TGA 001
Site Location	30A Huna Road, Whakatane	Test Number	SP03
Depth from ground level to start of penetration (mm)		0	Tested by
			SDR
			Checked by
			HPS

Depth (mm)	Number of blows	Depth (mm)	Number of blows	Depth (mm)	Number of blows
0	-	1700	4	3400	6
100	0.5	1800	5	3500	6
200	0.5	1900	7	3600	5
300	2	2000	6	3700	8
400	2	2100	5	3800	7
500	2	2200	8	3900	9
600	2	2300	8	4000	12
700	2	2400	8	4100	17
800	2	2500	10	4200	13
900	2	2600	14	4300	8
1000	2	2700	12	4400	9
1100	3	2800	8	4500	6
1200	4	2900	6	4600	8
1300	5	3000	6	4700	6
1400	3	3100	10	4800	5
1500	4	3200	9	4900	5
1600	3	3300	8	5000	8



Test Notes

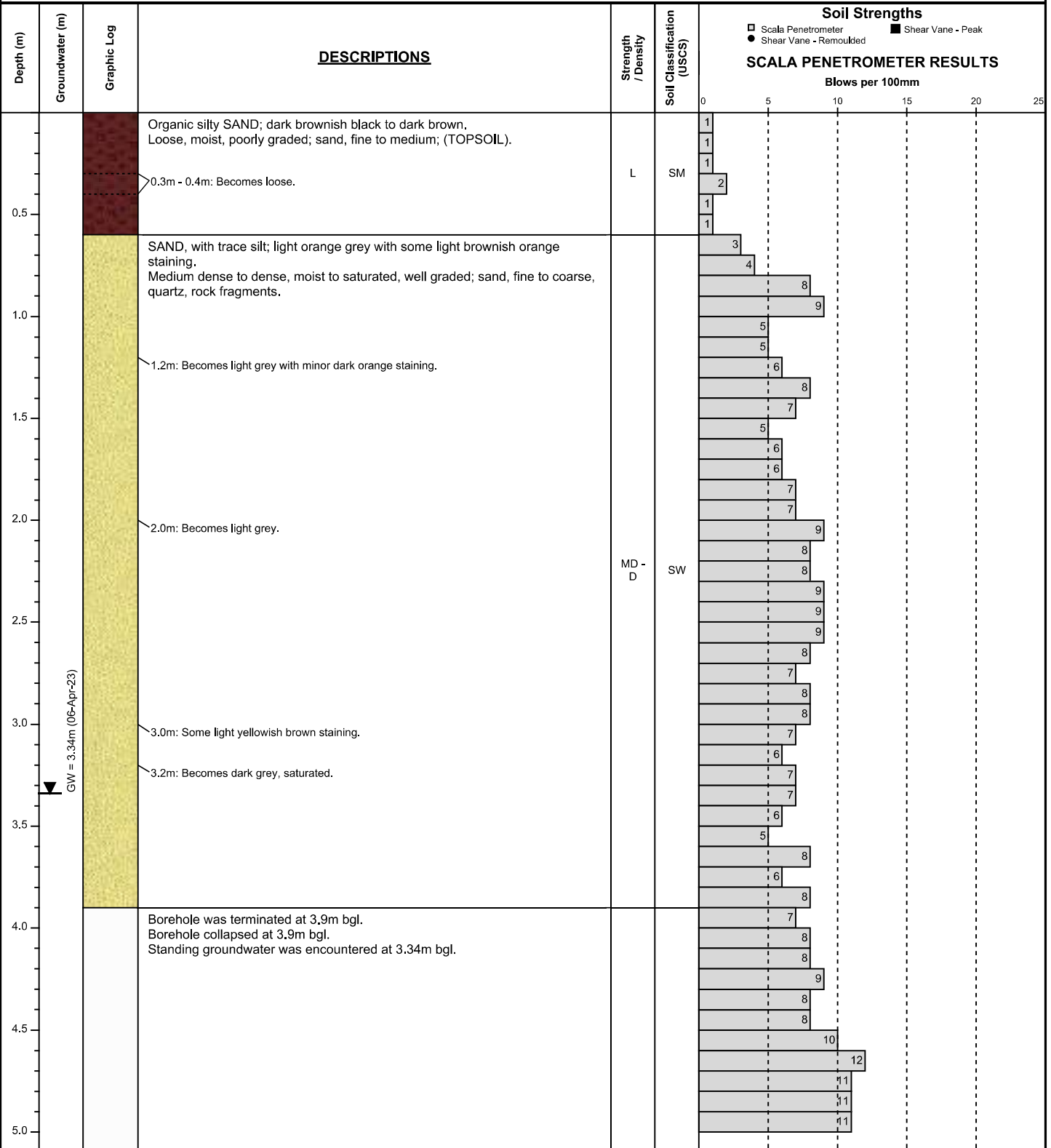
Project: Geotechnical Investigation
 Client: WSP
 Address: 30A Huna Road, Coastlands, Whakatane
 Job No.: 23-2-34569.01

Date: 6/04/2023
 Logged By: HPS
 Checked By: SDR

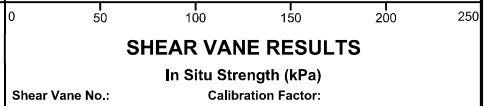


HAND AUGERED BOREHOLE

Borehole No.: HA04 Coordinates: NZTM: E1946950, N5792686
 Scala Penetrometer No.: SP04 Reduced Level:



Notes: Client Project ID: 2-34569.01



Cohesive Material		Non-Cohesive Material		Description and Testing Notes
VS	Very Soft	H	Hard	Material Descriptions: Soil description in accordance with Guideline for the Field Classification and Description of Soil and Rock for Engineering Purposes, NZ Geotechnical Society Inc, 2005 Scala Penetrometer Testing: NZS 4402:1988, Test 6.5.2. Dynamic Cone Penetrometer Shear Vane Testing: Guideline for Hand Held Shear Vane Test, NZGS, August 2001
S	Soft	VL	Very Loose	
F	Firm	L	Loose	
St	Stiff	MD	Medium Dense	
Vst	Very Stiff	D	Dense	
		VD	Very Dense	

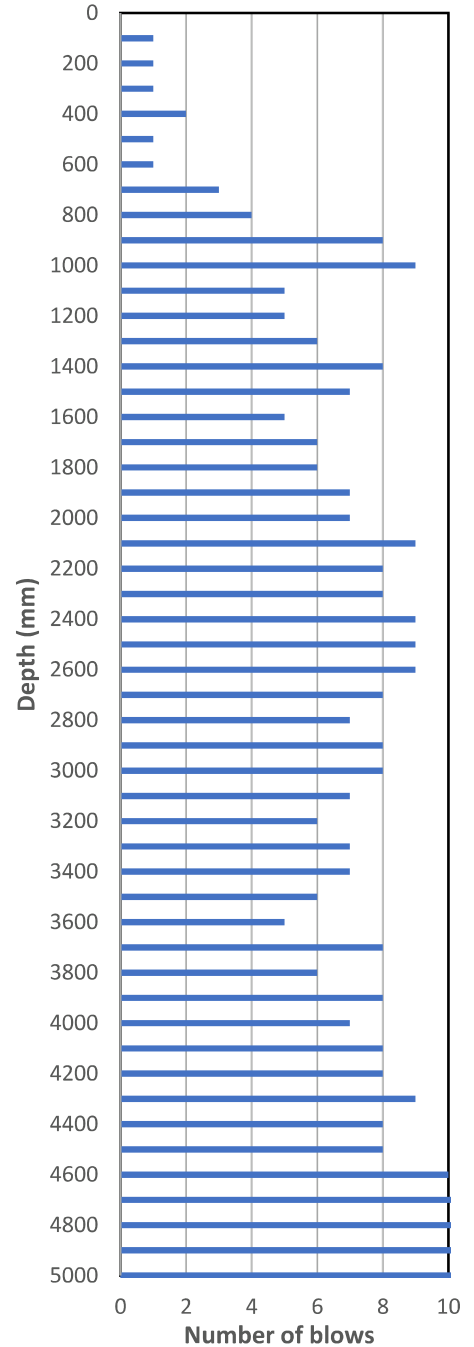


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Tauranga 3112
m. 0272014029

NZS 4402: 1998 Test 6.5.2 Dynamic Cone Penetrometer - Scala

Project Name	TGA WSP 30A Huna Road SI	Project ID	23-2-34569.01
Client Project ID	2-34569.01	Equipment ID	TGA 001
Site Location	30A Huna Road, Whakatane	Test Number	SP04
Depth from ground level to start of penetration (mm)	0	Tested by	SDR
		Checked by	HPS

Depth (mm)	Number of blows	Depth (mm)	Number of blows	Depth (mm)	Number of blows
0	-	1700	6	3400	7
100	1	1800	6	3500	6
200	1	1900	7	3600	5
300	1	2000	7	3700	8
400	2	2100	9	3800	6
500	1	2200	8	3900	8
600	1	2300	8	4000	7
700	3	2400	9	4100	8
800	4	2500	9	4200	8
900	8	2600	9	4300	9
1000	9	2700	8	4400	8
1100	5	2800	7	4500	8
1200	5	2900	8	4600	10
1300	6	3000	8	4700	12
1400	8	3100	7	4800	11
1500	7	3200	6	4900	11
1600	5	3300	7	5000	11



Test Notes

Project: Geotechnical Investigation
 Client: WSP
 Address: 30A Huna Road, Coastlands, Whakatane
 Job No.: 23-2-34569.01

Date: 6/04/2023
 Logged By: HPS
 Checked By: SDR



HAND AUGERED BOREHOLE

Borehole No.: HA05 Coordinates: NZTM: E1946914, N5792628
 Scala Penetrometer No.: SP05 Reduced Level:

Depth (m)	Groundwater (m)	Graphic Log	DESCRIPTIONS	Strength / Density	Soil Classification (USCS)	Soil Strengths	
						Scala Penetrometer	Shear Vane - Peak
						SCALA PENETROMETER RESULTS Blows per 100mm	
0.5			Organic silty SAND; dark brownish grey to dark brownish black. Loose, moist, poorly graded; sand, fine to medium; (TOPSOIL).	L	SM	1	
			Organic SAND, with some silt; brownish grey to dark brown. Very loose, moist, poorly graded; sand, fine to medium; (FILL).	VL	SP	1	
1.0			Organic sandy SILT; dark brownish black. Stiff, moist, low plasticity; sand, fine to medium; (FILL).	St	MS	1	
			SAND, with minor silt; light grey with some dark brownish black to orange brown mottling. Loose, moist, poorly graded; sand, fine to medium; (FILL).	L	SP	1	
1.5			SAND, with some gravel, with minor silt; brown. Loose, wet, well graded; sand, fine to coarse, pumiceous; gravel, fine, pumiceous; (FILL).			2	
			SAND, with trace silt; light orange brown to dark grey. Loose to dense, moist to saturated, well graded; sand, fine to coarse, quartz, rock fragments.			3	
2.0			1.8m: Becomes light grey with some light orange brown to dark brown staining.			4	
				L - D	SW	5	
2.5						4	
						4	
3.0			2.8m: Becomes dark grey, saturated.			4	
						5	
3.5			Borehole was terminated at 3.5m bgl. Borehole collapsed at 3.5m bgl. Standing groundwater was encountered at 3.02m bgl.			8	
						7	
4.0			4.0m: Becomes very dense.			5	
						5	
4.5						6	
						6	
5.0						6	
						9	
						6	
						9	
						8	
						10	
						13	
						16	
						20	
						20	

Notes: Scala Penetrometer testing was terminated at 4.3m bgl. Refusal at 4.3m bgl.
 Client Project ID: 2-34569.01

SHEAR VANE RESULTS	
In Situ Strength (kPa)	
Shear Vane No.:	Calibration Factor:

Cohesive Material		Non-Cohesive Material		Description and Testing Notes
VS Very Soft	H Hard	VL Very Loose		Material Descriptions: Soil description in accordance with Guideline for the Field Classification and Description of Soil and Rock for Engineering Purposes, NZ Geotechnical Society Inc, 2005 Scala Penetrometer Testing: NZS 4402:1988, Test 6.5.2. Dynamic Cone Penetrometer Shear Vane Testing: Guideline for Hand Held Shear Vane Test, NZGS, August 2001
S Soft		L Loose		
F Firm		MD Medium Dense		
St Stiff		D Dense		
Vst Very Stiff		VD Very Dense		

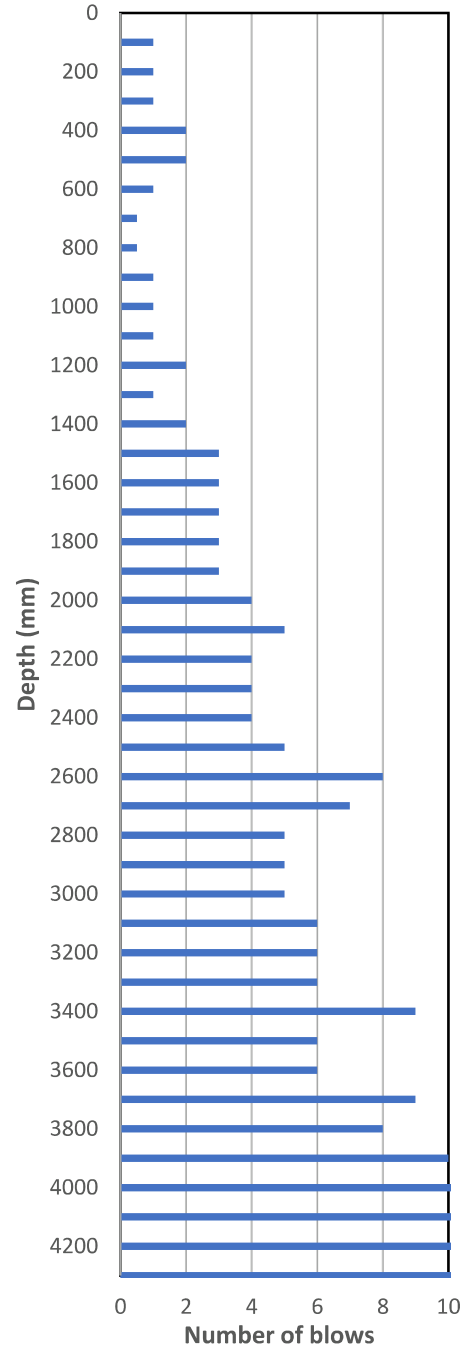


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Tauranga 3112
m. 0272014029

NZS 4402: 1998 Test 6.5.2 Dynamic Cone Penetrometer - Scala

Project Name	TGA WSP 30A Huna Road SI	Project ID	23-2-34569.01
Client Project ID	2-34569.01	Equipment ID	TGA 001
Site Location	30A Huna Road, Whakatane	Test Number	SP05
Depth from ground level to start of penetration (mm)		0	Tested by
			SDR
			Checked by
			HPS

Depth (mm)	Number of blows	Depth (mm)	Number of blows	Depth (mm)	Number of blows
0	-	1700	3	3400	9
100	1	1800	3	3500	6
200	1	1900	3	3600	6
300	1	2000	4	3700	9
400	2	2100	5	3800	8
500	2	2200	4	3900	10
600	1	2300	4	4000	13
700	0.5	2400	4	4100	16
800	0.5	2500	5	4200	20
900	1	2600	8	4300	20
1000	1	2700	7	4400	Bouncing
1100	1	2800	5	4500	-
1200	2	2900	5	4600	-
1300	1	3000	5	4700	-
1400	2	3100	6	4800	-
1500	3	3200	6	4900	-
1600	3	3300	6	5000	-



Test Notes

Scala penetrometer hammer started bouncing. Refusal at 4.3m bgl.

