Mason Clinic

Site Contamination Report to Support Plan Change Application

Waitemata District Health Board

Reference: 256528

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Document control record

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Executive Summary

Aurecon has been engaged by Waitemata District Health Board to prepare a Site Contamination Report for the Mason Clinic located at 81A Carrington Road, Mt Albert, Auckland. This report is a repurposed version of the Site Contamination Investigation (Aurecon, 2019; ref: 256528-0000-REP-KF-0001) and does not include new information or a further intrusive investigation.

The purpose of this report is to support a resource consent application for a Plan Change for the redevelopment of the site, and to confirm its suitability for future development for a healthcare facility for the Mason Clinic, inclusive of the recently acquired northern and southern areas.

The site was historically used for horticulture (HAIL A10 - Persistent pesticide bulk storage or use including sport turfs, market gardens, orchards, glass houses or spray sheds) until the construction of buildings and infrastructure associated with Mason Clinic in the 1990's. The following additional HAIL categories have been identified:

- HAIL category A17 (Storage tanks or drums for fuel, chemicals or liquid waste) due to the presence an above ground diesel fuel tank on site.
- HAIL category G5 (Waste disposal to land), due to the possible presence of fill material being placed as part of the construction. Council records indicate the filled / weak ground is present beneath the site.
- HAIL category E1 (Asbestos products disposal including sites with building containing asbestos products known to be in a deteriorated condition), due to the suspect presence of asbestos containing materials in the building materials used on buildings Kowhai Centre and the Garage.
- In addition to these HAIL activities with associated contaminants of potential concern (COPC), the historical use of lead-based paint may result in elevated lead concentrations in near-surface soils in close vicinity to the site building footprint.

The presence of a large industrial-scale laundry upgradient of the site triggers HAIL A5 (Dry-cleaning plants including dry-cleaning premises or the bulk storage of dry-cleaning solvents). There is potential for the migration of hazardous substances from adjacent land to have influenced the central and southern areas of the site (HAIL H).

A conceptual site model addressing the potential linkages between sources of contamination and receptors of this contamination indicates that there are no complete pathways and two unlikely pathways for heavy metals and OCPs within the northern area of the site, and one complete pathway for asbestos fibres in the central and southern area of the site. The receptors that are potentially at risk from the sources include construction workers for heavy metals and OCPs; and construction workers, future site users, and adjacent site users/nearby residents for asbestos.

The soil sampling investigation was conducted at the site between 3 July and 22 July 2019. This included 12 boreholes to 15m bgl, 9 test pits to 1.5m bgl, and 15 shallow hand dug pits to 0.15m bgl. A total of 42 soil samples were collected and analysed for heavy metals, organochlorine pesticides (OCPs), Polycyclic Aromatic Hydrocarbons (PAH), and asbestos presence/absence.

Soil Results

Soil sampling and analysis completed in the north area of the site reported concentrations of contaminants in all samples below applicable human health standards and thus no significant risk to human health has been identified.

Concentrations of heavy metals, OCPs and PAHs in fill were reported above background criteria, and this (along with the potential presence of asbestos) may have implications for waste disposal.

The central and southern portions of the site have not been investigated fully. Further investigation is warranted, particularly in relation to asbestos in the central area, and associated with the greenhouses and other structures in the southern area. Such investigation can be undertaken at the time of future redevelopment to support future earthworks.

Waste disposal

If soils need to be disposed of off-site the material will need to be taken to a facility authorised to accept it. A number of samples returned heavy metals results that exceeded Class A landfill criteria (lead, cadmium and copper) across the site.

Recommendations

- This report can be included with consent applications to satisfy the requirements of a Preliminary Site Investigation and Detailed Site Investigation for the northern area of the site.
- Toxicity characteristic leaching procedure (TCLP) extraction and analysis of selected soil samples due to exceedances of Class A landfill criteria, particularly for lead
- Production of a CSMP to address future development in the north of the site.
- Further investigation in the centre and south of the site to determine necessity of remediation or on-going contaminant management, to support the development of these areas, and inform future building design.

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1. Soil and Rock Mason Clinic Geotechnical Assessment Report 2012
2. 4Sight Preliminary Site Investigation 2017
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1 Introduction

1.1 Background

The Waitemata District Health Board (WDHB) engaged Aurecon New Zealand Limited (Aurecon) to undertake a site contamination investigation in 2019 as part of a wider geotechnical and civil engineering programme. The site is located at 81A Carrington Road, Mt Albert, Auckland, and currently comprises 13 low-rise buildings, roads, car parking and landscaped areas. The site location is shown in 256528-0000-DRG-KF-0001, Appendix A.

This report is a repurposed version of the Site Contamination Investigation (Aurecon, 2019; ref: 256528-0000-REP-KF-0001) for the purpose of supporting the plan change, and does not include new information or any further intrusive investigations.

Future redevelopment of the existing Mason Clinic includes land to the north and south of the existing facility.

The future redevelopment will not result in a change in land use for the central section of the site, i.e. the land use will remain Special Purpose – Healthcare Facility. The proposal works will result in a change of zoning (and land use) in the northern and southern sections from Business – Mixed Use Zone to Special Purpose – Healthcare Facility.

1.2 Future Development

Aurecon understands that the future redevelopment involves the demolition and replacement of several existing buildings (on the western side of the site) and the development of new buildings and associated parking in the northern and southern area.

The development works are intended to be staged - starting in the north, moving progressively south. Buildings will be constructed in a staged manner to enable services / occupants to be moved and old buildings demolished, before the next phase of construction commences. Development works are to include the removal of existing structures and construction earthworks including site levelling, and the placing of foundations and associated services.

1.3 Previous Investigations

The following reports are considered pertinent and have been used to inform this report:

- Aurecon, 2018, Mason Clinic T2 New Build (Pool Site), Geotechnical Investigation Report, Ref: 256529
- 4Sight; 2017, Mason Clinic Preliminary Site Investigation, Ref: R_WDHB_Mason Clinic PSI_May 17_v2.0

These reports are further discussed in Section 3.7.

1.4 Objectives

The objective of the proposed scope is to support the Plan Change application and demonstrate that the future development of the site can be undertaken. It is noted that a future investigation and subsequent reporting will be required in association with the necessary resource consents that will be sought, including:

- Potential resource consent requirements under Chapter E30 of the Auckland Unitary Plan (AUP) and Resource Management (National Environmental Standard for Assessing and Managing Soil to Protect Human Health) Regulations 2011 (‘the NES);
- Inform soil management options for site development works; and
- Inform health and safety considerations for construction workers and nearby site users during excavation works.

1.5 Scope

The following scope of works was undertaken:

- Complete health and safety documentation to support this scope of work and liaise with project team to coordinate field activities;
- Review available desktop information to determine likely contaminants of potential concern (COPC) which may be associated with planned drilling and test pit locations;
- Attend site to collect soil samples and observe excavation conditions during drilling, test-pitting and hand-dug pit works at 36 locations;
- Submit 42 soil samples from 32 locations to an analytical laboratory for metals, polycyclic aromatic hydrocarbons (PAH), organochlorine pesticide (OCP), and/or asbestos presence/absence analysis, depending on the sample location; and
- Prepare this Site Contamination Report that presents findings of the desktop review and soil sample results, and is consistent with the requirements of a Preliminary Site Investigation (PSI) and Detailed Site Investigation (DSI), as defined in the MfE Contaminated Land Management Guidelines No. 1 – Reporting on Contaminated Sites in New Zealand.

This report has been prepared in general accordance with the Ministry for the Environment (MfE) *Contaminated Land Management Guideline No. 1: Reporting on Contaminated Sites in New Zealand (Revised 2011)* (MfE 2011a).

Soil sampling and analysis has been undertaken in general accordance with MfE's *Contaminated Land Management Guideline No. 5: Site Investigation and Analysis of Soils (Revised 2011)* (MfE 2011b).

The persons undertaking, managing, reviewing and certifying (verifying) this report are suitably qualified and experienced practitioners (SQEPs) as defined in the MfE's NES Users' Guide (MfE 2012).

1.6 Explanatory Statement

1.6.1 Review scope and use

- Aurecon has prepared this report for WDHB, exclusively for its use, it has been prepared in accordance with our scope of services and the instructions given by or on behalf WDHB. Data or opinions contained within the report may not be used in other contexts or for any other purposes without Aurecon's prior review and agreement.
- Aurecon accepts no responsibility or liability to any third party for the use of, or reliance on, the report by any third party and the use of, or reliance on, the report by any third party is at the risk of that party.

1.6.2 Limits on Investigation and Information

- Soil and rock formations are often variable, resulting in heterogeneous distribution of contaminants across a site. Contaminant concentrations may be estimated at chosen sample locations - however, conditions between sample sites can only be inferred on the basis of geological and hydrological conditions and the nature and the extent of identified contamination. Boundaries between zones of variable contamination are often indistinct, and therefore interpretation is based on available information and the application of professional judgement.
- Only a finite amount of information has been collected to meet the specific technical requirements of the WDHB's brief and this report does not purport to completely describe all the site's characteristics and properties. The nature and continuity of the ground between test locations has been inferred using experience and judgement and it must be appreciated that actual conditions could vary from the assumed model.

- This report does not provide a complete assessment of the environmental status of the site, and it is limited to the scope defined herein. Should further information become available regarding the conditions at the site, including previously unknown likely sources of contamination, Aurecon reserves the right to review the report in the context of the additional information.
- This report has been prepared for WDHB for its own use and is based on information provided. Aurecon takes no responsibility and disclaims all liability whatsoever for any loss or damage that the WDHB may suffer as a result of using or relying on any such information or recommendations contained in this report, except to the extent Aurecon expressly indicates in this report that it has verified the information to its satisfaction. This report is not to be reproduced either wholly or in part without our prior written permission.

2 Site Description

2.1 Site Identification

Site identification details are presented in Table 1.

Table 1 Site Identification

	Central	North	South
Current Landowner	WDHB	Unitec Institute of Technology	Unitec Institute of Technology
Site Location	81A Carrington Road, Mt Albert, Auckland, 1025	3 Carrington Road, Mt Albert, Auckland, 1025	119 Carrington Road, Mt Albert, Auckland, 1025
Legal Description/s	Lot 2 DP 156226	Lot 1 DP 211427	LOT 4 DP 515012
Site Area (ha)	Approximately 81,000 m^2		
Site Coordinates	1752051, 5917628		
Site Zoning	Special Purpose Zone – Healthcare Facility and Hospital	Business - Mixed Use Zone	Business - Mixed Use Zone
Current Site Use	Mason Clinic	Undeveloped land	Unitec (Horticultural)

2.2 Site Layout

A site layout plan showing the latest aerial imagery sourced from LINZ Data Service is presented in Drawing 256528-0000-DRG-KF-0001, Appendix A.

2.2.1 Site Cover and Drainage

At the time of the investigation, the site as a whole comprised approximately 35% buildings and driveways / other hardstanding. The site has been split into 'central', 'north' and 'south' as these areas are distinct in terms of their current land use.

The central portion of the site accommodates the majority of impervious surface and buildings.

The northern area of the site is completely grassed.

The southern area contains some areas of impervious surface associated with car parking and access to buildings. Over 50 % of the southern area is either grassed or trees.

All hardstanding consists primarily of asphalt and was observed during the site inspection to generally be in good condition.

Refer to Appendix B for photographs of the vegetated areas.

2.2.2 Site Walkover Summary

Key features identified during the site walkover are recorded in Table 2. Site photography and further site walkover details are provided in Appendix B.

Table 2 Site Features

Aspect	Central	North	South
Site Boundaries	North- temporary construction fence; South- southern section (horticultural land use); East- unnamed service road; West- Oakley Creek Walkway.	North- small building with carparking; South – fenced off previous swimming pool in central area; East- unnamed service road; West- Trees separating from Great North Road.	North- central area (Rimu Hostel; Mason Clinic Facilities) South- Unitec land (Sanctuary Mahi Whenua) East- unnamed service road; West- Oakley Creek Walkway.
Buildings present on site	>10 buildings/units across central area for service users, including offices, garaging and a Marae.	None – site undeveloped, overgrown grassland	Bee Keepers small structure; Unitec buildings, including dog training facility and glasshouses
Underground utilities	Large amount of underground services run through the area, including gas, stormwater, wastewater, potable water, electricity, and communications.	Stormwater, wastewater and gas	Stormwater, wastewater, communication, electricity
Surface water	Stream runs through southern and central section, joining Oakley Creek.	N/A – rainwater pools in any uneven dips in ground	Stream runs through southern and central section, joining Oakley Creek.
Hazardous substance storage tanks	One above ground diesel tank near garage facilities; Gas manifold located on western edge; fertiliser stored in garage.	N/A	N/A

2.3 Surrounding Land Use

The surrounding land uses are recorded in Table 3.

Table 3 Surrounding Land Use

Direction	Land Use
North	State Highway 16 (adjacent) and residential properties (approximately 200 m away).
East	Unitec (adjacent), Taylors Laundry (approximately 80 m away) and residential properties (approximately 300 m away).
South	Unitec (Adjacent), BP Petrol Station (100 m away south west).
West	Oakley Creek Reserve (adjacent), Great North Road (approximately 40 m away), Waterview Tunnel (approximately 150 m away), Waitemata Harbour (approximately 800 m away) and residential properties (approximately 300 m away).

2.4 Site Environment

2.4.1 Topography

The Mason Clinic is situated between Blockhouse Bay Road to the west and Carrington Road to the east. Carrington Road is located on a high point of 25 metres reduced level (m RL) and the ground declines across the site to Blockhouse Bay Road and onwards towards Waitemata Harbour. The site area has generally been contoured to accommodate building footprints. The northern extent of the site slopes uphill on the northern and eastern borders, with a maximum elevation of 20 m RL.

Oakley Creek flows adjacent to the western side of the site and is bordered by steep banks as indicated on the site plan 256528-0000-DRG-KF-0001.

2.4.2 Geology

Kermode[1]; (Sheet R11, scale 1:50,000) indicates that the site straddles the geological boundary between material of the Mt Albert Volcanoes and constituents of the East Coast Bays Formation (ECBF). The area consists of three geological units:

- Auckland Volcanic Field (AVF) basalt and basanite lava (avl) – "*grey to very dark grey, dense, fine grained olivine basalt or basanite lave flow*"; anticipated to have flowed from the south in a general northerly direction, with the lava flow wider in the south and pinching out in the north. The flow boundary is approximately located along the loop road which services the Mason Clinic in the central area.
- AVF basalt to basanite ash and lapilli (lava) "*ash and lapilli deposits consist of unconsolidated beds of dark grey to black, very angular to rounded, well-sorted dense to very vesicular, basalt or basanite fragments 1-20 mm in diameter… Ash and lapilli weather to very soft, red-brown, sandy clay to depths of 2 m, and accumulates of think, weathered ash deposits are very common within the volcanic field.*" This is anticipated to overly the basalt lava.
- Where AVF is not present and underlying the AVF is ECBF of *"greenish grey alternating muddy sandstone and mudstone with occasional interbedded lenses of grit"*. This is anticipated in the north and eastern areas of the site.

Four borehole logs available from the New Zealand Geotechnical Database (NZGD) were reviewed (65673, 65637, 65612 and 65636). These boreholes are along the western edge if the site or just outside the site boundary, with BH65673 the most northerly and BH65612 the most southerly. These borehole logs support the basalt flow pinching out to the north and with sandstone and mudstone identified below the basalt from 2.4 m bgl (metres below ground level).

Twelve boreholes were completed as part of Aurecon's combined contamination (this report) and geotechnical ground investigation. Basalt was encountered from 0.6 m bgl (TP306) to 1.2m bgl (TP309) on the western extents of the site, but not encountered in the north east of the site area. Bore logs are presented in Appendix I.

2.4.3 Hydrology

The Auckland Council Geomaps resource (accessed on 18 July 2019) shows that the site is prone to flooding.

A small stream (Wairaka Stream) (present central within the site) runs north westwards towards Oakley Creek through the southern and central portions of the site. The stream is initially culverted in the southern portion but becomes an open system, flowing through the central portion of the site.

Surface water runoff from areas of hardstanding is diverted to the reticulated stormwater system, which eventually discharges into Oakley Creek and the harbour. The remainder of surface water, from the unpaved areas is expected to drain through surface infiltration and limited runoff to surrounding roads.

2.4.4 Hydrogeology

Information on water takes and bores provided by Auckland Council is presented in Appendix D.

Groundwater is expected to flow in a westerly direction towards the Waitemata Harbour. The flow of groundwater is likely to be influenced by the fracture system in the basalt. The basalt may also be acting as a confining layer, influencing shallow groundwater movement.

Groundwater was recorded on one of the historical logs (65612) at 4.6 m bgl. This borehole was located at the southern end of the site near the Aurecon investigation hole BH311.

The abstraction borehole used by Taylors laundry facility withdraws water from the Auckland Isthmus Waitemata Aquifer.

[1] Kermode, 1992, Geology of the Auckland urban area. *Institute of the Geological & Nuclear Sciences Limited Lower Hutt New Zealand*.

Deep groundwater is present within the Auckland Isthmus Waitemata Aquifer (alternating sandstones and mudstones), this aquifer is mostly confined and low yielding.

2.4.5 Ecology

The Auckland Council Geomaps resource shows that the Oakley Creek Reserve and the Waitemata Harbour are sensitive ecological habitats.

2.4.6 Summary of Environmental Conditions

Based on desk study information, the expected environmental conditions at the site are summarised in Table 4.

Table 4 Generalised ground profile

Unit	Top of Layer (m bgl)	Bottom of Layer (m bgl)	Geological Description
1	*0*	*0 - 0.2*	*Predominantly silt and sand, but with some gravels* ***[Topsoil]****.*
2	*0 – 0.2*	*0.3 – 1.5*	*Silt, sand and gravel. Frequent anthropogenic materials* ***[Fill]****.*
3	*0.3 – 1.5*	*>15*	*Silt, sand and gravel. Frequent cobbles and boulders* ***[Alluvium]*** ***OR*** *Basalt* ***[Auckland Volcanic Field]****.* *Underlain by sandstone/siltstone* ***[East Coast Bays Formation]***

The site area is predominantly flat in the central and southern areas, with the northern extent of the site sloping to approximately 20 m RL uphill on the northern and eastern borders. Oakley Creek Reserve is located along the western boundary, with a small stream (Wairaka Stream) running north-westwards towards Oakley Creek through the southern and central areas of the site. Oakley Creek Reserve is a sensitive ecological habitat. Groundwater depth is not known but may be shallow based on the level recorded in one historical log (4.6m bgl). This shallow groundwater is not utilised.

3 Site History

3.1 Introduction

A search of available information sources was conducted with the objective of identification of past or present activities with the potential to result in soil contamination or contamination of other media such as sediment and groundwater. The nature and extent of any identified activities has also been assessed, where information was available.

3.2 Regional Council Register of HAIL Sites

Auckland Council holds a database of sites that have, or have had in the past, an activity or industry that is detailed in the Hazardous Activities and Industries List (HAIL) (MfE 2012).

Requests were placed with Auckland Council on 16 July 2019 for Landfill and HAIL information and the following HAIL sites were identified:

- The (whole) site may have been subject to historical horticultural activity;
- The (whole) site is classified as filled/weak ground;
- The central portion of the site (81A Carrington Rd) has fuel storage tanks (including a 7500 litre above ground diesel tank) and a workshop.
- The southern portion of the site (119 Carrington Rd) is currently used for horticultural activity including glasshouses and storage sheds.
- A landfill enquiry to council did not identify any landfills within 500 m of the site. The closest is Phyllis Reserve, located approx. 850m away.

The Property Statement from the regional council register is provided in Appendix C. Note that the register is incomplete as not all HAIL activities in the region have been identified.

3.3 Regional Council Consents

A request for data on bores and water take consents was sent to Auckland Council on 16 July 2019, and a response was received on 16 July 2019. The consents identified are detailed in Table 5.

Table 5 Consents

Consent type	Consent holder	Summarised details	Comments
Contaminated Site Discharge	Auckland Transport (for regional consents)	To discharge contaminants to land or water from land undergoing disturbance; and activities and associated discharges on closed landfills that perforate or penetrate the cap or cover.	Issued – 100m west
Discharge to Air	BP Oil New Zealand Limited Attn: Asset Administrator	To discharge contaminants to air	Cancelled – 100m southwest
Bore	Laytons Linen Hire LTD	Authorize the construction of a bore for the extraction of groundwater for industrial use.	Expired – 100m east
Bore	UNITEC Institute of Technology	To authorise the construction of up to 4 bores for Water Quality Testing.	Expired - onsite
Bore	UNITEC Institute of Technology	To authorise the construction of up to 4 bores for Water Quality Testing.	Expired – 30m southeast
Contaminated Site Discharge	NZ Transport Agency	To authorise the ongoing diffuse discharge of contaminants to ground and groundwater in accordance with Section 15 of the Resource Management Act 1991.	Issued – 50m northwest

Incidents returned from the contaminated site enquiry are reported on Table 6.

Table 6 Pollution Incidents

Location	Date	Pollution / Incident Type	Report	Approximate Distance from Site
1500 Great North Road	25/11/2013	Not Found / Nothing	Waiaka Steam is milky white (Unitec, Mt Albert)	On-site
1 Carrington Rd	12/12/2009	Not Found / Nothing	Chemical spill – alkaline cleaning solution	On-site
Unitec gate 2 Carrington Rd	21/12/2009	Natural	Algae - maybe blue green	On-site
Great North Rd	22/09/2009	Not Found / Nothing	Smell of sewage in the stream	30 m west
1 Carrington Rd	31/10/2010	Natural	Brown Scum on Pond	75 m south east
1380-1406 Great North Rd	22/11/2010	Not Found / Nothing	Odour - Rotten Meat Odour	70 m west
3/5 Cowley Street	5/05/2010	Not Found / Nothing	Odour near stream	65 m north west
101-103 Carrington Rd	1/12/2008	Water / Land Pollution	Foam discharge to Oakley Creek	Adjacent

3.4 Local Authority Property Files

The property files for 1, 1A, 3 and 119 Carrington Road were requested on the 16 July 2019 and received on 30 July 2019. Property files for 81A Carrington Road (the current Mason Clinic site), was provided by the client. A review of the received property files did not present any additional information relevant to contamination, with the exception of the dangerous good license for the 7,500 litre (L) above ground diesel storage associated with the site.

3.5 Records of Title

The record of title and historic title were requested and the history of land ownership is provided in Table 7. Titles summarised in Table 7 were not specifically aligned with the central, southern or northern area of the site.

Table 7 Record of Title Information

Reference	Year	Owner	Comments
Gazette – March 1980	1980	Crown	Extract declaring land owned by the Crown is to be vested in the Auckland Hospital Board for psychiatric hospital purposes.
NA93B/542	1993	Ngati Whatua O Orakei Maori Trust Board	Lot 4 DP 156226 Historical Search Copy – Cancelled Transferred to Unitec Institute of Technology – May 2003
NA93B/540	1993	Waitemata Health Limited	Lot 2 DP 156226 2014 note details that the land is RFR land and is subject to Subpart 1, Part 4 (restricts disposal to land) of the Nga Mana Whenua o Tamaki Makaurau Collective Redress Act

Reference	Year	Owner	Comments
NA139B/956	2003	Unitec Institute of Technology	Lot 1 DP 156226; Lot 2 DP 211427 Historical Search Copy – Cancelled
NA139B/955	2003	Ngati Whatua O Orakei Maori Trust Board	Lot 1 DP 211427 Transferred to the Crown – April 2018
58983	2003	Unitec Institute of Technology	Lot 2 DP 211427; Lot 5 DP 314949 Historical Search Copy – Cancelled
799991	2018	Unitec Institute of Technology	Lot 4 DP 515012

A review of available historical title information was undertaken by Aurecon. 10 historical survey plans were made available. The historical title from 1888 (SO 5131) shows that the area is labelled as a mental health facility and that a spring runs through the property. The historical land survey information is presented in Appendix E.

Anecdotal information suggests that Carrington Hospital to the north of the site, (now the Unitec) was built in 1865 and was used as a mental health facility. Over the years it had several names including Whau Lunatic Asylum, Auckland Mental Health Hospital, Avondale Mental Asylum and Oakley Hospital. In 1994 the Unitec purchased the hospital building and the mental health facilities moved to the current location of the Mason Clinic.

3.6 Review of Historical Aerial Photography

A review of historical aerial (oblique and overhead) photography, available from the National Library of New Zealand collection (Whites Aviation), Retrolens and Auckland Council Geomaps (accessed 19 July 2019), was undertaken. A summary of the photographs covering the site during the period 1940 to present is presented in Table 8. Copies of the historical aerial photographs (with the site boundary highlighted) are provided in Appendix F.

Table 8 Summary of historical aerial imagery

Year and source	Site	Adjacent area
1940 Auckland Council	The northern portion of the site has a horticultural land use. Two small buildings are present within the horticulture plot. The centre portion of the site comprises of several potentially cropped fields, with two elongated buildings in the north, likely farmhouses. A vegetated gully is present in the west. The southern portion of the site is undeveloped with a gully present in the west.	The main Unitec building has already been built (Carrington Hospital, built in 1865) and the surrounding area is mainly residential. The area between Carrington Road and Great North Road (current Unitec campus and site) is mostly undeveloped pastoral land with a few buildings.
1947 Whites Aviation	Oblique photograph looking south east over the site. Site is predominantly flat and the western boundary declining steeply down to Oakley Creek. The site is predominantly undeveloped.	
1959 Auckland Council	An additional farm building has been constructed in the central area of the site. One of the elongated farm buildings in the centre of the site has been demolished.	Unitec is under construction. State Highway 16 has been extended further west.
1977 Retrolens	Horticultural activities in the northern portion of the site have ceased. Swimming pool, pool building and the Kowhai Centre have been constructed in central area.	Several Unitec buildings added.

Year and source	Site	Adjacent area
1985 Retrolens	Central area now contains a garage and several farm buildings. Horticultural/agricultural activities continue within the central and southern sections. In the southern area of the site, the stream running through the property is in the process of becoming culverted.	The laundry facility has been built.
1996 Auckland Council (Poor resolution)	Mason clinic has been established in central area, with the current main Mason Clinic building, Kahikatea building and old Te Aka building constructed. In the southern area of the site, the stream running through the property is in the process of becoming further culverted and glasshouses have been developed.	State Highway 16 has been improved and the wider residential area has increased in density. The Unitec has become more developed.
2001 Auckland Council	The Mason Clinic has two more buildings (the Rata Unit and old Tanekaha building). In the southern area horticultural activities been established and an additional glasshouse built.	The laundry facility has expanded.
2008 Auckland Council	The Mason Clinic has been further developed and there are three new buildings (Pohutukawa, Kurawaka Building, Rimu Hostel and Tane Whakapiripiri). Walking track established.	The shared pathway running along SH16 has been constructed.
2015 and 2016 Auckland Council	The Mason Clinic site has been further redeveloped and there are changes to three buildings. In the southern area car parking has been extended and horticulture land-use has reduced.	Waterview tunnel is under construction. The laundry facility has been extended.
2017 Auckland Council	The Mason Clinic site has been further redeveloped, with Te Aka building redeveloped.	

3.7 Results of Previous Environmental Investigations

3.7.1 On-Site Reports

Soil and Rock, Mason Clinic Geotechnical Assessment Report, 2012 (12481 Version A)

Soil and Rock completed a geotechnical assessment in the northern and southern parts of the site to support the future expansion into these areas. The ground conditions encountered are in accordance with those presented in this report.

In the north, fill was encountered to a maximum depth of 1m and comprised grey brown silt with some clay, sand and gravel. The underlying ECBF (grey silt with some clay) has a low permeability. Groundwater was encountered between 0.0 and 2.2 m.

In the south, fill was encountered to a maximum depth of 1.6m and comprised brown and black silt with some clay, sand and gravel. Groundwater was encountered between 0.4 and 4m bgl, but was not encountered in 16 positions. Basalt rock was encountered from 0.1 to 1.8m bgl. The underlying ground conditions generally comprise free draining deposits of the AVF.

4Sight, Preliminary Site Investigation, 2017 (R_WDHB_Mason Clinic PSI_May17_v2.0)

4Sight Consulting Ltd completed a PSI for the north and central areas only. 4Sight identified that the following HAIL activities occur or have occurred on the north and central areas:

- A 10: Persistent pesticide bulk storage or use including sport turfs, market gardens, orchards, glass houses or spray sheds;
- A 17: Storage tanks or drums for fuel, chemicals or liquid waste; and
- I: Any other land that has been subject to the intentional or accidental release of a hazardous substance in sufficient quantity that it could be a risk to human health or the environment.

Based on the findings of their investigation the following recommendations were made to facilitate the proposed development of the site:

- Consent under the NES_{CS} will be required for any subdivision, land use change or disturbance activities;
- A DSI will be required prior to any of the above activities being undertaken at the site, and should contaminants be identified remedial works including validation sampling and reporting may be necessary; and
- A SMP will be required for any disturbance works undertaken at the site.

The report is included as Appendix G.

AECOM Mason Clinic Geotechnical Assessment Report 2017 (Ref: 60551188)

AECOM completed a geotechnical assessment for a new T2 building approved to be constructed across the old swimming pool area (construction area – central). Fill was encountered between 0.2 and 1.1 metres thick, fill was made up of a sandy or clayey silt with some gravel. Groundwater was found between 0.3 and 3.0 m deep.

Aurecon Mason Clinic T2 New Build (Pool Site) 2018 (256529)

Aurecon completed a geotechnical investigation report for the new building. Ground conditions in the north were interpreted to comprise shallow basalt, whilst the central, south and east of the site was underlain by firm to stiff clay over weathered ECBF.

WSP Geotechnical Interpretive Letter Report – Mason Clinic Area 2017 (2171816A-GEO-LTR-001 Rev0)

WSP conducted a large ground investigation within the Unitec Campus and an excerpt relating to the Mason Clinic has been provided. Fill was determined to be 0.0 to 1.9 m deep. The deepest fill was located north of the site. Groundwater was encountered between 0.54 to 1.64 m below ground level. The report is included as Appendix G.

3.7.2 Off-Site Reports

Soil and Rock Consultants – Geotechnical Investigation Report 2014 (14705 - Version A) (found in the property files)

Soil and Rock Consultants completed a report for the warehouse addition to the Taylors Laundry Facility. Ground water was noted to be expected to be close to ground surface level. In addition, a 355 m deep water bore is located within the property (1A Carrington Road). Fill was found to be up to 1.3 m deep. Fill was encountered as a silt and contained some gravel and organic material.

4 Preliminary Conceptual Site Model

4.1 Introduction

The CSM outlines the potential source-pathway-receptor linkages that may be present. The CSM defines what contamination could be present at a site, how they may travel and what receptors they could affect by doing so. Establishing these factors is essential to guide the preparation of an investigation plan.

4.2 Area of Relevance

To assist with aligning fieldwork sampling with activities that could have led to contamination and the receptors of that contamination, areas of interest have been defined based on current and historical activities at the site and the future development areas.

4.3 Potential Sources

Potential for contamination to have occurred on the site from:

- Horticulture- Shallow soil contamination associated with pesticide use (HAIL A10) – northern, central and southern;
- Shallow soil contamination associated with storage drums or tanks (HAIL A17) – central;
- Soil contamination associated with infilling / gully infilling (HAIL G5) – central and southern; and
- Shallow soil contamination associated with asbestos in a deteriorated state (HAIL E1) – central.

Potential off-site sources were identified:

- Contaminated groundwater associated with potential dry-cleaning activities southeast of the site (HAIL A5). This would be considered HAIL H if the migration of hazardous substances has influenced the subject site.

4.4 Pathways

Pathways for contaminant exposure and offsite migration of contaminants generally include the transport of contaminants via air, solid phase, and water. The potential pathways identified from the desk information are:

- Direct contact (dermal and ingestion);
- Inhalation of contaminated dust;
- Inhalation of chlorinated hydrocarbon vapour;
- Overland transport of contaminated sediment in surface water; and
- Migration of contaminants from offsite sources via surface water runoff.

4.5 Receptors

Receptors include people and the environment (for example surface water ecosystems) that are or may be adversely affected by the identified contaminants. The potential receptors identified in the assessment include:

- Future site users;
- Maintenance and construction/excavation workers; and
- Ecology within onsite stream located within southern and central sections of the site.

4.6 Summary and Data Quality Objectives

Based on the desktop information reviewed, a preliminary CSM has been developed which identifies the sources, pathways and receptors defined above.

Data quality objectives which will help to refine this CSM and better define potentially complete source-pathway-receptor linkages include the following:

- Collect soil samples at varying depths to define lateral and vertical extent of:
  - contamination in fill;
  - horticultural chemicals;
  - asbestos.
- Collect groundwater samples to understand likelihood of dry-cleaning chemical dissolution in groundwater and transport across the southern and/or central areas of the site

Based on site topography and likely groundwater flow direction, potentially complete exposure pathways associated with the dry-cleaning facility are not considered likely for the northern area of the site, and groundwater samples were not, therefore collected.

It is noted the objectives of this Site Contamination Report are intended to facilitate site re-development, commencing with the northern area of the site. It is understood the central and southern areas of the site are unlikely to undergo redevelopment in the next 5-10 years; therefore, this investigation has focussed on the northern area of the site.

A partial investigation of the central and southern areas has also been conducted but did not include a groundwater investigation.

5 Site Investigation

5.1 Investigation Rationale

In accordance with the CSM and the future development intentions, the rationale for the investigation is to gain an understanding of the nature and extent of contaminants in soils associated with historical filling, horticultural activities, and impact to soil from the use of ACM as a building material.

For the central and southern portion of the site the investigation was designed to provide some initial information to gauge soil disposal options and to provide high level advice in support of the proposed future development; this investigation does not consider potential groundwater impacts and the level of soil sampling is minimal. The sampling density was increased in the northern portion of the site to provide information to support a resource consent application for this area.

5.2 Site Works Undertaken

The ground investigation was undertaken from 3 July through to 22 July 2019 and the following fieldwork was completed:

Table 9 Fieldwork Completed

	Southern	Central	Northern
Test Pits to 1.5m	5	4	-
Hand dug locations to 0.15m	-	-	15
Boreholes to 15m	2	5	5

- 12 boreholes to 15 m bgl (BH301-BH314 – Note BH307 and BH308 were not drilled after the pre-drill);
- 9 test pits to 1.5 m bgl (TP301-310 – Note TP302 not completed); and
- 15 shallow hand dug pits (TP401-415) to 0.15 m bgl.

These works were completed across the three sections, as detailed below:

- Northern – 15 hand dug pits (TP401-415) and 5 boreholes (BH301-305);
- Central – 4 test pits (TP301-305) and 4 boreholes (BH306, BH309, BH213 and BH314); and
- Southern – 5 test pits (TP306-310) and 3 boreholes (BH310-311,313).

5.3 Investigation Methodology

5.3.1 Soil Sampling

Boreholes were excavated to visualise and characterise deeper ground conditions, primarily for geotechnical purposes. Test pitting allowed observation of the vertical profile of shallow fill material. Shallow hand dug pits were completed in order to collect shallow near surface contamination samples.

5.4 Sample Analysis

Samples were collected in general accordance with CLMG No 5: Site Investigation and Analysis of Soils (MfE 2011b).

A total of 42 soil samples were collected from 32 exploratory locations. Samples were scheduled for the following suites of analysis, and detailed in Table 10:

- Heavy metals (arsenic, cadmium, chromium, copper, lead, mercury, nickel and zinc);
- Organochlorine Pesticides (OCP);
- Polycyclic aromatic hydrocarbons (PAH);
- Asbestos presence / absence.

One bulk sample was analysed for asbestos (BH309_0.2_PACM1).

Table 10 Sampling Regime

Exploratory Location	Depth of Sample	Material	Analysis			
			Heavy Metals	OCP	PAH	Asbestos
Northern (horticulture, fill)						
BH301	0.0-0.2	Topsoil, clayey silt	X	X		
	0.3-0.4	Silty clay with cobbles (Fill)	X	X		
BH302	0.0-0.15	Topsoil, clayey silt	X	X		
BH303	0.0-0.15	Topsoil, clayey silt	X	X		
	0.5-0.6	Silty clay (ECBF)	X	X		
BH305	0.0-0.15	Topsoil: clayey silt	X	X		
TP401	0.05-0.1	Topsoil: clayey silt some sand	X	X		
TP402	0.05-0.1		X	X		
TP403	0.05-0.1		X	X		
TP404	0.1-0.15		X	X		
TP405	0.1-0.15		X	X		
TP406	0.1-0.15		X	X		
TP407	0.05-0.1		X	X		
TP408	0.1-0.15		X	X		
TP409	0.0-0.1		X	X		
TP410	0.05-0.1		X	X		
TP411	0.05-0.1		X	X		
TP412	0.05-0.1		X	X		
TP413	0.05-0.1		X	X		
TP414	0.1-0.15		X	X		
TP415	0.05-0.1		X	X		
Central (buildings, fill)						
TP301	0.1-0.15	Gravelly silt (Fill)	X		X	X
	0.5-0.55	Gravelly clay (Fill)	X		X	X
TP304	0.1-0.15	Sandy silt (Fill)	X		X	X
	0.5-0.6	Silty clay (Fill)	X		X	X
TP305	0.1-0.15	Topsoil, sandy silt	X		X	X
	0.7-0.8	Clayey silt Fill)	X		X	X
BH306	0.35-0.45	Silt (Tauranga Group)	X		X	X
	1.5-1.6	Silty clay (Tauranga Group)	X		X	X
BH308	0.1-0.15	Gravelly silt	X		X	X
	0.45-0.55	Silt (AVF)	X		X	X
BH309	0.05-0.1	Topsoil, sandy silt	X		X	X

Exploratory Location	Depth of Sample	Material	Analysis			
			Heavy Metals	OCP	PAH	Asbestos
	0.2	Bulk PACM				X**
	0.55-0.7	Sand (AVF)	X		X	X
BH312	1.1-1.2	Gravelly silt	X		X	-
Southern (horticulture, fill)						
TP306	0.2-0.3	Gravel (Fill)	X	X	X	X
TP307	0.0-0.1	Topsoil, silt	X	X	X	X
TP308	0.2-0.25	Topsoil, clayey silt	X	X	X	X
TP309	0.0-0.1	Topsoil, silt	X	X	X	X
TP310	0.3-0.35	Topsoil, silt	X		X	
	0.6-0.65	Gravelly clay (Fill)	X		X	X
BH310	0.0-0.15	Gravelly silt (Fill)	X	X	X	X
	0.45-0.55	Gravelly silt (Fill)	X		X	X

** Bulk ACM analysis

5.5 Quality Assurance / Quality Control

Quality assurance / quality control (QA/QC) procedures were implemented during field investigation works. All samples were collected under Aurecon chain of custody (COC) documentation procedures.

5.5.1 Sample Integrity

Prior to sampling, and between sample locations, equipment used (i.e. hand trowel/hand auger) was cleaned by washing with potable water, followed by a decontamination solution (Decon 90), and rinsing with potable water. Soil samples were collected using a clean pair of nitrile gloves for each sample and then placed into laboratory supplied sample containers. Each sample was given a unique sample identification number and the location the sample was collected from was recorded at the time of sampling.

Following collection, all samples were placed directly into chilled storage and transported, under standard chain of custody procedures, to an International Accreditation New Zealand (IANZ) laboratory for analysis. The remaining material was placed back into its original location, ensuring each area was returned to a flat condition following completion of the sampling and compliance with Regulation 8 of the NES (soil sampling).

5.5.2 Laboratory

Analytica was selected to perform analysis of all samples. This laboratory is IANZ accredited and each of the test methods used are also IANZ accredited. All samples were analysed within the appropriate holding times for each analyte. Analytical results are presented in Appendix H.

5.6 Field Observations

5.6.1 Stratigraphy

The ground conditions encountered generally comprised topsoil, overlying fill, underlain by either:

- volcanic ash of the Auckland Volcanic Field (AVF) and basalt; or
- recent alluvium, over sandy silts and clays of the East Coast Bays Formation (ECBF).

Fill was encountered beneath the surfacing in all investigation locations. Depth of fill and fill descriptions are detailed in Table 10. Fill in the northern and southern areas is likely to be associated with the development of horticulture whilst it is likely attributed to the development of the buildings in the central area.

The basalt is anticipated to be present beneath fill across most of the southern and pinching out in the north, with the flow boundary approximately running along the loop road within the Mason Clinic.

Ground investigation logs are included in Appendix I. For further details on the ground conditions refer to Aurecon's Ground Investigation Factual Report and Ground Investigation Interpretive Report.

Table 11 Fill Material Descriptions from locations extended beyond fill into natural ground

Location ID	Maximum depth of fill (m)	Fill Material	Location
BH306	0.8	Concrete and gravel over silt	Central
BH309	0.7	Sandy silt	
BH312	1.5	Gravel, silty gravel	
BH314	1.56	Silty gravel	
TP301	0.9	Gravel clay/silt	
TP303	0.7	Sandy silt	
TP304	0.6	Sandy silt, gravel, silty clay	
TP305	0.95	Gravelly silt, silty gravel	
BH307	0.65	Gravel	
BH308	0.45	Gravely silt	
BH301	0.7	Topsoil: clayey silt	North
BH302	0.3	Topsoil: clayey silt	
BH303	0.5	Topsoil: clayey silt	
BH304	0.3	Topsoil: clay	
BH305	0.5	Topsoil	
BH310	1.1	Topsoil over silty clay	South
BH311	1.0	Gravelly clay	
BH313	0.75	Gravelly clay	
TP306	0.2	Gravel	
TP307	1.0	Clay	
TP308	0.75	Clayey gravel	
TP309	1.2	Cobbly silt	
TP310	1.5	Gravelly clay	

5.6.2 Sensory Observations

No olfactory indicators of contamination were observed during the investigation. Anthropogenic material was found at the following locations: BH308 and TP304 (terracotta pot fragments), and BH309 (PACM). An organic odour was identified at BH304.

5.6.3 Groundwater Measurements

Groundwater was monitored during the ground investigation and the depth is reported on the logs in Appendix I**.** Groundwater was in general found to be shallow, refer to Table 12.

Table 12 Groundwater Strikes During Pre-Drill

Area	Depth to groundwater (m bgl)
North	0.2 – 1.15
Central	0.65 – 0.8
South	0.77 – 0.8

6 Tier 1 Risk Screening Assessment

6.1 Introduction

The analytical results were assessed against three categories of Tier 1 acceptance criteria / guideline values, as summarized below. These criteria, and the results are discussed in further detail in the following sub-sections.

- National criteria: To provide an assessment of potential adverse effects on all identified receptors based on generic, conservative exposure scenarios.
- Background concentrations: To determine the applicability of the NES and other legislation to the redevelopment, and to assess clean fill disposal options.
- Disposal criteria: To determine potential re-use of material on site, or off-site disposal options should results be above background/clean fill criteria.

A table displaying results assessed against these criteria is provided in Appendix J, and summarised details are provided below.

6.2 Soil

6.2.1 National Criteria

The national criteria referenced in this report have been selected using the receptors identified in the conceptual site model and the hierarchy defined in the *Contaminated Land Management Guideline No. 2 – Hierarchy and Application in New Zealand of Environmental Guideline Values* (MfE 2011d). For human health values, the *Methodology for Deriving Standards for Contaminants in Soil to Protect Human Health* (MfE 2011e) has been used. For contaminants where SCSs are not available, the hierarchy defined in MfE 2011d has been used. A high-density residential land use scenario has been selected based on the proposed future use of the land.

The following results in relation to the national criteria were identified:

- No exceedances of NESCS high density residential criteria for any compound analysed.

In addition to the above, a regional assessment was performed using the Auckland Unitary Plan permitted activity criteria:

- No exceedances of AUP permitted activity criteria were identified for any compound analysed.

Asbestos was identified in two of the twenty samples analysed (see Table 13).

Table 13 Asbestos Present by Area

Area	Samples Tested	Asbestos Present
North	0	0
Central	12	2
South	7	0

6.2.2 Background Concentrations

Background concentrations of heavy metals/metalloids in the locality were identified using *Auckland Council Unitary Plan – Chapter E30 (Contaminated Land).*

The following results in relation to background concentrations were identified:

- All 42 samples were analysed for heavy metals. Approximately half of the samples (24) collected across the site reported heavy metal concentrations above background criteria, predominantly for lead, cadmium and arsenic. Samples returning heavy metals concentrations consistent with background were generally taken from deeper locations;
- The majority of the PAHs analysed were detected at low concentrations in the majority of the 21 samples analysed across the central and southern areas. Sample TP310_0.3-0.35 returned relatively elevated PAH concentrations (B(a)P TEQ: 14.27mg/kg), which was still below human health criteria;
- DDT and isomers (an OCP) were detected at low concentrations in 13 samples across the northern and southern areas.
- Asbestos was identified in two of the twenty samples analysed (TP304_0.1-0.15 and BH309-0.2-PACM1).

6.2.3 Disposal

For comparison with landfill acceptance criteria, the screening criteria in *Module 2 – Hazardous waste guidelines: Landfill waste acceptance criteria and landfill classification* (MfE 2004) were used.

The following relates to fill:

- 15 samples reported metal concentrations exceeding Class A landfill criteria; in the central and south this was due to elevated lead and or chromium in five samples (BH309, BH310, BH312, TP304 and TP306) and in the northern area it was due to elevated lead and or copper in ten samples. One sample had Class A exceedances in natural material (central area). In essence all fill returned heavy metals results indicative of contamination. It may be difficult to distinguish material with metals results below Class A criteria from material with metals results above these criteria. TCLP extraction and testing is recommended to determine if a Class A landfill will be able to accept the fill;
- 11 samples in the north, and 2 in the south detected OCPs. All detections are considered to be minor, and below relevant human health and likely also waste disposal criteria; and
- No samples exceeded Class A landfill criteria for PAHs.
- Asbestos contamination was identified in two of the twenty samples analysed. These were both located within central portion of the site (soil sample (TP304_0.1-0.15). Further investigation is necessary to determine disposal implications in this area.

The following relates to natural ground:

- Results for all five natural soil samples were below background concentrations suggesting this material can be disposed of to clean fill. The visual characteristics of natural soil are described in the test pit logs (Appendix I).
- When considering disposal options for excess material generated during the project, it is recommended that environmental sustainability be considered.

7 Conceptual Site Model

7.1 Introduction

The Conceptual Site Model (CSM) outlines the potential source-pathway-receptor linkages that may be present. The CSM for this site has been updated based on the findings from the DSI. The basis for sources, pathways and receptors to be relevant during the redevelopment of the school at the site is outlined below.

7.2 Sources

Activities with the potential to have caused contamination at the site exist from several sources, specifically:

- HAIL category A17 (Storage tanks or drums for fuel, chemicals or liquid waste) due to the presence an above ground diesel fuel tank on site.
- HAIL category A10 (Persistent pesticide bulk storage or use including sport turfs, market gardens, orchards, glass houses or spray sheds) as Auckland council identifying horticulture as a potential HAIL activity and aerial imagery;
- HAIL category G5 (Waste disposal to land), due to the possible presence of fill material being placed as part of the construction. Council records indicate the filled / weak ground is present beneath the site; and
- HAIL category E1 (Asbestos products disposal including sites with building containing asbestos products known to be in a deteriorated condition), due to the suspect presence of asbestos containing materials in the building materials used.

In addition to these land uses, the historical use of lead-based paint may result in elevated lead concentrations in near-surface soils in close vicinity to the site building footprint. Further, the large industrial scale laundry upgradient of the southern and central areas of the site is understood to conduct dry cleaning, which triggers HAIL A5 (Dry-cleaning plants including dry-cleaning premises or the bulk storage of dry-cleaning solvents).

The intrusive investigation identified low concentrations of DDT, (generally) low concentrations of PAH, and heavy metals in fill across the site. Asbestos was identified at two locations within the central area of the site.

With the exception of asbestos, the concentrations of identified contaminants reported in samples do not exceed the applicable human health standards and thus (with the exception of asbestos) no significant human health exposure pathway has been identified from the soil conditions identified on site. Asbestos was identified in two of the twenty samples. It is considered that asbestos may present a human health risk in the central portion of the site, but more investigation is required, and this risk is likely to be primarily sourced from with the existing buildings.

7.3 Receptors

Receptors include people and the environment (for example surface water ecosystems) that are or may be adversely affected by the identified contaminants. The potential receptors identified in the assessment include:

- Construction/excavation and maintenance workers;
- Off-site users during redevelopment works;
- Future site users; and
- On-site watercourse and Oakley Creek.

7.4 Pathways

Pathways for contaminant exposure and offsite migration of contaminants generally include the transport of contaminants via air, solid phase, and water.

The potentially complete pathways identified for construction/excavation and maintenance workers, and future site users, the following exposure pathways are relevant:

- Direct dermal contact with contaminated soils;
- Inhalation of dust and/or asbestos fibres; and
- Volatilisation.

For off-site users the following transport migration/exposure pathways are relevant:

- Inhalation of dust and/or asbestos fibres mobilised by earthworks;
- Use of surface water following migration of contaminants; and
- Sediment entrained in stormwater runoff.

Exposure of off-site users to contaminants migrating through soil and groundwater is considered unlikely, due to the concentrations of contaminants recorded, and adjacent site usage.

7.5 Summary

Based on the findings of the historical desktop study and subsequent shallow soil investigation, the conceptual site model is presented in Figure 1 (northern area) and Figure 2 (central and southern).

This northern area CSM (Figure 1) indicates potentially complete exposure pathways identified in Section 4 are considered unlikely. Human health risk associated with heavy metals and OCP concentrations in soil are considered unlikely, based on soil sample results.

This central and southern area CSM (Figure 2) indicates potentially complete exposure pathways for human health risk associated with ACM in sub-floor voids and fill material, and migration from an off-site source of chlorinated solvent. Human health risk associated with heavy metals, PAH and OCP concentrations in soil are considered unlikely, based on soil sample results.

Figure 1 – Conceptual Site Model – Northern Area

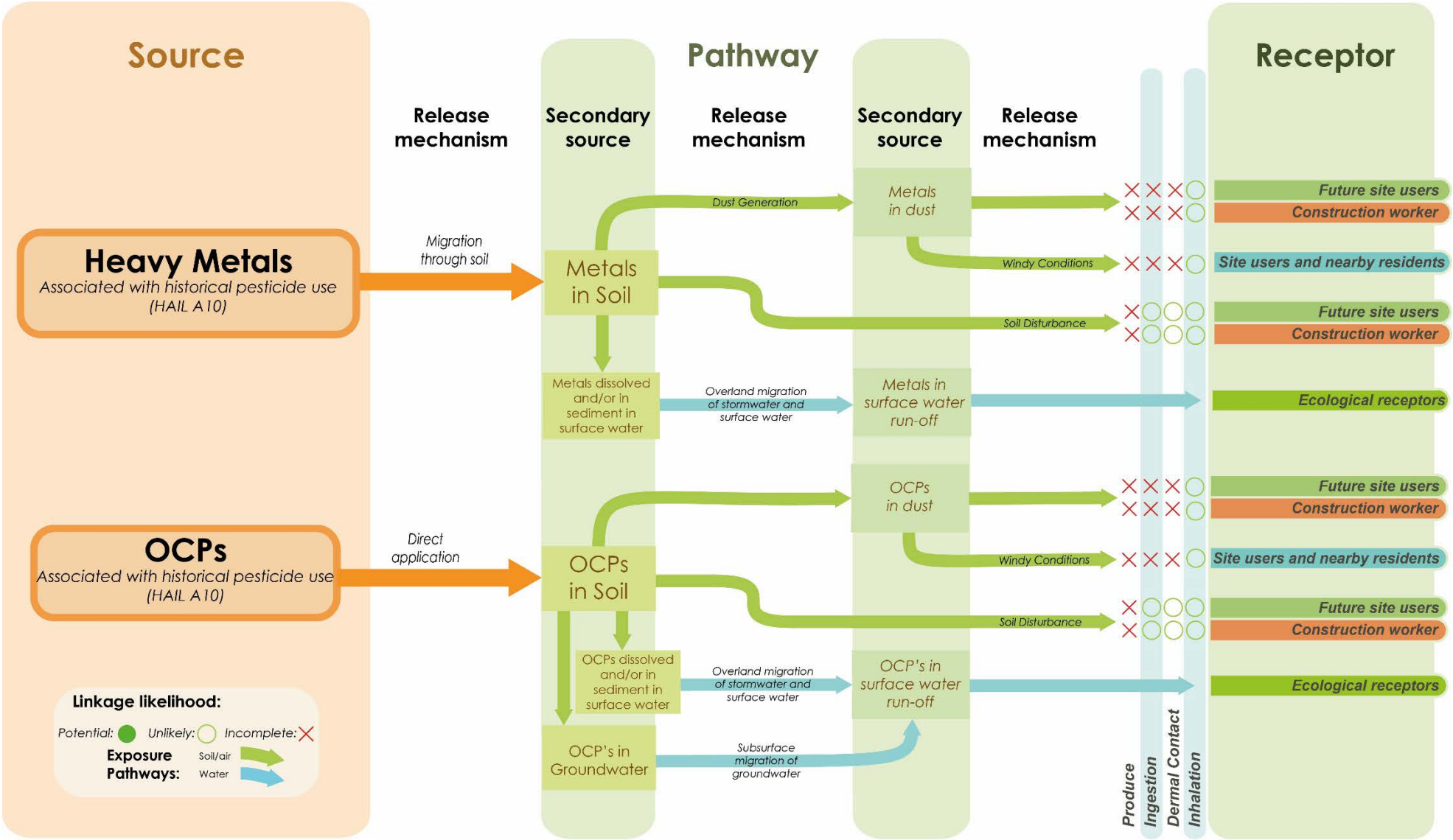
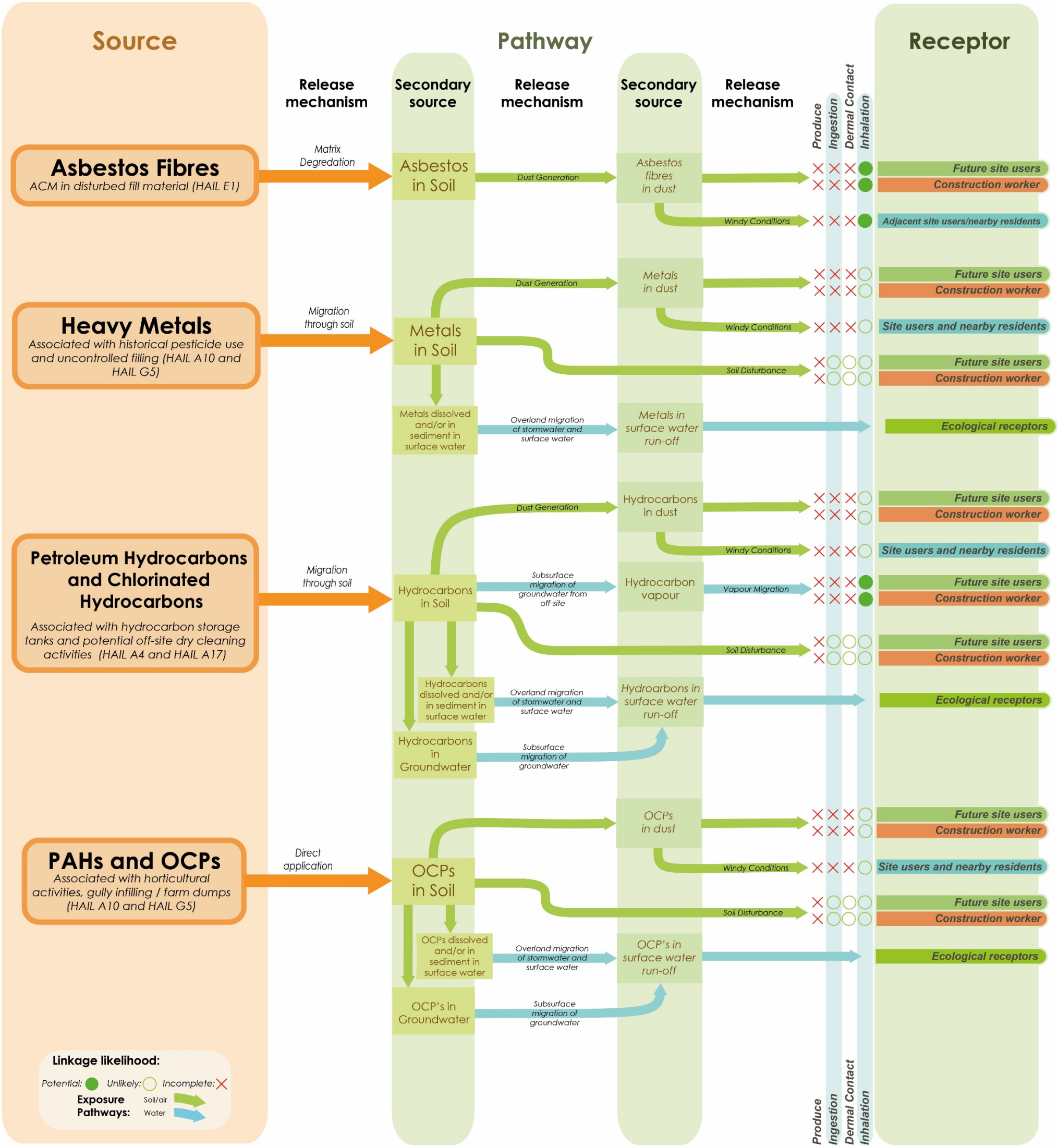


Figure 2 – Conceptual Site Model – Central and Southern Areas



8 Conclusions and Recommendations

8.1 Conclusions

8.1.1 Overview of site conditions

The site was predominantly used for horticulture until approximately the 1990s when the central area was developed into the Mason Clinic facility. The facility has undergone three periods of significant development since its initial construction.

HAIL activities identified during the desk study include horticulture across the whole site, infilling and potential waste disposal to land, fuel storage and historical weathering of potentially contaminated building materials across the south and central portions of the site.

The site has a gentle slope to the west and is bordered to the west by Oakley Creek, observed within a narrow, steep-sided gully.

A soil sampling investigation was conducted at the site between 3 July and 22 July 2019. This included 12 boreholes to 15m bgl, 9 test pits to 1.5m bgl, and 15 shallow hand dug pits to 0.15m bgl. A total of 42 soil samples were collected. All were analysed for heavy metals, 27 for organochlorine pesticides (OCP), 21 for Polycyclic Aromatic Hydrocarbons (PAH), and 20 for asbestos. One bulk sample was also tested for asbestos.

Fill was encountered at all locations extending to depths from 0.2m bgl to 1.56m bgl. The fill comprised of reworked East Coast Bays Formation (clayey silt – sandy silt) within the northern and southern areas, and of granular material in the central area. This fill material was underlain either by Auckland Volcanic Field deposits or alluvium material.

Groundwater was observed in the test pits at depths of 0.2 – 1.15m bgl in the northern area; 0.65 – 0.8m bgl in the central area; and 0.77 – 0.8m bgl in the southern area.

The intrusive investigation identified low concentrations of DDT, (generally) low concentrations of PAH, and heavy metals in fill across the site. Asbestos was identified at two locations within the central area of the site.

With the exception of asbestos, the concentrations of identified contaminants reported in fill samples do not exceed the applicable human health standards and thus (with the exception of asbestos) no significant human health exposure pathway has been identified from the soil conditions identified on site. Asbestos was identified in two of the twenty samples. It is considered that asbestos may present a human health risk in the central portion of the site, but more investigation is required, and this risk is likely to be primarily sourced from with the existing buildings.

All five soil samples taken from natural ground returned results consistent with background concentrations.

8.1.2 Revised Conceptual Site Model

Aurecon understands that multiple buildings are to be demolished and new buildings are to be developed across the site. The development works are to be staged - starting in the north, moving south. Buildings will be constructed in a staged manner to enable services / occupants to be moved and old buildings demolished, before the next phase of construction commences. Development works are to include the removal of existing structures and construction earthworks including site levelling, and the placing of foundations and associated services.

This investigation identified no complete pathways and two unlikely pathways (heavy metals and OCP) in the northern area, and two potentially complete pathways (asbestos and chlorinated hydrocarbons) in the central and southern area that could present a risk to human health.

8.1.3 Suitability of site for proposed development

If a Contaminated Site Management Plan (CSMP) is developed which demonstrates how the potential risks to receptors can be appropriately managed during the proposed works, the site is suitable for the future proposed development and use. The CSMP can be used to support resource consent application(s).

8.1.4 Waste disposal

If soils need to be disposed of off-site the receiving landfill should be contacted to confirm the acceptability of the fill based on the results obtained. TCLP extraction and analysis may be required.

8.1.5 Water Management

Groundwater was observed to be shallow. Groundwater, stormwater and surface water runoff during redevelopment should be managed and appropriate water disposal and sediment control measures employed. Erosion and sediment control measures should be employed to prevent contaminated sediments from migrating into drainage systems or surface water courses. If dewatering of excavations is required, consideration should be given to the testing and, potentially, treatment of shallow groundwater prior to disposal.

Additionally, if dewatering is required to facilitate construction of the proposed development, shallow water should be tested to ensure appropriate disposal.

8.2 Recommendations

- TCLP extraction and analysis of selected soil samples due to exceedances of Class A landfill criteria, particularly for lead;
- Production of a CSMP to address the forthcoming development in the north of the site; and
- Further investigation in the centre and south of the site to determine necessity of remediation or on-going contaminant management, support the development of these areas, and inform future building design.

9 References

Auckland Council (AC) 2016 (Updated 27 September 2019). *Auckland Unitary Plan Operative in Part – Chapter E30 (Contaminated Land)*. Auckland Council, Auckland.

Auckland Council, Geomaps; https://geomapspublic.aucklandcouncil.govt.nz/viewer/index.html; accessed 21 May 2019;

BRANZ 2017, *New Zealand Guidelines for Assessing and Managing Asbestos in Soil*, BRANZ, Wellington.

Institute of Geological and Nuclear Sciences, 2001, Sheet 3, Geological Map of the Auckland Area

Kermode, 1992, Geology of the Auckland urban area. *Institute of the Geological & Nuclear Sciences Limited Lower Hutt New Zealand*.

Ministry for the Environment (MfE) 2004, *Module 2 – Hazardous waste guidelines: Landfill waste acceptance criteria and landfill classification*, Ministry for the Environment, Wellington.

Ministry for the Environment (MfE) 2011a, *Contaminated Land Management Guidelines No. 1. Reporting on Contaminated Sites in New Zealand (Revised 2011),* ME number: 1071, Ministry for the Environment, Wellington.

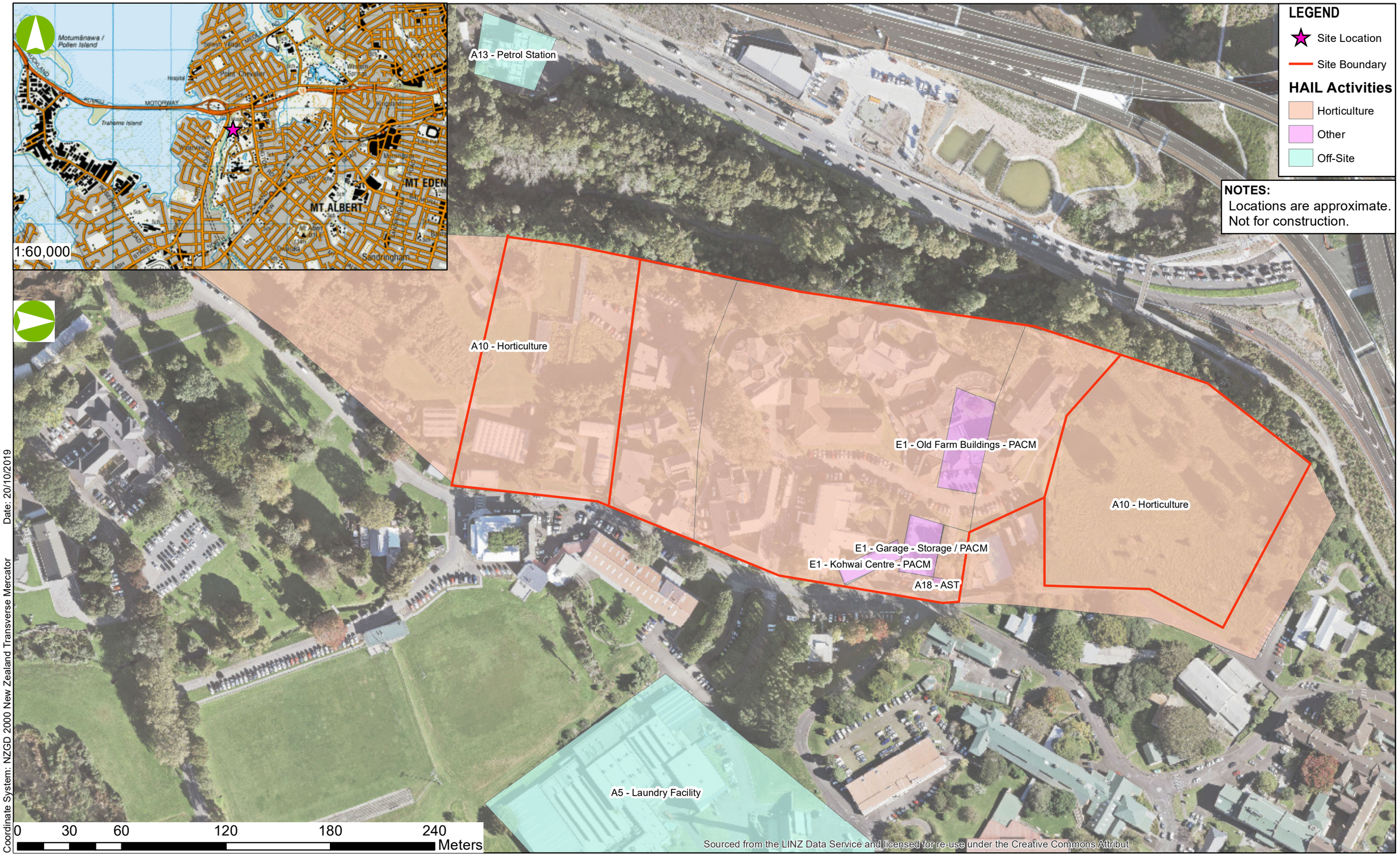
Ministry for the Environment (MfE) 2011b, *Contaminated Land Management Guidelines No. 5. Site Investigation and Analysis of Soils (Revised 2011)*, ME number: 1073, Ministry for the Environment, Wellington.

Ministry for the Environment (MfE) 2011e, *Methodology for Deriving Standards for Contaminants in Soil to Protect Human Health,* Ministry for the Environment, Wellington.

Ministry for the Environment (MfE) 2012, *Users' Guide. National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health)*, ME number: 1092, Ministry for the Environment, Wellington.

A

Site Plans



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Coordinate System: NZGD 2000 New Zealand Transverse Mercator Date: 20/10/2019

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CLIENT

Waitemata District Health Board
Best Care for Everyone

REV	DATE	REVISION DETAILS	ISSUED
A	23.07.19		Issuer

SCALE	SIZE
1:2,000	A3

DRAWN: N BURROWS
REVIEWED: H DAVIES
VERIFIED: S HOWELL

FOR INFORMATION
NOT FOR CONSTRUCTION

APPROVED
DATE 20.10.19
APPROVER
(signature not required)

PROJECT: MASON CLINIC

TITLE: HAIL ACTIVITIES

DOCUMENT	PROJECT No.	WBS	TYPE	DISC	NUMBER	REVISION
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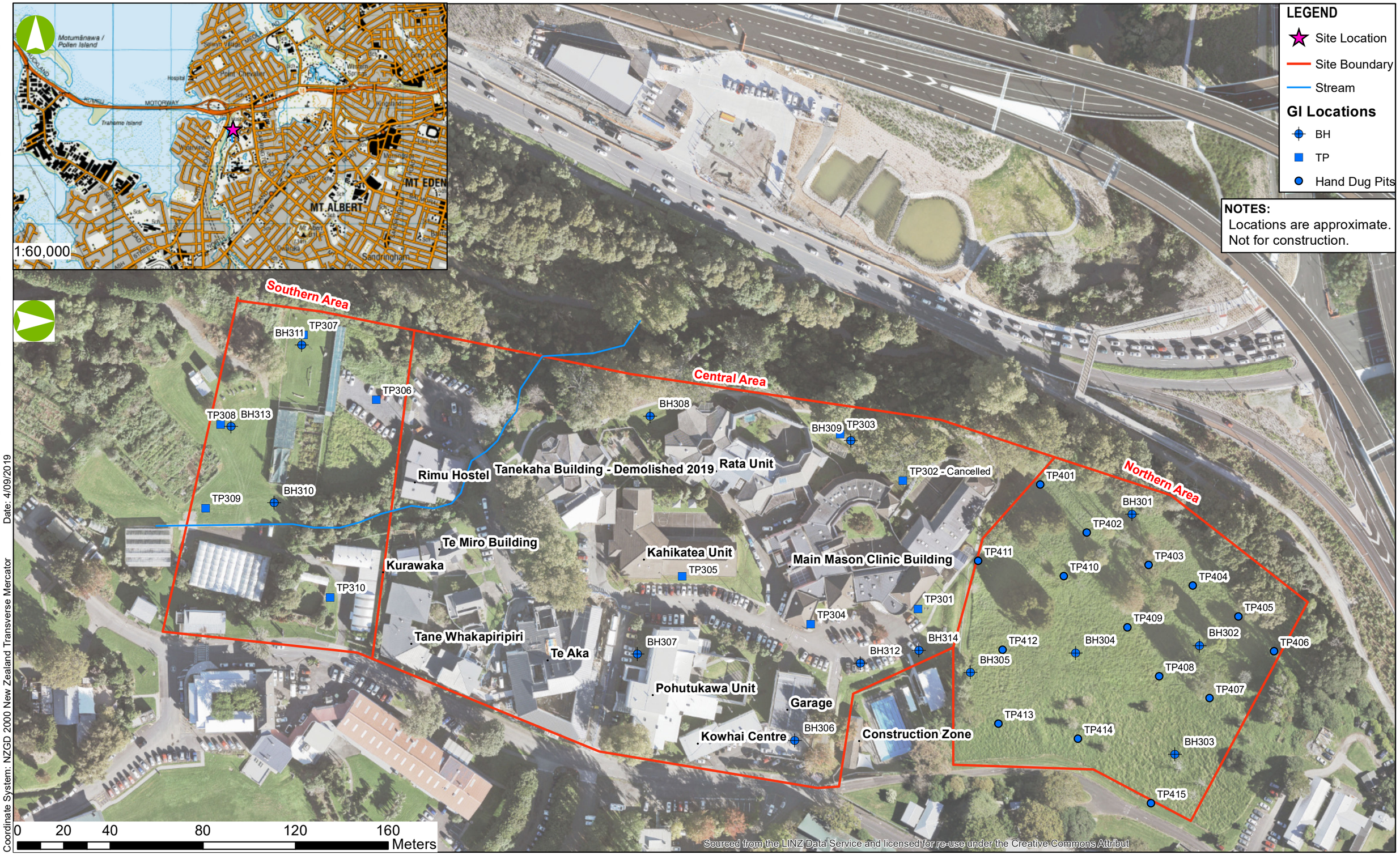

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Coordinate System: NZGD 2000 New Zealand Transverse Mercator
Date: 4/09/2019

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CLIENT

Waitemata District Health Board
Best Care for Everyone

REV	DATE	REVISION DETAILS	ISSUED
A	23.07.19		Issuer

SCALE	1:60000
SIZE	A3
DRAWN	N BURROWS
REVIEWED	H DAVIES
VERIFIED	S HOWELL

FOR INFORMATION
NOT FOR CONSTRUCTION

APPROVED
DATE 04.09.19
APPROVER
(signature not required)

PROJECT	MASON CLINIC
TITLE	SITE LAYOUT

DOCUMENT	PROJECT No.	WBS	TYPE	DISC	NUMBER	REVISION
	256528	000	DRG	KK	0001	0

B

Site Inspection Photographs

Site Visit Photographs

Photo 1 Looking north, towards the Unitec across the northern area of the site.

Photo 2 Looking south, towards the Mason Clinic across the northern area of the site.

Photo 3 Looking south across the western border of the northern area of the site.

Photo 4 Looking west across the northern area of the site.

Photo 5 Looking south, along the western border of the Mason Clinic. The gas manifold can be seen.

Photo 6 Looking at the Above Ground Diesel Fuel Tank, within the Mason Clnic.

Photo 7 Looking south within the central portion of the Mason Clinic.

Photo 8 Looking south east, up the stream which runs through the central portion of the Mason Clinic.

Photo 9 Looking north across the southern area of the site. The culverted stream can be seen on the left and glasshouses on the right.

Photo 10 Looking east across the southern area of the site. The glasshouses can be seen towards the back of the photo.

Photo 11 Looking west across the southern area of the site.

Photo 12 Looking south across the southern area of the site.

C

Council Contamination Enquiries

16 July 2019

Aurecon
Aurecon House, Level 4
Newmarket, Auckland 1023

Attention: Nikki Burrows

Dear Nikki

Site Contamination Enquiry – *81A Carrington Road, Mount Albert*

This letter is in response to your enquiry requesting available site contamination information for the above site. The following details are based on information available from the former Auckland Regional Council records system and information currently held by the Auckland Council Natural Resources and Specialist Input Unit. The details provided below exclude any property information held by the former district/city councils.

The general catchment file and site visit file for the catchment 546 were not searched. These files contain pollution incidents where the source of pollution was not traced to a particular site, site visits where no follow-up correspondence was required and some information from archived files.

If the above site is coastal or beside a river, it is possible that historic, unconsented reclamation may have occurred. The Auckland Council Specialists Unit Coastal Team may be able to provide further information.

The records reviewed as part of this Site Contamination Enquiry search do not identify individual horticultural sites in the region. However, there is a possibility that horticultural activities may have occurred at the site. The local Auckland Council customer service centre, specific to the area of the site may be able to provide relevant information where former horticultural sites have been mapped.

If you are concerned that a historic land use (such as filling) may have caused the underlying soils to become contaminated, it is recommended that you obtain an independent environmental assessment of the site. Staff from the Auckland Council Earthworks and Contaminated Land Team can provide advice on the results of any evaluation in terms of site remediation and/or potential consent requirements.

The former Auckland Regional Council and current databases were searched for records of closed landfills, bores, air discharge, industrial and trade process consents, contaminated site discharge consents, and environmental assessments within approximately 200 metres of the site. Relevant details of the pollution incidents and identified consents are appended to this letter as an excel spreadsheet. **Please refer to the column labelled 'Property Address' and Incident/Consent/Bores ID (where applicable) on the attached spreadsheet to aid in identifying corresponding data on the map.**

The details provided are in accordance with the obligation to make information publicly available upon request. While the Auckland Council has carried out the search using its best practical endeavours, it does not warrant its completeness or accuracy and disclaims any responsibility or liability in respect of the information. If you or any other person wishes to act or to rely on this information, or make any financial commitment based upon it, it is recommended that you seek appropriate technical and/or professional advice.

In addition, further site specific pollution incidents may be held at area office below. It is recommended that you contact the local customer service centre of the Auckland Council, specific to the site being investigated: 35 Graham Street, Auckland Central, as they also may hold files with further relevant information.

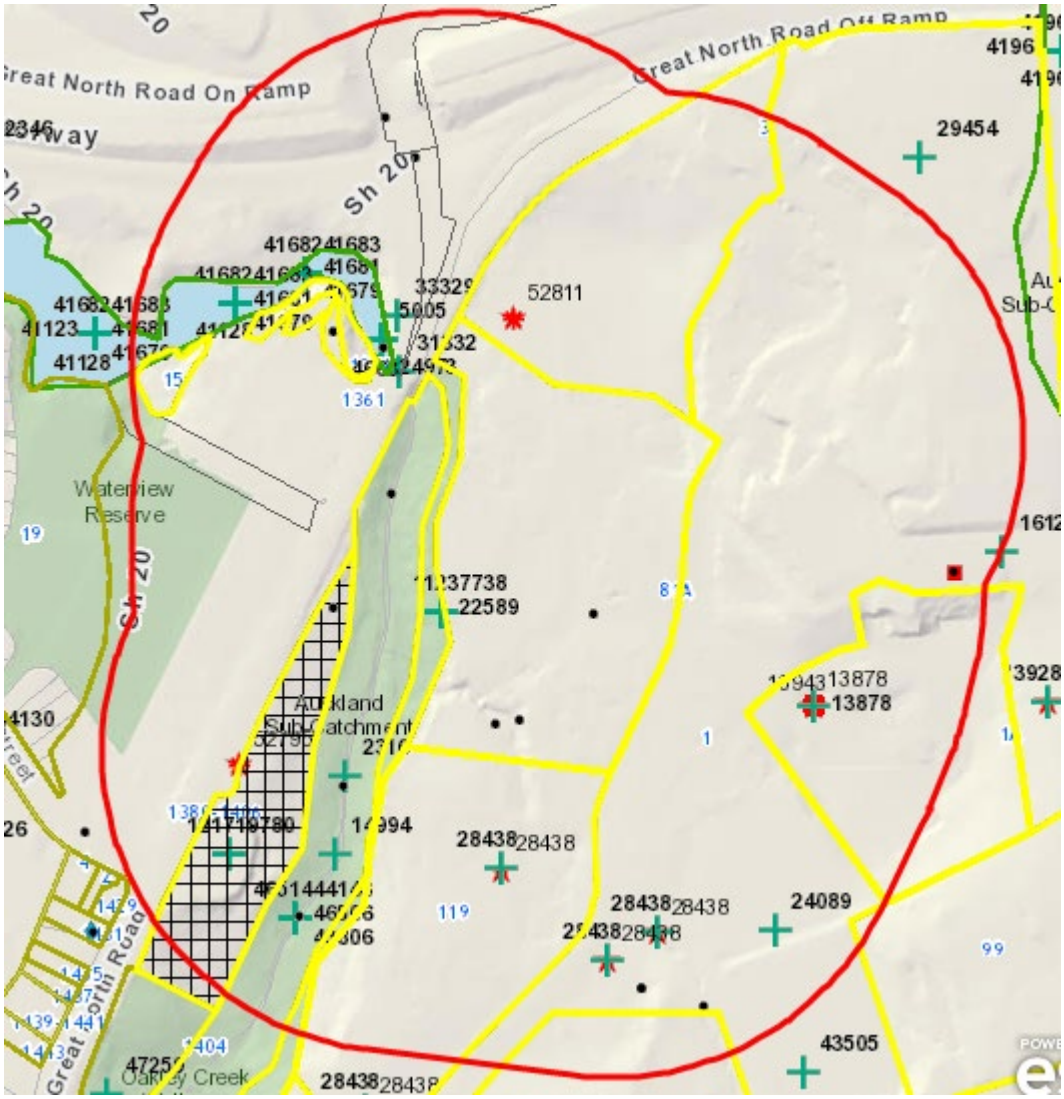
I trust that this answers your query. If you wish to discuss the matter further, please contact Andrew Kalbarczyk on 301 0101. Should you wish to request any of the files listed above for viewing, please contact the Auckland Council Call Centre on 301 0101 and note you are requesting former Auckland Regional Council records (the records department requires three working days' notice to ensure files will be available).