Project: Geotechnical Investigation
 Client: WSP
 Address: 30A Huna Road, Coastlands, Whakatane
 Job No.: 23-2-34569.01

Date: 6/04/2023
 Logged By: SDR
 Checked By: HPS



HAND AUGERED BOREHOLE

Borehole No.: HA06 Coordinates: NZTM: E1946988, N5792671
 Scala Penetrometer No.: SP06 Reduced Level:

Depth (m)	Groundwater (m)	Graphic Log	DESCRIPTIONS	Strength / Density	Soil Classification (USCS)	Soil Strengths	
						Scala Penetrometer	Shear Vane - Peak
0.0 - 0.5			Organic silty SAND; dark brownish black. Very loose to loose, moist to wet, poorly graded; sand, fine to medium; (TOPSOIL).	VL - L	SM	1, 2	
0.5 - 1.0			SAND, with trace silt and gravel; light brown. Loose, wet, well graded; sand, fine to coarse, quartz, rock fragments; gravel, fine, rock fragments.	L		1, 1, 1	
1.0 - 1.5			SAND, with trace silt; light yellowish brown to light brown. Loose to dense, moist, well graded; sand, fine to coarse, quartz.			2, 1, 1	
1.5 - 2.0			2.0m: Becomes light yellowish grey to light grey.	L - D	SW	3, 3, 3, 7, 8, 8	
2.0 - 2.5						6, 4	
2.5 - 3.0						7, 7, 5, 3, 4, 4, 4	
3.0 - 3.5			3.2m: Becomes wet to saturated.			5, 4, 5, 7, 6, 6	
3.5 - 4.0	3.4m		Borehole was terminated at 3.6m bgl. Borehole collapsed at 3.5m bgl. Standing groundwater was encountered at 3.4m bgl.			7, 8, 7, 8, 7, 9	
4.0 - 4.5						12, 12, 12, 13	
4.5 - 5.0						11, 15, 15, 15	

Notes: Client Project ID: 2-34569.01

SHEAR VANE RESULTS	
In Situ Strength (kPa)	
Shear Vane No.:	Calibration Factor:
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	
11	
12	
13	
14	
15	

Cohesive Material		Non-Cohesive Material		Description and Testing Notes
VS	Very Soft	VL	Very Loose	Material Descriptions: Soil description in accordance with Guideline for the Field Classification and Description of Soil and Rock for Engineering Purposes, NZ Geotechnical Society Inc, 2005 Scala Penetrometer Testing: NZS 4402:1988, Test 6.5.2. Dynamic Cone Penetrometer Shear Vane Testing: Guideline for Hand Held Shear Vane Test, NZGS, August 2001
S	Soft	L	Loose	
F	Firm	MD	Medium Dense	
St	Stiff	D	Dense	
Vst	Very Stiff	VD	Very Dense	
H	Hard			

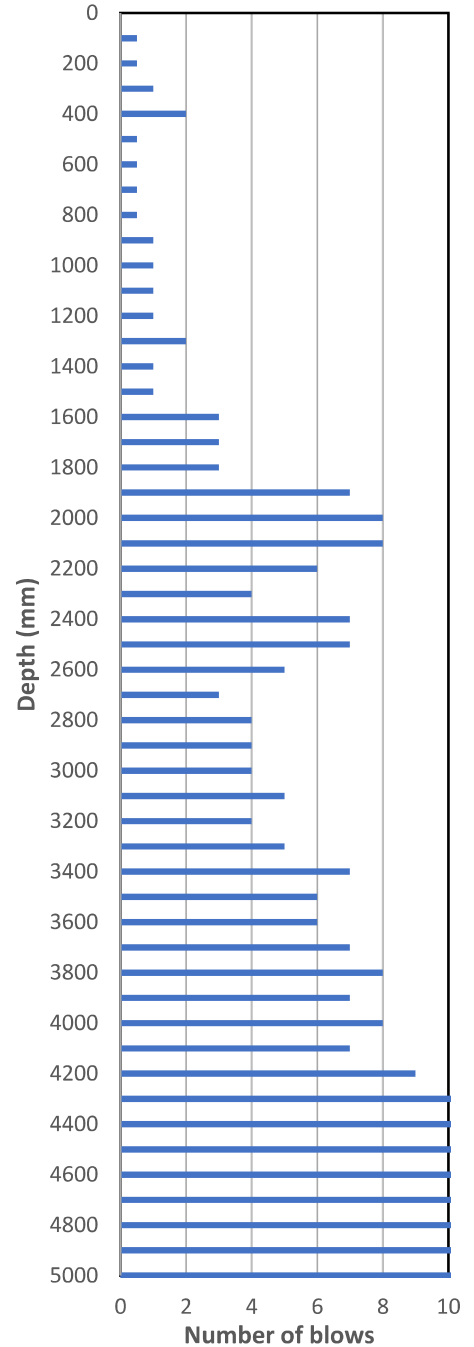


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 m. 0272014029

NZS 4402: 1998 Test 6.5.2 Dynamic Cone Penetrometer - Scala

Project Name	TGA WSP 30A Huna Road SI	Project ID	23-2-34569.01
Client Project ID	2-34569.01	Equipment ID	TGA 001
Site Location	30A Huna Road, Whakatane	Test Number	SP06
Depth from ground level to start of penetration (mm)		0	Tested by
			SDR
			Checked by
			HPS

Depth (mm)	Number of blows	Depth (mm)	Number of blows	Depth (mm)	Number of blows
0	-	1700	3	3400	7
100	0.5	1800	3	3500	6
200	0.5	1900	7	3600	6
300	1	2000	8	3700	7
400	2	2100	8	3800	8
500	0.5	2200	6	3900	7
600	0.5	2300	4	4000	8
700	0.5	2400	7	4100	7
800	0.5	2500	7	4200	9
900	1	2600	5	4300	12
1000	1	2700	3	4400	12
1100	1	2800	4	4500	12
1200	1	2900	4	4600	13
1300	2	3000	4	4700	11
1400	1	3100	5	4800	15
1500	1	3200	4	4900	15
1600	3	3300	5	5000	15



Test Notes

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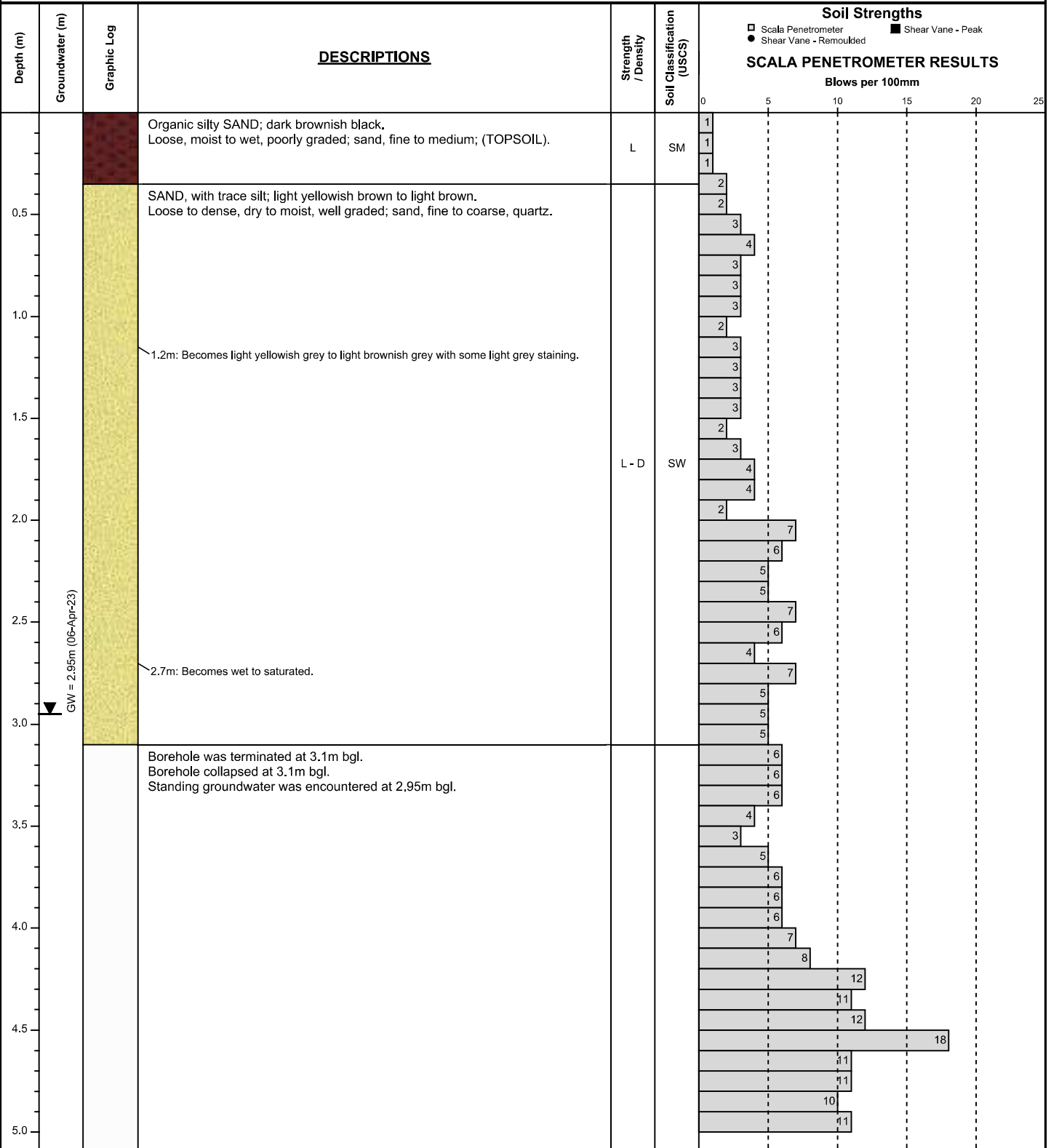
Project: Geotechnical Investigation
 Client: WSP
 Address: 30A Huna Road, Coastlands, Whakatane
 Job No.: 23-2-34569.01

Date: 6/04/2023
 Logged By: SDR
 Checked By: HPS

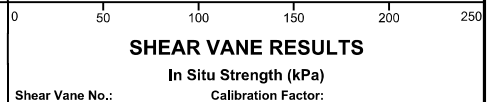


HAND AUGERED BOREHOLE

Borehole No.: HA07 Coordinates: NZTM: E1947045, N5792670
 Scala Penetrometer No.: SP07 Reduced Level:



Notes: Client Project ID: 2-34569.01



Cohesive Material		Non-Cohesive Material		Description and Testing Notes
VS	Very Soft	H	Hard	Material Descriptions: Soil description in accordance with Guideline for the Field Classification and Description of Soil and Rock for Engineering Purposes, NZ Geotechnical Society Inc, 2005 Scala Penetrometer Testing: NZS 4402:1988, Test 6.5.2. Dynamic Cone Penetrometer Shear Vane Testing: Guideline for Hand Held Shear Vane Test, NZGS, August 2001
S	Soft	VL	Very Loose	
F	Firm	L	Loose	
St	Stiff	MD	Medium Dense	
Vst	Very Stiff	D	Dense	
		VD	Very Dense	

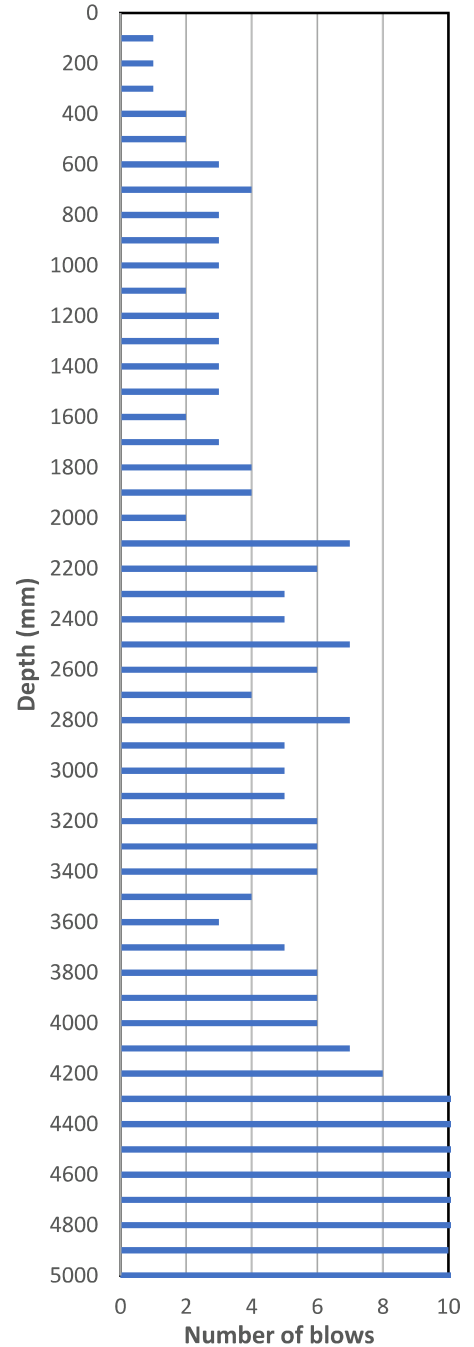


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m. 0272014029

NZS 4402: 1998 Test 6.5.2 Dynamic Cone Penetrometer - Scala

Project Name	TGA WSP 30A Huna Road SI	Project ID	23-2-34569.01
Client Project ID	2-34569.01	Equipment ID	TGA 001
Site Location	30A Huna Road, Whakatane	Test Number	SP07
Depth from ground level to start of penetration (mm)		0	Tested by
			SDR
			Checked by
			HPS

Depth (mm)	Number of blows	Depth (mm)	Number of blows	Depth (mm)	Number of blows
0	-	1700	3	3400	6
100	1	1800	4	3500	4
200	1	1900	4	3600	3
300	1	2000	2	3700	5
400	2	2100	7	3800	6
500	2	2200	6	3900	6
600	3	2300	5	4000	6
700	4	2400	5	4100	7
800	3	2500	7	4200	8
900	3	2600	6	4300	12
1000	3	2700	4	4400	11
1100	2	2800	7	4500	12
1200	3	2900	5	4600	18
1300	3	3000	5	4700	11
1400	3	3100	5	4800	11
1500	3	3200	6	4900	10
1600	2	3300	6	5000	11



Test Notes

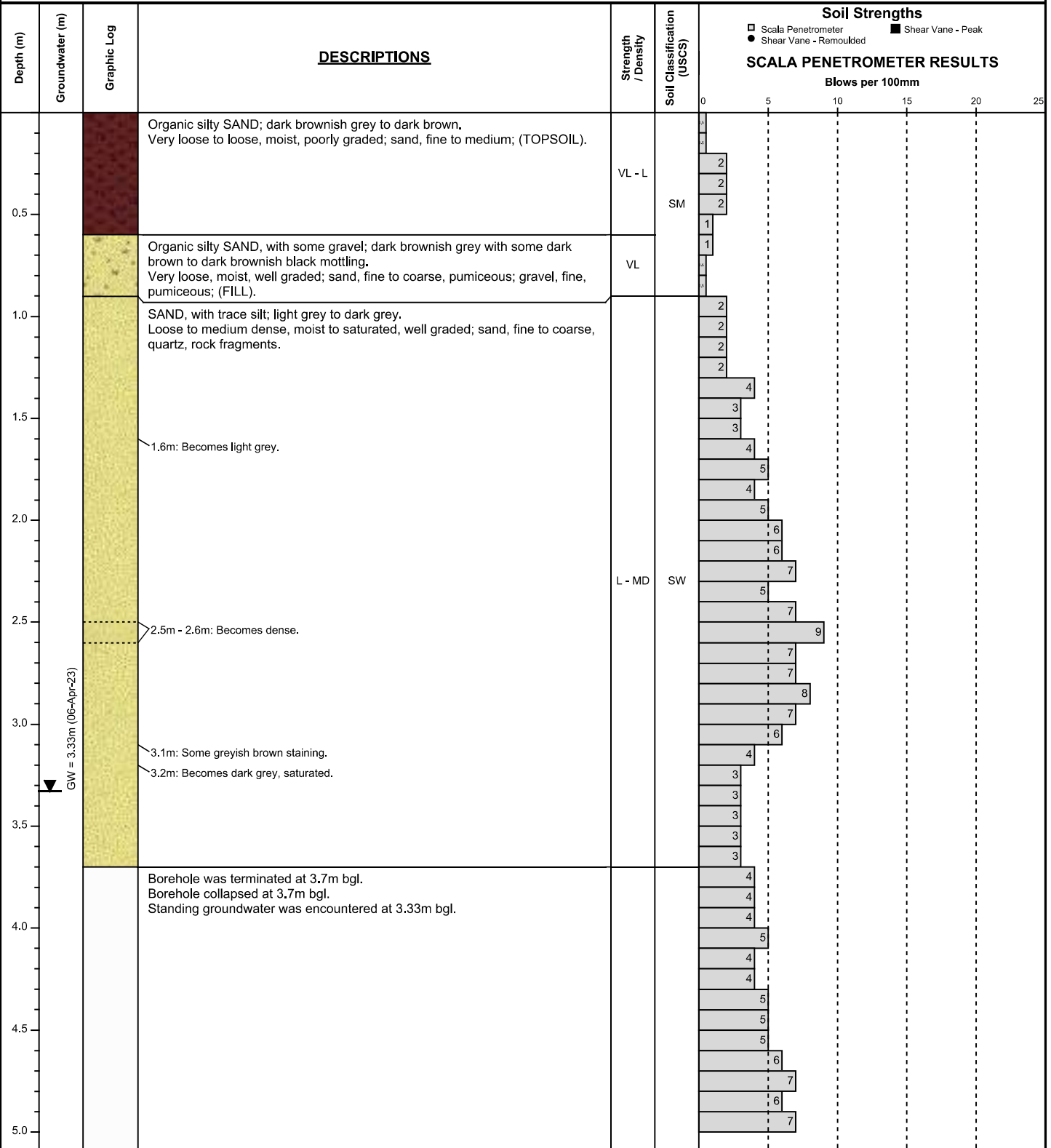
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 Client: WSP
 Address: 30A Huna Road, Coastlands, Whakatane
 Job No.: 23-2-34569.01

Date: 6/04/2023
 Logged By: HPS
 Checked By: SDR

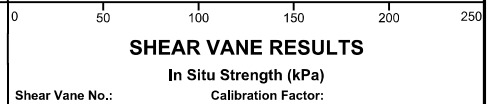


HAND AUGERED BOREHOLE

Borehole No.: HA08 Coordinates: NZTM: E1947033, N5792592
 Scala Penetrometer No.: SP08 Reduced Level:



Notes: Client Project ID: 2-34569.01



Cohesive Material		Non-Cohesive Material		Description and Testing Notes
VS	Very Soft	H	Hard	Material Descriptions: Soil description in accordance with Guideline for the Field Classification and Description of Soil and Rock for Engineering Purposes, NZ Geotechnical Society Inc, 2005 Scala Penetrometer Testing: NZS 4402:1988, Test 6.5.2. Dynamic Cone Penetrometer Shear Vane Testing: Guideline for Hand Held Shear Vane Test, NZGS, August 2001
S	Soft	VL	Very Loose	
F	Firm	L	Loose	
St	Stiff	MD	Medium Dense	
Vst	Very Stiff	D	Dense	
		VD	Very Dense	

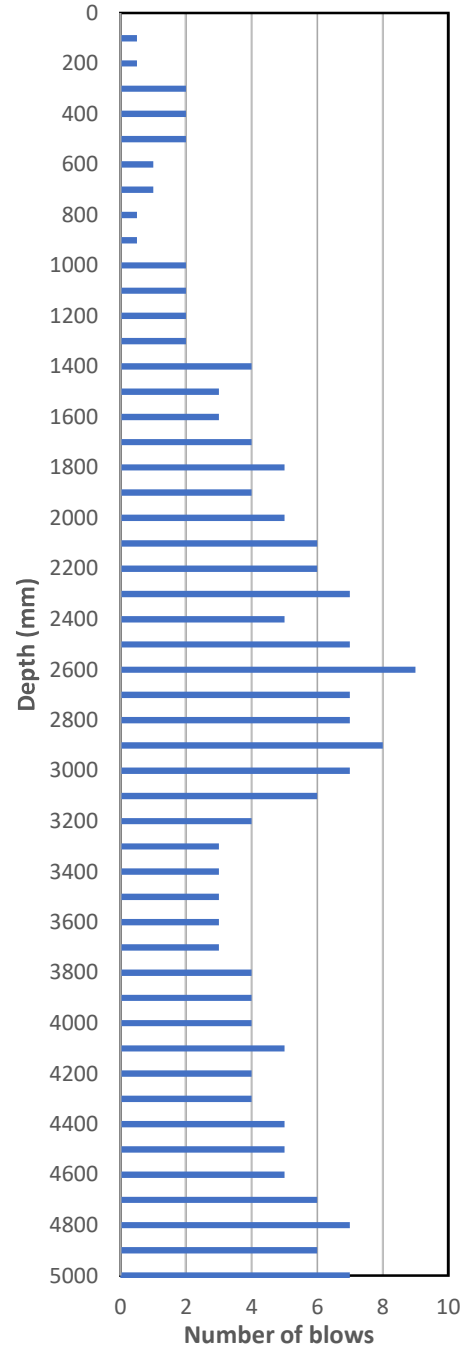


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 m. 0272014029

NZS 4402: 1998 Test 6.5.2 Dynamic Cone Penetrometer - Scala

Project Name	TGA WSP 30A Huna Road SI	Project ID	23-2-34569.01
Client Project ID	2-34569.01	Equipment ID	TGA 001
Site Location	30A Huna Road, Whakatane	Test Number	SP08
Depth from ground level to start of penetration (mm)	0	Tested by	SDR
		Checked by	HPS

Depth (mm)	Number of blows	Depth (mm)	Number of blows	Depth (mm)	Number of blows
0	-	1700	4	3400	3
100	0.5	1800	5	3500	3
200	0.5	1900	4	3600	3
300	2	2000	5	3700	3
400	2	2100	6	3800	4
500	2	2200	6	3900	4
600	1	2300	7	4000	4
700	1	2400	5	4100	5
800	0.5	2500	7	4200	4
900	0.5	2600	9	4300	4
1000	2	2700	7	4400	5
1100	2	2800	7	4500	5
1200	2	2900	8	4600	5
1300	2	3000	7	4700	6
1400	4	3100	6	4800	7
1500	3	3200	4	4900	6
1600	3	3300	3	5000	7



Test Notes

APPENDIX E – LAB RESULTS

Table A1
30A Huna Road DSI
Analytical Soil Results - Heavy Metals

Location	ES01	ES02	ES03	ES04	ES05	ES06	ES07	ES08
Sample Name	1_01	2_01	3_01	4_01	5_01	6_01	7_01	8_01
Laboratory Sample Number	3252425.1	3252425.2	3252425.3	3252425.4	3252425.5	3252425.6	3252425.7	3252425.8
Sample Depth	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Geological Unit	Silty clay	Silty clay	Silty clay	Silty clay	Silty clay	Silty clay	Silty clay	Silty clay
Sampling Date	1/05/2023	1/05/2023	1/05/2023	1/05/2023	1/05/2023	1/05/2023	1/05/2023	1/05/2023
Trace Elements in Bay of Plenty Soils, 2011³								
Heavy Metals (mg/kg)								
Arsenic	3	3	3	5	4	4	3	4
Cadmium ¹	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Chromium (III+VI) ²	3	2	2	3	2	2	2	2
Copper	5	4	4	5	3	3	3	2
Lead	3.7	2.8	2.8	3	3.4	3.4	2.9	2.7
Nickel ⁵	<2	<2	<2	<2	<2	<2	<2	<2
Zinc ⁵	20	19	23	24	23	24	21	15
NECS - Human Health - Residential 10%⁴	20	3	3	5	4	4	3	4
Trace Elements in Bay of Plenty Soils, 2011³								
Heavy Metals (mg/kg)								
Arsenic	3	3	3	4	4	3	2	3
Cadmium ¹	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Chromium (III+VI) ²	3	2	2	2	2	3	3	3
Copper	2	3	6	5	5	3	<2	<2
Lead	2.6	3.2	2.8	2.7	3.2	4.1	3.2	2.6
Nickel ⁵	<2	<2	<2	<2	<2	<2	<2	<2
Zinc ⁵	16	17	18	19	21	27	23	17
NECS - Human Health - Residential 10%⁴	20	3	3	4	4	3	2	3

Key:

- Exceeds human health criteria
- Exceeds background criteria

Notes:

- Cadmium - SCS based on pH 5. Cadmium absorption (i.e. plant uptake of cadmium) increases with decreasing pH (see M/E methodology document).
- Chromium - SCS tabulated is for chromium VI. This is conservative as samples have been analysed for total chromium (i.e. III and VI).
- Trace Elements in Bay of Plenty Soils, BOPRC, Environmental Publication 2011/16 - Table 2a: Mean topsoil (0-10 cm) trace element concentrations of maize cropping sites in 2009
- Users Guide National Environmental Standard (NES) For Assessing and Managing Contaminants in Soil to Protect Human Health, New Zealand, 2011. Commercial / industrial outdoor worker (unpaved) criteria.
- NEPC (2013) NEPM - Schedule B1 Investigation Levels for Soil and Groundwater - Table 1 A(1) HILs for soil contaminants for Nickel and Zinc



Certificate of Analysis

Client:	WSP New Zealand Limited	Lab No:	3252425	SPV1
Contact:	Lance Robison C/- WSP New Zealand Limited PO Box 800 Whakatane 3158	Date Received:	22-Apr-2023	
		Date Reported:	01-May-2023	
		Quote No:	82748	
		Order No:		
		Client Reference:	Nathan Soil	
		Submitted By:	Lance Robison	

Sample Type: Soil

Sample Name:	1_0.1	2_0.1	3_0.1	4_0.1	5_0.1
Lab Number:	3252425.1	3252425.2	3252425.3	3252425.4	3252425.5

Individual Tests						
Dry Matter	g/100g as rcvd	86	88	83	84	86

Heavy Metals, Screen Level						
Total Recoverable Arsenic	mg/kg dry wt	3	3	3	5	4
Total Recoverable Cadmium	mg/kg dry wt	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Total Recoverable Chromium	mg/kg dry wt	3	2	2	3	2
Total Recoverable Copper	mg/kg dry wt	5	4	4	5	3
Total Recoverable Lead	mg/kg dry wt	3.7	2.8	2.8	3.0	3.4
Total Recoverable Nickel	mg/kg dry wt	< 2	< 2	< 2	< 2	< 2
Total Recoverable Zinc	mg/kg dry wt	20	19	23	24	23