Please note: the Auckland Council cost recovers officer's time for all site enquiries. A basic enquiry takes approximately 1 - 2.5 hours to search the files and databases in which information is held. As such an invoice for the time involved in this enquiry will follow shortly.

Yours sincerely

Pp CU
Jared Osman
Team Leader – Contaminated Air, Noise
Specialist Unit | Resource Consents

Please refer to the column labelled 'Property Address' and Incident/Consent/Bores ID (where applicable) on the attached spreadsheet to aid in identifying corresponding data on the map.



Nikki Burrows

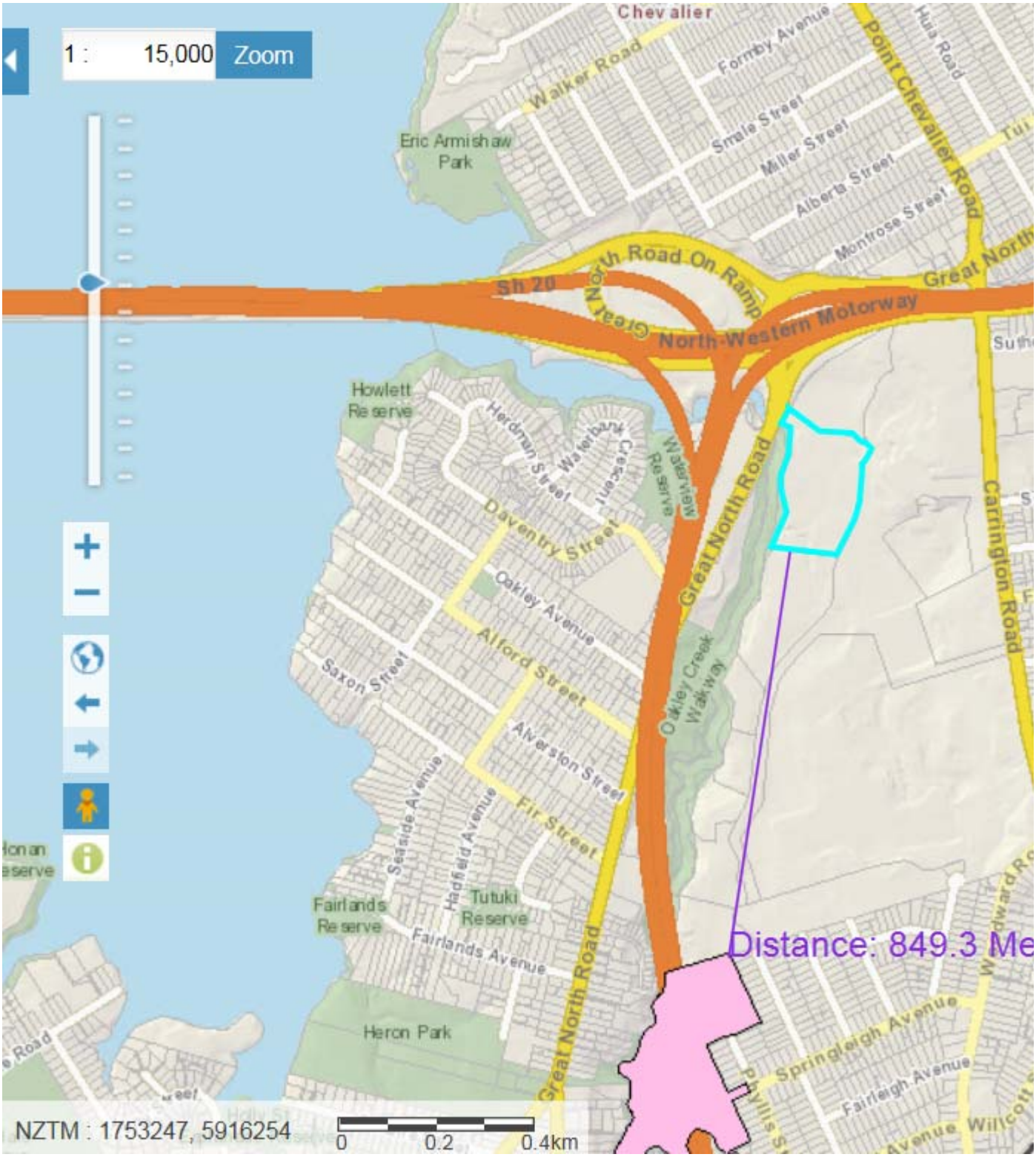
From: Lorraine Hamilton <lorraine.hamilton@aucklandcouncil.govt.nz>
Sent: Wednesday, 17 July 2019 10:00 AM
To: Nikki Burrows
Subject: RE: Mason Clinic

Hi Nikki,

There are no closed landfills in CLFM's portfolio within 500m of your subject site.

The closest is Phyllis Reserve, at ~850m away.

This closed landfill search does not include privately owned closed landfills or landfills owned by other council controlled organisations (e.g. Watercare).



Kind regards,

Lorraine Hamilton | Closed Landfill Management Specialist
Engineering & Technical Services Unit
Infrastructure & Environmental Services Department

Mobile 021 838 943

Auckland Council, Level 2 North, Bledisloe House, 24 Wellesley St, Auckland Central, Auckland 1010
Visit our website: **www.aucklandcouncil.govt.nz**

From: Nikki Burrows [mailto:Nikki.Burrows@aurecongroup.com]
Sent: Tuesday, 16 July 2019 10:40 a.m.
To: Lorraine Hamilton
Subject: Mason Clinic

Morning Lorraine.

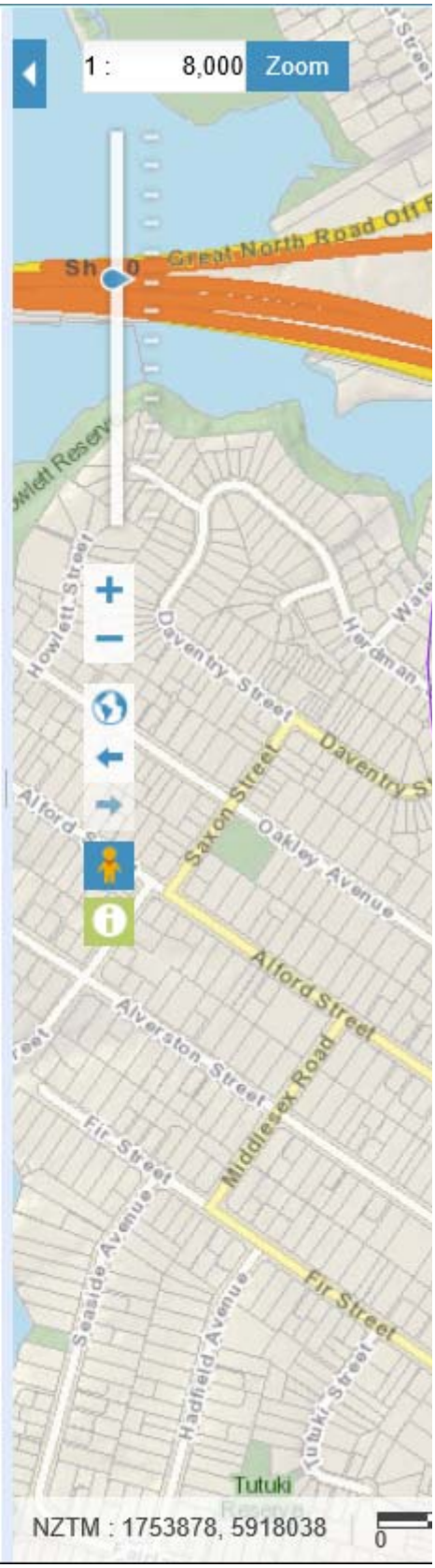
Please could you provide me any information on closed landfills within 500 m of Mason Clinic (81A Carrington Road). It would be much appreciated if you could send me a screenshot of their locations.

Thank you for your time!

Info | Legend | Results

Property

Attribute	Value
Address	81A Carrington Road Mount Albert Auckland 1025
Legal Description	Lot 2 DP 156226
CT Number	NA93B/540
Property Name	
Property Type	Site (Property)
Property Status	Current
Property Area	3.9390
Area Unit	HA
Local Board	Albert-Eden
Ward	
Council Property ID	11293381
Council Rate Account Key	12342331835
Valuation Number	00001-01300020400



Nikki Burrows
Junior Contaminated Land Specialist, Aurecon
M +64 27 2116670
Nikki.Burrows@aurecongroup.com
Level 4, 139 Carlton Gore Road, Newmarket, Auckland New Zealand 1023
PO Box 9762, Newmarket, Auckland 1149
aurecongroup.com

Bringing ideas to life

DISCLAIMER

From: Claire Lacina
To: Rebecca Colvin
Subject: RE: HAIL activities
Date: Tuesday, 10 September 2019 4:04:00 PM
Attachments: image001.png
image002.png
image003.png
image004.png
image005.png
image006.png
image007.png

Hi Rebecca,

This email is in response to your recent enquiry requesting available site contamination information that was held within the Environmental Health Unit of the Licensing and Compliance Services Department (LCS).

Council's regulatory records indicate that there could be the potential for historic, and/or current, land use activities on or adjacent to this site that falls within the Hazardous Activities and Industries List (HAIL) published by the Ministry for the Environment.

- 81A Carrington Road, Mount Albert: Our records indicate this site has been subject to historical horticultural activity, fuel storage tanks, a workshop, and is classified as Filled/Weak Ground.

- 3 Carrington Road, Mount Albert: Our records indicate this site has been subject to historical horticultural activity, and is classified as Filled/Weak Ground.

- 119 Carrington Road, Mount Albert: Our records indicate this site has been subject to historical horticultural activity, and is currently used for horticultural activity including glasshouses and storage sheds. The site is classified as Filled/Weak Ground.

I have emailed our GIS for additional HAIL information within the requested radius, as our search is property specific including multiple data sources, large-scale queries cannot be processed as a standard request.

Please note that only council's soil contamination records within the LCS department and GIS map have been checked. There may be other soil contamination information held within:

1. A Contaminated Sites Enquiry report, which contains the following information only:
(A search area of radius 200m is applied by default)
   - Pollution Incidents (incl. air discharges, oil or diesel spills)
   - Bores
   - Contaminated site, air discharge and industrial trade process consents
   - Closed Landfills (council- owned closed landfill sites only)
   - Air quality permitted activities

How to apply for a Contaminated Sites Enquiry Response: DO NOT apply for this as part of a Property File request. Please follow this link -->
https://www.aucklandcouncil.govt.nz/building-and-consents/types-resource-consents/earthworks/Pages/order-site-contamination-enquiry-report.aspx
Please take note of the following when applying:

- Apply under the Company Name if request is on behalf of the company.
- Legal Description(s) of the physical site(s) is/are stated clearly. This is to ensure accurate representation of data.
- Enter preferred Postal Address or PO Box instead of physical address of company.
- Contact Person: Please enter your full name, including e-mail address.

2. Property File for viewing reports or all relevant information relating to the property - Requested from the local service centre, by phone, 09 3010101.

Please note:

If you are demolishing any building that may have asbestos containing materials (ACM) in it:

1. *You have obligations under the relevant regulations for the management and removal of asbestos, including the need to engage a Competent Asbestos Surveyor to confirm the presence or absence of any ACM.*

2. *Work may have to be carried out under the control of the person holding a WorkSafe NZ Certificate of Competence (CoC) for restricted works.*

3. *If any ACM is found, removal or demolition will have to meet the requirements of the Health and Safety at Work (Asbestos) Regulations 2016.*

4. *Information on asbestos containing materials and your obligations can be found at **www.worksafe.govt.nz**.*

If ACM is found on site following the demolition or removal of the existing buildings, you may be required to remediate the site and carry out validation sampling. Dependent on the amount of soil disturbance a further consent application may be required.

Paints used on external parts of properties up until the mid-1970's routinely contained lead, a poison and a persistent environmental pollutant. Older paints dating from before 1945 often contained extremely high levels of lead. Dust and flakes from painted surfaces in poor condition are a major cause of lead poisoning in both adults and children.
You are advised to ensure that soils affected by old, peeling or flaking paint are assessed in relation to the proposed use of the property. Very sensitive uses such as residential with young children, childcare centres, play areas or recreational land should be considered as high risk. In services or working environments other regulatory requirements may require risk assessment and mitigation.

Nga mihi,
Claire

Claire Lacina | Technical Officer – Contamination, Air & Noise
Specialist Input | Resource Consents
Ph 09 3522621 (Int 465621) | Mob 021 718 038
Auckland Council, Level 2, 35 Graham Street, Auckland
Visit our website: **www.aucklandcouncil.govt.nz**

From: Rebecca Colvin <Rebecca.Colvin@aurecongroup.com>
Sent: Thursday, September 5, 2019 11:16 AM
To: Claire Lacina <claire.lacina@aucklandcouncil.govt.nz>; RECContamination <reccontamination@aklc.govt.nz>
Subject: HAIL activities

Hi Claire,

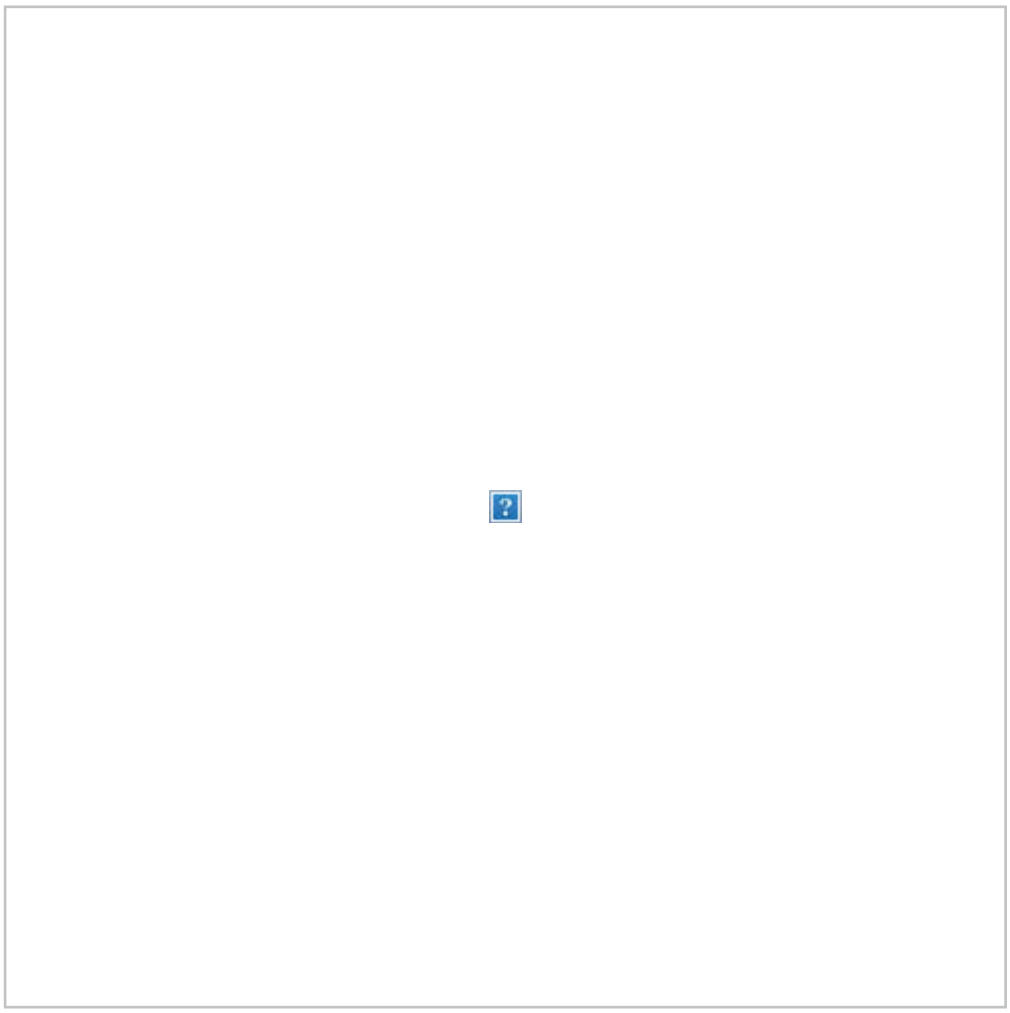
I wanted to check if there were any known HAIL activities within the following properties or within 100m of them?

Site are plan attached.

	Central	North	South
Site Location:	**81A Carrington Road, Mt Albert, Auckland, 1025**	**3 Carrington Road, Mt Albert, Auckland, 1025**	**119 Carrington Road, Mt Albert, Auckland, 1025**
Legal Description:	**Lot 2 DP 156226**	**Lot 1 DP 211427**	**LOT 4 DP 515012**

Thanks

Rebecca Colvin
Senior Contaminated Land Specialist, Aurecon
M +64 2 75826615
Rebecca.Colvin@aurecongroup.com
Level 4, 139 Carlton Gore Road, Newmarket, Auckland New Zealand 1023
PO Box 9762, Newmarket, Auckland 1149
aurecongroup.com



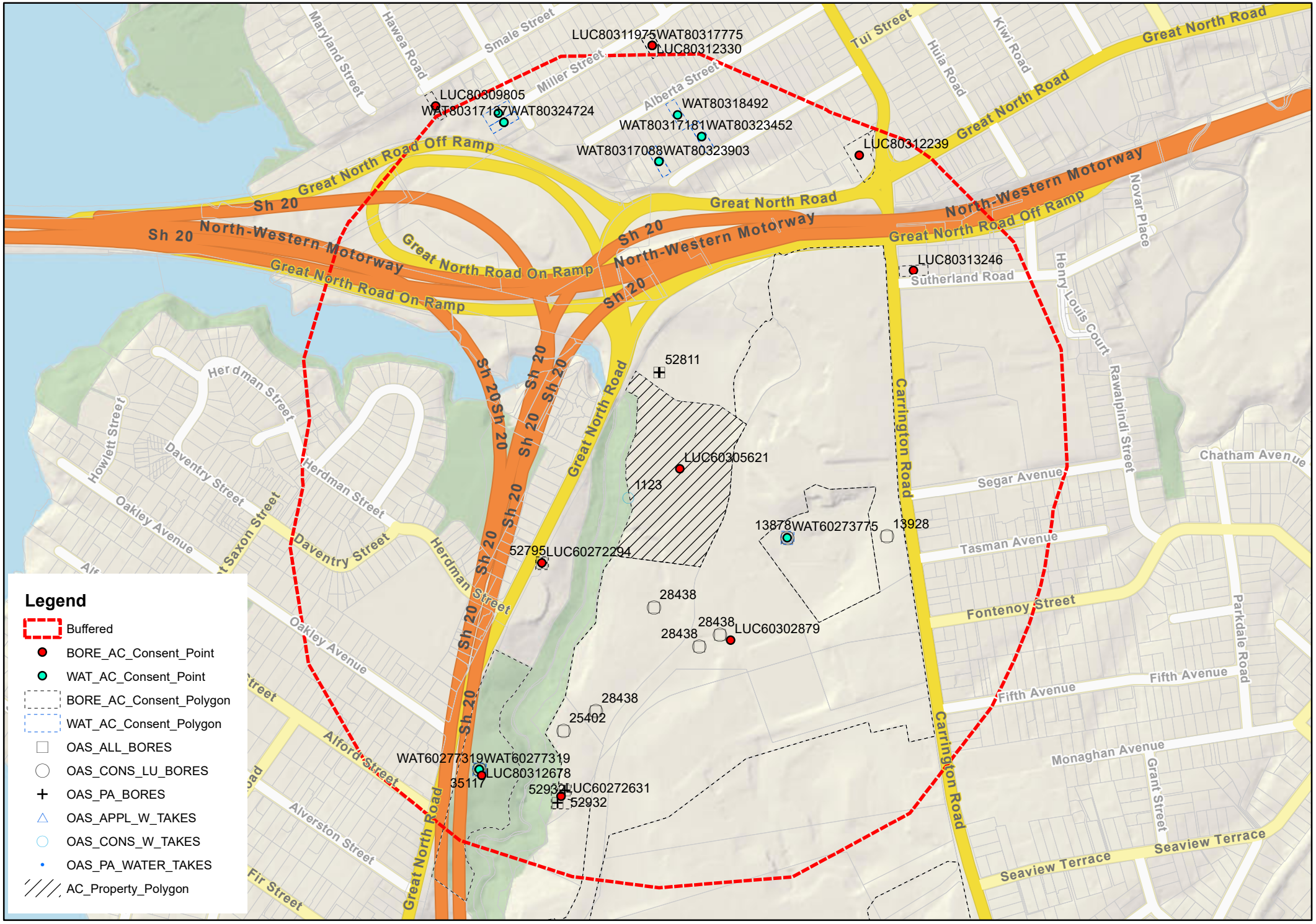
D

Water Takes and Bore Consents

Appendix D
Water Takes and Bore Consents

Consent number	Consent Status	Bore Use / Activity	Main Source Aquifer	Approximate distance from site (m)	Water Take Consent
	Superseded – 1991, 1997	2/7/12 replacement application for groundwater take for irrigation purposes. 0.15 ha tomatoes	-	500 and direction?	WAT80317137 WAT80324724
	Surrendered. Issued - 1984	0.5 HA orchard and stock watering	-	415	WAT80319187
LUC80309805	Complete Issued - 2002	-	-	425	-
LUC80311975 LUC80312330	Superseded - 1995 Consent issued 2002 and 2004	To authorise the construction of a bore of household and stock watering supply. To take & use 300m3/day & 84,500m3/yr of groundwater from a Waitemata sandstone aquifer bore for portable use at Kingseat Hospital.	-	500	WAT80317775
	1950	To dam take up to 15 cubic metres daily of groundwater for school supply.	-	400	WAT80318492
	1997 1987	0.25 ha glass house flower crops	-	400	WAT80317181 WAT80323452
	Surrendered – 1997 Superseded 1989	Camp amenities	-	400	WAT80317088 WAT80323903
LUC80312239	Complete - Issued 2004	To authorise the construction of a bore for household and stock supply.	-	400	-
LUC80313246	Complete - Issued 2008	To authorise the construction of one bore for domestic and stock supply.	-	200	-
	1995	Application withdrawn	Auckland Isthmus Waitemata	30	WAT60273775
LUC60305621	Complete - Issued 2017	Permitted Activity to drill an investigation bore.	-	30	-
LUC60302879	Complete - Issued 2017	Permitted activity for 28 investigation bores	-	0	-

Consent number	Consent Status	Bore Use / Activity	Main Source Aquifer	Approximate distance from site (m)	Water Take Consent
LUC80312678	Complete - Issued 2007	To authorise the construction of four bores for geotechnical investigation and groundwater level monitoring using piezometers and a hydrological pump test. An application to take up to 20 cubic metres of water per day for a maximum of 7 days as part of a pump test.	-	200	WAT60277319
LUC60272294	Complete - Issued 2012	The construction of 23 bores for groundwater investigation purposes at various sites.	-	40	-
LUC60272631	Complete - Issued 2013	The construction of five bores for Geotechnical investigation purposes.	-	200	-


LUC80311975WAT80317775
LUC80312330
LUC80309805
WAT80317137WAT80324724
WAT80318492
WAT80317181WAT80323452
WAT80317088WAT80323903
LUC80312239
LUC80313246
Sutherland Road
52811
LUC60305621
1123
13878WAT60273775
13928
52795LUC60272294
28438
28438
28438
LUC60302879
28438
25402
WAT60277319WAT60277319
35117
LUC80312678
52932LUC60272631
52932
Great North Road
Great North Road Off Ramp
Great North Road On Ramp
North-Western Motorway
Sh 20
Tui Street
Miller Street
Alberta Street
Smale Street
Maryland Street
Hawea Road
Huia Road
Kiwi Road
Novar Place
Henry Louis Court
Rawalpindi Street
Carrington Road
Chatham Avenue
Segar Avenue
Tasman Avenue
Fontenoy Street
Fifth Avenue
Parkdale Road
Monaghan Avenue
Grant Street
Seaview Terrace
Herdman Street
Howlett Street
Daventry Street
Oakley Avenue
Saxon Street
Alford Street
Alverston Street
Fir Street
Legend
Buffered
BORE_AC_Consent_Point
WAT_AC_Consent_Point
BORE_AC_Consent_Polygon
WAT_AC_Consent_Polygon
OAS_ALL_BORES
OAS_CONS_LU_BORES
OAS_PA_BORES
OAS_APPL_W_TAKES
OAS_CONS_W_TAKES
OAS_PA_WATER_TAKES
AC_Property_Polygon

Water Takes

APPLICATION_NUMBER	PURPOSE	FILE_REFERENCE	APPLICATION_STATUS	LODGED_DATE	EASTING	NORTHING	TAKE_ID	SITE_DESCRIPTION	MONITORING_PRIORITY	AQUIFER	MANAGEMENT_AREA	TLA	SOURCE	USE_TYPE	RIVER_LAKE_ID	BORE_ID	BORE_STATUS	_inside_x	_inside_y
13943	650 CMPD FOR USE IN LAUNDRY TO WASH AND PROCESS HOSPITAL LINEN AT GATE	AG9510451	Withdrawn	19950614	1752246	5917538	4622	1A CARRINGTON RD, MT ALBERT	Not known	Waitemata	Auckland - Manukau Groundwater	Auckland Central	Bore	Industrial Use	1012	4819	Drilled	1752246	5917538

OBJECTID	ACTIVITY_DESCRIPTION	CONSENT_NUMBER	FILE_REFERENCE	CONSENT_HOLD	CONSENT_STA	GRANTED_DA	EXPIRY_DATE	EASTING	NORTHING	TAKE_ID	ACTIVITY_STATUS	PURPOSE_CLASS	SITE_DESCRIPTION	MANAGEMENT_AREA	TLA	SOURCE	HYDSYS_NU	RIVER_LAK	_inside_x	_inside_y
3691	OAKLEY CREEK, WATERVIEW, PUMPING STATION FLUSHING WATER INTAKE TO SUPPLEMENT LOW SEWER FLOWS	1123	AR661150	Watercare Services Limited	Surrendered	19681127	20011001	1752000	5917600	4230	Occurring	Other	OAKLEY CREEK, PLAN D5222 SHEET 1. CONSTRUCTED 1965.	Auckland Isthmus Surface Water	Auckland Central	River/lake	W1150A	1012	1752000	5917600

OBJECTID	PURPOSE	PERMITTED_ACTIVITY_ID	TAKE_ID	SITE_ADDRESS	EASTING	NORTHING	DATE_CREATED	LOC_TYP	_inside_x	_inside_y
198	An application to take up to 20 cubic metres of water per day for a maximum of 7 days as part of a pump test.	51802	20714	1408 Great North Road Waterview Auckland Central	1751770	5917180	20170601172312	Point	1751770	5917180

Water Consents

ConsentReference	ConsentDescription	TransactionTypeDescription	FormTypeDescription	ConsentStatus	ApplicationSub	ConsentDecision	ConsentGISClassification	_inside_x	_inside_y
WAT60277319	An application to take up to 20 cubic metres of water per day for a maximum of 7 days as part of a pump test.	Resource Management Consent	Water Consent	Complete	Take		RMA Consent	1751770	5917180
WAT80319187	0.5 HA ORCHARD AND STOCK WATERING	Resource Management Consent	Water Consent	Complete	Take	Surrendered	RMA Consent	1751799.528	5918194.12
WAT60277319	An application to take up to 20 cubic metres of water per day for a maximum of 7 days as part of a pump test.	Resource Management Application	Water Consent application	Complete	Take	Granted	RMA Consent	1751770	5917180
WAT80317088	Camp amenities	Resource Management Consent	Water Consent	Complete	Take	Surrendered	RMA Consent	1752047.629	5918119.36
WAT80317775	To take & use 300m3/day & 84,500m3/yr of groundwater from a Waitemata sandstone aquifer bore for portable use at Kingseat Hospital.	Resource Management Consent	Water Consent	Complete	Take	Superseded	RMA Consent	1752037.231	5918298.52
WAT80317137	2/7/12 replacement application for groundwater take for irrigation purposes. 0.15 ha tomatoes	Resource Management Consent	Water Consent	Complete	Take	Superseded	RMA Consent	1751807.953	5918179.86
WAT80317181	0.25 ha glass house flower crops	Resource Management Consent	Water Consent	Complete	Take		RMA Consent	1752113.79	5918157.91
WAT80323903	Camp amenities	Resource Management Consent	Water Consent	Complete	Take	Superseded	RMA Consent	1752047.629	5918119.36
WAT80324724	2/7/12 replacement application for groundwater take for irrigation purposes. 0.15 ha tomatoes	Resource Management Consent	Water Consent	Complete	Take	Superseded	RMA Consent	1751807.953	5918179.86
WAT80318492	To dam take up to 15 cubic metres daily of groundwater for school supply.	Resource Management Consent	Water Consent	Complete	Take		RMA Consent	1752076.473	5918191.41
WAT60273775		Resource Management Application	Water Consent application	Complete	Take	Withdrawn	RMA Consent	1752246	5917538
WAT80323452	0.25 ha glass house flower crops	Resource Management Consent	Water Consent	Complete	Take		RMA Consent	1752113.79	5918157.91

Bore Search

CONSENT_N	PURPOSE	FILE_REFERENCE	CONSENT_HOLDE	BORE_ID	GRANTED_[	EXPIRY_D	CONSENT_STA	EASTING	NORTHIN(	ACTIVITY_S	MAIN_AQUI	AQUIFER
28438	To authoise the construction of up to 4 bores for Water Quality Testing.	C512-12-3181*	UNITEC Institute of Technology	21979	20031017	20041019	Expired	1751950	5917270	Proposed		
28438	To authoise the construction of up to 4 bores for Water Quality Testing.	C512-12-3181*	UNITEC Institute of Technology	21979	20031017	20041019	Expired	1752040	5917430	Proposed		
28438	To authoise the construction of up to 4 bores for Water Quality Testing.	C512-12-3181*	UNITEC Institute of Technology	21979	20031017	20041019	Expired	1752110	5917370	Proposed		
28438	To authoise the construction of up to 4 bores for Water Quality Testing.	C512-12-3181*	UNITEC Institute of Technology	21979	20031017	20041019	Expired	1752142	5917388	Proposed		
52795	The construction of 23 bores for groundwater investigation purposes at various sites.	C512-12-4962*		28703	20120725		Assessment Completed	1751866.7	5917499	Proposed		
52811	The construction of five bores for Geotechnical investigation & Groundwater investigation purposes.	C512-12-4985*		28726	20120913		Assessment Completed	1752048	5917794	Proposed		
52932	The construction of five bores for Geotechnical investigation purposes.	C512-12-5159*		28935	20130531		Assessment Completed	1751891	5917129	Proposed		
52932	The construction of five bores for Geotechnical investigation purposes.	C512-12-5159*		28935	20130531		Assessment Completed	1751902	5917148	Proposed		
13878	Authorize the construction of a bore for the extraction of groundwater for industrial use.	C512-12-1574	LAYTONS LINEN HIRE LTD	4819	19950508	19960508	Expired	1752246	5917538	Drilled	Waitemata	Auckland Isthmus Waitemata
13928	Authorize the construction of three (3) piezometers for groundwater level and/or Chemistry investigations	C512-12-1582*	Mobil Oil NZ Ltd DO NOT USE - USE CUST. 3745	4845	19950606	19960606	Expired	1752400	5917540	Drilled	Other	
25402	Authorise the construction of thirty five (35) bores for groundwater monitoring.	C512-12-2745*	Beca Carter Hollings & Ferner Ltd	21417	20010530	20020530	Expired	1751900	5917240	Proposed	Waitemata	Auckland Isthmus Waitemata
35117	To authorise the construction of four bores for geotechnical investigation and groundwater level monitoring using piezometers and a hydrological pump test.	C512-12-4116*	NZ Transport Agency Attention: Tammy Muharemi	23028	20071119	20081113	Expired	1751770	5917180	Proposed		

Bore Consents

ConsentReference	ConsentDescription	TransactionTypeDescription	FormTypeDescription	ConsentStatus	ApplicationSubType	IssuedDate	ConsentGISClassification	_inside_x	_inside_y
LUC60305621	Permitted Activity to drill an investigation bore.	Resource Management Consent	Land Use Consent	Complete	Drill or Alter Bore	20170809	RMA Consent	1752079.885	5917644.488
LUC80311782	To authorise the construction of two bores for engineering investigation/monitoring	Resource Management Consent	Land Use Consent	Complete	Drill or Alter Bore	20061212	RMA Consent	1752499.246	5916366.264
LUC60272631	The construction of five bores for Geotechnical investigation purposes.	Resource Management Consent	Land Use Consent	Complete	Drill or Alter Bore	20130531	RMA Consent	1751896.5	5917138.5
LUC80312678	To authorise the construction of four bores for geotechnical investigation and groundwater level monitoring using piezometers and a hydrological pump test.	Resource Management Consent	Land Use Consent	Complete	Drill or Alter Bore	20071119	RMA Consent	1751773.518	5917170.606
LUC80309805		Resource Management Consent	Land Use Consent	Complete	Drill or Alter Bore	20020509	RMA Consent	1751702.383	5918205.035
LUC60272294	The construction of 23 bores for groundwater investigation purposes at various sites.	Resource Management Consent	Land Use Consent	Complete	Drill or Alter Bore	20120725	RMA Consent	1751866.7	5917498.9
LUC80312330		Resource Management Consent	Land Use Consent	Complete	Drill or Alter Bore	20021125	RMA Consent	1752037.231	5918298.521
LUC80312239	To authorise the construction of a bore for household and stock supply.	Resource Management Consent	Land Use Consent	Complete	Drill or Alter Bore	20040309	RMA Consent	1752357.412	5918128.893
LUC80311975	To authorise the construction of a bore of household and stock watering supply.	Resource Management Consent	Land Use Consent	Complete	Drill or Alter Bore	20041205	RMA Consent	1752037.231	5918298.521
LUC80313246	To authorise the construction of one bore for domestic and stock suply.	Resource Management Consent	Land Use Consent	Complete	Drill or Alter Bore	20081212	RMA Consent	1752441.089	5917950.887
LUC60302879	Permitted activity for 28 investigation bores	Resource Management Consent	Land Use Consent	Complete	Drill or Alter Bore	20170728	RMA Consent	1752158.335	5917379.669

E

Survey Plans and Titles

COMPUTER FREEHOLD REGISTER
UNDER LAND TRANSFER ACT 1952

Historical Search Copy

R.W. Muir
Registrar-General
of Land

Cancelled

Identifier	**58983**
Land Registration District	**North Auckland**
Date Issued	19 May 2003

Prior References
NA139B/956

Estate	Fee Simple
Area	17.9044 hectares more or less
Legal Description	Lot 2 Deposited Plan 211427 and Lot 5 Deposited Plan 314949

Original Proprietors
UNITEC - Institute of Technology

Interests

Subject to a drainage right over part marked J, R & S on DP 314949 specified in Easement Certificate C247153.4 - 14.3.1991 at 2:43 pm

The easements specified in Easement Certificate C247153.4 are subject to Section 309 (1) (a) Local Government Act 1974

D644143.1 CERTIFICATE PURSUANT TO SECTION 37 (2) BUILDING ACT 1991- 27.9.2001 AT 3.14 PM

5590341.6 Consent Notice pursuant to Section 221 Resource Management Act 1991 - 19.5.2003 at 9:00 am

5590341.7 Consent Notice pursuant to Section 221 Resource Management Act 1991 - 19.5.2003 at 9:00 am

Subject to a rights of light and air over part marked D,E,F and G DP 314949 created by Transfer C510175.3 - 24.8.1993 at 2:56 pm

Appurtenant hereto is a right of light and air created by Transfer C510175.3 - 24.8.1993 at 2:56 pm (affects part)

The easements created by Transfer C510175.3 are subject to Section 243 (a) Resource Management Act 1991

Subject to a right of way over parts marked A ,B, DB, DC, DE, DF, DH, DI, DJ, DG, CU, CV & CW on DP 314949 specified in Easement Certificate C510175.4 - 24.8.1993 at 2.56 pm

Appurtenant hereto are rights of way specified in Easement Certificate C510175.4 - 24.8.1993 at 2.56 pm (affects part)

The easements specified in Easement Certificate C510175.4 are subject to Section 243 (a) Resource Management Act 1991

Appurtenant hereto is an electricity right created by Transfer D036499.13 - 22.8.1996 at 10.40 am(affects part)

Appurtenant hereto are gas rights created by Transfer D036499.14 - 22.8.1996 at 10.40 am (affects part)

Appurtenant hereto are electricity and gas rights created by Transfer D036499.16 - 22.8.1996 at 10.40 am (affects part)

Appurtenant hereto are electricity and water supply rights created by Transfer D036499.17 - 22.8.1996 at 10.40 am (affects part)

Subject to an electricity right over part marked AP and a water supply right over part marked E on Plan 211427 created by Transfer D036499.17 - 22.8.1996 at 10.40 am

Subject to a steam supply right over parts marked AS, BA, AQ, CV, E & AR on Plan 314949 created by Transfer D036499.21 - 22.8.1996 at 10.40 am

Identifier **58983**

Appurtenant hereto is a steam supply right created by Transfer D036499.21 - 22.8.1996 at 10.40 am (affects part)

D642838.1 Compensation Certificate pursuant to Section 19 Public Works Act 1981 by Her Majesty the Queen - 24.9.2001 at 2.30 pm

C491423.1 Subject to conditions pursuant to Section 461(1) Local Government Act 1974 and certifying that a private drain passes through and serves the within land - 22.6.1993 at 2.08 pm

Subject to a gas right over parts marked AA, AB, AD, CY, CR, CZ & DI and to a water supply right over part marked AU on Plan 314949 created by Transfer D036499.18 - 22.8.1996 at 10.40 am

Subject to a steam supply right over parts marked AT, BA, AQ, CV & AR on Plan 314949 created by Transfer D036499.19 - 22.8.1996 at 10.40 am

Subject to a telecommunications right (in gross) over parts marked AX, BA, BC, BD, BE, AA, BF, BG, CP, DF, DD, DA & DC on Plan 314949 in favour of Telecom New Zealand created by Transfer D036499.20 - 22.8.1996 at 10.40 am

Subject to an electricity right (in gross) over parts marked CO, CP, CQ, CR, CS, CU, CV, CW & DG on Plan 156648 in favour of Mercury Energy Limited created by Transfer D054952.2 - 10.10.1996 at 2.42 pm

Subject to Section 241(2) Resource Management Act 1991 (affects DP 211427)

Subject to a right of way over part marked A on DP 211427 created by Easement Instrument 5590341.12 - 19.5.2003 at 9:00 am

The easement created by Easement Instrument 5590341.12 is subject to Section 243 (a) Resource Management Act 1991

Appurtenant hereto is a right of way, electricity, telecommunications & water supply easements created by Easement Instrument 5590341.13 - 19.5.2003 at 9:00 am

Subject to a right of way, electricity supply & telecommunications easements over part marked Q, R & T on DP 314949 created by Easement Instrument 5590341.13 - 19.5.2003 at 9:00 am

The easements created by Easement Instrument 5590341.13 are subject to Section 243 (a) Resource Management Act 1991

Appurtenant hereto is a water supply easement created by Easement Instrument 5590341.15 - 19.5.2003 at 9:00 am

The easement created by Easement Instrument 5590341.15 is subject to Section 243 (a) Resource Management Act 1991

Subject to a right of way (in gross) over parts marked A and D on DP 379002 in favour of Auckland City Council created by Transfer 7130709.2 - 24.11.2006 at 9:00 am

9666057.1 Compensation Certificate pursuant to Section 19 Public Works Act 1981 by Her Majesty the Queen - 11.3.2014 at 9:12 am

9918192.1 Certificate under section 148 of the Nga Mana Whenua o Tamaki Makaurau Collective Redress Act 2014 that the within land is RFR land as defined in section 118 and is subject to Subpart 1 of Part 4 of the Act (which restricts disposal, including leasing of the land) - 5.12.2014 at 7:00 am

9966432.1 Compensation Certificate pursuant to Section 19 Public Works Act 1981 by Her Majesty the Queen - 10.2.2015 at 2:17 pm (Affects Lot 5 DP 314949)

10639252.3 Correction of Name of UNITEC - Institute of Technology to Unitec Institute of Technology - 14.12.2016 at 10:13 am

11076921.1 Surrender of the easements created by Transfer C510175.3 - 9.4.2018 at 2:00 pm

11076921.2 Surrender of the easements created by Transfer D036499.21 - 9.4.2018 at 2:00 pm

11076921.3 CTs issued - 9.4.2018 at 2:00 pm

Legal Description	**Title**
Part Lot 1 Deposited Plan 515012	799988
Lot 4 Deposited Plan 515012	799991
Part Lot 5 Deposited Plan 515012	799992
Part Lot 6 Deposited Plan 515012	799993

CANCELLED

RECORD OF TITLE
UNDER LAND TRANSFER ACT 2017
FREEHOLD

Historical Search Copy

R.W. Muir
Registrar-General
of Land

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

Identifier	**799991**
Land Registration District	**North Auckland**
Date Issued	09 April 2018

Prior References
58983

Estate	Fee Simple
Area	3.3283 hectares more or less
Legal Description	Lot 4 Deposited Plan 515012

Original Registered Owners
Unitec Institute of Technology

Interests

C491423.1 Subject to conditions pursuant to Section 461(1) Local Government Act 1974 and certifying that a private drain passes through and serves the within land - 22.6.1993 at 2.08 pm

Appurtenant hereto is an electricity right created by Transfer D036499.13 - 22.8.1996 at 10.40 am

Appurtenant hereto are electricity and gas rights created by Transfer D036499.16 - 22.8.1996 at 10.40 am

Appurtenant hereto are electricity and water supply rights created by Transfer D036499.17 - 22.8.1996 at 10.40 am

D642838.1 Compensation Certificate pursuant to Section 19 Public Works Act 1981 by Her Majesty the Queen - 24.9.2001 at 2.30 pm

D644143.1 CERTIFICATE PURSUANT TO SECTION 37 (2) BUILDING ACT 1991 (ALSO AFFECTS 799988, 799992 and 799993) - 27.9.2001 at 3:14 pm

5590341.6 Consent Notice pursuant to Section 221 Resource Management Act 1991 - 19.5.2003 at 9:00 am

5590341.7 Consent Notice pursuant to Section 221 Resource Management Act 1991 - 19.5.2003 at 9:00 am

Appurtenant hereto is a right of way, electricity, telecommunications & water supply easements created by Easement Instrument 5590341.13 - 19.5.2003 at 9:00 am

The easements created by Easement Instrument 5590341.13 are subject to Section 243 (a) Resource Management Act 1991

Appurtenant hereto is a water supply easement created by Easement Instrument 5590341.15 - 19.5.2003 at 9:00 am

The easement created by Easement Instrument 5590341.15 is subject to Section 243 (a) Resource Management Act 1991

9666057.1 Compensation Certificate pursuant to Section 19 Public Works Act 1981 by Her Majesty the Queen - 11.3.2014 at 9:12 am

9918192.1 Certificate under section 148 of the Nga Mana Whenua o Tamaki Makaurau Collective Redress Act 2014 that the within land is RFR land as defined in section 118 and is subject to Subpart 1 of Part 4 of the Act (which restricts disposal, including leasing of the land) - 5.12.2014 at 7:00 am

9966432.1 Compensation Certificate pursuant to Section 19 Public Works Act 1981 by Her Majesty the Queen - 10.2.2015 at 2:17 pm

11076921.4 Consent Notice pursuant to Section 221 Resource Management Act 1991 - 9.4.2018 at 2:00 pm

Identifier **799991**

Appurtenant hereto is a right of way, right to convey electricity, telecommunications, water supply and right to drain stormwater & wastewater created by Easement Instrument 11076921.5 - 9.4.2018 at 2:00 pm

The easements created by Easement Instrument 11076921.5 are subject to Section 243 (a) Resource Management Act 1991

11060116.1 Removal of Certificate No D644143.1 - 20.4.2018 at 3:34 pm

11060116.2 Transfer to Her Majesty the Queen - 20.4.2018 at 3:34 pm

Extract from *N.Z. Gazette*, 13 March 1980, No. 22, p. 694

Declaring Land Owned by the Crown to be Vested in the Auckland Hospital Board

PURSUANT to section 68 of the Hospitals Act 1957, the Minister of Health hereby declares the land described in the Schedule hereto to be vested in the Auckland Hospital Board in fee simple for psychiatric hospital purposes.

SCHEDULE

NORTH AUCKLAND LAND DISTRICT

ALL those pieces of land described as being part Allotments 30 and 102, part Allotments 31, 32, and 33; Allotments 103, 104, 30A, 105, and 61, Titirangi Parish, and part bed of Oakley Creek; marked "A" on plan. Area: 67.3293 hectares, more or less. Situated in the Cities of Auckland and Mount Albert. Part Allotment 33, Titirangi Parish, marked "B" on plan. Area: 1.5565 hectares, more or less. Situated in the City of Mount Albert, as shown on the plan S.O. 53316, lodged in the office of the Chief Surveyor at Auckland, and thereon marked as above mentioned.

Dated at Wellington this 25th day of February 1980.

GEORGE F. GAIR, Minister of Health.

56/10

P. D. Hasselberg, Government Printer, Wellington, New Zealand—1980

B496058·1

8/185
8/186 Ca
64/154 Ca-Ca

582/32
GN496058·1

C 063617·1
Stopped Rd.

67·3293
1·5565

C029531.4 Gazette Notice (N.Z Gazette 3.8.1989 No 136 p 3404) aquiring part (5912 m²) Allotment 80 Titirangi Parish being the part marked 'E' on SO 62751 for motorway and vesting the same in the Crown from 3.8.1989 — 16.8.1989 at 11.21 o'c

ALR

C029531.5 Gazette Notice (NZ Gazette 3.8.1989 No 136 p. 3404) declaring the part (238 m²) marked 'D' on SO 62751 to be road and vesting the same in the Auckland City Council — 16.8.1989 at 11.21 o'c

ALR

C076620.1 Pursuant to section 107(10) Public Works Act 1981 part of the within land has been allocated a new description

Area	New Description	Former description	Previously marked
6970m²	Section 1 SO Plan 62783	stopped road	A on SO Plan 62783

-5.12.1989 at 9.00o'c

ALR

C.297240.1 Certificate of Compliance under Section 306 (1)(f)(i) Local Government Act 1974 (affects Plan 147169) - 23.8.1991 at 11.31 at

ALR

Pursuant to Section 306 (4) of the Local Government Act 1974 Lot 3 Plan 147169 is vested in the Auckland City Council as an Esplanade reserve subject to the Reserves Act 1977

ALR

Pursuant to Section 306 (4) of the Local Government Act 1974 Lot 4 Plan 147169 is vested in the Auckland City Council as a drainage reserve subject to the Reserves Act 1977

ALR

part adjoining road stopped - C.029531.1

C.029531.4
C.029531.5

C.297240.2) Cancelled as to Lots 1 ONCT) and 2 Plan 147169 & 23.8.1991) new CsT issued 67C/926 - 927

ALR.

C395134.1 O.N.C.T 16.7.1992 } Cancelled as to Lot 1 Plan 152034 and new C.T issued 90C/589

ALR

Gazette Notice B583409.1

Dummy File

Copy to be forwarded when formed

C.001939.2 Gazette Notice (NZ Gazette 25.5.1989 page 2085) acquiring a right to convey water over the parts marked "B", "C" & "D" on Survey Office Plan 61779 and drainage easements over the parts marked "C", "E", "F" & "G" on Survey Plan 61779 for waterworks and vesting the same in the Auckland Area Health Board - 9.6.1989 at 11.48 o'c

A.L.R.

C.029531.4 Gazette Notice (NZ Gazette 3.8.1989 No 136 p 3404) acquiring part (5912m²) Allotment 30 Titirangi Parish being the part marked "E" on SO 62751 for motorway and vesting the same in the Crown from 3.8.1989 - 16.8.1989 at 11.21 o'c

K CRAIG
A.L.R.

C.029531.5 Gazette Notice (NZ Gazeete 3.8.1989 No 136 p 3404) declaring the part (238m²) marked "D" on DP 62751 to be road and vesting the same in the Auckland City Council - 16.8.1989 at 11.21 o'c

K CRAIG
A.L.R.

C.076620.1 Pursuant to Section 107(10) Public Works Act 1981 part of the within land has been allocated a new description

Area	New Description	FOrmer Description	Previously marked
6970m²	Section 1 SO 62753	stopped road	On SO Plan 62753

- 5.12.1989 at 9.00 o'c

W HITAKAHUHA
A.L.R.

part adjoining road stopped C.029531.1
C.029531.4
C.029531.5
Part adjoining road has been stopped - See C.063617.1

A.L.R.

PART ADJOINING ROAD HAS BEEN STOPPED AND SHALL BE ADDED TO ADJOINING LAND HELD FOR MOTORWAY COMPRISED IN GAZETTE NOTICE C029531.4. SEE C0531.1 (PT ALLOT 30 PARISH OF TITIRANGI)

A.L.R.

PART ADJOINING ROAD HAS BEEN STOPPED SEE C0531.1
(PT SECTION 30 + 30A PARISH OF TITIRANGI.
(PT BED OF OAKLEY CREEK)

Plan 139519 lodged

C.247153.1 Transmission to The Auckland Area Health Board - 14.3.1991 at 2.43 oc.

A.L.R.

C.247153.2 Certificate of Compliance under Section 306 (1) (f) (i) Local Government Act 1974 (affects Plan 144585) - 14.3.1991 at 2.43 oc.

A.L.R.

Pursuant to Section 306 (4) Local Government Act 1974 Lots 3 and 4 Plan 144585 are vested in The Auckland City Council as Local Purpose Reserves (Esplanade)

A.L.R.

C.247153.3)Cancelled as to Lots 1 and
O.N.C.T.)2 Plan 144585 and new Cs.T.
14.3.1991)issued:
85D/292 and 85D/293

A.L.R.

C.247153.4 Easement Certificate specifying easement on Plan 144585

Nature	Servient Land	Dominant Land
Drainage	part Lot 1 marked "H" (C.T.85D/292)	part Allotment 33 herein

- 14.3.1991 at 2.43 oc.

A.L.R.

The above easement when created will be subject to Section 309 (1) (a) Local Government Act 1974.

A.L.R.

PARTICULARS ENTERED IN REGISTER LAND REGISTRY AUCKLAND 22 SEP 86 B 583409

8/185
64/154
GN 496058.1

Plan 147169 Lodged 30.7.91

C.491040.1 Transmission to the Auckland Area Health Board - 21.6.1993 at 2.19 oc

A.L.R.

C.491040.2 Certificate of Conditions pursuant to Section 224(c) Resource Management Act 1991 (affects Plan 156404) - 21.6.1993 at 2.19 oc

A.L.R.

C.491040.3) Cancelled as to Lots 1 and
O.N.C.T) 2 Plan 156404 and new CT
21.6.1993) issued: 94A/21-94A/22

A.L.R.

[redacted]

C500447.1) Cancelled as to Lot
ONCT) 4 Plan 147169 and
22.7.1993) new CT issued - 93D/104

ALR

C500448.1) Cancelled as to Lot
ONCT) 3 Plan 147169 and
22.7.1993) new CT issued - 93D/105

ALR

9421700.1 CT 620174 issued for the Lot 4 DP 144585 - 7.6.2013 at 7.00 am

For RGL

C Tanevasi.

References
Prior C/T
G.N. B.583409.1
Transfer No.
N/C. Order No. C.247153.3

CANCELLED Land and Deeds 69
DUPLICATE DESTROYED
REGISTER

No. 85D/293

CERTIFICATE OF TITLE UNDER LAND TRANSFER ACT

This Certificate dated the 14th day of March one thousand nine hundred and ninety-one under the seal of the District Land Registrar of the Land Registration District of NORTH AUCKLAND

WITNESSETH that THE AUCKLAND AREA HEALTH BOARD

is seised of an estate in fee-simple (subject to such reservations, restrictions, encumbrances, liens, and interests as are notified by memorial underwritten or endorsed hereon) in the land hereinafter described, delineated with bold black lines on the plan hereon, be the several admeasurements a little more or less, that is to say: All that parcel of land containing 27.8977 hectares more or less being Lot 2 Deposited Plan 144585 and being Allotments 30, 30A, 31 and 32 Parish of Titirangi.

DISTRICT LAND REGISTRAR NORTH AUCKLAND NEW ZEALAND
Assistant Land Registrar

Interests at date of issue:-

C.247153.3 Easement Certificate specifying easements on Plan 144585

Nature	Servient Land	Dominant Land
Drainage	part herein marked "O"	Lot 1 (C.T.85D/292)

- 14.3.1991 at 2.43 oc.

The above easement when created will be subject to Section 309 (1) (a) Local Government Act 1974.

A.L.R.

C436182.1 CAVEAT BY PART BY THE COUNCIL OF CARRINGTON POLYTECHNIC - 2.12.1992 AT 11.16 o'c (Land Exception)

A.L.R.

Plan 156226 Lodged 14-5-93

Plan 156648 Lodged 14-6-93

C.489391.1 Withdrawal of Caveat C.436182.1 as to Lot 5 Plan 156226 - produced 15.6.1993 at 2.39 o'c and entered 17.6.1993 at 9.00 o'c

A.L.R.

C.489391.2 Resolution pursuant to Section 321 (3) (c) Local Government Act 1974 (affects Plan 156226) - produced 15.6.1993 at 2.39 o'c and entered 17.6.1993 at 9.00 oc'

A.L.R.

C.489391.3 Certificate of Conditions pursuant to Section 224 (c) Resource Management Act 1991 (affects Plan 156226) - produced 15.6.1993 at 2.39 o'c and entered 17.6.1993 at 9.00 o'c

A.L.R.

Pursuant to Section 238 Resource Management Act 1991 Lot 5 Plan 156226 is vested in the Auckland City Council as road

A.L.R.

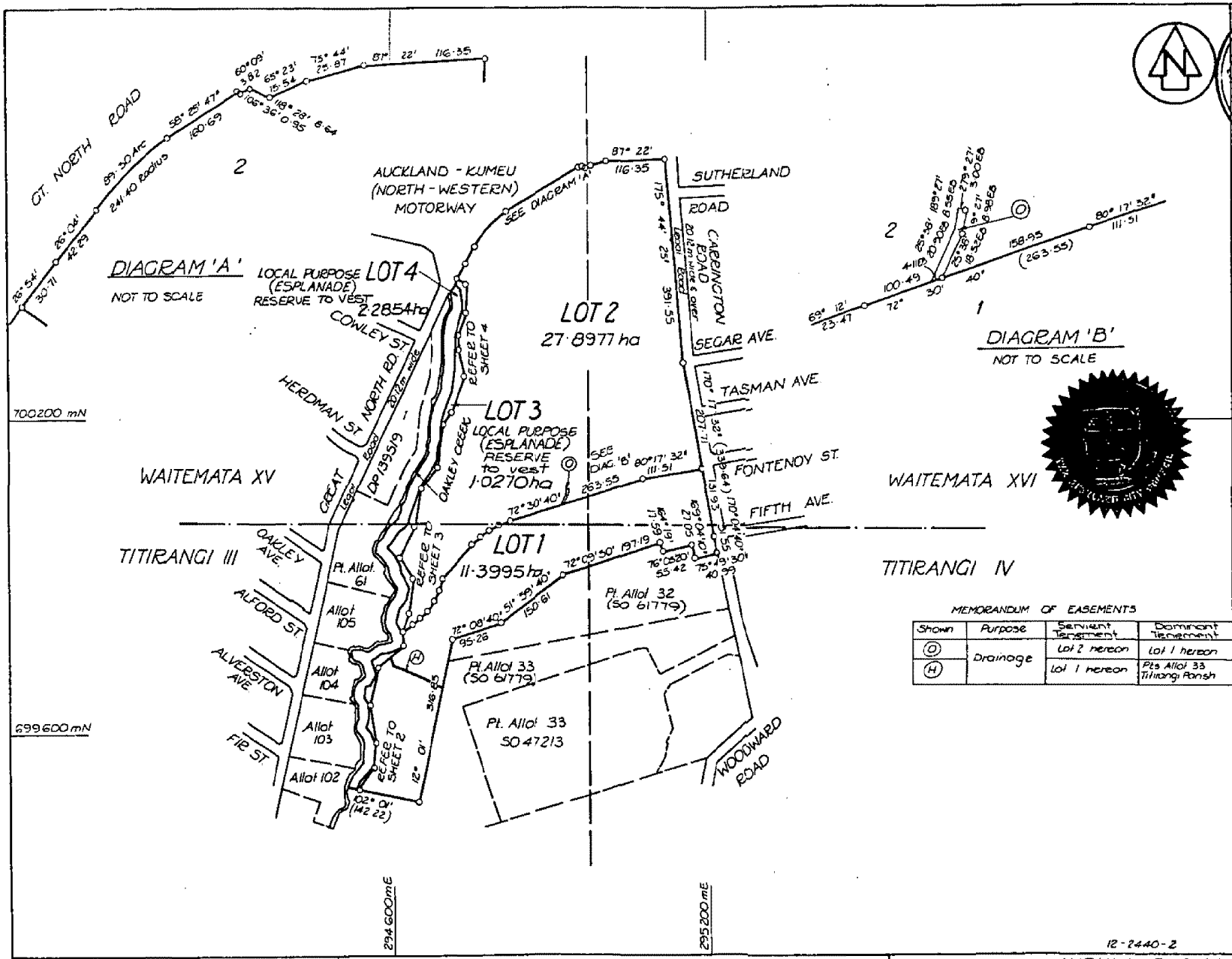
C.489391.4) Cancelled as to Lots on
O.N.C.T.) Plan 156226 & new CsT issued
produced 15.6.1993) Lot 1 - 93B/539
entered 17.6.1993) Lot 2 - 93B/540
Lot 3 - 93B/541
Lot 4 - 93B/542

A.L.R.

CANCELLED EXCEPT AS TO ROAD
DUPLICATE DESTROYED

Measurements are Metric

No. 85D/293



MEMORANDUM OF EASEMENTS

Shown	Purpose	Servient Tenement	Dominant Tenement
Ⓞ	Drainage	Lot 2 hereon	Lot 1 hereon
Ⓗ		Lot 1 hereon	Pts Allot 33 Titirangi Parish

Approved as to Survey
13.3.91
Chief Surveyor

Deposited this 14 day of MARCH 1991.
Assistant Land Registrar

File Reference
Instructions

DP 144585

LAND DISTRICT NORTH AUCKLAND
SURVEY BLK. & DIST. XV & XVI WAITEMATA III. & IV. TITIRANGI
NZMS 261 SHT ..... RECORD MAP No Auck 85, 59,773&78

PLAN OF LOTS 1-4 BEING A SUBDIVISION OF PARTS ALLOTMENTS 30, 30A, 31, 32 & 33 TITIRANGI PARISH

TERRITORIAL AUTHORITY AUCKLAND CITY
Surveyed by HARRISON GRIERSON CONSULTANTS LTD
Scale 1:5000 Date FEBRUARY 1991

12-2440-2

W.A. ROBERTSON, SURVEYOR GENERAL, DEPARTMENT OF SURVEY AND LAND INFORMATION, NEW ZEALAND

Approved as to Survey by the Auckland City Council was hereto affixed in the presence of

Chairman

Member

Pursuant to a resolution of the Auckland City Council passed on the 28th day of February 1991 approving pursuant to Section 305 of the Local Government Act 1974 this survey plan conditional upon the granting or reserving of the easements shown in the memorandum endorsed hereon and certifying that the survey plan is in accordance with the requirements and provisions of the operative district scheme and the proposed new district scheme for the area to which the survey plan relates the Common Seal of the Auckland City Council was affixed hereto in the presence of

Mayor

ACC PLAN W 3916/3

See Deed Senior Land Surveyor

New C/T Allocated:
Lot 1 85D/292
Lot 2 85D/293

SHEET 1 OF 4 SHEETS

Total Area 42.6096 ha

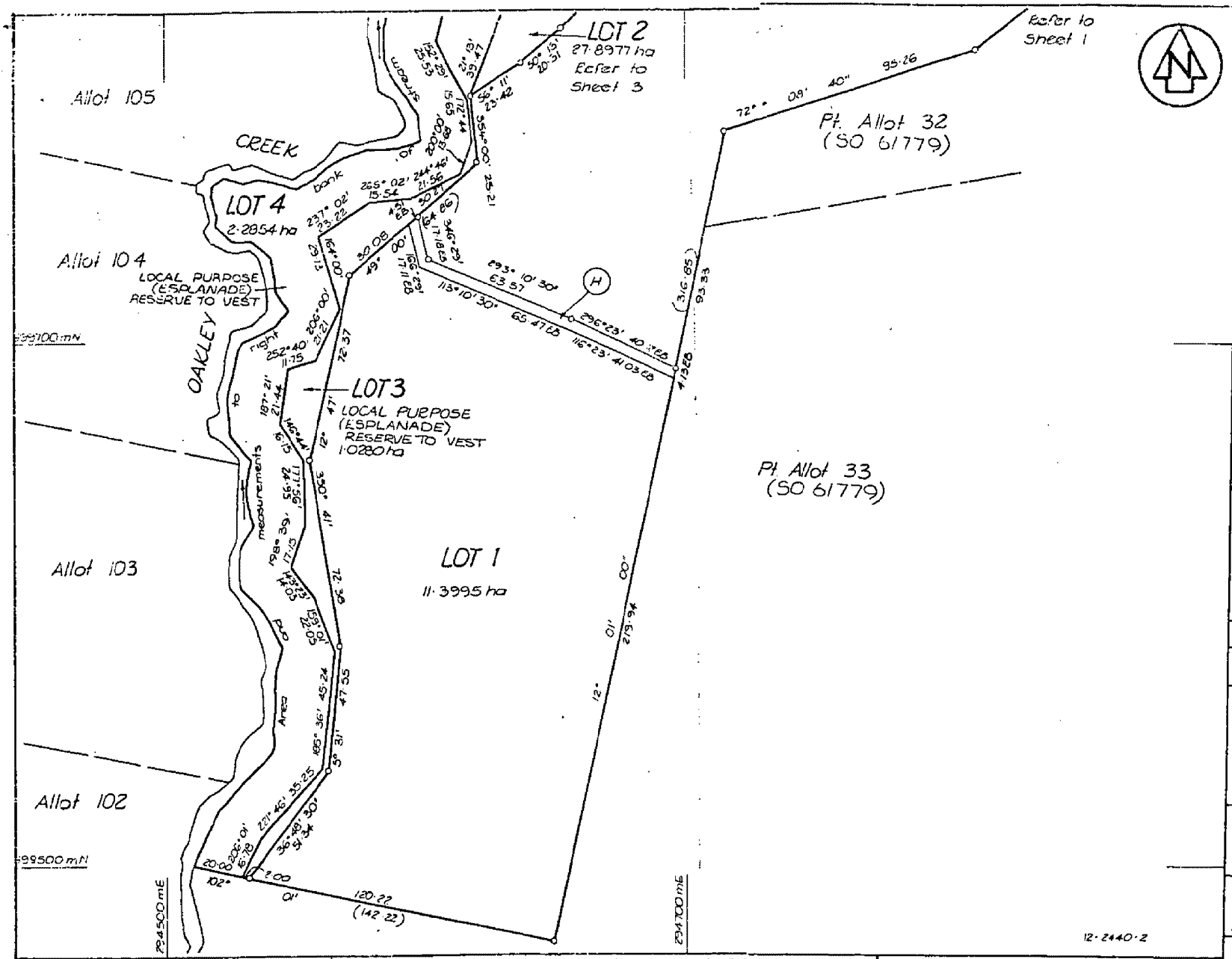
Comprised in Pt GN B 583409.1

I, Michael Douglas Allen of Auckland

Registered Surveyor and holder of an annual practising certificate for who may act as a registered surveyor pursuant to section 25 of the Survey Act 1986) hereby certify that this plan has been made from surveys executed by me or under my directions, that both plan and survey are correct and have been made in accordance with the Survey Regulations 1972 or any regulations made in substitution thereof.

Dated at Auckland this 4th day of March 1991 Signature

Field Book p. Traverse Book p
Reference Plans
Examined K Stocks Correct



Approvals

SHEET 2 OF 4 SHEETS

Total Area .....

Comprised in .....

.....

I, Michael Douglas Allan of Auckland Registered Surveyor and holder of an annual practising certificate (or who may act as a registered surveyor pursuant to section 25 of the Survey Act 1986) hereby certify that this plan has been made from surveys executed by me or under my directions, that both plan and survey are correct and have been made in accordance with the Survey Regulations 1972 or any regulations made in substitution thereof.

Dated at Auckland this 4 day of March 1991 Signature

Field Book ... p. ... Traverse Book ... p. ...

Reference Plans .....

Examined ... Stocks ... Correct ... Ball

Approved as to Survey 13.3.91 Chief Surveyor

Deposited this ... day of ... 1991

... District Land Registrar

File Reference Instructions

DP 144585

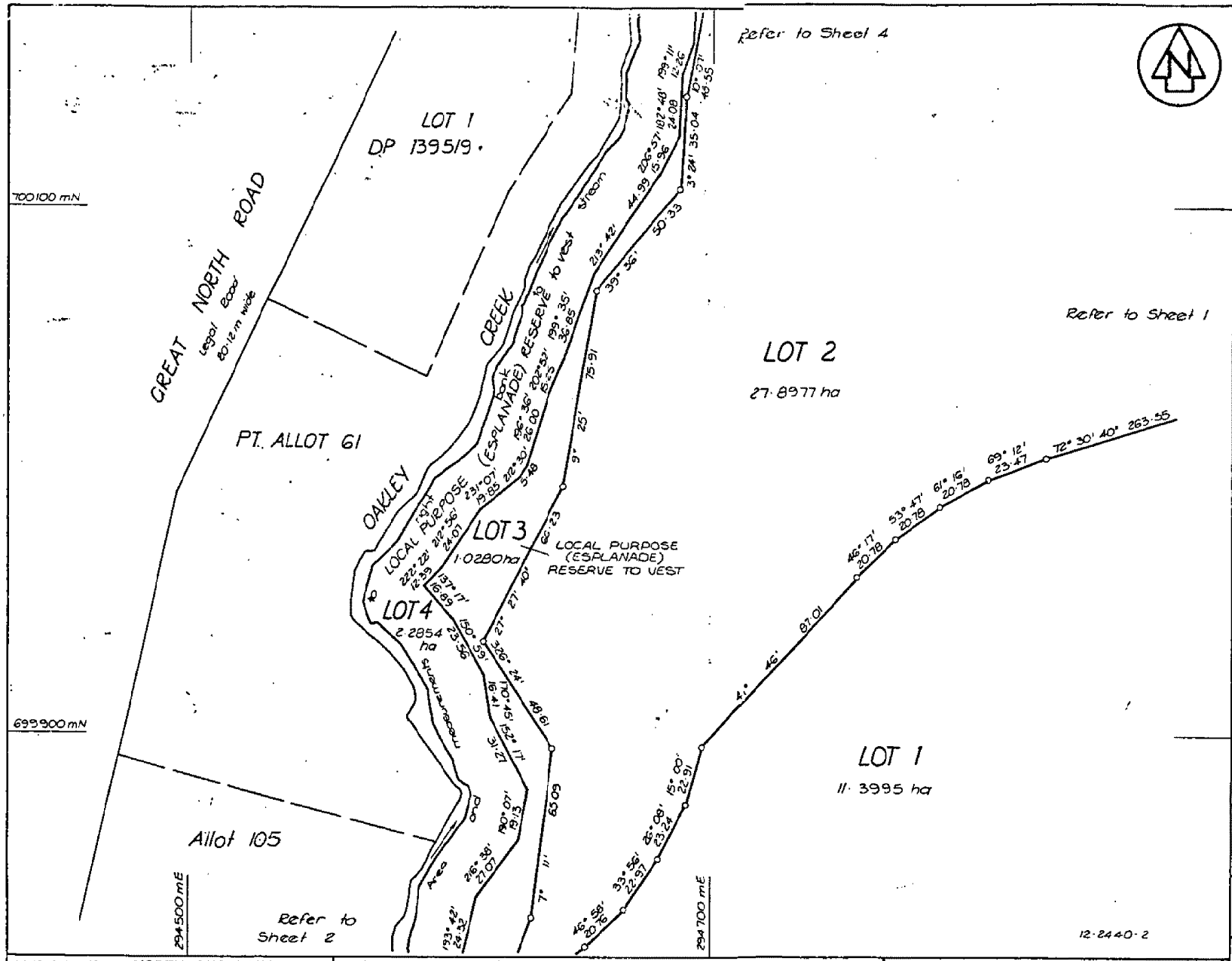
LAND DISTRICT NORTH AUCKLAND
XVa XVI WAITEMATA
SURVEY BLK. & DIST. IIIa IV TITIRANGI Auck 55,56
NZMS 261 SHT ... -RECORD MAP No 17 & 18

PLAN OF LOTS 1-4 BEING A SUBDIVISION OF PARTS ALLOTMENTS 30, 30A, 31, 32 & 33 TITIRANGI PARISH

TERRITORIAL AUTHORITY AUCKLAND CITY
Surveyed by HARRISON GRIERSON CONSULTANTS LTD
Scale 1:1000 Date FEBRUARY 1991

W.A. ROBERTSON, SURVEYOR-GENERAL, DEPARTMENT OF SURVEY AND LAND INFORMATION, NEW ZEALAND

DOUBLE FOLIO DS



Approvals

SHEET 3 OF 4 SHEETS

Total Area .....

Comprised in .....

.....

I, Michael Douglas Allan of Auckland, Registered Surveyor and holder of an annual practising certificate (or who may act as a registered surveyor pursuant to section 25 of the Survey Act 1986) hereby certify that this plan has been made from surveys executed by me or under my directions, that both plan and survey are correct and have been made in accordance with the Survey Regulations 1972 or any regulations made in substitution thereof.

Dated at Auckland this 4th day of March 1991 Signature

Field Book ..... p. ..... Traverse Book ..... p. .....

Reference Plans .....

Examined X Stocks Correct MDAll

Approved as to Survey

13.3.91

Land Surveyor

Deposited this 14th day of March 1991

Assistant Land Registrar

File Received Instructions 14 MAR 1991

DP 144585

LAND DISTRICT NORTH AUCKLAND

SURVEY BLK. & DIST. XV & XVI WAITEMATA Blks IV TITIRANGI

NZMS 261 SHT ..... RECORD MAP No Auck 58, 59, 77 & 78

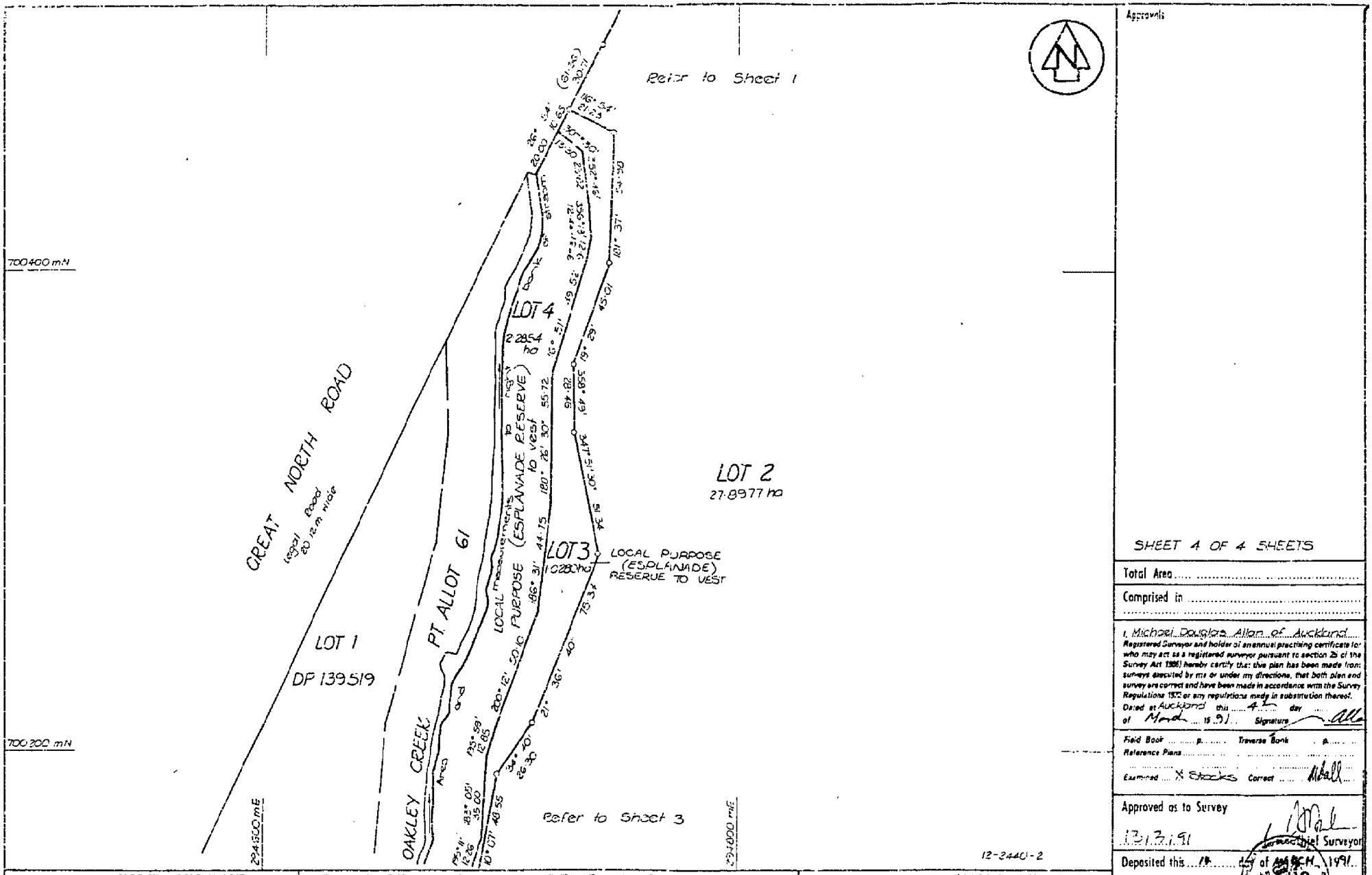
PLAN OF LOTS 1-4 BEING A SUBDIVISION OF PARTS ALLOTMENTS 30, 30A, 31, 32 & 33 TITIRANGI PARISH

TERRITORIAL AUTHORITY AUCKLAND CITY

Surveyed by HARRISON GRIERSON CONSULTANTS LTD

Scale 1:1000 Date FEBRUARY 1991

W A ROBERTSON, SURVEYOR GENERAL, DEPARTMENT OF SURVEY AND LAND INFORMATION, NEW ZEALAND



Approvals

SHEET 4 OF 4 SHEETS

Total Area .....

Comprised in .....

I, Michael Douglas Allan of Auckland Registered Surveyor and holder of an annual practising certificate to who may act as a registered surveyor pursuant to section 26 of the Survey Act 1986 hereby certify that: this plan has been made from surveys executed by me or under my directions, that both plan and survey are correct and have been made in accordance with the Survey Regulations 1972 or any regulations made in substitution thereof.

Dated at Auckland this 4th day of March 1991 Signature

Field Book ..... p. ..... Traverse Book ..... p. .....

Reference Plans .....

Examined X Stocks Correct MAllan

Approved as to Survey

13.3.91

Chief Surveyor

Deposited this 19th day of MARCH 1991

Assistant Land Registrar

Fee Received Instructions

DP 144585

LAND DISTRICT NORTH AUCKLAND

SURVEY BLK. & DIST. XV & XVI WAITEMATA / IV & V TITIRANGI

NZMS 261 SHT ..... RECORD MAP No Auck 55, 72

PLAN OF LOTS 1-4 BEING A SUBDIVISION OF PARTS ALLOTMENTS 30, 30A, 31, 32 & 33 TITIRANGI PARISH

TERRITORIAL AUTHORITY AUCKLAND CITY

Surveyed by HARRISON GRIERSON CONSULTANTS LTD

Scale 1:1000 Date FEBRUARY 1991

COMPUTER FREEHOLD REGISTER
UNDER LAND TRANSFER ACT 1952

Historical Search Copy

R.W. Muir
Registrar-General
of Land

Cancelled

Identifier	**NA93B/539**
Land Registration District	**North Auckland**
Date Issued	17 June 1993

Prior References
NA85D/293

Estate	Fee Simple
Area	17.8889 hectares more or less
Legal Description	Lot 1 Deposited Plan 156226

Original Proprietors
UNITEC - Institute of Technology

Interests

SUBJECT TO SECTION 243 (C) RESOURCE MANAGEMENT ACT 1991 (AFFECTS DP 156226)

Subject to a drainage right over part marked H on DP 156226 specified in Easement Certificate C247153.3

The easements specified in Easement Certificate C247153.3 are subject to Section 309 (1) (a) Local Government Act 1974

C491423.1 Subject to conditions pursuant to Section 461(1) Local Government Act 1974 and certifying that a private drain passes through and serves the within land - 22.6.1993 at 2.08 pm

Subject to light and air rights over parts marked D, E, F and G on DP 156226 created by Transfer C510175.3 - 24.8.1993 at 2.56 pm

The easements created by Transfer C510175.3 are subject to Section 243 (a) Resource Management Act 1991

Subject to a right of way over parts marked A and B on DP 156226 specified in Easement Certificate C510175.4 - 24.8.1993 at 2.56 pm

The easements specified in Easement Certificate C510175.4 are subject to Section 243 (a) Resource Management Act 1991

Appurtenant hereto is an electricity right created by Transfer D036499.13 - 22.8.1996 at 10.40 am

Appurtenant hereto are electricity and gas rights created by Transfer D036499.16 - 22.8.1996 at 10.40 am

Appurtenant hereto are electricity and water supply rights created by Transfer D036499.17 - 22.8.1996 at 10.40 am

Subject to a gas right over parts marked Y, R, Z, AA, AB and AD and to a water supply right over part marked AU on Plan 156648 created by Transfer D036499.18 - 22.8.1996 at 10.40 am

Subject to a steam supply right over parts marked AT, BA, AQ, V and AR on Plan 156648 created by Transfer D036499.19 - 22.8.1996 at 10.40 am

Subject to a telecommunications right (in gross) over parts marked AX, BA, BC, BD, P, BE, AA, BF and BG on Plan 156648 in favour of Telecom New Zealand created by Transfer D036499.20 - 22.8.1996 at 10.40 am

Subject to a steam supply right over parts marked AS, BA, AQ, V and AR on Plan 156648 created by Transfer D036499.21 - 22.8.1996 at 10.40 am

Subject to an electricity right (in gross) over parts marked O, P, Q, R, S, U, V and W on Plan 156648 in favour of Mercury Energy Limited created by Transfer D054952.2 - 10.10.1996 at 2.42 pm

D642838.1 Compensation Certificate pursuant to Section 19 Public Works Act 1981 by Her Majesty the Queen -

Identifier **NA93B/539**

24.9.2001 at 2.30 pm

D644143.1 CERTIFICATE PURSUANT TO SECTION 37 (2) BUILDING ACT 1991- 27.9.2001 AT 3.14 PM

5380896.1 Departmental Dealing correcting the title by removing the easement condition which has been satisfied - 22.10.2002 at 1:30 pm

5439804.1 Departmental Dealing correcting the number of Easement Certificate C247153.3 to C247153.4 - 17.12.2002 at 10:00 am

5590341.3 Certificate pursuant to Section 223 Resource Management Act 1991(affects DP 314949) - 19.5.2003 at 9:00 am

5590341.4 Certificate pursuant to Section 224(c) Resource Management Act 1991 (affects DP 314949) - 19.5.2003 at 9:00 am

5590341.5 Certificate pursuant to Section 321(3) (C) Local Government Act 1974 (DP 314949) - 19.5.2003 at 9:00 am

5590341.6 Consent Notice pursuant to Section 221 Resource Management Act 1991 - 19.5.2003 at 9:00 am

5590341.7 Consent Notice pursuant to Section 221 Resource Management Act 1991 - 19.5.2003 at 9:00 am

5590341.10 CTs issued - 19.5.2003 at 9:00 am

Legal Description	**Title**
Lot 1 Deposited Plan 156226 and Lot 2 Deposited Plan 211427	NA139B/956

CANCELLED

References
Prior C/T 85D/293

Transfer No.
N/C. Order No. C.489391.4

Land and Deeds 69

REGISTER

NZ 93B 539

CERTIFICATE OF TITLE UNDER LAND TRANSFER ACT

This Certificate dated the 17th day of June one thousand nine hundred and ninety three under the seal of the District Land Registrar of the Land Registration District of NORTH AUCKLAND

WITNESSETH that THE AUCKLAND AREA HEALTH BOARD

is seised of an estate in fee-simple (subject to such reservations, restrictions, encumbrances, liens, and interests as are notified by memorial underwritten or endorsed hereon) in the land hereinafter described, delineated with bold black lines on the plan hereon, be the several admeasurements a little more or less, that is to say: All that parcel of land containing 17.8889 hectares more or less being Lot 1 Deposited Plan 156226 and being part Allotments 30, 31 and 32 Parish of Titirangi

Assistant Land Registrar

Subject to Section 243 (c) Resource Management Act 1991 requiring that the conditional easements specified on Plan 156226 be granted or reserved prior to the disposition of the within land

Subject to a drainage easement over part marked H on Plan 156226 appurtenant to Lot 1 Plan 144585 (CT 85D/292). See Easement Certificate C.247153.3

The above easement is subject to Section 309 (1) (a) Local Government Act 1974

C.436182.1 CAVEAT BY PART BY THE COUNCIL OF CARRINGTON POLYTECHNIC - 2.12.1992 at 11.16 o'c (with exceptions)

A.L.R.

C.491423.1 Certificate relating to a private drain passing through and serving the within land and attaching hereto the rights specified in Section 461 (1) Local Government Act 1974 - 22.6.1993 at 2.08 o'c

A.L.R.

C.510175.2 Transfer to Carrington Polytechnic - 24.8.1993 at 2.56 oc

A.L.R.

C.510175.3 Transfer granting a light and air easements over part marked"D","E","F" and "G" on Plan 156226 appurtenant to Lot 4 Plan 156226 (CT.93B/542) - 24.8.1993 at 2.56 oc

A.L.R.

The above easement is subject to Section 243(a) Resource Management Act 1991

A.L.R.

C.510175.4 Easement Certificate affecting Lots on Plan 156226

Nature	Servient Land	Dominant Land
Right of way	part herein marked"A"	Lots 2-4 (CsT.93B/540 - 542)
Right of way	part herein marked"B"	Lots 2-4

- 24.8.1993 at 2.56 oc

A.L.R.

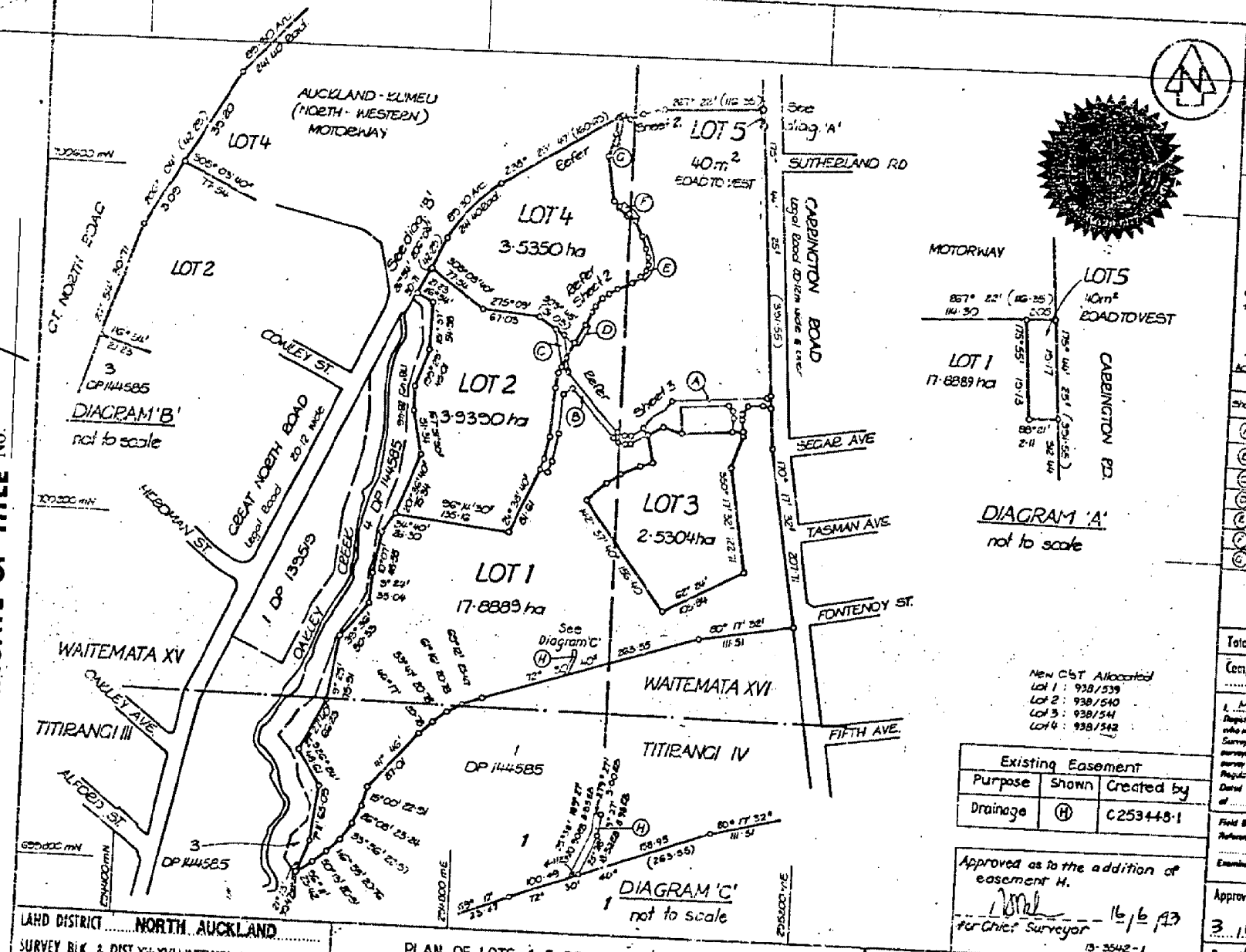
The above easements when created will be subject to Section 243 (a) Resource Management Act 1991

A.L.R.

Measurements are Metric

NZ 93B 539

CERTIFICATE OF TITLE No.



New CST Allocated
Lot 1 : 938/539
Lot 2 : 938/540
Lot 3 : 938/541
Lot 4 : 938/542

Existing Easement		
Purpose	Shown	Created by
Drainage	H	C253448·1

Approved as to the addition of easement H.

for Chief Surveyor 16/6/93

13·3542·1

LAND DISTRICT NORTH AUCKLAND

SURVEY BLK. & DIST X & XVI WAITEMATA, III & IV TITIRANGI

RZMS 263 SHT ..... RECORD MAP No ...77 AUCK 55,56

PLAN OF LOTS 1-5 BEING A SUBDIVISION OF LOT 2 DP 144585

TERRITORIAL AUTHORITY AUCKLAND CITY

Surveyed by HARRISON GRIERSON CONSULTANTS LTD

Scale 1:3000 Date APRIL 1993

Approved by the Auckland Area Committee of the Auckland City Council and affixed in the presence of:

Common Seal of the Auckland City Council

Commissioner

Approved pursuant to Section 226 of the Resource Management Act 1991 on the 10th day of May 1993 subject to the granting or reserving of the easements set out in the Memorandum hereon.

The Common Seal of the Auckland City Council is affixed hereto in the presence of

City Secretary / Authorised Officer

Senior Land Surveyor

Memorandum of Easements

Shown	Purpose	Dominant Tenement	Servient Tenement
A	Right of Way	Lots 2-4 hereon	Lot 1 hereon
B		Lots 2-4 hereon	Lot 1 hereon
C		Lots 2-4 hereon	Lot 1 hereon.
D		Lot 4 hereon	Lot 2 hereon
E	Light & Air	Lot 4 hereon	Lot 1 hereon
F		Lot 4 hereon	Lot 1 hereon
G		Lot 4 hereon	Lot 1 hereon
H		Lot 4 hereon	Lot 1 hereon

Sheet 1 of 3 sheets

Total Area 22.8973 ha

Comprised in C.T. 850/193 (All)

I, Michael Douglas Allan of Auckland Registered Surveyor and holder of an annual practising certificate (or who may act as a registered surveyor pursuant to section 28 of the Survey Act 1986) hereby certify that this plan has been made from surveys executed by me or under my directions, that both plan and surveys are correct and have been made in accordance with the Survey Regulations 1972 or any regulations made in substitution thereof.

Dated at Auckland this 13 day of May 1993 Signature

Field Book ... Traverse Book ...

Reference Plans

Examined A.R. Outlaw ... Correct for Land Transfer Purposes

Approved as to Survey

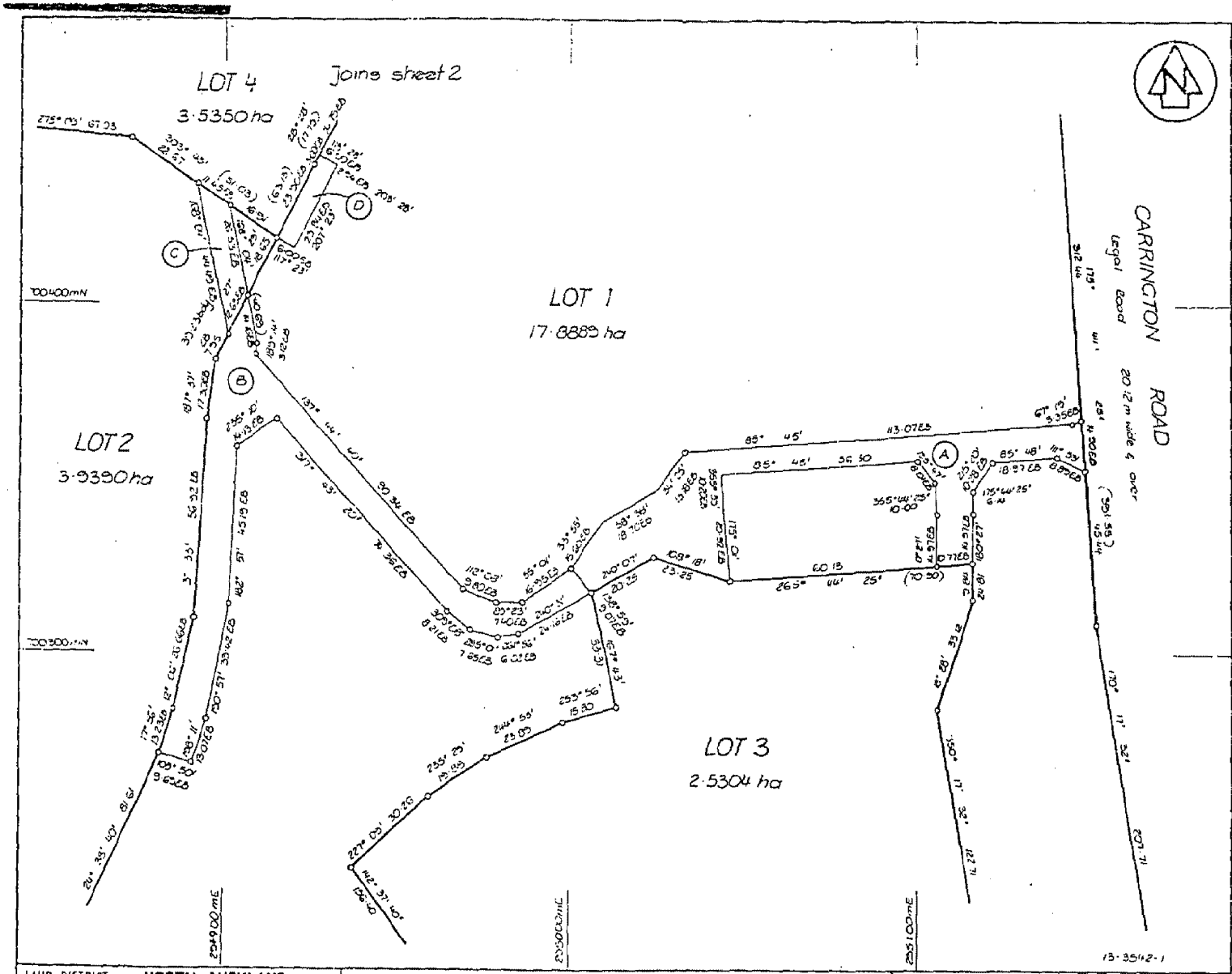
3/6/93 Chief Surveyor

Deposited this 10th day of June 1993

District Land Registrar

No Amended Instructions

DP 156226



Approvals

Sheet 3 of 3 sheets

Total Area .....

Comprised in .....

I, Michael Douglas Allan of Auckland Registered Surveyor and holder of an annual practising certificate for who may act as a registered surveyor pursuant to section 25 of the Survey Act 1986 hereby certify that this plan has been made from surveys executed by me or under my directions, that both plan and survey are correct and have been made in accordance with the Survey Regulations 1972 or any regulations made in substitution thereof.

Dated at Auckland this 13th day of May 1993 Signature

Field Book ..... p. ..... Traverse Book ..... p. .....

Reference Plans .....

Examined A.R. Challen ..... Correct C. Lindmark

Approved as to Survey

3.6.93 Chief Surveyor

Deposited this 14th day of June 1993

District Land Registrar

File Received Instructions 14 MAY 1993

DP 156226

LAND DISTRICT NORTH AUCKLAND

SURVEY BLK. & DIST. XV & XVI WAITEMATA, IX & IV TAURANGI AUCK. 55, 56

NZMS 261 SHT ..... RECORD MAP No 77

PLAN OF LOTS 1-5 BEING A SUBDIVISION OF LOT 2 DP 144585

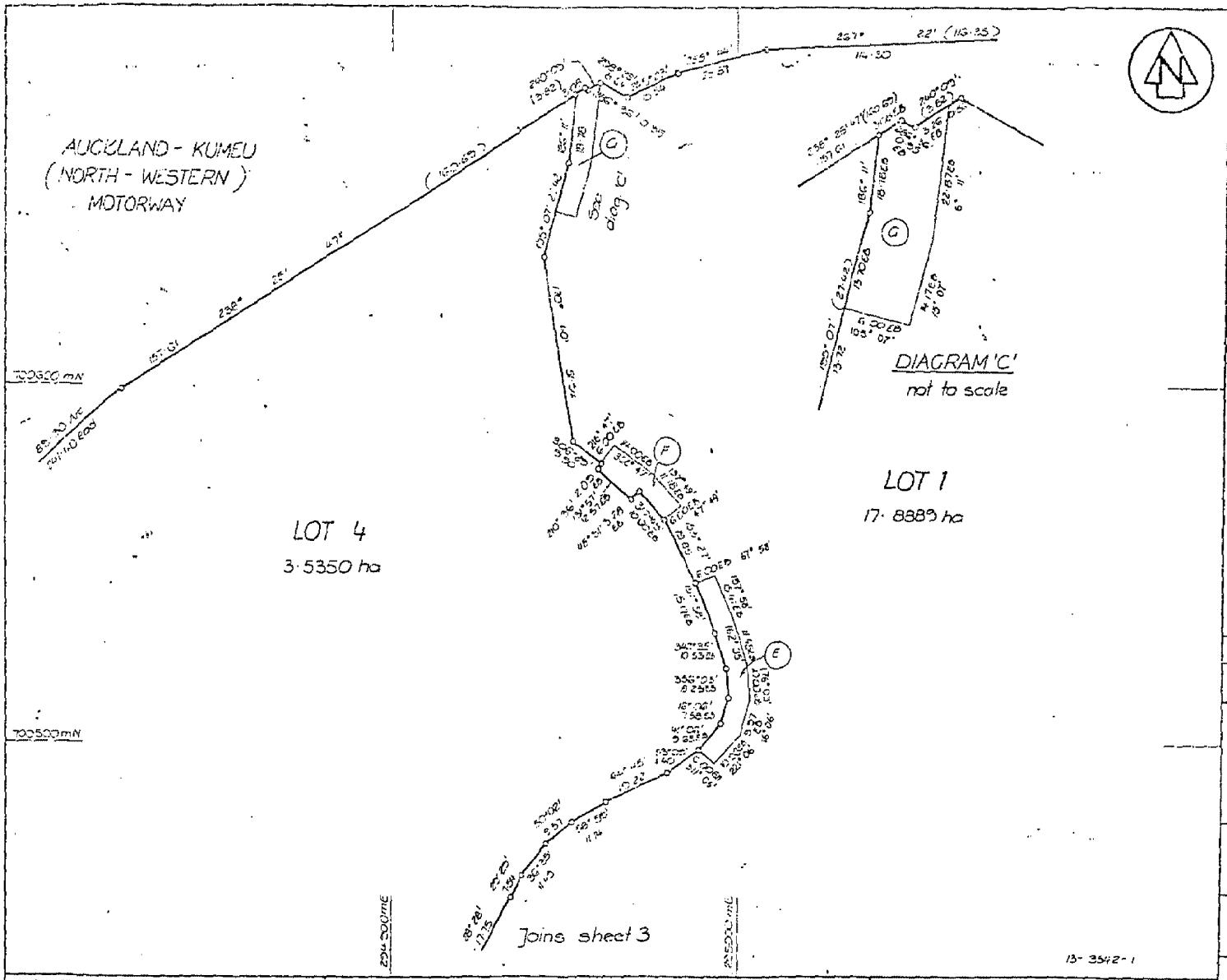
TERRITORIAL AUTHORITY AUCKLAND CITY

Surveyed by HARRISON GRIERSON CONSULTANTS LTD

Scale 1:750 Date APRIL 1993

13-3542-1

W.A. ROBERTSON, SURVEYOR GENERAL, DEPARTMENT OF SURVEY AND LAND INFORMATION, NEW ZEALAND



Approvals

Sheet 2 of 3 sheets

Total Area .....

Comprised in .....

I, Michael Douglas Allan of Auckland Registered Surveyor and holder of an annual practising certificate who may act as a registered surveyor pursuant to section 75 of the Survey Act 1986 hereby certify that this plan has been made from surveys executed by me or under my directions, that both plan and survey are correct and have been made in accordance with the Survey Regulations 1972 or any regulations made in substitution thereof.

Dated at Auckland this 13th day of May 1993 Signature

Field Book p Traverse Book p

Reference Plans

Examined A.R. Wallace Correct E. Wiedemann

Approved as to Survey

3.16.1993 Chief Surveyor

Deposited this 30th day of June 1993 District Land Registrar

File Received 14 MAY 1993 Instructions

DP 156226

LAND DISTRICT NORTH AUCKLAND

SURVEY BLK. 2 DIST XV & XVI WAITEMATA, PLN [illegible] AUCK. SS. 56

NZMS 261 SHT ..... RECORD MAP No 77

PLAN OF LOTS 1-5 BEING A SUBDIVISION OF LOT 2 DP 144595

TERRITORIAL AUTHORITY AUCKLAND CITY

Surveyed by HARRISON GRIERSON CONSULTANTS LTD

Scale 1:750 Date APRIL 1993

W.A. ROBERTSON, SURVEYOR-GENERAL, DEPARTMENT OF SURVEY AND LAND INFORMATION, NEW ZEALAND

C.944857.2 Change of the registered proprietor to UNITEC - Institute of Technology - 22.1.1996 at 2.32 o'c

A.L.R.

Appurtenant hereto is an electricity easement over part Lot 3 Plan 156226 (CT 93B/541) marked 'AO' and 'AZ' on Plan 156648 created by Transfer D.036499.13

A.L.R.

Appurtenant hereto is;
1) An electricity easement over part Lot 2 Plan 156226 (CT 93B/540) marked 'AL', 'AN' and 'AE' on Plan 156648
2) a gas easement over part Lot 2 Plan 156226 marked 'AJ', 'AK' and 'AL' on Plan 156648

created by Transfer D.036499.16

A.L.R.

Appurtenant hereto is;
1) An electricity easement over part Lot 4 Plan 156226 (CT 93B/542) marked 'AP' on Plan 156648
2) A water supply easement over part Lot 4 Plan 156226 marked 'AV' on Plan 156648

created by Transfer D.036499.17

A.L.R.

D.036499.18 Transfer granting;
1) a gas easement over the parts marked 'Y', 'R', 'Z', 'AA', 'AB' and 'AD' on Plan 156648 and
2) a water supply easement over the part marked 'AU' on Plan 156648

appurtenant to Lot 3 Plan 156226 (CT 93B/541) - 22.8.1996 at 10.40 o'c

A.L.R.

D.036499.19 Transfer granting a steam supply easement over the parts marked 'AT', 'BA', AQ', 'V' and 'AR' on Plan 156648 appurtenant to Lot 2 Plan 156226 (CT 93B/540) - 22.8.1996 at 10.40 o'c

A.L.R.

D.036499.20 Transfer granting a telecommunications easement in gross over the parts marked 'AX', 'BA', 'BC', 'BD', 'P', 'BE', 'AA', 'BF' and 'BG' on Plan 156648 in favour of Telecom New Zealand Limited - 22.8.1996 at 10.40 o'c

A.L.R.

D.036499.21 Transfer granting a steam supply easement over the parts marked 'AS', 'BA', 'AQ', 'V' and 'AR' on Plan 156648 appurtenant to Lot 4 Plan 156226 (CT 93B/542) - 22.8.1996 at 10.40 o'c

A.L.R.

D.054952.2 Transfer granting an electricity easement in gross over the parts marked 'O', 'P', 'Q', 'R', 'S', 'U', 'V' and 'W' on Plan 156648 in favour of Mercury Energy Limited - 10.10.1996 at 2.42 o'c

A.L.R.

D642838.1 Compensation Certificate under Section 19 Public Works Act 1981 by Her Majesty The Queen
24.9.2001 at 2.30

for RGL

D644143.1 Certificate under Section 37(2) of the Building Act 1991
27.9.2001 at 3.14

for RGL

RECORD OF TITLE
UNDER LAND TRANSFER ACT 2017
FREEHOLD

Historical Search Copy

R.W. Muir
Registrar-General
of Land

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

Identifier	**NA93B/540**
Land Registration District	**North Auckland**
Date Issued	17 June 1993

Prior References
NA85D/293

Estate	Fee Simple
Area	3.9390 hectares more or less
Legal Description	Lot 2 Deposited Plan 156226

Original Registered Owners
Waitemata Health Limited

Interests

SUBJECT TO SECTION 243 (C) RESOURCE MANAGEMENT ACT 1991 REQUIRING THAT THE CONDITIONAL EASEMENTS SPECIFIED ON DP 156226 BE GRANTED OR RESERVED PRIOR TO THE DISPOSITION OF THE WITHIN LAND

C489391.2 Resolution pursuant to Section 321(3)(c) Local Government Act 1974 - Produced 15.6.1993 at 2.39 pm and entered 17.6.1993 at 9.00 am

C491423.1 Subject to conditions pursuant to Section 461(1) Local Government Act 1974 and certifying that a private drain passes through and serves the within land - 22.6.1993 at 2.08 pm

Appurtenant hereto is a right of way specified in Easement Certificate C510175.4 - 24.8.1993 at 2.56 pm

Subject to a right of way over part marked C on DP 156226 specified in Easement Certificate C510175.4 - 24.8.1993 at 2.56 pm

The easements specified in Easement Certificate C510175.4 are subject to Section 243 (a) Resource Management Act 1991

C582654.1 CAVEAT BY WAITEMATA HEALTH LIMITED - 28.3.1994 AT 10.52 AM

Subject to an electricity right (in gross) over parts marked I, J, K, L, M and N on Plan 156648 in favour of Mercurty Energy Limited created by Transfer D036499.9 - 22.8.1996 at 10.40 am

Subject to a telecommunications right (in gross) over parts marked AG, N, M, K, J and I on Plan 156648 in favour of Telecom New Zealand Limited created by Transfer D036499.11 - 22.8.1996 at 10.40 am

Subject to a gas right over parts marked AJ, AI, K, J and AM on Plan 156648 created by Transfer D036499.14 - 22.8.1996 at 10.40 am

Subject to a gas right over parts marked AE, AF, AG, N, AH, K, AI and AJ on Plan 156648 created by Transfer D036499.15 - 22.8.1996 at 10.40 am

Subject to an electricity right over parts marked AL, AN and AE on Plan 156648 and a gas right over parts marked AJ, AK and AL on Plan 156648 created by Transfer D036499.16 - 22.8.1996 at 10.40 am

Appurtenant hereto is a steam supply right created by Transfer D036499.19 - 22.8.1996 at 10.40 am

Subject to a gas supply right (in gross) over part marked H on Plan 156648 in favour of Auckland Gas Company Limited created by Transfer D054952.1 - 10.10.1996 at 2.42 pm

5380896.1 Departmental Dealing correcting the title by removing the easement condition which has been satisfied - 22.10.2002 at 1:30 pm

Identifier **NA93B/540**

9918192.1 Certificate under section 148 of the Nga Mana Whenua o Tamaki Makaurau Collective Redress Act 2014 that the within land is RFR land as defined in section 118 and is subject to Subpart 1 of Part 4 of the Act (which restricts disposal, including leasing of the land) - 5.12.2014 at 7:00 am

10710007.1 Application pursuant to Section 99A Land Transfer Act 1952 vesting the within land in Waitemata District Health Board - 30.3.2017 at 8:39 am

10916326.1 Notification that a building consent issued pursuant to Section 72 Building Act 2004 identifies inundation as a natural hazard - 27.9.2017 at 2:15 pm

References
Prior C/T 85D/293

Transfer No.
N/C. Order No. C.489391.4

Land and Deeds 69

REGISTER

No. 93B/540

CERTIFICATE OF TITLE UNDER LAND TRANSFER ACT

This Certificate dated the 17th day of June one thousand nine hundred and ninety three under the seal of the District Land Registrar of the Land Registration District of NORTH AUCKLAND

WITNESSETH that THE AUCKLAND AREA HEALTH BOARD

is seised of an estate in fee-simple (subject to such reservations, restrictions, encumbrances, liens, and interests as are notified by memorial underwritten or endorsed hereon) in the land hereinafter described, delineated with bold black lines on the plan hereon, be the several admeasurements a little more or less, that is to say: All that parcel of land containing 3.9390 hectares more or less being Lot 2 Deposited Plan 156226 and being part Allotments 30 and 31 Parish of Titirangi

DISTRICT LAND REGISTRAR NORTH AUCKLAND NEW ZEALAND

Assistant Land Registrar

Subject to Section 243 (c) Resource Management Act 1991 requiring that the conditional easements specified on Plan 156226 be granted or reserved prior to the disposition of the within land

C.489391.2 Resolution pursuant to Section 321 (3) (c) Local Government Act 1974 - produced 15.6.1993 at 2.39 o'c and entered 17.6.1993 at 9.00 o'c

nb

C.436182.1 CAVEAT OF PART BY THE COUNCIL OF CARRINGTON POLYTECHNIC - 2.12.1992 at 11.16 o'c Affects Lot 2 as to part

A.L.R.

C.491423.1 Certificate relating to a private drain passing through and serving the within land and attaching hereto the rights specified in Section 461 (1) Local Government Act 1974 - 22.6.1993 at 2.08 o'c

A.L.R.

C.510175.4 Easement Certificate affecting Lots on Plan 156226

Nature	Servient Land	Dominant Land
Right of way	parts Lot 1 (CT.93B/539) marked"A"&"B"	Herein
Right of way	part herein marked"C"	Lot 4 (CT.93B/542)

- 24.8.1993 at 2.56 oc

A.L.R.

The above easements when created will be subject to Section 243(a) Resource Management Act 1991

A.L.R.

C.559815.2 Application under the Health Reforms (Transitional Provisions) Act, 1993 vesting the within land in Waitemata Health Limited - 21.1.1994 at 11.16 o'c

A.L.R.

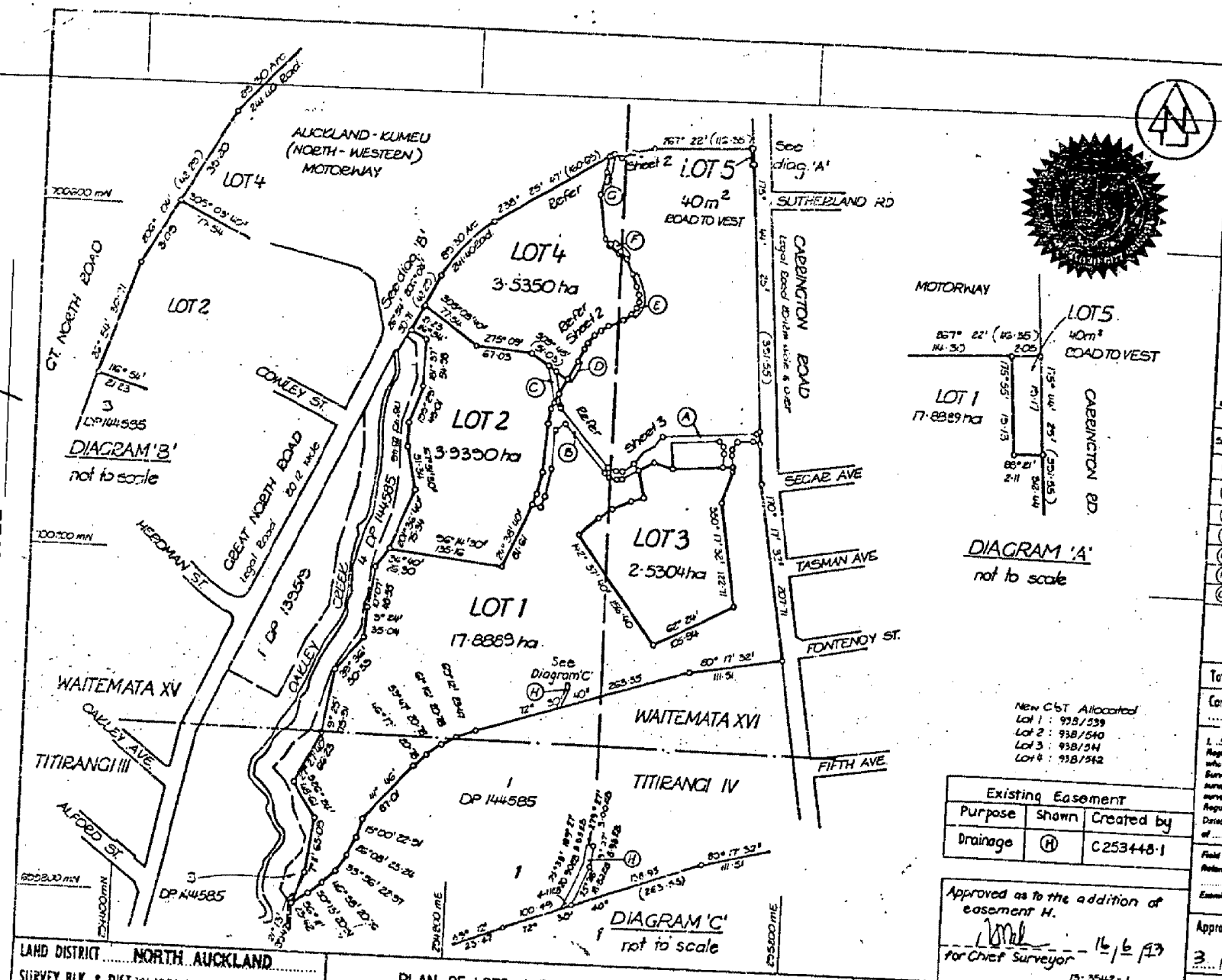
C.582654.1 CAVEAT BY WAITEMATA HEALTH LIMITED - 28.3.1994 at 10.52 oc

A.L.R.

Measurements are Metric

No. 93B/540

CERTIFICATE OF TITLE No.



New C/T Allocated
Lot 1 : 938/539
Lot 2 : 938/540
Lot 3 : 938/541
Lot 4 : 938/542

Existing Easement		
Purpose	Shown	Created by
Drainage	(H)	C253448·1

Approved as to the addition of easement H.

for Chief Surveyor 16/6/93

13-3542-1

LAND DISTRICT NORTH AUCKLAND

SURVEY BLK. & DIST XIV, XVI WAITEMATA, III & IV TITIRANGI, AUCK SS, 56

MAPS 261 SHT ..... RECORD MAP No 17

PLAN OF LOTS 1-5 BEING A SUBDIVISION OF LOT 2 DP 144585

TERRITORIAL AUTHORITY AUCKLAND CITY

Surveyed by HARRISON GRIERSON CONSULTANTS LTD

Scale 1:3000 Date APRIL 1993

H.A. ROBERTSON, SURVEYOR-GENERAL, DEPARTMENT OF SURVEY AND LAND INFORMATION, NEW ZEALAND

Approved by the Auckland Area Hereby Commissioner and the Common Seal of the Auckland City Council hereto affixed in the presence of

Commissioner

Approved pursuant to Section 223 of the Resource Management Act 1991 on the 10th day of May 1993 subject to the granting or reserving of the easements set out in the Memorandum hereon.

The Common Seal of the Auckland City Council is affixed hereto in the presence of.

City Secretary

Senior Land Surveyor

Memorandum of Easements

Shown	Purpose	Dominant Tenement	Servient Tenement
(A)	Right of Way	Lots 2-4 hereon	Lot 1 hereon
(B)		Lots 2-4 hereon	Lot 1 hereon
(C)		Lot 4 hereon	Lot 2 hereon
(D)		Lot 4 hereon	Lot 1 hereon
(E)	Right to Air	Lot 4 hereon	Lot 1 hereon
(F)		Lot 4 hereon	Lot 1 hereon
(G)		Lot 4 hereon	Lot 1 hereon

Sheet 1 of 3 sheets

Total Area 27·8973 ha

Comprised in CT 852/293 (All)

I, Michael Douglas Allan of Auckland Registered Surveyor and holder of an annual practising certificate (or who may act as a registered surveyor pursuant to section 2b of the Survey Act 1986) hereby certify that this plan has been made from surveys executed by me or under my directions, that such plan and survey are correct and have been made in accordance with the Survey Regulations 1972 or any regulations made in substitution thereof.

Dated at Auckland this 13 th day of May 1993 Signature

Field Book ... p. ... Traverse Book ... p.

Reference Plans

Examined M.A. Outlaw Correct for Issue

Approved as to Survey

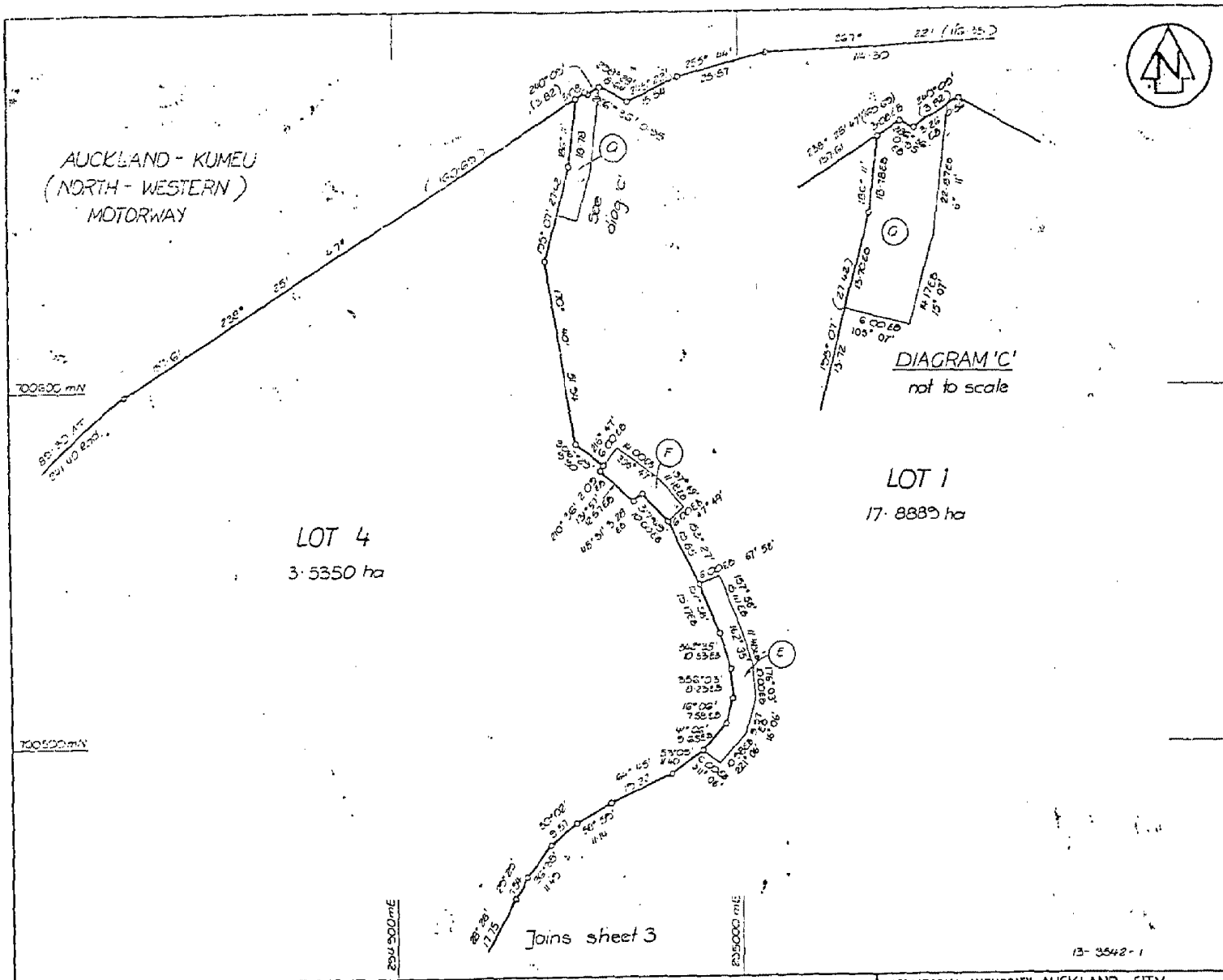
3/6/93 Chief Surveyor

Deposited this 10th day of June 1993

District Land Registrar

File Reference

DP 156226



Approvals

Sheet 2 of 3 sheets

Total Area .....

Comprised in .....

.....

I, Michael Douglas Allan of Auckland
Registered Surveyor and holder of an annual practising certificate (or who may act as a registered surveyor pursuant to section 25 of the Survey Act 1986) hereby certify that this plan has been made from surveys executed by me or under my directions, that both plan and survey are correct and have been made in accordance with the Survey Regulations 1972 or any regulations made in substitution thereof.
Dated at Auckland this 13 day of May 1993 Signature

Field Book ... p. Traverse Book ... p.
Reference Plans
Examined A.R. Wallace Correct E. Sundermark

Approved as to Survey
3.16.1993
Chief Surveyor

Deposited this 14th day of June 1993
District Land Registrar

File Received 14 MAY 1993 Instructions

DP 156226

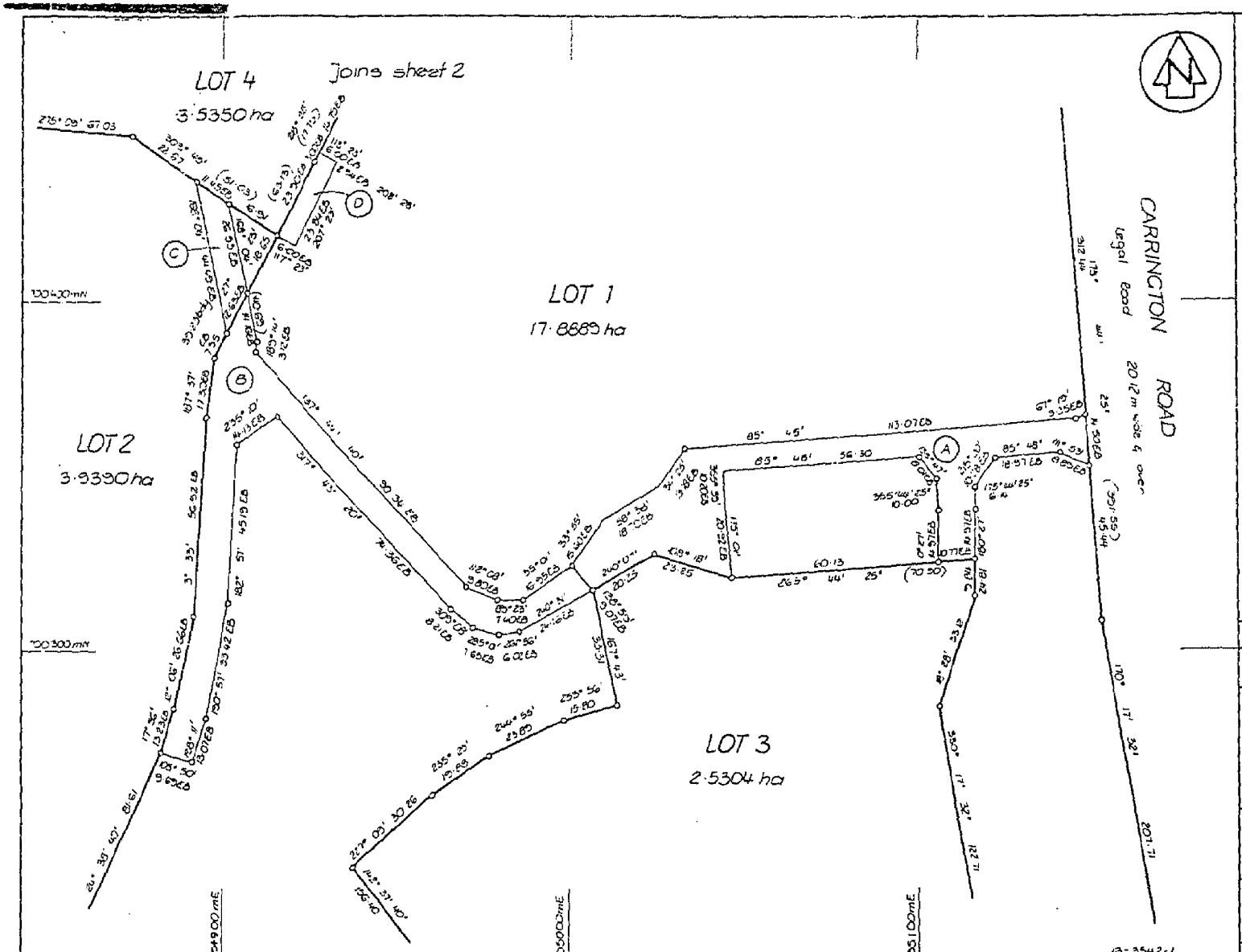
LAND DISTRICT NORTH AUCKLAND
SURVEY BLK. & DIST XV & XVI WAITEMATA, & N TITIRANGI AUCK. SD. 56,
NZMS 261 SHT ..... RECORD MAP No 77

PLAN OF LOTS 1-5 BEING A SUBDIVISION OF
LOT 2 DP 144585

TERRITORIAL AUTHORITY AUCKLAND CITY
Surveyed by HARRISON GRIERSON CONSULTANTS LTD
Scale 1:750 Date APRIL 1993

13-3542-1

W.A. ROBERTSON SURVEYOR GENERAL, DEPARTMENT OF SURVEY AND LAND INFORMATION, NEW ZEALAND



Approvals

Sheet 3 of 3 sheets

Total Area .....

Comprised in .....

I, Michael Douglas Allan of Auckland Registered Surveyor and holder of an annual practising certificate for who may act as a registered surveyor pursuant to section 25 of the Survey Act 1986 hereby certify that this plan has been made from surveys executed by me or under my directions, that both plan and survey are correct and have been made in accordance with the Survey Regulations 1972 or any regulations made in substitution thereof.

Dated at Auckland this 13th day of May 1993 Signature

Field Book ... pp. ... Traverse Book ... p. ...

Reference Plans ...

Examined A.R. Callens Correct E. Lindmark

Approved as to Survey

3.6.93 Chief Surveyor

Deposited this 14th day of June 1993

District Land Registrar

Title Received Instructions 14 MAY 1993

DP 156226

LAND DISTRICT NORTH AUCKLAND

SURVEY BLK. & DIST. XV & XVI WAITEMATA, IIIc IV TITIRANGI AUCK 55, 56

NZMS 261 SHT ... RECORD MAP No 77

PLAN OF LOTS 1-5 BEING A SUBDIVISION OF LOT 2 DP 144585

TERRITORIAL AUTHORITY AUCKLAND CITY

Surveyed by HARRISON GRIERSON CONSULTANTS LTD

Scale 1:750 Date APRIL 1993

D.036499.9 Transfer granting an electricity easement in gross over the parts marked 'I', 'J', 'K', 'L', 'M' and 'N' on Plan 156648 in favour of Mercurty Energy Limited - 22.8.1996 at 10.40 o'c (with caveators consent under Caveat C.582654.1)

A.L.R.

D.036499.11 Transfer granting a telecommunications easement in gross over the parts marked 'AG', 'N', 'M', 'K', 'J' and 'I' on Plan 156648 in favour of Telecom New Zealand Limited - 22.8.1996 at 10.40 o'c (with caveators consent under Caveat C.582654.1)

A.L.R.

D.036499.14 Transfer granting a gas easement over the parts marked 'AJ', 'AI', 'K', 'J' and 'AM' on Plan 156648 appurtenant to Lot 4 Plan 156226 (CT 93B/542) - 22.8.1996 at 10.40 o'c

A.L.R.

D.036499.15 Transfer granting a gas easement over the parts marked 'AE', 'AF', 'AG', 'N', 'AH', 'K', 'AI' and 'AJ' on Plan 156648 appurtenant to Lot 3 Plan 156226 (CT 93B/541) - 22.8.1996 at 10.40 o'c

A.L.R.

D.036499.16 Transfer granting;

1) an electricity easement over the parts marked 'AL', 'AN' and 'AE' on Plan 156648 and
2) a gas easement over the parts marked 'AJ', 'AK' and 'AL' on Plan 156648

appurtenant to Lot 1 Plan 156226 (CT 93B/539) - 22.8.1996 at 10.40 o'c (with caveators consent under Caveat C.582654.1)

A.L.R.

Appurtenant hereto is a steam supply easement over part Lot 1 Plan 156226 (CT 93B/539) marked 'AT', 'BA', 'AQ', 'V' and 'AR' on Plan 156648 created by Transfer D.036499.19

A.L.R.

D.054952.1 Transfer granting a gas supply easement in gross over the part marked 'H' on Plan 156648 in favour of Auckland Gas Company Limited - 10.10.1996 at 2.42 o'c

A.L.R.

COMPUTER FREEHOLD REGISTER
UNDER LAND TRANSFER ACT 1952

Historical Search Copy

R.W. Muir
Registrar-General
of Land

Cancelled

Identifier	**NA93B/542**
Land Registration District	**North Auckland**
Date Issued	17 June 1993

Prior References
NA85D/293

Estate	Fee Simple
Area	3.5350 hectares more or less
Legal Description	Lot 4 Deposited Plan 156226

Original Proprietors
Ngati Whatua O Orakei Maori Trust Board

Interests

C489391.2 Resolution pursuant to Section 321(3)(c) Local Government Act 1974 - Produced 15.6.1993 at 2.39 pm and entered 17.6.1993 at 9.00 am

C491423.1 Subject to conditions pursuant to Section 461(1) Local Government Act 1974 and certifying that a private drain passes through and serves the within land - 22.6.1993 at 2.08 pm

Appurtenant hereto are light and air rights created by Transfer C510175.3 - 24.8.1993 at 2.56 pm

The easements created by Transfer C510175.3 are subject to Section 243 (a) Resource Management Act 1991

Appurtenant hereto are rights of way specified in Easement Certificate C510175.4 - 24.8.1993 at 2.56 pm

The easements specified in Easement Certificate C510175.4 are subject to Section 243 (a) Resource Management Act 1991

Subject to an electricity right (in gross) over part marked X on Plan 156648 in favour of Mercury Energy Limited created by Transfer D036499.8 - 22.8.1996 at 10.40 am

Subject to a telecommunications right (in gross) over part marked X on Plan 156648 in favour of Telecom New Zealand Limited created by Transfer D036499.12 - 22.8.1996 at 10.40 am

Appurtenant hereto are gas rights created by Transfer D036499.14 - 22.8.1996 at 10.40 am

Subject to an electricity right over part marked AP and a water supply right over part marked AV on Plan 156648 created by Transfer D036499.17 - 22.8.1996 at 10.40 am

Appurtenant hereto is a steam supply right created by Transfer D036499.21 - 22.8.1996 at 10.40 am

5590341.8 Transfer of Lot 2 DP 211427 to Unitec Institute of Technology - 19.5.2003 at 9:00 am

5590341.9 CTs issued - 19.5.2003 at 9:00 am

Legal Description	Title
Lot 1 Deposited Plan 211427	NA139B/955

5590341.10 CTs issued - 19.5.2003 at 9:00 am

Legal Description	Title
Lot 1 Deposited Plan 156226 and Lot 2 Deposited Plan 211427	NA139B/956

CANCELLED

References
Prior C/T 85D/293

Transfer No.
N/C. Order No. C.489391.4

Land and Deeds 69

REGISTER

No. 93B 542

CERTIFICATE OF TITLE UNDER LAND TRANSFER ACT

This Certificate dated the 17th day of June one thousand nine hundred and ninety three under the seal of the District Land Registrar of the Land Registration District of NORTH AUCKLAND

WITNESSETH that THE AUCKLAND AREA HEALTH BOARD

is seised of an estate in fee-simple (subject to such reservations, restrictions, encumbrances, liens, and interests as are notified by memorial underwritten or endorsed hereon) in the land hereinafter described, delineated with bold black lines on the plan hereon, be the several admeasurements a little more or less, that is to say: All that parcel of land containing 3.5350 hectares more or less being Lot 4 Deposited Plan 156226 and being part Allotments 30 and 31 Parish of Titirangi

Not Form Land See C679241

DISTRICT LAND REGISTRAR NORTH AUCKLAND NEW ZEALAND

Assistant Land Registrar

Subject to Section 243(c) Resource Management Act 1991 requiring that the conditional easements specified on Plan 156226 be granted or reserved prior to the disposition of the within land

C.489391.2 Resolution pursuant to Section 321 (3) (c) Local Government Act 1974 - produced 15.6.1993 at 2.39 o'c and entered 17.6.1993 at 9.00 o'c

C.436182.1 CAVEAT OF PART BY THE COUNCIL OF CARRINGTON POLYTECHNIC - 2.12.1992 at 11.16 [illegible] (with exceptions)

A.L.R.

C.491423.1 Certificate relating to a private drain passing through and serving the within land and attaching hereto the rights specified in Section 461 (1) Local Government Act 1974 - 22.6.1993 at 2.08 o'c

A.L.R.

Appurtenant hereto is a ligth and air easement over part Lot 1 Plan 156226 (CT.93B/539) marked "D","E","F" and "G" on Plan 156226 created by Transfer C.510175.3

A.L.R.

The above easement is subject to Section 243(a) Resource Management Act 1991

A.L.R.

C.510175.4 Easement Certificate affecting Lots on Plan 156226

Nature	Servient Land	Dominant Land
Right of way	part lot 1 (CT.93B/539) marked"A"&"B"	Herein
Right of way	part lot 2 (CT.93B/540) marked"C"	Herein

- 24.8.1993 at 2.56 oc

A.L.R.

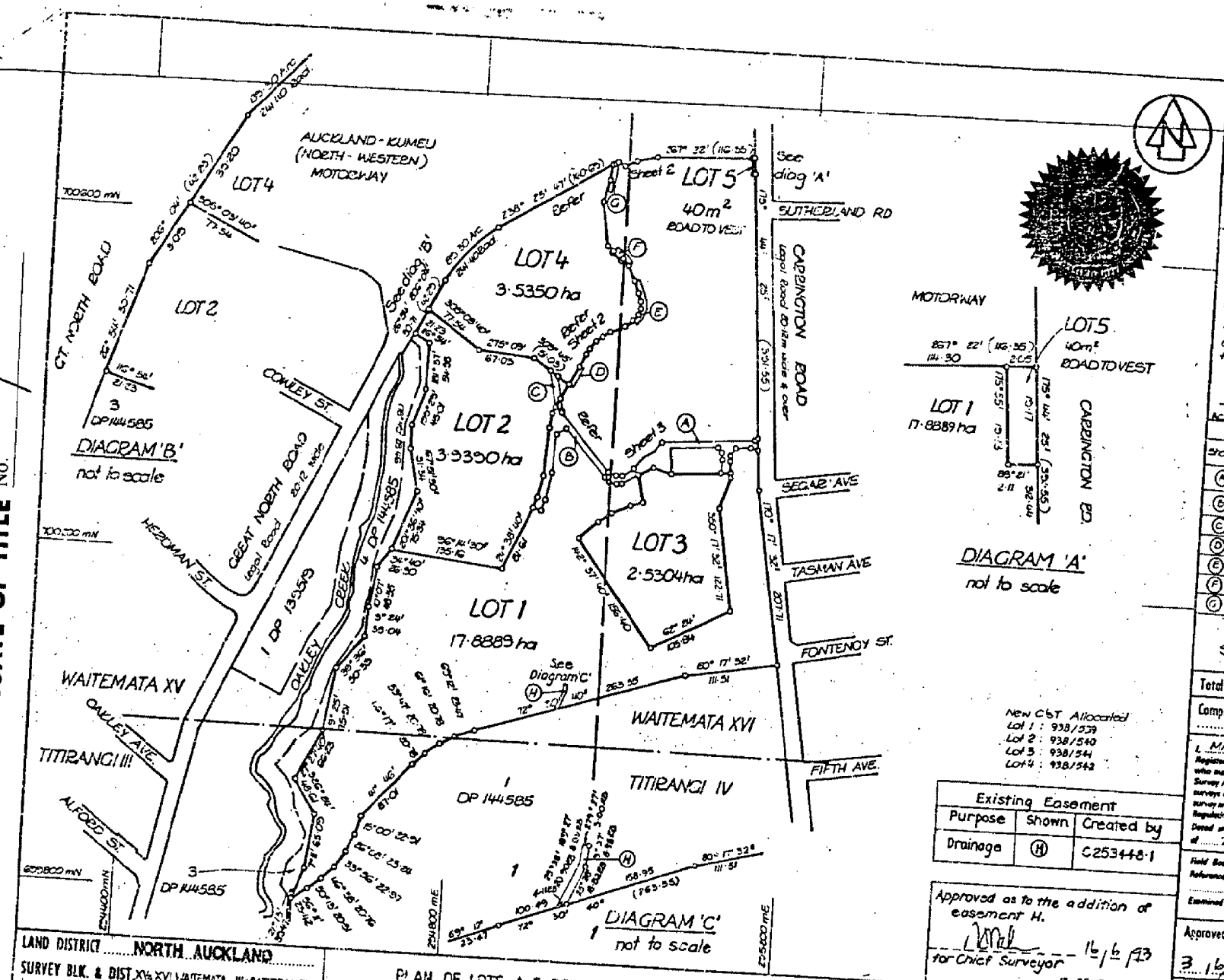
The above easements when created will be subject to Section 243(a) Resource Management Act 1991

A.L.R.

Measurements are Metric

No. 93B 542

CERTIFICATE OF TITLE No.



NEW C/T Allocated
Lot 1 : 938/539
Lot 2 : 938/540
Lot 3 : 938/541
Lot 4 : 938/542

Existing Easement		
Purpose	Shown	Created by
Drainage	(H)	C253448·1

Approved as to the addition of easement H.

for Chief Surveyor 16/6/93

13-3542-1

Approved by the Common Seal of the Auckland Area Health Board to be affixed in the presence of

Commissioner

THE AUCKLAND AREA HEALTH BOARD Common Seal of

Approved pursuant to Section 226 of the Resource Management Act 1991 on the 10th day of May 1993 subject to the granting or reserving of the easements set out in the Memorandum hereon.

The Common Seal of the Auckland City Council is affixed hereto in the presence of

City Secretary

Senior Land Surveyor

Memorandum of Easements

Shown	Purpose	(Dominant) Tenement	(Servient) Tenement
(A)	Right of Way	Lots 2-4 hereon	Lot 1 hereon
(B)		Lots 2-4 hereon	Lot 1 hereon
(C)		Lot 4 hereon	Lot 2 hereon
(D)	Light & Air	Lot 4 hereon	Lot 1 hereon
(E)		Lot 4 hereon	Lot 1 hereon
(F)		Lot 4 hereon	Lot 1 hereon
(G)		Lot 4 hereon	Lot 1 hereon

Sheet 1 of 3 sheets

Total Area 27.8973 ha

Comprised in CT 850/233 (All)

I, Michael Douglas Alan of Auckland Registered Surveyor and holder of an annual practising certificate (or who may act as a registered surveyor pursuant to section 35 of the Survey Act 1986) hereby certify that this plan has been made from surveys executed by me or under my direction, that such plan and survey are correct and have been made in accordance with the Survey Regulations 1972 or any regulations made in substitution thereof.

Dated at Auckland this 13th day of May 1993 Signature

Field Book ... p. ... Traverse Book ... p. ...

Reference Plans ...

Examined A.K. Challenor ... Correct for Landmark

Approved as to Survey

3/6/93 Chief Surveyor

Deposited this 10th day of June 1993

District Land Registrar

File Reference Instructions

DP 156226

LAND DISTRICT NORTH AUCKLAND

SURVEY BLK. & DIST XVI & XVI WAITEMATA, III & IV TITIRANGI AUCK. 56, 56

NZMS 261 SHT ... RECORD MAP No 77

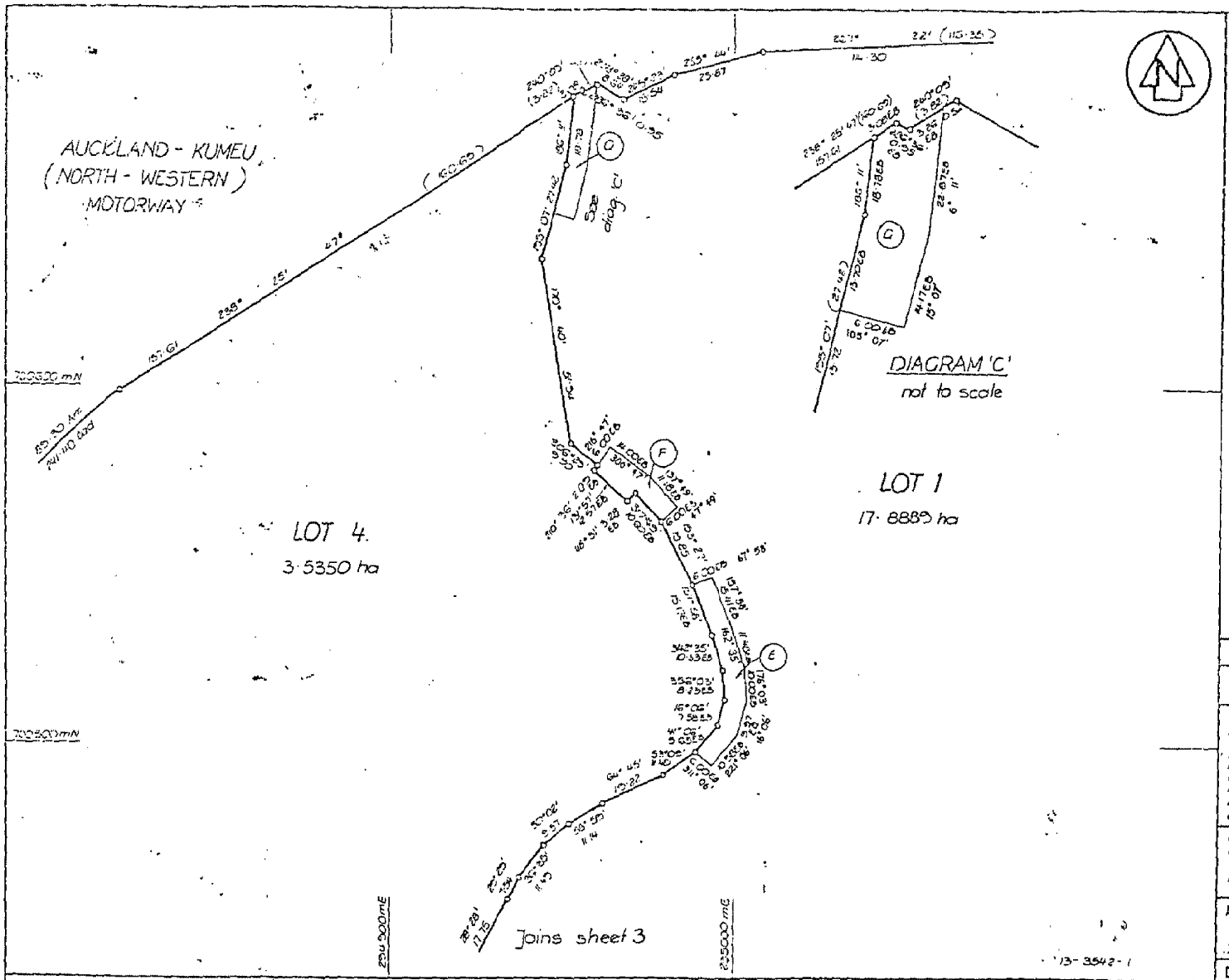
PLAN OF LOTS 1-5 BEING A SUBDIVISION OF LOT 2 DP 144585

TERRITORIAL AUTHORITY AUCKLAND CITY

Surveyed by HARRISON GRIERSON CONSULTANTS LTD

Scale 1:3000 Date APRIL 1993

W.A. BOWDITCH SURVEYOR GENERAL, DEPARTMENT OF SURVEY AND LAND INFORMATION, NEW ZEALAND



Approvals

Sheet 2 of 3 sheets

Total Area.....

Comprised in .....

I, Michael Douglas Allan of Auckland Registered Surveyor and holder of an annual practising certificate (or who may act as a registered surveyor pursuant to section 25 of the Survey Act 1986) hereby certify that this plan has been made from surveys executed by me or under my directions, that both plan and survey are correct and have been made in accordance with the Survey Regulations 1972 or any regulations made in substitution thereof.

Dated at Auckland this 13th day of May 1993 Signature

Field Book p. Traverse Book p.

Reference Plans

Examined A.R. Cadlare Correct E. Vandermark

Approved as to Survey 3.16.93 Chief Surveyor

Deposited this 14th day of June 1993 District Land Registrar

File Received 14 MAY 1993 Instructions

DP 156226

LAND DISTRICT NORTH AUCKLAND

SURVEY BLK. X DIST XV & XVI WATEMATA, IN M/V TITIRANGI AUCK. SS, S6,

NZMS 261 SHT ..... RECORD MAP No ...77.....

PLAN OF LOTS 1-5 BEING A SUBDIVISION OF LOT 2 DP 144585

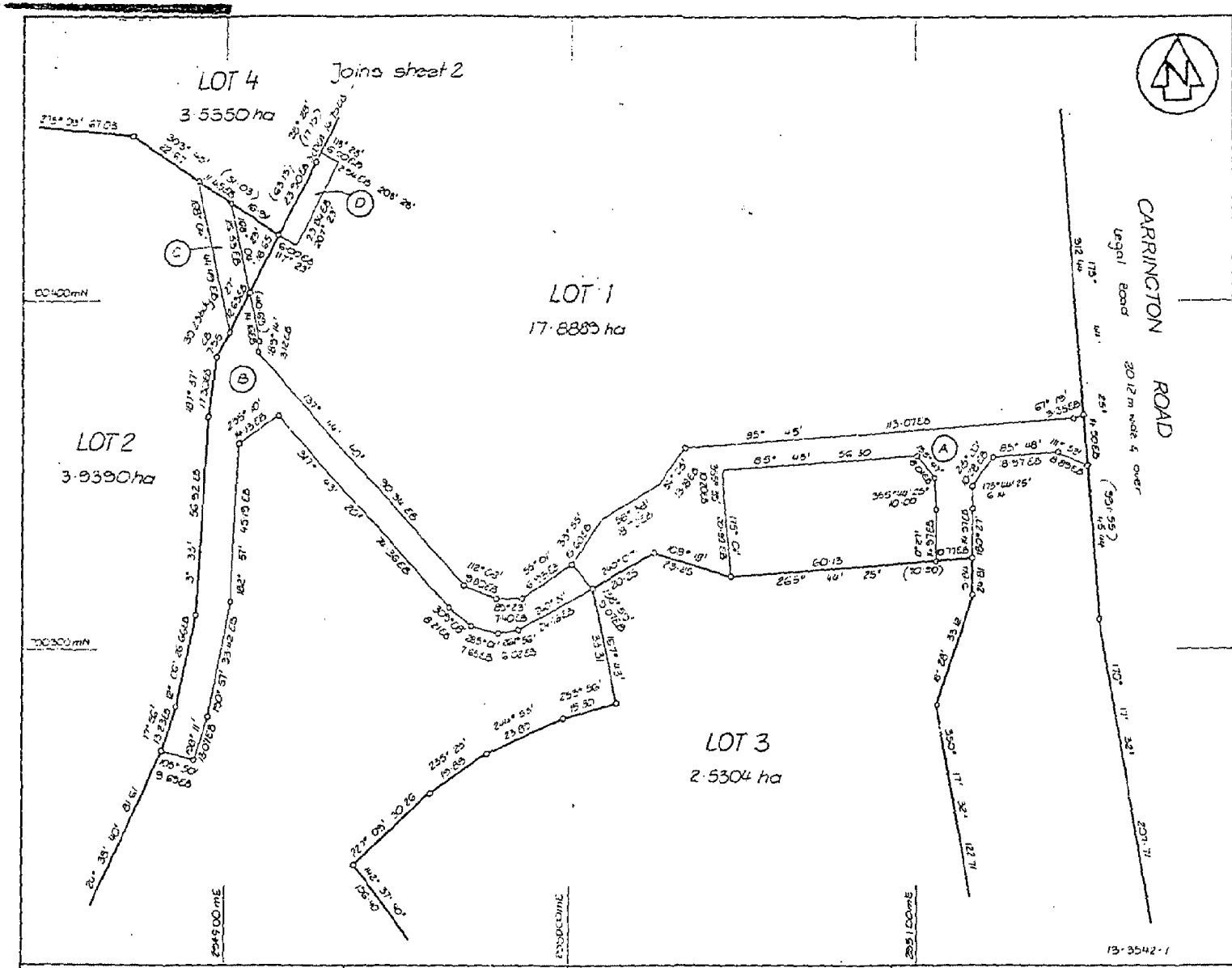
TERRITORIAL AUTHORITY AUCKLAND CITY

Surveyed by HARRISON GRIERSON CONSULTANTS LTD

Scale 1:750 Date APRIL 1993

13-3542-1

W.A. ROBERTSON, SURVEYOR GENERAL, DEPARTMENT OF SURVEY AND LAND INFORMATION, NEW ZEALAND



Approvals

Sheet 3 of 3 sheets

Total Area .....

Comprised in .....

I, Michael Douglas Allan of Auckland Registered Surveyor and Holder of an annual practising certificate (or who may act as a registered surveyor pursuant to section 25 of the Survey Act 1986) hereby certify that this plan has been made from surveys executed by me or under my directions, that both plan and survey are correct and have been made in accordance with the Survey Regulations 1972 or any regulations made in substitution thereof.

Dated at Auckland this 13th day of May 1993 Signature

Field Book ... p. ... Traverse Book ... p. ...

Reference Plans ...

Examined A.R. Clelland ... Correct C. Lindmark

Approved as to Survey

3/6/93 Chief Surveyor

Deposited this 14th day of June 1993

Assistant Land Registrar

File Received Instructions 14 MAY 1993

DP 156226

LAND DISTRICT NORTH AUCKLAND

SURVEY BLK. & DIST. XV & XVI WAITEMATA, IX & IV TOURANGI AUCK. 55, 56

NZMS 261 SHT ... RECORD MAP No 77

PLAN OF LOTS 1-5 BEING A SUBDIVISION OF LOT 2 DP 144585

TERRITORIAL AUTHORITY AUCKLAND CITY

Surveyed by HARRISON GRIERSON CONSULTANTS LTD

Scale 1:750 Date APRIL 1993

C.870924.1 Transfer to Ngati Whatua O Orakei Maori Trust Board - 27.7.1995 at 3.53 o'c

A.L.R.

D.036499.8 Transfer granting an electricity easement in gross over the part marked 'X' on Plan 156648 in favour of Mercury Energy Limited - 22.8.1996 at 10.40 o'c

A.L.R.

D.036499.12 Transfer granting a telecommunications easement in gross over the part marked 'X' on Plan 156648 in favour of Telecom New Zealand Limited - 22.8.1996 at 10.40 o'c

A.L.R.

Appurtenant hereto is a gas easement over part Lot 2 Plan 156226 (CT 93B/540) marked 'AJ', 'AI', 'K', 'J' and 'AM' on Plan 156648 created by Transfer D.036499.14

A.L.R.

D.036499.17 Transfer granting;

1) an electricity easement over the part marked 'AP' on Plan 156648 and
2) a water supply easement over the part marked 'AV' on Plan 156648

appurtenant to Lot 1 Plan 156226 (CT 93B/539) - 22.8.1996 at 10.40 o'c

A.L.R.

Appurtenant hereto is a steam supply easement over the part Lot 1 Plan 156226 (CT 93B/539) marked 'AS', 'BA', 'AQ', 'V' and 'AR' on Plan 156648 created by Transfer D.036499.21

A.L.R.