Multiresidue Pesticides in Soil samples by GCMS						
Acetochlor	mg/kg dry wt	< 0.007	< 0.007	< 0.008	< 0.007	< 0.007
Alachlor	mg/kg dry wt	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006
Aldrin	mg/kg dry wt	< 0.012	< 0.012	< 0.012	< 0.012	< 0.012
Atrazine	mg/kg dry wt	< 0.007	< 0.007	< 0.008	< 0.007	< 0.007
Atrazine-desethyl	mg/kg dry wt	< 0.007	< 0.007	< 0.008	< 0.007	< 0.007
Atrazine-desisopropyl	mg/kg dry wt	< 0.014	< 0.014	< 0.015	< 0.014	< 0.014
Azaconazole	mg/kg dry wt	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004
Azinphos-methyl	mg/kg dry wt	< 0.014	< 0.014	< 0.015	< 0.014	< 0.014
Benalaxyl	mg/kg dry wt	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004
Bendiocarb	mg/kg dry wt	< 0.007	< 0.007	< 0.008	< 0.007	< 0.007
Benodanil	mg/kg dry wt	< 0.014	< 0.014	< 0.015	< 0.014	< 0.014
alpha-BHC	mg/kg dry wt	< 0.012	< 0.012	< 0.012	< 0.012	< 0.012
beta-BHC	mg/kg dry wt	< 0.012	< 0.012	< 0.012	< 0.012	< 0.012
delta-BHC	mg/kg dry wt	< 0.012	< 0.012	< 0.012	< 0.012	< 0.012
gamma-BHC (Lindane)	mg/kg dry wt	< 0.012	< 0.012	< 0.012	< 0.012	< 0.012
Bifenthrin	mg/kg dry wt	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004
Bitertanol	mg/kg dry wt	< 0.014	< 0.014	< 0.015	< 0.014	< 0.014
Bromacil	mg/kg dry wt	< 0.007	< 0.007	< 0.008	< 0.007	< 0.007
Bromophos-ethyl	mg/kg dry wt	< 0.007	< 0.007	< 0.008	< 0.007	< 0.007
Bromopropylate	mg/kg dry wt	< 0.007	< 0.007	< 0.008	< 0.007	< 0.007
Bupirimate	mg/kg dry wt	< 0.007	< 0.007	< 0.008	< 0.007	< 0.007
Buprofezin	mg/kg dry wt	< 0.007	< 0.007	< 0.008	< 0.007	< 0.007
Butachlor	mg/kg dry wt	< 0.007	< 0.007	< 0.008	< 0.007	< 0.007
Captafol	mg/kg dry wt	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04
Captan	mg/kg dry wt	< 0.014	< 0.014	< 0.015	< 0.014	< 0.014
Carbaryl	mg/kg dry wt	< 0.007	< 0.007	< 0.008	< 0.007	< 0.007
Carbofenthion	mg/kg dry wt	< 0.007	< 0.007	< 0.008	< 0.007	< 0.007
Carbofuran	mg/kg dry wt	< 0.007	< 0.007	< 0.008	< 0.007	< 0.007



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:		1_0.1	2_0.1	3_0.1	4_0.1	5_0.1
Lab Number:		3252425.1	3252425.2	3252425.3	3252425.4	3252425.5
Multiresidue Pesticides in Soil samples by GCMS						
cis-Chlordane	mg/kg dry wt	< 0.012	< 0.012	< 0.012	< 0.012	< 0.012
trans-Chlordane	mg/kg dry wt	< 0.012	< 0.012	< 0.012	< 0.012	< 0.012
Chlorfenvinphos	mg/kg dry wt	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Chlorfluazuron	mg/kg dry wt	< 0.007	< 0.007	< 0.008	< 0.007	< 0.007
Chlorothalonil	mg/kg dry wt	< 0.007	< 0.007	< 0.008	< 0.007	< 0.007
Chlorpropham	mg/kg dry wt	< 0.014	< 0.014	< 0.015	< 0.014	< 0.014
Chlorpyrifos	mg/kg dry wt	< 0.007	< 0.007	< 0.008	< 0.007	< 0.007
Chlorpyrifos-methyl	mg/kg dry wt	< 0.007	< 0.007	< 0.008	< 0.007	< 0.007
Chlortoluron	mg/kg dry wt	< 0.014	< 0.014	< 0.015	< 0.014	< 0.014
Chlozolinate	mg/kg dry wt	< 0.007	< 0.007	< 0.008	< 0.007	< 0.007
Coumaphos	mg/kg dry wt	< 0.014	< 0.014	< 0.015	< 0.014	< 0.014
Cyanazine	mg/kg dry wt	< 0.007	< 0.007	< 0.008	< 0.007	< 0.007
Cyfluthrin	mg/kg dry wt	< 0.009	< 0.009	< 0.009	< 0.009	< 0.009
Cyhalothrin	mg/kg dry wt	< 0.007	< 0.007	< 0.008	< 0.007	< 0.007
Cypermethrin	mg/kg dry wt	< 0.017	< 0.017	< 0.018	< 0.018	< 0.017
Cyproconazole	mg/kg dry wt	< 0.014	< 0.014	< 0.015	< 0.014	< 0.014
Cyprodinil	mg/kg dry wt	< 0.007	< 0.007	< 0.008	< 0.007	< 0.007
2,4'-DDD	mg/kg dry wt	< 0.012	< 0.012	< 0.012	< 0.012	< 0.012
4,4'-DDD	mg/kg dry wt	< 0.012	< 0.012	< 0.012	< 0.012	< 0.012
2,4'-DDE	mg/kg dry wt	< 0.012	< 0.012	< 0.012	< 0.012	< 0.012
4,4'-DDE	mg/kg dry wt	< 0.012	< 0.012	< 0.012	< 0.012	< 0.012
2,4'-DDT	mg/kg dry wt	< 0.012	< 0.012	< 0.012	< 0.012	< 0.012
4,4'-DDT	mg/kg dry wt	< 0.012	< 0.012	< 0.012	< 0.012	< 0.012
Total DDT Isomers	mg/kg dry wt	< 0.07	< 0.07	< 0.08	< 0.07	< 0.07
Deltamethrin (including Tralomethrin)	mg/kg dry wt	< 0.007	< 0.007	< 0.008	< 0.007	< 0.007
Diazinon	mg/kg dry wt	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004
Dichlobenil	mg/kg dry wt	< 0.007	< 0.007	< 0.008	< 0.007	< 0.007
Dichlofenthion	mg/kg dry wt	< 0.007	< 0.007	< 0.008	< 0.007	< 0.007
Dichlofluanid	mg/kg dry wt	< 0.007	< 0.007	< 0.008	< 0.007	< 0.007
Dichloran	mg/kg dry wt	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Dichlorvos	mg/kg dry wt	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Dicofol	mg/kg dry wt	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04
Dicrotophos	mg/kg dry wt	< 0.007	< 0.007	< 0.008	< 0.007	< 0.007
Dieldrin	mg/kg dry wt	< 0.012	< 0.012	< 0.012	< 0.012	< 0.012
Difenoconazole	mg/kg dry wt	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Dimethoate	mg/kg dry wt	< 0.014	< 0.014	< 0.015	< 0.014	< 0.014
Dinocap	mg/kg dry wt	< 0.08	< 0.08	< 0.08	< 0.08	< 0.08
Diphenylamine	mg/kg dry wt	< 0.014	< 0.014	< 0.015	< 0.014	< 0.014
Diuron	mg/kg dry wt	< 0.007	< 0.007	< 0.008	< 0.007	< 0.007
Endosulfan I	mg/kg dry wt	< 0.012	< 0.012	< 0.012	< 0.012	< 0.012
Endosulfan II	mg/kg dry wt	< 0.012	< 0.012	< 0.012	< 0.012	< 0.012
Endosulfan sulphate	mg/kg dry wt	< 0.012	< 0.012	< 0.012	< 0.012	< 0.012
Endrin	mg/kg dry wt	< 0.012	< 0.012	< 0.012	< 0.012	< 0.012
Endrin aldehyde	mg/kg dry wt	< 0.012	< 0.012	< 0.012	< 0.012	< 0.012
Endrin ketone	mg/kg dry wt	< 0.012	< 0.012	< 0.012	< 0.012	< 0.012
EPN	mg/kg dry wt	< 0.007	< 0.007	< 0.008	< 0.007	< 0.007
Ethion	mg/kg dry wt	< 0.007	< 0.007	< 0.008	< 0.007	< 0.007
Etrimfos	mg/kg dry wt	< 0.007	< 0.007	< 0.008	< 0.007	< 0.007
Famphur	mg/kg dry wt	< 0.007	< 0.007	< 0.008	< 0.007	< 0.007
Fenarimol	mg/kg dry wt	< 0.007	< 0.007	< 0.008	< 0.007	< 0.007
Fenitrothion	mg/kg dry wt	< 0.007	< 0.007	< 0.008	< 0.007	< 0.007
Fenpropathrin	mg/kg dry wt	< 0.007	< 0.007	< 0.008	< 0.007	< 0.007
Fenpropimorph	mg/kg dry wt	< 0.007	< 0.007	< 0.008	< 0.007	< 0.007
Fensulfothion	mg/kg dry wt	< 0.007	< 0.007	< 0.008	< 0.007	< 0.007

Sample Type: Soil

Sample Name:		1_0.1	2_0.1	3_0.1	4_0.1	5_0.1
Lab Number:		3252425.1	3252425.2	3252425.3	3252425.4	3252425.5
Multiresidue Pesticides in Soil samples by GCMS						
Fenvalerate (including Esfenvalerate)	mg/kg dry wt	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Fluazifop-butyl	mg/kg dry wt	< 0.007	< 0.007	< 0.008	< 0.007	< 0.007
Fluometuron	mg/kg dry wt	< 0.007	< 0.007	< 0.008	< 0.007	< 0.007
Flusilazole	mg/kg dry wt	< 0.007	< 0.007	< 0.008	< 0.007	< 0.007
Fluvalinate	mg/kg dry wt	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006
Folpet	mg/kg dry wt	< 0.014	< 0.014	< 0.015	< 0.014	< 0.014
Furalaxyl	mg/kg dry wt	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004
Haloxifop-methyl	mg/kg dry wt	< 0.007	< 0.007	< 0.008	< 0.007	< 0.007
Heptachlor	mg/kg dry wt	< 0.012	< 0.012	< 0.012	< 0.012	< 0.012
Heptachlor epoxide	mg/kg dry wt	< 0.012	< 0.012	< 0.012	< 0.012	< 0.012
Hexachlorobenzene	mg/kg dry wt	< 0.012	< 0.012	< 0.012	< 0.012	< 0.012
Hexaconazole	mg/kg dry wt	< 0.007	< 0.007	< 0.008	< 0.007	< 0.007
Hexazinone	mg/kg dry wt	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004
Hexythiazox	mg/kg dry wt	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04
Imazalil	mg/kg dry wt	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04
Indoxacarb	mg/kg dry wt	< 0.007	< 0.007	< 0.008	< 0.007	< 0.007
Iodofenphos	mg/kg dry wt	< 0.007	< 0.007	< 0.008	< 0.007	< 0.007
IPBC (3-Iodo-2-propynyl-n-butylcarbamate)	mg/kg dry wt	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04
Isazophos	mg/kg dry wt	< 0.007	< 0.007	< 0.008	< 0.007	< 0.007
Isofenphos	mg/kg dry wt	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004
Kresoxim-methyl	mg/kg dry wt	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004
Leptophos	mg/kg dry wt	< 0.007	< 0.007	< 0.008	< 0.007	< 0.007
Linuron	mg/kg dry wt	< 0.007	< 0.007	< 0.008	< 0.007	< 0.007
Malathion	mg/kg dry wt	< 0.007	< 0.007	< 0.008	< 0.007	< 0.007
Metalaxyl	mg/kg dry wt	< 0.007	< 0.007	< 0.008	< 0.007	< 0.007
Methacrifos	mg/kg dry wt	< 0.007	< 0.007	< 0.008	< 0.007	< 0.007
Methamidophos	mg/kg dry wt	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04
Methidathion	mg/kg dry wt	< 0.007	< 0.007	< 0.008	< 0.007	< 0.007
Methiocarb	mg/kg dry wt	< 0.007	< 0.007	< 0.008	< 0.007	< 0.007
Methoxychlor	mg/kg dry wt	< 0.012	< 0.012	< 0.012	< 0.012	< 0.012
Metolachlor	mg/kg dry wt	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006
Metribuzin	mg/kg dry wt	< 0.007	< 0.007	< 0.008	< 0.007	< 0.007
Mevinphos	mg/kg dry wt	< 0.014	< 0.014	< 0.015	< 0.014	< 0.014
Molinate	mg/kg dry wt	< 0.014	< 0.014	< 0.015	< 0.014	< 0.014
Myclobutanil	mg/kg dry wt	< 0.007	< 0.007	< 0.008	< 0.007	< 0.007
Naled	mg/kg dry wt	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04
Nitrofen	mg/kg dry wt	< 0.014	< 0.014	< 0.015	< 0.014	< 0.014
Nitrothal-isopropyl	mg/kg dry wt	< 0.007	< 0.007	< 0.008	< 0.007	< 0.007
Norflurazon	mg/kg dry wt	< 0.014	< 0.014	< 0.015	< 0.014	< 0.014
Omethoate	mg/kg dry wt	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04
Oxadiazon	mg/kg dry wt	< 0.007	< 0.007	< 0.008	< 0.007	< 0.007
Oxychlorane	mg/kg dry wt	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004
Oxyfluorfen	mg/kg dry wt	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004
Paclobutrazol	mg/kg dry wt	< 0.007	< 0.007	< 0.008	< 0.007	< 0.007
Parathion-ethyl	mg/kg dry wt	< 0.007	< 0.007	< 0.008	< 0.007	< 0.007
Parathion-methyl	mg/kg dry wt	< 0.007	< 0.007	< 0.008	< 0.007	< 0.007
Penconazole	mg/kg dry wt	< 0.007	< 0.007	< 0.008	< 0.007	< 0.007
Pendimethalin	mg/kg dry wt	< 0.007	< 0.007	< 0.008	< 0.007	< 0.007
Permethrin	mg/kg dry wt	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
Phosmet	mg/kg dry wt	< 0.007	< 0.007	< 0.008	< 0.007	< 0.007
Phosphamidon	mg/kg dry wt	< 0.007	< 0.007	< 0.008	< 0.007	< 0.007
Pirimicarb	mg/kg dry wt	< 0.007	< 0.007	< 0.008	< 0.007	< 0.007
Pirimiphos-methyl	mg/kg dry wt	< 0.007	< 0.007	< 0.008	< 0.007	< 0.007
Prochloraz	mg/kg dry wt	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04

Sample Type: Soil						
Sample Name:		1_0.1	2_0.1	3_0.1	4_0.1	5_0.1
Lab Number:		3252425.1	3252425.2	3252425.3	3252425.4	3252425.5
Multiresidue Pesticides in Soil samples by GCMS						
Procymidone	mg/kg dry wt	< 0.007	< 0.007	< 0.008	< 0.007	< 0.007
Prometryn	mg/kg dry wt	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004
Propachlor	mg/kg dry wt	< 0.007	< 0.007	< 0.008	< 0.007	< 0.007
Propanil	mg/kg dry wt	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Propazine	mg/kg dry wt	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004
Propetamphos	mg/kg dry wt	< 0.007	< 0.007	< 0.008	< 0.007	< 0.007
Propham	mg/kg dry wt	< 0.007	< 0.007	< 0.008	< 0.007	< 0.007
Propiconazole	mg/kg dry wt	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006
Prothiofos	mg/kg dry wt	< 0.007	< 0.007	< 0.008	< 0.007	< 0.007
Pyrazophos	mg/kg dry wt	< 0.007	< 0.007	< 0.008	< 0.007	< 0.007
Pyrifenox	mg/kg dry wt	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Pyrimethanil	mg/kg dry wt	< 0.007	< 0.007	< 0.008	< 0.007	< 0.007
Pyriproxyfen	mg/kg dry wt	< 0.007	< 0.007	< 0.008	< 0.007	< 0.007
Quintozene	mg/kg dry wt	< 0.014	< 0.014	< 0.015	< 0.014	< 0.014
Quizalofop-ethyl	mg/kg dry wt	< 0.007	< 0.007	< 0.008	< 0.007	< 0.007
Simazine	mg/kg dry wt	< 0.007	< 0.007	< 0.008	< 0.007	< 0.007
Simetryn	mg/kg dry wt	< 0.007	< 0.007	< 0.008	< 0.007	< 0.007
Sulfentrazone	mg/kg dry wt	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04
Sulfotep	mg/kg dry wt	< 0.007	< 0.007	< 0.008	< 0.007	< 0.007
TCMTB [2-(thiocyanomethylthio)benzothiazole, Busan]	mg/kg dry wt	< 0.014	< 0.014	< 0.015	< 0.014	< 0.014
Tebuconazole	mg/kg dry wt	< 0.007	< 0.007	< 0.008	< 0.007	< 0.007
Tebufenpyrad	mg/kg dry wt	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004
Terbacil	mg/kg dry wt	< 0.007	< 0.007	< 0.008	< 0.007	< 0.007
Terbumeton	mg/kg dry wt	< 0.007	< 0.007	< 0.008	< 0.007	< 0.007
Terbuthylazine	mg/kg dry wt	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004
Terbuthylazine-desethyl	mg/kg dry wt	< 0.007	< 0.007	< 0.008	< 0.007	< 0.007
Terbutryn	mg/kg dry wt	< 0.007	< 0.007	< 0.008	< 0.007	< 0.007
Tetrachlorvinphos	mg/kg dry wt	< 0.007	< 0.007	< 0.008	< 0.007	< 0.007
Thiabendazole	mg/kg dry wt	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04
Thiobencarb	mg/kg dry wt	< 0.007	< 0.007	< 0.008	< 0.007	< 0.007
Tolyfluanid	mg/kg dry wt	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004
Triadimefon	mg/kg dry wt	< 0.007	< 0.007	< 0.008	< 0.007	< 0.007
Triazophos	mg/kg dry wt	< 0.007	< 0.007	< 0.008	< 0.007	< 0.007
Trifluralin	mg/kg dry wt	< 0.007	< 0.007	< 0.008	< 0.007	< 0.007
Vinclozolin	mg/kg dry wt	< 0.007	< 0.007	< 0.008	< 0.007	< 0.007
Sample Name:		6_0.1	7_0.1	8_0.1	9_0.1	10_0.1
Lab Number:		3252425.6	3252425.7	3252425.8	3252425.9	3252425.10
Individual Tests						
Dry Matter	g/100g as rcvd	78	85	83	90	80
Heavy Metals, Screen Level						
Total Recoverable Arsenic	mg/kg dry wt	4	3	4	3	4
Total Recoverable Cadmium	mg/kg dry wt	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Total Recoverable Chromium	mg/kg dry wt	2	2	2	3	2
Total Recoverable Copper	mg/kg dry wt	3	3	2	2	3
Total Recoverable Lead	mg/kg dry wt	3.4	2.9	2.7	2.6	3.2
Total Recoverable Nickel	mg/kg dry wt	< 2	< 2	< 2	< 2	< 2
Total Recoverable Zinc	mg/kg dry wt	24	21	15	16	17
Multiresidue Pesticides in Soil samples by GCMS						
Acetochlor	mg/kg dry wt	< 0.008	< 0.007	< 0.008	< 0.007	< 0.008
Alachlor	mg/kg dry wt	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006
Aldrin	mg/kg dry wt	< 0.013	< 0.012	< 0.012	< 0.011	< 0.013
Atrazine	mg/kg dry wt	< 0.008	< 0.007	< 0.008	< 0.007	< 0.008
Atrazine-desethyl	mg/kg dry wt	< 0.008	< 0.007	< 0.008	< 0.007	< 0.008
Atrazine-desisopropyl	mg/kg dry wt	< 0.015	< 0.014	< 0.015	< 0.014	< 0.015

Sample Type: Soil						
Sample Name:		6_0.1	7_0.1	8_0.1	9_0.1	10_0.1
Lab Number:		3252425.6	3252425.7	3252425.8	3252425.9	3252425.10
Multiresidue Pesticides in Soil samples by GCMS						
Azaconazole	mg/kg dry wt	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004
Azinphos-methyl	mg/kg dry wt	< 0.015	< 0.014	< 0.015	< 0.014	< 0.015
Benalaxyl	mg/kg dry wt	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004
Bendiocarb	mg/kg dry wt	< 0.008	< 0.007	< 0.008	< 0.007	< 0.008
Benodanil	mg/kg dry wt	< 0.015	< 0.014	< 0.015	< 0.014	< 0.015
alpha-BHC	mg/kg dry wt	< 0.013	< 0.012	< 0.012	< 0.012	< 0.013
beta-BHC	mg/kg dry wt	< 0.013	< 0.012	< 0.012	< 0.012	< 0.013
delta-BHC	mg/kg dry wt	< 0.013	< 0.012	< 0.012	< 0.011	< 0.013
gamma-BHC (Lindane)	mg/kg dry wt	< 0.013	< 0.012	< 0.012	< 0.012	< 0.013
Bifenthrin	mg/kg dry wt	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004
Bitertanol	mg/kg dry wt	< 0.015	< 0.014	< 0.015	< 0.014	< 0.015
Bromacil	mg/kg dry wt	< 0.008	< 0.007	< 0.008	< 0.007	< 0.008
Bromophos-ethyl	mg/kg dry wt	< 0.008	< 0.007	< 0.008	< 0.007	< 0.008
Bromopropylate	mg/kg dry wt	< 0.008	< 0.007	< 0.008	< 0.007	< 0.008
Bupirimate	mg/kg dry wt	< 0.008	< 0.007	< 0.008	< 0.007	< 0.008
Buprofezin	mg/kg dry wt	< 0.008	< 0.007	< 0.008	< 0.007	< 0.008
Butachlor	mg/kg dry wt	< 0.008	< 0.007	< 0.008	< 0.007	< 0.008
Captafol	mg/kg dry wt	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04
Captan	mg/kg dry wt	< 0.015	< 0.014	< 0.015	< 0.014	< 0.015
Carbaryl	mg/kg dry wt	< 0.008	< 0.007	< 0.008	< 0.007	< 0.008
Carbofenthion	mg/kg dry wt	< 0.008	< 0.007	< 0.008	< 0.007	< 0.008
Carbofuran	mg/kg dry wt	< 0.008	< 0.007	< 0.008	< 0.007	< 0.008
cis-Chlordane	mg/kg dry wt	< 0.013	< 0.012	< 0.012	< 0.011	< 0.013
trans-Chlordane	mg/kg dry wt	< 0.013	< 0.012	< 0.012	< 0.012	< 0.013
Chlorfenvinphos	mg/kg dry wt	< 0.011	< 0.010	< 0.010	< 0.010	< 0.011
Chlorfluazuron	mg/kg dry wt	< 0.008	< 0.007	< 0.008	< 0.007	< 0.008
Chlorothalonil	mg/kg dry wt	< 0.008	< 0.007	< 0.008	< 0.007	< 0.008
Chlorpropham	mg/kg dry wt	< 0.015	< 0.014	< 0.015	< 0.014	< 0.015
Chlorpyrifos	mg/kg dry wt	< 0.008	< 0.007	< 0.008	< 0.007	< 0.008
Chlorpyrifos-methyl	mg/kg dry wt	< 0.008	< 0.007	< 0.008	< 0.007	< 0.008
Chlortoluron	mg/kg dry wt	< 0.015	< 0.014	< 0.015	< 0.014	< 0.015
Chlozolinate	mg/kg dry wt	< 0.008	< 0.007	< 0.008	< 0.007	< 0.008
Coumaphos	mg/kg dry wt	< 0.015	< 0.014	< 0.015	< 0.014	< 0.015
Cyanazine	mg/kg dry wt	< 0.008	< 0.007	< 0.008	< 0.007	< 0.008
Cyfluthrin	mg/kg dry wt	< 0.010	< 0.009	< 0.009	< 0.009	< 0.009
Cyhalothrin	mg/kg dry wt	< 0.008	< 0.007	< 0.008	< 0.007	< 0.008
Cypermethrin	mg/kg dry wt	< 0.019	< 0.017	< 0.018	< 0.017	< 0.018
Cyproconazole	mg/kg dry wt	< 0.015	< 0.014	< 0.015	< 0.014	< 0.015
Cyprodinil	mg/kg dry wt	< 0.008	< 0.007	< 0.008	< 0.007	< 0.008
2,4'-DDD	mg/kg dry wt	< 0.013	< 0.012	< 0.012	< 0.011	< 0.013
4,4'-DDD	mg/kg dry wt	< 0.013	< 0.012	< 0.012	< 0.011	< 0.013
2,4'-DDE	mg/kg dry wt	< 0.013	< 0.012	< 0.012	< 0.011	< 0.013
4,4'-DDE	mg/kg dry wt	< 0.013	< 0.012	< 0.012	< 0.012	< 0.013
2,4'-DDT	mg/kg dry wt	< 0.013	< 0.012	< 0.012	< 0.011	< 0.013
4,4'-DDT	mg/kg dry wt	< 0.013	< 0.012	< 0.012	< 0.012	< 0.013
Total DDT Isomers	mg/kg dry wt	< 0.08	< 0.07	< 0.07	< 0.07	< 0.08
Deltamethrin (including Tralomethrin)	mg/kg dry wt	< 0.008	< 0.007	< 0.008	< 0.007	< 0.008
Diazinon	mg/kg dry wt	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004
Dichlobenil	mg/kg dry wt	< 0.008	< 0.007	< 0.008	< 0.007	< 0.008
Dichlofenthion	mg/kg dry wt	< 0.008	< 0.007	< 0.008	< 0.007	< 0.008
Dichlofluanid	mg/kg dry wt	< 0.008	< 0.007	< 0.008	< 0.007	< 0.008
Dichloran	mg/kg dry wt	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Dichlorvos	mg/kg dry wt	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Dicofol	mg/kg dry wt	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04
Dicrotophos	mg/kg dry wt	< 0.008	< 0.007	< 0.008	< 0.007	< 0.008

Sample Type: Soil						
Sample Name:	6_0.1	7_0.1	8_0.1	9_0.1	10_0.1	
Lab Number:	3252425.6	3252425.7	3252425.8	3252425.9	3252425.10	
Multiresidue Pesticides in Soil samples by GCMS						
Dieldrin	mg/kg dry wt	< 0.013	< 0.012	< 0.012	< 0.012	< 0.013
Difenoconazole	mg/kg dry wt	< 0.011	< 0.010	< 0.010	< 0.010	< 0.011
Dimethoate	mg/kg dry wt	< 0.015	< 0.014	< 0.015	< 0.014	< 0.015
Dinocap	mg/kg dry wt	< 0.09	< 0.08	< 0.08	< 0.08	< 0.09
Diphenylamine	mg/kg dry wt	< 0.015	< 0.014	< 0.015	< 0.014	< 0.015
Diuron	mg/kg dry wt	< 0.008	< 0.007	< 0.008	< 0.007	< 0.008
Endosulfan I	mg/kg dry wt	< 0.013	< 0.012	< 0.012	< 0.011	< 0.013
Endosulfan II	mg/kg dry wt	< 0.013	< 0.012	< 0.012	< 0.011	< 0.013
Endosulfan sulphate	mg/kg dry wt	< 0.013	< 0.012	< 0.012	< 0.011	< 0.013
Endrin	mg/kg dry wt	< 0.013	< 0.012	< 0.012	< 0.012	< 0.013
Endrin aldehyde	mg/kg dry wt	< 0.013	< 0.012	< 0.012	< 0.012	< 0.013
Endrin ketone	mg/kg dry wt	< 0.013	< 0.012	< 0.012	< 0.011	< 0.013
EPN	mg/kg dry wt	< 0.008	< 0.007	< 0.008	< 0.007	< 0.008
Ethion	mg/kg dry wt	< 0.008	< 0.007	< 0.008	< 0.007	< 0.008
Etrimfos	mg/kg dry wt	< 0.008	< 0.007	< 0.008	< 0.007	< 0.008
Famphur	mg/kg dry wt	< 0.008	< 0.007	< 0.008	< 0.007	< 0.008
Fenarimol	mg/kg dry wt	< 0.008	< 0.007	< 0.008	< 0.007	< 0.008
Fenitrothion	mg/kg dry wt	< 0.008	< 0.007	< 0.008	< 0.007	< 0.008
Fenpropathrin	mg/kg dry wt	< 0.008	< 0.007	< 0.008	< 0.007	< 0.008
Fenpropimorph	mg/kg dry wt	< 0.008	< 0.007	< 0.008	< 0.007	< 0.008
Fensulfthion	mg/kg dry wt	< 0.008	< 0.007	< 0.008	< 0.007	< 0.008
Fenvalerate (including Esfenvalerate)	mg/kg dry wt	< 0.011	< 0.010	< 0.010	< 0.010	< 0.011
Fluazifop-butyl	mg/kg dry wt	< 0.008	< 0.007	< 0.008	< 0.007	< 0.008
Fluometuron	mg/kg dry wt	< 0.008	< 0.007	< 0.008	< 0.007	< 0.008
Flusilazole	mg/kg dry wt	< 0.008	< 0.007	< 0.008	< 0.007	< 0.008
Fluvalinate	mg/kg dry wt	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006
Folpet	mg/kg dry wt	< 0.015	< 0.014	< 0.015	< 0.014	< 0.015
Furalaxyl	mg/kg dry wt	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004
Haloxifop-methyl	mg/kg dry wt	< 0.008	< 0.007	< 0.008	< 0.007	< 0.008
Heptachlor	mg/kg dry wt	< 0.013	< 0.012	< 0.012	< 0.012	< 0.013
Heptachlor epoxide	mg/kg dry wt	< 0.013	< 0.012	< 0.012	< 0.011	< 0.013
Hexachlorobenzene	mg/kg dry wt	< 0.013	< 0.012	< 0.012	< 0.011	< 0.013
Hexaconazole	mg/kg dry wt	< 0.008	< 0.007	< 0.008	< 0.007	< 0.008
Hexazinone	mg/kg dry wt	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004
Hexythiazox	mg/kg dry wt	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04
Imazalil	mg/kg dry wt	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04
Indoxacarb	mg/kg dry wt	< 0.008	< 0.007	< 0.008	< 0.007	< 0.008
Iodofenphos	mg/kg dry wt	< 0.008	< 0.007	< 0.008	< 0.007	< 0.008
IPBC (3-Iodo-2-propynyl-n-butylcarbamate)	mg/kg dry wt	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04
Isazophos	mg/kg dry wt	< 0.008	< 0.007	< 0.008	< 0.007	< 0.008
Isofenphos	mg/kg dry wt	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004
Kresoxim-methyl	mg/kg dry wt	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004
Leptophos	mg/kg dry wt	< 0.008	< 0.007	< 0.008	< 0.007	< 0.008
Linuron	mg/kg dry wt	< 0.008	< 0.007	< 0.008	< 0.007	< 0.008
Malathion	mg/kg dry wt	< 0.008	< 0.007	< 0.008	< 0.007	< 0.008
Metalaxyl	mg/kg dry wt	< 0.008	< 0.007	< 0.008	< 0.007	< 0.008
Methacrifos	mg/kg dry wt	< 0.008	< 0.007	< 0.008	< 0.007	< 0.008
Methamidophos	mg/kg dry wt	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04
Methidathion	mg/kg dry wt	< 0.008	< 0.007	< 0.008	< 0.007	< 0.008
Methiocarb	mg/kg dry wt	< 0.008	< 0.007	< 0.008	< 0.007	< 0.008
Methoxychlor	mg/kg dry wt	< 0.013	< 0.012	< 0.012	< 0.012	< 0.013
Metolachlor	mg/kg dry wt	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006
Metribuzin	mg/kg dry wt	< 0.008	< 0.007	< 0.008	< 0.007	< 0.008
Mevinphos	mg/kg dry wt	< 0.015	< 0.014	< 0.015	< 0.014	< 0.015