RECORD OF TITLE
UNDER LAND TRANSFER ACT 2017
FREEHOLD

Historical Search Copy

R.W. Muir
Registrar-General
of Land

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

Identifier	**NA139B/955**
Land Registration District	**North Auckland**
Date Issued	19 May 2003

Prior References
NA93B/542

Estate	Fee Simple
Area	2.6242 hectares more or less
Legal Description	Lot 1 Deposited Plan 211427

Original Registered Owners
Ngati Whatua O Orakei Maori Trust Board

Interests

C491423.1 Subject to conditions pursuant to Section 461(1) Local Government Act 1974 and certifying that a private drain passes through and serves the within land - 22.6.1993 at 2.08 pm

Appurtenant hereto are light and air rights created by Transfer C510175.3 - 24.8.1993 at 2.56 pm

The easements created by Transfer C510175.3 are subject to Section 243 (a) Resource Management Act 1991

Appurtenant hereto are rights of way specified in Easement Certificate C510175.4 - 24.8.1993 at 2.56 pm

The easements specified in Easement Certificate C510175.4 are subject to Section 243 (a) Resource Management Act 1991

Subject to an electricity right (in gross) over part marked B on Plan 211427 in favour of Mercury Energy Limited created by Transfer D036499.8 - 22.8.1996 at 10.40 am

Subject to a telecommunications right (in gross) over part marked B on Plan 211427 in favour of Telecom New Zealand Limited created by Transfer D036499.12 - 22.8.1996 at 10.40 am

Appurtenant hereto are gas rights created by Transfer D036499.14 - 22.8.1996 at 10.40 am

Subject to a water supply right over part marked D on Plan 211427 created by Transfer D036499.17 - 22.8.1996 at 10.40 am

Appurtenant hereto is a steam supply right created by Transfer D036499.21 - 22.8.1996 at 10.40 am

Appurtnant hereto is a right of way created by Easement Instrument 5590341.12 - 19.5.2003 at 9:00 am

The easement created by Easement Instrument 5590341.12 is subject to Section 243 (a) Resource Management Act 1991

Subject to a right of way (in gross) over part marked B on DP 379002 in favour of Auckland City Council created by Transfer 7130709.1 - 24.11.2006 at 9:00 am

8703837.1 Transfer to Unitec Institute of Technology - 2.10.2012 at 4:39 pm

9666057.1 Compensation Certificate pursuant to Section 19 Public Works Act 1981 by Her Majesty the Queen - 11.3.2014 at 9:12 am

9966432.1 Compensation Certificate pursuant to Section 19 Public Works Act 1981 by Her Majesty the Queen - 10.2.2015 at 2:17 pm

11076921.1 Surrender of the easements created by Transfer C510175.3 - 9.4.2018 at 2:00 pm

11076921.2 Surrender of the easements created by Transfer D036499.21 - 9.4.2018 at 2:00 pm

Identifier **NA139B/955**

11060116.2 Transfer to Her Majesty the Queen - 20.4.2018 at 3:34 pm

COMPUTER FREEHOLD REGISTER
UNDER LAND TRANSFER ACT 1952

Historical Search Copy

R.W. Muir
Registrar-General
of Land

Cancelled

Identifier	**NA139B/956**
Land Registration District	**North Auckland**
Date Issued	19 May 2003

Prior References
NA93B/539 NA93B/542

Estate	Fee Simple
Area	18.7997 hectares more or less
Legal Description	Lot 1 Deposited Plan 156226 and Lot 2 Deposited Plan 211427

Original Proprietors
UNITEC - Institute of Technology

Interests

Subject to a drainage right over part marked H on DP 156226 specified in Easement Certificate C247153.4 - 14.3.1991 at 2:43 pm

The easements specified in Easement Certificate C247153.4 are subject to Section 309 (1) (a) Local Government Act 1974

C491423.1 Subject to conditions pursuant to Section 461(1) Local Government Act 1974 and certifying that a private drain passes through and serves the within land - 22.6.1993 at 2.08 pm

Subject to light and air rights over parts marked D, E, F and G on DP 156226 created by Transfer C510175.3 - 24.8.1993 at 2.56 pm

The easements created by Transfer C510175.3 are subject to Section 243 (a) Resource Management Act 1991

Appurtenant hereto are light and air rights created by Transfer C510175.3 - 24.8.1993 at 2.56 pm

The easements created by Transfer C510175.3 are subject to Section 243 (a) Resource Management Act 1991

Subject to a right of way over parts marked A and B on DP 156226 specified in Easement Certificate C510175.4 - 24.8.1993 at 2.56 pm

The easements specified in Easement Certificate C510175.4 are subject to Section 243 (a) Resource Management Act 1991

Appurtenant hereto are rights of way specified in Easement Certificate C510175.4 - 24.8.1993 at 2.56 pm

The easements specified in Easement Certificate C510175.4 are subject to Section 243 (a) Resource Management Act 1991

Appurtenant hereto is an electricity right created by Transfer D036499.13 - 22.8.1996 at 10.40 am

Appurtenant hereto are electricity and gas rights created by Transfer D036499.16 - 22.8.1996 at 10.40 am

Appurtenant hereto are electricity and water supply rights created by Transfer D036499.17 - 22.8.1996 at 10.40 am

Subject to an electricity right over part marked AP and a water supply right over part marked E on Plan 211427 created by Transfer D036499.17 - 22.8.1996 at 10.40 am

Subject to a gas right over parts marked Y, R, Z, AA, AB and AD and to a water supply right over part marked AU on Plan 156648 created by Transfer D036499.18 - 22.8.1996 at 10.40 am

Subject to a steam supply right over parts marked AT, BA, AQ, V and AR on Plan 156648 created by Transfer

Identifier **NA139B/956**

D036499.19 - 22.8.1996 at 10.40 am

Subject to a telecommunications right (in gross) over parts marked AX, BA, BC, BD, P, BE, AA, BF and BG on Plan 156648 in favour of Telecom New Zealand created by Transfer D036499.20 - 22.8.1996 at 10.40 am

Subject to a steam supply right over parts marked AS, BA, AQ, V and AR on Plan 156648 created by Transfer D036499.21 - 22.8.1996 at 10.40 am

Appurtenant hereto is a steam supply right created by Transfer D036499.21 - 22.8.1996 at 10.40 am

Subject to an electricity right (in gross) over parts marked O, P, Q, R, S, U, V and W on Plan 156648 in favour of Mercury Energy Limited created by Transfer D054952.2 - 10.10.1996 at 2.42 pm

D642838.1 Compensation Certificate pursuant to Section 19 Public Works Act 1981 by Her Majesty the Queen - 24.9.2001 at 2.30 pm

D644143.1 CERTIFICATE PURSUANT TO SECTION 37 (2) BUILDING ACT 1991- 27.9.2001 AT 3.14 PM

5590341.6 Consent Notice pursuant to Section 221 Resource Management Act 1991 - 19.5.2003 at 9:00 am

5590341.7 Consent Notice pursuant to Section 221 Resource Management Act 1991 - 19.5.2003 at 9:00 am

Subject to an electricity right (in gross) over part marked C on Plan 211427 in favour of Mercury Energy Limited created by Transfer D036499.8 - 22.8.1996 at 10.40 am

Subject to a telecommunications right (in gross) over part marked C on Plan 211427 in favour of Telecom New Zealand Limited created by Transfer D036499.12 - 22.8.1996 at 10.40 am

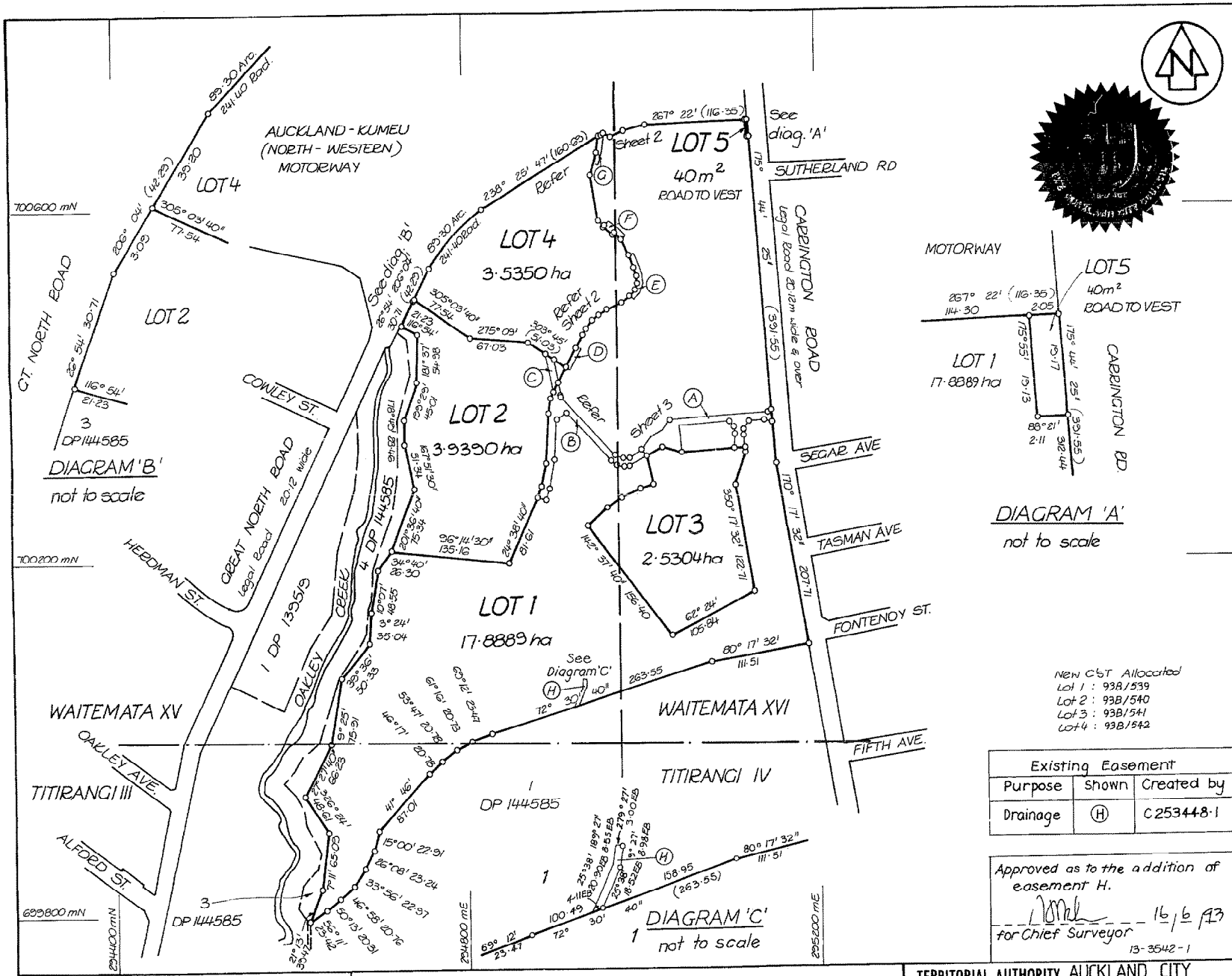
Appurtenant hereto are gas rights created by Transfer D036499.14 - 22.8.1996 at 10.40 am

Subject to Section 241(2) Resource Management Act 1991 (affects DP 211427)

5590341.11 CTs issued - 19.5.2003 at 9:00 am

Legal Description	**Title**
Lot 2 Deposited Plan 314949	58980
Lot 3 Deposited Plan 314949	58981
Lot 2 Deposited Plan 211427 and Lot 5 Deposited Plan 314949	58983

CANCELLED



MOTORWAY

LOT 5
40m²
ROAD TO VEST

LOT 1
17·8889 ha

CARRINGTON RD.

New C/T Allocated
Lot 1 : 93B/539
Lot 2 : 93B/540
Lot 3 : 93B/541
Lot 4 : 93B/542

Existing Easement		
Purpose	Shown	Created by
Drainage	(H)	C253448·1

Approved as to the addition of easement H.

16/6/93
for Chief Surveyor

13-3542-1

Approval: AREA

The Common Seal of the Auckland Area Health Board was hereto affixed in the presence of

The Common Seal of the Auckland Area Hospital Board

Commissioner

Approved pursuant to Section 223 of the Resource Management Act 1991 on the 10th day of May 1993 subject to the granting or reserving of the easements set out in the Memorandum hereon.

The Common Seal of the Auckland City Council is affixed hereto in the presence of.

City Secretary

Senior Land Surveyor

ACC Plan W3918

Memorandum of Easements

Shown	Purpose	Dominant Tenement	Servient Tenement
(A)	Right of Way	Lots 2-4 hereon	Lot 1 hereon
(B)		Lots 2-4 hereon	Lot 1 hereon
(C)		Lot 4 hereon	Lot 2 hereon
(D)	Light & Air	Lot 4 hereon	Lot 1 hereon
(E)		Lot 4 hereon	Lot 1 hereon
(F)		Lot 4 hereon	Lot 1 hereon
(G)		Lot 4 hereon	Lot 1 hereon

Sheet 1 of 3 sheets

Total Area 27·8973 ha

Comprised in CT 85D/293 (All)

I, Michael Douglas Allan of Auckland

Registered Surveyor and holder of an annual practising certificate for who may act as a registered surveyor pursuant to section 25 of the Survey Act 1986 hereby certify that this plan has been made from surveys executed by me or under my directions, that both plan and survey are correct and have been made in accordance with the Survey Regulations 1972 or any regulations made in substitution thereof.

Dated at Auckland this 13th day of May 1993 Signature

Field Book p. Traverse Book p.

Reference Plans

Examined A.R. Challans Correct E. Lindmark

Approved as to Survey

3/16/93 Chief Surveyor

Deposited this 10th day of June 1993

District Land Registrar

File Received Instructions

DP 156226

LAND DISTRICT NORTH AUCKLAND

SURVEY BLK. & DIST XV & XVI WAITEMATA, III & IV TITIRANGI AUCK. 55, 56,

NZMS 261 SHT RECORD MAP No 77

PLAN OF LOTS 1-5 BEING A SUBDIVISION OF LOT 2 DP 144585

TERRITORIAL AUTHORITY AUCKLAND CITY

Surveyed by HARRISON GRIERSON CONSULTANTS LTD

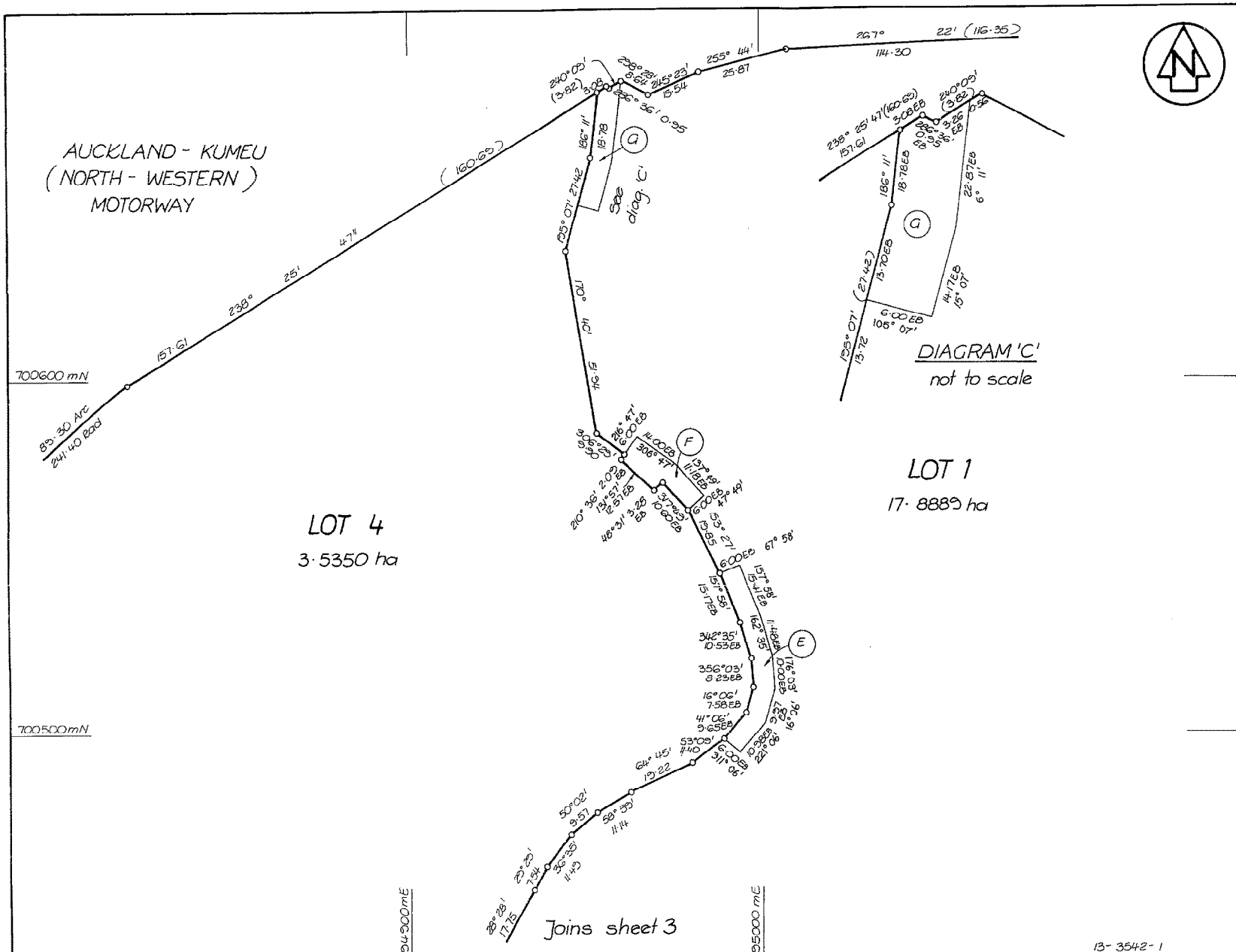
Scale 1:3000 Date APRIL 1993

W.A. ROBERTSON, SURVEYOR GENERAL, DEPARTMENT OF SURVEY AND LAND INFORMATION, NEW ZEALAND

DOSLI FORM DIS

REORDER FROM AAROUE GRAPHICS NEW ZEALAND LTD

23 JUN 1993



Approvals

Sheet 2 of 3 sheets

Total Area .....

Comprised in .....

I, Michael Douglas Allan of Auckland Registered Surveyor and holder of an annual practising certificate (or who may act as a registered surveyor pursuant to section 25 of the Survey Act 1986) hereby certify that this plan has been made from surveys executed by me or under my directions, that both plan and survey are correct and have been made in accordance with the Survey Regulations 1972 or any regulations made in substitution thereof.

Dated at Auckland this 13th day of May 1993 Signature

Field Book ... p. ... Traverse Book ... p. ...

Reference Plans .....

Examined A.R. Challoner Correct E. Hindmarsh

Approved as to Survey

3.16.193 Chief Surveyor

Deposited this 17th day of June 1993

District Land Registrar

File Received Instructions 14 MAY 1993

DP 156226

LAND DISTRICT NORTH AUCKLAND

SURVEY BLK. & DIST XV & XVI WAITEMATA, II & IV TITIRANGI, AUCK. 55, 56,

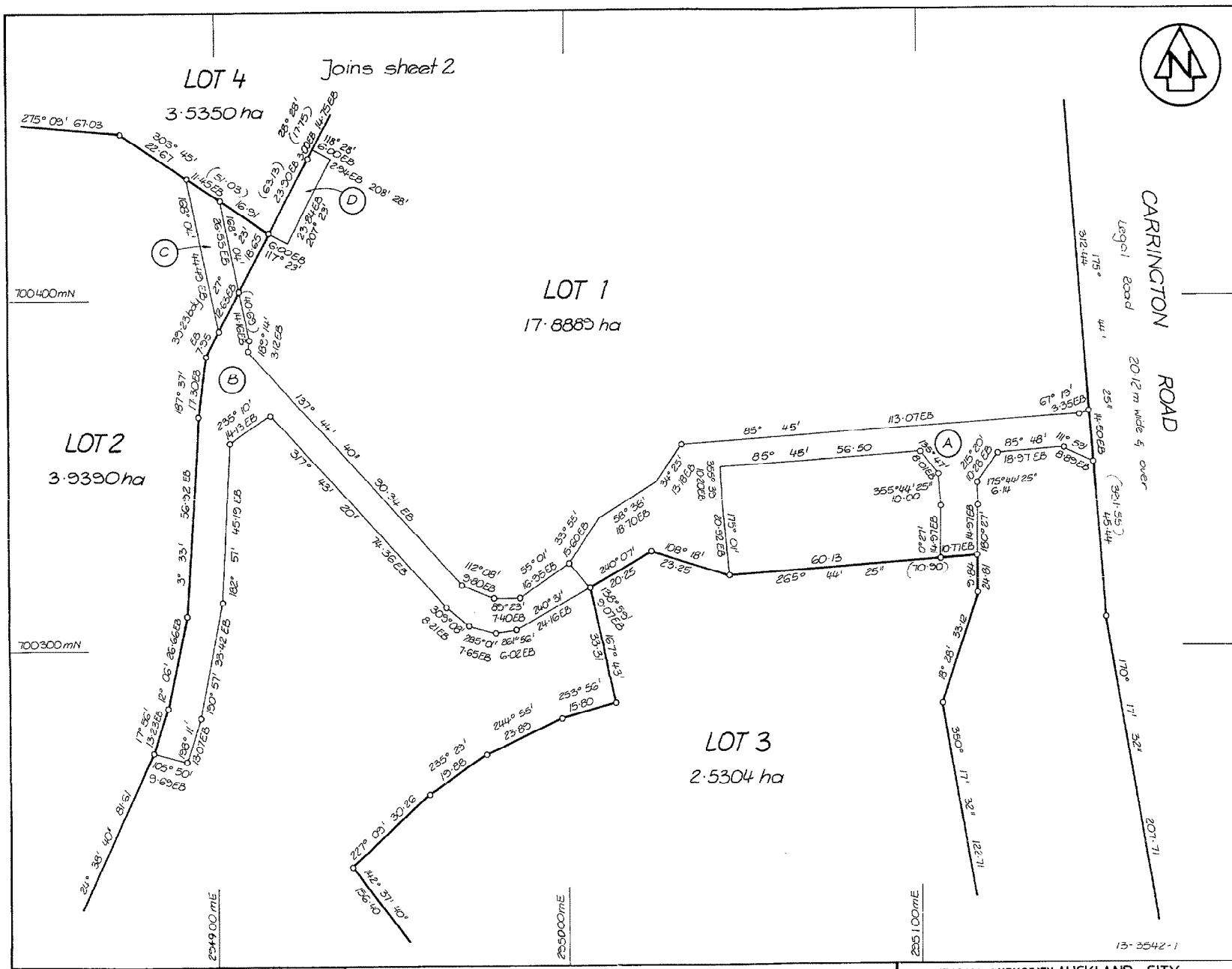
NZMS 261 SHT ..... RECORD MAP No 77

PLAN OF LOTS 1-5 BEING A SUBDIVISION OF LOT 2 DP 144585

TERRITORIAL AUTHORITY AUCKLAND CITY

Surveyed by HARRISON GRIERSON CONSULTANTS LTD

Scale 1:750 Date APRIL 1993



Approved

Sheet 3 of 3 sheets

Total Area .....

Comprised in .....

.....

I, Michael Douglas Allan of Auckland Registered Surveyor and holder of an annual practising certificate (or who may act as a registered surveyor pursuant to section 25 of the Survey Act 1986) hereby certify that this plan has been made from surveys executed by me or under my directions, that both plan and survey are correct and have been made in accordance with the Survey Regulations 1972 or any regulations made in substitution thereof.

Dated at Auckland this 13th day of May 1993 Signature

Field Book p. Traverse Book p.

Reference Plans

Examined A.R. Challans Correct E. Hindmarsh

Approved as to Survey

3.6.93 Chief Surveyor

Deposited this 13th day of June 1993

District Land Registrar

File Received Instructions 14 MAY 1993

DP 156226

LAND DISTRICT NORTH AUCKLAND

SURVEY BLK. & DIST. XV & XVI WAITEMATA, II & IV TITIRANGI AUCK. 55, 56

NZMS 261 SHT ..... RECORD MAP No 77

PLAN OF LOTS 1-5 BEING A SUBDIVISION OF LOT 2 DP 144585

TERRITORIAL AUTHORITY AUCKLAND CITY

Surveyed by HARRISON GRIERSON CONSULTANTS LTD

Scale 1:750 Date APRIL 1993

W.A. ROBERTSON, SURVEYOR GENERAL, DEPARTMENT OF SURVEY AND LAND INFORMATION, NEW ZEALAND

DOSLI FORM 016

REORDER FROM AARQUE GRAPHICS NEW ZEALAND LTD

23 JUN 1993

CENTIMETRES

LT 211427 (Title Plan)
Cpy - 01/01, Pgs - 001, 22/04/03, 15:31
Doc ID 3108370/2

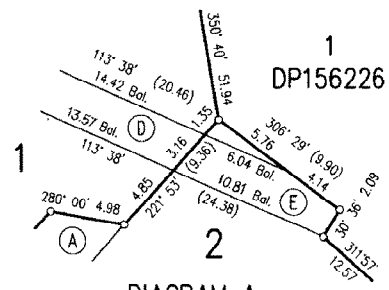


DIAGRAM A
Scale 1:250

AUCKLAND-KUMEU (NORTH-WESTERN) MOTORWAY

GREAT NORTH ROAD
LEGAL ROAD

700600mN
700400mN
294800mE
295000mE

LOT 1
2.6242ha

LOT 2
9108m²

1
DP156226

2
DP156226

Waitemata XV

Waitemata XVI

See Diagram A
See Diagram B

241.40 Rod
89.30 Arc
42° 15' 20" Ch
26° 04' 39.20
125° 03' 40" 77.54
95° 09' 67.03
123° 45' (51.03)
31.05
19.98
27° 23' 23.80
28° 28' 17.75
17° 28' 44.04
19.11' 09" Ch
50.25 Rod
29.28 Arc
TP
207° 51' 28.71
204° 20' 15.18
150° 00' 6.12
25° 25' 6.66
21° 20' 18.00
22° 04' 22.95
41° 37' 24.36
35° 20' 14.70
A
B
C
D
E
AP
55° 25' 47" 157.61
15° 07' 27.42
6° 11' 18.78
350° 40' 51.94
228° 31' 3.28
317° 49' 10.60
333° 27' 19.85
337° 58' 15.17
342° 35' 10.53
356° 03' 8.23
16° 06' 7.58
41° 06' 9.65
53° 09' 11.40
64° 45' 19.22
58° 59' 11.14
50° 02' 9.57
36° 35' 11.49
29° 29' 7.54
31°57' 12.57

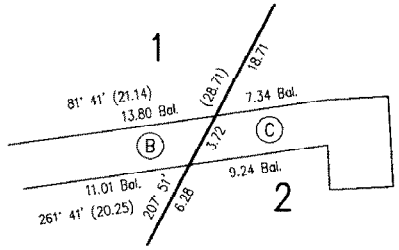


DIAGRAM B
Scale 1:250

EXISTING EASEMENTS IN GROSS			
Purpose	Shown	Servient Ten.	Created by
Electricity	B & C	Lot 1 hereon	D.036499.8
Telecommunication		Lot 2 hereon	D.036499.12

EXISTING EASEMENTS			
Purpose	Shown	Serv. Tenement	Created by
Electricity	AP	Lot 2 hereon	D.036499.17
Water Supply	D	Lot 1 hereon	
	E	Lot 2 hereon	

Approvals

Registered Owner

I hereby certify that this plan was approved by the Auckland City Council pursuant to Section 223 of the Resource Management Act 1991 on the 21st day of February 2002 subject to the granting or reserving of the easements set out in the memorandum hereon and subject to the amalgamation condition hereon and, for the purposes of Section 224(c) of the Resource Management Act 1991, that all of the conditions of the subdivision consent have been complied with to the satisfaction of the said Council.

Team Leader Subdivisions

ACC Plan No W5243/12

Pursuant to Section 321(3)(c) of the Local Government Act 1974 the Auckland City Council by resolution passed on the 21st day of December 2001 is satisfied that adequate access is provided to Lot 2 by way of a right of way and that Section 321(1) shall not apply.

Authorised Officer

MEMORANDUM OF EASEMENTS			
Purpose	Shown	Serv. Tenement	Dom.Tenement
Right of Way	A	Lot 2 hereon	Lot 1 hereon

AMALGAMATION CONDITION

That Lot 2 hereon be transferred to the owner of Lot 1 DP156226 (CT93B/539) and that one Certificate of Title be issued to include both parcels.
See A636169.

New CsT Allocated:
Lot 1: CT 139B/955
Lot 2: CT 139B/956

CLASS OF SURVEY: I

Total Area 3.5350ha

Comprised in CT 93B/542

I, David ALLEN being a person entitled to practise as a registered surveyor, certify that –
(a) The surveys to which this dataset relates are accurate, and were undertaken by me or under my direction in accordance with the Survey Act 1986 and the Survey Regulations 1998.
(b) This dataset is accurate, and has been created in accordance with that Act and those Regulations.

Signature

Date 11 February 2002

Field Book p. Traverse Book p.
Reference Plans
Examined Correct

Approved as to Survey by Land Information NZ on
02/05/2003 ~~Chief Surveyor~~

Deposited by Land Information NZ on 19/5/03 2003
~~for Registrar General of Land~~

File 5401/02NL
Received
Instructions

DP211427

LAND DISTRICT North Auckland
Survey Blk. & Dist. XV & XVI Waitemata
NZMS 261 Sheet Record Map No.

LOTS 1 & 2 BEING A SUBDIVISION OF LOT 4 DP156226

TERRITORIAL AUTHORITY Auckland City
Surveyed by Connell Wagner
Scale 1:1000 Date February 2002

5131

5131

Land required for the use of the Whau Lunatic Asylum.

A

(Sd.) F.M. Henson C.H.
Authorised Surveyor
6/10/88

3914·1S.
24257·4W.

656

August 93 68 16010 sixteenth 17th August 1893.

H. J. H. Blow
Under-Secretary for Public Works

Lot 30 | 31 | 32 | 33.

25000·0 West of Mt Eden

Parish of Titirangi

A. R. P.
4. 1. 17.

S.O. 47257

ROAD DISTRICT.

POINT CHEVALIER

NORTH

XV
WAITEMATA

III
TITIRANCI

Meridian of Mt Eden

SCALE 3 CHAINS = 1 INCH.

LINKS 100 90 80 70 60 50 40 30 20 10 0 10 CHAINS.

Taken (4.1.17) Gaz 1893 p 1239

Approved
(Sd.) Wm C. Kensington
for Assist Surveyor General
10·10·88

Entered on block sheets & on Record maps
10.10.88

Copy of tracing attached to Proclamation 1295, lodged in Lands & Deeds Office, Auckland. Original Plan, S.O. 5131, lost.

RECEIVED SURVEY 9 OCT. 88

PUBLIC WORKS OFFICE AUCKLAND

Copy of No 1425 88/1416

Mr Shurtemant
to enter
Wm C.K. 9.10.88

F 39 00 0N 23

Copy of P.W.D. 16010

5131

5131

DEPARTMENT OF LANDS AND SURVEY, NEW ZEALAND.

L&S 9
818

North Auckland Land District.

Eden County

XV Waitemata S.D.

L.T. 23234

23367

S.O. 39987

Entered on Index Map
" " Selection "
" " Record Waitemata 2nd. "
" " Native "
" " Block XV Waitemata
A.H.K. 20-5-25

I hereby certify that the land shown on this plan proposed to be taken under the Public Works Act 1908 is not occupied by for any of the purposes as set forth in Sec 15 B of the said Act.

K. F. Haszard
16/3/25

Cross Referenced JW.

Instructions No. — Date: —
Field-book No. — Page: —
Traverse Reduction-book: S.E. Page: 72.
Map received: 24.11.24 Examined J. Webster 30/3/25.
Registered: 24.11.24

To Mr Dixon 24.11.24

CERTIFICATE. Correct
30.3.25

Plan of Pt Allot 30, Parish of Titirangi To be acquired for a road.

Surveyed for The Auckland City Council

By K.F. Haszard. Licensed Surveyor.

Date: November 1924.

SCALE: ONE chains to an inch.

23163

I HEREBY CERTIFY that this plan has been made from surveys executed by me [or under my own personal supervision, inspection, and field-check]; that both plan and survey are correct; and that all the rules and regulations with respect to the survey of Crown or Native lands have been strictly complied with.

Dated at Auckland this thirteenth day of November 1924.

K. F. Haszard
Licensed Surveyor.

Safe

Approved.
Astruckman
for Chief Surveyor.
31-3-25

Street.

K. F. Haszard
for Surveyor
13/11/24.

SHEET 79 SHEET 80

48218

48218 STANDARD SURVEY Block XV Waitemata S. D. SHEETS 89, 90, 99 & 100.

68

50.00 N. of Mt. Eden

SHEET 88

WAITEMATA HARBOUR

(20)

POINT CHEVALIER ROAD DISTRICT

SUPERSEDED BY 89 STD. PLAN 309

SUPERSEDED BY 90 STD. PLAN 272

(19)

OAKLEY CREEK

(PT 18A)

ROAD

See S.O. Plan N° 17387

1009.68

47.83 Ft M.109

82.71 Ft 25 M.108

1540.54

55° To M.96

58°

273

SHEET 58

(30)

(PT 18A) D.P. 8447

(30A)

NORTH

To 2086

54° 24'

26'

R 2179

26.81 Ft 2087

118° 00' 00"

25° 36' 54"

1008.36

27°

14.02

27.07 M.110

14.00

71.98

Hospital property

(18)

AVONDALE ROAD DISTRICT

SUPERSEDED BY 99 STD. PLAN 307

D.P. 8380

Cir. M. 9.

GREAT NORTH

Avondale Mental Hospital

Oakley Creek

100

City of Auckland

(31)

C. W. Worland
Surveyor General
23. 9. 15

(17)

J. Langmuir
Insp. of Surveys
23. 9. 15

Surveyed by H. M. Kensington Dist. Surveyor 10. 5. 15

PT 17

D.P. 20823

(61)

14.02

285° 36' 54" Alignment

2691.24

205° 36' 54"

2108.03

14.00

86.00

71.98

100.00

36° 54'

25°

PT 17

Alignment 275° 15' 90.76 Tres comte

2088 67.55 Ft

63° 31'

M.111

M.112

275° 29' 00" 76.26

14.02

14.02

(32)

Perp'r of Mt. Eden

C.W. Stewart: Delt: 31st March, 1915.
Exd. R. Enting 30th April 1915
Addn. Gt. N.R. U.M.M. Exd. U.M.M. 28.6.30

Additions Gt. Nth. Rd. J.M. Kensington Inspector of Surveys 29.6.20.

48218

48218

300.00 W. of Mt. Eden

250.00 W. of Mt. Eden

69

306

Continued Std. Plan 306

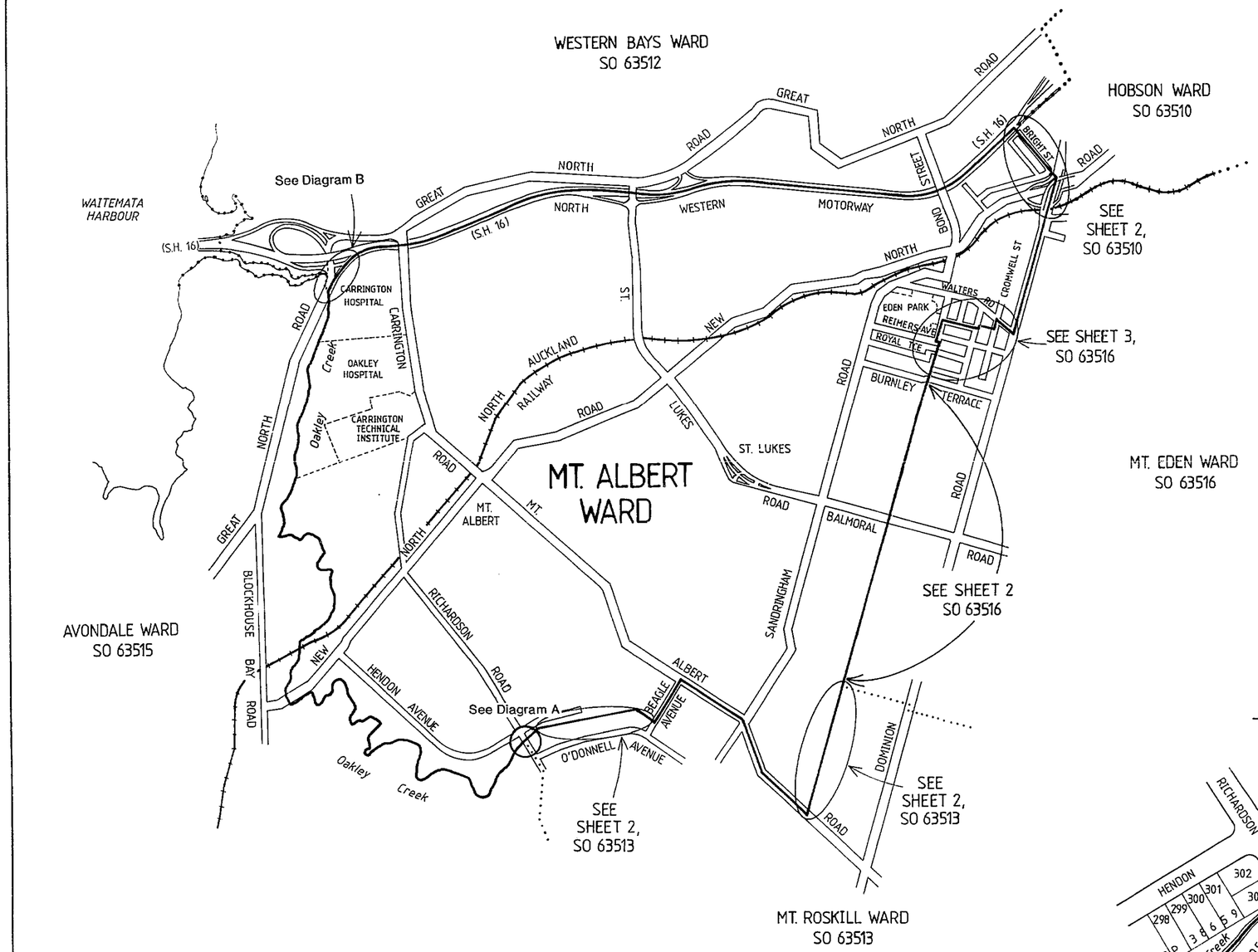
— SCALE 2 CHAINS TO AN INCH —

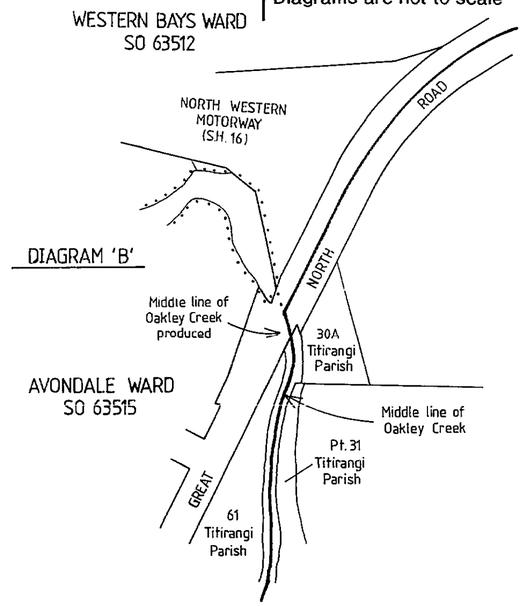
SHEET 9 Block III Titirangi S. D. SHEET 10

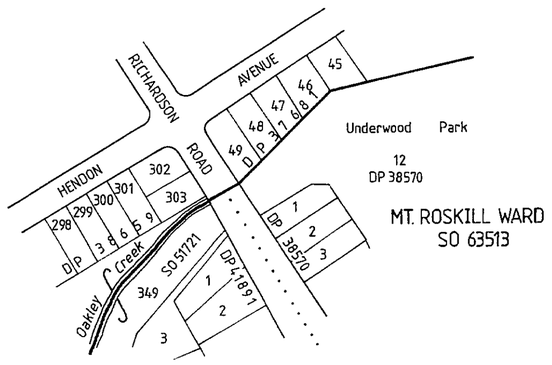
SHEET 98 SHEET 68

71 274

Block XVI Waitemata S. D.







Approvals

NOTE:

Where a Boundary is shown along a river or road it follows the middle line of the physical river or legal road unless shown otherwise

All seaward boundaries follow MHWM but cross the mouths of all rivers, streams, inlets, and estuaries unless shown otherwise

..... Adjoining Ward/District Boundary

Diagrams are not to scale

SHEET 1 OF 1

Total Area

Comprised in

I, ...
Registered Surveyor and holder of an annual practising certificate (or who may act as a registered surveyor pursuant to section 25 of the Survey Act 1986) hereby certify that this plan has been made from surveys executed by me or under my directions, that both plan and survey are correct and have been made in accordance with the Survey Regulations 1972 or any regulations made in substitution thereof.

Dated at ..... this ..... day of ..... 19 ..... Signature .....

Field Book ..... p. ..... Traverse Book ..... p.

Reference Plans

Examined ..... Correct .....

Approved for Gazette Purposes

7/6/89 ..... Asst. Chief Surveyor

Deposited this ..... day of 19

District Land Registrar

File D3/146/1
Received
Instructions 76/88/1270

SO 63514

LAND DISTRICT NORTH AUCKLAND
SURVEY BLK. & DIST.
NZMS 261 SHT R11

MT. ALBERT WARD

TERRITORIAL AUTHORITY AUCKLAND CITY

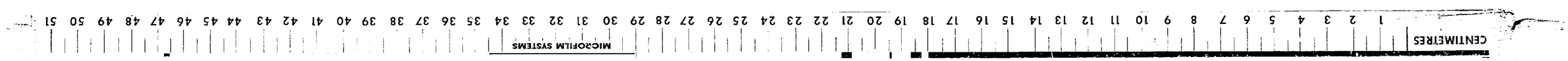
PREPARED BY: Department of Survey and Land Information

Scale 1:20 000 Date MAY, 1989

Supplied by Jas S. Lockley Ltd. Auckland

W. A. ROBERTSON **SURVEYOR GENERAL**, DEPARTMENT OF SURVEY AND LAND INFORMATION, NEW ZEALAND

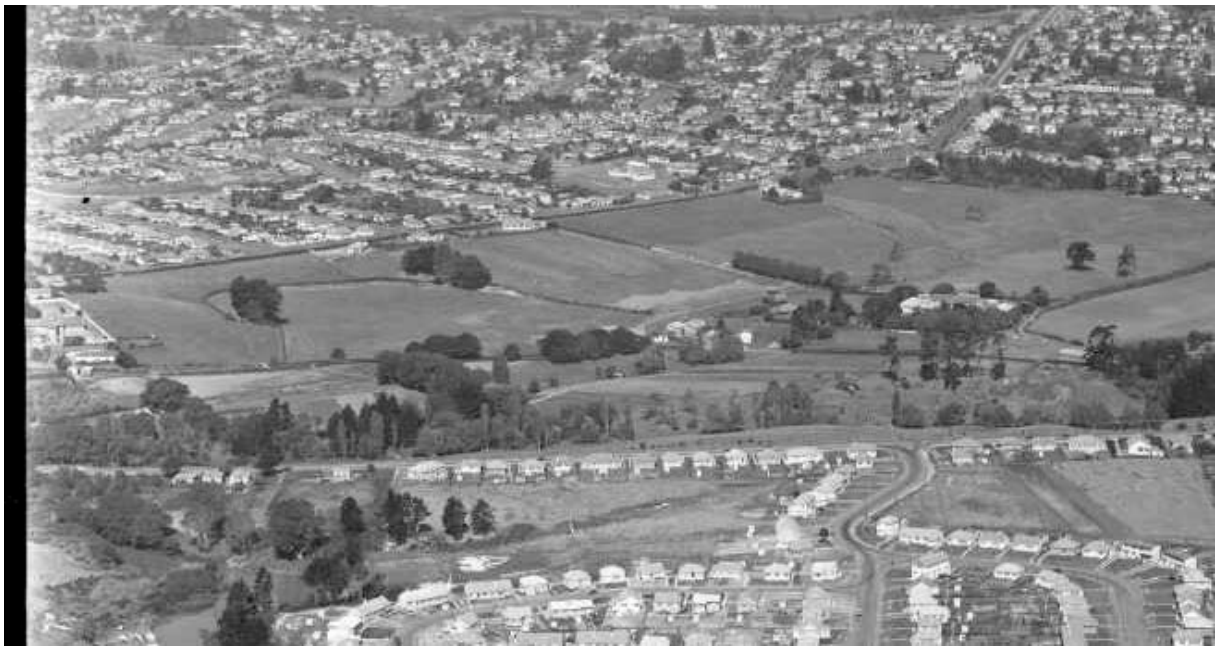
DOSLI FORM D15



F

Historical Aerials

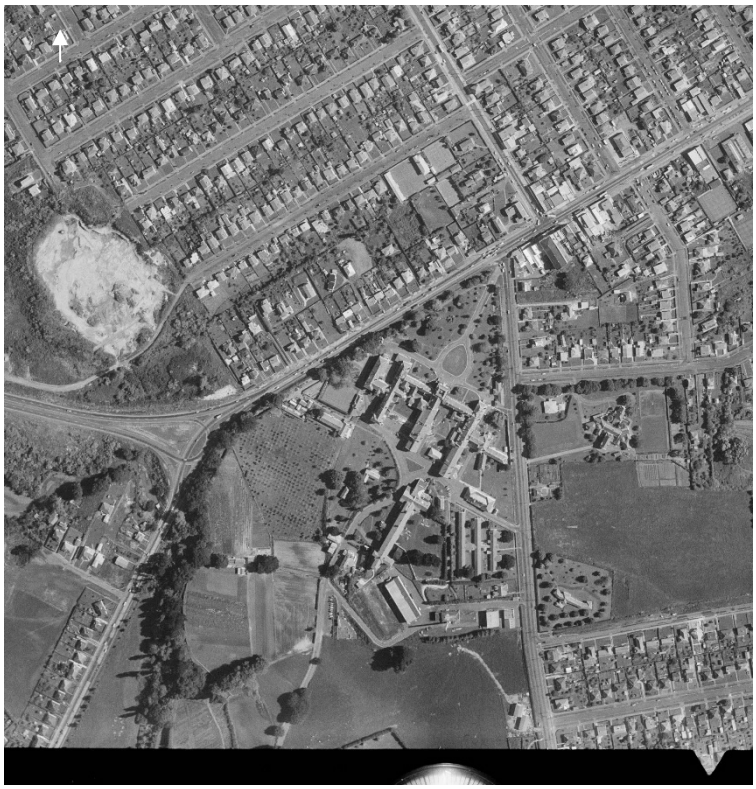
1940 Auckland Council



1947 Whites Aviation

1951 Retrolens

1959 Auckland Council



1961 Retrolens

1966 Retrolens

1968 Retrolens

1977 Retrolens

1985 Retrolens

1996 Auckland Council

2001 Auckland Council

2003/2004 Auckland Council

2006 Auckland Council

2008 Auckland Council

2010/2011 Auckland Council

2015/2016 Auckland Council

2017 Auckland Council

G

Historical Reports

Appendix G
Historical Reports

- Soil and Rock Mason Clinic Geotechnical Assessment Report 2012
- 4Sight Preliminary Site Investigation 2017
- WSP Geotechnical Interpretive Letter Report – Mason Clinic Area 2017

Our ref: 2171816A-GEO-LTR-001 Rev0.docx

Your ref: Geotechnical Interpretive Letter Report - Mason Clinic Area

By email
scollins@unitec.ac.nz

30 August 2017

Confidential

Simon Collins
Programme Manager
WLC
Private Bag 92025,
Victoria Street West,
Auckland 1142

Dear Simon,

Geotechnical Interpretive Letter Report – Mason Clinic Area

1. INTRODUCTION

Following a ground investigation across the Unitec Campus, Mt Albert you have requested that WSP provide a letter report on the ground conditions at Block 2/Block 8, adjacent to the Mason Clinic facility together with potential options for elements such as foundations, earthworks and retaining structures.

This letter report comprises a summary of the findings from our investigation in the land adjacent and to the north of the Mason Clinic, identified as Areas A, B1-3 in Figure 1- Proposed Expansion Areas and Block 2 / Block 8 on Figure 2 - Borehole Location Plan. Both figures are presented in the enclosures to this letter. Area C in Figure 1 corresponds to the western edge of Block 9/10 however only one borehole was carried out in this area (BH14).

2. INVESTIGATION DETAILS

Five rotary cored boreholes and two hand augers were formed within the Block 2 and 8 as presented on the attached Borehole Location Plan in the enclosures to this letter.

The boreholes were formed between 13th and 27th June 2017 in the locations shown on the borehole location plan. Boreholes were supervised on a full-time basis by an engineering geologist from WSP and materials were logged to the New Zealand Geotechnical Society guidelines for soil and rock description. Insitu strength testing was undertaken in the form of hand shear vanes (HV) and Standard Penetration Testing (SPT).

Selected samples were taken for subsequent laboratory testing for Atterberg Limits, Allophane, Linear Shrinkage and Unconfined Compressive Strength (UCS).

Level 9, Zurich House
21 Queen Street
Auckland 1010
PO Box 3935
Shortland Street, Auckland 1140

Tel: +64 9 377 9941
Fax: +64 9 377 9946
www.wsp.com

Groundwater monitoring wells were placed in BH06, BH06, BH07 and BH14.

3. GROUND CONDITIONS

3.1 BLOCK 2

Block 2 is located at the north-western corner of the Unitec site, and comprises a sloping grassy area in the south, rise to the north to a paved carpark and Unitec buildings.

At the top of the slope in the north, approximately 1-1.2m of fill has been emplaced in the areas of current structures, and generally comprises stiff, high plasticity silty clays. This material extends to the top of the slope and then decreases in thickness towards the south, with ~0.5m being observed in BH 04 and BH06.

The fill material within Block 2 overlies the grey-brown mottled orange silty clays and clayey silts identified as possible Puketoka Formation. These materials generally ranged from firm-stiff and low-high plasticity, with occasional stiff-very stiff horizons. The Puketoka soils thin to the north, extending down to a depth of between ~4.4-5.8m in BH04 and BH06 shallowing to ~3.0m in BH02 and BH05.

The East Coast Bays Formation was encountered below the Puketoka materials and initially comprised medium dense-dense, grey silty sands and stiff-very stiff, low-high plasticity silty clays. These soils generally transitioned to interbedded very weak-weak sandstones and mudstones at around 10.0-11.0m depth. The East Coast Bays Formation rock was typically intact, comprising few discrete joints and drilling-induced fracturing.

Table 1 Block 2 Ground Conditions

Borehole/Hand Auger	Depth of Fill/ Topsoil (m)	Depth of Basalt and Basanite (avl) (m)	Depth of Ash/Puketoka Formation (tp) (m))	Depth of East Coast Bays Formation (re) (m)	SPT Refusal Depth (m) n>50
WSP_BH02	0-1.2	-	1.2-3.1	3.1-15.5	12.5
WSP_BH04	0-0.5	-	0.5-5.85	5.85-15.5	7.5
WSP_BH05	0-1.2	-	1.2-3.4	3.4-12.5	9.5
WSP_BH06	0-0.5	-	0.5-4.4	4.4-14.0	8.0
WSP_HA01	0-1.0	-	1.0-2.0 (base not encountered)	-	-

3.2 BLOCK 8

Block 8 is situated on the northern boundary of the Mason Clinic. Boreholes were formed in the long grassy area, which lies at the toe of the gentle slope up to Block 2 to the north. This long grassy area contains natural material from the surface, with ~0.5m of topsoil being present.

Within BH07, on the south-west corner of the grassy area, the Puketoka formation was not encountered. In this area, basalt was encountered from the near-surface down to a depth of ~8.2m. This consisted of highly -slightly weathered, moderately strong-strong, grey basalt. This unit was variably vesicular and minimally jointed compared to basalt observed at the southern end of the site. However, a large sub-vertical, heavily weathered joint was encountered at 3.7m depth, which appeared to be a conduit for extensive ground water flow.

BH08 was positioned in the south-east corner of the grassed area, Puketoka formation soils were encountered to a depth of ~5.2m. These materials consisted of high plasticity, grey mottled orange silty clay, with trace fine sand. Trace-minor organic matter was also present including wood, which was observed from ~3.8m depth. This unit was initially stiff, becoming firm from ~1.5m and soft-firm from ~3.8m.

The boundary of the basalt flow exists between BH07 and BH08 and extends in a -north west/south east orientation and probably extends through the Mason Clinic site.

Under-lying these units is the ECBF soils, consisting predominantly of medium dense-very dense grey silty fine sands with trace wood. Interbedded completely weathered-slightly weathered, very weak-weak sandstone and mudstone exist from approximately 10.6m in BH07 and 7.0m in BH08. These conditions extend to the base of both holes.

HA06 was located outside of the grassy area beside building 206. This consisted of silty clay fill material down to a depth of 1.9m where the hand auger was terminated.

Table 2 Block 8 Ground Conditions

Borehole/Hand Auger	Depth of Fill/ Topsoil (m)	Depth of Basalt and Basanite (avl) (m)	Depth of Ash/Puketoka Formation (tp) (m))	Depth of East Coast Bays Formation (re) (m)	SPT Refusal Depth (m) n>50
WSP_BH07	0-0.45	0.45-8.2	-	8.2-15.5	11.0
WSP_BH08	0-0.5	-	0.5-5.2	5.2-12.5	8.0
WSP_HA06	0-1.9	-	-	-	-

3.3 BLOCK9/10

Block9/10 are located on the eastern side of the Mason Clinic. BH14 was located to the east of the access road and is shown on Figure 2.

A layer of fill is present in this area due to historic earthworks with ECBF soils encountered at relatively shallow depths. Transition to ECBF rock was again rapid in this area.

Table 3 Western Edge of Block 9/10 Ground Conditions

BOREHOLE/HAND AUGER	DEPTH OF FILL/ TOPSOIL (M)	DEPTH OF EAST COAST BAYS FORMATION (RE) (M)	SPT REFUSAL DEPTH (M) N>50
WSP_BH14	0-1.5	1.5-12.5	8.0

3.4 GROUNDWATER

Groundwater has been monitored on the 13/7/17 and the 24/7/17 the results are presented in Table 4 below.

Table 4 Groundwater Monitoring results

BH ID	Date	Well depth (m)	Surveyed elevation (ground surface) (m NZVD)	Distance from ground surface to top of casing (m below ground)	Depth to water (m BTOC)	Corrected depth to water (m BGL)	Corrected water elevation (m NZVD)
BH04	13/7/17	5.73	15.04	-0.61	0.54	1.15	13.89
BH06	13/7/17	10.00	12.74	-0.77	0.90	1.67	11.07
BH07	13/7/17	6.87	9.10	-0.72	0.95	1.67	7.43
BH04	24/7/17	5.68	15.04	-0.61	0.92	1.53	13.51
BH06	24/7/17	10.44	12.74	-0.77	1.64	2.41	10.33
BH07	24/7/17	7.41	9.10	-0.72	1.61	2.33	6.77
BH14	13/7/17	11.10	10.95	0.08	1.25	1.17	9.78
BH14	24/7/17	11.09	10.95	0.08	1.18	1.10	9.86

4. ENGINEERING CONSIDERATIONS

4.1 GENERAL

General implications of the ground conditions encountered are outlined in this section, with conclusions and recommendations are provided in Section 5.

As final ground levels proposed for the area are not currently finalised implications are generally discussed based on existing levels. This can be readily updated once levels become available.

4.2 FOUNDATIONS

4.2.1 SHALLOW FOUNDATIONS

AREAS A, B1-3 Incl.

Based on the information obtained as part of the investigation, it is likely that the grassed area to the north of the Mason Clinic comprises alluvial soils to a depth of around 4-6m below the existing surface levels. The alluvium is variable in strength and consistency with a general increase in strength moving north towards the gentle south and west facing slopes.

In general terms, shallow footings may be feasible within this area though with limited bearing capacity specific design due to the softer alluvium at shallow depths. Bearing capacities are likely to improve moving north towards the slopes.

BH07 encountered basalt to around 8m depth and it is likely that the edge of the basalt flow lies between BH07 and BH08. This is significant in terms of differential settlements and therefore performance/design of foundations crossing this boundary and the true edge should be further investigated.

Shallow foundation located wholly within the basalt flow are feasible, though again specific design may be required close the edge of the basalt flow as thickness is likely to rapidly decrease and punching will need to be considered in the footing design.

AREA C

Area C located to the east of the current Mason Clinic boundary, has fill at shallow depth in the typical range of shallow footing (e.g. 600mm) therefore dependent upon final levels shallow footings may be feasible with some specific design.

Care should be taken with regard to location of footings across differing materials as the edge of the basalt flow is likely to be in the vicinity. Delineation of the flow edge would prove useful information.

4.2.2 PILED FOUNDATIONS

AREA A, B1-3 Incl.

Underlying the alluvium and the basalt are initially soils of the ECBF, transitioning quickly into the typically weak rock observed around much of Auckland. UCS testing carried out on samples of ECBF core from the boreholes on site indicate UCS values in the 1-2MPa range. The ECBF rock is typically suitable for founding piles, either driven or bored.

Outside the basalt flow, given the shallow nature of the alluvium should loads be higher than those suitable / practicable for constructing shallow footings, shallow piling is a feasible option.

Bored piling is also feasible within the areas outside the basalt flow for both foundations and retaining structures.

Basalt is generally not suitable for piling due to its high strength and shallow foundation are likely to be more appropriate. Notwithstanding this comment, at the edge of the flow, driven piling e.g. H piles, may be appropriate to get through the often rubbly lateral margins and into ECBF below. We have anecdotal evidence from construction elsewhere on site that this has been successful.

AREA C

Piled options in Area c are also feasible as EBCF rock is present around 5m below existing levels.

4.3 RETAINING STRUCTURES

We are aware that some discussion has been progressed with respect to significant retaining structures on the site however these are yet to be finalised. Walls discussed so far have included large diameter contiguous or soldier pile walling with suitable lagging/shotcrete infill. Depending on the final retained height some of these walls may require anchoring to provide a cost-effective solution.

Other options for lower walls include MSE/Allen block type walls, gabions and standard timber pole walling.

4.4 EARTHWORKS

Based on Atterberg Limit testing carried out on the site, soils generally comprise cohesive materials with liquid limits just above 50% and generally below 15% linear shrinkage. These materials are generally suitable for earthworks though may require some conditioning / drying or blending.

5. CONCLUSIONS & RECOMMENDATIONS

Based on the information gathered as part of this investigation, together with the information provided by WLC, the following conclusions are made.

5.1 CONCLUSIONS

- AREA A, B1-3 incl is generally underlain by a shallow (4-6m) thickness of variable strength alluvium, overlying small thickness of ECBF soil which rapidly transitions into weak ECBF rock.

  The south-western corner of the site is underlain by basalt from one of the Mt Albert eruptions, and is present to a depth of 8m where investigated. ECBF soil and rock lie beneath the basalt.

- AREA C is likely to be underlain by a thin layer of fill overlying ECBF soil, transitioning to rock rapidly. The edge of the Basalt flow may exist in this area.

- Based on the testing performed soils are generally suitable for earthworks though will require blending / conditioning before being replaced in a controlled engineered manner.

- Based on strength testing performed as part of the investigation the UCS of ECBF rock material is typically in the order of 1-2MPa in the upper layers that would typically be used for rock socket/pile embedment depths.

- Strength testing perform in basalt flow indicates the UCS of the basalt is generally in the order of 50MPa, though edges of the flows are likely to be rubbly and weaker due to reduced thickness and increased discontinuities.

5.2 RECOMMENDATIONS

These recommendations are general in nature and should be developed further as part of the detailed design process prior to building consent.

- Shallow foundations are generally suitable in AREA A,B1-3 incl., however will require specific design/potential ground improvement. For example, 1m square pad foundation located some 600mm below ground level is likely to have ultimate bearing capacity, in the order of 150-200kPa, due to soft/firm soils at shallow depths. Shallow treatment such as excavation and replacement, geotextile rafts, short stone columns etc. are feasible however the cost effectiveness of these options this will depend on the earthworks to be performed to form final levels across the site. These options should be investigated further to assist with cost effective design.

- Shallow foundations in AREA C are feasible and ultimate bearing capacities in the order of at least 300kPa if located in engineering fill and/or stiff natural soils. Attention is drawn however to the origin/control of the fill in this location, as no information is available with respect to producer statements. Also, attention should be given to the likely presence of the basalt flow. Further investigation / testing will allow an assessment of these issues to be made.
- Typical ultimate end bearing capacities in the order of 2000kPa would be appropriate for outline pile design within the ECBF rock with ultimate skin friction in the order of 300kPa. These needs to be factored appropriately for use in ULS design.
- Outside of the basalt flow shallow driven piling could be considered, driven to set in the shallow ECBF rock. Typical ultimate end bearing capacities are provided above for preliminary design.
- Due to the variable thickness and strengths of the materials encountered generic parameters for the various layers at the toe of the proposed walls are not helpful. Specific reference to the borehole logs should be made. Notwithstanding this, for the preliminary design of the retained side of walls following parameters can be used to assist scheme development.

  ka = 0.33 (where rear of wall is flat)

  ka = 0.42 (assuming a slope of 3:1 exists above the wall)

  Unit weight Cohesive Material – 18kN/m^3

- Numerical slope stability assessment has not been carried out at this stage however should be performed once the scheme has been developed to a stage where finished levels are available. This includes global stability checks large retaining structures. Notwithstanding this statement, observations of the slope and a review of the materials encountered suggests the slope are currently performing adequately.
- Further site investigation in the proposed areas should be performed prior to detailed design for building consent. Techniques that would be appropriate include hand auger boreholes, further rotary coring and Continuous Penetration Testing (CPT) to assist with cost effective design.

6. LIMITATIONS

6.1 SCOPE OF SERVICES

This geotechnical site assessment report (the report) has been prepared in accordance with the scope of services set out in the contract, or as otherwise agreed, between the client and WSP (scope of services). In some circumstances the scope of services may have been limited by a range of factors such as time, budget, access and/or site disturbance constraints.

6.2 RELIANCE ON DATA

In preparing the report, WSP has relied upon data, surveys, analyses, designs, plans and other information provided by the client and other individuals and organisations, most of which are referred to in the report (the data). Except as otherwise stated in the report, WSP has not verified the accuracy or completeness of the data. To the extent that the statements, opinions, facts, information, conclusions and/or recommendations in the report (conclusions) are based in whole or part on the data, those conclusions are contingent upon the accuracy and completeness of the data. WSP will not be liable in

relation to incorrect conclusions should any data, information or condition be incorrect or have been concealed, withheld, misrepresented or otherwise not fully disclosed to WSP.

6.3 GEOTECHNICAL INVESTIGATION

Geotechnical engineering is based extensively on judgment and opinion. It is far less exact than other engineering disciplines. Geotechnical engineering reports are prepared to meet the specific needs of individuals. A report prepared for a consulting civil engineer may not be adequate for a construction contractor or even some other consulting civil engineer. This report was prepared expressly for the client and expressly for purposes indicated by the client or his representative. Use by any other persons for any purpose, or by the client for a different purpose, might result in problems. The client should not use this report for other than its intended purpose without seeking additional geotechnical advice.

6.4 THIS GEOTECHNICAL REPORT IS BASED ON PROJECT-SPECIFIC FACTORS

This geotechnical engineering report is based on a subsurface investigation which was designed for project-specification factors, including the nature of any development, its size and configuration, the location of any development on the site and its orientation, and the location of access roads and parking areas. Unless further geotechnical advice is obtained this geotechnical engineering report cannot be used:

* when the nature of any proposed development is changed

* when the size, configuration location or orientation of any proposed development is modified.

This geotechnical engineering report cannot be applied to an adjacent site.

6.5 THE LIMITATIONS OF SITE INVESTIGATION

In making an assessment of a site from a limited number of boreholes or test pits there is the possibility that variations may occur between test locations. Site exploration identifies specific subsurface conditions only at those points from which samples have been taken. The risk that variations will not be detected can be reduced by increasing the frequency of test locations; however this often does not result in any overall cost savings for the project. The investigation program undertaken is a professional estimate of the scope of investigation required to provide a general profile of the subsurface conditions. The data derived from the site investigation program and subsequent laboratory testing are extrapolated across the site to form an inferred geological model and an engineering opinion is rendered about overall subsurface conditions and their likely behaviour with regard to the proposed development. Despite investigation the actual conditions at the site might differ from those inferred to exist, since no subsurface exploration program, no matter how comprehensive, can reveal all subsurface details and anomalies.

The borehole logs are the subjective interpretation of subsurface conditions at a particular location, made by trained personnel. The interpretation may be limited by the method of investigation, and cannot always be definitive. For example, inspection of an excavation or test pit allows a greater area of the subsurface profile to be inspected than borehole investigation, however, such methods are limited by depth and site disturbance restrictions. In borehole investigation, the actual interface between materials may be more gradual or abrupt than a report indicates.

6.6 SUBSURFACE CONDITIONS ARE TIME DEPENDENT

Subsurface conditions may be modified by changing natural forces or man-made influences. A geotechnical engineering report is based on conditions which existed at the time of subsurface exploration.

Construction operations at or adjacent to the site, and natural events such as floods, or groundwater fluctuations, may also affect subsurface conditions, and thus the continuing adequacy of a geotechnical report. The geotechnical engineer should be kept appraised of any such events, and should be consulted to determine if additional tests are necessary.

6.7 AVOID MISINTERPRETATION

A geotechnical engineer should be retained to work with other appropriate design professionals explaining relevant geotechnical findings and in reviewing the adequacy of their plans and specifications relative to geotechnical issues.

Bore/profile logs should not be separated from the engineering report

Final bore/profile logs are developed by geotechnical engineers based upon their interpretation of field logs and laboratory evaluation of field samples. Customarily, only the final bore/profile logs are included in geotechnical engineering reports. These logs should not under any circumstances be redrawn for inclusion in architectural or other design drawings. To minimise the likelihood of bore/profile log misinterpretation, contractors should be given access to the complete geotechnical engineering report prepared or authorised for their use. Providing the best available information to contractors helps prevent costly construction problems. For further information on this matter reference should be made to ‘Guidelines for the Provision of Geotechnical Information in Construction Contracts’ published by the Institution of Engineers Australia, National Headquarters, Canberra 1987.

6.8 GEOTECHNICAL INVOLVEMENT DURING CONSTRUCTION

During construction, excavation is frequently undertaken which exposes the actual subsurface conditions. For this reason, geotechnical consultants should be retained through the construction stage, to identify variations if they are exposed and to conduct additional tests which may be required and to deal quickly with geotechnical problems if they arise.

6.9 REPORT FOR BENEFIT OF CLIENT

The report has been prepared for the benefit of the client and no other party. WSP assumes no responsibility and will not be liable to any other person or organisation for or in relation to any matter dealt with or conclusions expressed in the report, or for any loss or damage suffered by any other person or organisation arising from matters dealt with or conclusions expressed in the report (including without limitation matters arising from any negligent act or omission of WSP or for any loss or damage suffered by any other party relying upon the matters dealt with or conclusions expressed in the report). Other parties should not rely upon the report or the accuracy or completeness of any conclusions and should make their own enquiries and obtain independent advice in relation to such matters.

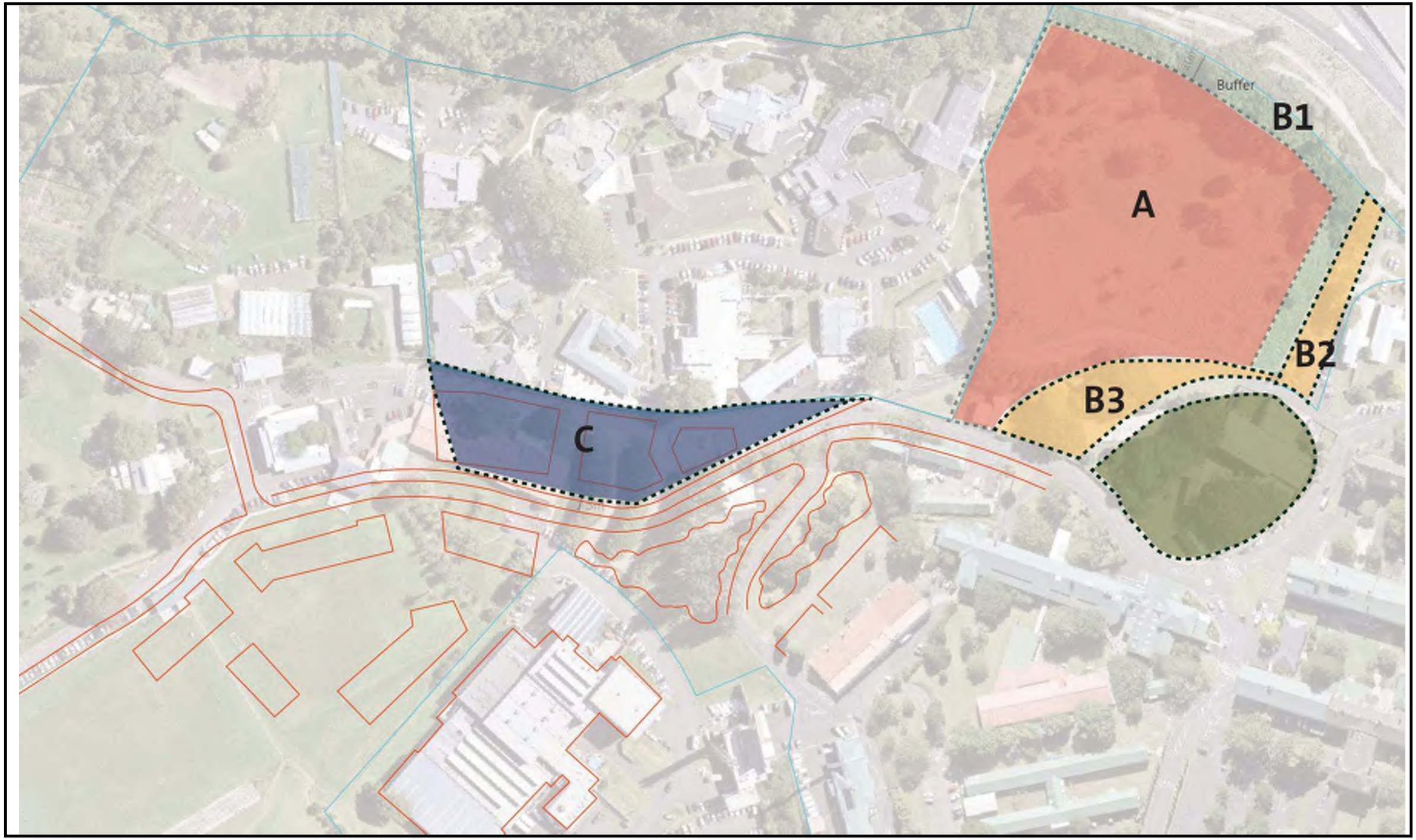
6.10 OTHER LIMITATIONS

WSP will not be liable to update or revise the report to take into account any events or emergent circumstances or facts occurring or becoming apparent after the date of the report.

Yours sincerely

John Seward
Geotechnics and Tunnels Team Manager NZ

Encl: Plans
Borehole Logs
Geotechnical Testing



Project name: Wairaka Due Diligence Investigation		Report title: Geotechnical Interpretative Letter Report – Mason Clinic	
Figure title: Proposed Expansion Areas			
Scale: N/A	Date: Aug 2017	Fig No: 1	Job No: 2171816A

4SIGHT CONSULTING

LAND. PEOPLE. WATER.

Waitemata District Health Board

Best Care for Everyone

Mason Clinic Preliminary Site Investigation

For Waitemata District Health Board

Facilities and Development

May 2017

REPORT INFORMATION AND QUALITY CONTROL

Prepared for:	Paul Stanbridge Facilities and Development Waitemata District Health Board

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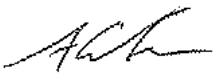
Reviewer:	Aaron Graham Senior Land and Water Quality Consultant	
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EXECUTIVE SUMMARY

This report provides information regarding a Preliminary Site Investigation (PSI) undertaken by 4Sight Consulting Ltd (4Sight) on land occupied by the Waitemata District Health Board (WDHB) Mason Clinic and associated buildings, located at 3 and 81A Carrington Road, and part of 1 Carrington Road, Mount Albert (the site).

The purpose of the PSI is to assess the potential implications of the National Environmental Standard for Assessing and Managing Contaminants in the Soil to Protect Human Health (NESCS) for the proposed redevelopment of the site. Under the NESCS, an evaluation of potential human health risk is required for the activities of subdivision, change in land use, or soil disturbance above threshold volumes on land which has been subject to activities listed in the Hazardous Activities and Industries List (HAIL).

The site is currently occupied by a Forensic Mental Health Facility, which incorporates housing and facilities for high risk patients. There are numerous buildings, carparking and landscaped areas, as well as open space at the northern end of the site.

The PSI included a review of readily available information provided by Auckland Council (AC), site observations, previous investigations and other relevant background information sources; e.g. historic aerial photography. This review identified that the site has historically been subjected to horticultural activity, selected areas of the site have been subject to potential uncontrolled filling, and currently fuel is stored on site. Therefore, the site is confirmed as being subject to historic and current HAIL activities, specifically Categories A (10): Persistent pesticide bulk storage or use including sport turfs, market gardens, orchards, glass houses or spray sheds; A (17): Storage tanks or drums for fuel, chemicals or liquid waste; and I: Any other land that has been subject to the intentional or accidental release of a hazardous substance in sufficient quantity that it could be a risk to human health or the environment.

Based on the findings of this investigation the following recommendations have been made to facilitate the proposed development of the site:

- Consent under the NESCS will be required for any subdivision, land use change or disturbance activities;
- A Detailed Site Investigation (DSI) will be required prior to any of the above activities being undertaken at the site, and should contaminants be identified, remedial works including validation sampling and reporting may be necessary; and
- A Site Management Plan (SMP) will be required to manage any disturbance works undertaken at the site.

Therefore, potential regulatory options include:

- Undertake a site wide DSI prior to any development activities occurring, once available to do so, and apply for a controlled or restricted discretionary consent under the NESCS (dependent on contamination identified). We note that a DSI across the entire site may not be practical at this time due to the number of onsite buildings, hardstand areas, and the continued use as a high security psychiatric hospital; or alternately
- Apply for consent on a discretionary activity basis under the NESCS and AUP: OP for the site (discretionary activity status as no intrusive testing has been undertaken at this stage). Intrusive testing would be undertaken on a staged approach prior to any development activities, and be included as part of a site wide SMP developed for the site.

This investigation and associated reporting has been carried out and reviewed by suitably qualified and experienced practitioners in accordance with the NESCS.

1 INTRODUCTION

This report provides information regarding a Preliminary Site Investigation (PSI) undertaken by 4Sight Consulting Ltd (4Sight) at 1, 3 and 81A Carrington Road, Mount Albert (the property). The focus of the PSI is 7.4 hectares (ha) of property including the Waitemata District Health board (WDHB) Mason Clinic and associated buildings located in the western portion of the properties (herein referred to as the site). , to assess potential implications for the proposed building demolition, redevelopment and disturbance of potentially contaminated soils under the National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health (NESCS) (MfE,2011) and the Auckland Unitary Plan: Operative in Part (AUP: OP).

There is potential that the site has been used as an activity listed on the Ministry for the Environment's Hazardous Activities and Industries List (HAIL), based on its historical horticultural use, unidentified filling, bulk storage of fuels, and its current use as a hospital. Therefore, consideration is required to be given to the NESCS.

Land covered in the NESCS is defined in regulation 5(7) as:

A piece of land that is described by one of the following:

a) An activity or industry described in the HAIL is being undertaken on it:

b) An activity or industry described in the HAIL has been undertaken on it:

c) It is more likely than not that an activity or industry described in the HAIL is being or has been undertaken on it.

1.1 Scope of Works

The scope of this PSI has included the following:

- A review of selected publicly available information for the site, including council files and aerial photographs to determine whether and activities or industries on the HAIL is, has been, or might have been undertaken on the site;
- Site inspection to visually assess the presence of any activities or industries listed on the HAIL or evidence of any potential contamination; and
- An overall assessment of the applicability of the NESCS and AUP: OP.

2 SITE DETAILS

The properties, 1, 3 and 81A Carrington Road, are located within Mount Albert in Auckland, legal descriptions for the site can be found in Table 1 below. The site, which is the focus of this PSI, is the WDHB Mason Clinic and associated buildings at 81A Carrington Road, the vacant property owned by the Unitec Institute of Technology (Unitec) at 3 Carrington Road, and the land currently leased to the WDHB Mason Clinic located to the east of the Mason Clinic at 1 Carrington Road (Figure 1). Preliminary plans (as provided to 4Sight) showing the proposed Mason Clinic master plan on the site can be found in Appendix A.

Table 1: Address and site information

Address	Legal Description	Area
1 Carrington Road	Lot 2 DP 211427 Lot 5 DP 314949	0.85 ha
3 Carrington Road	Lot 1 DP 211427	2.62 ha
81A Carrington Road	Lot 2 DP 156226	3.93 ha

Aerial imagery sourced from Auckland Council GeoMaps.

Scale 1:2500 @ A4

0 50 100m

AA2389 - WDHB Mason Clinic PSI

Figure 1: Site Location Map

Plan prepared for Waitemata District Health Board by 4Sight Consulting.

Date: 30/05/2017
Version: 1.0
Drawn: Sam Hendrikse
Checked: Aaron Graham
Approved: Alice Andrew

4SIGHT CONSULTING

2.1 Land Use – Current and Proposed

The site is zoned Special Purpose Zone Healthcare Facility and Hospital, and Business – Mixed Use Zone under the AUP (Op in Part) and is currently the WDHB Mason Clinic. The site includes part of the Unitec campus, which consists of vacant pasture to the north, and a carpark, old mortuary (now the security office), and an old Unitec building to the east.

The proposal is for the continued use of the site for healthcare facilities, with a general upgrade of the buildings and facilities across the site.

2.2 Geology and Hydrology

The Institute of Geological and Nuclear Sciences (GNS) 1:250,000 online geological map shows the sites geology consists of three separate regional geological units:

- The southern portion consists of Auckland Basalts tuff (Kerikeri Volcanic Group) of Auckland Volcanic Field; described as lithic tuff, comprising comminuted pre-volcanic materials with basaltic fragments, and unconsolidated ash and lapilli deposits;
- The middle portion consists of Auckland Basalts lava (Kerikeri Volcanic Group) of Auckland Volcanic Field; described as grey to very dark grey, dense, fine grained olivine basalt or basanite lava flows; and
- The northern portion consists of East Coast Bays Formation of Warkworth Subgroup (Waitemata Group); described as alternating sandstone and mudstone with variable volcanic content and interbedded volcaniclastic grits.

The closest surface water body is the Oakley Creek which runs directly adjacent the sites western boundary.

3 SITE HISTORY

To understand the history of the site, and particularly the nature and location of any potentially contaminating activities, a review of publicly available information for the site was undertaken. This included review of the:

- Previous investigations conducted on site;
- Site Contamination Enquiry, provided by AC;
- Property file, provided by AC;
- Contaminated land database, provided by AC;
- Hazardous Substances and Incidents report, provided by the Environmental Protection Agency (EPA);
- Correspondence with developers and management staff; and
- Selected historical aerial photographs available through AC Geomaps and OPUS Photosales.

3.1 Previous Site Investigations

The following site investigations have been provided by WDHB and can be provided upon request.

3.1.1 Environmental Site Investigation

An Environmental Site Investigation was completed by Riley Consultants Ltd, on the 2nd April 2014, at 1 Carrington Road, located on the site's southern boundary. This investigation was produced to support the development of a temporary single-level building. The following information of relevance is noted below:

- The site is covered by pasture and cabbage trees;
- Historically, the site was used for horticultural activities;
- Topsoil consisted of silt with trace to minor amounts of sand and gravel to 450 mm below ground level (bgl);
- Ten samples were taken approximately 150 mm bgl, with one being a duplicate, and were subsequently analysed for heavy metals and OCPs;

- Three soil samples exceeded the typical background concentration for cadmium, while another sample exceeded the typical background concentration for lead;
- All soil samples had trace concentrations of DDT, and it considered likely the topsoil is contaminated by spray activities;
- All soils sampled were below the adopted NESCS, and AC regional contaminated discharge permitted activity soil acceptance criteria (AC regional PA Criteria) for heavy metals, and organochlorine pesticides (OCPs); and
- The site is HAIL and horticultural activities have occurred, with contaminants present which are elevated above the typical background concentrations, therefore NESCS consent as a controlled activity is required, along with a site management plan to manage soils removed and imported from site.

3.1.2 Detailed Site Investigation (DSI)

A DSI was completed by Geosciences Ltd, on the 25th June 2015, at 81A Carrington Road, where the focus was on the Puriri Centre only. This DSI was produced to support demolishing the Puriri Centre and construction of new buildings on site. The DSI noted the following information of relevance:

- Historic geotechnical investigations by Maunsell Limited for the expansion of facilities across the broader Carrington Road site uncovered extensive fill in several areas of the site including glass, fibrous fragments, construction rubble, ash, metal, wood, and plastics;
- Historic aerial photography revealed that adjacent land, and potentially the area of the Puriri Clinic, had been used for horticultural broad acre cropping in the 1950's;
- Five soil samples were taken around the Puriri Centre;
- One soil sample returned a detectable concentration of DDT and a separate soil sample returned a detectable concentration of PAH;
- All soils sampled were below the adopted NESCS, AC regional PA Criteria, and MfE petroleum guidelines land use criteria (commercial use) for heavy metals, Organochlorine Pesticides (OCPs), Total Petroleum Hydrocarbons (TPH), and Polycyclic Aromatic Hydrocarbons (PAH); and
- The NESCS activity status was assessed as controlled due to soil disturbance volumes being exceeded and a suitable contaminated site management plan (CSMP) being required.