Sample Type: Soil						
Sample Name:		6_0.1	7_0.1	8_0.1	9_0.1	10_0.1
Lab Number:		3252425.6	3252425.7	3252425.8	3252425.9	3252425.10
Multiresidue Pesticides in Soil samples by GCMS						
Molinate	mg/kg dry wt	< 0.015	< 0.014	< 0.015	< 0.014	< 0.015
Myclobutanil	mg/kg dry wt	< 0.008	< 0.007	< 0.008	< 0.007	< 0.008
Naled	mg/kg dry wt	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04
Nitrofen	mg/kg dry wt	< 0.015	< 0.014	< 0.015	< 0.014	< 0.015
Nitrothal-isopropyl	mg/kg dry wt	< 0.008	< 0.007	< 0.008	< 0.007	< 0.008
Norflurazon	mg/kg dry wt	< 0.015	< 0.014	< 0.015	< 0.014	< 0.015
Omethoate	mg/kg dry wt	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04
Oxadiazon	mg/kg dry wt	< 0.008	< 0.007	< 0.008	< 0.007	< 0.008
Oxychlorane	mg/kg dry wt	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004
Oxyfluorfen	mg/kg dry wt	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004
Pacllobutrazol	mg/kg dry wt	< 0.008	< 0.007	< 0.008	< 0.007	< 0.008
Parathion-ethyl	mg/kg dry wt	< 0.008	< 0.007	< 0.008	< 0.007	< 0.008
Parathion-methyl	mg/kg dry wt	< 0.008	< 0.007	< 0.008	< 0.007	< 0.008
Penconazole	mg/kg dry wt	< 0.008	< 0.007	< 0.008	< 0.007	< 0.008
Pendimethalin	mg/kg dry wt	< 0.008	< 0.007	< 0.008	< 0.007	< 0.008
Permethrin	mg/kg dry wt	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
Phosmet	mg/kg dry wt	< 0.008	< 0.007	< 0.008	< 0.007	< 0.008
Phosphamidon	mg/kg dry wt	< 0.008	< 0.007	< 0.008	< 0.007	< 0.008
Pirimicarb	mg/kg dry wt	< 0.008	< 0.007	< 0.008	< 0.007	< 0.008
Pirimiphos-methyl	mg/kg dry wt	< 0.008	< 0.007	< 0.008	< 0.007	< 0.008
Prochloraz	mg/kg dry wt	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04
Procymidone	mg/kg dry wt	< 0.008	< 0.007	< 0.008	< 0.007	< 0.008
Prometryn	mg/kg dry wt	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004
Propachlor	mg/kg dry wt	< 0.008	< 0.007	< 0.008	< 0.007	< 0.008
Propanil	mg/kg dry wt	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Propazine	mg/kg dry wt	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004
Propetamphos	mg/kg dry wt	< 0.008	< 0.007	< 0.008	< 0.007	< 0.008
Propham	mg/kg dry wt	< 0.008	< 0.007	< 0.008	< 0.007	< 0.008
Propiconazole	mg/kg dry wt	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006
Prothiofos	mg/kg dry wt	< 0.008	< 0.007	< 0.008	< 0.007	< 0.008
Pyrazophos	mg/kg dry wt	< 0.008	< 0.007	< 0.008	< 0.007	< 0.008
Pyrifenox	mg/kg dry wt	< 0.011	< 0.010	< 0.010	< 0.010	< 0.011
Pyrimethanil	mg/kg dry wt	< 0.008	< 0.007	< 0.008	< 0.007	< 0.008
Pyriproxyfen	mg/kg dry wt	< 0.008	< 0.007	< 0.008	< 0.007	< 0.008
Quintozene	mg/kg dry wt	< 0.015	< 0.014	< 0.015	< 0.014	< 0.015
Quizalofop-ethyl	mg/kg dry wt	< 0.008	< 0.007	< 0.008	< 0.007	< 0.008
Simazine	mg/kg dry wt	< 0.008	< 0.007	< 0.008	< 0.007	< 0.008
Simetryn	mg/kg dry wt	< 0.008	< 0.007	< 0.008	< 0.007	< 0.008
Sulfentrazone	mg/kg dry wt	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04
Sulfotep	mg/kg dry wt	< 0.008	< 0.007	< 0.008	< 0.007	< 0.008
TCMTB [2-(thiocyanomethylthio) benzothiazole, Busan]	mg/kg dry wt	< 0.015	< 0.014	< 0.015	< 0.014	< 0.015
Tebuconazole	mg/kg dry wt	< 0.008	< 0.007	< 0.008	< 0.007	< 0.008
Tebufenpyrad	mg/kg dry wt	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004
Terbacil	mg/kg dry wt	< 0.008	< 0.007	< 0.008	< 0.007	< 0.008
Terbumeton	mg/kg dry wt	< 0.008	< 0.007	< 0.008	< 0.007	< 0.008
Terbuthylazine	mg/kg dry wt	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004
Terbuthylazine-desethyl	mg/kg dry wt	< 0.008	< 0.007	< 0.008	< 0.007	< 0.008
Terbutryn	mg/kg dry wt	< 0.008	< 0.007	< 0.008	< 0.007	< 0.008
Tetrachlorvinphos	mg/kg dry wt	< 0.008	< 0.007	< 0.008	< 0.007	< 0.008
Thiabendazole	mg/kg dry wt	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04
Thiobencarb	mg/kg dry wt	< 0.008	< 0.007	< 0.008	< 0.007	< 0.008
Tolyfluanid	mg/kg dry wt	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004
Triadimefon	mg/kg dry wt	< 0.008	< 0.007	< 0.008	< 0.007	< 0.008
Triazophos	mg/kg dry wt	< 0.008	< 0.007	< 0.008	< 0.007	< 0.008
Trifluralin	mg/kg dry wt	< 0.008	< 0.007	< 0.008	< 0.007	< 0.008

Sample Type: Soil						
Sample Name:		6_0.1	7_0.1	8_0.1	9_0.1	10_0.1
Lab Number:		3252425.6	3252425.7	3252425.8	3252425.9	3252425.10
Multiresidue Pesticides in Soil samples by GCMS						
Vinclozolin	mg/kg dry wt	< 0.008	< 0.007	< 0.008	< 0.007	< 0.008
Sample Name:		11_0.1	12_0.1	13_0.1	14_0.1	15_0.1
Lab Number:		3252425.11	3252425.12	3252425.13	3252425.14	3252425.15
Individual Tests						
Dry Matter	g/100g as rcvd	81	84	81	87	96
Heavy Metals, Screen Level						
Total Recoverable Arsenic	mg/kg dry wt	4	4	4	3	2
Total Recoverable Cadmium	mg/kg dry wt	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Total Recoverable Chromium	mg/kg dry wt	2	2	2	3	3
Total Recoverable Copper	mg/kg dry wt	6	5	5	3	< 2
Total Recoverable Lead	mg/kg dry wt	2.8	2.7	3.2	4.1	3.2
Total Recoverable Nickel	mg/kg dry wt	< 2	< 2	< 2	< 2	< 2
Total Recoverable Zinc	mg/kg dry wt	18	19	21	27	23
Multiresidue Pesticides in Soil samples by GCMS						
Acetochlor	mg/kg dry wt	< 0.008	< 0.008	< 0.008	< 0.007	< 0.007
Alachlor	mg/kg dry wt	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006
Aldrin	mg/kg dry wt	< 0.013	< 0.012	< 0.013	< 0.012	< 0.011
Atrazine	mg/kg dry wt	< 0.008	< 0.008	< 0.008	< 0.007	< 0.007
Atrazine-desethyl	mg/kg dry wt	< 0.008	< 0.008	< 0.008	< 0.007	< 0.007
Atrazine-desisopropyl	mg/kg dry wt	< 0.015	< 0.015	< 0.015	< 0.014	< 0.013
Azaconazole	mg/kg dry wt	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004
Azinphos-methyl	mg/kg dry wt	< 0.015	< 0.015	< 0.015	< 0.014	< 0.013
Benalaxyl	mg/kg dry wt	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004
Bendiocarb	mg/kg dry wt	< 0.008	< 0.008	< 0.008	< 0.007	< 0.007
Benodanil	mg/kg dry wt	< 0.015	< 0.015	< 0.015	< 0.014	< 0.013
alpha-BHC	mg/kg dry wt	< 0.012	< 0.012	< 0.013	< 0.012	< 0.011
beta-BHC	mg/kg dry wt	< 0.012	< 0.012	< 0.013	< 0.012	< 0.011
delta-BHC	mg/kg dry wt	< 0.013	< 0.012	< 0.013	< 0.012	< 0.011
gamma-BHC (Lindane)	mg/kg dry wt	< 0.012	< 0.012	< 0.013	< 0.012	< 0.011
Bifenthrin	mg/kg dry wt	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004
Bitertanol	mg/kg dry wt	< 0.015	< 0.015	< 0.015	< 0.014	< 0.013
Bromacil	mg/kg dry wt	< 0.008	< 0.008	< 0.008	< 0.007	< 0.007
Bromophos-ethyl	mg/kg dry wt	< 0.008	< 0.008	< 0.008	< 0.007	< 0.007
Bromopropylate	mg/kg dry wt	< 0.008	< 0.008	< 0.008	< 0.007	< 0.007
Bupirimate	mg/kg dry wt	< 0.008	< 0.008	< 0.008	< 0.007	< 0.007
Buprofezin	mg/kg dry wt	< 0.008	< 0.008	< 0.008	< 0.007	< 0.007
Butachlor	mg/kg dry wt	< 0.008	< 0.008	< 0.008	< 0.007	< 0.007
Captafol	mg/kg dry wt	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04
Captan	mg/kg dry wt	< 0.015	< 0.015	< 0.015	< 0.014	< 0.013
Carbaryl	mg/kg dry wt	< 0.008	< 0.008	< 0.008	< 0.007	< 0.007
Carbofenothion	mg/kg dry wt	< 0.008	< 0.008	< 0.008	< 0.007	< 0.007
Carbofuran	mg/kg dry wt	< 0.008	< 0.008	< 0.008	< 0.007	< 0.007
cis-Chlordane	mg/kg dry wt	< 0.013	< 0.012	< 0.013	< 0.012	< 0.011
trans-Chlordane	mg/kg dry wt	< 0.012	< 0.012	< 0.013	< 0.012	< 0.011
Chlorfenvinphos	mg/kg dry wt	< 0.011	< 0.010	< 0.011	< 0.010	< 0.009
Chlorfluazuron	mg/kg dry wt	< 0.008	< 0.008	< 0.008	< 0.007	< 0.007
Chlorothalonil	mg/kg dry wt	< 0.008	< 0.008	< 0.008	< 0.007	< 0.007
Chlorpropham	mg/kg dry wt	< 0.015	< 0.015	< 0.015	< 0.014	< 0.013
Chlorpyrifos	mg/kg dry wt	< 0.008	< 0.008	< 0.008	< 0.007	< 0.007
Chlorpyrifos-methyl	mg/kg dry wt	< 0.008	< 0.008	< 0.008	< 0.007	< 0.007
Chlortoluron	mg/kg dry wt	< 0.015	< 0.015	< 0.015	< 0.014	< 0.013
Chlozolinate	mg/kg dry wt	< 0.008	< 0.008	< 0.008	< 0.007	< 0.007
Coumaphos	mg/kg dry wt	< 0.015	< 0.015	< 0.015	< 0.014	< 0.013
Cyanazine	mg/kg dry wt	< 0.008	< 0.008	< 0.008	< 0.007	< 0.007
Cyfluthrin	mg/kg dry wt	< 0.009	< 0.009	< 0.009	< 0.009	< 0.008