3.2 Council Records

3.2.1 Site Contamination Enquiry

A Site Contamination Enquiry was requested from AC, and was received on 19th April 2017 (Appendix B). The Site Contamination Enquiry provides information on records held by AC for landfills, bores, air discharge consents, industrial and trade process consents, contaminated site discharge consents, and environmental incidents at the site and within a 200m radius of the properties that define the site.

Three pollution incident files were provided and are detailed as followed:

- 2009 1 Carrington Road (No. 09/3638 (W224-45)): Chemical spill where a large amount of alkaline cleaning solution spilled into the carpark;
- 2015 1 Carrington Road (No. C-512-12-5159): Construction of five 96 mm diameter bores to an approximate depth of 40 m bgl and installation of steel to 3 m bgl; and
- 2017 81A Carrington Road (No. 12/2870 (7-50-1413)): Hydraulic oil spill due to line burst. Transpacific Waste Management conducted clean up. Nothing entered stormwater.

One historical filling file was provided and is detailed as followed:

- Phyllis Reserve Eden-Albert is a historic closed landfill and is located on the southern boundary of 1 Carrington Road, approximately 1000 m south of the site.

There are 34 resource consents related to the properties that define the site, but only two resource consents are relevant to the site and these are detailed as followed:

- 2003 (Consent No. 28438): Authorise the construction of four bores for water quality testing, to an approximate depth of 8 m bgl; and
- 2012 (Consent No. 52811): Authorise the construction of five 110 mm diameter bores for geotechnical investigation and groundwater investigation purposes, to an approximate depth of 105m bgl.

3.2.2 Property File

The property files for the site were obtained and provided to us by AC's Auckland Central service centre on the 28 April 2017. The property files included a large number of building and resource consents, and historic geotechnical information. Information relevant to this investigation is described below and can be provided upon request:

1 Carrington Road

- 1975 Building Consent Application (No. 679): Development of the swimming pool;
- 1990 Building Consent Application (No. 95/2030): Construction of a 600 m^2 greenhouse for teaching purposes;
- 1993 Building Consent Application (No. 3606179): Development of horticultural plots and glasshouses for teaching purposes;
- 1995 Land Use Consent Application (No. 5700488): To undertake earthworks to rehabilitate a disused landfill and improve slope stability on an undisclosed site adjacent to the Oakley Creek. Approximately 700 m^3 of earth is to be involved in the works;
- 1995 Building Consent Application (No. 3602030): Construction of a greenhouse;
- 1997 Code of Compliance (No. 3611215): Erect training building and utility storage for horticulture area; and
- 2004 Letter from Auckland City Council (ACC): A study was conducted by ARC and Auckland District Health Board (ADHB) into the potential effect of past horticultural activity on soil. Auckland City believes the property was at some stage used for horticultural activity. This conclusion was decided from aerials photographs taken in the 1940's, 1950's and 1960's and soil analysis results from 17 council owned parks.

3 Carrington Road

- May 2002 geotechnical investigation undertaken by Soil Engineering Ltd for the construction of a cyclist bridge adjacent to the property's western boundary. Five bores were extended and the subsurface profile of two bores in the vicinity of the site are described as followed:
  - BH1, located in the site, consisted of SILT, clayey, very stiff, dry, slightly plastic, brown, with much organics and some fine to coarse sand and gravel to 400 mm bgl; and
  - BH3 located on the western edge of site, consisted of topsoil to 400 mm bgl overlying SILT, clayey, very stiff, dry to moist, slightly plastic, orangish brown mottled brown, with much organics and traces of fine to coarse sand and gravel to 650 mm bgl.
- June 2002 Geotechnical Investigation undertaken by Sinclair Knight Merz for the construction of a cyclist bridge adjacent to the property's western boundary. The general subsurface profile was described as eight metres of soft alluvium and fill overlying weak Waitemata Group sandstone and mudstone.

81A Carrington Road

- 2005 Geotechnical Investigation undertaken by Engineering Design Consultants Ltd to determine suitability of land for proposed development. One bore was extended and the subsurface profile was described as follows:
  - 0-100 mm: Topsoil;
  - 100-300 mm: Fill, loose to medium dense, medium to coarse gravels, some cobbles intermixed;
  - 300-500 mm: Fill, stiff, yellow brown silt/clay/gravel cobbles, intermixed;
  - 500-800 mm: Dense, VERSICULAR BASALT, intermixed clay, boulders; and
  - 800-1000 mm: Dense, VERSICULAR BASALT, bore hole ended.
- 2010 AC memo (No. 5024): Installation of a 7,500 litre above ground double skin tank for diesel storage. This is in addition to the existing in-base diesel tank at the property.

3.2.3 Contaminated Land Database

A search of the Contaminated Land Database, maintained within AC's Environmental Health Unit of the Licensing and Compliance Services Department, was requested. AC stated (email dated 28 April 2017) that they do not hold any information with regard to potential contamination at the site.

3.3 Hazardous Substance Incidents Report

The Environmental Protection Agency (EPA) maintained a list of reported hazardous substance incidents over the period July 2006 – December 2011. A review of this information did not identify any incidents of significance in relation to the site or the adjacent properties.

3.4 Aerial Photographs

Historical aerial photographs were sourced from AC Geomaps, and Opus Photosales, and can be found in Appendix C:

- 1940 (AC Geomaps, black and white): The site is undergoing intensive horticulture to the north, with evidence of cropping across the rest of the site. A building is present in the centre of site and a possible dump is located in the south-western corner. Also along the western boundary is a creek lined by trees. The surrounding land is residential to the north, with farmland to the east, south and west;
- 1959 (AC Geomaps, black and white): The site is mostly unchanged since 1940. The horticulture intensity has decreased in the northern half. Six buildings have been constructed on site, with one in the north, two in the centre, and three on the eastern boundary. The dump has been removed. The surrounding land is residential to the north and west, with the Carrington Hospital being developed to the east, and farmland to the south;
- 1974 (Opus Photosales, black and white): The site is no longer in horticulture and multiple buildings have been constructed on the site. Two buildings, with an associated carpark, have been constructed in the eastern part of the site and two small buildings have been constructed next to the other three buildings in the centre of the site. Two buildings on the eastern boundary have also been removed. The surrounding land is mostly unchanged from the 1959 image, except for further development of the Carrington Hospital;
- 1988 (Opus Photosales, black and white): The site is mostly unchanged from the 1974 image. Another two buildings have been constructed in the centre of the site. The surrounding land is mostly unchanged from the 1959 image, except for additional development of the now Unitec campus;
- 2001 (AC Geomaps, colour): Multiple buildings have been developed on site. The northern area is still in pasture with scattered trees, and the carpark has been expanded in the eastern part of the site. The surrounding land has intensified in residential development to the north and west, with the Unitec campus and associated grounds to the east and three horticultural plots, with a nearby glasshouse to the south;
- 2008 (AC Geomaps, colour): The site is mostly unchanged since the 2001 image, except for the development of four buildings and a carpark in the southern area of site. The surrounding land is mostly unchanged since 2001; and
- 2016 (AC Geomaps, colour): The site is mostly unchanged since the 2008 image. The north-western motorway is being developed to the west of the site and a carpark has been developed over the horticultural plot to the south of site. Apart from this the surrounding land is mostly unchanged since 2008.

3.5 Landowner Information

An informal discussion was undertaken with the Paul Stanbridge, Project Manager of Facilities and Development at the Mason Clinic. Discussions identified that horticultural activities, uncontrolled filling, and asbestos containing materials associated with the onsite buildings are likely potentially contaminating activities on the site. Several environmental reports had been undertaken in the past (Section 3.1). Mr Stanbridge noted the bund around the above ground storage tank was in the process of being upgraded and he has no knowledge of any in-base storage tank. A building asbestos survey was being conducted at the time of the site visit and no results were available at the time of this investigation. No further information on historical or current potentially contaminating activities was provided.

4 SITE INSPECTION

A site visit was undertaken on Thursday 13th April 2017 and site photographs can be found in Appendix D. The following observations were made during the site visit:

- The site is currently a Forensic Mental Health Facility, which incorporates housing and facilities for high risk patients;
- The site contains a number of buildings, a swimming pool, carparks and roads;
- The northern area of the site, currently owned by Unitec, is pasture with scattered trees;
- The eastern carpark and mortuary is also currently owned by Unitec, but rented to WDHB;
- An un-bunded above ground storage tank is located on a concrete pad by the storage sheds near the Mason Clinic northern exit way;
- There are currently building works being undertaken on the Pohutukawa building in the centre of the site;
- Housekeeping at the site is tidy, with no rubbish or disused equipment visible; and
- There were no visible signs of contamination such as oil or grease, and no areas of significant stressed or dying vegetation.

5 CONCLUSIONS AND RECOMMENDATIONS

4Sight has been commissioned by WDHB to undertake a Preliminary Site Investigation (PSI) for the site. This investigation included reviewing the site's history and field observations. The key findings are:

- A review of the publicly available historic aerials identified that the site has likely been used horticultural activities since at least 1940;
- The development of the site for hospital purposes occurred circa 1990;
- An un-bunded above ground diesel storage tank is present onsite, as well as the potential presence of an in-base storage tank;
- A review of previously undertaken detailed site investigations at the site has identified the potential for unidentified fill material to be present in areas at the site; and
- Due to historical horticultural activities and uncontrolled filling being undertaken, and the current onsite fuel storage the site is considered HAIL under Category A (10): Persistent pesticide bulk storage or use including sport turfs, market gardens, orchards, glass houses or spray sheds; A (17): Storage tanks or drums for fuel, chemicals or liquid waste; and I: Any other land that has been subject to the intentional or accidental release of a hazardous substance in sufficient quantity that it could be a risk to human health or the environment.

Based on the findings of this investigation the following recommendations have been made to facilitate the proposed development of the site:

- Consent under the NESCS will be required for any subdivision, land use change or disturbance activities;
- A DSI will be required prior to any of the above activities being undertaken at the site, and should contaminants be identified remedial works including validation sampling and reporting may be necessary; and
- A SMP will be required for any disturbance works undertaken at the site.

Therefore, potential regulatory options include:

- Undertake a site wide DSI prior to any development activities occurring, once available to do so, and apply for a controlled or restricted discretionary consent under the NESCS (dependent on contamination identified). We note that a DSI across the entire site may not be practical at this time due to the number of onsite buildings, hardstand areas, and the continued use as a high security psychiatric hospital; or alternately
- Apply for consent on a discretionary activity basis under the NESCS and AUP: OP for the site (discretionary activity status as no intrusive testing has been undertaken at this stage). Intrusive testing would be undertaken on a staged approach prior to any development activities, and be included as part of a site wide SMP developed for the site.

We recommend that discussion on the above options be undertaken with 4Sight and Auckland Council to facilitate the development moving forward.

This investigation and associated reporting has been carried out and reviewed by suitably qualified and experienced practitioners in accordance with the NESCS.

REFERENCES

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Riley Consultants Ltd. (2014). Environmental Site Investigation for Temporary Hospital Facility Mason Clinic, Waterview. Reviewed by 4Sight May 2 2017.

Russell Foster and Associates. (2015). Mason Clinic: Proposed Site Compound. *Archaeological Assessment*. Reviewed by 4Sight May 2 2017.

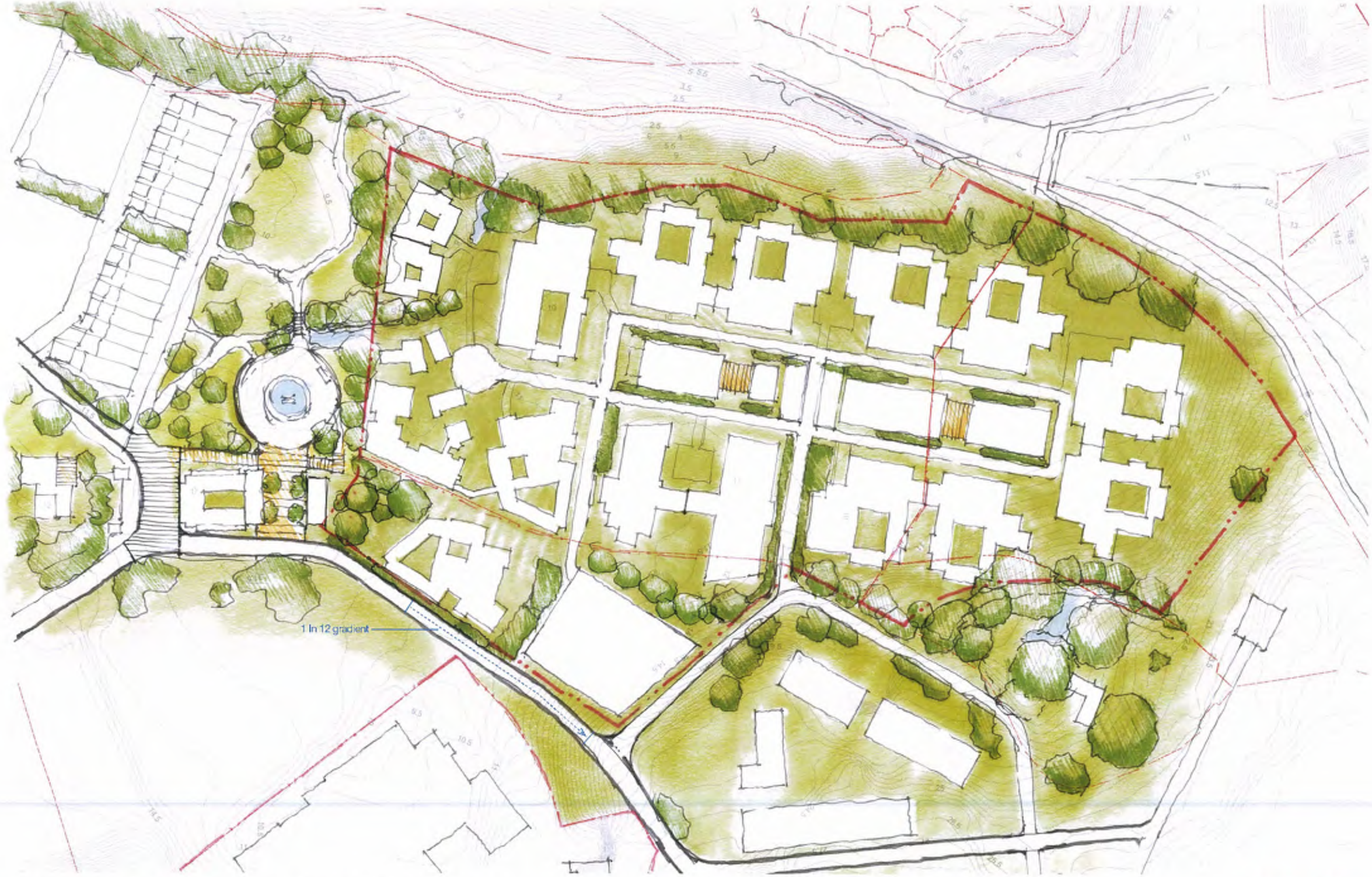
LIMITATIONS

This document does not include any assessment or consideration of potential health and safety issues under the Health and Safety at Work Act 2015. 4Sight Consulting has relied upon information provided by the Client and other third parties to prepare this document, some of which has not been fully verified by 4Sight Consulting. This document may be transmitted, reproduced or disseminated only in its entirety.

From a technical perspective, the subsurface environment at any site may present substantial uncertainty. It is a heterogeneous, complex environment, in which small subsurface features or changes in geologic conditions can have substantial impacts on water, vapour and chemical movement. 4Sight Consulting's professional opinions are based on its professional judgement, experience, and training. These opinions are also based upon data derived from the testing and analysis described in this document. It is possible that additional testing and analysis might produce different results and/or different opinions. This document was prepared based on information provided by others. Should additional information become available, this report should be updated accordingly

Appendix A:

Preliminary Plans



Mason Clinic Masterplan - Layout Option 1

Northern & Eastern site expansion - Grid layout

Klein

Klein

Waitemata District Health Board
Best Care for Everyone

North
SUMMER
WINTER
SUN
SUN

REVISIONS	DATE	BY	REASON
C	29.08.16	JG	MASON CLINIC SITE PLAN UPDATED
B	17.06.15	JG	PURIRI POD RELOCATION APPROX LOCATION INDICATED
A	10.07.14	JG	MASTERPLANNING ISSUE

Klein Limited
27 College Hill Freemans Bay
PO Box 47 538 Auckland
Phone: 09 377 7005
Fax: 09 377 7006
Web: www.klein.co.nz
Email: klein@klein.co.nz

Project:
MASON CLINIC
OVERALL MASTER SITE PLAN
Unitech, Gate 2, Carrington Road, Pt Chev
For: WAITEMATA DISTRICT HEALTH BOARD

Drawing Title:
EXISTING SITE PLAN

Drawn	**JG**	**Checked**	**RR**
Date	**JULY 2014**		
Cadfile	**eg A-001**		
Scale	**1:500 @ A1 / 1:1000 @ A3**		

Job No:	Drawing No:	Revision:
3.1074	**CD-001**	**C**

Appendix B:

Site Contamination Records

19 April 2017

4 Sight Consulting Ltd
PO Box 911310
Victoria Street West
Auckland 1142

Attention: Aaron Graham

Dear Aaron

Site Contamination Enquiry – *1, 3 & 81A Carrington Road, Mt Albert*

This letter is in response to your enquiry requesting available site contamination information for the above site. The following details are based on information available from the former Auckland Regional Council records system and information currently held by the Auckland Council Natural Resources and Specialist Input Unit. The details provided below exclude any property information held by the former district/city councils.

The tables below outline the reference for the site files and pollution incident files available for the subject site:

File Reference	12/2870 (7-50-1413)		
File Name	81A Carrington Road		
Pollution Date	6-Aug-2017	**Comment**	**Spill- hydraulic oil spill due to line burst. Transpacific Waste Mgt conducted clean up. Nothing entered into s/w.**

File Reference	09/3638 (W224-45)		
File Name	1 Carrington Road		
Pollution Date	12-Dec-2009	**Comment**	**Chemical Spill- large amount of Alkaline cleaning solution spilled in carpark.**

File Reference	C-512-12-5159		
File Name	1 Carrington Road		
Pollution Date	31-May-2015	**Comment**	**Bore- Construction of five 96mm diamteter bores to an approx. depth of 40m. Installation of steel to depth of 3m.**

The general catchment file and site visit file for the catchment (5-46 and 5-46-SV respectively) were not searched. These files contain pollution incidents where the source of pollution was not traced to a particular site, site visits where no follow-up correspondence was required and some information from archived files.

If the above site is coastal or beside a river, it is possible that historic, unconsented reclamation may have occurred. The Auckland Council, Natural Resources and Specialist Input, Coastal Team may be able to provide further information.

The records reviewed as part of this Site Contamination Enquiry search do not identify individual horticultural sites in the region. However, there is a possibility that horticultural activities may have

occurred at the site. The local Auckland Council customer service centre, specific to the area of the site may be able to provide relevant information where former horticultural sites have been mapped.

If you are concerned that a historic land use (such as filling) may have caused the underlying soils to become contaminated, it is recommended that you obtain an independent environmental assessment of the site. Staff from the Auckland Council Earthworks and Contaminated Land Team can provide advice on the results of any evaluation in terms of site remediation and/or potential consent requirements.

We have identified that the following site (within 200 metres of the area searched) may have been subject to historic filling / importation of unverified-origin material. Please note that this information is indicative only and our database of such sites is incomplete.

A. INDICATIVE ONLY	**Please contact Contaminated Land (Environmental Services)**
OWNERSHIP:	Auckland Council
SITE ID:	30
PROPERTY DESCRIPTION ADDRESS:	Historic – Closed.
SITE NAME:	Phyllis Reserve Eden-Albert.

The former Auckland Regional Council and current Natural Resources and Specialist Input Unit databases were searched for records of landfill, bore, air discharge, industrial and trade process consents, contaminated site discharge consents, and environmental assessments within approximately 200 metres of the site. Relevant details of the identified consents are appended to this letter (Attachment A).

The details provided are in accordance with the obligation to make information publicly available upon request. While the Auckland Council has carried out the search using its best practical endeavours, it does not warrant its completeness or accuracy and disclaims any responsibility or liability in respect of the information. If you or any other person wishes to act or to rely on this information, or make any financial commitment based upon it, it is recommended that you seek appropriate technical and/or professional advice.

In addition, further site specific pollution incidents may be held at area office below. It is recommended that you contact the local customer service centre of the Auckland Council, specific to the site being investigated: 35 Graham Street, Auckland Central as they also may hold files with further relevant information.

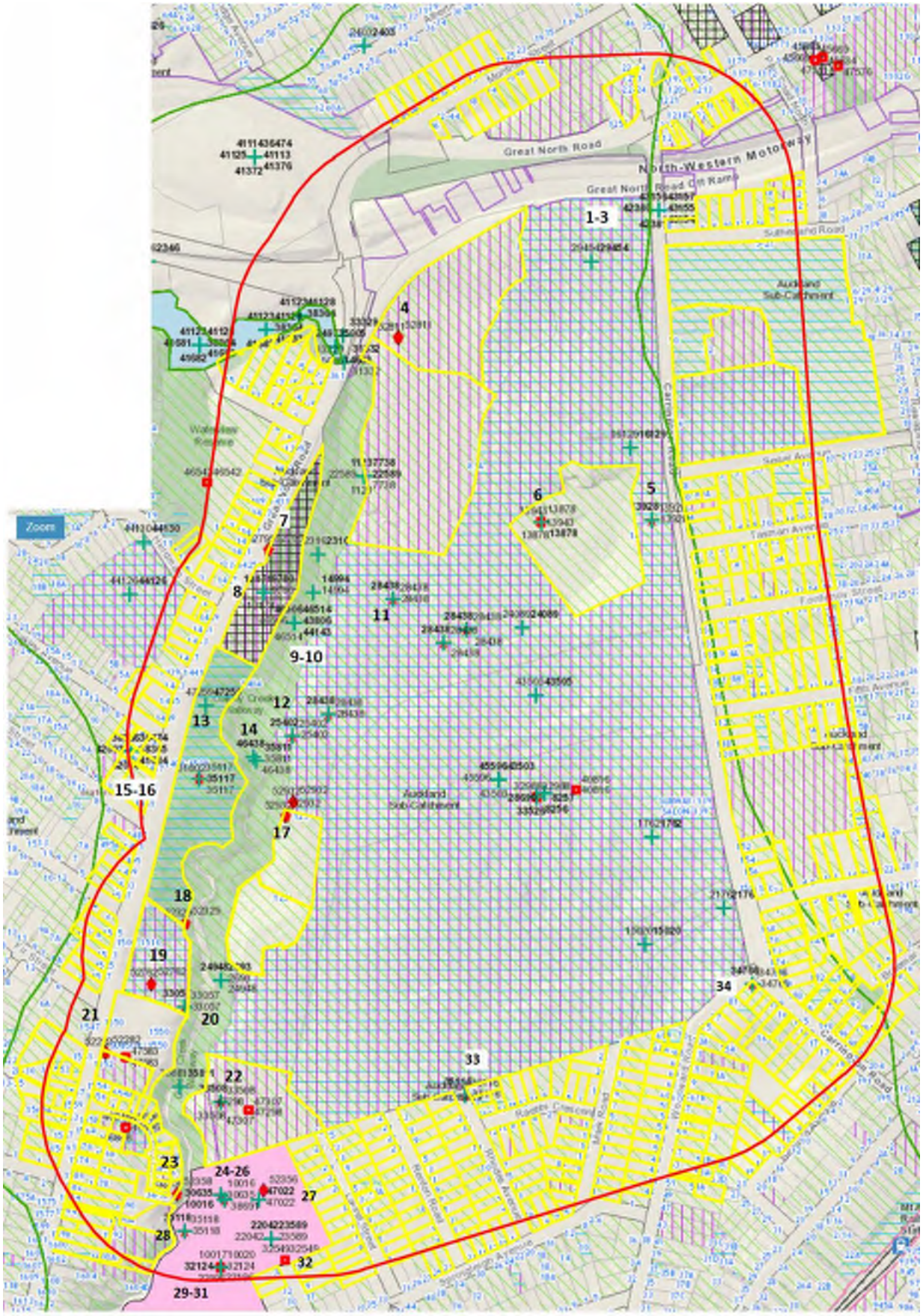
I trust that this answers your query. If you wish to discuss the matter further, please contact Andrew Kalbarczyk on 301 0101. Should you wish to request any of the files listed above for viewing, please contact the Auckland Council Call Centre on 301 0101 and note you are requesting former Auckland Regional Council records (the records department requires three working days' notice to ensure files will be available).

Please note: the Auckland Council cost recovers officer's time for all site enquiries. A basic enquiry takes approximately 1 - 2.5 hours to search the files and databases in which information is held. As such an invoice for the time involved in this enquiry will follow shortly.

Yours sincerely

David Hampson
Team Leader - Earthworks and Contaminated Land
Natural Resources and Specialist Input

Attachment A



1. CONSENT_NUMBER	41960
FILE_REFERENCE	23912
ACTIVITY	Contaminated Site Discharge
CONSENT_HOLDER	Auckland Transport (for regional consents)
CONSENT_STATUS	Superseded
GRANTED_DATE	20140221
REVIEW_DATE	Null
EXPIRY_DATE	20190210
PROCESSING_OFFICER	_Helen Caley
PURPOSE	Discharge from contaminated land, and disturbance of a site where activities on the Hazardous Activities and Industries List have been undertaken.
WORKS_DESCRIPTION	Null
EASTING	1752409.65
NORTHING	5917970.74
ACTIVITY_ID	21410
ACTIVITY_STATUS	Occurring
ACTIVITY_DESCRIPTION	Earthworks will involve the disturbance of potentially contaminated land. This is a discretionary activity pursuant to Rule 5.5.45 of the ACRP: ALW.
SITE_NAME	Waterview/St Lukes Connection - Akld Transport
SITE_DESCRIPTION	Null
DATE_CREATED	17/04/2017 19:11
PROPERTY_ADDRESS	SH16, Great North Rd Interchange at Carrington Road Bridge to Mountain View Road. Mt Albert Auckland
LOC_TYP	Point
MONITORING_OFFICER	_Helen Caley
PREVIOUS_INSPECTION_DATE	Null
NEXT_INSPECTION_DATE	Null

2. CONSENT_NUMBER	41961
FILE_REFERENCE	23913
ACTIVITY	Contaminated Site Discharge
CONSENT_HOLDER	NZ Transport Agency Attention: Tammy Muharemi
CONSENT_STATUS	Issued
GRANTED_DATE	20140224
REVIEW_DATE	Null
EXPIRY_DATE	20190210
PROCESSING_OFFICER	_Helen Caley
PURPOSE	Discharge from contaminated land, and disturbance of a site where activities on the Hazardous Activities and Industries List have been undertaken.
WORKS_DESCRIPTION	Null
EASTING	1752409.65
NORTHING	5917970.74
ACTIVITY_ID	21411

ACTIVITY_STATUS	Occurring
ACTIVITY_DESCRIPTION	Discharge of contaminants associated with earthworks of potentially contaminated land.
SITE_NAME	Waterview/St Lukes Connection - NZTA
SITE_DESCRIPTION	SH16, Great North Rd Interchange at Carrington Road Bridge to Mountain View Road.
DATE_CREATED	17/04/2017 19:11
PROPERTY_ADDRESS	SH16, Great North Rd Interchange at Carrington Road Bridge to Mountain View Road. Mt Albert Auckland
LOC_TYP	Point
MONITORING_OFFICER	Andrew Kalbarczyk
PREVIOUS_INSPECTION_DATE	Null
NEXT_INSPECTION_DATE	Null

3. CONSENT_NUMBER	43156
FILE_REFERENCE	23912
ACTIVITY	Contaminated Site Discharge
CONSENT_HOLDER	Auckland Transport (for regional consents)
CONSENT_STATUS	Surrendered
GRANTED_DATE	20141215
REVIEW_DATE	Null
EXPIRY_DATE	20190210
PROCESSING_OFFICER	Andrew Kalbarczyk
PURPOSE	Discharge from contaminated land, and disturbance of a site where activities on the Hazardous Activities and Industries List have been undertaken.
WORKS_DESCRIPTION	Null
EASTING	1752409.65
NORTHING	5917970.74
ACTIVITY_ID	21410
ACTIVITY_STATUS	Occurring
ACTIVITY_DESCRIPTION	Earthworks will involve the disturbance of potentially contaminated land. This is a discretionary activity pursuant to Rule 5.5.45 of the ACRP: ALW.
SITE_NAME	Waterview/St Lukes Connection - Akld Transport
SITE_DESCRIPTION	Null
DATE_CREATED	17/04/2017 19:11
PROPERTY_ADDRESS	SH16, Great North Rd Interchange at Carrington Road Bridge to Mountain View Road. Mt Albert Auckland
LOC_TYP	Point
MONITORING_OFFICER	Null
PREVIOUS_INSPECTION_DATE	Null
NEXT_INSPECTION_DATE	Null

4. CONSENT_NUMBER	52811

FILE_REFERENCE	C512-12-4985*
CONSENT_HOLDER	Null
BORE_ID	28726
GRANTED_DATE	20120913
REVIEW_DATE	Null
EXPIRY_DATE	Null
CONSENT_STATUS	Assessment Completed
PROCESSING_OFFICER	Reginald Samuel
PURPOSE	The construction of five bores for Geotechnical investigation & Groundwater investigation purposes.
WORKS_DESCRIPTION	The construction of 110mm diameter bore to an approximate depth (refer attached). Installation of steel socketed and screwed casing material to an approximate depth of 105m. Proposed grouting to full length.
EASTING	1752048
NORTHING	5917794
ACTIVITY_STATUS	Proposed
LAND_USE	Null
LAND_USE_UPDATED	Null
LAND_USE_NOTE	Null
BORE_USE	Geotechnical
ACTIVITY_DESCRIPTION	The construction of five bores for Geotechnical investigation & Groundwater investigation purposes.
SITE_NAME	Auckland Council
SITE_DESCRIPTION	Null
MAIN_AQUIFER	Null
AQUIFER	Null
SUB_AQUIFER1	Null
SUB_AQUIFER2	Null
ENVIRONMENT_REPORTING_AREA	Null
ALW_PLAN_ZONES	Null
TLA	Auckland Central
HYDSYS_NUMBER	Null
DATE_DRILLED	Null
TOTAL_DEPTH	Null
GROUND_ELEVATION	Null
STATIC_WATER_LEVEL	Null
STATIC_WATER_DATE	Null
BORE_LOG	Null
AQUIFER_TEST	Null
DIAMETER_FROM	Null
DIAMETER_TO	Null
DIAMETER	Null
CASING_FROM	Null
CASING_TO	Null
CASING_TYPE	Null

CASING_DIAMETER	Null
SCREEN_FROM	Null
SCREEN_TO	Null
SCREEN_TYPE	Null
CONTRACTOR	Null
CONSULTANT	Tonkin & Taylor Limited
DATE_CREATED	20170417
PROPERTY_ADDRESS	37 Alberton Avenue Mount Albert Auckland Central
LOC_TYP	Point

5. CONSENT_NUMBER	13928
FILE_REFERENCE	C512-12-1582*
CONSENT_HOLDER	Mobil Oil NZ Ltd DO NOT USE - USE CUST. 3745
BORE_ID	4845
GRANTED_DATE	19950606
REVIEW_DATE	Null
EXPIRY_DATE	19960606
CONSENT_STATUS	Expired
PROCESSING_OFFICER	_Gillian Crowcroft
PURPOSE	Authorize the construction of three (3) piezometers for groundwater level and/or Chemistry investigations
WORKS_DESCRIPTION	Construction of three (3) 50mm dia piezometers to approx 8m depth. Installation of PVC casing to approx 6m and PVC screen from approx. 6m to 8m if required.
EASTING	1752400
NORTHING	5917540
ACTIVITY_STATUS	Drilled
LAND_USE	Null
LAND_USE_UPDATED	Null
LAND_USE_NOTE	Null
BORE_USE	Observation / Piezo
ACTIVITY_DESCRIPTION	3 piezometers
SITE_NAME	UNITEC petrol station site
SITE_DESCRIPTION	1 Carrington Road, Mt Albert
MAIN_AQUIFER	Other
AQUIFER	Null
SUB_AQUIFER1	Null
SUB_AQUIFER2	Null
ENVIRONMENT_REPORTING_AREA	Auckland Central
ALW_PLAN_ZONES	Null
TLA	Auckland Central
HYDSYS_NUMBER	Null
DATE_DRILLED	19950601
TOTAL_DEPTH	5.7
GROUND_ELEVATION	Null
STATIC_WATER_LEVEL	2

STATIC_WATER_DATE	19950601
BORE_LOG	Y
AQUIFER_TEST	Null
DIAMETER_FROM	0
DIAMETER_TO	5.7
DIAMETER	50
CASING_FROM	0
CASING_TO	2
CASING_TYPE	PVC/ABS
CASING_DIAMETER	50
SCREEN_FROM	2
SCREEN_TO	5.5
SCREEN_TYPE	PVC/ABS
CONTRACTOR	Null
CONSULTANT	Null
DATE_CREATED	20170418
PROPERTY_ADDRESS	
LOC_TYP	Point

6. CONSENT_NUMBER	13878
FILE_REFERENCE	C512-12-1574
CONSENT_HOLDER	LAYTONS LINEN HIRE LTD
BORE_ID	4819
GRANTED_DATE	19950508
REVIEW_DATE	Null
EXPIRY_DATE	19960508
CONSENT_STATUS	Expired
PROCESSING_OFFICER	_Gillian Crowcroft
PURPOSE	Authorize the construction of a bore for the extraction of groundwater for industrial use.
WORKS_DESCRIPTION	Construction of a 100mm dia. bore to approx 300m depth and installation of steel casing to approx. 91m.
EASTING	1752246
NORTHING	5917538
ACTIVITY_STATUS	Drilled
LAND_USE	Null
LAND_USE_UPDATED	Null
LAND_USE_NOTE	Null
BORE_USE	Industrial
ACTIVITY_DESCRIPTION	Laundering
SITE_NAME	Null
SITE_DESCRIPTION	Star Laundry, 1A Carrington Road, Mt Albert
MAIN_AQUIFER	Waitemata
AQUIFER	Auckland Isthmus Waitemata
SUB_AQUIFER1	Null
SUB_AQUIFER2	Null
ENVIRONMENT_REPORTING_ARE	Auckland Central

A	
ALW_PLAN_ZONES	Null
TLA	Auckland Central
HYDSYS_NUMBER	Null
DATE_DRILLED	19950706
TOTAL_DEPTH	355
GROUND_ELEVATION	Null
STATIC_WATER_LEVEL	1.85
STATIC_WATER_DATE	19950717
BORE_LOG	Y
AQUIFER_TEST	Y
DIAMETER_FROM	0
DIAMETER_TO	355
DIAMETER	150
CASING_FROM	0
CASING_TO	84.6
CASING_TYPE	Steel
CASING_DIAMETER	150
SCREEN_FROM	Null
SCREEN_TO	Null
SCREEN_TYPE	Null
CONTRACTOR	Null
CONSULTANT	Null
DATE_CREATED	20170418
PROPERTY_ADDRESS	
LOC_TYP	Point

7. PERMITTED_ACTIVITY_ID	52795
FILE_REFERENCE	C512-12-4962*
PERMITTED_ACTIVITY_HOLDER	Null
PERMITTED_ACTIVITY_TYPE	Bore
ACTIVITY	Bore
CONSENT_STATUS	Assessment Completed
GRANTED_DATE	Null
REVIEW_DATE	Null
EXPIRY_DATE	Null
PROCESSING_OFFICER	Reginald Samuel
PURPOSE	The construction of 23 bores for groundwater investigation purposes at various sites.
WORKS_DESCRIPTION	As per information on file.
EASTING	1751866.7
NORTHING	5917498.9
ACTIVITY_ID	28703
ACTIVITY_STATUS	Proposed
ACTIVITY_DESCRIPTION	The construction of 23 bores for groundwater investigation purposes at various sites.
SITE_NAME	Well-Connected Joint Alliance

SITE_DESCRIPTION	Null
DATE_CREATED	18/04/2017 19:12
PROPERTY_ADDRESS	1380 Great North Road Waterview Auckland Central
LOC_TYP	Point

8. CONSENT_NUMBER	12171
FILE_REFERENCE	AIR939391
ACTIVITY	Discharge To Air
CONSENT_HOLDER	BP Oil New Zealand Limited Attn: Asset Administrator
CONSENT_STATUS	Cancelled
GRANTED_DATE	19931216
REVIEW_DATE	Null
EXPIRY_DATE	19950131
PROCESSING_OFFICER	_Wes Smith
PURPOSE	TO DISCHARGE CONTAMINANTS TO AIR
WORKS_DESCRIPTION	Null
EASTING	1751860
NORTHING	5917440
ACTIVITY_ID	3593
ACTIVITY_STATUS	Null
ACTIVITY_DESCRIPTION	Null
SITE_NAME	BP OIL NEW ZEALAND LTD
SITE_DESCRIPTION	1380 Great North Rd, Pt Chev
DATE_CREATED	18/04/2017 19:11
PROPERTY_ADDRESS	1380 GREAT NORTH ROAD WATERVIEW Auckland City
LOC_TYP	Point
MONITORING_OFFICER	Null
PREVIOUS_INSPECTION_DATE	Null
NEXT_INSPECTION_DATE	Null

9. CONSENT_NUMBER	44143
FILE_REFERENCE	25417
ACTIVITY	Contaminated Site Discharge
CONSENT_HOLDER	Auckland Transport (for regional consents)
CONSENT_STATUS	Superseded
GRANTED_DATE	20150730
REVIEW_DATE	Null
EXPIRY_DATE	20250730
PROCESSING_OFFICER	David O'Reilly
PURPOSE	To discharge contaminants to land or water from land undergoing disturbance; and Activities and associated discharges on closed landfills that perforate or penetrate the cap or cover.
WORKS_DESCRIPTION	Null
EASTING	1751903.19

NORTHING	5917396.97
ACTIVITY_ID	21597
ACTIVITY_STATUS	Occurring
ACTIVITY_DESCRIPTION	New 3.5m wide off road, concrete path. From Soljak Place bridge to Alan Wood Reserve the path width is 3.0m, consistent with the new path through Alan Wood Reserve. The route has been designed to utilise existing parks and paths. The northern end of the r
SITE_NAME	Waterview Shared Path Project
SITE_DESCRIPTION	Null
DATE_CREATED	18/04/2017 19:11
PROPERTY_ADDRESS	Great North Road Waterview Auckland Central
LOC_TYP	Point
MONITORING_OFFICER	Null
PREVIOUS_INSPECTION_DATE	Null
NEXT_INSPECTION_DATE	Null

10. CONSENT_NUMBER	46514
FILE_REFERENCE	25417
ACTIVITY	Contaminated Site Discharge
CONSENT_HOLDER	Auckland Transport (for regional consents)
CONSENT_STATUS	Issued
GRANTED_DATE	20160724
REVIEW_DATE	Null
EXPIRY_DATE	20260724
PROCESSING_OFFICER	Aaron Graham
PURPOSE	To discharge contaminants to land or water from land undergoing disturbance; and Activities and associated discharges on closed landfills that perforate or penetrate the cap or cover.
WORKS_DESCRIPTION	Null
EASTING	1751903.19
NORTHING	5917396.97
ACTIVITY_ID	21597
ACTIVITY_STATUS	Occurring
ACTIVITY_DESCRIPTION	New 3.5m wide off road, concrete path. From Soljak Place bridge to Alan Wood Reserve the path width is 3.0m, consistent with the new path through Alan Wood Reserve. The route has been designed to utilise existing parks and paths. The northern end of the r
SITE_NAME	Waterview Shared Path Project
SITE_DESCRIPTION	Null
DATE_CREATED	18/04/2017 19:11
PROPERTY_ADDRESS	Great North Road Waterview Auckland Central
LOC_TYP	Point
MONITORING_OFFICER	Aaron Graham

PREVIOUS_INSPECTION_DATE	Null
NEXT_INSPECTION_DATE	Null

11. CONSENT_NUMBER	28438
FILE_REFERENCE	C512-12-3181*
CONSENT_HOLDER	UNITEC Institute of Technology
BORE_ID	21979
GRANTED_DATE	20031017
REVIEW_DATE	Null
EXPIRY_DATE	20041019
CONSENT_STATUS	Expired
PROCESSING_OFFICER	_Amy Boulton
PURPOSE	To authoise the construction of up to 4 bores for Water Quality Testing.
WORKS_DESCRIPTION	Construction of up to 4 Bores to a depth of approximately 50mm. Installation of PVC casing to a depth of approximately 8m.
EASTING	1752040
NORTHING	5917430
ACTIVITY_STATUS	Proposed
LAND_USE	Null
LAND_USE_UPDATED	Null
LAND_USE_NOTE	Null
BORE_USE	Null
ACTIVITY_DESCRIPTION	To authoise the construction of up to 4 bores for Water Quality Testing.
SITE_NAME	UNITEC
SITE_DESCRIPTION	1 Carrington Rd, Mt albert
MAIN_AQUIFER	Null
AQUIFER	Null
SUB_AQUIFER1	Null
SUB_AQUIFER2	Null
ENVIRONMENT_REPORTING_AREA	Null
ALW_PLAN_ZONES	Null
TLA	Auckland Central
HYDSYS_NUMBER	Null
DATE_DRILLED	Null
TOTAL_DEPTH	Null
GROUND_ELEVATION	Null
STATIC_WATER_LEVEL	Null
STATIC_WATER_DATE	Null
BORE_LOG	Null
AQUIFER_TEST	Null
DIAMETER_FROM	Null
DIAMETER_TO	Null
DIAMETER	Null
CASING_FROM	Null

CASING_TO	Null
CASING_TYPE	Null
CASING_DIAMETER	Null
SCREEN_FROM	Null
SCREEN_TO	Null
SCREEN_TYPE	Null
CONTRACTOR	Null
CONSULTANT	AECOM Consulting Services (NZ) Ltd
DATE_CREATED	20170418
PROPERTY_ADDRESS	1 Carrington Road Mt Albert Auckland City
LOC_TYP	Point

12. CONSENT_NUMBER	25402
FILE_REFERENCE	C512-12-2745*
CONSENT_HOLDER	Beca Carter Hollings & Ferner Ltd
BORE_ID	21417
GRANTED_DATE	20010530
REVIEW_DATE	Null
EXPIRY_DATE	20020530
CONSENT_STATUS	Expired
PROCESSING_OFFICER	Roger Bannister
PURPOSE	Authorise the construction of thirty five (35) bores for groundwater monitoring.
WORKS_DESCRIPTION	Construction of thirty five (35) 100mm diameter bores.
EASTING	1751900
NORTHING	5917240
ACTIVITY_STATUS	Proposed
LAND_USE	Null
LAND_USE_UPDATED	Null
LAND_USE_NOTE	Null
BORE_USE	Observation / Piezo
ACTIVITY_DESCRIPTION	See also Bore IDs - 21697, 21698, 21699, 21700.
SITE_NAME	SH20 - Extension, Bore MB9
SITE_DESCRIPTION	Unitec
MAIN_AQUIFER	Waitemata
AQUIFER	Auckland Isthmus Waitemata
SUB_AQUIFER1	Null
SUB_AQUIFER2	Null
ENVIRONMENT_REPORTING_AREA	Null
ALW_PLAN_ZONES	Null
TLA	Auckland Central
HYDSYS_NUMBER	Null
DATE_DRILLED	20011114
TOTAL_DEPTH	33.58
GROUND_ELEVATION	20.47

STATIC_WATER_LEVEL	7.1
STATIC_WATER_DATE	20011116
BORE_LOG	Y
AQUIFER_TEST	Null
DIAMETER_FROM	Null
DIAMETER_TO	Null
DIAMETER	Null
CASING_FROM	Null
CASING_TO	Null
CASING_TYPE	Null
CASING_DIAMETER	Null
SCREEN_FROM	Null
SCREEN_TO	Null
SCREEN_TYPE	Null
CONTRACTOR	Null
CONSULTANT	Null
DATE_CREATED	20170418
PROPERTY_ADDRESS	Alan Wood Reserve, Hendon Park, Heron Park, Oakley Creek Walkway & Harbutt Reserve Auckland Auckland City
LOC_TYP	Area

13. CONSENT_NUMBER	47259
FILE_REFERENCE	22038
ACTIVITY	Discharge To Air
CONSENT_HOLDER	NZ Transport Agency Attention: Tammy Muharemi
CONSENT_STATUS	Issued
GRANTED_DATE	20161213
REVIEW_DATE	20180131
EXPIRY_DATE	20511213
PROCESSING_OFFICER	Paul Crimmins
PURPOSE	To discharge contaminants to air from two ventilation stacks and the two tunnel portals in association with the Waterview Connection tunnel linking SH16 and SH20.
WORKS_DESCRIPTION	Null
EASTING	1751779.09
NORTHING	5917281.59
ACTIVITY_ID	20666
ACTIVITY_STATUS	Proposed
ACTIVITY_DESCRIPTION	To discharge contaminants to air from two ventilation stacks and the two tunnel portals in association with the Waterview Connection tunnel linking SH16 and SH20.
SITE_NAME	Between SH16 & SH20
SITE_DESCRIPTION	Air discharge permit to authorise discharges to air from the Waterview Connection tunnel portals and ventilation stacks

DATE_CREATED	18/04/2017 19:11
PROPERTY_ADDRESS	1404 Great North Road Waterview Auckland Central
LOC_TYP	Point
MONITORING_OFFICER	Paul Crimmins
PREVIOUS_INSPECTION_DATE	Null
NEXT_INSPECTION_DATE	Null

14. CONSENT_NUMBER	46438
FILE_REFERENCE	27050
ACTIVITY	Contaminated Site Discharge
CONSENT_HOLDER	Auckland Council
CONSENT_STATUS	Issued
GRANTED_DATE	20160610
REVIEW_DATE	Null
EXPIRY_DATE	20261031
PROCESSING_OFFICER	Aaron Graham
PURPOSE	Discharge of contaminants to land and water from the disturbance of contaminated land, and the penetration or perforation of the cap or cover of a closed landfill.
WORKS_DESCRIPTION	Null
EASTING	1751845.84
NORTHING	5917211.1
ACTIVITY_ID	21854
ACTIVITY_STATUS	Occurring
ACTIVITY_DESCRIPTION	Discharge of contaminants to land and water from the disturbance of contaminated land, and the penetration or perforation of the cap or cover of a closed landfill. This is associated with the restoration and replanting of a potentially contaminated site.
SITE_NAME	Oakley Creek Riparian Restoration Project
SITE_DESCRIPTION	Null
DATE_CREATED	18/04/2017 19:11
PROPERTY_ADDRESS	1404 Great North Road Waterview Auckland Central
LOC_TYP	Point
MONITORING_OFFICER	Aaron Graham
PREVIOUS_INSPECTION_DATE	Null
NEXT_INSPECTION_DATE	Null

15. CONSENT_NUMBER	36474
FILE_REFERENCE	20959
ACTIVITY	Contaminated Site Discharge
CONSENT_HOLDER	NZ Transport Agency Attention: Tammy Muharemi
CONSENT_STATUS	Issued
GRANTED_DATE	20110629

REVIEW_DATE	Null
EXPIRY_DATE	20460731
PROCESSING_OFFICER	EPA Processing
PURPOSE	Discharge of contaminants to land or water from contaminated land (that is undergoing disturbance or remediation) (Sectors 1,3,5,6,7,8 & 9)
WORKS_DESCRIPTION	Null
EASTING	1751676
NORTHING	5917218
ACTIVITY_ID	20986
ACTIVITY_STATUS	Occurring
ACTIVITY_DESCRIPTION	Discharge of contaminants to land or water from contaminated land (that is undergoing disturbance or remediation) (Sectors 1,3,5,6,7,8 & 9)
SITE_NAME	Waterview Connection - NZTA
SITE_DESCRIPTION	SH16 St Lukes - Te Atatu (Sector1, 3, 5, 6, 7, 8 & 9)
DATE_CREATED	18/04/2017 19:11
PROPERTY_ADDRESS	Waterview Interchange to Maioro Street Auckland City
LOC_TYP	Point
MONITORING_OFFICER	Andrew Kalbarczyk
PREVIOUS_INSPECTION_DATE	Null
NEXT_INSPECTION_DATE	Null

16. CONSENT_NUMBER	38329
FILE_REFERENCE	22038
ACTIVITY	Discharge To Air
CONSENT_HOLDER	NZ Transport Agency Attention: Tammy Muharemi
CONSENT_STATUS	Issued
GRANTED_DATE	20110629
REVIEW_DATE	Null
EXPIRY_DATE	20210731
PROCESSING_OFFICER	EPA Processing
PURPOSE	Taking a precautionary approach consent is sought for discharges to air associated with roadworks (including dust emissions) .
WORKS_DESCRIPTION	Null
EASTING	1751676
NORTHING	5917218
ACTIVITY_ID	20461
ACTIVITY_STATUS	Proposed
ACTIVITY_DESCRIPTION	Taking a precautionary approach consent is sought for discharges to air associated with roadworks (including dust emissions) .

SITE_NAME	Waterview Connection - NZTA
SITE_DESCRIPTION	SH16 St Lukes - Te Atatu (Sectors 1-9)
DATE_CREATED	18/04/2017 19:11
PROPERTY_ADDRESS	SH16 St Lukes Te Atatu
LOC_TYP	Point
MONITORING_OFFICER	Paul Crimmins
PREVIOUS_INSPECTION_DATE	20/01/2016
NEXT_INSPECTION_DATE	29/02/2016

17. CONSENT_NUMBER	52932
FILE_REFERENCE	C512-12-5159*
CONSENT_HOLDER	Null
BORE_ID	28935
GRANTED_DATE	20130531
REVIEW_DATE	Null
EXPIRY_DATE	Null
CONSENT_STATUS	Assessment Completed
PROCESSING_OFFICER	Reginald Samuel
PURPOSE	The construction of five bores for Geotechnical investigation purposes.
WORKS_DESCRIPTION	The construction of five 96mm diameter bores to an approximate depth of 40m. Installation of steel socketed and screwed casing material to an approximate depth of 3m.
EASTING	1751891
NORTHING	5917129
ACTIVITY_STATUS	Proposed
LAND_USE	Null
LAND_USE_UPDATED	Null
LAND_USE_NOTE	Null
BORE_USE	Geotechnical
ACTIVITY_DESCRIPTION	The construction of five bores for Geotechnical investigation purposes.
SITE_NAME	Oakley Creek Walkway
SITE_DESCRIPTION	Null
MAIN_AQUIFER	Null
AQUIFER	Null
SUB_AQUIFER1	Null
SUB_AQUIFER2	Null
ENVIRONMENT_REPORTING_AREA	Null
ALW_PLAN_ZONES	Null
TLA	Auckland Central
HYDSYS_NUMBER	Null
DATE_DRILLED	Null
TOTAL_DEPTH	Null
GROUND_ELEVATION	Null
STATIC_WATER_LEVEL	Null

STATIC_WATER_DATE	Null
BORE_LOG	Null
AQUIFER_TEST	Null
DIAMETER_FROM	Null
DIAMETER_TO	Null
DIAMETER	Null
CASING_FROM	Null
CASING_TO	Null
CASING_TYPE	Null
CASING_DIAMETER	Null
SCREEN_FROM	Null
SCREEN_TO	Null
SCREEN_TYPE	Null
CONTRACTOR	Null
CONSULTANT	Beca Carter Hollings & Ferner Ltd
DATE_CREATED	20170418
PROPERTY_ADDRESS	1 Carrington Road Mount Albert Auckland Central
LOC_TYP	Point

18. CONSENT_NUMBER	52329
FILE_REFERENCE	C512-12-4550*
CONSENT_HOLDER	Null
BORE_ID	23519
GRANTED_DATE	20091218
REVIEW_DATE	Null
EXPIRY_DATE	Null
CONSENT_STATUS	Assessment Completed
PROCESSING_OFFICER	Reginald Samuel
PURPOSE	To authorise the construction of three bores for geological, geotechnical and groundwater investigation.
WORKS_DESCRIPTION	The construction of three bores to an approximate depth of 25-35m.
EASTING	1751752
NORTHING	5916979
ACTIVITY_STATUS	Proposed
LAND_USE	Null
LAND_USE_UPDATED	Null
LAND_USE_NOTE	Null
BORE_USE	Geological
ACTIVITY_DESCRIPTION	To authorise the construction of three bores for geological, geotechnical and groundwater investigation.
SITE_NAME	New Zealand Transport Agency
SITE_DESCRIPTION	Null
MAIN_AQUIFER	Null
AQUIFER	Null

SUB_AQUIFER1	Null
SUB_AQUIFER2	Null
ENVIRONMENT_REPORTING_AREA	Null
ALW_PLAN_ZONES	Null
TLA	Auckland Central
HYDSYS_NUMBER	Null
DATE_DRILLED	Null
TOTAL_DEPTH	Null
GROUND_ELEVATION	Null
STATIC_WATER_LEVEL	Null
STATIC_WATER_DATE	Null
BORE_LOG	Null
AQUIFER_TEST	Null
DIAMETER_FROM	Null
DIAMETER_TO	Null
DIAMETER	Null
CASING_FROM	Null
CASING_TO	Null
CASING_TYPE	Null
CASING_DIAMETER	Null
SCREEN_FROM	Null
SCREEN_TO	Null
SCREEN_TYPE	Null
CONTRACTOR	Null
CONSULTANT	Beca Limited
DATE_CREATED	20170418
PROPERTY_ADDRESS	1408 Great North Road Waterview Auckland Central
LOC_TYP	Point

19. CONSENT_NUMBER	52762
FILE_REFERENCE	C512-12-4938
CONSENT_HOLDER	Null
BORE_ID	28678
GRANTED_DATE	20120719
REVIEW_DATE	Null
EXPIRY_DATE	Null
CONSENT_STATUS	Assessment Completed
PROCESSING_OFFICER	Reginald Samuel
PURPOSE	To construction one vibrating wire piezometer bore for for geological and geotechnical investigation purposes.
WORKS_DESCRIPTION	The construction of one vibrating wire piezometer bore for with diameter, bore depth, casing depth and type dependant on site condition.
EASTING	1751704.33

NORTHING	5916894.86
ACTIVITY_STATUS	Proposed
LAND_USE	Null
LAND_USE_UPDATED	Null
LAND_USE_NOTE	Null
BORE_USE	Observation / Piezo
ACTIVITY_DESCRIPTION	The construction of one vibrating wire piezometer bore for for geological and geotechnical investigation purposes.
SITE_NAME	Well-Connected Alliance
SITE_DESCRIPTION	Null
MAIN_AQUIFER	Null
AQUIFER	Null
SUB_AQUIFER1	Null
SUB_AQUIFER2	Null
ENVIRONMENT_REPORTING_AREA	Null
ALW_PLAN_ZONES	Null
TLA	Auckland Central
HYDSYS_NUMBER	Null
DATE_DRILLED	Null
TOTAL_DEPTH	Null
GROUND_ELEVATION	Null
STATIC_WATER_LEVEL	Null
STATIC_WATER_DATE	Null
BORE_LOG	Null
AQUIFER_TEST	Null
DIAMETER_FROM	Null
DIAMETER_TO	Null
DIAMETER	Null
CASING_FROM	Null
CASING_TO	Null
CASING_TYPE	Null
CASING_DIAMETER	Null
SCREEN_FROM	Null
SCREEN_TO	Null
SCREEN_TYPE	Null
CONTRACTOR	Null
CONSULTANT	DCN Drilling Limited
DATE_CREATED	20170418
PROPERTY_ADDRESS	10 1510 Great North Road Waterview Auckland Central
LOC_TYP	Point

20. CONSENT_NUMBER	33057
FILE_REFERENCE	C512-12-3792*
CONSENT_HOLDER	NZ Transport Agency Attention: Tammy Muharemi
BORE_ID	22665

GRANTED_DATE	20060921
REVIEW_DATE	Null
EXPIRY_DATE	20060922
CONSENT_STATUS	Expired
PROCESSING_OFFICER	Reginald Samuel
PURPOSE	To authorise the construction of 12 bores for engineering investigation and monitoring purposes.
WORKS_DESCRIPTION	Construction of twelve 100mm diameter bore to an approximate depth of 50m. Installation of PN12 PVC conduit casing material to an approximate depth of 50m. Screen amterial to be Walton Park Sand, with a proposed grouting length to 45m. Depth to top of
EASTING	1751750
NORTHING	5916862
ACTIVITY_STATUS	Proposed
LAND_USE	Null
LAND_USE_UPDATED	Null
LAND_USE_NOTE	Null
BORE_USE	Observation / Piezo
ACTIVITY_DESCRIPTION	To authorise the construction of 12 bores for engineering investigation and monitoring purposes.
SITE_NAME	Null
SITE_DESCRIPTION	Null
MAIN_AQUIFER	Null
AQUIFER	Null
SUB_AQUIFER1	Null
SUB_AQUIFER2	Null
ENVIRONMENT_REPORTING_AREA	Null
ALW_PLAN_ZONES	Null
TLA	Auckland Central
HYDSYS_NUMBER	Null
DATE_DRILLED	Null
TOTAL_DEPTH	Null
GROUND_ELEVATION	Null
STATIC_WATER_LEVEL	Null
STATIC_WATER_DATE	Null
BORE_LOG	Null
AQUIFER_TEST	Null
DIAMETER_FROM	Null
DIAMETER_TO	Null
DIAMETER	Null
CASING_FROM	Null
CASING_TO	Null
CASING_TYPE	Null
CASING_DIAMETER	Null
SCREEN_FROM	Null
SCREEN_TO	Null

SCREEN_TYPE	Null
CONTRACTOR	Null
CONSULTANT	Aurecon New Zealand Ltd
DATE_CREATED	20170418
PROPERTY_ADDRESS	2 1500 Great North Road Waterview Auckland Central
LOC_TYP	Point

21. CONSENT_NUMBER	52282
FILE_REFERENCE	C512-12-4502*
CONSENT_HOLDER	Null
BORE_ID	23468
GRANTED_DATE	20090924
REVIEW_DATE	Null
EXPIRY_DATE	Null
CONSENT_STATUS	Assessment Completed
PROCESSING_OFFICER	Reginald Samuel
PURPOSE	To authorise the construction of six bores for geological, geotechnical, groundwater and contaminated site investigations.
WORKS_DESCRIPTION	The construction of sixr bores to a maximum depth of 16-25m.
EASTING	1751641
NORTHING	5916799
ACTIVITY_STATUS	Proposed
LAND_USE	Null
LAND_USE_UPDATED	Null
LAND_USE_NOTE	Null
BORE_USE	Water Quality
ACTIVITY_DESCRIPTION	To authorise the construction of six bores for geological, geotechnical, groundwater and contaminated site investigations.
SITE_NAME	new Zealand Transport Agency
SITE_DESCRIPTION	Null
MAIN_AQUIFER	Null
AQUIFER	Null
SUB_AQUIFER1	Null
SUB_AQUIFER2	Null
ENVIRONMENT_REPORTING_AREA	Null
ALW_PLAN_ZONES	Null
TLA	Auckland Central
HYDSYS_NUMBER	Null
DATE_DRILLED	Null
TOTAL_DEPTH	Null
GROUND_ELEVATION	Null
STATIC_WATER_LEVEL	Null
STATIC_WATER_DATE	Null

BORE_LOG	Null
AQUIFER_TEST	Null
DIAMETER_FROM	Null
DIAMETER_TO	Null
DIAMETER	Null
CASING_FROM	Null
CASING_TO	Null
CASING_TYPE	Null
CASING_DIAMETER	Null
SCREEN_FROM	Null
SCREEN_TO	Null
SCREEN_TYPE	Null
CONTRACTOR	Null
CONSULTANT	Beca Limited
DATE_CREATED	20170418
PROPERTY_ADDRESS	1598 Great North Road Waterview Auckland Central
LOC_TYP	Point

22. CONSENT_NUMBER	33508
FILE_REFERENCE	C512-12-3871*
CONSENT_HOLDER	NZ Transport Agency Attention: Tammy Muharemi
BORE_ID	22746
GRANTED_DATE	20061211
REVIEW_DATE	Null
EXPIRY_DATE	20071211
CONSENT_STATUS	Expired
PROCESSING_OFFICER	_Daryl Henehan
PURPOSE	To authorise the construction of two bores for engineering investigation/monitoring
WORKS_DESCRIPTION	Construction of two 100mm diamter bores one 40m deep with 35m depth to top of screen and a 35m grout. The other 60m deep with 60m depth to top of screen and 60m grout.
EASTING	1751800
NORTHING	5916730
ACTIVITY_STATUS	Proposed
LAND_USE	Null
LAND_USE_UPDATED	Null
LAND_USE_NOTE	Null
BORE_USE	Null
ACTIVITY_DESCRIPTION	To authorise the construction of two bores for engineering investigation/monitoring
SITE_NAME	Null
SITE_DESCRIPTION	Null
MAIN_AQUIFER	Null
AQUIFER	Null

SUB_AQUIFER1	Null
SUB_AQUIFER2	Null
ENVIRONMENT_REPORTING_AREA	Null
ALW_PLAN_ZONES	Null
TLA	Auckland Central
HYDSYS_NUMBER	Null
DATE_DRILLED	Null
TOTAL_DEPTH	Null
GROUND_ELEVATION	Null
STATIC_WATER_LEVEL	Null
STATIC_WATER_DATE	Null
BORE_LOG	Null
AQUIFER_TEST	Null
DIAMETER_FROM	Null
DIAMETER_TO	Null
DIAMETER	Null
CASING_FROM	Null
CASING_TO	Null
CASING_TYPE	Null
CASING_DIAMETER	Null
SCREEN_FROM	Null
SCREEN_TO	Null
SCREEN_TYPE	Null
CONTRACTOR	Null
CONSULTANT	Aurecon New Zealand Ltd
DATE_CREATED	20170418
PROPERTY_ADDRESS	211 Richardson Road Mount Roskill Auckland Central
LOC_TYP	Point

23. CONSENT_NUMBER	52358
FILE_REFERENCE	C512-12-4578*
CONSENT_HOLDER	Null
BORE_ID	23550
GRANTED_DATE	20100205
REVIEW_DATE	Null
EXPIRY_DATE	Null
CONSENT_STATUS	Assessment Completed
PROCESSING_OFFICER	Reginald Samuel
PURPOSE	To construct up to 13 bores for Groundwater (aquifer test), geological, getotechnical and groundwater (water quality) purposes.
WORKS_DESCRIPTION	To construct up to thirteen 100mm diameter bores to depths between 30-50m. Some with PVC casing, some VW or fully grouted.
EASTING	1751740
NORTHING	5916602

ACTIVITY_STATUS	Proposed
LAND_USE	Null
LAND_USE_UPDATED	Null
LAND_USE_NOTE	Null
BORE_USE	Geotechnical
ACTIVITY_DESCRIPTION	To construct up to 13 bores for Groundwater (aquifer test), geological, getotechnical and groundwater (water quality) purposes.
SITE_NAME	NZTA
SITE_DESCRIPTION	4 @Oakley Creek Esplanade, 6@ Phyllis Reserve and 3 @ Alan Wood Reserve
MAIN_AQUIFER	Null
AQUIFER	Null
SUB_AQUIFER1	Null
SUB_AQUIFER2	Null
ENVIRONMENT_REPORTING_AREA	Null
ALW_PLAN_ZONES	Null
TLA	Auckland Central
HYDSYS_NUMBER	Null
DATE_DRILLED	Null
TOTAL_DEPTH	Null
GROUND_ELEVATION	Null
STATIC_WATER_LEVEL	Null
STATIC_WATER_DATE	Null
BORE_LOG	Null
AQUIFER_TEST	Null
DIAMETER_FROM	Null
DIAMETER_TO	Null
DIAMETER	Null
CASING_FROM	Null
CASING_TO	Null
CASING_TYPE	Null
CASING_DIAMETER	Null
SCREEN_FROM	Null
SCREEN_TO	Null
SCREEN_TYPE	Null
CONTRACTOR	Null
CONSULTANT	Beca Infrastructure Limited
DATE_CREATED	20170418
PROPERTY_ADDRESS	34 Waterview Downs Waterview Auckland Central
LOC_TYP	Point

24. CONSENT_NUMBER	30635
FILE_REFERENCE	C512-12-3481
CONSENT_HOLDER	Auckland City Council
BORE_ID	22300
GRANTED_DATE	20050311

REVIEW_DATE	Null
EXPIRY_DATE	20060312
CONSENT_STATUS	Expired
PROCESSING_OFFICER	Naveen Kumar
PURPOSE	To authorise a bore for groundwater monitoring purposes.
WORKS_DESCRIPTION	Construction of a 200mm bore to an approximate depth of 15m. Installation of PVC class D casing.
EASTING	1751800
NORTHING	5916600
ACTIVITY_STATUS	Proposed
LAND_USE	Null
LAND_USE_UPDATED	Null
LAND_USE_NOTE	Null
BORE_USE	Observation / Piezo
ACTIVITY_DESCRIPTION	To authorise a bore for groundwater monitoring purposes.
SITE_NAME	Null
SITE_DESCRIPTION	Null
MAIN_AQUIFER	Null
AQUIFER	Null
SUB_AQUIFER1	Null
SUB_AQUIFER2	Null
ENVIRONMENT_REPORTING_AREA	Null
ALW_PLAN_ZONES	Null
TLA	Auckland Central
HYDSYS_NUMBER	Null
DATE_DRILLED	Null
TOTAL_DEPTH	Null
GROUND_ELEVATION	Null
STATIC_WATER_LEVEL	Null
STATIC_WATER_DATE	Null
BORE_LOG	Null
AQUIFER_TEST	Null
DIAMETER_FROM	Null
DIAMETER_TO	Null
DIAMETER	Null
CASING_FROM	Null
CASING_TO	Null
CASING_TYPE	Null
CASING_DIAMETER	Null
SCREEN_FROM	Null
SCREEN_TO	Null
SCREEN_TYPE	Null
CONTRACTOR	Null
CONSULTANT	Tonkin & Taylor Limited
DATE_CREATED	20170418

PROPERTY_ADDRESS	22 Phyllis St Mount Albert Auckland Central
LOC_TYP	Point

25. CONSENT_NUMBER	10016
FILE_REFERENCE	14/17/909
CONSENT_HOLDER	Auckland City Council
BORE_ID	31
GRANTED_DATE	19930430
REVIEW_DATE	Null
EXPIRY_DATE	19940430
CONSENT_STATUS	Expired
PROCESSING_OFFICER	_Ray Scoble
PURPOSE	Authorize the construction of a bore for groundwater level and/or Chemistry investigations
WORKS_DESCRIPTION	Construction of a 100mm dia. bore to approx 20 m depth. Installation of PVC casing to approx 10 m and PVC screen from approx. 15 m to 20 m if required.
EASTING	1751800
NORTHING	5916600
ACTIVITY_STATUS	Proposed
LAND_USE	Null
LAND_USE_UPDATED	Null
LAND_USE_NOTE	Null
BORE_USE	Null
ACTIVITY_DESCRIPTION	Construction of a 100mm dia. bore to approx 20 m depth. Installation of PVC casing to approx 10 m and PVC screen from approx. 15 m to 20 m if required.
SITE_NAME	Null
SITE_DESCRIPTION	Phyllis Street Reserve, c/- Auckland City Council, Western Bays
MAIN_AQUIFER	Waitemata
AQUIFER	Auckland Isthmus Waitemata
SUB_AQUIFER1	Null
SUB_AQUIFER2	Null
ENVIRONMENT_REPORTING_AREA	Null
ALW_PLAN_ZONES	Null
TLA	Auckland Central
HYDSYS_NUMBER	Null
DATE_DRILLED	Null
TOTAL_DEPTH	Null
GROUND_ELEVATION	Null
STATIC_WATER_LEVEL	Null
STATIC_WATER_DATE	Null
BORE_LOG	Y
AQUIFER_TEST	Null

DIAMETER_FROM	0
DIAMETER_TO	Null
DIAMETER	100
CASING_FROM	0
CASING_TO	3
CASING_TYPE	Null
CASING_DIAMETER	Null
SCREEN_FROM	Null
SCREEN_TO	Null
SCREEN_TYPE	Null
CONTRACTOR	Null
CONSULTANT	Null
DATE_CREATED	20170418
PROPERTY_ADDRESS	
LOC_TYP	Point

26. CONSENT_NUMBER	38691
FILE_REFERENCE	C512-12-4724
CONSENT_HOLDER	New Zealand Transport Agency (NZTA) C/- Victoria Park Alliance
BORE_ID	23761
GRANTED_DATE	20101117
REVIEW_DATE	Null
EXPIRY_DATE	20111122
CONSENT_STATUS	Expired
PROCESSING_OFFICER	Reginald Samuel
PURPOSE	To authorise the construction of a bore to conduct a pumping test.
WORKS_DESCRIPTION	The construction of a 200mm diameter bore to an approximate depth of 100m. Installation of casing material to an approximate depth of 60m.
EASTING	1751806
NORTHING	5916594
ACTIVITY_STATUS	Proposed
LAND_USE	Null
LAND_USE_UPDATED	Null
LAND_USE_NOTE	Null
BORE_USE	Other
ACTIVITY_DESCRIPTION	To authorise the construction of a bore to conduct a pumping test.
SITE_NAME	Null
SITE_DESCRIPTION	Null
MAIN_AQUIFER	Waitemata
AQUIFER	Auckland Isthmus Waitemata
SUB_AQUIFER1	Null
SUB_AQUIFER2	Null
ENVIRONMENT_REPORTING_AREA	Null

ALW_PLAN_ZONES	Null
TLA	Auckland Central
HYDSYS_NUMBER	Null
DATE_DRILLED	Null
TOTAL_DEPTH	Null
GROUND_ELEVATION	Null
STATIC_WATER_LEVEL	Null
STATIC_WATER_DATE	Null
BORE_LOG	Null
AQUIFER_TEST	Null
DIAMETER_FROM	Null
DIAMETER_TO	Null
DIAMETER	Null
CASING_FROM	Null
CASING_TO	Null
CASING_TYPE	Null
CASING_DIAMETER	Null
SCREEN_FROM	Null
SCREEN_TO	Null
SCREEN_TYPE	Null
CONTRACTOR	Null
CONSULTANT	Pattle Delamore Partners Limited
DATE_CREATED	20170418
PROPERTY_ADDRESS	22 Phyllis St Mount Albert Auckland Central
LOC_TYP	Point

27. CONSENT_NUMBER	47022
FILE_REFERENCE	27458
ACTIVITY	Contaminated Site Discharge
CONSENT_HOLDER	Auckland Council
CONSENT_STATUS	Issued
GRANTED_DATE	20160924
REVIEW_DATE	Null
EXPIRY_DATE	20260930
PROCESSING_OFFICER	David O'Reilly
PURPOSE	Discharge of contaminants to land and water from the soil disturbance associated with re-capping works and placing the foundation for a sports field upgrade at Phyllis Reserve
WORKS_DESCRIPTION	Capping works to closed landfill at Phyllis Street reserve 11147 (22195)
EASTING	1751853
NORTHING	5916594
ACTIVITY_ID	21923
ACTIVITY_STATUS	Null

ACTIVITY_DESCRIPTION	Recapping of existing landfill capInstallation of a gad cut-off trench Earthworks associated with preparing land for future park development
SITE_NAME	22A Phyllis Street
SITE_DESCRIPTION	Null
DATE_CREATED	18/04/2017 19:11
PROPERTY_ADDRESS	22 Phyllis St Mount Albert Auckland Central
LOC_TYP	Point
MONITORING_OFFICER	Nigel Donovan
PREVIOUS_INSPECTION_DATE	8/02/2017
NEXT_INSPECTION_DATE	8/02/2018

28. CONSENT_NUMBER	35118
FILE_REFERENCE	C512-12-4117*
CONSENT_HOLDER	NZ Transport Agency Attention: Tammy Muharemi
BORE_ID	23029
GRANTED_DATE	20071119
REVIEW_DATE	Null
EXPIRY_DATE	20081113
CONSENT_STATUS	Expired
PROCESSING_OFFICER	Reginald Samuel
PURPOSE	To authorise the construction of nine bores for groundwater level monitoring and sampling using piezometers.
WORKS_DESCRIPTION	The construction of nine 100mm diameter bores to an approximate depth of 10 to 15m. Installation of a casing material to an approximate depth of 10 to 15m.
EASTING	1751750
NORTHING	5916550
ACTIVITY_STATUS	Proposed
LAND_USE	Null
LAND_USE_UPDATED	Null
LAND_USE_NOTE	Null
BORE_USE	Geotechnical
ACTIVITY_DESCRIPTION	To authorise the construction of nine bores for groundwater level monitoring and sampling using piezometers.
SITE_NAME	Transit NZ Watercare Connection Project.
SITE_DESCRIPTION	Null
MAIN_AQUIFER	Null
AQUIFER	Null
SUB_AQUIFER1	Null
SUB_AQUIFER2	Null
ENVIRONMENT_REPORTING_AREA	Null
ALW_PLAN_ZONES	Null
TLA	Auckland Central

HYDSYS_NUMBER	Null
DATE_DRILLED	Null
TOTAL_DEPTH	Null
GROUND_ELEVATION	Null
STATIC_WATER_LEVEL	Null
STATIC_WATER_DATE	Null
BORE_LOG	Null
AQUIFER_TEST	Null
DIAMETER_FROM	Null
DIAMETER_TO	Null
DIAMETER	Null
CASING_FROM	Null
CASING_TO	Null
CASING_TYPE	Null
CASING_DIAMETER	Null
SCREEN_FROM	Null
SCREEN_TO	Null
SCREEN_TYPE	Null
CONTRACTOR	Null
CONSULTANT	Beca Limited
DATE_CREATED	20170418
PROPERTY_ADDRESS	22 Phyllis St Mount Albert Auckland Central
LOC_TYP	Point

29. CONSENT_NUMBER	32124
FILE_REFERENCE	C512-12-3664*
CONSENT_HOLDER	Auckland City Council
BORE_ID	22517
GRANTED_DATE	20060127
REVIEW_DATE	Null
EXPIRY_DATE	20070126
CONSENT_STATUS	Expired
PROCESSING_OFFICER	_Daryl Henehan
PURPOSE	To authorise the construciton of four bores for the purpose of landfill gas monitoring.
WORKS_DESCRIPTION	the construction of four 50mm diameter bores to an approximate depth of 15m. Installation of D Grade UPVC casing to an approximate depth of 12m. UPVC screen with a 3m depth to top and a 15m depth to bottom. Proposed grouting length 4m.
EASTING	1751800
NORTHING	5916500
ACTIVITY_STATUS	Drilled
LAND_USE	Recreation
LAND_USE_UPDATED	20061031
LAND_USE_NOTE	Null
BORE_USE	Other

ACTIVITY_DESCRIPTION	To authorise the construciton of four bores for the purpose of landfill gas monitoring.
SITE_NAME	Auckland City Council
SITE_DESCRIPTION	22 Phyllis Street, Mount Albert
MAIN_AQUIFER	Volcanic
AQUIFER	Auckland Isthmus Volcanic
SUB_AQUIFER1	Mt Roskill-Mt Albert Volcanic
SUB_AQUIFER2	Null
ENVIRONMENT_REPORTING_AREA	Auckland Central
ALW_PLAN_ZONES	Null
TLA	Auckland Central
HYDSYS_NUMBER	Null
DATE_DRILLED	20060209
TOTAL_DEPTH	13.5
GROUND_ELEVATION	Null
STATIC_WATER_LEVEL	Null
STATIC_WATER_DATE	Null
BORE_LOG	Null
AQUIFER_TEST	Null
DIAMETER_FROM	0
DIAMETER_TO	13.5
DIAMETER	50
CASING_FROM	0
CASING_TO	3
CASING_TYPE	PVC/ABS
CASING_DIAMETER	50
SCREEN_FROM	3
SCREEN_TO	13.5
SCREEN_TYPE	PVC/ABS
CONTRACTOR	Null
CONSULTANT	Enviro Waste Services Limited
DATE_CREATED	20170418
PROPERTY_ADDRESS	22 Phyllis St Mount Albert Auckland Central
LOC_TYP	Point

30. CONSENT_NUMBER	10017
FILE_REFERENCE	14/17/910
CONSENT_HOLDER	Auckland City Council
BORE_ID	32
GRANTED_DATE	19930430
REVIEW_DATE	Null
EXPIRY_DATE	19940430
CONSENT_STATUS	Expired
PROCESSING_OFFICER	_Ray Scoble
PURPOSE	Authorize the construction of a bore for groundwater level and/or Chemistry investigations

WORKS_DESCRIPTION	Construction of a 100mm dia. bore to approx 20 m depth. Installation of PVC casing to approx 10 m and PVC screen from approx. 15 m to 20 m if required.
EASTING	1751800
NORTHING	5916500
ACTIVITY_STATUS	Proposed
LAND_USE	Null
LAND_USE_UPDATED	Null
LAND_USE_NOTE	Null
BORE_USE	Null
ACTIVITY_DESCRIPTION	Construction of a 100mm dia. bore to approx 20 m depth. Installation of PVC casing to approx 10 m and PVC screen from approx. 15 m to 20 m if required.
SITE_NAME	Null
SITE_DESCRIPTION	Phyllis Street Reserve, c/- Auckland City Council, Western Bays
MAIN_AQUIFER	Volcanic
AQUIFER	Auckland Isthmus Volcanic
SUB_AQUIFER1	Mt Roskill-Mt Albert Volcanic
SUB_AQUIFER2	Null
ENVIRONMENT_REPORTING_AREA	Null
ALW_PLAN_ZONES	Null
TLA	Auckland Central
HYDSYS_NUMBER	Null
DATE_DRILLED	Null
TOTAL_DEPTH	Null
GROUND_ELEVATION	Null
STATIC_WATER_LEVEL	7.9
STATIC_WATER_DATE	19930512
BORE_LOG	Y
AQUIFER_TEST	Null
DIAMETER_FROM	0
DIAMETER_TO	Null
DIAMETER	100
CASING_FROM	0
CASING_TO	4
CASING_TYPE	Null
CASING_DIAMETER	Null
SCREEN_FROM	Null
SCREEN_TO	Null
SCREEN_TYPE	Null
CONTRACTOR	Null
CONSULTANT	Null
DATE_CREATED	20170418
PROPERTY_ADDRESS	
LOC_TYP	Point

31. CONSENT_NUMBER	10020
FILE_REFERENCE	14/17/912
CONSENT_HOLDER	Auckland City Council
BORE_ID	34
GRANTED_DATE	19930430
REVIEW_DATE	Null
EXPIRY_DATE	19940430
CONSENT_STATUS	Expired
PROCESSING_OFFICER	_Ray Scoble
PURPOSE	Authorize the construction of a bore for groundwater level and/or Chemistry investigations
WORKS_DESCRIPTION	Construction of a 100mm dia. bore to approx 10 m depth. Installation of PVC casing to approx 10 m and PVC screen from approx. 1.5 m to 10 m if required.
EASTING	1751800
NORTHING	5916500
ACTIVITY_STATUS	Proposed
LAND_USE	Null
LAND_USE_UPDATED	Null
LAND_USE_NOTE	Null
BORE_USE	Null
ACTIVITY_DESCRIPTION	Construction of a 100mm dia. bore to approx 10 m depth. Installation of PVC casing to approx 10 m and PVC screen from approx. 1.5 m to 10 m if required.
SITE_NAME	Null
SITE_DESCRIPTION	Phyllis Street Reserve, c/- Auckland City Council, Western Bays
MAIN_AQUIFER	Waitemata
AQUIFER	Auckland Isthmus Waitemata
SUB_AQUIFER1	Null
SUB_AQUIFER2	Null
ENVIRONMENT_REPORTING_AREA	Null
ALW_PLAN_ZONES	Null
TLA	Auckland Central
HYDSYS_NUMBER	Null
DATE_DRILLED	Null
TOTAL_DEPTH	Null
GROUND_ELEVATION	Null
STATIC_WATER_LEVEL	Null
STATIC_WATER_DATE	Null
BORE_LOG	Y
AQUIFER_TEST	Null
DIAMETER_FROM	0
DIAMETER_TO	Null

DIAMETER	100
CASING_FROM	0
CASING_TO	8
CASING_TYPE	Null
CASING_DIAMETER	Null
SCREEN_FROM	Null
SCREEN_TO	Null
SCREEN_TYPE	Null
CONTRACTOR	Null
CONSULTANT	Null
DATE_CREATED	20170418
PROPERTY_ADDRESS	
LOC_TYP	Point

32. APPLICATION_NUMBER	32549
FILE_REFERENCE	19053
ACTIVITY	Contaminated Site Discharge
APPLICANT	Auckland City Council
APPLICATION_STATUS	Lodged
LODGED_DATE	Null
PROCESSING_OFFICER	_Sarah Pinkerton
PURPOSE	Null
WORKS_DESCRIPTION	Null
EASTING	1751890
NORTHING	5916510
ACTIVITY_ID	20480
ACTIVITY_STATUS	Occurring
ACTIVITY_DESCRIPTION	wbs set up for prelodgment and file 2/5/06
SITE_NAME	ACC -Playcentre 25 Phyllis St
SITE_DESCRIPTION	Null
DATE_CREATED	18/04/2017 19:11
PROPERTY_ADDRESS	22 Phyllis St Mount Albert Auckland Central
LOC_TYP	Point

33. CONSENT_NUMBER	35116
FILE_REFERENCE	C512-12-4115*
CONSENT_HOLDER	NZ Transport Agency Attention: Tammy Muharemi
BORE_ID	23027
GRANTED_DATE	20071119
REVIEW_DATE	Null
EXPIRY_DATE	20081113
CONSENT_STATUS	Expired
PROCESSING_OFFICER	Reginald Samuel
PURPOSE	To authorise the construction of three bores for geotechnical investigation and groundwater level monitoring using piezometers.