Sample Type: Soil						
Sample Name:		11_0.1	12_0.1	13_0.1	14_0.1	15_0.1
Lab Number:		3252425.11	3252425.12	3252425.13	3252425.14	3252425.15
Multiresidue Pesticides in Soil samples by GCMS						
Cyhalothrin	mg/kg dry wt	< 0.008	< 0.008	< 0.008	< 0.007	< 0.007
Cypermethrin	mg/kg dry wt	< 0.018	< 0.018	< 0.018	< 0.017	< 0.015
Cyproconazole	mg/kg dry wt	< 0.015	< 0.015	< 0.015	< 0.014	< 0.013
Cyprodinil	mg/kg dry wt	< 0.008	< 0.008	< 0.008	< 0.007	< 0.007
2,4'-DDD	mg/kg dry wt	< 0.013	< 0.012	< 0.013	< 0.012	< 0.011
4,4'-DDD	mg/kg dry wt	< 0.013	< 0.012	< 0.013	< 0.012	< 0.011
2,4'-DDE	mg/kg dry wt	< 0.013	< 0.012	< 0.013	< 0.012	< 0.011
4,4'-DDE	mg/kg dry wt	< 0.012	< 0.012	< 0.013	< 0.012	< 0.011
2,4'-DDT	mg/kg dry wt	< 0.013	< 0.012	< 0.013	< 0.012	< 0.011
4,4'-DDT	mg/kg dry wt	< 0.012	< 0.012	< 0.013	< 0.012	< 0.011
Total DDT Isomers	mg/kg dry wt	< 0.08	< 0.08	< 0.08	< 0.07	< 0.07
Deltamethrin (including Tralomethrin)	mg/kg dry wt	< 0.008	< 0.008	< 0.008	< 0.007	< 0.007
Diazinon	mg/kg dry wt	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004
Dichlobenil	mg/kg dry wt	< 0.008	< 0.008	< 0.008	< 0.007	< 0.007
Dichlofenthion	mg/kg dry wt	< 0.008	< 0.008	< 0.008	< 0.007	< 0.007
Dichlofluanid	mg/kg dry wt	< 0.008	< 0.008	< 0.008	< 0.007	< 0.007
Dichloran	mg/kg dry wt	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Dichlorvos	mg/kg dry wt	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Dicofol	mg/kg dry wt	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04
Dicrotophos	mg/kg dry wt	< 0.008	< 0.008	< 0.008	< 0.007	< 0.007
Dieldrin	mg/kg dry wt	< 0.012	< 0.012	< 0.013	< 0.012	< 0.011
Difenoconazole	mg/kg dry wt	< 0.011	< 0.010	< 0.011	< 0.010	< 0.010
Dimethoate	mg/kg dry wt	< 0.015	< 0.015	< 0.015	< 0.014	< 0.013
Dinocap	mg/kg dry wt	< 0.09	< 0.08	< 0.09	< 0.08	< 0.07
Diphenylamine	mg/kg dry wt	< 0.015	< 0.015	< 0.015	< 0.014	< 0.013
Diuron	mg/kg dry wt	< 0.008	< 0.008	< 0.008	< 0.007	< 0.007
Endosulfan I	mg/kg dry wt	< 0.013	< 0.012	< 0.013	< 0.012	< 0.011
Endosulfan II	mg/kg dry wt	< 0.013	< 0.012	< 0.013	< 0.012	< 0.011
Endosulfan sulphate	mg/kg dry wt	< 0.013	< 0.012	< 0.013	< 0.012	< 0.011
Endrin	mg/kg dry wt	< 0.012	< 0.012	< 0.013	< 0.012	< 0.011
Endrin aldehyde	mg/kg dry wt	< 0.012	< 0.012	< 0.013	< 0.012	< 0.011
Endrin ketone	mg/kg dry wt	< 0.013	< 0.012	< 0.013	< 0.012	< 0.011
EPN	mg/kg dry wt	< 0.008	< 0.008	< 0.008	< 0.007	< 0.007
Ethion	mg/kg dry wt	< 0.008	< 0.008	< 0.008	< 0.007	< 0.007
Etrimfos	mg/kg dry wt	< 0.008	< 0.008	< 0.008	< 0.007	< 0.007
Famphur	mg/kg dry wt	< 0.008	< 0.008	< 0.008	< 0.007	< 0.007
Fenarimol	mg/kg dry wt	< 0.008	< 0.008	< 0.008	< 0.007	< 0.007
Fenitrothion	mg/kg dry wt	< 0.008	< 0.008	< 0.008	< 0.007	< 0.007
Fenpropathrin	mg/kg dry wt	< 0.008	< 0.008	< 0.008	< 0.007	< 0.007
Fenpropimorph	mg/kg dry wt	< 0.008	< 0.008	< 0.008	< 0.007	< 0.007
Fensulfothion	mg/kg dry wt	< 0.008	< 0.008	< 0.008	< 0.007	< 0.007
Fenvalerate (including Esfenvalerate)	mg/kg dry wt	< 0.011	< 0.010	< 0.011	< 0.010	< 0.009
Fluazifop-butyl	mg/kg dry wt	< 0.008	< 0.008	< 0.008	< 0.007	< 0.007
Fluometuron	mg/kg dry wt	< 0.008	< 0.008	< 0.008	< 0.007	< 0.007
Flusilazole	mg/kg dry wt	< 0.008	< 0.008	< 0.008	< 0.007	< 0.007
Fluvalinate	mg/kg dry wt	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006
Folpet	mg/kg dry wt	< 0.015	< 0.015	< 0.015	< 0.014	< 0.013
Furalaxyl	mg/kg dry wt	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004
Haloxifop-methyl	mg/kg dry wt	< 0.008	< 0.008	< 0.008	< 0.007	< 0.007
Heptachlor	mg/kg dry wt	< 0.012	< 0.012	< 0.013	< 0.012	< 0.011
Heptachlor epoxide	mg/kg dry wt	< 0.013	< 0.012	< 0.013	< 0.012	< 0.011
Hexachlorobenzene	mg/kg dry wt	< 0.013	< 0.012	< 0.013	< 0.012	< 0.011
Hexaconazole	mg/kg dry wt	< 0.008	< 0.008	< 0.008	< 0.007	< 0.007
Hexazinone	mg/kg dry wt	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004



Hill Laboratories

TRIED, TESTED AND TRUSTED

ANALYSIS REQUEST

Job No. Date Recd: 22-Apr-23 09:40

325 2425

R J Hill Laboratories Limited
Level 1, 72 Grafton Road
Grafton
Auckland 1010, New Zealand

Received by: Jonas Eyskens



3132524256

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

Quote No

Primary Contact Lance Robison

Submitted By Lance Robison

Client Name WSP

Address 13 Louvain St,

Whakatane Postcode 3120

Phone 07 3080139 **Mobile** 0276051390

Email lance.robison@wsp.com

Charge To WSP

Client Reference Nathan Soil

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

ADDITIONAL INFORMATION

CHAIN OF CUSTODY RECORD

Sent to
Hill Laboratories

Date & Time: 21/4 0800

Name: Lance Robison

Tick if you require COC to be emailed back

Signature:

Received at
Hill Laboratories

Date & Time:

Name:

Signature:

Condition

Room Temp Chilled Frozen

Temp:

18.4

Sample and Analysis details checked

Signature:

Priority Low Normal High

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

Requested Reporting Date:

No.	Sample Name	Sample Date	Sample Time	Sample Type	Tests Required (if not as per Quote)
1	1_0.1			Soil	Heavy metals suite +
2	2_0.1				Pesticides
3	3_0.1				
4					
5					
6					
7					
8					
9					
10					
11					
12					

Continued on next page

No.	Sample Name	Sample Date	Sample Time	Sample Type	Tests Required (if not as per Quote)
13					
14					
15					
16	16-0.1				
17					
18					
19					
20					
21					
22					
23					
24					
25					
26					
27					
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35					
36					
37					
38					
39					
40					



Job Information Summary

Page 1 of 2

Client:	WSP New Zealand Limited	Lab No:	3252425
Contact:	Lance Robison C/- WSP New Zealand Limited PO Box 800 Whakatane 3158	Date Registered:	22-Apr-2023 1:24 pm
		Priority:	High
		Quote No:	82748
		Order No:	
		Client Reference:	Nathan Soil
		Add. Client Ref:	
		Submitted By:	Lance Robison
		Charge To:	WSP New Zealand Limited
		Target Date:	01-May-2023 4:30 pm

Samples

No	Sample Name	Sample Type	Containers	Tests Requested
1	1_0.1	Soil	cPSoil250	Heavy Metals, Screen Level; Multiresidue Pesticides in Soil samples by GCMS
2	2_0.1	Soil	PSoil250	Heavy Metals, Screen Level; Multiresidue Pesticides in Soil samples by GCMS
3	3_0.1	Soil	cPSoil250	Heavy Metals, Screen Level; Multiresidue Pesticides in Soil samples by GCMS
4	4_0.1	Soil	cPSoil250	Heavy Metals, Screen Level; Multiresidue Pesticides in Soil samples by GCMS
5	5_0.1	Soil	PSoil250	Heavy Metals, Screen Level; Multiresidue Pesticides in Soil samples by GCMS
6	6_0.1	Soil	cPSoil250	Heavy Metals, Screen Level; Multiresidue Pesticides in Soil samples by GCMS
7	7_0.1	Soil	cPSoil250	Heavy Metals, Screen Level; Multiresidue Pesticides in Soil samples by GCMS
8	8_0.1	Soil	cPSoil250	Heavy Metals, Screen Level; Multiresidue Pesticides in Soil samples by GCMS
9	9_0.1	Soil	PSoil250	Heavy Metals, Screen Level; Multiresidue Pesticides in Soil samples by GCMS
10	10_0.1	Soil	PSoil250	Heavy Metals, Screen Level; Multiresidue Pesticides in Soil samples by GCMS
11	11_0.1	Soil	cPSoil250	Heavy Metals, Screen Level; Multiresidue Pesticides in Soil samples by GCMS
12	12_0.1	Soil	cPSoil250	Heavy Metals, Screen Level; Multiresidue Pesticides in Soil samples by GCMS
13	13_0.1	Soil	PSoil250	Heavy Metals, Screen Level; Multiresidue Pesticides in Soil samples by GCMS
14	14_0.1	Soil	PSoil250	Heavy Metals, Screen Level; Multiresidue Pesticides in Soil samples by GCMS
15	15_0.1	Soil	PSoil250	Heavy Metals, Screen Level; Multiresidue Pesticides in Soil samples by GCMS
16	16_0.1	Soil	cPSoil250	Heavy Metals, Screen Level; Multiresidue Pesticides in Soil samples by GCMS

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 Laboratories, 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%.	-	1-16
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	1-16

Sample Type: Soil			
Test	Method Description	Default Detection Limit	Sample No
Multiresidue Pesticides in Soil samples by GCMS	Sonication extraction, GC-ECD and GC-MS analysis. In-house based on US EPA 8081 and US EPA 8270.	0.003 - 0.06 mg/kg dry wt	1-16
Dry Matter (Env)	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	1-16

Sample Type: Soil						
Sample Name:		11_0.1	12_0.1	13_0.1	14_0.1	15_0.1
Lab Number:		3252425.11	3252425.12	3252425.13	3252425.14	3252425.15
Multiresidue Pesticides in Soil samples by GCMS						
Hexythiazox	mg/kg dry wt	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04
Imazalil	mg/kg dry wt	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04
Indoxacarb	mg/kg dry wt	< 0.008	< 0.008	< 0.008	< 0.007	< 0.007
Iodofenphos	mg/kg dry wt	< 0.008	< 0.008	< 0.008	< 0.007	< 0.007
IPBC (3-Iodo-2-propynyl-n-butylcarbamate)	mg/kg dry wt	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04
Isazophos	mg/kg dry wt	< 0.008	< 0.008	< 0.008	< 0.007	< 0.007
Isofenphos	mg/kg dry wt	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004
Kresoxim-methyl	mg/kg dry wt	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004
Leptophos	mg/kg dry wt	< 0.008	< 0.008	< 0.008	< 0.007	< 0.007
Linuron	mg/kg dry wt	< 0.008	< 0.008	< 0.008	< 0.007	< 0.007
Malathion	mg/kg dry wt	< 0.008	< 0.008	< 0.008	< 0.007	< 0.007
Metalaxyl	mg/kg dry wt	< 0.008	< 0.008	< 0.008	< 0.007	< 0.007
Methacrifos	mg/kg dry wt	< 0.008	< 0.008	< 0.008	< 0.007	< 0.007
Methamidophos	mg/kg dry wt	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04
Methidathion	mg/kg dry wt	< 0.008	< 0.008	< 0.008	< 0.007	< 0.007
Methiocarb	mg/kg dry wt	< 0.008	< 0.008	< 0.008	< 0.007	< 0.007
Methoxychlor	mg/kg dry wt	< 0.012	< 0.012	< 0.013	< 0.012	< 0.011
Metolachlor	mg/kg dry wt	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006
Metribuzin	mg/kg dry wt	< 0.008	< 0.008	< 0.008	< 0.007	< 0.007
Mevinphos	mg/kg dry wt	< 0.015	< 0.015	< 0.015	< 0.014	< 0.013
Molinate	mg/kg dry wt	< 0.015	< 0.015	< 0.015	< 0.014	< 0.013
Myclobutanil	mg/kg dry wt	< 0.008	< 0.008	< 0.008	< 0.007	< 0.007
Naled	mg/kg dry wt	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04
Nitrofen	mg/kg dry wt	< 0.015	< 0.015	< 0.015	< 0.014	< 0.013
Nitrothal-isopropyl	mg/kg dry wt	< 0.008	< 0.008	< 0.008	< 0.007	< 0.007
Norflurazon	mg/kg dry wt	< 0.015	< 0.015	< 0.015	< 0.014	< 0.013
Omethoate	mg/kg dry wt	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04
Oxadiazon	mg/kg dry wt	< 0.008	< 0.008	< 0.008	< 0.007	< 0.007
Oxychlorane	mg/kg dry wt	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004
Oxyfluorfen	mg/kg dry wt	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004
Paclobutrazol	mg/kg dry wt	< 0.008	< 0.008	< 0.008	< 0.007	< 0.007
Parathion-ethyl	mg/kg dry wt	< 0.008	< 0.008	< 0.008	< 0.007	< 0.007
Parathion-methyl	mg/kg dry wt	< 0.008	< 0.008	< 0.008	< 0.007	< 0.007
Penconazole	mg/kg dry wt	< 0.008	< 0.008	< 0.008	< 0.007	< 0.007
Pendimethalin	mg/kg dry wt	< 0.008	< 0.008	< 0.008	< 0.007	< 0.007
Permethrin	mg/kg dry wt	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
Phosmet	mg/kg dry wt	< 0.008	< 0.008	< 0.008	< 0.007	< 0.007
Phosphamidon	mg/kg dry wt	< 0.008	< 0.008	< 0.008	< 0.007	< 0.007
Pirimicarb	mg/kg dry wt	< 0.008	< 0.008	< 0.008	< 0.007	< 0.007
Pirimiphos-methyl	mg/kg dry wt	< 0.008	< 0.008	< 0.008	< 0.007	< 0.007
Prochloraz	mg/kg dry wt	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04
Procymidone	mg/kg dry wt	< 0.008	< 0.008	< 0.008	< 0.007	< 0.007
Prometryn	mg/kg dry wt	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004
Propachlor	mg/kg dry wt	< 0.008	< 0.008	< 0.008	< 0.007	< 0.007
Propanil	mg/kg dry wt	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Propazine	mg/kg dry wt	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004
Propetamphos	mg/kg dry wt	< 0.008	< 0.008	< 0.008	< 0.007	< 0.007
Propham	mg/kg dry wt	< 0.008	< 0.008	< 0.008	< 0.007	< 0.007
Propiconazole	mg/kg dry wt	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006
Prothiofos	mg/kg dry wt	< 0.008	< 0.008	< 0.008	< 0.007	< 0.007
Pyrazophos	mg/kg dry wt	< 0.008	< 0.008	< 0.008	< 0.007	< 0.007
Pyrifenox	mg/kg dry wt	< 0.011	< 0.010	< 0.011	< 0.010	< 0.009
Pyrimethanil	mg/kg dry wt	< 0.008	< 0.008	< 0.008	< 0.007	< 0.007
Pyriproxyfen	mg/kg dry wt	< 0.008	< 0.008	< 0.008	< 0.007	< 0.007
Quintozene	mg/kg dry wt	< 0.015	< 0.015	< 0.015	< 0.014	< 0.013

Sample Type: Soil						
Sample Name:	11_0.1	12_0.1	13_0.1	14_0.1	15_0.1	
Lab Number:	3252425.11	3252425.12	3252425.13	3252425.14	3252425.15	
Multiresidue Pesticides in Soil samples by GCMS						
Quizalofop-ethyl	mg/kg dry wt	< 0.008	< 0.008	< 0.008	< 0.007	< 0.007
Simazine	mg/kg dry wt	< 0.008	< 0.008	< 0.008	< 0.007	< 0.007
Simetryn	mg/kg dry wt	< 0.008	< 0.008	< 0.008	< 0.007	< 0.007
Sulfentrazone	mg/kg dry wt	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04
Sulfotep	mg/kg dry wt	< 0.008	< 0.008	< 0.008	< 0.007	< 0.007
TCMTB [2-(thiocyanomethylthio) benzothiazole, Busan]	mg/kg dry wt	< 0.015	< 0.015	< 0.015	< 0.014	< 0.013
Tebuconazole	mg/kg dry wt	< 0.008	< 0.008	< 0.008	< 0.007	< 0.007
Tebufenpyrad	mg/kg dry wt	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004
Terbacil	mg/kg dry wt	< 0.008	< 0.008	< 0.008	< 0.007	< 0.007
Terbumeton	mg/kg dry wt	< 0.008	< 0.008	< 0.008	< 0.007	< 0.007
Terbuthylazine	mg/kg dry wt	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004
Terbuthylazine-desethyl	mg/kg dry wt	< 0.008	< 0.008	< 0.008	< 0.007	< 0.007
Terbutryn	mg/kg dry wt	< 0.008	< 0.008	< 0.008	< 0.007	< 0.007
Tetrachlorvinphos	mg/kg dry wt	< 0.008	< 0.008	< 0.008	< 0.007	< 0.007
Thiabendazole	mg/kg dry wt	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04
Thiobencarb	mg/kg dry wt	< 0.008	< 0.008	< 0.008	< 0.007	< 0.007
Tolyfluanid	mg/kg dry wt	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004
Triadimefon	mg/kg dry wt	< 0.008	< 0.008	< 0.008	< 0.007	< 0.007
Triazophos	mg/kg dry wt	< 0.008	< 0.008	< 0.008	< 0.007	< 0.007
Trifluralin	mg/kg dry wt	< 0.008	< 0.008	< 0.008	< 0.007	< 0.007
Vinclozolin	mg/kg dry wt	< 0.008	< 0.008	< 0.008	< 0.007	< 0.007
Sample Name:		16_0.1				
Lab Number:		3252425.16				
Individual Tests						
Dry Matter	g/100g as rcvd	91				
Heavy Metals, Screen Level						
Total Recoverable Arsenic	mg/kg dry wt	3				
Total Recoverable Cadmium	mg/kg dry wt	< 0.10				
Total Recoverable Chromium	mg/kg dry wt	3				
Total Recoverable Copper	mg/kg dry wt	< 2				
Total Recoverable Lead	mg/kg dry wt	2.6				
Total Recoverable Nickel	mg/kg dry wt	< 2				
Total Recoverable Zinc	mg/kg dry wt	17				
Multiresidue Pesticides in Soil samples by GCMS						
Acetochlor	mg/kg dry wt	< 0.007				
Alachlor	mg/kg dry wt	< 0.006				
Aldrin	mg/kg dry wt	< 0.011				
Atrazine	mg/kg dry wt	< 0.007				
Atrazine-desethyl	mg/kg dry wt	< 0.007				
Atrazine-desisopropyl	mg/kg dry wt	< 0.014				
Azaconazole	mg/kg dry wt	< 0.004				
Azinphos-methyl	mg/kg dry wt	< 0.014				
Benalaxyl	mg/kg dry wt	< 0.004				
Bendiocarb	mg/kg dry wt	< 0.007				
Benodanil	mg/kg dry wt	< 0.014				
alpha-BHC	mg/kg dry wt	< 0.011				
beta-BHC	mg/kg dry wt	< 0.011				
delta-BHC	mg/kg dry wt	< 0.011				
gamma-BHC (Lindane)	mg/kg dry wt	< 0.011				
Bifenthrin	mg/kg dry wt	< 0.004				
Bitertanol	mg/kg dry wt	< 0.014				
Bromacil	mg/kg dry wt	< 0.007				
Bromophos-ethyl	mg/kg dry wt	< 0.007				
Bromopropylate	mg/kg dry wt	< 0.007				

Sample Type: Soil

Sample Name:	16_0.1
Lab Number:	3252425.16
Multiresidue Pesticides in Soil samples by GCMS	
Bupirimate	mg/kg dry wt < 0.007
Buprofezin	mg/kg dry wt < 0.007
Butachlor	mg/kg dry wt < 0.007
Captafol	mg/kg dry wt < 0.04
Captan	mg/kg dry wt < 0.014
Carbaryl	mg/kg dry wt < 0.007
Carbofenothion	mg/kg dry wt < 0.007
Carbofuran	mg/kg dry wt < 0.007
cis-Chlordane	mg/kg dry wt < 0.011
trans-Chlordane	mg/kg dry wt < 0.011
Chlorfenvinphos	mg/kg dry wt < 0.010
Chlorfluazuron	mg/kg dry wt < 0.007
Chlorothalonil	mg/kg dry wt < 0.007
Chlorpropham	mg/kg dry wt < 0.014
Chlorpyrifos	mg/kg dry wt < 0.007
Chlorpyrifos-methyl	mg/kg dry wt < 0.007
Chlortoluron	mg/kg dry wt < 0.014
Chlozolinate	mg/kg dry wt < 0.007
Coumaphos	mg/kg dry wt < 0.014
Cyanazine	mg/kg dry wt < 0.007
Cyfluthrin	mg/kg dry wt < 0.009
Cyhalothrin	mg/kg dry wt < 0.007
Cypermethrin	mg/kg dry wt < 0.017
Cyproconazole	mg/kg dry wt < 0.014
Cyprodinil	mg/kg dry wt < 0.007
2,4'-DDD	mg/kg dry wt < 0.011
4,4'-DDD	mg/kg dry wt < 0.011
2,4'-DDE	mg/kg dry wt < 0.011
4,4'-DDE	mg/kg dry wt < 0.011
2,4'-DDT	mg/kg dry wt < 0.011
4,4'-DDT	mg/kg dry wt < 0.011
Total DDT Isomers	mg/kg dry wt < 0.07
Deltamethrin (including Tralomethrin)	mg/kg dry wt < 0.007
Diazinon	mg/kg dry wt < 0.004
Dichlobenil	mg/kg dry wt < 0.007
Dichlofenthion	mg/kg dry wt < 0.007
Dichlofluanid	mg/kg dry wt < 0.007
Dichloran	mg/kg dry wt < 0.03
Dichlorvos	mg/kg dry wt < 0.010
Dicofol	mg/kg dry wt < 0.04
Dicrotophos	mg/kg dry wt < 0.007
Dieldrin	mg/kg dry wt < 0.011
Difenoconazole	mg/kg dry wt < 0.010
Dimethoate	mg/kg dry wt < 0.014
Dinocap	mg/kg dry wt < 0.08
Diphenylamine	mg/kg dry wt < 0.014
Diuron	mg/kg dry wt < 0.007
Endosulfan I	mg/kg dry wt < 0.011
Endosulfan II	mg/kg dry wt < 0.011
Endosulfan sulphate	mg/kg dry wt < 0.011
Endrin	mg/kg dry wt < 0.011
Endrin aldehyde	mg/kg dry wt < 0.011
Endrin ketone	mg/kg dry wt < 0.011
EPN	mg/kg dry wt < 0.007
Ethion	mg/kg dry wt < 0.007

Sample Type: Soil

Sample Name:	16_0.1
Lab Number:	3252425.16
Multiresidue Pesticides in Soil samples by GCMS	
Etrimfos	mg/kg dry wt < 0.007
Famphur	mg/kg dry wt < 0.007
Fenarimol	mg/kg dry wt < 0.007
Fenitrothion	mg/kg dry wt < 0.007
Fenpropathrin	mg/kg dry wt < 0.007
Fenpropimorph	mg/kg dry wt < 0.007
Fensulfothion	mg/kg dry wt < 0.007
Fenvalerate (including Esfenvalerate)	mg/kg dry wt < 0.010
Fluazifop-butyl	mg/kg dry wt < 0.007
Fluometuron	mg/kg dry wt < 0.007
Flusilazole	mg/kg dry wt < 0.007
Fluvalinate	mg/kg dry wt < 0.006
Folpet	mg/kg dry wt < 0.014
Furalaxyl	mg/kg dry wt < 0.004
Haloxifop-methyl	mg/kg dry wt < 0.007
Heptachlor	mg/kg dry wt < 0.011
Heptachlor epoxide	mg/kg dry wt < 0.011
Hexachlorobenzene	mg/kg dry wt < 0.011
Hexaconazole	mg/kg dry wt < 0.007
Hexazinone	mg/kg dry wt < 0.004
Hexythiazox	mg/kg dry wt < 0.04
Imazalil	mg/kg dry wt < 0.04
Indoxacarb	mg/kg dry wt < 0.007
Iodofenphos	mg/kg dry wt < 0.007
IPBC (3-Iodo-2-propynyl-n-butylcarbamate)	mg/kg dry wt < 0.04
Isazophos	mg/kg dry wt < 0.007
Isofenphos	mg/kg dry wt < 0.004
Kresoxim-methyl	mg/kg dry wt < 0.004
Leptophos	mg/kg dry wt < 0.007
Linuron	mg/kg dry wt < 0.007
Malathion	mg/kg dry wt < 0.007
Metalaxyl	mg/kg dry wt < 0.007
Methacrifos	mg/kg dry wt < 0.007
Methamidophos	mg/kg dry wt < 0.04
Methidathion	mg/kg dry wt < 0.007
Methiocarb	mg/kg dry wt < 0.007
Methoxychlor	mg/kg dry wt < 0.011
Metolachlor	mg/kg dry wt < 0.006
Metribuzin	mg/kg dry wt < 0.007
Mevinphos	mg/kg dry wt < 0.014
Molinate	mg/kg dry wt < 0.014
Myclobutanil	mg/kg dry wt < 0.007
Naled	mg/kg dry wt < 0.04
Nitrofen	mg/kg dry wt < 0.014
Nitrothal-isopropyl	mg/kg dry wt < 0.007
Norflurazon	mg/kg dry wt < 0.014
Omethoate	mg/kg dry wt < 0.04
Oxadiazon	mg/kg dry wt < 0.007
Oxychlorane	mg/kg dry wt < 0.004
Oxyfluorfen	mg/kg dry wt < 0.004
Paclobutrazol	mg/kg dry wt < 0.007
Parathion-ethyl	mg/kg dry wt < 0.007
Parathion-methyl	mg/kg dry wt < 0.007
Penconazole	mg/kg dry wt < 0.007

Sample Type: Soil			
Sample Name:		16_0.1	
Lab Number:		3252425.16	
Multiresidue Pesticides in Soil samples by GCMS			
Pendimethalin	mg/kg dry wt	< 0.007	
Permethrin	mg/kg dry wt	< 0.003	
Phosmet	mg/kg dry wt	< 0.007	
Phosphamidon	mg/kg dry wt	< 0.007	
Pirimicarb	mg/kg dry wt	< 0.007	
Pirimiphos-methyl	mg/kg dry wt	< 0.007	
Prochloraz	mg/kg dry wt	< 0.04	
Procymidone	mg/kg dry wt	< 0.007	
Prometryn	mg/kg dry wt	< 0.004	
Propachlor	mg/kg dry wt	< 0.007	
Propanil	mg/kg dry wt	< 0.03	
Propazine	mg/kg dry wt	< 0.004	
Propetamphos	mg/kg dry wt	< 0.007	
Propham	mg/kg dry wt	< 0.007	
Propiconazole	mg/kg dry wt	< 0.006	
Prothiofos	mg/kg dry wt	< 0.007	
Pyrazophos	mg/kg dry wt	< 0.007	
Pyrifenox	mg/kg dry wt	< 0.010	
Pyrimethanil	mg/kg dry wt	< 0.007	
Pyriproxyfen	mg/kg dry wt	< 0.007	
Quintozene	mg/kg dry wt	< 0.014	
Quizalofop-ethyl	mg/kg dry wt	< 0.007	
Simazine	mg/kg dry wt	< 0.007	
Simetryn	mg/kg dry wt	< 0.007	
Sulfentrazone	mg/kg dry wt	< 0.04	
Sulfotep	mg/kg dry wt	< 0.007	
TCMTB [2-(thiocyanomethylthio)benzothiazole, Busan]	mg/kg dry wt	< 0.014	
Tebuconazole	mg/kg dry wt	< 0.007	
Tebufenpyrad	mg/kg dry wt	< 0.004	
Terbacil	mg/kg dry wt	< 0.007	
Terbumeton	mg/kg dry wt	< 0.007	
Terbuthylazine	mg/kg dry wt	< 0.004	
Terbuthylazine-desethyl	mg/kg dry wt	< 0.007	
Terbutryn	mg/kg dry wt	< 0.007	
Tetrachlorvinphos	mg/kg dry wt	< 0.007	
Thiabendazole	mg/kg dry wt	< 0.04	
Thiobencarb	mg/kg dry wt	< 0.007	
Tolyfluanid	mg/kg dry wt	< 0.004	
Triadimefon	mg/kg dry wt	< 0.007	
Triazophos	mg/kg dry wt	< 0.007	
Trifluralin	mg/kg dry wt	< 0.007	
Vinclozolin	mg/kg dry wt	< 0.007	

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 Laboratories, 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%.	-	1-16
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	1-16

Sample Type: Soil			
Test	Method Description	Default Detection Limit	Sample No
Multiresidue Pesticides in Soil samples by GCMS	Sonication extraction, GC-ECD and GC-MS analysis. In-house based on US EPA 8081 and US EPA 8270.	0.003 - 0.06 mg/kg dry wt	1-16
Dry Matter (Env)	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	1-16

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

Testing was completed between 24-Apr-2023 and 01-May-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.

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