WORKS_DESCRIPTION	The construction of two 100mm diameter bores to an approximate depth of 60m. Installation of a casing material to an approximate depth of between 0 and 60m.
EASTING	1752140
NORTHING	5916740
ACTIVITY_STATUS	Proposed
LAND_USE	Null
LAND_USE_UPDATED	Null
LAND_USE_NOTE	Null
BORE_USE	Observation / Piezo
ACTIVITY_DESCRIPTION	To authorise the construction of three bores for geotechnical investigation and groundwater level monitoring using piezometers.
SITE_NAME	Transit NZ Watercare Connection Project.
SITE_DESCRIPTION	Null
MAIN_AQUIFER	Null
AQUIFER	Null
SUB_AQUIFER1	Null
SUB_AQUIFER2	Null
ENVIRONMENT_REPORTING_AREA	Null
ALW_PLAN_ZONES	Null
TLA	Auckland Central
HYDSYS_NUMBER	Null
DATE_DRILLED	Null
TOTAL_DEPTH	Null
GROUND_ELEVATION	Null
STATIC_WATER_LEVEL	Null
STATIC_WATER_DATE	Null
BORE_LOG	Null
AQUIFER_TEST	Null
DIAMETER_FROM	Null
DIAMETER_TO	Null
DIAMETER	Null
CASING_FROM	Null
CASING_TO	Null
CASING_TYPE	Null
CASING_DIAMETER	Null
SCREEN_FROM	Null
SCREEN_TO	Null
SCREEN_TYPE	Null
CONTRACTOR	Null
CONSULTANT	Beca Limited
DATE_CREATED	20170418
PROPERTY_ADDRESS	Rhodes Avenue Mount Albert Auckland City
LOC_TYP	Point

34. CONSENT_NUMBER	34766
FILE_REFERENCE	C512-12-4056*
CONSENT_HOLDER	NZ Transport Agency Attention: Tammy Muharemi
BORE_ID	22958
GRANTED_DATE	20070827
REVIEW_DATE	Null
EXPIRY_DATE	20080828
CONSENT_STATUS	Expired
PROCESSING_OFFICER	Reginald Samuel
PURPOSE	To authorise the construction of thirteen bores for geotechnical investigations.
WORKS_DESCRIPTION	A construction of thirteen 100mm diameter bores to an approximate depth of 40m. Installation of PVC casing material to an approximate depth of 40m.
EASTING	1752540
NORTHING	5916894
ACTIVITY_STATUS	Proposed
LAND_USE	Null
LAND_USE_UPDATED	Null
LAND_USE_NOTE	Null
BORE_USE	Geotechnical
ACTIVITY_DESCRIPTION	To authorise the construction of thirteen bores for geotechnical investigations.
SITE_NAME	Transit New Zealand
SITE_DESCRIPTION	Null
MAIN_AQUIFER	Null
AQUIFER	Null
SUB_AQUIFER1	Null
SUB_AQUIFER2	Null
ENVIRONMENT_REPORTING_AREA	Null
ALW_PLAN_ZONES	Null
TLA	Auckland Central
HYDSYS_NUMBER	Null
DATE_DRILLED	Null
TOTAL_DEPTH	Null
GROUND_ELEVATION	Null
STATIC_WATER_LEVEL	Null
STATIC_WATER_DATE	Null
BORE_LOG	Null
AQUIFER_TEST	Null
DIAMETER_FROM	Null
DIAMETER_TO	Null
DIAMETER	Null
CASING_FROM	Null
CASING_TO	Null
CASING_TYPE	Null

CASING_DIAMETER	Null
SCREEN_FROM	Null
SCREEN_TO	Null
SCREEN_TYPE	Null
CONTRACTOR	Null
CONSULTANT	Beca Limited
DATE_CREATED	20170418
PROPERTY_ADDRESS	153 Carrington Road Mount Albert Auckland Central
LOC_TYP	Point

Appendix C:

Historical Aerial Photography

Aerial imagery sourced from Auckland Council GeoMaps.

N

Scale 1:2500 @ A4

0 50 100m

AA2389 - WDHB Mason Clinic PSI

Aerial Photograph of Site Taken in 1940

Plan prepared for Waitemata District Health Board by 4Sight Consulting.

Date: 30/05/2017
Version: 1.0
Drawn: Sam Hendrikse
Checked: Aaron Graham
Approved: Alice Andrew

4SIGHT CONSULTING

Aerial imagery sourced from Auckland Council GeoMaps.

N

Scale 1:2500 @ A4

0 50 100m

AA2389 - WDHB Mason Clinic PSI

Aerial Photograph of Site Taken in 1959

Plan prepared for Waitemata District Health Board by 4Sight Consulting.

Date: 30/05/2017
Version: 1.0
Drawn: Sam Hendrikse
Checked: Aaron Graham
Approved: Alice Andrew

4SIGHT CONSULTING

Aerial imagery sourced from OPUS PhotoSales.

N

Scale 1:2500 @ A4

0 50 100m

AA2389 - WDHB Mason Clinic PSI

Aerial Photograph of Site Taken in 1974

Plan prepared for Waitemata District Health Board by 4Sight Consulting.

Date: 30/05/2017
Version: 1.0
Drawn: Sam Hendrikse
Checked: Aaron Graham
Approved: Alice Andrew

4SIGHT CONSULTING

Aerial imagery sourced from OPUS PhotoSales.

N

Scale 1:5000 @ A4

0 100 200m

AA2389 - WDHB Mason Clinic PSI

Aerial Photograph of Site Taken in 1988

Plan prepared for Waitemata District Health Board by 4Sight Consulting.

Date: 30/05/2017
Version: 1.0
Drawn: Sam Hendrikse
Checked: Aaron Graham
Approved: Alice Andrew

4SIGHT CONSULTING

Aerial imagery sourced from Auckland Council GeoMaps.

N

Scale 1:2500 @ A4

0 50 100m

AA2389 - WDHB Mason Clinic PSI

Aerial Photograph of Site Taken in 2001

Plan prepared for Waitemata District Health Board by 4Sight Consulting.

Date: 30/05/2017
Version: 1.0
Drawn: Sam Hendrikse
Checked: Aaron Graham
Approved: Alice Andrew

4SIGHT CONSULTING

Aerial imagery sourced from Auckland Council GeoMaps.

Scale 1:2500 @ A4

0 50 100m

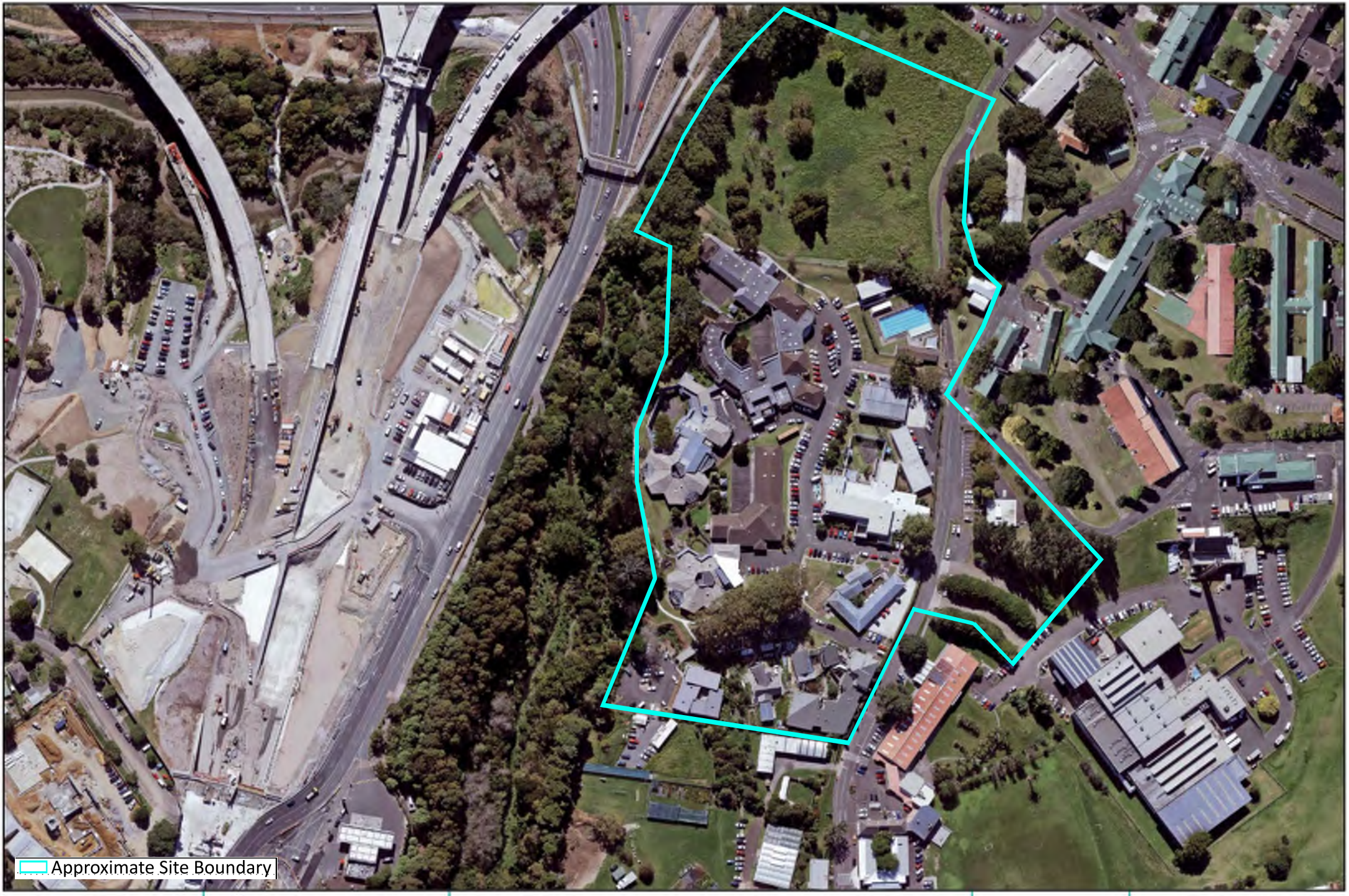
AA2389 - WDHB Mason Clinic PSI

Aerial Photograph of Site Taken in 2008

Plan prepared for Waitemata District Health Board by 4Sight Consulting.

Date: 30/05/2017
Version: 1.0
Drawn: Sam Hendrikse
Checked: Aaron Graham
Approved: Alice Andrew

4SIGHT CONSULTING



Aerial imagery sourced from Auckland Council GeoMaps.

Scale 1:2500 @ A4

0 50 100m

AA2389 - WDHB Mason Clinic PSI

Aerial Photograph of Site Taken in 2016

Plan prepared for Waitemata District Health Board by 4Sight Consulting.

Date: 30/05/2017
Version: 1.0
Drawn: Sam Hendrikse
Checked: Aaron Graham
Approved: Alice Andrew

4SIGHT CONSULTING

Appendix D:

Photos taken from the Site Visit

Photo 1: The site grounds along the western boundary, facing north.

Photo 2: The un-bunded above ground storage tank.

Photo 3: The vacant land in the north, with the Mason Clinic in the background, facing SW.

Photo 4: The eastern area of site, facing north.

H

Laboratory Results

ENVIRONMENTAL TESTING:

CHAIN OF CUSTODY

19-23142

ANALYTICA LABORATORIES

CLIENT INFORMATION				Page #	1	of	2
Client	Aurecon			Customer Comments / Instructions			
Address	Newmarket			Esdat Files Please			
Project Leader	N Burrows			Asbestos samples sent Seperately			
Project ID	256528	PO #					
Site	Mason Clinic						
Sampler	N Burrows						
Phone	027 211 6670						
Email	nikki.burrows@aurecongroup.com						
Invoice Email							

LABORATORY USE ONLY								
Laboratory Job #	19-23142		Seal Status	✓	Priority (mark with X)			
Date Received	10/7/19	Received By	Gimmy	Sample Temp Status		Routine		Urgent

TESTS REQUESTED

Lab ID	Sample ID	Depth	Date	Time	Matrix	# Cont.	Analysis Requests/Suites: OCP	PAH	Presence/Absence Asbestos	HM (8)	Plant color	Sample Comments
1	BH307_0.1-0.15		5/7/19	:	S or W	x3					X	Topsoil
2	TP304_0.1-0.15		/ /	:	S or W			X	X	X		Topsoil
3	TP304_0.4-0.5		/ /	:	S or W						X	
4	TP304_0.5-0.6		/ /	:	S or W			X	X	X		Silty Clay
5	TP304_0.6-0.7		/ /	:	S or W						X	Buried Topsoil
6	TP305_0.1-0.15		/ /	:	S or W			X	X	X		Topsoil
7	TP305_0.55-0.6		/ /	:	S or W	x1					X	Silt
8	TP305_0.7-0.8		/ /	:	S or W	x1		X	X	X		Silt
9	BH302_0.0-0.15		4/7/19	:	S or W	x3	X			X		Topsoil
10	BH302_0.4-0.6		/ /	:	S or W						X	Silty clay
11	BH302_0.8-0.9		/ /	:	S or W						X	"
12	BH302_1.4-1.5		/ /	:	S or W	x1					X	"
13	BH303_0.0-0.15		7/7/19	:	S or W	x3	X			X		Topsoil
14	BH303_0.5-0.6		/ /	:	S or W		X			X		Clayey silt
15	BH303_1.0-1.1		/ /	:	S or W						X	"
16	BH303_1.5-1.6		/ /	:	S or W						X	"
17	TP301_0.1-0.15		8/7/19	:	S or W			X	X	X		Topsoil
14	TP301_0.5-0.55		/ /	:	S or W			X	X	X		Sandy gravelly clay

Relinquished by	Nikki Burrows	Received by	Cup	Courier	NZC
Date	9/7/19	Time	10:00	Date	10/7/19	Time	6:30	Courier #	JD000004072

ENVIRONMENTAL TESTING:

CHAIN OF CUSTODY

ANALYTICA LABORATORIES

CLIENT INFORMATION				Page #	2	of	2
Client	Aurecon			Customer Comments / Instructions			
Address	Newmarket						
Project Leader							
Project ID	256528	PO #					
Site	Mason						
Sampler							
Phone							
Email							
Invoice Email							

Esdat

LABORATORY USE ONLY							
Laboratory Job #		Seal Status		Priority (mark with X)			
Date Received	/ /	Received By		Sample Temp Status		Routine	Urgent

TESTS REQUESTED

Lab ID	Sample ID	Depth	Date	Time	Matrix	# Cont.	Analysis Requests/Suites: OCP	PAH	PAH Asbestos	HM (8)	Hold cold	Sample Comments
19	BH301_0.0-0.2		3/7/19	:	S or W	x3	x			x		Topsoil
20	BH301_0.3-0.4		"	:	S or W	1	x			x		silty clay
21	BH309_0.05-0.1		8/7/19	:	S or W	x3		x	x	x		Topsoil
22	BH309_0.55-0.7		/ /	:	S or W	|		x	x	x	"
23	BH309_0.8-0.9		/ /	:	S or W	|				x	Sand
24	BH309_0.2-PACM1		/ /	:	S or W	x1			x			PACM
25	BH309_0.2-PACM2		/ /	:	S or W	x1					x	PACM
26	BH305_0.0-0.15		/ /	:	S or W	x3	x			x		
27	BH305_0.5-0.6		/ /	:	S or W	|					x	
28	BH305_1.0-1.1		/ /	:	S or W	|					x	
29	BH305_1.5-1.6		/ /	:	S or W	|					x	
			/ /	:	S or W							
			/ /	:	S or W							
			/ /	:	S or W							
			/ /	:	S or W							
			/ /	:	S or W							
			/ /	:	S or W							
			/ /	:	S or W							

Relinquished by			Received by			Courier	
Date	/ /	Time :	Date	/ /	Time :	Courier #	

ANALYTICA LABORATORIES

QF-930-001 Laboratory Chain of Custody – Asbest

19-23142

Certificate Number: _____

Section A – Invoiced to:	
Company Name: Aurecon	**Email Invoice to:**
Contact Person:	**PO Number:**
Office Address:	
Phone:	**Job Number:** **Link to Octfolio #:**
Sample Submitted By Signature: **Date:** **Time:**	**Received By Signature:** **Date:**
Section B– Reported to:	
Company Name: Aurecon Auckland	**Contact Person:**
Client Reference/PO: 256528	**Phone:**
Site Address: Mason Clinic	
Email Report to: enviro.reception@analytica.co.nz	

Section C – Asbestos Sample Turn Around Requirements

Bulk ID / Swabs	Standard (24h) ☐	Urgent (<24h) ☐
PA Soils	Standard (24h) ☐	Urgent (Depends on # of samples) ☐
Semi-Quant Soils (BRANZ)	Standard (3 days) ☐	Urgent (Depends on # of samples) ☐
Quant Soils 10L (WA)	Standard (5 days) ☐	Urgent (Depends on # of samples) ☐

Section D – Payment Method

LIMS #: 19-23142

Cash ☐ COD ☐ Account ☐ Payment Express ☐

Payment Received: Yes ☐ No ☐

Section E – Sample Description and Summary

Sampling completed by Name: **Sampling Date:**

Sample ID	*Bulk*	*PA Soil*	*Semi quant*	*Quant Soil*	*Swab/Tape*	*Other*	*Sample Location, Description and Notes*
TP304_0.1-0.15		✓					
TP304_0.5-0.6		✓					
TP305_0.1-0.15		✓					
TP305_0.7-0.8		✓					
TP301_0.1-0.15		✓					
TP301_0.5-0.55		✓					
BH309_0.05-0.1		✓					
BH309_0.55-0.7		✓					
BH309_0.2-PACM1		✓					

SECTION F - Sample Submitted to: (Update and email client if sample is transferred internally)

Christchurch ☐ 4/91 Byron Street Sydenham, Christchurch 8023	**Dunedin** ☐ 186 Macandrew Road, South Dunedin 9012	**Auckland** ☐ Unit 1, 30 Greenpark Road, Penrose, Auckland 1061	**Wellington** ☐ Level 2, 10 Hutt Road Petone, Wellington 5012

Report Checked By: _____ **Date:** _____ **Report Sent By:** _____ **Date:** _____

ANALYTICA LABORATORIES

QF-930-001 Laboratory Chain of Custody – Asbest

19-23142

Certificate Number: _____

Section A – Invoiced to:		
Company Name: Aurecon	**Email Invoice to:**	
Contact Person:	**PO Number:**	
Office Address:		
Phone:	**Job Number:**	**Link to Octfolio #:**
Sample Submitted By Signature: **Date:** **Time:**	**Received By Signature:**	**Date:**

Section B– Reported to:	
Company Name: Aurecon Auckland	**Contact Person:**
Client Reference/PO: 256528	**Phone:**
Site Address: Mason Clinic	
Email Report to: enviro.reception@analytica.co.nz	

Section C – Asbestos Sample Turn Around Requirements

Bulk ID / Swabs	Standard (24h) ☐	Urgent (<24h) ☐
PA Soils	Standard (24h) ☐	Urgent (Depends on # of samples) ☐
Semi-Quant Soils (BRANZ)	Standard (3 days) ☐	Urgent (Depends on # of samples) ☐
Quant Soils 10L (WA)	Standard (5 days) ☐	Urgent (Depends on # of samples) ☐

Section D – Payment Method

LIMS #: 19-23142

Cash ☐ COD ☐ Account ☐ Payment Express ☐

Payment Received: Yes ☐ No ☐

Section E – Sample Description and Summary

Sampling completed by Name: **Sampling Date:**

Sample ID	*Bulk*	*PA Soil*	*Semi quant*	*Quant Soil*	*Swab/Tape*	*Other*	*Sample Location, Description and Notes*
TP304_0.1-0.15		✓					19-23142-2 ^
TP304_0.5-0.6		✓					-4 ^
TP305_0.1-0.15		✓					-6 ^
TP305_0.7-0.8		✓					-8
TP301_0.1-0.15		✓					-17 ^
TP301_0.5-0.55		✓					-18 ^
BH309_0.05-0.1		✓					-21 ^
BH309_0.55-0.7		✓					-22 ^
BH309_0.2-PACM		✓				bulk	-24 ^

Samples transferred to: Auckland / Hamilton / Wellington ✓ / Christchurch / Dunedin

Date: 10/7

Initials: Ginny

SECTION F - Sample Submitted to: (Update and email client if sample is transferred internally)

Christchurch ☐ 4/91 Byron Street Sydenham, Christchurch 8023	**Dunedin** ☐ 186 Macandrew Road, South Dunedin 9012	**Auckland** ☐ Unit 1, 30 Greenpark Road, Penrose, Auckland 1061	**Wellington** ☐ Level 2, 10 Hutt Road Petone, Wellington 5012

Report Checked By: _____ **Date:** _____ **Report Sent By:** _____ **Date:** _____

Analytica Laboratories Limited
Ruakura Research Centre
10 Bisley Road
Hamilton 3214, New Zealand
Ph +64 (07) 974 4740
sales@analytica.co.nz
www.analytica.co.nz

Sample Receipt Report

Aurecon New Zealand Limited
Level 4, 139 Carlton Gore Road, Newmarket
Auckland
Attention: Nikki Burrows
Phone: 027 211 6670
Email: nikki.burrows@aurecongroup.com

Lab Reference: 19-23142
Submitted by: N Burrows
Date Received: 10/07/2019
Date Due: 15/07/2019
Order Number:
Reference: 256528

Sampling Site: Mason Clinic

Note: The published due date is that of tests done internally, subcontracted tests are subject to the sub-contractor's turnaround times and may be reported on or following the due date indicated.

Summary of Samples

Laboratory ID	Client Sample Reference	Date Sampled	Depth	Sample Type	Condition On Arrival
19-23142-1	BH307_0.1-0.15	5/07/2019		Soil	Acceptable
19-23142-2	TP304_0.1-0.15	5/07/2019		Soil	Acceptable
19-23142-3	TP304_0.4-0.5	5/07/2019		Soil	Acceptable
19-23142-4	TP304_0.5-0.6	5/07/2019		Soil	Acceptable
19-23142-5	TP304_0.6-0.7	5/07/2019		Soil	Acceptable
19-23142-6	TP305_0.1-0.15	5/07/2019		Soil	Acceptable
19-23142-7	TP305_0.55-0.6	5/07/2019		Soil	Acceptable
19-23142-8	TP305_0.7-0.8	5/07/2019		Soil	Acceptable
19-23142-9	BH302_0.0-0.15	4/07/2019		Soil	Acceptable
19-23142-10	BH302_0.4-0.6	4/07/2019		Soil	Acceptable
19-23142-11	BH302_0.8-0.9	4/07/2019		Soil	Acceptable
19-23142-12	BH302_1.4-1.5	4/07/2019		Soil	Acceptable
19-23142-13	BH303_0.0-0.15	7/07/2019		Soil	Acceptable
19-23142-14	BH303_0.5-0.6	7/07/2019		Soil	Acceptable
19-23142-15	BH303_1.0-1.1	7/07/2019		Soil	Acceptable
19-23142-16	BH303_1.5-1.6	7/07/2019		Soil	Acceptable
19-23142-17	TP301_0.1-0.15	8/07/2019		Soil	Acceptable
19-23142-18	TP301_0.5-0.55	8/07/2019		Soil	Acceptable
19-23142-19	BH301_0.0-0.2	3/07/2019		Soil	Acceptable
19-23142-20	BH301_0.3-0.4	3/07/2019		Soil	Acceptable
19-23142-21	BH309_0.05-0.1	8/07/2019		Soil	Acceptable
19-23142-22	BH309_0.55-0.7	8/07/2019		Soil	Acceptable
19-23142-23	BH309_0.8-0.9	8/07/2019		Soil	Acceptable
19-23142-24	BH309_0.2-PACM1	8/07/2019		Bulk Materials	Acceptable
19-23142-25	BH309_0.2-PACM2	8/07/2019		Bulk Materials	Acceptable
19-23142-26	BH305_0.0-0.15	8/07/2019		Soil	Acceptable
19-23142-27	BH305_0.5-0.6	8/07/2019		Soil	Acceptable

Laboratory ID	Client Sample Reference	Date Sampled	Depth	Sample Type	Condition On Arrival
19-23142-28	BH305_1.0-1.1	8/07/2019		Soil	Acceptable
19-23142-29	BH305_1.5-1.6	8/07/2019		Soil	Acceptable

Summary of Testing

		8 Heavy Metals in Soil	Dry Sieve	OCP in Soil	PAH in Soil	Moisture Content	Asbestos in Soil (Qualitative)	Asbestos in Bulk Mats (Qual)
19-23142-1	BH307_0.1-0.15							
19-23142-2	TP304_0.1-0.15	✓	✓		✓	✓	✓	
19-23142-3	TP304_0.4-0.5							
19-23142-4	TP304_0.5-0.6	✓	✓		✓	✓	✓	
19-23142-5	TP304_0.6-0.7							
19-23142-6	TP305_0.1-0.15	✓	✓		✓	✓	✓	
19-23142-7	TP305_0.55-0.6							
19-23142-8	TP305_0.7-0.8	✓	✓		✓	✓	✓	
19-23142-9	BH302_0.0-0.15	✓	✓	✓				
19-23142-10	BH302_0.4-0.6							
19-23142-11	BH302_0.8-0.9							
19-23142-12	BH302_1.4-1.5							
19-23142-13	BH303_0.0-0.15	✓	✓	✓				
19-23142-14	BH303_0.5-0.6	✓	✓	✓				
19-23142-15	BH303_1.0-1.1							
19-23142-16	BH303_1.5-1.6							
19-23142-17	TP301_0.1-0.15	✓	✓		✓	✓	✓	
19-23142-18	TP301_0.5-0.55	✓	✓		✓	✓	✓	
19-23142-19	BH301_0.0-0.2	✓	✓	✓				
19-23142-20	BH301_0.3-0.4	✓	✓	✓				
19-23142-21	BH309_0.05-0.1	✓	✓		✓	✓	✓	
19-23142-22	BH309_0.55-0.7	✓	✓		✓	✓	✓	
19-23142-23	BH309_0.8-0.9							
19-23142-24	BH309_0.2-PACM1							✓
19-23142-25	BH309_0.2-PACM2							
19-23142-26	BH305_0.0-0.15	✓	✓	✓				
19-23142-27	BH305_0.5-0.6							
19-23142-28	BH305_1.0-1.1							
19-23142-29	BH305_1.5-1.6							

Heavy Metals in Soil

Testing Breakdown

		Arsenic	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Zinc
19-23142-1	BH307_0.1-0.15								
19-23142-2	TP304_0.1-0.15	✓	✓	✓	✓	✓	✓	✓	✓
19-23142-3	TP304_0.4-0.5								
19-23142-4	TP304_0.5-0.6	✓	✓	✓	✓	✓	✓	✓	✓
19-23142-5	TP304_0.6-0.7								
19-23142-6	TP305_0.1-0.15	✓	✓	✓	✓	✓	✓	✓	✓
19-23142-7	TP305_0.55-0.6								
19-23142-8	TP305_0.7-0.8	✓	✓	✓	✓	✓	✓	✓	✓
19-23142-9	BH302_0.0-0.15	✓	✓	✓	✓	✓	✓	✓	✓
19-23142-10	BH302_0.4-0.6								
19-23142-11	BH302_0.8-0.9								
19-23142-12	BH302_1.4-1.5								
19-23142-13	BH303_0.0-0.15	✓	✓	✓	✓	✓	✓	✓	✓
19-23142-14	BH303_0.5-0.6	✓	✓	✓	✓	✓	✓	✓	✓
19-23142-15	BH303_1.0-1.1								
19-23142-16	BH303_1.5-1.6								
19-23142-17	TP301_0.1-0.15	✓	✓	✓	✓	✓	✓	✓	✓
19-23142-18	TP301_0.5-0.55	✓	✓	✓	✓	✓	✓	✓	✓
19-23142-19	BH301_0.0-0.2	✓	✓	✓	✓	✓	✓	✓	✓
19-23142-20	BH301_0.3-0.4	✓	✓	✓	✓	✓	✓	✓	✓
19-23142-21	BH309_0.05-0.1	✓	✓	✓	✓	✓	✓	✓	✓
19-23142-22	BH309_0.55-0.7	✓	✓	✓	✓	✓	✓	✓	✓
19-23142-23	BH309_0.8-0.9								
19-23142-24	BH309_0.2-PACM1								
19-23142-25	BH309_0.2-PACM2								
19-23142-26	BH305_0.0-0.15	✓	✓	✓	✓	✓	✓	✓	✓
19-23142-27	BH305_0.5-0.6								
19-23142-28	BH305_1.0-1.1								
19-23142-29	BH305_1.5-1.6								

If you have any queries please email us at enviro.reception@analytica.co.nz or telephone 07 444 5574.

Note: Soil samples will be held onsite for 3 months. Samples will be disposed on the 20th of the 3rd month following the month of receipt (ie: Samples received in January will be disposed on the 20th of April), Please contact our environmental sample reception at enviro.reception@analytica.co.nz or 07 444 5574 if you wish to extend the samples holding period.

Note: Water samples will be held onsite for 1 month. Samples will be disposed of routinely according to receipt dates.

Analytica Laboratories Limited
Ruakura Research Centre
10 Bisley Road
Hamilton 3214, New Zealand
Ph +64 (07) 974 4740
sales@analytica.co.nz
www.analytica.co.nz

Certificate of Analysis - *Interim Report*

Aurecon New Zealand Limited
Level 4, 139 Carlton Gore Road, Newmarket
Auckland
Attention: Nikki Burrows
Phone: 027 211 6670
Email: nikki.burrows@aurecongroup.com

Lab Reference: 19-23142
Submitted by: N Burrows
Date Received: 10/07/2019
Date Completed:
Order Number:
Reference: 256528

Sampling Site: Mason Clinic

Heavy Metals in Soil

			Client Sample ID	TP304_0.1-0.15	TP304_0.5-0.6	TP305_0.1-0.15	TP305_0.7-0.8	BH302_0.0-0.15
			Date Sampled	5/07/2019	5/07/2019	5/07/2019	5/07/2019	4/07/2019
Analyte	Unit	*Reporting Limit*		19-23142-2	19-23142-4	19-23142-6	19-23142-8	19-23142-9
Arsenic	mg/kg dry wt	*0.125*		12	3.1	6.2	2.9	12
Cadmium	mg/kg dry wt	*0.005*		0.773	0.077	0.46	0.037	0.13
Chromium	mg/kg dry wt	*0.125*		37.3	17.3	38.8	49.3	7.4
Copper	mg/kg dry wt	*0.075*		78.3	9.23	33.4	14.3	75.9
Lead	mg/kg dry wt	*0.05*		186	23.6	85.8	14.8	78.3
Mercury	mg/kg dry wt	*0.025*		0.39	0.096	0.35	0.33	0.092
Nickel	mg/kg dry wt	*0.05*		24.1	6.69	19.7	11.4	3.1
Zinc	mg/kg dry wt	*0.05*		131	17.9	79.7	24.9	26.0

Heavy Metals in Soil

			Client Sample ID	BH303_0.0-0.15	BH303_0.5-0.6	TP301_0.1-0.15	TP301_0.5-0.55	BH301_0.0-0.2
			Date Sampled	7/07/2019	7/07/2019	8/07/2019	8/07/2019	3/07/2019
Analyte	Unit	*Reporting Limit*		19-23142-13	19-23142-14	19-23142-17	19-23142-18	19-23142-19
Arsenic	mg/kg dry wt	*0.125*		3.6	1.7	5.6	3.7	13.0
Cadmium	mg/kg dry wt	*0.005*		0.13	0.019	0.29	0.060	0.644
Chromium	mg/kg dry wt	*0.125*		8.6	8.4	30.6	19.6	40.4
Copper	mg/kg dry wt	*0.075*		24.1	4.8	42.8	10.8	75.9
Lead	mg/kg dry wt	*0.05*		44.4	7.09	87.5	12.6	118
Mercury	mg/kg dry wt	*0.025*		0.11	0.071	0.29	0.093	0.27
Nickel	mg/kg dry wt	*0.05*		3.1	2.8	17.8	24.3	16.7
Zinc	mg/kg dry wt	*0.05*		28.1	13.5	87.7	25.5	72.4

IANZ ACCREDITED LABORATORY

All tests reported herein have been performed in accordance with the laboratory's scope of accreditation, with the exception of tests marked *, which are not accredited.

Heavy Metals in Soil

			Client Sample ID	BH301_0.3-0.4	BH309_0.05-0.1	BH309_0.55-0.7	BH305_0.0-0.15
			Date Sampled	3/07/2019	8/07/2019	8/07/2019	8/07/2019
Analyte		Unit	*Reporting Limit*	19-23142-20	19-23142-21	19-23142-22	19-23142-26
Arsenic		mg/kg dry wt	*0.125*	3.6	7.2	11	5.2
Cadmium		mg/kg dry wt	*0.005*	0.16	0.36	0.654	0.19
Chromium		mg/kg dry wt	*0.125*	64.7	34.9	44.4	11
Copper		mg/kg dry wt	*0.075*	25.3	32.0	67.8	41.8
Lead		mg/kg dry wt	*0.05*	29.5	88.2	220	65.1
Mercury		mg/kg dry wt	*0.025*	0.15	0.20	0.33	0.11
Nickel		mg/kg dry wt	*0.05*	14.2	17.9	22.9	6.69
Zinc		mg/kg dry wt	*0.05*	28.7	107	124	41.3

Organochlorine Pesticides - Soil

			Client Sample ID	BH302_0.0-0.15	BH303_0.0-0.15	BH303_0.5-0.6	BH301_0.0-0.2	BH301_0.3-0.4
			Date Sampled	4/07/2019	7/07/2019	7/07/2019	3/07/2019	3/07/2019
Analyte		Unit	*Reporting Limit*	19-23142-9	19-23142-13	19-23142-14	19-23142-19	19-23142-20
2,4'-DDD		mg/kg dry wt	*0.005*	<0.005	<0.005	<0.005	<0.005	<0.005
2,4'-DDE		mg/kg dry wt	*0.005*	<0.005	<0.005	<0.005	<0.005	<0.005
2,4'-DDT		mg/kg dry wt	*0.005*	<0.005	<0.005	<0.005	0.008	<0.005
4,4'-DDD		mg/kg dry wt	*0.003*	<0.003	<0.003	<0.003	0.012	<0.003
4,4'-DDE		mg/kg dry wt	*0.005*	<0.005	<0.005	<0.005	0.046	0.013
4,4'-DDT		mg/kg dry wt	*0.005*	<0.005	<0.005	<0.005	0.023	<0.005
Total DDT		mg/kg dry wt	*0.02*	<0.02	<0.02	<0.02	0.09	<0.02
alpha-BHC		mg/kg dry wt	*0.005*	<0.005	<0.005	<0.005	<0.005	<0.005
Aldrin		mg/kg dry wt	*0.005*	<0.005	<0.005	<0.005	<0.005	<0.005
beta-BHC		mg/kg dry wt	*0.005*	<0.005	<0.005	<0.005	<0.005	<0.005
cis-Chlordane		mg/kg dry wt	*0.005*	<0.005	<0.005	<0.005	<0.005	<0.005
cis-Nonachlor		mg/kg dry wt	*0.01*	<0.01	<0.01	<0.01	<0.01	<0.01
delta-BHC		mg/kg dry wt	*0.005*	<0.005	<0.005	<0.005	<0.005	<0.005
Dieldrin		mg/kg dry wt	*0.05*	<0.05	<0.05	<0.05	<0.05	<0.05
Endosulfan I		mg/kg dry wt	*0.005*	<0.005	<0.005	<0.005	<0.005	<0.005
Endosulfan II		mg/kg dry wt	*0.01*	<0.01	<0.01	<0.01	<0.01	<0.01
Endosulfan sulfate		mg/kg dry wt	*0.005*	<0.005	<0.005	<0.005	<0.005	<0.005
Endrin		mg/kg dry wt	*0.05*	<0.05	<0.05	<0.05	<0.05	<0.05
Endrin aldehyde		mg/kg dry wt	*0.01*	<0.01	<0.01	<0.01	<0.01	<0.01
Endrin ketone		mg/kg dry wt	*0.005*	<0.005	<0.005	<0.005	<0.005	<0.005
gamma-BHC		mg/kg dry wt	*0.005*	<0.005	<0.005	<0.005	<0.005	<0.005
Heptachlor		mg/kg dry wt	*0.005*	<0.005	<0.005	<0.005	<0.005	<0.005
Heptachlor epoxide		mg/kg dry wt	*0.005*	<0.005	<0.005	<0.005	<0.005	<0.005
Hexachlorobenzene		mg/kg dry wt	*0.005*	<0.005	<0.005	<0.005	<0.005	<0.005
Methoxychlor		mg/kg dry wt	*0.01*	<0.01	<0.01	<0.01	<0.01	<0.01
trans-nonachlor		mg/kg dry wt	*0.01*	<0.01	<0.01	<0.01	<0.01	<0.01
trans-Chlordane		mg/kg dry wt	*0.01*	<0.01	<0.01	<0.01	<0.01	<0.01
Chlordane (sum)		mg/kg dry wt	*0.02*	<0.020	<0.020	<0.020	<0.020	<0.020
TCMX (Surrogate)		%	*1*	96.9	96.9	102.4	102.3	95.8

Organochlorine Pesticides - Soil

		Client Sample ID	BH305_0.0-0.15
		Date Sampled	8/07/2019
Analyte	Unit	*Reporting Limit*	19-23142-26
2,4'-DDD	mg/kg dry wt	*0.005*	<0.005
2,4'-DDE	mg/kg dry wt	*0.005*	<0.005
2,4'-DDT	mg/kg dry wt	*0.005*	<0.005
4,4'-DDD	mg/kg dry wt	*0.003*	<0.003
4,4'-DDE	mg/kg dry wt	*0.005*	<0.005
4,4'-DDT	mg/kg dry wt	*0.005*	<0.005
Total DDT	mg/kg dry wt	*0.02*	<0.02
alpha-BHC	mg/kg dry wt	*0.005*	<0.005
Aldrin	mg/kg dry wt	*0.005*	<0.005
beta-BHC	mg/kg dry wt	*0.005*	<0.005
cis-Chlordane	mg/kg dry wt	*0.005*	<0.005
cis-Nonachlor	mg/kg dry wt	*0.01*	<0.01
delta-BHC	mg/kg dry wt	*0.005*	<0.005
Dieldrin	mg/kg dry wt	*0.05*	<0.05
Endosulfan I	mg/kg dry wt	*0.005*	<0.005
Endosulfan II	mg/kg dry wt	*0.01*	<0.01
Endosulfan sulfate	mg/kg dry wt	*0.005*	<0.005
Endrin	mg/kg dry wt	*0.05*	<0.05
Endrin aldehyde	mg/kg dry wt	*0.01*	<0.01
Endrin ketone	mg/kg dry wt	*0.005*	<0.005
gamma-BHC	mg/kg dry wt	*0.005*	<0.005
Heptachlor	mg/kg dry wt	*0.005*	<0.005
Heptachlor epoxide	mg/kg dry wt	*0.005*	<0.005
Hexachlorobenzene	mg/kg dry wt	*0.005*	<0.005
Methoxychlor	mg/kg dry wt	*0.01*	<0.01
trans-nonachlor	mg/kg dry wt	*0.01*	<0.01
trans-Chlordane	mg/kg dry wt	*0.01*	<0.01
Chlordane (sum)	mg/kg dry wt	*0.02*	<0.020
TCMX (Surrogate)	%	*1*	99.4

Polycyclic Aromatic Hydrocarbons - Soil

		Client Sample ID	TP304_0.1-0.15	TP304_0.5-0.6	TP305_0.1-0.15	TP305_0.7-0.8	TP301_0.1-0.15
		Date Sampled	5/07/2019	5/07/2019	5/07/2019	5/07/2019	8/07/2019
Analyte	Unit	*Reporting Limit*	19-23142-2	19-23142-4	19-23142-6	19-23142-8	19-23142-17
1-Methylnaphthalene	mg/kg dry wt	*0.01*	<0.01	<0.01	0.01	<0.011	<0.01
2-Methylnaphthalene	mg/kg dry wt	*0.01*	<0.01	<0.01	<0.011	<0.011	<0.01
Acenaphthene	mg/kg dry wt	*0.01*	<0.01	<0.01	0.01	<0.011	<0.01
Acenaphthylene	mg/kg dry wt	*0.01*	0.05	<0.01	0.05	<0.011	0.06
Anthracene	mg/kg dry wt	*0.01*	0.06	<0.01	0.10	<0.011	0.07
Benz[a]anthracene	mg/kg dry wt	*0.02*	0.51	0.07	0.39	<0.02	0.63
Benzo[a]pyrene	mg/kg dry wt	*0.01*	0.90	0.15	0.63	0.03	1.20
Benzo[b]&[j] fluoranthene	mg/kg dry wt	*0.02*	0.92	0.13	0.60	0.04	1.33
Benzo[g,h,i]perylene	mg/kg dry wt	*0.02*	0.23	0.03	0.12	<0.02	0.29
Benzo[k]fluoranthene	mg/kg dry wt	*0.01*	0.32	0.06	0.17	0.02	0.44
Chrysene	mg/kg dry wt	*0.01*	0.36	0.06	0.27	0.02	0.52
Dibenz(a,h)anthracene	mg/kg dry wt	*0.01*	0.04	<0.01	0.02	<0.011	0.05
Fluoranthene	mg/kg dry wt	*0.02*	0.74	0.11	0.65	0.03	0.85
Fluorene	mg/kg dry wt	*0.01*	<0.01	<0.01	0.02	<0.011	0.01
Indeno(1,2,3-cd)pyrene	mg/kg dry wt	*0.01*	0.29	0.04	0.16	<0.011	0.39

Polycyclic Aromatic Hydrocarbons - Soil

		Client Sample ID	TP304_0.1-0.15	TP304_0.5-0.6	TP305_0.1-0.15	TP305_0.7-0.8	TP301_0.1-0.15
		Date Sampled	5/07/2019	5/07/2019	5/07/2019	5/07/2019	8/07/2019
Naphthalene	mg/kg dry wt	*0.01*	<0.01	<0.01	<0.011	<0.011	<0.01
Phenanthrene	mg/kg dry wt	*0.01*	0.25	0.04	0.56	0.02	0.33
Pyrene	mg/kg dry wt	*0.02*	0.81	0.11	0.66	0.03	0.96
Benzo[a]pyrene TEQ (LOR)	mg/kg dry wt	*0.01*					
Benzo[a]pyrene TEQ (Zero)	mg/kg dry wt	*0.01*					
Anthracene-d10 (Surrogate)	%	*1*	103.7	101.6	97.5	98.7	103.5

Polycyclic Aromatic Hydrocarbons - Soil

	Client Sample ID	TP301_0.5-0.55	BH309_0.05-0.1	BH309_0.55-0.7
	Date Sampled	8/07/2019	8/07/2019	8/07/2019
Analyte	Unit	*Reporting Limit*	19-23142-18	19-23142-21	19-23142-22
1-Methylnaphthalene	mg/kg dry wt	*0.01*	<0.01	<0.01	0.01
2-Methylnaphthalene	mg/kg dry wt	*0.01*	<0.01	<0.01	<0.01
Acenaphthene	mg/kg dry wt	*0.01*	<0.01	<0.01	0.05
Acenaphthylene	mg/kg dry wt	*0.01*	<0.01	0.03	0.09
Anthracene	mg/kg dry wt	*0.01*	<0.01	0.04	0.16
Benz[a]anthracene	mg/kg dry wt	*0.02*	<0.02	0.32	0.83
Benzo[a]pyrene	mg/kg dry wt	*0.01*	<0.01	0.63	1.68
Benzo[b]&[j] fluoranthene	mg/kg dry wt	*0.02*	<0.02	0.65	1.62
Benzo[g,h,i]perylene	mg/kg dry wt	*0.02*	<0.02	0.14	0.33
Benzo[k]fluoranthene	mg/kg dry wt	*0.01*	<0.01	0.24	0.49
Chrysene	mg/kg dry wt	*0.01*	<0.01	0.26	0.66
Dibenz(a,h)anthracene	mg/kg dry wt	*0.01*	<0.01	0.02	0.06
Fluoranthene	mg/kg dry wt	*0.02*	<0.02	0.48	1.56
Fluorene	mg/kg dry wt	*0.01*	<0.01	<0.01	0.03
Indeno(1,2,3-cd)pyrene	mg/kg dry wt	*0.01*	<0.01	0.18	0.46
Naphthalene	mg/kg dry wt	*0.01*	<0.01	<0.01	<0.01
Phenanthrene	mg/kg dry wt	*0.01*	<0.01	0.18	0.81
Pyrene	mg/kg dry wt	*0.02*	<0.02	0.49	1.60
Benzo[a]pyrene TEQ (LOR)	mg/kg dry wt	*0.01*			
Benzo[a]pyrene TEQ (Zero)	mg/kg dry wt	*0.01*			
Anthracene-d10 (Surrogate)	%	*1*	98.3	99.5	111.1

Moisture Content

		Client Sample ID	TP304_0.1-0.15	TP304_0.5-0.6	TP305_0.1-0.15	TP305_0.7-0.8	TP301_0.1-0.15
		Date Sampled	5/07/2019	5/07/2019	5/07/2019	5/07/2019	8/07/2019
Analyte	Unit	*Reporting Limit*	19-23142-2	19-23142-4	19-23142-6	19-23142-8	19-23142-17
Moisture Content	%	*1*	31	23	35	44	31

Moisture Content

	Client Sample ID		TP301_0.5-0.55	BH309_0.05-0.1	BH309_0.55-0.7
	Date Sampled		8/07/2019	8/07/2019	8/07/2019
Analyte	Unit	*Reporting Limit*	19-23142-18	19-23142-21	19-23142-22
Moisture Content	%	*1*	20	36	31

Method Summary

Elements in Soil
Acid digestion followed by ICP-MS analysis. (US EPA method 200.8).
Results are based on a dried sample passed through a 2 mm sieve.

OCP in Soil
Samples are extracted with hexane, pre-concetrated then analysed by GC-MSMS.(In-house procedure).
(Chlordane (sum) is calculated from the main actives in technical Chlordane: Chlordane, Nonachlor and Heptachlor)

Total DDT
Sum of DDT, DDD and DDE (4,4' and 2,4 isomers)

PAH in Soil
Solvent extraction, silica cleanup, followed by GC-MS analysis.
Benzo[a]pyrene TEQ (LOR): The most conservative TEQ estimate, where a result is reported as less than the limit of reporting (LOR) the LOR value is used to calculate the TEQ for that PAH.
Benzo[a]pyrene TEQ (Zero): The least conservative TEQ estimate, PAHs reported as less than the limit of reporting (LOR) are not included in the TEQ calculation.
Benzo[a]pyrene toxic equivalence (TEQ) is calculated according to *'Methodology for Deriving Standards for Contaminants in Soil to Protect Human Health'*. Ministry for the Environment. 2011.

Moisture
Moisture content is determined gravimetrically by drying at 103 °C.

Report Comments

Samples were collected by yourselves (or your agent) and analysed as received at Analytica Laboratories. Samples were in acceptable condition unless otherwise noted on this report.

Report Date: 11 Jul 2019

Certificate Number: B1907111252

Aurecon Auckland

Client Reference: 256528; 19-23142

Dear Aurecon Auckland,

Re: Asbestos Identification Analysis – Mason Clinic

1 sample(s) received on 11 Jul 2019 by Rebecca Isaacs.

The results of fibre analysis were performed by Gabby Buchanan of Analytica Laboratories Limited on 11 Jul 2019.

The sample(s) were stated to be from Mason Clinic.

Sample analysis was performed using polarised light microscopy with dispersion staining in accordance with the guidelines of *AS4964-2004 Method for the qualitative identification of asbestos in bulk samples.*

The results of the fibre analysis are presented in the appended table.

Should you require further information please contact Gabby Buchanan.

Yours sincerely

Gabby Buchanan
LABORATORY IDENTIFIER

Analytica Laboratories Limited
Level 2, 10 Hutt Road, Petone, Lower Hutt Wellington 5012

P: +64 7 974 4740
W: www.analytica.co.nz

Sample Analysis Results

Certificate Number: B1907111252
Report Date: 11 Jul 2019
Site Location: Mason Clinic

Note 1: The reporting limit for this analysis is 0.1g/kg (0.01%) by application of polarised light microscopy, dispersion staining and trace analysis techniques.

Note 2: If mineral fibres of unknown type are detected (UMF), by PLM and dispersion staining, these may or may not be asbestos fibres. To confirm the identity of this fibre, another independent analytical technique such as XRD analysis is advised.

Note 3: The samples in this report are "As Received". The laboratory does not take responsibility for the sampling procedure or accuracy of sample location description. This document may not be reproduced except in full.

Identified by:

Approved Identifier: Gabby Buchanan

Reviewed by:

Key Technical Person: Caitlin Hendry

Sample ID	Client Sample ID	Sample Location/Description/Dimensions	Analysis Results
S001	BH309-0.2-PACM1	Bulk - 24 Fibre cement sheeting L1 - Surface Debris L2 - Paint L3 - Fibre Cement Sheet 107 x 70 x 5 mm	Chrysotile (white asbestos) Fibres Organic Fibres Amosite (brown asbestos) Fibres

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Report Date: 12 Jul 2019

Certificate Number: P1907111127

Aurecon Auckland

Client Reference: 256528; 19-23142

Dear Aurecon Auckland,

Re: Asbestos Soil Identification Analysis – Mason Clinic

8 sample(s) received on 11 Jul 2019 by Rebecca Isaacs.

The results of fibre analysis were performed by Gabby Buchanan of Analytica Laboratories Limited on 12 Jul 2019.

The sample(s) were stated to be from Mason Clinic.

Sample analysis was performed using polarised light microscopy with dispersion staining in accordance with *AS4964-2004 Method for the qualitative identification of asbestos in soil samples.*

The results of the fibre analysis are presented in the appended table.

Should you require further information please contact Gabby Buchanan.

Yours sincerely

Gabby Buchanan
LABORATORY IDENTIFIER

Analytica Laboratories Limited
Level 2, 10 Hutt Road, Petone, Lower Hutt Wellington 5012

P: +64 7 974 4740
W: www.analytica.co.nz

Sample Analysis Results

Certificate Number: P1907111127
Report Date: 12 Jul 2019
Site Location: Mason Clinic

Note 1: The reporting limit for this analysis is 0.1g/kg (0.01%) by application of polarised light microscopy, dispersion staining and trace analysis techniques.

Note 2: If mineral fibres of unknown type are detected (UMF), by PLM and dispersion staining, these may or may not be asbestos fibres. To confirm the identity of this fibre, another independent analytical technique such as XRD analysis is advised.

Note 3: The samples in this report are "As Received". The laboratory does not take responsibility for the sampling procedure or accuracy of sample location description. This document may not be reproduced except in full.

Identified by:

Approved Identifier: Gabby Buchanan

Reviewed by:

Key Technical Person: Gabby Buchanan

Sample ID	Client Sample ID	Sample Location/Description/Dimensions	Analysis Results
S001	TP304_0.1-0.15	19-23142-2 Non-Homogeneous Soil 90.16g	Chrysotile (white asbestos) Fibres Organic Fibres
S002	TP304_0.5-0.6	19-23142-4 Non-Homogeneous Soil 176.18g	No Asbestos Detected Organic Fibres
S003	TP305_0.1-0.15	19-23142-6 Non-Homogeneous Soil 76.03g	No Asbestos Detected Organic Fibres
S004	TP305_0.7-0.8	19-23142-8 Non-Homogeneous Soil 39.58g	No Asbestos Detected Organic Fibres
S005	TP301_0.1-0.15	19-23142-17 Non-Homogeneous Soil 138.60g	No Asbestos Detected Organic Fibres
S006	TP301_0.5-0.55	19-23142-18 Non-Homogeneous Soil 104.22g	No Asbestos Detected Organic Fibres
S007	BH309_0.05-0.1	19-23142-21 Non-Homogeneous Soil 71.55g	No Asbestos Detected Organic Fibres
S008	BH309_0.55-0.7	19-23142-22 Non-Homogeneous Soil 73.63g	No Asbestos Detected Organic Fibres

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Appendix 1: Soil Analysis Raw Data

Certificate Number: P1907111127
Report Date: 12 Jul 2019
Site Location: Mason Clinic

Sample ID	Client Sample ID	Total Sample Weight (g)	ACM Approximate Dimensions (g)*	Form	Trace Asbestos Detected**
S001	TP304_0.1-0.15	90.16	0.0011	Free Fibres	Y
S002	TP304_0.5-0.6	176.18	-	No Asbestos Detected	N
S003	TP305_0.1-0.15	76.03	-	No Asbestos Detected	N
S004	TP305_0.7-0.8	39.58	-	No Asbestos Detected	N
S005	TP301_0.1-0.15	138.60	-	No Asbestos Detected	N
S006	TP301_0.5-0.55	104.22	-	No Asbestos Detected	N
S007	BH309_0.05-0.1	71.55	-	No Asbestos Detected	N
S008	BH309_0.55-0.7	73.63	-	No Asbestos Detected	N

* The reporting limit for this standard is 0.1g/kg
** Trace asbestos present is indicative that freely liberated respirable fibres are present and dust control measures should be implemented or increased
*** Asbestos weights listed in this table are indicative only and are outside of IANZ accreditation and is therefore not endorsed by IANZ.

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ENVIRONMENTAL TESTING

CHAIN OF CUSTODY

19-24864

URGENT

ANALYTICA LABORATORIES

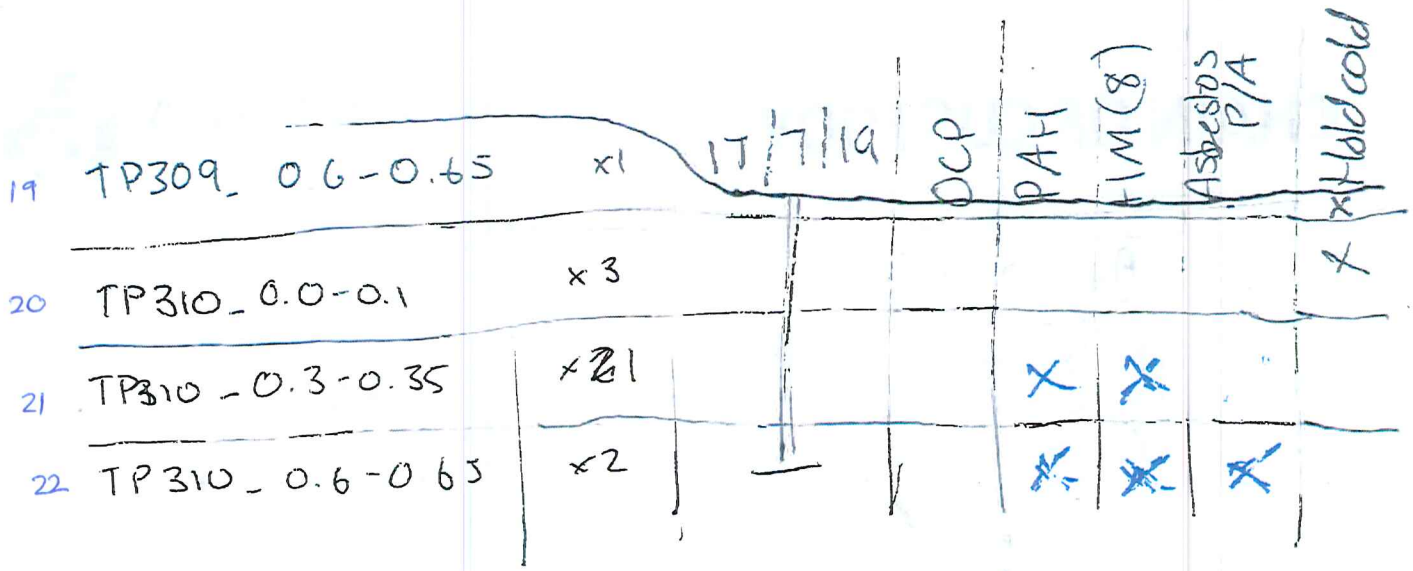
CLIENT INFORMATION				Page #		of	
Client	Aurecon NZ			Customer Comments / Instructions			
Address	Newmarket			Esdat Files Please.			
Project Leader	N Burrows						
Project ID	256528	PO #					
Site	Mason Clinic						
Sampler	N Burrows						
Phone	027211670						
Email	nikki.burrows@aurecongroup.com						
Invoice Email							

LABORATORY USE ONLY							
Laboratory Job #	19-24864			Seal Status	✓	Priority (mark with X)	
Date Received	24/7/19	Received By	AP	Sample Temp Status	chilled	Routine	Urgent X

TESTS REQUESTED

Lab ID	Sample ID	Depth	Date	Time	Matrix	# Cont.	Analysis Requests/Suites: OCP	PAH	Asbestos P/A	HM (8)	Hold/cold.	Sample Comments
1	BH306_0.35-0.45		11/7/19		S or W	x3		X	X	X		
2	BH306_0.75-0.85				S or W						X	
3	BH306_1.5-1.6				S or W			X	X	X		
4	BH312_0.25-0.3				S or W	1					X	
5	BH312_1.1-1.2				S or W	1		X		X		
6	BH312_1.5-1.6				S or W	2					X	
7	TP308_0.2-0.3		5/8 7/19		S or W	x3	X	X	X	X		
8	TP308_0.3-0.35				S or W	x2					X	only 1 jar
9	BH308_0.1-0.15		16/7/19		S or W	x3		X	X	X		
10	BH308_0.45-0.55				S or W	x3		X	X	X		
11	BH310_0.0-0.15		17/7/19		S or W	x3	X	X	X	X		
12	BH310_0.45-0.55				S or W	x3		X	X	X		
13	BH310_0.95-1.05				S or W	x3					X	
14	TP306_0.0-0.1				S or W	x2					X	
15	TP306_0.2-0.3				S or W	x2	X	X	X	X		
16	TP307_0.0-0.1				S or W	x3	X	X	X	X		1 plastic bag
17	TP307_0.5-0.55				S or W	x1					X	
18	TP309_0.0-0.1				S or W	x3	X	X	X	X		x2 containers

Relinquished by			Received by	AP		Courier	NZC
Date		Time	Date	24/7/19	Time	6:45	Courier #	UD000005026


19 TP309_ 0.6-0.65 x1
20 TP310_0.0-0.1 x3
21 TP310_0.3-0.35 x2
22 TP310_0.6-0.65 x2
1J 7 19
OCP
PAH
TIM (8)
Asbestos P/A
x1 Hold cold
X
X
X
X
X

URGENT

Environmental Sample Reception

From: Nikki Burrows <Nikki.Burrows@aurecongroup.com>
Sent: Tuesday, 23 July 2019 2:41 PM
To: Environmental Sample Reception
Subject: Urgent Samples
Attachments: SC6580059719072309390.pdf

Hi Karla,

Please find attached the CoC for the urgent samples I just spoke with you about (note there is some on the back page).

The samples will be picked up by the courier shortly and should arrive tomorrow.

Thank you ☺

Nikki Burrows
Junior Contaminated Land Specialist, Aurecon
M +64 27 2116670
Nikki.Burrows@aurecongroup.com
Level 4, 139 Carlton Gore Road, Newmarket, Auckland New Zealand 1023
PO Box 9762, Newmarket, Auckland 1149
aurecongroup.com

Bringing ideas to life

Analytica Laboratories Limited
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Ph +64 (07) 974 4740
sales@analytica.co.nz
www.analytica.co.nz

Sample Receipt Report

Aurecon New Zealand Limited
Level 4, 139 Carlton Gore Road, Newmarket
Auckland
Attention: Nikki Burrows
Phone: 0272116670
Email: nikki.burrows@aurecongroup.com

Lab Reference: 19-24864
Submitted by: N Burrows
Date Received: 24/07/2019
Date Due: 26/07/2019
Order Number:
Reference: 256528

Sampling Site: Mason Clinic

Note: The published due date is that of tests done internally, subcontracted tests are subject to the sub-contractor's turnaround times and may be reported on or following the due date indicated.

Summary of Samples

Laboratory ID	Client Sample Reference	Date Sampled	Depth	Sample Type	Condition On Arrival
19-24864-1	BH306_0.35-0.45	11/07/2019		Soil	Acceptable
19-24864-2	BH306_0.75-0.85	11/07/2019		Soil	Acceptable
19-24864-3	BH306_1.5-1.6	11/07/2019		Soil	Acceptable
19-24864-4	BH312_0.25-0.3	11/07/2019		Soil	Acceptable
19-24864-5	BH312_1.1-1.2	11/07/2019		Soil	Acceptable
19-24864-6	BH312_1.5-1.6	11/07/2019		Soil	Acceptable
19-24864-7	TP308_0.2-0.25	18/07/2019		Soil	Acceptable
19-24864-8	TP308_0.3-0.35	18/07/2019		Soil	Acceptable
19-24864-9	BH308 0.1-0.15	16/07/2019		Soil	Acceptable
19-24864-10	BH308_0.45-0.55	16/07/2019		Soil	Acceptable
19-24864-11	BH310_0.0-0.15	17/07/2019		Soil	Acceptable
19-24864-12	BH310_0.45-0.55	17/07/2019		Soil	Acceptable
19-24864-13	BH310_0.95-1.05	17/07/2019		Soil	Acceptable
19-24864-14	TP306_0.0-0.1	17/07/2019		Soil	Acceptable
19-24864-15	TP306_0.2-0.3	17/07/2019		Soil	Acceptable
19-24864-16	TP307 0.0-0.1	17/07/2019		Soil	Acceptable
19-24864-17	TP307_0.5-0.55	17/07/2019		Soil	Acceptable
19-24864-18	TP309_0.0-0.1	17/07/2019		Soil	Acceptable
19-24864-19	TP309_0.6-0.65	17/07/2019		Soil	Acceptable
19-24864-20	TP310_0.0-0.1	17/07/2019		Soil	Acceptable
19-24864-21	TP310_0.3-0.35	17/07/2019		Soil	Acceptable
19-24864-22	TP310_0.6-0.65	17/07/2019		Soil	Acceptable

Summary of Testing

		8 Heavy Metals in Soil	Dry Sieve	OCP in Soil	PAH in Soil	Moisture Content	Asbestos in Soil (Qualitative)
19-24864-1	BH306_0.35-0.45	✓	✓		✓	✓	✓
19-24864-2	BH306_0.75-0.85						
19-24864-3	BH306_1.5-1.6	✓	✓		✓	✓	✓
19-24864-4	BH312_0.25-0.3						
19-24864-5	BH312_1.1-1.2	✓	✓		✓	✓	
19-24864-6	BH312_1.5-1.6						
19-24864-7	TP308_0.2-0.25	✓	✓	✓	✓	✓	✓
19-24864-8	TP308_0.3-0.35						
19-24864-9	BH308 0.1-0.15	✓	✓		✓	✓	✓
19-24864-10	BH308_0.45-0.55	✓	✓		✓	✓	✓
19-24864-11	BH310_0.0-0.15	✓	✓	✓	✓	✓	✓
19-24864-12	BH310_0.45-0.55	✓	✓		✓	✓	✓
19-24864-13	BH310_0.95-1.05						
19-24864-14	TP306_0.0-0.1						
19-24864-15	TP306_0.2-0.3	✓	✓	✓	✓	✓	✓
19-24864-16	TP307 0.0-0.1	✓	✓	✓	✓	✓	✓
19-24864-17	TP307_0.5-0.55						
19-24864-18	TP309_0.0-0.1	✓	✓	✓	✓	✓	✓
19-24864-19	TP309_0.6-0.65						
19-24864-20	TP310_0.0-0.1						
19-24864-21	TP310_0.3-0.35	✓	✓		✓	✓	
19-24864-22	TP310_0.6-0.65	✓	✓		✓	✓	✓

Heavy Metals in Soil

Testing Breakdown

		Arsenic	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Zinc
19-24864-1	BH306_0.35-0.45	✓	✓	✓	✓	✓	✓	✓	✓
19-24864-2	BH306_0.75-0.85								
19-24864-3	BH306_1.5-1.6	✓	✓	✓	✓	✓	✓	✓	✓
19-24864-4	BH312_0.25-0.3								
19-24864-5	BH312_1.1-1.2	✓	✓	✓	✓	✓	✓	✓	✓
19-24864-6	BH312_1.5-1.6								
19-24864-7	TP308_0.2-0.25	✓	✓	✓	✓	✓	✓	✓	✓
19-24864-8	TP308_0.3-0.35								
19-24864-9	BH308 0.1-0.15	✓	✓	✓	✓	✓	✓	✓	✓
19-24864-10	BH308_0.45-0.55	✓	✓	✓	✓	✓	✓	✓	✓
19-24864-11	BH310_0.0-0.15	✓	✓	✓	✓	✓	✓	✓	✓
19-24864-12	BH310_0.45-0.55	✓	✓	✓	✓	✓	✓	✓	✓

Heavy Metals in Soil

Testing Breakdown

		Arsenic	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Zinc
19-24864-13	BH310_0.95-1.05								
19-24864-14	TP306_0.0-0.1								
19-24864-15	TP306_0.2-0.3	✓	✓	✓	✓	✓	✓	✓	✓
19-24864-16	TP307 0.0-0.1	✓	✓	✓	✓	✓	✓	✓	✓
19-24864-17	TP307_0.5-0.55								
19-24864-18	TP309_0.0-0.1	✓	✓	✓	✓	✓	✓	✓	✓
19-24864-19	TP309_0.6-0.65								
19-24864-20	TP310_0.0-0.1								
19-24864-21	TP310_0.3-0.35	✓	✓	✓	✓	✓	✓	✓	✓
19-24864-22	TP310_0.6-0.65	✓	✓	✓	✓	✓	✓	✓	✓

Dry Sieve

Testing Breakdown

		Dried, Ground and Sieved
19-24864-1	BH306_0.35-0.45	✓
19-24864-2	BH306_0.75-0.85	
19-24864-3	BH306_1.5-1.6	✓
19-24864-4	BH312_0.25-0.3	
19-24864-5	BH312_1.1-1.2	✓
19-24864-6	BH312_1.5-1.6	
19-24864-7	TP308_0.2-0.25	✓
19-24864-8	TP308_0.3-0.35	
19-24864-9	BH308 0.1-0.15	✓
19-24864-10	BH308_0.45-0.55	✓
19-24864-11	BH310_0.0-0.15	✓
19-24864-12	BH310_0.45-0.55	✓
19-24864-13	BH310_0.95-1.05	
19-24864-14	TP306_0.0-0.1	
19-24864-15	TP306_0.2-0.3	✓
19-24864-16	TP307 0.0-0.1	✓
19-24864-17	TP307_0.5-0.55	
19-24864-18	TP309_0.0-0.1	✓
19-24864-19	TP309_0.6-0.65	
19-24864-20	TP310_0.0-0.1	
19-24864-21	TP310_0.3-0.35	✓
19-24864-22	TP310_0.6-0.65	✓

If you have any queries please email us at enviro.reception@analytica.co.nz or telephone 07 444 5574.

Testing Breakdown

Note: Soil samples will be held onsite for 3 months. Samples will be disposed on the 20th of the 3rd month following the month of receipt (ie: Samples received in January will be disposed on the 20th of April), Please contact our environmental sample reception at enviro.reception@analytica.co.nz or 07 444 5574 if you wish to extend the samples holding period.

Note: Water samples will be held onsite for 1 month. Samples will be disposed of routinely according to receipt dates.

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Certificate of Analysis

Aurecon New Zealand Limited
Level 4, 139 Carlton Gore Road, Newmarket
Auckland
Attention: Nikki Burrows
Phone: 0272116670
Email: nikki.burrows@aurecongroup.com

Lab Reference: 19-24864
Submitted by: N Burrows
Date Received: 24/07/2019
Date Completed: 26/07/2019
Order Number:
Reference: 256528

Sampling Site: Mason Clinic

Report Comments

Samples were collected by yourselves (or your agent) and analysed as received at Analytica Laboratories. Samples were in acceptable condition unless otherwise noted on this report.

Heavy Metals in Soil

			Client Sample ID	BH306_0.35-0.45	BH306_1.5-1.6	BH312_1.1-1.2	TP308_0.2-0.25	BH308 0.1-0.15
			Date Sampled	11/07/2019	11/07/2019	11/07/2019	18/07/2019	16/07/2019
Analyte	Unit	*Reporting Limit*		19-24864-1	19-24864-3	19-24864-5	19-24864-7	19-24864-9
Arsenic	mg/kg dry wt	*0.125*		2.7	2.4	8.6	5.9	7.9
Cadmium	mg/kg dry wt	*0.005*		0.087	0.074	0.567	0.47	0.46
Chromium	mg/kg dry wt	*0.125*		13.1	10	39.4	87.3	40.8
Copper	mg/kg dry wt	*0.075*		8.01	8.02	55.3	29.4	43.8
Lead	mg/kg dry wt	*0.05*		20.0	21.1	173	57.9	92.9
Mercury	mg/kg dry wt	*0.025*		0.10	0.11	0.34	0.28	0.32
Nickel	mg/kg dry wt	*0.05*		5.0	4.6	75.5	42.3	18.2
Zinc	mg/kg dry wt	*0.05*		18.6	16.0	154	68.9	73.6

Heavy Metals in Soil

			Client Sample ID	BH308_0.45-0.55	BH310_0.0-0.15	BH310_0.45-0.55	TP306_0.2-0.3	TP307 0.0-0.1
			Date Sampled	16/07/2019	17/07/2019	17/07/2019	17/07/2019	17/07/2019
Analyte	Unit	*Reporting Limit*		19-24864-10	19-24864-11	19-24864-12	19-24864-15	19-24864-16
Arsenic	mg/kg dry wt	*0.125*		4.6	4.3	8.0	5.0	3.0
Cadmium	mg/kg dry wt	*0.005*		0.13	0.17	0.687	0.42	0.35
Chromium	mg/kg dry wt	*0.125*		67.8	36.7	48.8	108	25.7
Copper	mg/kg dry wt	*0.075*		18.4	27.5	43.7	31.7	10.6
Lead	mg/kg dry wt	*0.05*		26.5	79.0	123	30.1	22.5
Mercury	mg/kg dry wt	*0.025*		0.26	0.19	0.24	0.26	0.14
Nickel	mg/kg dry wt	*0.05*		14.7	34.7	30.2	52.1	11.7
Zinc	mg/kg dry wt	*0.05*		30.1	87.3	141	57.9	26.5

IANZ ACCREDITED LABORATORY

All tests reported herein have been performed in accordance with the laboratory's scope of accreditation, with the exception of tests marked *, which are not accredited.

Heavy Metals in Soil

		Client Sample ID	TP309_0.0-0.1	TP310_0.3-0.35	TP310_0.6-0.65
		Date Sampled	17/07/2019	17/07/2019	17/07/2019
Analyte	Unit	*Reporting Limit*	19-24864-18	19-24864-21	19-24864-22
Arsenic	mg/kg dry wt	*0.125*	5.0	3.4	1.8
Cadmium	mg/kg dry wt	*0.005*	0.24	0.13	0.049
Chromium	mg/kg dry wt	*0.125*	43.2	20.9	11
Copper	mg/kg dry wt	*0.075*	28.4	24.3	8.77
Lead	mg/kg dry wt	*0.05*	58.9	86.6	11.7
Mercury	mg/kg dry wt	*0.025*	0.18	0.19	0.10
Nickel	mg/kg dry wt	*0.05*	45.5	24.4	9.58
Zinc	mg/kg dry wt	*0.05*	77.7	71.9	17.2

Organochlorine Pesticides - Soil

		Client Sample ID	TP308_0.2-0.25	BH310_0.0-0.15	TP306_0.2-0.3	TP307 0.0-0.1	TP309_0.0-0.1
		Date Sampled	18/07/2019	17/07/2019	17/07/2019	17/07/2019	17/07/2019
Analyte	Unit	*Reporting Limit*	19-24864-7	19-24864-11	19-24864-15	19-24864-16	19-24864-18
2,4'-DDD	mg/kg dry wt	*0.005*	<0.005	<0.005	<0.005	<0.005	<0.005
2,4'-DDE	mg/kg dry wt	*0.005*	<0.005	<0.005	<0.005	<0.005	<0.005
2,4'-DDT	mg/kg dry wt	*0.005*	<0.005	<0.005	0.007	<0.005	<0.005
4,4'-DDD	mg/kg dry wt	*0.003*	<0.003	<0.003	0.012	<0.003	<0.003
4,4'-DDE	mg/kg dry wt	*0.005*	<0.005	<0.005	0.116	<0.005	<0.005
4,4'-DDT	mg/kg dry wt	*0.005*	<0.005	<0.005	0.035	<0.005	<0.005
Total DDT	mg/kg dry wt	*0.02*	<0.02	<0.02	0.17	<0.02	<0.02
alpha-BHC	mg/kg dry wt	*0.005*	<0.005	<0.005	<0.005	<0.005	<0.005
Aldrin	mg/kg dry wt	*0.005*	<0.005	<0.005	<0.005	<0.005	<0.005
beta-BHC	mg/kg dry wt	*0.005*	<0.005	<0.005	<0.005	<0.005	<0.005
cis-Chlordane	mg/kg dry wt	*0.005*	<0.005	<0.005	<0.005	<0.005	<0.005
cis-Nonachlor	mg/kg dry wt	*0.01*	<0.01	<0.01	<0.01	<0.01	<0.01
delta-BHC	mg/kg dry wt	*0.005*	<0.005	<0.005	<0.005	<0.005	<0.005
Dieldrin	mg/kg dry wt	*0.05*	<0.05	<0.05	<0.05	<0.05	<0.05
Endosulfan I	mg/kg dry wt	*0.005*	<0.005	<0.005	<0.005	<0.005	<0.005
Endosulfan II	mg/kg dry wt	*0.01*	<0.01	<0.01	<0.01	<0.01	<0.01
Endosulfan sulfate	mg/kg dry wt	*0.005*	<0.005	<0.005	<0.005	<0.005	<0.005
Endrin	mg/kg dry wt	*0.05*	<0.05	<0.05	<0.05	<0.05	<0.05
Endrin aldehyde	mg/kg dry wt	*0.01*	<0.01	<0.01	<0.01	<0.01	<0.01
Endrin ketone	mg/kg dry wt	*0.005*	<0.005	<0.005	<0.005	<0.005	<0.005
gamma-BHC	mg/kg dry wt	*0.005*	<0.005	<0.005	<0.005	<0.005	<0.005
Heptachlor	mg/kg dry wt	*0.005*	<0.005	<0.005	<0.005	<0.005	<0.005
Heptachlor epoxide	mg/kg dry wt	*0.005*	<0.005	<0.005	<0.005	<0.005	<0.005
Hexachlorobenzene	mg/kg dry wt	*0.005*	<0.005	<0.005	<0.005	<0.005	<0.005
Methoxychlor	mg/kg dry wt	*0.01*	<0.01	<0.01	<0.01	<0.01	<0.01
trans-nonachlor	mg/kg dry wt	*0.01*	<0.01	<0.01	<0.01	<0.01	<0.01
trans-Chlordane	mg/kg dry wt	*0.01*	<0.01	<0.01	<0.01	<0.01	<0.01
Chlordane (sum)	mg/kg dry wt	*0.02*	<0.020	<0.020	<0.020	<0.020	<0.020
TCMX (Surrogate)	%	*1*	105.8	94.2	95.5	93.7	91.0

Polycyclic Aromatic Hydrocarbons - Soil

Client Sample ID			BH306_0.35-0.45	BH306_1.5-1.6	BH312_1.1-1.2	TP308_0.2-0.25	BH308 0.1-0.15
Date Sampled			11/07/2019	11/07/2019	11/07/2019	18/07/2019	16/07/2019
Analyte	Unit	*Reporting Limit*	19-24864-1	19-24864-3	19-24864-5	19-24864-7	19-24864-9
1-Methylnaphthalene	mg/kg dry wt	*0.01*	<0.01	<0.01	0.01	<0.01	<0.011
2-Methylnaphthalene	mg/kg dry wt	*0.01*	<0.01	<0.01	<0.01	<0.01	<0.011
Acenaphthene	mg/kg dry wt	*0.01*	0.02	<0.01	0.05	<0.01	0.04
Acenaphthylene	mg/kg dry wt	*0.01*	<0.01	<0.01	0.11	<0.01	0.04
Anthracene	mg/kg dry wt	*0.01*	<0.01	<0.01	0.22	0.02	0.22
Benz[a]anthracene	mg/kg dry wt	*0.02*	0.03	0.04	1.76	0.12	0.91
Benzo[a]pyrene	mg/kg dry wt	*0.01*	0.06	0.09	2.47	0.21	1.15
Benzo[b]&[j] fluoranthene	mg/kg dry wt	*0.02*	0.05	0.08	2.50	0.19	1.10
Benzo[g,h,i]perylene	mg/kg dry wt	*0.02*	<0.02	0.03	0.82	0.06	0.32
Benzo[k]fluoranthene	mg/kg dry wt	*0.01*	0.02	0.03	0.80	0.05	0.37
Chrysene	mg/kg dry wt	*0.01*	0.04	0.06	1.44	0.12	0.78
Dibenz(a,h)anthracene	mg/kg dry wt	*0.01*	<0.01	<0.01	0.19	0.01	0.07
Fluoranthene	mg/kg dry wt	*0.02*	0.08	0.11	3.10	0.23	1.81
Fluorene	mg/kg dry wt	*0.01*	0.02	<0.01	0.05	<0.01	0.04
Indeno(1,2,3-cd)pyrene	mg/kg dry wt	*0.01*	0.02	0.04	1.20	0.08	0.46
Naphthalene	mg/kg dry wt	*0.01*	0.01	<0.01	0.04	<0.01	<0.011
Phenanthrene	mg/kg dry wt	*0.01*	0.06	0.04	1.05	0.08	0.86
Pyrene	mg/kg dry wt	*0.02*	0.08	0.11	3.31	0.25	1.86
Benzo[a]pyrene TEQ (LOR)	mg/kg dry wt	*0.01*	0.08	0.13	3.33	0.27	1.53
Benzo[a]pyrene TEQ (Zero)	mg/kg dry wt	*0.01*	0.07	0.12	3.33	0.27	1.53
Anthracene-d10 (Surrogate)	%	*1*	104.7	103.8	108.2	105.1	105.6

Polycyclic Aromatic Hydrocarbons - Soil

Client Sample ID			BH308_0.45-0.55	BH310_0.0-0.15	BH310_0.45-0.55	TP306_0.2-0.3	TP307 0.0-0.1
Date Sampled			16/07/2019	17/07/2019	17/07/2019	17/07/2019	17/07/2019
Analyte	Unit	*Reporting Limit*	19-24864-10	19-24864-11	19-24864-12	19-24864-15	19-24864-16
1-Methylnaphthalene	mg/kg dry wt	*0.01*	<0.012	<0.01	<0.012	<0.01	<0.01
2-Methylnaphthalene	mg/kg dry wt	*0.01*	<0.012	<0.01	<0.012	<0.01	<0.01
Acenaphthene	mg/kg dry wt	*0.01*	<0.012	0.02	0.08	<0.01	<0.01
Acenaphthylene	mg/kg dry wt	*0.01*	0.02	0.06	0.08	<0.01	0.01
Anthracene	mg/kg dry wt	*0.01*	0.05	0.10	0.27	<0.01	0.02
Benz[a]anthracene	mg/kg dry wt	*0.02*	0.35	0.87	2.03	0.03	0.06
Benzo[a]pyrene	mg/kg dry wt	*0.01*	0.47	1.37	2.84	0.05	0.11
Benzo[b]&[j] fluoranthene	mg/kg dry wt	*0.02*	0.46	1.26	2.70	0.06	0.09
Benzo[g,h,i]perylene	mg/kg dry wt	*0.02*	0.12	0.48	0.91	0.02	0.03
Benzo[k]fluoranthene	mg/kg dry wt	*0.01*	0.14	0.53	1.10	0.02	0.03
Chrysene	mg/kg dry wt	*0.01*	0.33	0.79	1.69	0.05	0.07
Dibenz(a,h)anthracene	mg/kg dry wt	*0.01*	0.02	0.10	0.25	<0.01	<0.01
Fluoranthene	mg/kg dry wt	*0.02*	0.79	1.55	3.58	0.08	0.17
Fluorene	mg/kg dry wt	*0.01*	<0.012	0.02	0.06	<0.01	<0.01
Indeno(1,2,3-cd)pyrene	mg/kg dry wt	*0.01*	0.18	0.65	1.32	0.03	0.04
Naphthalene	mg/kg dry wt	*0.01*	<0.012	<0.01	0.01	<0.01	<0.01
Phenanthrene	mg/kg dry wt	*0.01*	0.24	0.48	1.27	0.03	0.12
Pyrene	mg/kg dry wt	*0.02*	0.82	1.73	3.76	0.08	0.16
Benzo[a]pyrene TEQ (LOR)	mg/kg dry wt	*0.01*	0.62	1.82	3.85	0.07	0.14

Polycyclic Aromatic Hydrocarbons - Soil

			Client Sample ID	BH308_0.45-0.55	BH310_0.0-0.15	BH310_0.45-0.55	TP306_0.2-0.3	TP307 0.0-0.1
			Date Sampled	16/07/2019	17/07/2019	17/07/2019	17/07/2019	17/07/2019
Benzo[a]pyrene TEQ (Zero)	mg/kg dry wt	*0.01*		0.62	1.82	3.85	0.06	0.13
Anthracene-d10 (Surrogate)	%	*1*		104.8	105.9	107.5	97.2	97.1

Polycyclic Aromatic Hydrocarbons - Soil

			Client Sample ID	TP309_0.0-0.1	TP310_0.3-0.35	TP310_0.6-0.65
			Date Sampled	17/07/2019	17/07/2019	17/07/2019
Analyte	Unit	*Reporting Limit*		19-24864-18	19-24864-21	19-24864-22
1-Methylnaphthalene	mg/kg dry wt	*0.01*		<0.011	0.32	<0.01
2-Methylnaphthalene	mg/kg dry wt	*0.01*		<0.011	0.35	<0.01
Acenaphthene	mg/kg dry wt	*0.01*		0.02	0.33	<0.01
Acenaphthylene	mg/kg dry wt	*0.01*		0.03	2.26	<0.01
Anthracene	mg/kg dry wt	*0.01*		0.07	5.24	<0.01
Benz[a]anthracene	mg/kg dry wt	*0.02*		0.39	10.46	0.06
Benzo[a]pyrene	mg/kg dry wt	*0.01*		0.66	9.46	0.11
Benzo[b]&[j] fluoranthene	mg/kg dry wt	*0.02*		0.63	10.86	0.11
Benzo[g,h,i]perylene	mg/kg dry wt	*0.02*		0.22	3.14	0.04
Benzo[k]fluoranthene	mg/kg dry wt	*0.01*		0.23	4.28	0.03
Chrysene	mg/kg dry wt	*0.01*		0.44	8.83	0.06
Dibenz(a,h)anthracene	mg/kg dry wt	*0.01*		0.04	0.66	<0.01
Fluoranthene	mg/kg dry wt	*0.02*		0.86	102.93	0.10
Fluorene	mg/kg dry wt	*0.01*		0.01	0.86	<0.01
Indeno(1,2,3-cd)pyrene	mg/kg dry wt	*0.01*		0.29	4.75	0.05
Naphthalene	mg/kg dry wt	*0.01*		<0.011	0.30	<0.01
Phenanthrene	mg/kg dry wt	*0.01*		0.34	113.15	0.01
Pyrene	mg/kg dry wt	*0.02*		0.95	96.02	0.11
Benzo[a]pyrene TEQ (LOR)	mg/kg dry wt	*0.01*		0.87	14.27	0.15
Benzo[a]pyrene TEQ (Zero)	mg/kg dry wt	*0.01*		0.87	14.27	0.14
Anthracene-d10 (Surrogate)	%	*1*		100.9	110.4	99.8

Moisture Content

			Client Sample ID	BH306_0.35-0.45	BH306_1.5-1.6	BH312_1.1-1.2	TP308_0.2-0.25	BH308 0.1-0.15
			Date Sampled	11/07/2019	11/07/2019	11/07/2019	18/07/2019	16/07/2019
Analyte	Unit	*Reporting Limit*		19-24864-1	19-24864-3	19-24864-5	19-24864-7	19-24864-9
Moisture Content	%	*1*		21	21	23	34	36

Moisture Content

			Client Sample ID	BH308_0.45-0.55	BH310_0.0-0.15	BH310_0.45-0.55	TP306_0.2-0.3	TP307 0.0-0.1
			Date Sampled	16/07/2019	17/07/2019	17/07/2019	17/07/2019	17/07/2019
Analyte	Unit	*Reporting Limit*		19-24864-10	19-24864-11	19-24864-12	19-24864-15	19-24864-16
Moisture Content	%	*1*		45	31	44	30	25

Moisture Content

	Client Sample ID		TP309_0.0-0.1	TP310_0.3-0.35	TP310_0.6-0.65
	Date Sampled		17/07/2019	17/07/2019	17/07/2019
Analyte	Unit	*Reporting Limit*	19-24864-18	19-24864-21	19-24864-22
Moisture Content	%	*1*	35	23	19

Method Summary

Elements in Soil
Acid digestion followed by ICP-MS analysis. (US EPA method 200.8).
Results are based on a dried sample passed through a 2 mm sieve.

OCP in Soil
Samples are extracted with hexane, pre-concetrated then analysed by GC-MSMS.(In-house procedure).
(Chlordane (sum) is calculated from the main actives in technical Chlordane: Chlordane, Nonachlor and Heptachlor)

Total DDT
Sum of DDT, DDD and DDE (4,4' and 2,4 isomers)

PAH in Soil
Solvent extraction, silica cleanup, followed by GC-MS analysis.
Benzo[a]pyrene TEQ (LOR): The most conservative TEQ estimate, where a result is reported as less than the limit of reporting (LOR) the LOR value is used to calculate the TEQ for that PAH.
Benzo[a]pyrene TEQ (Zero): The least conservative TEQ estimate, PAHs reported as less than the limit of reporting (LOR) are not included in the TEQ calculation.
Benzo[a]pyrene toxic equivalence (TEQ) is calculated according to *'Methodology for Deriving Standards for Contaminants in Soil to Protect Human Health'*. Ministry for the Environment. 2011.

Moisture
Moisture content is determined gravimetrically by drying at 103 °C.

Thara Samarasinghe, B.Sc.
Laboratory Technician

Nathan Howse, B.Sc.
Technologist

Report Date: 26 Jul 2019

Certificate Number: P1907251223

Aurecon AKL

Client Reference: 256528; 19-24864

Dear Nikki Burrows,

Re: Asbestos Soil Identification Analysis – Mason Clinic

11 sample(s) received on 25 Jul 2019 by Rebecca Isaacs.

The results of fibre analysis were performed by Gabby Buchanan of Analytica Laboratories Limited on 26 Jul 2019.

The sample(s) were stated to be from Mason Clinic.

Sample analysis was performed using polarised light microscopy with dispersion staining in accordance with *AS4964-2004 Method for the qualitative identification of asbestos in soil samples.*

The results of the fibre analysis are presented in the appended table.

Should you require further information please contact Gabby Buchanan.

Yours sincerely

Gabby Buchanan
LABORATORY IDENTIFIER

Analytica Laboratories Limited
Level 2, 10 Hutt Road, Petone, Lower Hutt Wellington 5012

P: +64 7 974 4740
W: www.analytica.co.nz

Sample Analysis Results

Certificate Number: P1907251223
Report Date: 26 Jul 2019
Site Location: Mason Clinic

Note 1: The reporting limit for this analysis is 0.1g/kg (0.01%) by application of polarised light microscopy, dispersion staining and trace analysis techniques.

Note 2: If mineral fibres of unknown type are detected (UMF), by PLM and dispersion staining, these may or may not be asbestos fibres. To confirm the identity of this fibre, another independent analytical technique such as XRD analysis is advised.

Note 3: The samples in this report are "As Received". The laboratory does not take responsibility for the sampling procedure or accuracy of sample location description. This document may not be reproduced except in full.

Identified by:

Approved Identifier: Gabby Buchanan

Reviewed by:

Key Technical Person: Gabby Buchanan

Sample ID	Client Sample ID	Sample Location/Description/Dimensions	Analysis Results
S001	BH306_0.35-0.45	19-24864-1 Non-Homogeneous Soil 80.18g	No Asbestos Detected Organic Fibres
S002	BH306_1.5-1.6	19-24864-3 Non-Homogeneous Soil 176.78g	No Asbestos Detected Organic Fibres
S003	TP308_0.2-0.25	19-24864-7 Non-Homogeneous Soil 90.45g	No Asbestos Detected Organic Fibres
S004	BH308_0.1-0.15	19-24864-9 Non-Homogeneous Soil 86.73g	No Asbestos Detected Organic Fibres
S005	BH308_0.45-0.55	19-24864-10 Non-Homogeneous Soil 59.54g	No Asbestos Detected Organic Fibres
S006	BH310_0.0-0.15	19-24864-11 Non-Homogeneous Soil 108.79g	No Asbestos Detected Organic Fibres
S007	BH310_0.45-0.55	19-24864-12 Non-Homogeneous Soil 82.35g	No Asbestos Detected Organic Fibres
S008	TP306_0.2-0.3	19-24864-15 Non-Homogeneous Soil 134.84g	No Asbestos Detected Organic Fibres

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Sample Analysis Results

Certificate Number: P1907251223
Report Date: 26 Jul 2019
Site Location: Mason Clinic

Sample ID	Client Sample ID	Sample Location/Description/Dimensions	Analysis Results
S009	TP307_0.0-0.1	19-24864-16 Non-Homogeneous Soil 134.84g	No Asbestos Detected Organic Fibres
S010	TP309_0.0-0.1	19-24864-18 Non-Homogeneous Soil 90.57g	No Asbestos Detected Organic Fibres
S011	TP310_0.6-0.65	19-24864-22 Non-Homogeneous Soil 161.29g	No Asbestos Detected Organic Fibres

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Appendix 1: Soil Analysis Raw Data

Certificate Number: P1907251223
Report Date: 26 Jul 2019
Site Location: Mason Clinic

Sample ID	Client Sample ID	Total Sample Weight (g)	ACM Approximate Dimensions (g)*	Form	Trace Asbestos Detected**
S001	BH306_0.35-0.45	80.18	-	No Asbestos Detected	N
S002	BH306_1.5-1.6	176.78	-	No Asbestos Detected	N
S003	TP308_0.2-0.25	90.45	-	No Asbestos Detected	N
S004	BH308_0.1-0.15	86.73	-	No Asbestos Detected	N
S005	BH308_0.45-0.55	59.54	-	No Asbestos Detected	N
S006	BH310_0.0-0.15	108.79	-	No Asbestos Detected	N
S007	BH310_0.45-0.55	82.35	-	No Asbestos Detected	N
S008	TP306_0.2-0.3	134.84	-	No Asbestos Detected	N
S009	TP307_0.0-0.1	134.84	-	No Asbestos Detected	N
S010	TP309_0.0-0.1	90.57	-	No Asbestos Detected	N
S011	TP310_0.6-0.65	161.29	-	No Asbestos Detected	N

* The reporting limit for this standard is 0.1g/kg
** Trace asbestos present is indicative that freely liberated respirable fibres are present and dust control measures should be implemented or increased
*** Asbestos weights listed in this table are indicative only and are outside of IANZ accreditation and is therefore not endorsed by IANZ.

Analytica Laboratories Limited
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ENVIRONMENTAL TESTING:

CHAIN OF CUSTODY

19-26125

ANALYTICA LABORATORIES

CLIENT INFORMATION			
Client	Aurecon	Page #	of
Address	Newmarket	Customer Comments / Instructions	
Project Leader	N. Borrows		
Project ID	256528	PO #	
Site	Mason		
Sampler	N. Borrows		
Phone	0272116670		
Email	nikki.borrows@aurecongroup.com.		
Invoice Email			

Esdat Files Please.

LABORATORY USE ONLY					
Laboratory Job #	19-26125	Seal Status		Priority (mark with X)	
Date Received	5/8/19	Received By	MA	Sample Temp Status	chilled	Routine		Urgent	

TESTS REQUESTED

Lab ID	Sample ID	Depth	Date	Time	Matrix	# Cont.	Analysis Requests/Suites: HM (8)	OCP	Semi-Quant			Sample Comments
1	TP401_0.05-0.1		2/8/19	:	S or W	x1	X	X				
2	TP402_0.05-0.1		/ /	:	S or W		X	X				
3	TP403_0.05-0.1		/ /	:	S or W		X	X				
4	TP404_0.1-0.15		/ /	:	S or W		X	X				
5	TP405_0.1-0.15		/ /	:	S or W		X	X				
6	TP406_0.1-0.15		/ /	:	S or W		X	X				
7	TP407_0.05-0.1		/ /	:	S or W		X	X				
8	TP408_0.1-0.15		/ /	:	S or W		X	X				
9	TP409_0.0-0.1		/ /	:	S or W		X	X				
10	TP410_0.05-0.1		/ /	:	S or W		X	X				
11	TP411_0.05-0.1		/ /	:	S or W		X	X				
12	TP412_0.05-0.1		/ /	:	S or W		X	X				
13	TP413_0.05-0.1		/ /	:	S or W		X	X				
14	TP414_0.1-0.15		/ /	:	S or W		X	X				
15	TP415_0.05-0.1		/ /	:	S or W		X	X				
16	TP304_0.1-0.15		/ /	:	S or W		X	X				
			/ /	:	S or W				X			
			/ /	:	S or W							

Relinquished by		Received by	AP	Courier	NZC
Date	/ /	Time	:	Date	3/8/19	Time	7:30	Courier #	JOG0000 4710

Analytica Laboratories Ltd
Ruakura Research Centre
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Analytica Laboratories Limited
Ruakura Research Centre
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sales@analytica.co.nz
www.analytica.co.nz

Sample Receipt Report

Aurecon New Zealand Limited
Level 4, 139 Carlton Gore Road, Newmarket
Auckland
Attention: Nikki Burrows
Phone: 027 2116670
Email: nikki.burrows@aurecongroup.com

Lab Reference: 19-26125
Submitted by: N Burrows
Date Received: 5/08/2019
Date Due: 8/08/2019
Order Number:
Reference: 256528

Sampling Site: Mason

Note: The published due date is that of tests done internally, subcontracted tests are subject to the sub-contractor's turnaround times and may be reported on or following the due date indicated.

Summary of Samples

Laboratory ID	Client Sample Reference	Date Sampled	Depth	Sample Type	Condition On Arrival
19-26125-1	TP401_0.05-0.1	2/08/2019		Soil	Acceptable
19-26125-2	TP402_0.05-0.1	2/08/2019		Soil	Acceptable
19-26125-3	TP403_0.05-0.1	2/08/2019		Soil	Acceptable
19-26125-4	TP404_0.1-0.15	2/08/2019		Soil	Acceptable
19-26125-5	TP405_0.1-0.15	2/08/2019		Soil	Acceptable
19-26125-6	TP406_0.1-0.15	2/08/2019		Soil	Acceptable
19-26125-7	TP407_0.05-0.1	2/08/2019		Soil	Acceptable
19-26125-8	TP408_0.1-0.15	2/08/2019		Soil	Acceptable
19-26125-9	TP409_0.0-0.1	2/08/2019		Soil	Acceptable
19-26125-10	TP410_0.05-0.1	2/08/2019		Soil	Acceptable
19-26125-11	TP411_0.05-0.1	2/08/2019		Soil	Acceptable
19-26125-12	TP412_0.05-0.1	2/08/2019		Soil	Acceptable
19-26125-13	TP413_0.05-0.1	2/08/2019		Soil	Acceptable
19-26125-14	TP414_0.1-0.15	2/08/2019		Soil	Acceptable
19-26125-15	TP415_0.05-0.1	2/08/2019		Soil	Acceptable
19-26125-16	TP304_0.1-0.15	2/08/2019		Soil	Acceptable

Summary of Testing

		8 Heavy Metals in Soil	OCP in Soil	Dry Sieve	Asbestos in Soil (Semi-Quan)
19-26125-1	TP401_0.05-0.1	✓	✓	✓	
19-26125-2	TP402_0.05-0.1	✓	✓	✓	
19-26125-3	TP403_0.05-0.1	✓	✓	✓	

Summary of Testing

		8 Heavy Metals in Soil	OCP in Soil	Dry Sieve	Asbestos in Soil (Semi-Quan)
19-26125-4	TP404_0.1-0.15	✓	✓	✓	
19-26125-5	TP405_0.1-0.15	✓	✓	✓	
19-26125-6	TP406_0.1-0.15	✓	✓	✓	
19-26125-7	TP407_0.05-0.1	✓	✓	✓	
19-26125-8	TP408_0.1-0.15	✓	✓	✓	
19-26125-9	TP409_0.0-0.1	✓	✓	✓	
19-26125-10	TP410_0.05-0.1	✓	✓	✓	
19-26125-11	TP411_0.05-0.1	✓	✓	✓	
19-26125-12	TP412_0.05-0.1	✓	✓	✓	
19-26125-13	TP413_0.05-0.1	✓	✓	✓	
19-26125-14	TP414_0.1-0.15	✓	✓	✓	
19-26125-15	TP415_0.05-0.1	✓	✓	✓	
19-26125-16	TP304_0.1-0.15				✓

Heavy Metals in Soil

Testing Breakdown

		Arsenic	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Zinc
19-26125-1	TP401_0.05-0.1	✓	✓	✓	✓	✓	✓	✓	✓
19-26125-2	TP402_0.05-0.1	✓	✓	✓	✓	✓	✓	✓	✓
19-26125-3	TP403_0.05-0.1	✓	✓	✓	✓	✓	✓	✓	✓
19-26125-4	TP404_0.1-0.15	✓	✓	✓	✓	✓	✓	✓	✓
19-26125-5	TP405_0.1-0.15	✓	✓	✓	✓	✓	✓	✓	✓
19-26125-6	TP406_0.1-0.15	✓	✓	✓	✓	✓	✓	✓	✓
19-26125-7	TP407_0.05-0.1	✓	✓	✓	✓	✓	✓	✓	✓
19-26125-8	TP408_0.1-0.15	✓	✓	✓	✓	✓	✓	✓	✓
19-26125-9	TP409_0.0-0.1	✓	✓	✓	✓	✓	✓	✓	✓
19-26125-10	TP410_0.05-0.1	✓	✓	✓	✓	✓	✓	✓	✓
19-26125-11	TP411_0.05-0.1	✓	✓	✓	✓	✓	✓	✓	✓
19-26125-12	TP412_0.05-0.1	✓	✓	✓	✓	✓	✓	✓	✓
19-26125-13	TP413_0.05-0.1	✓	✓	✓	✓	✓	✓	✓	✓
19-26125-14	TP414_0.1-0.15	✓	✓	✓	✓	✓	✓	✓	✓
19-26125-15	TP415_0.05-0.1	✓	✓	✓	✓	✓	✓	✓	✓
19-26125-16	TP304_0.1-0.15								

If you have any queries please email us at enviro.reception@analytica.co.nz or telephone 07 444 5574.

Note: Soil samples will be held onsite for 3 months. Samples will be disposed on the 20th of the 3rd month following the month of receipt (ie: Samples received in January will be disposed on the 20th of April), Please contact our environmental sample reception at enviro.reception@analytica.co.nz or 07 444 5574 if you wish to extend the samples holding period.

Note: Water samples will be held onsite for 1 month. Samples will be disposed of routinely according to receipt dates.

ANALYTICA LABORATORIES

QF-930-001 Laboratory Chain of Cu s Testing

Certificate Number: 19-26125

Section A – Invoiced to:	
Company Name:	**Email Invoice to:**
Contact Person:	**PO Number:**
Office Address:	
Phone:	**Job Number:** **Link to Octfolio #:**
Sample Submitted By Signature: **Date:** **Time:**	**Received By Signature:** **Date:**

Section B– Reported to:	
Company Name: AURECON	**Contact Person:**
Client Reference/PO: 256528	**Phone:**
Site Address: Mason	
Email Report to: enviro.reception@analytica.co.nz	

Section C – Asbestos Sample Turn Around Requirements

Bulk ID / Swabs	Standard (24h) ☐	Urgent (<24h) ☐
PA Soils	Standard (24h) ☐	Urgent (Depends on # of samples) ☐
Semi-Quant Soils (BRANZ)	Standard (3 days) ☐	Urgent (Depends on # of samples) ☐
Quant Soils 10L (WA)	Standard (5 days) ☐	Urgent (Depends on # of samples) ☐

Section D – Payment Method

LIMS #: 19-26125

Cash ☐ COD ☐ Account ☐ Payment Express ☐

Payment Received: Yes ☐ No ☐

Section E – Sample Description and Summary

Sampling completed by Name: **Sampling Date:**

Sample ID	*Bulk*	*PA Soil*	*Semi quant*	*Quant Soil*	*Swab/Tape*	*Other*	*Sample Location, Description and Notes*
TP304_0.1-0.15			X				

Samples transferred to: Date: 5/8/19 Initials: AM

Auckland	
Hamilton	
Wellington	
Christchurch	✓
Dunedin	

SECTION F - Sample Submitted to: (Update and email client if sample is transferred internally)

Christchurch ☐ 4/91 Byron Street Sydenham, Christchurch 8023	**Dunedin** ☐ 186 Macandrew Road, South Dunedin 9012	**Auckland** ☐ Unit 1, 30 Greenpark Road, Penrose, Auckland 1061	**Wellington** ☐ Level 2, 10 Hutt Road Petone, Wellington 5012

Report Checked By: _____ **Date:** _____ **Report Sent By:** _____ **Date:** _____

Analytica Laboratories Limited
Ruakura Research Centre
10 Bisley Road
Hamilton 3214, New Zealand
Ph +64 (07) 974 4740
sales@analytica.co.nz
www.analytica.co.nz

Certificate of Analysis

Aurecon New Zealand Limited
Level 4, 139 Carlton Gore Road, Newmarket
Auckland
Attention: Nikki Burrows
Phone: 027 2116670
Email: nikki.burrows@aurecongroup.com

Lab Reference: 19-26125
Submitted by: N Burrows
Date Received: 5/08/2019
Date Completed: 9/08/2019
Order Number:
Reference: 256528

Sampling Site: Mason

Report Comments

Samples were collected by yourselves (or your agent) and analysed as received at Analytica Laboratories. Samples were in acceptable condition unless otherwise noted on this report.

Heavy Metals in Soil

	Client Sample ID		TP401_0.05-0.1	TP402_0.05-0.1	TP403_0.05-0.1	TP404_0.1-0.15	TP405_0.1-0.15
	Date Sampled		2/08/2019	2/08/2019	2/08/2019	2/08/2019	2/08/2019
Analyte	Unit	*Reporting Limit*	19-26125-1	19-26125-2	19-26125-3	19-26125-4	19-26125-5
Arsenic	mg/kg dry wt	*0.125*	8.6	15.4	13.7	13.6	24.1
Cadmium	mg/kg dry wt	*0.005*	0.564	0.812	0.548	0.23	0.27
Chromium	mg/kg dry wt	*0.125*	45.6	39.6	30.5	11	11
Copper	mg/kg dry wt	*0.075*	44.2	89.7	78.9	79.2	102
Lead	mg/kg dry wt	*0.05*	101	140	134	129	113
Mercury	mg/kg dry wt	*0.025*	0.34	0.34	0.23	0.11	0.13
Nickel	mg/kg dry wt	*0.05*	20.3	16.4	14.9	6.79	5.0
Zinc	mg/kg dry wt	*0.05*	118	83.7	100	65.9	36.1

Heavy Metals in Soil

	Client Sample ID		TP406_0.1-0.15	TP407_0.05-0.1	TP408_0.1-0.15	TP409_0.0-0.1	TP410_0.05-0.1
	Date Sampled		2/08/2019	2/08/2019	2/08/2019	2/08/2019	2/08/2019
Analyte	Unit	*Reporting Limit*	19-26125-6	19-26125-7	19-26125-8	19-26125-9	19-26125-10
Arsenic	mg/kg dry wt	*0.125*	7.8	19.1	4.1	2.7	15.8
Cadmium	mg/kg dry wt	*0.005*	0.18	0.21	0.13	0.14	0.31
Chromium	mg/kg dry wt	*0.125*	14.7	11	7.9	12.5	19.6
Copper	mg/kg dry wt	*0.075*	64.2	42.5	32.6	14.0	75.2
Lead	mg/kg dry wt	*0.05*	101	87.1	44.0	43.0	110
Mercury	mg/kg dry wt	*0.025*	0.14	0.11	0.088	0.090	0.18
Nickel	mg/kg dry wt	*0.05*	9.34	4.8	3.5	6.62	10.7
Zinc	mg/kg dry wt	*0.05*	48.3	35.5	23.7	40.4	113

IANZ ACCREDITED LABORATORY

All tests reported herein have been performed in accordance with the laboratory's scope of accreditation, with the exception of tests marked *, which are not accredited.

Heavy Metals in Soil

		Client Sample ID	TP411_0.05-0.1	TP412_0.05-0.1	TP413_0.05-0.1	TP414_0.1-0.15	TP415_0.05-0.1
		Date Sampled	2/08/2019	2/08/2019	2/08/2019	2/08/2019	2/08/2019
Analyte	Unit	*Reporting Limit*	19-26125-11	19-26125-12	19-26125-13	19-26125-14	19-26125-15
Arsenic	mg/kg dry wt	*0.125*	10	5.1	18.8	5.2	6.6
Cadmium	mg/kg dry wt	*0.005*	0.509	0.090	0.19	0.18	0.13
Chromium	mg/kg dry wt	*0.125*	35.8	12	12	12	10
Copper	mg/kg dry wt	*0.075*	62.7	27.5	55.9	127	26.3
Lead	mg/kg dry wt	*0.05*	101	45.1	95.0	37.8	59.6
Mercury	mg/kg dry wt	*0.025*	0.31	0.11	0.14	0.13	0.12
Nickel	mg/kg dry wt	*0.05*	18.3	8.53	5.95	6.08	5.84
Zinc	mg/kg dry wt	*0.05*	98.5	51.0	27.9	33.7	35.0

Organochlorine Pesticides - Soil

		Client Sample ID	TP401_0.05-0.1	TP402_0.05-0.1	TP403_0.05-0.1	TP404_0.1-0.15	TP405_0.1-0.15
		Date Sampled	2/08/2019	2/08/2019	2/08/2019	2/08/2019	2/08/2019
Analyte	Unit	*Reporting Limit*	19-26125-1	19-26125-2	19-26125-3	19-26125-4	19-26125-5
2,4'-DDD	mg/kg dry wt	*0.005*	<0.005	<0.005	<0.005	<0.005	<0.005
2,4'-DDE	mg/kg dry wt	*0.005*	<0.005	<0.005	<0.005	<0.005	<0.005
2,4'-DDT	mg/kg dry wt	*0.005*	<0.005	0.009	<0.005	<0.005	<0.005
4,4'-DDD	mg/kg dry wt	*0.003*	0.003	0.005	0.006	<0.003	<0.003
4,4'-DDE	mg/kg dry wt	*0.005*	0.020	0.048	0.033	<0.005	<0.005
4,4'-DDT	mg/kg dry wt	*0.005*	0.013	0.037	0.019	<0.005	<0.005
Total DDT	mg/kg dry wt	*0.02*	0.04	0.10	0.06	<0.02	<0.02
alpha-BHC	mg/kg dry wt	*0.005*	<0.005	<0.005	<0.005	<0.005	<0.005
Aldrin	mg/kg dry wt	*0.005*	<0.005	<0.005	<0.005	<0.005	<0.005
beta-BHC	mg/kg dry wt	*0.005*	<0.005	<0.005	<0.005	<0.005	<0.005
cis-Chlordane	mg/kg dry wt	*0.005*	<0.005	<0.005	<0.005	<0.005	<0.005
cis-Nonachlor	mg/kg dry wt	*0.01*	<0.01	<0.01	<0.01	<0.01	<0.01
delta-BHC	mg/kg dry wt	*0.005*	<0.005	<0.005	<0.005	<0.005	<0.005
Dieldrin	mg/kg dry wt	*0.05*	<0.05	<0.05	<0.05	<0.05	<0.05
Endosulfan I	mg/kg dry wt	*0.005*	<0.005	<0.005	<0.005	<0.005	<0.005
Endosulfan II	mg/kg dry wt	*0.01*	<0.01	<0.01	<0.01	<0.01	<0.01
Endosulfan sulfate	mg/kg dry wt	*0.005*	<0.005	<0.005	<0.005	<0.005	<0.005
Endrin	mg/kg dry wt	*0.05*	<0.05	<0.05	<0.05	<0.05	<0.05
Endrin aldehyde	mg/kg dry wt	*0.01*	<0.01	<0.01	<0.01	<0.01	<0.01
Endrin ketone	mg/kg dry wt	*0.005*	<0.005	<0.005	<0.005	<0.005	<0.005
gamma-BHC	mg/kg dry wt	*0.005*	<0.005	<0.005	<0.005	<0.005	<0.005
Heptachlor	mg/kg dry wt	*0.005*	<0.005	<0.005	<0.005	<0.005	<0.005
Heptachlor epoxide	mg/kg dry wt	*0.005*	<0.005	<0.005	<0.005	<0.005	<0.005
Hexachlorobenzene	mg/kg dry wt	*0.005*	<0.005	<0.005	<0.005	<0.005	<0.005
Methoxychlor	mg/kg dry wt	*0.01*	<0.01	<0.01	<0.01	<0.01	<0.01
trans-nonachlor	mg/kg dry wt	*0.01*	<0.01	<0.01	<0.01	<0.01	<0.01
trans-Chlordane	mg/kg dry wt	*0.01*	<0.01	<0.01	<0.01	<0.01	<0.01
Chlordane (sum)	mg/kg dry wt	*0.02*	<0.020	<0.020	<0.020	<0.020	<0.020
TCMX (Surrogate)	%	*1*	90.8	77.7	78.1	85.6	79.3

Organochlorine Pesticides - Soil

Client Sample ID			TP406_0.1-0.15	TP407_0.05-0.1	TP408_0.1-0.15	TP409_0.0-0.1	TP410_0.05-0.1
Date Sampled			2/08/2019	2/08/2019	2/08/2019	2/08/2019	2/08/2019
Analyte	Unit	*Reporting Limit*	19-26125-6	19-26125-7	19-26125-8	19-26125-9	19-26125-10
2,4'-DDD	mg/kg dry wt	*0.005*	<0.005	<0.005	<0.005	<0.005	<0.005
2,4'-DDE	mg/kg dry wt	*0.005*	<0.005	<0.005	<0.005	<0.005	<0.005
2,4'-DDT	mg/kg dry wt	*0.005*	<0.005	<0.005	<0.005	<0.005	<0.005
4,4'-DDD	mg/kg dry wt	*0.003*	<0.003	<0.003	<0.003	<0.003	<0.003
4,4'-DDE	mg/kg dry wt	*0.005*	<0.005	<0.005	<0.005	<0.005	<0.005
4,4'-DDT	mg/kg dry wt	*0.005*	<0.005	<0.005	<0.005	<0.005	<0.005
Total DDT	mg/kg dry wt	*0.02*	<0.02	<0.02	<0.02	<0.02	<0.02
alpha-BHC	mg/kg dry wt	*0.005*	<0.005	<0.005	<0.005	<0.005	<0.005
Aldrin	mg/kg dry wt	*0.005*	<0.005	<0.005	<0.005	<0.005	<0.005
beta-BHC	mg/kg dry wt	*0.005*	<0.005	<0.005	<0.005	<0.005	<0.005
cis-Chlordane	mg/kg dry wt	*0.005*	<0.005	<0.005	<0.005	<0.005	<0.005
cis-Nonachlor	mg/kg dry wt	*0.01*	<0.01	<0.01	<0.01	<0.01	<0.01
delta-BHC	mg/kg dry wt	*0.005*	<0.005	<0.005	<0.005	<0.005	<0.005
Dieldrin	mg/kg dry wt	*0.05*	<0.05	<0.05	<0.05	<0.05	<0.05
Endosulfan I	mg/kg dry wt	*0.005*	<0.005	<0.005	<0.005	<0.005	<0.005
Endosulfan II	mg/kg dry wt	*0.01*	<0.01	<0.01	<0.01	<0.01	<0.01
Endosulfan sulfate	mg/kg dry wt	*0.005*	<0.005	<0.005	<0.005	<0.005	<0.005
Endrin	mg/kg dry wt	*0.05*	<0.05	<0.05	<0.05	<0.05	<0.05
Endrin aldehyde	mg/kg dry wt	*0.01*	<0.01	<0.01	<0.01	<0.01	<0.01
Endrin ketone	mg/kg dry wt	*0.005*	<0.005	<0.005	<0.005	<0.005	<0.005
gamma-BHC	mg/kg dry wt	*0.005*	<0.005	<0.005	<0.005	<0.005	<0.005
Heptachlor	mg/kg dry wt	*0.005*	<0.005	<0.005	<0.005	<0.005	<0.005
Heptachlor epoxide	mg/kg dry wt	*0.005*	<0.005	<0.005	<0.005	<0.005	<0.005
Hexachlorobenzene	mg/kg dry wt	*0.005*	<0.005	<0.005	<0.005	<0.005	<0.005
Methoxychlor	mg/kg dry wt	*0.01*	<0.01	<0.01	<0.01	<0.01	<0.01
trans-nonachlor	mg/kg dry wt	*0.01*	<0.01	<0.01	<0.01	<0.01	<0.01
trans-Chlordane	mg/kg dry wt	*0.01*	<0.01	<0.01	<0.01	<0.01	<0.01
Chlordane (sum)	mg/kg dry wt	*0.02*	<0.020	<0.020	<0.020	<0.020	<0.020
TCMX (Surrogate)	%	*1*	80.8	83.8	104.2	95.3	92.3

Organochlorine Pesticides - Soil

Client Sample ID			TP411_0.05-0.1	TP412_0.05-0.1	TP413_0.05-0.1	TP414_0.1-0.15	TP415_0.05-0.1
Date Sampled			2/08/2019	2/08/2019	2/08/2019	2/08/2019	2/08/2019
Analyte	Unit	*Reporting Limit*	19-26125-11	19-26125-12	19-26125-13	19-26125-14	19-26125-15
2,4'-DDD	mg/kg dry wt	*0.005*	<0.005	<0.005	<0.005	<0.005	<0.005
2,4'-DDE	mg/kg dry wt	*0.005*	<0.005	<0.005	<0.005	<0.005	<0.005
2,4'-DDT	mg/kg dry wt	*0.005*	<0.005	<0.005	<0.005	<0.005	<0.005
4,4'-DDD	mg/kg dry wt	*0.003*	0.006	<0.003	<0.003	<0.003	<0.003
4,4'-DDE	mg/kg dry wt	*0.005*	0.017	<0.005	<0.005	<0.005	<0.005
4,4'-DDT	mg/kg dry wt	*0.005*	<0.005	<0.005	<0.005	<0.005	<0.005
Total DDT	mg/kg dry wt	*0.02*	0.02	<0.02	<0.02	<0.02	<0.02
alpha-BHC	mg/kg dry wt	*0.005*	<0.005	<0.005	<0.005	<0.005	<0.005
Aldrin	mg/kg dry wt	*0.005*	<0.005	<0.005	<0.005	<0.005	<0.005
beta-BHC	mg/kg dry wt	*0.005*	<0.005	<0.005	<0.005	<0.005	<0.005
cis-Chlordane	mg/kg dry wt	*0.005*	<0.005	<0.005	<0.005	<0.005	<0.005
cis-Nonachlor	mg/kg dry wt	*0.01*	<0.01	<0.01	<0.01	<0.01	<0.01
delta-BHC	mg/kg dry wt	*0.005*	<0.005	<0.005	<0.005	<0.005	<0.005
Dieldrin	mg/kg dry wt	*0.05*	<0.05	<0.05	<0.05	<0.05	<0.05
Endosulfan I	mg/kg dry wt	*0.005*	<0.005	<0.005	<0.005	<0.005	<0.005
Endosulfan II	mg/kg dry wt	*0.01*	<0.01	<0.01	<0.01	<0.01	<0.01

Organochlorine Pesticides - Soil

			Client Sample ID	TP411_0.05-0.1	TP412_0.05-0.1	TP413_0.05-0.1	TP414_0.1-0.15	TP415_0.05-0.1
			Date Sampled	2/08/2019	2/08/2019	2/08/2019	2/08/2019	2/08/2019
Endosulfan sulfate	mg/kg dry wt	*0.005*		<0.005	<0.005	<0.005	<0.005	<0.005
Endrin	mg/kg dry wt	*0.05*		<0.05	<0.05	<0.05	<0.05	<0.05
Endrin aldehyde	mg/kg dry wt	*0.01*		<0.01	<0.01	<0.01	<0.01	<0.01
Endrin ketone	mg/kg dry wt	*0.005*		<0.005	<0.005	<0.005	<0.005	<0.005
gamma-BHC	mg/kg dry wt	*0.005*		<0.005	<0.005	<0.005	<0.005	<0.005
Heptachlor	mg/kg dry wt	*0.005*		<0.005	<0.005	<0.005	<0.005	<0.005
Heptachlor epoxide	mg/kg dry wt	*0.005*		<0.005	<0.005	<0.005	<0.005	<0.005
Hexachlorobenzene	mg/kg dry wt	*0.005*		<0.005	<0.005	<0.005	<0.005	<0.005
Methoxychlor	mg/kg dry wt	*0.01*		<0.01	<0.01	<0.01	<0.01	<0.01
trans-nonachlor	mg/kg dry wt	*0.01*		<0.01	<0.01	<0.01	<0.01	<0.01
trans-Chlordane	mg/kg dry wt	*0.01*		<0.01	<0.01	<0.01	<0.01	<0.01
Chlordane (sum)	mg/kg dry wt	*0.02*		<0.020	<0.020	<0.020	<0.020	<0.020
TCMX (Surrogate)	%	*1*		86.3	86.0	87.8	85.6	94.9

Method Summary

Elements in Soil Acid digestion followed by ICP-MS analysis. (US EPA method 200.8).
Results are based on a dried sample passed through a 2 mm sieve.

OCP in Soil Samples are extracted with hexane, pre-concetrated then analysed by GC-MSMS.(In-house procedure).
(Chlordane (sum) is calculated from the main actives in technical Chlordane: Chlordane, Nonachlor and Heptachlor)

Total DDT Sum of DDT, DDD and DDE (4,4' and 2,4 isomers)

Sharelle Frank, B.Sc. (Tech)
Technologist

Nathan Howse, B.Sc.
Technologist

Terry Cooney, Ph.D.
Signatory

Report Date: 09 Aug 2019

Certificate Number: S1908061014

Aurecon

-

Client Reference: 256528

Dear Aurecon,

Re: Asbestos Soil Identification Analysis – Mason

1 sample(s) received on 06 Aug 2019 by Thomas Tardi-Zuch.

The results of fibre analysis were performed by Tamiko Watson of Analytica Laboratories Limited on 08 Aug 2019.

The sample(s) were stated to be from Mason.

Sample analysis was performed using polarised light microscopy with dispersion staining in accordance with *AS4964-2004 Method for the qualitative identification of asbestos in soil samples.*

The results of the fibre analysis are presented in the appended table.

Should you require further information please contact Tamiko Watson.

Yours sincerely

Tamiko Watson
LABORATORY IDENTIFIER

Sample Analysis Results

Certificate Number: S1908061014
Report Date: 09 Aug 2019
Site Location: Mason

Note 1: The reporting limit for this analysis is 0.1g/kg (0.01%) by application of polarised light microscopy, dispersion staining and trace analysis techniques.

Note 2: If mineral fibres of unknown type are detected (UMF), by PLM and dispersion staining, these may or may not be asbestos fibres. To confirm the identity of this fibre, another independent analytical technique such as XRD analysis is advised.

Note 3: The samples in this report are "As Received". The laboratory does not take responsibility for the sampling procedure or accuracy of sample location description. This document may not be reproduced except in full.

Identified by:

Approved Identifier: Tamiko Watson

Reviewed by:

Key Technical Person: Tamiko Watson

Sample ID	Client Sample ID	Sample Location/Description/Dimensions	Analysis Results
S001	TP304_0.1-0.15	- Non-Homogeneous Soil 470.01g	Chrysotile (white asbestos) Fibres Organic Fibres

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Appendix 1: Soil Analysis Raw Data

Certificate Number: S1908061014
Report Date: 09 Aug 2019
Site Location: Mason

Quantitative Results (non IANZ)																		
Sample ID	Client Sample ID	Total 500mL Sub-Sample (g)	ACM (>10mm)*				AF / FA (2-10mm) (100% ACM)*				AF / FA (<2mm) (100% ACM)*				<2mm Excess (g)	Trace Asbestos Detected **	W/W% Asbestos as ACM	W/W% Asbestos as AF / FA
			>10mm Weight (g)	>10mm ACM (g)	ACM Form	Form %***	2-10mm Weight (g)	2-10mm AF/FA (g)	ACM Form	Form %***	<2mm Weight (g)	<2mm AF/FA (g)	ACM Form	Form %***				
S001	TP304_0.1-0.15	470.01	0	0	N/A	0	36.39	0.0012	Free Fibres	100	102.36	0	N/A	0	331.26	No	<0.001	<0.001

* These results are raw weighed data presented as per the BRANZ New Zealand Guidelines for Assessing and Managing Asbestos Soil and may be under the reporting limit for guidelines AS4964 of 0.1g/kg
** Trace asbestos detected is indicative that freely liberated respirable fibres are present and dust control measures should be implemented or increased on site. This is not the sole indicator for the friable nature of the asbestos present.
*** Asbestos percentage is determined using EPA-600-R-93-116: Method for the Determination of Asbestos in Bulk Building Materials and are outside of IANZ accreditation #1097 and is therefore not endorsed by IANZ.

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Ground Investigation Logs

Appendix I
Ground Investigation Logs

1. Boreholes
2. Test Pits

aurecon
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Auckland, New Zealand
Tel: +64 9 520 6019
www.aurecongroup.com

Client: **Waitemata District Health Board**
Project: **Mason Clinic Ground Investigation**
Location: **Northern Field**
Project Reference: **256528**

BH301

Sheet **1** of **1**

BOREHOLE INFORMATION
Method: Rotary Core Wireline
Equipment: Tractor rig
Contractor: DrillForce

CO-ORDINATES: NZTM
Easting: 1752043m
Northing: 5917803m
Reduced level: 9.0m

Date started: 3/07/2019
Date completed: 3/07/2019
Inclination: 90°
Azimuth: N/A

Logged by: NB
Input by: NB
Checked by: AN
Verified by: RS

Method	R.L. (m)	Length (m)	Graphic Log	Layer Code	Material Description	Weathering/USC	Testing	TCR (%)	SCR (%)	RQD (%)	Stratigraphy Defect Description Additional Notes	Installation
HA				T	**0m:** Clayey SILT; dark brown. Firm, wet, low plasticity. Contains rootlets.	OL	0m to 0.2m: ES 0.25m: ISHSV 43/3 kPa 0.3m to 0.4m: ES				**0m: FILL** 0m: Possibly ash?	
HA				Fc	**0.3m:** Silty CLAY with some gravel; dark grey. Firm, wet, low plasticity. Gravel is weathered basalt. (Fill?)	CL		100				
HQ3	8	1		VWb	**0.7m:** Highly weathered, dark grey, BASALT; moderately strong. Highly vesicular, locally vuggy.	HW		100	69	52	**0.7m: AUCKLAND VOLCANIC FIELD** 0.7m: Defects closely spaced (50-150 mm)	
SPTC					**1.25m:** Slightly weathered, dark grey; BASALT; strong. Moderately vesicular.			N/A			1.55m: Solid cone, refused. Bouncing	
HQ3	7	2			**1.95m to 2.1m:**...			100	79	72	1.95m: Fracture: Narrow, steeply inclined infilled with sandy CLAY. Sandy CLAY; mottled white, black brown. Stiff, wet, low plasticity. Sand is fine grained. 2m: JT 60° PlRo Cg(Clay Fe 5mm) Infill is sandy CLAY, stiff, wet, low plasticity	
HQ3	6	3		VUb	**2.6m to 4.25m:**...Non vesicular	SW						
HQ3	5	4						100	93	93	4.2m: JT 65° PlRo Cn 4.3m: JT 5° PlRo Vn(Silt)	
HQ3	4	5			**4.6m to 4.7m:**...CORELOSS: material washed out. **4.8m to 4.9m:**...CORELOSS: material washed out.			60	26	20	4.6m: JT 30° PlRo Cn 4.8m: JT 40° PlRo Cn	

REMARKS: End of borehole at 5m (Termination Criteria Met)
[1] Coordinates and relative level were source from Auckland Council GeoMaps. Accurate to +/- 5 m.
[2] ISHSV = Insitu shear vane
[3] IBHSV = Exsitu at the bottom on the barrel shear vane
[4] ES = Environmental Sample
[5] SPTC = Stand Penetration Test Solid Cone

HSV Serial No: 2006 Correction Factor: 1.478

Water Level Readings:
Date Time | Hole Depth | Water Level
(1) 03/07/19 11:00 | 0.70m | 0.52 m bgl
(2) 04/07/19 08:30 | 5.00m | 1.0 m bgl

aurecon
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Client: **Waitemata District Health Board**
Project: **Mason Clinic Ground Investigation**
Location: **Northern Field**
Project Reference: **256528**

BH302

BOREHOLE INFORMATION
Method: Rotary Core Wireline
Equipment: Tractor rig
Contractor: DrillForce

CO-ORDINATES: NZTM
Easting: 1752104m
Northing: 5917842m
Reduced level: 10.0m

Date started: 4/07/2019
Date completed: 5/07/2019
Inclination: 90°
Azimuth: N/A

Logged by: NB/SC
Input by: SC
Checked by: AN
Verified by: RS

Method	R.L. (m)	Length (m)	Graphic Log	Layer Code	Material Description	Weathering/USC	Testing	TCR (%)	SCR (%)	RQD (%)	Stratigraphy Defect Description Additional Notes	Installation
HA	9	1		T	**0m:** Clayey SILT with minor fine grained sand; dark brown. Firm, wet, high plasticity.	OH	0m to 0.15m: ES	100			**0m: TOPSOIL**	
				Fc	**0.3m:** Silty CLAY with minor fine grained sand; orange mottled grey. Soft, wet, high plasticity.	CH	0.3m: ISHSV 22/0 kPa 0.4m to 0.6m: ES				**0.3m: FILL**	
					0.6m to 0.9m:...Firm		0.6m: ISHSV 27/7 kPa 0.8m to 0.9m: ES					
					0.9m to 2m:...Some coarse rootlets, firm.		0.9m: ISHSV 47/3 kPa 1.2m: ISHSV 59/21 kPa 1.4m to 1.5m: ES					
SPT	8	2		TAx	**1.5m:** Core loss.		1.49m: IBHSV 43/15 kPa 1.5m: SPT 0// 1,0,0,1 N = 2	0			**1.5m: TAURANGA GROUP** 1.5m: Dropped out of SPT	
HQ3				TAs	**2m:** Fine grained silty SAND; grey. Very loose, wet. Quick dilatant. Locally sandy SILT; grey. Firm, wet, low plasticity. **2.1m to 2.2m:**...Large black rootlets with trace organics.	SM		52				
	7	3		TAx	**2.5m:** Core loss.						2.5m: Suspect very loose sand washed out	
SPT				TAs	**3m:** Fine grained silty SAND; grey. Very loose, wet. Dilatant - quick. Locally sandy SILT; grey. Firm, wet, low plasticity.		3m: SPT 0// 1,1,0,1 N = 3	100				
HQ3	6	4				SM	3.45m: IBHSV UTP	81			3.45m: Sand/moving in barrel	
					4.3m to 4.5m:...Core loss.						4.3m: Suspect very loose sand washed out	
SPT	5	5					4.5m: SPT 0// 0,0,1,1 N = 2	100				
								100				

REMARKS:
[1] Coordinates and relative level were source from Auckland Council GeoMaps. Accurate to +/- 5 m.
[2] ISHSV = Insitu shear vane
[3] IBHSV = Exsitu at the bottom on the barrel shear vane
[4] ES = Environmental Sample
[5] SPTC = Stand Penetration Test Solid Cone

HSV Serial No: 2006 Correction Factor: 1.478

Water Level Readings:
Date Time | Hole Depth | Water Level
(1) 04/07/19 10:00 | 1.15m | 1.15 m bgl
(2) 05/07/19 08:30 | 10.50m | 2.63 m bgl

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Client: **Waitemata District Health Board**
Project: **Mason Clinic Ground Investigation**
Location: **Northern Field**
Project Reference: **256528**

BH302

BOREHOLE INFORMATION
Method: Rotary Core Wireline
Equipment: Tractor rig
Contractor: DrillForce

CO-ORDINATES: NZTM
Easting: 1752104m
Northing: 5917842m
Reduced level: 10.0m

Date started: 4/07/2019
Date completed: 5/07/2019
Inclination: 90°
Azimuth: N/A

Logged by: NB/SC
Input by: SC
Checked by: AN
Verified by: RS

Method	R.L. (m)	Length (m)	Graphic Log	Layer Code	Material Description	Weathering/USC	Testing	TCR (%)	SCR (%)	RQD (%)	Stratigraphy Defect Description Additional Notes	Installation
HQ3	4	6		TAs	**4.95m to 5.3m:**...Some partially decomposed organics and trace fine angular gravel. **3m:** Fine grained silty SAND; grey. Very loose, wet. Dilatant - quick. Locally sandy SILT; grey. Firm, wet, low plasticity. **5.3m to 5.4m:**...Alternating banding ~5mm of grey sand to grey-brown silt	SM		100				
SPT					**6m:**...Loose SAND.		6m: SPT 1// 1,1,2,2 N = 6	62				
HQ3	3	7		TAx	**6.5m:** Core loss.						6.5m: Suspect sand washed out	
				EWz	**6.95m:** Moderately weathered, grey, SILTSTONE; extremely weak. (Hard SILT) **6.98m to 6.99m:**... **7.15m to 7.46m:**...Localised 25mm thick bands of disseminated carbonaceous material	MW		52	24	10	**6.95m: EAST COAST BAYS FORMATION** 6.98m: Orange oxidised layer inclined at 10°	
SPTC							7.5m: SPTC 20// 12,12,19,7 for 25mm N = 50+	N/A			7.75m: Siltstone laminations inclined at 15°.	
HQ3	2	8		EWs	**7.75m:** Moderately weathered, grey; medium to coarse SANDSTONE; extremely weak, uncemented. (Very dense)	MW		90	21	14	7.9m to 8.05m: Core disturbed by SPTC testing.	
	1	9		EUz	**8.65m:** Slightly weathered, grey, SILTSTONE; very weak, moderately cemented. **8.85m to 8.86m:**...	SW					8.85m: lamination of black carbonaceous material inclinced at 25°	
SPTC					**9m:** Slightly weathered, grey, fine to medium SANDSTONE; extremely weak, poorly cemented.		9m: SPTC 21// 18,28,4 for 5mm N = 50+	N/A				
HQ3				EUs		SW		100	84	55		
	0	10			**9.8m:** Slightly weathered, grey, silty fine SANDSTONE; very weak, moderately cemented.	SW						

REMARKS:
[1] Coordinates and relative level were source from Auckland Council GeoMaps. Accurate to +/- 5 m.
[2] ISHSV = Insitu shear vane
[3] IBHSV = Exsitu at the bottom on the barrel shear vane
[4] ES = Environmental Sample
[5] SPTC = Stand Penetration Test Solid Cone

HSV Serial No: 2006 Correction Factor: 1.478

Water Level Readings:
Date Time | Hole Depth | Water Level
(1) 04/07/19 10:00 | 1.15m | 1.15 m bgl
(2) 05/07/19 08:30 | 10.50m | 2.63 m bgl

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Client: **Waitemata District Health Board**
Project: **Mason Clinic Ground Investigation**
Location: **Northern Field**
Project Reference: **256528**

BH302

BOREHOLE INFORMATION
Method: Rotary Core Wireline
Equipment: Tractor rig
Contractor: DrillForce

CO-ORDINATES: NZTM
Easting: 1752104m
Northing: 5917842m
Reduced level: 10.0m

Date started: 4/07/2019
Date completed: 5/07/2019
Inclination: 90°
Azimuth: N/A

Logged by: NB/SC
Input by: SC
Checked by: AN
Verified by: RS

Method	R.L. (m)	Length (m)	Graphic Log	Layer Code	Material Description	Weathering/USC	Testing	TCR (%)	SCR (%)	RQD (%)	Stratigraphy Defect Description Additional Notes	Installation
HQ3				EUs	**9.8m:** Slightly weathered, grey, silty fine SANDSTONE; very weak, moderately cemented.	SW		100	84	55		
SPTC							10.5m: SPTC 22// 22,23,5 for 5mm N = 50+	N/A				
HQ3	-1	11						100	62	46		
	-2	12			**11.55m:** Slightly weathered, grey, silty fine SANDSTONE; very weak, moderately cemented.	SW	12m: SPTC 50 for 115mm				12m: SPT terminated in seating. N=50+	
SPTC								N/A				
HQ3	-3	13						100	65	65		
SPTC							13.5m: SPTC 35// 50 for 45mm N = 50+	N/A				
HQ3	-4	14			**13.75m:** Slightly weathered, grey, silty fine SANDSTONE; weak, well-cemented.	SW		100	100	100		
	-5	15										

REMARKS: End of borehole at 15m (Termination Criteria Met)
[1] Coordinates and relative level were source from Auckland Council GeoMaps. Accurate to +/- 5 m.
[2] ISHSV = Insitu shear vane
[3] IBHSV = Exsitu at the bottom on the barrel shear vane
[4] ES = Environmental Sample
[5] SPTC = Stand Penetration Test Solid Cone

HSV Serial No: 2006 Correction Factor: 1.478

Water Level Readings:
Date Time | Hole Depth | Water Level
(1) 04/07/19 10:00 | 1.15m | 1.15 m bgl
(2) 05/07/19 08:30 | 10.50m | 2.63 m bgl

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Client: **Waitemata District Health Board**
Project: **Mason Clinic Ground Investigation**
Location: **Northern Field**
Project Reference: **256528**

BH303

BOREHOLE INFORMATION
Method: Rotary Core Wireline
Equipment: Tractor rig
Contractor: DrillForce

CO-ORDINATES: NZTM
Easting: 1752151m
Northing: 5917839m
Reduced level: 14.0m

Date started: 5/07/2019
Date completed: 8/07/2019
Inclination: 90°
Azimuth: N/A

Logged by: SC
Input by: SC
Checked by: AN
Verified by: RS

Method	R.L. (m)	Length (m)	Graphic Log	Layer Code	Material Description	Weathering/USC	Testing	TCR (%)	SCR (%)	RQD (%)	Stratigraphy Defect Description Additional Notes	Installation
HA				T	**0m:** Clayey SILT; dark brown. Very soft, wet, low plasticity; Rootlets.	OL	0m to 0.15m: ES 0.3m: ISHSV 40/10 kPa				**0m: TOPSOIL**	
HA	13	1		TAc/ERc?	**0.5m:** Silty CLAY; orange. Firm, wet, high plasticity, with rootlets. **1m to 1.5m:**...Stiff	CL-ML	0.5m to 0.6m: ES 0.6m: ISHSV 44/9 kPa 0.9m: ISHSV 47/6 kPa 1m to 1.1m: ES 1.2m: ISHSV 95/15 kPa	100			**0.5m: TAURANGA GROUP OR ECBF RESIDUAL SOIL**	
SPT					**1.5m to 2m:**...Orange with grey mottling; stiff		1.49m: IBHSV 95/15 kPa 1.5m: SPT 2// 1,2,2,2 N = 7 1.51m to 1.6m: ES	100				
HQ3	12	2			**2m to 2.45m:**...Grey with orange mottling; soft							
HQ3				ERx	**2.45m:** Core loss.		2.45m: IBHSV 18/6 kPa 3m: SPT 1// 0,1,1,1 N = 3	43 0			2.45m: Suspect soft silt washed out and potentially underlying loose sand	
SPT	11	3										
HQ3	10	4		ERs	**3.75m:** Silty fine SAND; dark grey. Medium dense, dry. [COMPLETELY WEATHERED ECBF] **3.85m to 4.02m:**...Orange band	CW		71			**3.75m: EAST COAST BAYS FORMATION**	
SPT				ERz	**4.3m:** Sandy SILT; grey with orange mottling. Stiff, moist, low plasticity.	CW	4.5m: SPT 5// 3,4,4,5 N = 16	84				
	9	5				HW		84	76	62		

REMARKS:
[1] Coordinates and relative level were source from Auckland Council GeoMaps. Accurate to +/- 5 m.
[2] ISHSV = Insitu shear vane
[3] IBHSV = Exsitu at the bottom on the barrel shear vane
[4] ES = Environmental Sample
[5] SPTC = Stand Penetration Test Solid Cone

HSV Serial No: 2006 Correction Factor: 1.478

Water Level Readings:
Date Time | Hole Depth | Water Level
(1) 05/07/19 10:00 | 15.00m | 0.79 m bgl
(2) 08/07/19 10:00 | 7.50m | 2.0 m bgl

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Client: **Waitemata District Health Board**
Project: **Mason Clinic Ground Investigation**
Location: **Northern Field**
Project Reference: **256528**

BH303

BOREHOLE INFORMATION
Method: Rotary Core Wireline
Equipment: Tractor rig
Contractor: DrillForce

CO-ORDINATES: NZTM
Easting: 1752151m
Northing: 5917839m
Reduced level: 14.0m

Date started: 5/07/2019
Date completed: 8/07/2019
Inclination: 90°
Azimuth: N/A

Logged by: SC
Input by: SC
Checked by: AN
Verified by: RS

Method	R.L. (m)	Length (m)	Graphic Log	Layer Code	Material Description	Weathering/USC	Testing	TCR (%)	SCR (%)	RQD (%)	Stratigraphy Defect Description Additional Notes	Installation
HQ3	8	6		EWs	**4.9m:** Highly weathered, grey, fine to medium SANDSTONE; extremely weak (Dense SAND).	HW		84	76	62		
SPT					**6.25m:** Highly weathered, grey, silty fine medium grained SANDSTONE: extremely weak. (Very dense SAND)		6m: SPT 4// 5,5,7,7 N = 24	100				
HQ3	7	7				HW		100	86	67		
SPT	6	8			**7.55m:** Highly weathered, grey, silty medium SANDSTONE; extremely weak, moderately cemented, with trace fine gravel siltstone rock fragments. (Dense SAND.)	HW	7.5m: SPT 7// 5,6,5,6 N = 22	100				
HQ3	5	9			**8.5m:** Moderately weathered, grey, fine SANDSTONE; extremely weak with some fine gravel siltstone rock fragments. (Very dense SAND)	MW		100	86	76		
SPT					**9.25m:** Moderately weathered, grey, conglomeratic SANDSTONE; extremely weak, poorly cemented.		9m: SPT 20// 15,15,20 for 75mm N = 50+	100				
HQ3	4	10		EUs	**9.75m to 9.77m:**...20mm thick black carbonaceous lamination **9.77m:** Slightly weathered, grey, fine SANDSTONE;	MW SW		80	40	18	9.5m: JT 85° PlSm Cg(Silt 2mm)	

REMARKS:
[1] Coordinates and relative level were source from Auckland Council GeoMaps. Accurate to +/- 5 m.
[2] ISHSV = Insitu shear vane
[3] IBHSV = Exsitu at the bottom on the barrel shear vane
[4] ES = Environmental Sample
[5] SPTC = Stand Penetration Test Solid Cone

HSV Serial No: 2006 Correction Factor: 1.478

Water Level Readings:
Date Time | Hole Depth | Water Level
(1) 05/07/19 10:00 | 15.00m | 0.79 m bgl
(2) 08/07/19 10:00 | 7.50m | 2.0 m bgl

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Client: **Waitemata District Health Board**
Project: **Mason Clinic Ground Investigation**
Location: **Northern Field**
Project Reference: **256528**

BH303

Sheet **3** of **3**

BOREHOLE INFORMATION
Method: Rotary Core Wireline
Equipment: Tractor rig
Contractor: DrillForce

CO-ORDINATES: NZTM
Easting: 1752151m
Northing: 5917839m
Reduced level: 14.0m

Date started: 5/07/2019
Date completed: 8/07/2019
Inclination: 90°
Azimuth: N/A

Logged by: SC
Input by: SC
Checked by: AN
Verified by: RS

Method	R.L. (m)	Length (m)	Graphic Log	Layer Code	Material Description	Weathering/USC	Testing	TCR (%)	SCR (%)	RQD (%)	Stratigraphy Defect Description Additional Notes	Installation
HQ3					extremely weak, uncemented. **9.77m:** Slightly weathered, grey, fine SANDSTONE; extremely weak, uncemented.	SW	10.5m: SPT 20// 18,23,9 for 30mm N = 50+	80	40	18		
SPT								100				
	3	11										
HQ3					**11m:** Slightly weathered, grey, medium SANDSTONE; very weak, moderately cemented.			100	43	13		
	2	12					12m: SPTC 18// 14,36 for 70mm N = 50+					
SPTC								N/A				
HQ3				EUs				100	83	62		
	1	13				SW						
SPTC							13.5m: SPTC 23// 17,20,13 for 50mm N = 50+	N/A				
HQ3								61	57	39		
	0	14										
	-1	15										

REMARKS: End of borehole at 15m (Termination Criteria Met)
[1] Coordinates and relative level were source from Auckland Council GeoMaps. Accurate to +/- 5 m.
[2] ISHSV = Insitu shear vane
[3] IBHSV = Exsitu at the bottom on the barrel shear vane
[4] ES = Environmental Sample
[5] SPTC = Stand Penetration Test Solid Cone

HSV Serial No: 2006 Correction Factor: 1.478

Water Level Readings:
Date Time | Hole Depth | Water Level
(1) 05/07/19 10:00 | 15.00m | 0.79 m bgl
(2) 08/07/19 10:00 | 7.50m | 2.0 m bgl

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Client: **Waitemata District Health Board**
Project: **Mason Clinic Ground Investigation**
Location: **Northern Field**
Project Reference: **256528**

BH304

Sheet **1** of **3**

BOREHOLE INFORMATION
Method: Rotary Core Wireline
Equipment: Tractor rig
Contractor: DrillForce

CO-ORDINATES: NZTM
Easting: 1752112m
Northing: 5917778m
Reduced level: 9.5m

Date started: 9/07/2019
Date completed: 10/07/2019
Inclination: 90°
Azimuth: N/A

Logged by: AM/NB
Input by: OJ
Checked by: AN
Verified by: RS

Method	R.L. (m)	Length (m)	Graphic Log	Layer Code	Material Description	Weathering/USC	Testing	TCR (%)	SCR (%)	RQD (%)	Stratigraphy Defect Description Additional Notes	Installation
HA	9	1		T	**0m:** CLAY with some silt and trace rootlets; Stiff. Moist. Medium plasticity.	OH					**0m: TOPSOIL**	
				Fc	**0.3m:** CLAY; light yellow mottled light grey. Firm. Moist. High plasticity.	CH	0.3m: ISHSV 136/22 kPa 0.6m: ISHSV 109/40 kPa 0.9m: ISHSV 87/13 kPa 1.2m: IBHSV 71/18 kPa	100			**0.3m: FILL** 0.3m: Suspect fill derived from ECBF residual soil.	
SPT	8	1		TAc	**1.5m:** Silty CLAY; light grey mottled orange. Soft, wet, high plasticity.	CH	1.49m: IBHSV 71/18 kPa 1.5m: SPT 1// 0,0,0,1 N = 1	100			**1.5m: TAURANGA GROUP**	
HQ3	7	2		TAx	**2.15m:** Core loss.		2.14m: IBHSV 27/9 kPa	29			2.15m: Suspect Tauranga Group clay washed out	
SPT	6	3		TAc	**2.9m:** Silty CLAY; grey. Firm, wet, high plasticity. **3.35m to 3.45m:**...Organic SILT. Soft, wet, highly plastic. Organic odour, some fibrous organics.	CH	3m: SPT 0// 0,0,0,0 N = 0	44				
HQ3	5	4		TAz	**3.45m:** Sandy SILT; grey. Soft, wet, low plasticity. Locally black speckled organics.	ML		100				
				TAs	**4.15m:** SAND with some silt; light grey. Loose, wet. Sand is fine grained.	SP						
SPT		5		TAo	**4.4m:** Organic SILT; brown. Very soft, wet, no plasticity. Some fibrous organics. **4.55m to 4.95m:**...CORE LOSS	OL	4.49m: IBHSV 15/3 kPa 4.5m: SPT 0// 0,0,0,0 N = 0	22			4.5m: SPT sunk under its weight	
						SM		76				

REMARKS:
[1] Coordinates and relative level were source from Auckland Council GeoMaps. Accurate to +/- 5 m.
[2] ISHSV = Insitu shear vane
[3] IBHSV = Exsitu at the bottom on the barrel shear vane
[4] ES = Environmental Sample
[5] SPTC = Stand Penetration Test Solid Cone

HSV Serial No: DA4940 Correction Factor: 1.478

Water Level Readings:
Date Time | Hole Depth | Water Level
(1) 08/07/19 09:00 | m | 0.2 m bgl
(2) 10/07/19 15:00 | 12.00m | 1.3 m bgl

Database File: MASON GI_20190918.GPJ **Library file:** AURECON_AKL_NOFRACLOG_201612.GLB **Template:** AURECON_AKL_20130722.GDT **Report File:** AURECON DH LOH V4.0 NO FRACTURE LOG **Date Generated:** 10/10/2019

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Client: **Waitemata District Health Board**
Project: **Mason Clinic Ground Investigation**
Location: **Northern Field**
Project Reference: **256528**

BH304

BOREHOLE INFORMATION
Method: Rotary Core Wireline
Equipment: Tractor rig
Contractor: DrillForce

CO-ORDINATES: NZTM
Easting: 1752112m
Northing: 5917778m
Reduced level: 9.5m

Date started: 9/07/2019
Date completed: 10/07/2019
Inclination: 90°
Azimuth: N/A

Logged by: AM/NB
Input by: OJ
Checked by: AN
Verified by: RS

Method	R.L. (m)	Length (m)	Graphic Log	Layer Code	Material Description	Weathering/USC	Testing	TCR (%)	SCR (%)	RQD (%)	Stratigraphy Defect Description Additional Notes	Installation
HQ3	4			TAs	**4.95m:** Silty SAND; grey. Very loose, wet. Sand is fine grained. **5.1m to 5.3m:**...Contains black disemminated organics. Locally SILT; grey. Soft, wet. high plasticity.	SM						
				TAz	**5.3m:** SILT with some sand; grey. Soft, wet, no plasticity. Locally contains black disseminated organics. Sand is fine grained.	ML	5.3m: IBHSV 15/3 kPa	76				
SPT		6		TAs	**5.9m:** SAND with some silt; dark grey. Very loose, wet. Sand is fine grained. Dilatant - quick. **6.1m to 6.3m:**...Locally SILT; grey. Soft, wet, no plasticity. Contains black disseminated organics and partially decomposed twig.	SP - ML	6m: SPT 0// 0,0,0,0 N = 0	67				
HQ3	3				**6.45m to 6.6m:**...Locally SILT; grey. Soft, wet, no plasticity. Contains black disseminated organics and partially decomposed twig.							
		7		ERs	**6.6m to 6.65m:**...Silty SAND; brown. Wet, loose. **6.65m:** Sand; grey. Very dense, moist. [COMPLETELY WEATHERED ECBF]	CW		100			**6.65m: EAST COAST BAYS FORMATION**	
SPTC	2						7.5m: SPTC 13// 10,12,14,14 for 40mm N = 50+	N/A				
HQ3	1	8		EUs	**8.05m:** Slightly weathered, grey silty fine SANDSTONE; very weak, moderately cemented.	SW		91	79	65	8.38m: 10° inclined dissemintated carbonaceous material.	
SPTC		9		EUz	**8.8m:** Slightly weathered, grey, SILTSTONE; very weak.	SW	9m: SPTC 28// 24,26 for 70mm N = 50+	N/A				
HQ3	0			EUs	**9.38m:** Slightly weathered, grey, fine SANDSTONE; very weak, moderately cemented.	SW		96	91	89		
		10										

REMARKS:
[1] Coordinates and relative level were source from Auckland Council GeoMaps. Accurate to +/- 5 m.
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[3] IBHSV = Exsitu at the bottom on the barrel shear vane
[4] ES = Environmental Sample
[5] SPTC = Stand Penetration Test Solid Cone

HSV Serial No: DA4940 Correction Factor: 1.478

Water Level Readings:
Date Time | Hole Depth | Water Level
(1) 08/07/19 09:00 | m | 0.2 m bgl
(2) 10/07/19 15:00 | 12.00m | 1.3 m bgl

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Client: **Waitemata District Health Board**
Project: **Mason Clinic Ground Investigation**
Location: **Northern Field**
Project Reference: **256528**

BH304

BOREHOLE INFORMATION
Method: Rotary Core Wireline
Equipment: Tractor rig
Contractor: DrillForce

CO-ORDINATES: NZTM
Easting: 1752112m
Northing: 5917778m
Reduced level: 9.5m

Date started: 9/07/2019
Date completed: 10/07/2019
Inclination: 90°
Azimuth: N/A

Logged by: AM/NB
Input by: OJ
Checked by: AN
Verified by: RS

Method	R.L. (m)	Length (m)	Graphic Log	Layer Code	Material Description	Weathering/USC	Testing	TCR (%)	SCR (%)	RQD (%)	Stratigraphy Defect Description Additional Notes	Installation
HQ3	-1	11		EUs	**10m:** Slightly weathered, grey, silty fine to medium SANDSTONE; very weak, moderately cemented.	SW	10.5m: SPTC 38// 45,5 for 5mm N = 50+	96	91	89	10.75m: black carbonaceous lamination inclined at 5°	
SPTC								N/A				
HQ3	-2				**11.75m to 12m:**...Locally SILTSTONE; very weak.			100	91	87	11.24m: Black carbonaceous laminations inclined 5-10°.	
		12			End of borehole at 12m (Termination Criteria Met)						11.96m: Subhorizontal black carbonaceous lamination	

REMARKS:
[1] Coordinates and relative level were source from Auckland Council GeoMaps. Accurate to +/- 5 m.
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[4] ES = Environmental Sample
[5] SPTC = Stand Penetration Test Solid Cone

HSV Serial No: DA4940 Correction Factor: 1.478

Water Level Readings:
Date Time | Hole Depth | Water Level
(1) 08/07/19 09:00 | m | 0.2 m bgl
(2) 10/07/19 15:00 | 12.00m | 1.3 m bgl

Database File: MASON GI_20190918.GPJ **Library file:** AURECON_AKL_NOFRACLOG_201612.GLB **Template:** AURECON_AKL_20130722.GDT **Report File:** AURECON DH LOH V4.0 NO FRACTURE LOG **Date Generated:** 10/10/2019

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Client: **Waitemata District Health Board**
Project: **Mason Clinic Ground Investigation**
Location: **Northern Field**
Project Reference: **256528**

BH305

BOREHOLE INFORMATION
Method: Rotary Core Wireline
Equipment: Tractor rig
Contractor: DrillForce

CO-ORDINATES: NZTM
Easting: 1752092m
Northing: 5917751m
Reduced level: 9.5m

Date started: 7/07/2019
Date completed: 8/07/2019
Inclination: 90°
Azimuth: N/A

Logged by: SC/AM
Input by: AGM
Checked by: AN
Verified by: RS

Method	R.L. (m)	Length (m)	Graphic Log	Layer Code	Material Description	Weathering/USC	Testing	TCR (%)	SCR (%)	RQD (%)	Stratigraphy Defect Description Additional Notes	Installation
HA	9	1		T	**0m:** Silty CLAY with trace rootlets; dark brown. Very soft, saturated, highly plastic. (Topsoil)	OL	0m to 0.15m: ES 0.3m: ISHSV 8/3 kPa	100			**0m: TOPSOIL**	
HQ3	8	1		TAc	**0.5m:** Silty CLAY with trace rootlets; orange mottled grey. Moist, firm, highly plastic. **0.51m to 0.9m:**...Brownish orange. **0.9m to 1.1m:**...Very soft.		0.5m to 0.6m: ES 0.6m: ISHSV 42/10 kPa 0.9m: ISHSV 13/3 kPa 1m to 1.1m: ES 1.2m: IBHSV 42/8 kPa	50			**0.5m: TAURANGA GROUP**	
SPT	7	1			**1.5m to 2m:**...Orange, soft.		1.49m: IBHSV 22/6 kPa 1.5m: SPT 0// 0,0,0,0 N = 0 1.51m to 1.6m: ES	100				
HQ3	6	2			**2m to 3.5m:**...Grey with mottled orange; very soft with trace rootlets.	CH	3m: SPT 0// 0,0,0,0 N = 0	100 51				
HQ3	5	2			**3.5m:** Organic CLAY; dark grey. Very soft, moist, high plasticity.	OH		95				
SPT	5	1			**4.4m:** CLAY; grey. Very soft, wet, high plasticity.	CH	4.49m: IBHSV 15/6 kPa 4.5m: SPT 0// 0,0,1,1 N = 2	22 82				

REMARKS:
[1] Coordinates and relative level were source from Auckland Council GeoMaps. Accurate to +/- 5 m.
[2] ISHSV = Insitu shear vane
[3] IBHSV = Exsitu at the bottom on the barrel shear vane
[4] ES = Environmental Sample
[5] SPTC = Stand Penetration Test Solid Cone

Water Level Readings:
Date Time | Hole Depth | Water Level
No water level recorded

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Client: **Waitemata District Health Board**
Project: **Mason Clinic Ground Investigation**
Location: **Northern Field**
Project Reference: **256528**

BH305

BOREHOLE INFORMATION
Method: Rotary Core Wireline
Equipment: Tractor rig
Contractor: DrillForce

CO-ORDINATES: NZTM
Easting: 1752092m
Northing: 5917751m
Reduced level: 9.5m

Date started: 7/07/2019
Date completed: 8/07/2019
Inclination: 90°
Azimuth: N/A

Logged by: SC/AM
Input by: AGM
Checked by: AN
Verified by: RS

Method	R.L. (m)	Length (m)	Graphic Log	Layer Code	Material Description	Weathering/USC	Testing	TCR (%)	SCR (%)	RQD (%)	Stratigraphy Defect Description Additional Notes	Installation
				TAc	**4.4m:** CLAY; grey. Very soft, wet, high plasticity.	CH						
HQ3	4	6		ERs	**5.3m:** Fine to medium SAND with trace silt; light grey. Medium dense, moist [COMPLETELY WEATHERED ECBF]. Remoulds to: sandy SILT; medium plastic.	CW		82			**5.3m: EAST COAST BAYS FORMATION**	
SPT							5.99m: IBHSV 15/0 kPa 6m: SPT 0// 1,2,5,7 N = 15	100				
HQ3	3	7		EWs	**6.45m:** Moderately weathered, light grey, fine to medium SANDSTONE; extremely weak, moderately cemented. (Dense)	MW		61	52	29		
SPT	2	8					7.5m: SPT 10// 9,11,14,14 N = 48	100				
HQ3	1	9						88	76	67	8.15m: JT 50° PIRo Vn(Silt) 8.2m: JT 50° PIRo Cg(Silt 2mm)	
SPTC							9m: SPTC 23// 18,24,8 for 8mm N = 50+	N/A				
HQ3	0	10						100	92	92		

REMARKS:
[1] Coordinates and relative level were source from Auckland Council GeoMaps. Accurate to +/- 5 m.
[2] ISHSV = Insitu shear vane
[3] IBHSV = Exsitu at the bottom on the barrel shear vane
[4] ES = Environmental Sample
[5] SPTC = Stand Penetration Test Solid Cone

Water Level Readings:
Date Time | Hole Depth | Water Level
No water level recorded

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Client: **Waitemata District Health Board**
Project: **Mason Clinic Ground Investigation**
Location: **Northern Field**
Project Reference: **256528**

BH305

BOREHOLE INFORMATION
Method: Rotary Core Wireline
Equipment: Tractor rig
Contractor: DrillForce

CO-ORDINATES: NZTM
Easting: 1752092m
Northing: 5917751m
Reduced level: 9.5m

Date started: 7/07/2019
Date completed: 8/07/2019
Inclination: 90°
Azimuth: N/A

Logged by: SC/AM
Input by: AGM
Checked by: AN
Verified by: RS

Method	R.L. (m)	Length (m)	Graphic Log	Layer Code	Material Description	Weathering/USC	Testing	TCR (%)	SCR (%)	RQD (%)	Stratigraphy Defect Description Additional Notes	Installation
HQ3	-1	11		EWs	**6.45m:** Moderately weathered, light grey, fine to medium SANDSTONE; extremely weak, moderately cemented. (Dense)	MW	10.5m: SPTC 40// 40,10 for 10mm N = 50+	100	92	92		
SPTC								N/A				
HQ3	-2	12			**10.8m to 11.05m:**...SILTSTONE; very weak.			100	87	79	10.8m: Siltstone inclined at 5°	
					11.05m to 11.05m:...Carbonaceous laminations						11.06m: Siltstone inclined at 5°	
					11.06m to 11.8m:...SILTSTONE; very weak.							
SPTC							12m: SPTC 50 for 85mm	N/A			12m: SPT terminated in seating N=50+	
HQ3	-3	13		EUs	**12.4m:** Slightly weathered, light grey medium to coarse SANDSTONE; very weak, moderately cemented.	SW		100	92	85		
					13.1m to 13.5m:...Coarse SANDSTONE.							
SPTC	-4						13.5m: SPTC 50 for 149mm	N/A			13.5m: SPT terminated in seating N=50+	
HQ3	-5	14			**14.1m to 14.45m:**...SILTSTONE; very weak.			75	59	59		
		15										

REMARKS: End of borehole at 15m (Termination Criteria Met)
[1] Coordinates and relative level were source from Auckland Council GeoMaps. Accurate to +/- 5 m.
[2] ISHSV = Insitu shear vane
[3] IBHSV = Exsitu at the bottom on the barrel shear vane
[4] ES = Environmental Sample
[5] SPTC = Stand Penetration Test Solid Cone

Water Level Readings:
Date Time | Hole Depth | Water Level
No water level recorded

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Client: **Waitemata District Health Board**
Project: **Mason Clinic Ground Investigation**
Location: **Central Mason Clinic**
Project Reference: **256528**

BH306

BOREHOLE INFORMATION
Method: Rotary Core Wireline
Equipment: Tractor rig
Contractor: DrillForce

CO-ORDINATES: NZTM
Easting: 1752150m
Northing: 5917675m
Reduced level: 11.5m

Date started: 16/07/2019
Date completed: 16/07/2019
Inclination: 90°
Azimuth: N/A

Logged by: NB/SC
Input by: OJ
Checked by: AN
Verified by: RS

Method	R.L. (m)	Length (m)	Graphic Log	Layer Code	Material Description	Weathering/USC	Testing	TCR (%)	SCR (%)	RQD (%)	Stratigraphy Defect Description Additional Notes	Installation
HYDRO VAC EX	11			Fg	**0m:** Reinforced concrete	Fg					**0m: FILL**	
				Fg	**0.15m:** Fine to coarse GRAVEL, angular.	GW					**0.15m: FILL OR AUCKLAND VOLCANIC FIELD ASH**	
				TAz or Va	**0.35m:** SILT; brown. Very stiff, wet, high plasticity.	MH	0.35m to 0.45m: ES 0.4m: ISHSV 133/13 kPa				**0.35m: TAURANGA GROUP OR AUCKLAND VOLCANIC FIELD**	
		1		TAz	**0.8m:** Clayey SILT; orange mottled grey. Stiff, moist, high plasticity.	MH	0.75m: ISHSV 96/7.5 kPa 0.75m to 0.85m: ES 1m: ISHSV 103.5/40 kPa	100			**0.8m: TAURANGA GROUP**	
	10			TAz	**1.3m:** SILT; dark grey. Stiff, moist, low plasticity.	ML						
SPT				TAc	**1.5m:** Silty CLAY; brown. Stiff, moist, high plasticity.	CH	1.49m: IBHSV 62/12 kPa 1.5m: SPT 1// 1,0,1,1 N = 3 1.51m to 1.6m: ES	29			1.65m: Suspect soft material slipped out of core and SPT sampler	
HQ3		2		TAx	**1.65m:** Core loss.							
	9							38				
					2.6m: Silty CLAY; yellowish brown. Stiff, moist, high plasticity. **2.77m to 3.7m:**...Light grey with orange mottling.	CH						
SPT		3		TAz	**3m:** Clayey SILT; light grey mottled orange. Soft, moist, high plasticity	MH	3m: SPT 0// 0,1,1,1 N = 3	98				
	8										3.45m: UTP - Sand/moving in barrel	
HQ3				ERz	**3.7m:** Sandy SILT; light brown. Firm, moist, medium plasticity (RESIDUAL ECBF).	ML					**3.7m: EAST COAST BAYS FORMATION**	
		4		ERx	**4m:** Core loss.			50				
	7											
SPT				ERs	**4.48m:** Silty fine to medium SAND; light grey. Medium dense, moist. [COMPLETELY WEATHERED ECBF]	CW	4.5m: SPT 4// 4,4,5,5 N = 18	100				
		5						76				

REMARKS:
[1] Coordinates and relative level were source from Auckland Council GeoMaps. Accurate to +/- 5 m.
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[4] ES = Environmental Sample
[5] SPTC = Stand Penetration Test Solid Cone

HSV Serial No: 2006 Correction Factor: 1.478

Water Level Readings:
Date Time | Hole Depth | Water Level
(1) 16/07/19 00:00 | 15.00m | 2.1 m bgl

Database File: MASON GI_20190918.GPJ **Library file:** AURECON_AKL_NOFRACLOG_201612.GLB **Template:** AURECON_AKL_20130722.GDT **Report File:** AURECON DH LOH V4.0 NO FRACTURE LOG **Date Generated:** 10/10/2019

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Client: **Waitemata District Health Board**
Project: **Mason Clinic Ground Investigation**
Location: **Central Mason Clinic**
Project Reference: **256528**

BH306

BOREHOLE INFORMATION
Method: Rotary Core Wireline
Equipment: Tractor rig
Contractor: DrillForce

CO-ORDINATES: NZTM
Easting: 1752150m
Northing: 5917675m
Reduced level: 11.5m

Date started: 16/07/2019
Date completed: 16/07/2019
Inclination: 90°
Azimuth: N/A

Logged by: NB/SC
Input by: OJ
Checked by: AN
Verified by: RS

Method	R.L. (m)	Length (m)	Graphic Log	Layer Code	Material Description	Weathering/USC	Testing	TCR (%)	SCR (%)	RQD (%)	Stratigraphy Defect Description Additional Notes	Installation
HQ3	6	6		ERs	**4.48m:** Silty fine to medium SAND; light grey. Medium dense, moist. [COMPLETELY WEATHERED ECBF] **5.55m to 6.17m:**...Grading to fine to coarse SAND at base of bed.	CW	6m: SPT 5// 5,6,7,9 N = 27	76				
SPT	5			EWz	**6.17m:** Moderately weathered, grey, SILTSTONE; extremely weak.	MW		100				
HQ3	4	7		EUz	**7.25m:** Slightly weathered, grey, SILTSTONE: extremely weak.	SW	7.5m: SPTC 12// 17,18,15 for 60mm N = 50+	100	90	71	7.25m: Siltstone inclined at 5°	
SPTC		8						N/A				
HQ3	3	9		EUs	**8m:** Slightly weathered, grey, silty fine SANDSTONE; very weak, moderately cemented. **8.05m to 8.45m:**...Laminations of black carbonaceous material inclined at 0-5°	SW	9m: SPTC 14// 30,20 for 40mm N = 50+	100	100	100		
SPTC								N/A				
HQ3	2	10			**9.83m:** Slightly weathered medium to coarse SANDSTONE; dark grey. Very weak, slightly cemented.	SW		81	73	65		

REMARKS:
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[5] SPTC = Stand Penetration Test Solid Cone

HSV Serial No: 2006 Correction Factor: 1.478

Water Level Readings:
Date Time | Hole Depth | Water Level
(1) 16/07/19 00:00 | 15.00m | 2.1 m bgl

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BH306

BOREHOLE INFORMATION
Method: Rotary Core Wireline
Equipment: Tractor rig
Contractor: DrillForce

CO-ORDINATES: NZTM
Easting: 1752150m
Northing: 5917675m
Reduced level: 11.5m

Date started: 16/07/2019
Date completed: 16/07/2019
Inclination: 90°
Azimuth: N/A

Logged by: NB/SC
Input by: OJ
Checked by: AN
Verified by: RS

Method	R.L. (m)	Length (m)	Graphic Log	Layer Code	Material Description	Weathering/USC	Testing	TCR (%)	SCR (%)	RQD (%)	Stratigraphy Defect Description Additional Notes	Installation
HQ3	1	11		EUs	**9.83m:** Slightly weathered medium to coarse SANDSTONE; dark grey. Very weak, slightly cemented.	SW		81	73	65		
SPTC							10.5m: SPTC 22// 21,39 for 70mm N = 50+	N/A				
HQ3	0	12		EUz	**10.64m:** Slightly weathered, dark grey, sandy SILTSTONE; very weak.	SW		100	83	71		
SPTC							12m: SPTC 50 for 105mm	N/A			12m: SPT terminated in seating. N=50+	
HQ3	-1	13		EUs	**12.41m:** Slightly weathered, dark grey, medium SANDSTONE; very weak, moderately cemented. **13.05m to 13.13m:**...Disseminated black carbonaceous flecks **13.2m to 15m:**...Coarse SANDSTONE	SW		100	100	96		
SPTC	-2						13.5m: SPTC 50 for 145mm	N/A			13.5m: SPT terminated in seating. N=50+	
HQ3	-3	14						100	84	76		
		15										

REMARKS:
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HSV Serial No: 2006 Correction Factor: 1.478

Water Level Readings:
Date Time | Hole Depth | Water Level
(1) 16/07/19 00:00 | 15.00m | 2.1 m bgl

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BH306

BOREHOLE INFORMATION	**CO-ORDINATES: NZTM**		
Method: Rotary Core Wireline	Easting: 1752150m	Date started: 16/07/2019	Logged by: NB/SC
Equipment: Tractor rig	Northing: 5917675m	Date completed: 16/07/2019	Input by: OJ
Contractor: DrillForce	Reduced level: 11.5m	Inclination: 90°	Checked by: AN
		Azimuth: N/A	Verified by: RS

Method	R.L. (m)	Length (m)	Graphic Log	Layer Code	Material Description	Weathering/USC	Testing	TCR (%)	SCR (%)	RQD (%)	Stratigraphy Defect Description Additional Notes	Installation
					End of borehole at 15.04m (Termination Criteria Met)						14.94m: Laminations of black carbonaceous material inclined at 0-5°	

REMARKS:
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HSV Serial No: 2006 Correction Factor: 1.478

Water Level Readings:
Date Time | Hole Depth | Water Level
(1) 16/07/19 00:00 | 15.00m | 2.1 m bgl

Database File: MASON GI_20190918.GPJ **Library file:** AURECON_AKL_NOFRACLOG_201612.GLB **Template:** AURECON_AKL_20130722.GDT **Report File:** AURECON DH LOH V4.0 NO FRACTURE LOG **Date Generated:** 10/10/2019

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Client: **Waitemata District Health Board**
Project: **Mason Clinic Ground Investigation**
Location: **Central Mason Clinic**
Project Reference: **256528**

BH309

BOREHOLE INFORMATION
Method: Rotary Core Wireline
Equipment: Tractor rig
Contractor: DrillForce

CO-ORDINATES: NZTM
Easting: 1752015m
Northing: 5917694m
Reduced level: 10.0m

Date started: 11/07/2019
Date completed: 11/07/2019
Inclination: 90°
Azimuth: N/A

Logged by: AW
Input by: OJ
Checked by: AN
Verified by: RS

Method	R.L. (m)	Length (m)	Graphic Log	Layer Code	Material Description	Weathering/USC	Testing	TCR (%)	SCR (%)	RQD (%)	Stratigraphy Defect Description Additional Notes	Installation
HYDRO VAC EX				Fc	**0m:** Sandy SILT; Dark brown. Firm, moist, low plasticity. Contains coarse roots. Sand is fine grained.	ML	0.2m to 0.2m: ES	100			**0m: FILL**	
					0.66m to 0.66m:...Strong weathered band, sub horizontal, firm, orange-red in colour.		0.55m: ISHSV 90/15 kPa 0.55m to 0.7m: ES 0.8m: ISHSV 41/4.5 kPa					
HQ3	9	1		Va	**0.9m:** Sandy SILT; Orange. Loose, moist. Sand is fine to coarse. Contains coarse roots. [ASH]	SM	0.8m to 0.9m: ES				**0.9m: AUCKLAND VOLCANIC FIELD**	
				VWbb	**1m:** Moderately weathered, grey with oxidised red, broken BASALT; moderately strong. Vesicular	MW		100	50	50	1.07m: JT 5° UnRo Cg(Silt 2mm) 1.1m: JT 5° UnRo Cg(Silt 2mm)	
HQ3	8	2		VUb	**1.5m:** Slightly weathered, dark grey, speckled white grey, BASALT; strong. Highly vesicular	SW		100	87	87	1.9m: JT 0° StRo Sn(Fe)	
					1.75m to 2m:...Moderately vesicular with local vesicles up to 25mm across						2m: local flow banding subhorizontal	
					2m to 2.5m:...Slightly vesicular.							
	7	3			**2.5m to 3.75m:**...Non vesicular.						2.5m: local subhorizontal flow banding 2.5m: JT 50° UnSm Cg(Silt 2mm) 2.6m: JT 50° UnRo Sn(Fe)	
HQ3											3.38m: JT 60° PlRo Cn	
											3.55m: JT 20° PlRo Sn(Fe)	
					3.75m to 3.9m:...Moderately vesicular.			100	73	73		
	6	4			**3.9m to 4.05m:**...Slightly vesicular.						3.9m: JT 20° StRo Sn(Fe)	
					4.05m to 4.35m:...Highly vesicular with local vugs up to 25mm across							
					4.3m: Clayey SILT; light reddish orange. Firm to stiff, moist, low plasticity. (Baked margin)	ML					4.25m: JT 55° StRo Vn(Silt / Fe) **4.3m: TAURANGA GROUP**	
SPTC				TAz	**4.5m:** SILT with some sand; light whitish yellow and light whitish grey speckled light reddish orange. Firm, moist, low plasticity.	ML	4.5m: SPTC 1// 0,1,2,1 N = 4	N/A				
	5	5						50				

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[4] ES = Environmental Sample
[5] The borehole was hydro-excavated to 1.0 m bgl in the same position as TP303.
[6] SPTC = Stand Penetration Test Solid Cone

HSV Serial No: DR4940 Correction Factor: 1.478

Water Level Readings:
Date Time | Hole Depth | Water Level
(1) 30/12/99 11:07 | 12.25m | 3.46 m bgl

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Location: **Central Mason Clinic**
Project Reference: **256528**

BH309

BOREHOLE INFORMATION
Method: Rotary Core Wireline
Equipment: Tractor rig
Contractor: DrillForce

CO-ORDINATES: NZTM
Easting: 1752015m
Northing: 5917694m
Reduced level: 10.0m

Date started: 11/07/2019
Date completed: 11/07/2019
Inclination: 90°
Azimuth: N/A

Logged by: AW
Input by: OJ
Checked by: AN
Verified by: RS

Method	R.L. (m)	Length (m)	Graphic Log	Layer Code	Material Description	Weathering/USC	Testing	TCR (%)	SCR (%)	RQD (%)	Stratigraphy Defect Description Additional Notes	Installation
HQ3	4	6		TAz	**4.5m:** SILT with some sand; light whitish yellow and light whitish grey speckled light reddish orange. Firm, moist, low plasticity.	ML		50				
SPT							6m: SPT 2// 2,2,3,5 N = 12	100				
HQ3	3	7		ERz	**6.45m:** Clayey SILT; Light grey and whitish grey with reddish orange band. Very stiff, moist, low plasticity. [COMPLETELY WEATHERED ECBF]	ML					**6.45m: EAST COAST BAYS FORMATION**	
					6.7m: Sandy SILT; light grey. Very stiff, moist, low plasticity. Sand is fine.	ML		100				
SPT	2	8		EWs	**7.5m:** Moderately weathered, grey, fine to medium SANDSTONE; extremely week, moderately cemented. (Very dense)	MW	7.5m: SPT 7// 5,6,6,9 N = 26	100				
HQ3	1	9						95	90	76		
SPT	0	10		EUs	**9m:** Slightly weathered, grey, SANDSTONE; very weak, moderately cemented.	SW	9m: SPT 13// 9,13,16,12 for 55mm N = 50+	100				
HQ3								100	95	81		

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[6] SPTC = Stand Penetration Test Solid Cone

HSV Serial No: DR4940 Correction Factor: 1.478

Water Level Readings:
Date Time | Hole Depth | Water Level
(1) 30/12/99 11:07 | 12.25m | 3.46 m bgl

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Location: **Central Mason Clinic**
Project Reference: **256528**

BH309

BOREHOLE INFORMATION
Method: Rotary Core Wireline
Equipment: Tractor rig
Contractor: DrillForce

CO-ORDINATES: NZTM
Easting: 1752015m
Northing: 5917694m
Reduced level: 10.0m

Date started: 11/07/2019
Date completed: 11/07/2019
Inclination: 90°
Azimuth: N/A

Logged by: AW
Input by: OJ
Checked by: AN
Verified by: RS

Method	R.L. (m)	Length (m)	Graphic Log	Layer Code	Material Description	Weathering/USC	Testing	TCR (%)	SCR (%)	RQD (%)	Stratigraphy Defect Description Additional Notes	Installation
HQ3					**9m:** Slightly weathered, grey, SANDSTONE; very weak, moderately cemented. **10m to 10.15m:**...SILTSTONE; very weak.			100	95	81		
SPTC							10.5m: SPTC 50 for 145mm	N/A			10.5m: SPT terminated in seating. N=50+	
HQ3	-1	11		EUs	**10.75m to 10.95m:**...SILTSTONE; very weak.	SW		100	89	89	10.7m: JT 0° PlSlk Cg(Clay 2mm) 11.3m: Siltstone inclined at 5°	
					11.3m to 11.4m:...Sandy SILTSTONE; very weak.							
					11.7m to 11.7m:...Subhorizontal black carbonaceous laminations							
	-2	12			**11.9m to 12m:**...SILTSTONE: very weak.							
SPTC							12m: SPTC 34// 16 for 25mm N = 50+	N/A				

End of borehole at 12.18m (Termination Criteria Met)

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[4] ES = Environmental Sample
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HSV Serial No: DR4940 Correction Factor: 1.478

Water Level Readings:
Date Time | Hole Depth | Water Level
(1) 30/12/99 11:07 | 12.25m | 3.46 m bgl

Database File: MASON GI_20190918.GPJ **Library file:** AURECON_AKL_NOFRACLOG_201612.GLB **Template:** AURECON_AKL_20130722.GDT **Report File:** AURECON DH LOH V4.0 NO FRACTURE LOG **Date Generated:** 10/10/2019

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Client: **Waitemata District Health Board**
Project: **Mason Clinic Ground Investigation**
Location: **Southern Field**
Project Reference: **256528**

BH310

BOREHOLE INFORMATION
Method: Rotary Core Wireline
Equipment: Tractor rig
Contractor: DrillForce

CO-ORDINATES: NZTM
Easting: 1752050m
Northing: 5917448m
Reduced level: 9.5m

Date started: 17/07/2019
Date completed: 17/07/2019
Inclination: 90°
Azimuth: N/A

Logged by: SC
Input by: OJ
Checked by: AN
Verified by: RS

Method	R.L. (m)	Length (m)	Graphic Log	Layer Code	Material Description	Weathering/USC	Testing	TCR (%)	SCR (%)	RQD (%)	Stratigraphy Defect Description Additional Notes	Installation
HA	9	1		T	**0m:** Gravelly SILT; dark brown. Dry, stiff, fine-medium sized gravels with local coarse gravels, rootlets.	ML	0m to 0.15m: ES 0.3m: ISHSV 71/18 kPa 0.45m to 0.55m: ES 0.6m: ISHSV 72/19 kPa 0.9m: ISHSV 56/18 kPa	100			**0m: TOPSOIL**	
				Va	**1m:** Silty CLAY; grey with orange mottling. Soft, wet, highly plastic.	CH	0.95m to 1.05m: ES 1m: ISHSV 38/15 kPa				**1m: AUCKLAND VOLCANIC FIELD**	
HQ3	8	2		VUb	**1.1m:** Slightly weathered, black, BASALT; very weak. Highly vesicular. **1.35m to 1.5m:**...Recovered as broken basalt	SW		100	50	38		
HQ3	7	3		VUb	**2.4m to 3.6m:**...Moderately vesicular.	SW		100	83	83	2.4m: local 5-10° flow banding	
HQ3	6	4		TAx/VUbx	**3.55m to 3.6m:**...Broken rubbly margin **3.6m:** Core Loss.	SW		40	30	27	**3.6m: TAURANGA GROUP** 3.6m: Suspect alluvium/rubbly basalt below basalt washed out	
SPT	5	5		TAc	**4.35m:** Silty CLAY; grey with orange mottling. Very soft, moist, high plasticity.	CH	4.5m: SPT 1// 0,1,0,0 N = 1	18				
								41				

REMARKS:
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HSV Serial No: 2006 Correction Factor: 1.478

Water Level Readings:
Date Time | Hole Depth | Water Level
(1) 17/07/19 08:00 | m | 0.8 m bgl
(2) 17/07/19 15:40 | 10.50m | 2.6 m bgl

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Client: **Waitemata District Health Board**
Project: **Mason Clinic Ground Investigation**
Location: **Southern Field**
Project Reference: **256528**

BH310

BOREHOLE INFORMATION
Method: Rotary Core Wireline
Equipment: Tractor rig
Contractor: DrillForce

CO-ORDINATES: NZTM
Easting: 1752050m
Northing: 5917448m
Reduced level: 9.5m

Date started: 17/07/2019
Date completed: 17/07/2019
Inclination: 90°
Azimuth: N/A

Logged by: SC
Input by: OJ
Checked by: AN
Verified by: RS

Method	R.L. (m)	Length (m)	Graphic Log	Layer Code	Material Description	Weathering/USC	Testing	TCR (%)	SCR (%)	RQD (%)	Stratigraphy Defect Description Additional Notes	Installation
HQ3	4	6		TAc	**4.35m:** Silty CLAY; grey with orange mottling. Very soft, moist, high plasticity.	CH						
				TAx	**5.4m:** Core loss.			41				
SPT				TAc	**6m:** Silty CLAY; grey with orange mottling. Very soft, moist, high plasticity.	CH	6m: SPT 0// 0,0,2,8 N = 10	100				
	3			ERs	**6.3m:** Fine silty SAND with minor clay; grey. Loose, moist, low plasticity. [COMPLETELY WEATHERED ECBF]	CW					**6.3m: EAST COAST BAYS FORMATION**	
HQ3		7		EUs	**6.5m:** Slightly weathered, grey, silty fine SANDSTONE; very weak, moderately cemented.	SW		76	67	67	6.85m: Siltstone inclined at 5°	
				EUz	**6.85m:** Slightly weathered, grey, sandy SILTSTONE; very weak. **7.1m to 7.2m:**...Laminations of black carbonaceous material inclined at 5°	SW						
SPT	2				**7.4m:** Slightly weathered, grey, fine SANDSTONE; weak, well-cemented.		7.5m: SPT 15// 25,25 for 50mm N = 50+	100				
HQ3		8		EUs	**8.74m to 8.8m:**...SILTSTONE; very weak.	SW		100	98	98		
SPTC	1	9					9m: SPTC 50 for 145mm	N/A			9m: SPT terminated in seating N=50+	
HQ3	0				**9.3m:** Slightly weathered, grey, fine to coarse SANDSTONE; very weak, well-cemented.	SW						
		10			**9.48m:** Slightly weathered, grey, fine SANDSTONE; wery weak, well-cemented.	SW		100	92	88		

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[5] SPTC = Stand Penetration Test Solid Cone

HSV Serial No: 2006 Correction Factor: 1.478

Water Level Readings:
Date Time | Hole Depth | Water Level
(1) 17/07/19 08:00 | m | 0.8 m bgl
(2) 17/07/19 15:40 | 10.50m | 2.6 m bgl

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Location: **Southern Field**
Project Reference: **256528**

BH310

BOREHOLE INFORMATION
Method: Rotary Core Wireline
Equipment: Tractor rig
Contractor: DrillForce

CO-ORDINATES: NZTM
Easting: 1752050m
Northing: 5917448m
Reduced level: 9.5m

Date started: 17/07/2019
Date completed: 17/07/2019
Inclination: 90°
Azimuth: N/A

Logged by: SC
Input by: OJ
Checked by: AN
Verified by: RS

Method	R.L. (m)	Length (m)	Graphic Log	Layer Code	Material Description	Weathering/USC	Testing	TCR (%)	SCR (%)	RQD (%)	Stratigraphy Defect Description Additional Notes	Installation
HQ3 SPTC	-1			EUs	**9.48m:** Slightly weathered, grey, fine SANDSTONE; wery weak, well-cemented.	SW	10.5m: SPTC 50 for 110mm	100 N/A	92	88	10.5m: SPT terminated in seating N=50+	
					End of borehole at 10.54m (Termination Criteria Met)							

REMARKS:
[1] Coordinates and relative level were source from Auckland Council GeoMaps. Accurate to +/- 5 m.
[2] ISHSV = Insitu shear vane
[3] IBHSV = Exsitu at the bottom on the barrel shear vane
[4] ES = Environmental Sample
[5] SPTC = Stand Penetration Test Solid Cone

HSV Serial No: 2006 Correction Factor: 1.478

Water Level Readings:
Date Time | Hole Depth | Water Level
(1) 17/07/19 08:00 | m | 0.8 m bgl
(2) 17/07/19 15:40 | 10.50m | 2.6 m bgl

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Client: **Waitemata District Health Board**
Project: **Mason Clinic Ground Investigation**
Location: **Southern Field**
Project Reference: **256528**

BH311

BOREHOLE INFORMATION
Method: Rotary Core Wireline
Equipment: Tractor rig
Contractor: DrillForce

CO-ORDINATES: NZTM
Easting: 1751973m
Northing: 5917466m
Reduced level: 9.5m

Date started: 18/07/2019
Date completed: 18/07/2019
Inclination: 90°
Azimuth: N/A

Logged by: SC/AGM
Input by: SC
Checked by: AN
Verified by: RS

Method	R.L. (m)	Length (m)	Graphic Log	Layer Code	Material Description	Weathering/USC	Testing	TCR (%)	SCR (%)	RQD (%)	Stratigraphy Defect Description Additional Notes	Installation
HYDRO VAC EX	9	1		T	**0m:** SILT with trace clay; black. Soft, moist, medium plasticity.	ML	0m: ISHSV 11/4 kPa				**0m: TOPSOIL**	
				Fc	**0.3m:** CLAY with some silt and trace gravel; light yellowish orange mottled black. Stiff, moist, high plasticity. Gravel is greywacke.	GC	0.3m: ISHSV 16/6 kPa 0.6m: ISHSV 22/6 kPa 0.9m: ISHSV 26/11 kPa	100	100		**0.3m: FILL**	
HQ3	8			VUbb	**1m:** Slightly weathered, light reddish black, BROKEN BASALT; strong. Recovered as silt coated angular cobbles. Potentially in silt matrix. Suspect ash.	SW		50	0	0	**1m: AUCKLAND VOLCANIC FIELD**	
				Vx	**1.25m:** Core loss.						1.25m: Coreloss: suspect broken basalt fell ouf of sampler.	
HQ3	7	2		VUbb	**1.5m:** Slightly weathered, light reddish black, BROKEN BASALT; strong. Recovered as silt coated angular cobbles. Potentially in silt matrix. Suspect ash.	SW		47	13	0		
		3		Vx	**2.25m:** Core loss.						2.25m: Coreloss: suspect broken basalt fell ouf of sampler.	
HQ3	6	4		VUb	**3m:** Slightly weathered, dark grey, BASALT; strong. Slightly vesicular,	SW		100	87	80	3m: Local subhorizontal flow banding. 3.5m: JT 50° PlRo Vn(Fe) 3.65m: JT 60° PlRo Sn(Fe)	
HQ3	5	5						80	56	30	4.55m: JT 10° PlRo Vn(Fe) 4.6m: JT 45° PlRo Vn(Fe)	

REMARKS:
[1] Coordinates and relative level were source from Auckland Council GeoMaps. Accurate to +/- 5 m.
[2] ISHSV = Insitu shear vane
[3] IBHSV = Exsitu at the bottom on the barrel shear vane
[4] ES = Environmental Sample
[5] The borehole was hydro-excavated to 1.0 m bgl in the same position as TP307.
[6] SPTC = Stand Penetration Test Solid Cone

HSV Serial No: DR4940 Correction Factor: 1.478

Water Level Readings:
Date Time | Hole Depth | Water Level
No water level recorded

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Client: **Waitemata District Health Board**
Project: **Mason Clinic Ground Investigation**
Location: **Southern Field**
Project Reference: **256528**

BH311

BOREHOLE INFORMATION
Method: Rotary Core Wireline
Equipment: Tractor rig
Contractor: DrillForce

CO-ORDINATES: NZTM
Easting: 1751973m
Northing: 5917466m
Reduced level: 9.5m

Date started: 18/07/2019
Date completed: 18/07/2019
Inclination: 90°
Azimuth: N/A

Logged by: SC/AGM
Input by: SC
Checked by: AN
Verified by: RS

Method	R.L. (m)	Length (m)	Graphic Log	Layer Code	Material Description	Weathering/USC	Testing	TCR (%)	SCR (%)	RQD (%)	Stratigraphy Defect Description Additional Notes	Installation
HQ3	4			VUbb	**5m:** Slightly weathered, grey, BROKEN BASALT; strong. Moderately vesicular. Recovered as angular gravel.	SW					4.95m: JT 15° PlRo Sn(Fe)	
				X	**5.15m:** CORE LOSS: Suspect washed out alluvium or residual silty ECBF material.			30	0	0		
SPT	6			EWs	**5.9m:** Moderately weathered, light blue, fine to medium grained SANDSTONE; extremely weak.	MW	6m: SPT 8// 9,10,11,12 N = 42	100			**5.9m: EAST COAST BAYS FORMATION**	
HQ3	3			EUs	**6.7m:** Slightly weathered, grey, silty SANDSTONE; extremely weak, poorly cemented.	SW		67	45	40		
SPTC	2						7.5m: SPTC 50 for 145mm	N/A			7.5m: SPT terminated in seating. N=50+	
HQ3	1			EUz	**7.75m:** Slightly weathered, grey; SILTSTONE, very weak, well cemented.	SW		100	96	96	7.75m: Siltstone inclined at 0-5°	
SPTC							9m: SPTC 9// 22 for 75mm N = 50+	N/A			9m: SPT bouncing	

End of borehole at 9.23m (Termination Criteria Met)

REMARKS:
[1] Coordinates and relative level were source from Auckland Council GeoMaps. Accurate to +/- 5 m.
[2] ISHSV = Insitu shear vane
[3] IBHSV = Exsitu at the bottom on the barrel shear vane
[4] ES = Environmental Sample
[5] The borehole was hydro-excavated to 1.0 m bgl in the same position as TP307.
[6] SPTC = Stand Penetration Test Solid Cone

HSV Serial No: DR4940 Correction Factor: 1.478

Water Level Readings:
Date Time | Hole Depth | Water Level
No water level recorded

Database File: MASON GI_20190918.GPJ **Library file:** AURECON_AKL_NOFRACLOG_201612.GLB **Template:** AURECON_AKL_20130722.GDT **Report File:** AURECON DH LOH V4.0 NO FRACTURE LOG **Date Generated:** 10/10/2019

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Client: **Waitemata District Health Board**
Project: **Mason Clinic Ground Investigation**
Location: **Central Mason Clinic**
Project Reference: **256528**

BH312

BOREHOLE INFORMATION
Method: Rotary Core Wireline
Equipment: Tractor rig
Contractor: DrillForce

CO-ORDINATES: NZTM
Easting: 1752117m
Northing: 5917703m
Reduced level: 10.0m

Date started: 11/07/2019
Date completed: 11/07/2019
Inclination: 90°
Azimuth: N/A

Logged by: SC
Input by: OJ
Checked by: AN
Verified by: RS

Method	R.L. (m)	Length (m)	Graphic Log	Layer Code	Material Description	Weathering/USC	Testing	TCR (%)	SCR (%)	RQD (%)	Stratigraphy Defect Description Additional Notes	Installation
HYDRO VAC EX	9	1		P	**0m:** Asphalt						**0m: FILL**	
				Fg	**0.05m:** Sandy fine to coarse GRAVEL; dark grey. Gravel is highly oxidised angular basalt, vesicular.		0.25m to 0.3m: ES					
					0.4m to 0.8m:...some basalt cobbles. Sand fraction is minor.	GW		100				
					0.8m: Silty GRAVEL; dark grey, brown. Gravel is highly oxidised angular to subangular basalt, vesicular.	GM	1.1m to 1.3m: ES				0.8m: Basalt based fill.	
SPT	8	2		TAc	**1.5m:** Silty CLAY; grey. Stiff, wet, high plasticity.	CH	1.5m: SPT 0// 1,0,1,1 N = 3 1.52m to 1.6m: ES	100			**1.5m: TAURANGA GROUP**	
HQ3					**2.06m:** Silty CLAY with minor sand; light grey with orange mottling. Very soft, moist, plastic.	CH					2.15m: Suspect soft clay washed out	
	7	3		TAx	**2.15m:** Core loss.			19				
SPT				TAc	**3m:** Silty CLAY with minor sand; light grey with orange mottling. Firm, moist, medium plasticity.	CL	3m: SPT 0// 1,0,1,2 N = 4	100			3m: UTP - Sand / moving in barrel	
HQ3				TAx	**3.5m:** Core loss.						3.5m: Suspect soft clay washed out	
	6	4		TAc	**3.65m:** Silty CLAY with minor sand; light grey with orange mottling. Stiff moist, medium plasticity.	CL		81				
SPT	5	5					4.5m: SPT 2// 2,1,1,2 N = 6	89			4.5m: UTP - Sand / moving in barrel	
								48	14	0		

REMARKS:
[1] Coordinates and relative level were source from Auckland Council GeoMaps. Accurate to +/- 5 m.
[2] ISHSV = Insitu shear vane
[3] IBHSV = Exsitu at the bottom on the barrel shear vane
[4] ES = Environmental Sample
[5] SPTC = Stand Penetration Test Solid Cone

Water Level Readings:
Date Time | Hole Depth | Water Level
(1) 11/07/19 14:00 | m | 0.65 m bgl
(2) 15/07/19 15:00 | 15.00m | 2.3 m bgl

Database File: MASON GI_20190918.GPJ **Library file:** AURECON_AKL_NOFRACLOG_201612.GLB **Template:** AURECON_AKL_20130722.GDT **Report File:** AURECON DH LOH V4.0 NO FRACTURE LOG **Date Generated:** 10/10/2019

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Client: **Waitemata District Health Board**
Project: **Mason Clinic Ground Investigation**
Location: **Central Mason Clinic**
Project Reference: **256528**

BH312

BOREHOLE INFORMATION
Method: Rotary Core Wireline
Equipment: Tractor rig
Contractor: DrillForce

CO-ORDINATES: NZTM
Easting: 1752117m
Northing: 5917703m
Reduced level: 10.0m

Date started: 11/07/2019
Date completed: 11/07/2019
Inclination: 90°
Azimuth: N/A

Logged by: SC
Input by: OJ
Checked by: AN
Verified by: RS

Method	R.L. (m)	Length (m)	Graphic Log	Layer Code	Material Description	Weathering/USC	Testing	TCR (%)	SCR (%)	RQD (%)	Stratigraphy Defect Description Additional Notes	Installation
HQ3				TAc	**3.65m:** Silty CLAY with minor sand; light grey with orange mottling. Stiff moist, medium plasticity.	CL						
HQ3				TAx/ERx	**5.3m:** Core loss.			48	14	0	5.3m: Suspect soft clay washed out	
SPT	4	6			**5.8m:** Moderately weathered, grey; fine to medium SANDSTONE, extremely weak.		6m: SPT 10// 8,9,12,13 N = 42	100			**5.8m: EAST COAST BAYS FORMATION**	
HQ3	3	7		EWs	**6.65m to 6.68m:**...Black carbonaceous lamination **7m to 7.24m:**...Black carbonaceous lamination	MW		100	81	76		
SPTC							7.5m: SPTC 18// 20,30 for 75mm N = 50+	N/A			7.5m: UTP - Sand	
HQ3	2	8			**7.25m:** Moderately weathered, grey, SANDSTONE; extremely weak, moderately cemented.	SW		53	48	29		
				EWx	**8.5m:** Core loss.						8.5m: Suspect washed out uncemented sand.	
	1	9		EWs	**8.94m:** Moderately weathered, grey; silty SANDSTONE; extremely weak.	MW						
SPTC					**9m:** Slightly weathered, grey, medium to coarse SANDSTONE; very weak, moderately cemented.		9m: SPTC 22// 22,28 for 75mm N = 50+	N/A				
HQ3				EUs		SW		100	92	83		
	0	10										

REMARKS:
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[3] IBHSV = Exsitu at the bottom on the barrel shear vane
[4] ES = Environmental Sample
[5] SPTC = Stand Penetration Test Solid Cone

Water Level Readings:
Date Time | Hole Depth | Water Level
(1) 11/07/19 14:00 | m | 0.65 m bgl
(2) 15/07/19 15:00 | 15.00m | 2.3 m bgl

Database File: MASON GI_20190918.GPJ **Library file:** AURECON_AKL_NOFRACLOG_201612.GLB **Template:** AURECON_AKL_20130722.GDT **Report File:** AURECON DH LOH V4.0 NO FRACTURE LOG **Date Generated:** 10/10/2019

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Client: **Waitemata District Health Board**
Project: **Mason Clinic Ground Investigation**
Location: **Central Mason Clinic**
Project Reference: **256528**

BH312

BOREHOLE INFORMATION
Method: Rotary Core Wireline
Equipment: Tractor rig
Contractor: DrillForce

CO-ORDINATES: NZTM
Easting: 1752117m
Northing: 5917703m
Reduced level: 10.0m

Date started: 11/07/2019
Date completed: 11/07/2019
Inclination: 90°
Azimuth: N/A

Logged by: SC
Input by: OJ
Checked by: AN
Verified by: RS

Method	R.L. (m)	Length (m)	Graphic Log	Layer Code	Material Description	Weathering/USC	Testing	TCR (%)	SCR (%)	RQD (%)	Stratigraphy Defect Description Additional Notes	Installation
HQ3				EUs	**9m:** Slightly weathered, grey, medium to coarse SANDSTONE; very weak, moderately cemented.	SW						
					10.2m: Slightly weathered, grey, silty fine SANDSTONE; very weak, well cemented.			100	92	83		
SPTC							10.5m: SPTC 36// 38,12 for 25mm N = 50+	N/A				
HQ3	-1	11			**10.69m to 10.72m:**...Subhorizontal black carbonaceous material laminations **10.94m to 10.98m:**...Subhorizontal black carbonaceous material laminations **11.24m to 11.27m:**...Subhorizontal black carbonaceous material laminations			100	100	100		
SPTC	-2	12					12m: SPTC 32// 40,10 for 15mm N = 50+	N/A				
HQ3	-3	13			**13.05m to 13.05m:**...Subhorizontal black carbonaceous material laminations	SW		100	95	95		
SPTC							13.5m: SPTC 50 for 145mm// for 75mm N = 50+	N/A			13.5m: SPT terminated in seating. SPT=50+	
HQ3	-4	14						100	51	31	14.7m: JT 65° PISm Cn	
	-5	15										

REMARKS: End of borehole at 15m (Termination Criteria Met)
[1] Coordinates and relative level were source from Auckland Council GeoMaps. Accurate to +/- 5 m.
[2] ISHSV = Insitu shear vane
[3] IBHSV = Exsitu at the bottom on the barrel shear vane
[4] ES = Environmental Sample
[5] SPTC = Stand Penetration Test Solid Cone

Water Level Readings:
Date Time | Hole Depth | Water Level
(1) 11/07/19 14:00 | m | 0.65 m bgl
(2) 15/07/19 15:00 | 15.00m | 2.3 m bgl

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Client: **Waitemata District Health Board**
Project: **Mason Clinic Ground Investigation**
Location: **Southern Field**
Project Reference: **256528**

BH313

BOREHOLE INFORMATION
Method: Rotary Core Wireline
Equipment: Tractor rig
Contractor: DrillForce

CO-ORDINATES: NZTM
Easting: 1752013m
Northing: 5917431m
Reduced level: 10.5m

Date started: 22/07/2019
Date completed: 22/07/2019
Inclination: 90°
Azimuth: N/A

Logged by: SC
Input by: SC
Checked by: AN
Verified by: RS

Method	R.L. (m)	Length (m)	Graphic Log	Layer Code	Material Description	Weathering/USC	Testing	TCR (%)	SCR (%)	RQD (%)	Stratigraphy Defect Description Additional Notes	Installation
HYDRO VAC EX	10			T	**0m:** Silty CLAY; dark brown. Soft, moist, medium plasticity. Rootlets.	OL	0m: ISHSV 59/27 kPa				**0m: TOPSOIL**	
				Fc	**0.3m:** Gravelly CLAY with trace silt; yellow-orange. Very stiff, moist, high plasticity. Basalt boulders and greywacke gravel clasts.	CH	0.3m: ISHSV 74/30 kPa	100			**0.3m: FILL** 0.3m: Suspect basalt dominated fill.	
HQ3	9	1					0.6m: ISHSV 77/44 kPa				0.6m: Likely stuck between gravels	
				VUb	**0.75m:** Slightly weathered, dark grey, BASALT; strong. Moderately vesicular.			94	11	11	**0.75m: AUCKLAND VOLCANIC FIELD** 0.75m to 1.3m: JT 70-90° UnRo Cg(Clay 3mm)	
HQ3	8	2			**1.9m to 3.5m:**...Slightly vesicular.	SW		100	93	93	1.8m: JT 35° PlRo Cn	
HQ3	7	3			**3.5m to 3.64m:**...Moderately vesicular.						3.1m: JT 30° PlRo Cn 3.27m: JT 45° PlRo Vn(Fe) 3.32m: JT 50° UnRo Sn(Fe)	
HQ3		4		TAx/VUbx	**3.64m:** Core loss.			57	23	20	**3.64m: TAURANGA GROUP** 3.64m: Suspect alluvium washed out under basalt.	
SPT	6			TAc	**4.3m:** Silty CLAY; light grey with orange mottling. Very soft, loose, moist, high plasticity.	CH	4.5m: SPT 2// 2,2,2,1 N = 7					
		5			**4.5m:**...Stiff.			44				
								10				

REMARKS:
[1] Coordinates and relative level were source from Auckland Council GeoMaps. Accurate to +/- 5 m.
[2] ISHSV = Insitu shear vane
[3] IBHSV = Exsitu at the bottom on the barrel shear vane
[4] ES = Environmental Sample
[5] The borehole was hydro-excavated to 0.8 m bgl in the same position as TP308.
[6] SPTC = Stand Penetration Test Solid Cone

HSV Serial No: DR4940 Correction Factor: 1.478

Water Level Readings:
Date Time | Hole Depth | Water Level
(1) 22/07/19 00:00 | 12.00m | 0.77 m bgl

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Client: **Waitemata District Health Board**
Project: **Mason Clinic Ground Investigation**
Location: **Southern Field**
Project Reference: **256528**

BH313

BOREHOLE INFORMATION
Method: Rotary Core Wireline
Equipment: Tractor rig
Contractor: DrillForce

CO-ORDINATES: NZTM
Easting: 1752013m
Northing: 5917431m
Reduced level: 10.5m

Date started: 22/07/2019
Date completed: 22/07/2019
Inclination: 90°
Azimuth: N/A

Logged by: SC
Input by: SC
Checked by: AN
Verified by: RS

Method	R.L. (m)	Length (m)	Graphic Log	Layer Code	Material Description	Weathering/USC	Testing	TCR (%)	SCR (%)	RQD (%)	Stratigraphy Defect Description Additional Notes	Installation
HQ3	5			TAx	**5m:** Core loss.			10			5m: UTP - Core moves in casing	
SPT	6			TAc	**5.9m:** Fine grained sandy CLAY; light grey. Very soft, loose, moist-wet, highly plastic. **6m to 6.1m:**...Tree branch/stump - well preserved	CH	6m: SPT 1// 1,1,2,1 N = 5					
				TAx	**6.1m:**			0				
HQ3	4				**6.7m:** Highly weathered, grey, fine to medium SANDSTONE; extremely weak.	HW		86	67	57	**6.7m: EAST COAST BAYS FORMATION**	
SPTC	3				**7.5m:** Moderately weathered, grey, silty fine to medium SANDSTONE; extremely weak, poorly cemented.		7.5m: SPTC 28// 24,26 for 75mm N = 50+	N/A				
HQ3	2			EWs	**8.2m to 8.9m:**...Black carbonaceous material laminations inclined at 5°	MW		100	83	83		
SPTC	1						9m: SPTC 26// 50 for 75mm N = 50+	N/A				
HQ3								100	79	79		

REMARKS:
[1] Coordinates and relative level were source from Auckland Council GeoMaps. Accurate to +/- 5 m.
[2] ISHSV = Insitu shear vane
[3] IBHSV = Exsitu at the bottom on the barrel shear vane
[4] ES = Environmental Sample
[5] The borehole was hydro-excavated to 0.8 m bgl in the same position as TP308.
[6] SPTC = Stand Penetration Test Solid Cone

HSV Serial No: DR4940 Correction Factor: 1.478

Water Level Readings:
Date Time | Hole Depth | Water Level
(1) 22/07/19 00:00 | 12.00m | 0.77 m bgl

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Client: **Waitemata District Health Board**
Project: **Mason Clinic Ground Investigation**
Location: **Southern Field**
Project Reference: **256528**

BH313

BOREHOLE INFORMATION
Method: Rotary Core Wireline
Equipment: Tractor rig
Contractor: DrillForce

CO-ORDINATES: NZTM
Easting: 1752013m
Northing: 5917431m
Reduced level: 10.5m

Date started: 22/07/2019
Date completed: 22/07/2019
Inclination: 90°
Azimuth: N/A

Logged by: SC
Input by: SC
Checked by: AN
Verified by: RS

Method	R.L. (m)	Length (m)	Graphic Log	Layer Code	Material Description	Weathering/USC	Testing	TCR (%)	SCR (%)	RQD (%)	Stratigraphy Defect Description Additional Notes	Installation
HQ3	0			EWs	**7.5m:** Moderately weathered, grey, silty fine to medium SANDSTONE; extremely weak, poorly cemented. **10.1m to 10.2m:**...Coarse SANDSTONE	MW	10.5m: SPTC 50 for 140mm	100	79	79		
SPTC		11		EUz	**10.55m:** Slightly weathered, grey, SILTSTONE; very weak.	SW		N/A			10.5m: SPT terminated in seating. N=50+ 10.6m: Black carbonaceous material laminations inclined at 5-10°	
HQ3	-1							100	88	74		
		12			End of borehole at 12m (Termination Criteria Met)							

REMARKS:
[1] Coordinates and relative level were source from Auckland Council GeoMaps. Accurate to +/- 5 m.
[2] ISHSV = Insitu shear vane
[3] IBHSV = Exsitu at the bottom on the barrel shear vane
[4] ES = Environmental Sample
[5] The borehole was hydro-excavated to 0.8 m bgl in the same position as TP308.
[6] SPTC = Stand Penetration Test Solid Cone

HSV Serial No: DR4940 Correction Factor: 1.478

Water Level Readings:
Date Time | Hole Depth | Water Level
(1) 22/07/19 00:00 | 12.00m | 0.77 m bgl

Database File: MASON GI_20190918.GPJ **Library file:** AURECON_AKL_NOFRACLOG_201612.GLB **Template:** AURECON_AKL_20130722.GDT **Report File:** AURECON DH LOH V4.0 NO FRACTURE LOG **Date Generated:** 10/10/2019

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Client: **Waitemata District Health Board**
Project: **Mason Clinic Ground Investigation**
Location: **Central Mason Clinic**
Project Reference: **256528**

BH314

BOREHOLE INFORMATION
Method: Rotary Core Wireline
Equipment: Tractor rig
Contractor: DrillForce

CO-ORDINATES: NZTM
Easting: 1752113m
Northing: 5917727m
Reduced level: 10.0m

Date started: 18/07/2019
Date completed: 19/07/2019
Inclination: 90°
Azimuth: N/A

Logged by: SC
Input by: SC
Checked by: AN
Verified by: RS

Method	R.L. (m)	Length (m)	Graphic Log	Layer Code	Material Description	Weathering/USC	Testing	TCR (%)	SCR (%)	RQD (%)	Stratigraphy Defect Description Additional Notes	Installation
HYDRO VAC EX	9	1		Fg	**0m:** GRAVEL with some boulders and some silt matrix; dark brown. Medium dense.	GW		100			**0m: FILL** 0m: Basalt dominated fill.	
SPT	8	2		TAc	**1.56m:** Silty CLAY; orange. Very soft, very loose, moist, high plasticity.	CH	1.5m: SPT 0// 0,0,0,0 N = 0	100			1.5m: Sunk under rod weight **1.56m: TAURANGA GROUP**	
HQ3	7	3					3m: SPT 0// 1,0,0,0 N = 1	86			2m: Core too soft - moved in casing	
SPT								100				
HQ3	6	4		VWb	**3.5m:** Moderately weathered, dark grey BASALT; strong. Highly vesicular.	MW		38	0	0	**3.5m: AUCKLAND VOLCANIC FIELD** **3.85m: TAURANGA GROUP** 3.85m: Suspect soft alluvium below basalt washed out.	
SPT	5	5		TAx	**3.85m:** Core loss.	SM	4.5m: SPT 0// 2,1,2,1 N = 6	0 33			4.5m: No SPT recovery.	

REMARKS:
[1] Coordinates and relative level were source from Auckland Council GeoMaps. Accurate to +/- 5 m.
[2] ISHSV = Insitu shear vane
[3] IBHSV = Exsitu at the bottom on the barrel shear vane
[4] ES = Environmental Sample
[5] SPTC = Stand Penetration Test Solid Cone

Water Level Readings:
Date Time | Hole Depth | Water Level
(1) 19/07/19 00:00 | 7.50m | 0.8 m bgl

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Client: **Waitemata District Health Board**
Project: **Mason Clinic Ground Investigation**
Location: **Central Mason Clinic**
Project Reference: **256528**

BH314

BOREHOLE INFORMATION
Method: Rotary Core Wireline
Equipment: Tractor rig
Contractor: DrillForce

CO-ORDINATES: NZTM
Easting: 1752113m
Northing: 5917727m
Reduced level: 10.0m

Date started: 18/07/2019
Date completed: 19/07/2019
Inclination: 90°
Azimuth: N/A

Logged by: SC
Input by: SC
Checked by: AN
Verified by: RS

Method	R.L. (m)	Length (m)	Graphic Log	Layer Code	Material Description	Weathering/USC	Testing	TCR (%)	SCR (%)	RQD (%)	Stratigraphy Defect Description Additional Notes	Installation
HQ3	4	6		TAc	**4.95m:** Silty CLAY; light grey with orange mottling. Stiff, moist, high plasticity. **5m to 5.33m:**...Firm.	SM					4.95m: Core loss: 65% of core lost, exact interval not known.	
				TAx	**5.33m:** Core loss.			33			5.33m: Suspect soft alluvium washed out.	
SPT							6m: SPT 0// 0,0,0,0 N = 0	100			6m: Sunk under rod weight	
HQ3	3	7		EWs	**6.45m:** Highly weathered, grey, silty fine SANDSTONE; extremely weak, moderately cemented.	HW		76	62	38	**6.45m: EAST COAST BAYS FORMATION**	
					7.48m to 7.5m:...Black carbonaceous lamination End of borehole at 7.5m (Termination Criteria Met)							

REMARKS:
[1] Coordinates and relative level were source from Auckland Council GeoMaps. Accurate to +/- 5 m.
[2] ISHSV = Insitu shear vane
[3] IBHSV = Exsitu at the bottom on the barrel shear vane
[4] ES = Environmental Sample
[5] SPTC = Stand Penetration Test Solid Cone

Water Level Readings:
Date Time | Hole Depth | Water Level
(1) 19/07/19 00:00 | 7.50m | 0.8 m bgl

Database File: MASON GI_20190918.GPJ **Library file:** AURECON_AKL_NOFRACLOG_201612.GLB **Template:** AURECON_AKL_20130722.GDT **Report File:** AURECON DH LOH V4.0 NO FRACTURE LOG **Date Generated:** 10/10/2019

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Project: **Mason Clinic Ground Investigation**
Location: **Central Mason Clinic**
Project Reference: **256528**

TP301

BOREHOLE INFORMATION	**CO-ORDINATES: NZTM**		
Method: Hydro-vac	Easting: 1752094m	Date started: 8/07/2019	Logged by: NB
Equipment: Hydro-vac	Northing: 5917729m	Date completed: 8/07/2019	Input by: OJ/NB
Contractor: DrillForce	Reduced level: 10.0m	Inclination: 90°	Checked by: AN
		Azimuth: 045°	Verified by: RS

Method	R.L. (m)	Length (m)	Graphic Log	Layer Code	Material Description	Weathering/USC	Testing	TCR (%)	SCR (%)	RQD (%)	Stratigraphy Defect Description Additional Notes	Installation
				Fc	**0m:** Sandy SILT with gravel; dark brown. Firm, wet, low plasticity. Sand is fine grained. Gravel is coarse, rounded greywacke. **0.25m to 0.35m:**...Concrete slab with rebar.	ML	0m: ISHSV UTP 0.1m to 0.15m: ES 0.3m: ISHSV UTP				**0m: FILL**	
				Fc	**0.4m:** Sandy gravelly CLAY; light orange brown. Firm, wet, low plasticity. Sand is fine grained. Gravel is fine to coarse grained, angular greywacke and basalt. Basalt gravel is highly weathered.	CL	0.5m to 0.55m: ES 0.6m: ISHSV UTP					
	9	1		Va	**0.9m:** Coarse ASH with lapilli and blocks (coarse SAND, with gravel and cobbles). [Blocky ash above basalt]	SP					**0.9m: AUCKLAND VOLCANIC FIELD**	
					End of borehole at 1.05m (Refused on Basalt)							

REMARKS:
[1] Coordinates and relative level were source from Auckland Council GeoMaps. Accurate to +/- 5 m.
[2] ISHSV = Insitu shear vane
[3] ES = Environmental Sample
[4] Refused on basalt, suspect lava flow or boulder
[5] Groundwater was not encountered

HSV Serial No: DA4940 Correction Factor: 1.478

Water Level Readings:
Date Time | Hole Depth | Water Level
No water level recorded

Database File: MASON GI_20190918.GPJ **Library file:** AURECON_AKL_NOFRACLOG_201612.GLB **Template:** AURECON_AKL_20130722.GDT **Report File:** AURECON DH LOH V4.0 NO FRACTURE LOG **Date Generated:** 10/10/2019

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Client: **Waitemata District Health Board**
Project: **Mason Clinic Ground Investigation**
Location: **Central Mason Clinic**
Project Reference: **256528**

TP304

BOREHOLE INFORMATION
Method: Hydro-vac
Equipment: Hydro-vac
Contractor: DrillForce

CO-ORDINATES: NZTM
Easting: 1752099m
Northing: 5917682m
Reduced level: 10.0m

Date started: 5/07/2019
Date completed: 5/07/2019
Inclination: 90°
Azimuth: 005°

Logged by: NB
Input by: OJ/NB
Checked by: AN
Verified by: RS

Method	R.L. (m)	Length (m)	Graphic Log	Layer Code	Material Description	Weathering/USC	Testing	TCR (%)	SCR (%)	RQD (%)	Stratigraphy Defect Description Additional Notes	Installation
				Fc	**0m:** Sandy SILT with some cobbles; dark brown. Soft, wet, low plasticity. Cobbles are sub angular, rough, highly weathered, oxidised orange basalt, weak. **0.2m to 0.3m:**...Suspect old sewer terracotta pipe, exposed in the southern side of the test pit.	ML	0.1m to 0.15m: ES				**0m: FILL**	
				Fg	**0.35m:** Fine to coarse GRAVEL; brown oxidised orange. Loose, gravel is basalt is highly weathered, rough, vesicular.	GW	0.4m to 0.5m: ES					
				Fc	**0.5m:** Silty CLAY; Orange brown. Firm, moist, highly plastic.	CH	0.5m: ISHSV 47/0 kPa					
				T	**0.6m:** BURIED TOPSOIL: SILT; dark brown. Stiff (brittle), dry, none plastic.	ML	0.5m to 0.6m: ES 0.6m to 0.7m: ES				**0.6m: TOPSOIL**	
					End of borehole at 0.75m (Refused on Basalt)							

REMARKS:
[1] Coordinates and relative level were source from Auckland Council GeoMaps. Accurate to +/- 5 m.
[2] ISHSV = Insitu shear vane
[3] ES = Environmental Sample
[4] Refused on basalt, suspect lava flow or boulder
[5] Groundwater was not encountered

HSV Serial No: DA4940 Correction Factor: 1.478

Water Level Readings:
Date Time | Hole Depth | Water Level
No water level recorded

Database File: MASON GI_20190918.GPJ **Library file:** AURECON_AKL_NOFRACLOG_201612.GLB **Template:** AURECON_AKL_20130722.GDT **Report File:** AURECON DH LOH V4.0 NO FRACTURE LOG **Date Generated:** 10/10/2019

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Location: **Central Mason Clinic**
Project Reference: **256528**

TP305

BOREHOLE INFORMATION	**CO-ORDINATES: NZTM**		
Method: Hydro-vac	Easting: 1752079m	Date started: 5/07/2019	Logged by: NB
Equipment: Hydro-vac	Northing: 5917630m	Date completed: 5/07/2019	Input by: OJ/NB
Contractor: DrillForce	Reduced level: 10.0m	Inclination: 90°	Checked by: AN
		Azimuth: 000°	Verified by: RS

Method	R.L. (m)	Length (m)	Graphic Log	Layer Code	Material Description	Weathering/USC	Testing	TCR (%)	SCR (%)	RQD (%)	Stratigraphy Defect Description Additional Notes	Installation
				Fc	**0m:** Fine sandy SILT; dark brown. Firm, moist, low plasticity.	MI-SP	0.1m to 0.15m: ES				**0m: FILL**	
				Fc	**0.2m:** Sandy, gravelly SILT; brown. Firm/stiff, wet, low plasticity. Sand is fine to course. Gravel is fine grained, angular greywacke. **0.25m to 0.35m:**...Basalt COBBLES; highly weathered, oxidised orange, sub angular, vesicular, rough.	ML	0.3m: ISHSV UTP					
				Fc	**0.55m:** Clayey SILT; light brown. Firm, moist, low plasticity.	ML	0.55m to 0.6m: ES 0.6m: ISHSV 50/3 kPa 0.7m: ISHSV 22/3 kPa 0.7m to 0.8m: ES					
	9	1		Fg	**0.9m:** Silty GRAVEL; light brown. Gravel is fine to course grained angular greywacke.	GW					**0.95m: AUCKLAND VOLCANIC FIELD**	
				Va	**0.95m:** Coarse ASH with lapilli and blocks (coarse SAND, with gravel and cobbles). [Blocky ash above basalt]	SP						

End of borehole at 1.25m (Refused on Basalt)

REMARKS:
[1] Coordinates and relative level were source from Auckland Council GeoMaps. Accurate to +/- 5 m.
[2] ISHSV = Insitu shear vane
[3] ES = Environmental Sample
[4] Refused on basalt, suspect lava flow or boulder
[5] Groundwater was not encountered

HSV Serial No: DA4940 Correction Factor: 1.478

Water Level Readings:
Date Time | Hole Depth | Water Level
No water level recorded

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Client: **Waitemata District Health Board**
Project: **Mason Clinic Ground Investigation**
Location: **Southern Field**
Project Reference: **256528**

TP306

BOREHOLE INFORMATION	**CO-ORDINATES: NZTM**		
Method: Hydro-vac	Easting: 1752003m	Date started: 17/07/2019	Logged by: AGM
Equipment: Hydro-vac	Northing: 5917496m	Date completed: 17/07/2019	Input by: AGM
Contractor: DrillForce	Reduced level: 8.5m	Inclination: 90°	Checked by: AN
		Azimuth: N/A	Verified by: RS

Method	R.L. (m)	Length (m)	Graphic Log	Layer Code	Material Description	Weathering/USC	Testing	TCR (%)	SCR (%)	RQD (%)	Stratigraphy Defect Description Additional Notes	Installation
	8			Fg	**0m:** Fine to coarse GRAVEL; grey. Dense, dry. Gravel is sub-angular greywacke, base marked by geogrid.	GW	0m to 0.1m: ES				**0m: FILL**	
					0.2m: GRAVEL, dark reddish grey. Dense, dry. Gravel is basalt.	GW	0.2m to 0.3m: ES					

End of borehole at 0.6m (Refused on Basalt)

REMARKS:
[1] Coordinates and relative level were source from Auckland Council GeoMaps. Accurate to +/- 5 m.
[2] ES = Environmental Sample
[3] Refused on basalt, suspect lava flow or boulder
[4] Groundwater was not encountered

Water Level Readings:
Date Time | Hole Depth | Water Level
No water level recorded

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Client: **Waitemata District Health Board**
Project: **Mason Clinic Ground Investigation**
Location: **Southern Field**
Project Reference: **256528**

TP309

BOREHOLE INFORMATION	**CO-ORDINATES: NZTM**		
Method: Hydro-vac	Easting: 1752050m	Date started: 17/07/2019	Logged by: AGM
Equipment: Hydro-vac	Northing: 5917423m	Date completed: 17/07/2019	Input by: AGM
Contractor: DrillForce	Reduced level: 10.5m	Inclination: 90°	Checked by: AN
		Azimuth: N/A	Verified by: RS

Method	R.L. (m)	Length (m)	Graphic Log	Layer Code	Material Description	Weathering/USC	Testing	TCR (%)	SCR (%)	RQD (%)	Stratigraphy Defect Description Additional Notes	Installation
				T	**0m:** SILT; black. Stiff, moist, medium plasticity.	MH	0m to 0.1m: ES				**0m: TOPSOIL**	
	10	1		Fc	**0.2m:** SILT with some clay and trace cobbles; light brownish orange. Very stiff, moist, medium plasticity.	MH	0.3m: ISHSV 8/6 kPa 0.6m: ISHSV 8/6 kPa 0.6m to 0.65m: ES 0.9m: ISHSV 17/6 kPa				**0.2m: FILL**	

End of borehole at 1.2m (Refused on Basalt)

REMARKS:
[1] Coordinates and relative level were source from Auckland Council GeoMaps. Accurate to +/- 5 m.
[2] ISHSV = Insitu shear vane
[3] ES = Environmental Sample
[4] Refused on basalt, suspect lava flow or boulder
[5] Groundwater was not encountered

HSV Serial No: DA4940 Correction Factor: 1.478

Water Level Readings:
Date Time | Hole Depth | Water Level
No water level recorded

Database File: MASON GI_20190918.GPJ **Library file:** AURECON_AKL_NOFRACLOG_201612.GLB **Template:** AURECON_AKL_20130722.GDT **Report File:** AURECON DH LOH V4.0 NO FRACTURE LOG **Date Generated:** 10/10/2019

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Client: **Waitemata District Health Board**
Project: **Mason Clinic Ground Investigation**
Location: **Southern Field**
Project Reference: **256528**

TP310

BOREHOLE INFORMATION
Method: Hydro-vac
Equipment: Hydro-vac
Contractor: DrillForce

CO-ORDINATES: NZTM
Easting: 1752090m
Northing: 5917475m
Reduced level: 11.0m

Date started: 17/07/2019
Date completed: 17/07/2019
Inclination: 90°
Azimuth: N/A

Logged by: AGM
Input by: AGM
Checked by: AN
Verified by: RS

Method	R.L. (m)	Length (m)	Graphic Log	Layer Code	Material Description	Weathering/USC	Testing	TCR (%)	SCR (%)	RQD (%)	Stratigraphy Defect Description Additional Notes	Installation
				T	**0m:** SILT with some clay and gravel; black. Soft, dry, non plastic. Gravel is sub-rounded greywacke.	ML	0m: ISHSV 8/3 kPa				**0m: TOPSOIL**	
	10	1		Fc	**0.3m:** CLAY with some gravel and trace silt; light orange. Stiff, moist, medium plasticity. Gravel is sub-rounded greywacke and basalt.	CL	0.3m: ISHSV 20/12 kPa 0.3m to 0.35m: ES 0.6m: ISHSV 28/3 kPa 0.6m to 0.65m: ES 0.9m: ISHSV 20/6 kPa 1.2m: ISHSV 20/6 kPa				**0.3m: FILL**	
					End of borehole at 1.5m (Refused on Basalt)		1.5m: ISHSV 33/6 kPa					

REMARKS:
[1] Coordinates and relative level were source from Auckland Council GeoMaps. Accurate to +/- 5 m.
[2] ISHSV = Insitu shear vane
[3] ES = Environmental Sample
[4] Refused on basalt, suspect lava flow or boulder
[5] Groundwater was not encountered

HSV Serial No: DA4940 Correction Factor: 1.478

Water Level Readings:
Date Time | Hole Depth | Water Level
No water level recorded

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Client: **Waitemata District Health Board**
Project: **Mason Clinic Ground Investigation**
Location: **Central Mason Clinic**
Project Reference: **256528**

TP311

BOREHOLE INFORMATION	**CO-ORDINATES: NZTM**		
Method: Hydro-vac	Easting: 1752107m	Date started: 5/07/2019	Logged by: NB
Equipment: Hydro-vac truck	Northing: 5917609m	Date completed: 5/07/2019	Input by: OJ/NB
Contractor: DrillForce	Reduced level: 10.5m	Inclination: 90°	Checked by: AN
		Azimuth: N/A	Verified by: RS

Method	R.L. (m)	Length (m)	Graphic Log	Layer Code	Material Description	Weathering/USC	Testing	TCR (%)	SCR (%)	RQD (%)	Stratigraphy Defect Description Additional Notes	Installation
HYDRO VAC EX	10	1		T	**0m:** Clayey SILT; dark brown. Firm, moist, highly plastic. (Topsoil of fill.)	MH	0m: ISHSV UTP 0.1m to 0.15m: ES	100			**0m: TOPSOIL**	
				Fg	**0.15m:** GRAVEL; dark grey. Gravel is fine to course, angular basalt.	Fg					**0.15m: FILL** 0.15m: Fill or broken basalt - top of lava flow.	
					0.65m: GRAVELS and COBBLES; dark grey. Gravels and cobbles are basalt.	Fg						

End of borehole at 1.05m (Refused on Basalt)

REMARKS:
[1] Coordinates and relative level were source from Auckland Council GeoMaps. Accurate to +/- 5 m.
[2] ISHSV = Insitu shear vane
[3] ES = Environmental Sample
[4] Groundwater was not encountered
[5] Refused on basalt, suspect lava flow or boulder.
[6] Service Clearance carried out. Borehole subsequently abandoned.

HSV Serial No: DA4940 Correction Factor: 1.487

Water Level Readings:
Date Time | Hole Depth | Water Level
No water level recorded

Database File: MASON GI_20190918.GPJ **Library file:** AURECON_AKL_NOFRACLOG_201612.GLB **Template:** AURECON_AKL_20130722.GDT **Report File:** AURECON DH LOH V4.0 NO FRACTURE LOG **Date Generated:** 10/10/2019

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Client: **Waitemata District Health Board**
Project: **Mason Clinic Ground Investigation**
Location: **Central Mason Clinic**
Project Reference: **256528**

TP312

BOREHOLE INFORMATION	**CO-ORDINATES: NZTM**		
Method: Hydro-vac	Easting: 1752008m	Date started: 16/07/2019	Logged by: NB
Equipment: 100 mm Hand Auger	Northing: 5917615m	Date completed: 16/07/2019	Input by: OJ/NB
Contractor: DrillForce	Reduced level: 10.0m	Inclination: 90°	Checked by: AN
		Azimuth: N/A	Verified by: RS

Method	R.L. (m)	Length (m)	Graphic Log	Layer Code	Material Description	Weathering/USC	Testing	TCR (%)	SCR (%)	RQD (%)	Stratigraphy Defect Description Additional Notes	Installation
HYDRO VAC EX				Fc	**0m:** SILT with some gravel; Brown. Firm, moist, highly plastic. Gravel is coarse and angular basalt. Some waste material (terracotta pot).	MH	0.1m to 0.15m: ES	100			**0m: FILL**	
				Va	**0.45m:** Lapilli-bearing fine ASH (SILT with some sand and trace fine gravel); orange brown. Stiff, wet, low plasticity. Gravel is basalt. (AVF)	ML	0.45m to 0.55m: ES 0.55m: ISHSV 78/12 kPa				**0.45m: AUCKLAND VOLCANIC FIELD**	
					End of borehole at 0.65m (Refused on Basalt)							

REMARKS:
[1] Coordinates and relative level were source from Auckland Council GeoMaps. Accurate to +/- 5 m.
[2] ISHSV = Insitu shear vane
[3] ES = Environmental Sample
[4] Groundwater not encountered
[5] Service Clearance carried out. Borehole subsequently abandoned.

HSV Serial No: DR4940 Correction Factor: 1.478

Water Level Readings:
Date Time | Hole Depth | Water Level
No water level recorded

Database File: MASON GI_20190918.GPJ **Library file:** AURECON_AKL_NOFRACLOG_201612.GLB **Template:** AURECON_AKL_20130722.GDT **Report File:** AURECON DH LOH V4.0 NO FRACTURE LOG **Date Generated:** 10/10/2019

J

Result Tables

Lab Report Number				19-23142	19-23142	19-23142	19-23142	19-23142	19-23142	19-26125	19-26125	19-26125	19-26125	19-26125	19-26125	19-26125	19-26125	19-26125	19-26125	19-26125	19-26125	19-26125	19-26125	19-26125
Field ID				BH301_0.0-0.2	BH301_0.3-0.4	BH302_0.0-0.15	BH303_0.0-0.15	BH303_0.5-0.6	BH305_0.0-0.15	TP401_0.05-0.1	TP402_0.05-0.1	TP403_0.05-0.1	TP404_0.1-0.15	TP405_0.1-0.15	TP406_0.1-0.15	TP407_0.05-0.1	TP408_0.1-0.15	TP409_0.0-0.1	TP410_0.05-0.1	TP411_0.05-0.1	TP412_0.05-0.1	TP413_0.05-0.1	TP414_0.1-0.15	TP415_0.05-0.1
Depth				0 - 0.2	0.3 - 0.4	0 - 0.15	0 - 0.15	0.5 - 0.6	0 - 0.15	0.05 - 0.1	0.05 - 0.1	0.05 - 0.1	0.1 - 0.15	0.1 - 0.15	0.1 - 0.15	0.05 - 0.1	0.1 - 0.15	0 - 0.1	0.05 - 0.1	0.05 - 0.1	0.05 - 0.1	0.05 - 0.1	0.1 - 0.15	0.05 - 0.1
Date				3/07/2019	3/07/2019	4/07/2019	7/07/2019	7/07/2019	8/07/2019	2/08/2019	2/08/2019	2/08/2019	2/08/2019	2/08/2019	2/08/2019	2/08/2019	2/08/2019	2/08/2019	2/08/2019	2/08/2019	2/08/2019	2/08/2019	2/08/2019	2/08/2019
	Unit	Auckland Unitary Plan - Chapter E30 - Permitted Activity Criteria.	NESCS - High density residential																					
Metals																								
Arsenic	mg/kg	100	45	13.0	3.6	12	3.6	1.7	5.2	8.6	15.4	13.7	13.6	24.1	7.8	19.1	4.1	2.7	15.8	10	5.1	18.8	5.2	6.6
Cadmium	mg/kg	7.5	230 [#4]	0.644	0.16	0.13	0.13	0.019	0.19	0.564	0.812	0.548	0.23	0.27	0.18	0.21	0.13	0.14	0.31	0.509	0.090	0.19	0.18	0.13
Chromium (III+VI)	mg/kg	400 [#1]	1,500 [#5]	40.4	64.7	7.4	8.6	8.4	11	45.6	39.6	30.5	11	11	14.7	11	7.9	12.5	19.6	35.8	12	12	12	10
Copper	mg/kg	325	10,000 [#6]	75.9	25.3	75.9	24.1	4.8	41.8	44.2	89.7	78.9	79.2	102	64.2	42.5	32.6	14.0	75.2	62.7	27.5	55.9	127	26.3
Lead	mg/kg	250	500 [#7]	118	29.5	78.3	44.4	7.09	65.1	101	140	134	129	113	101	87.1	44.0	43.0	110	101	45.1	250	95.0	37.8	59.6
Mercury	mg/kg	0.75	1,000 [#8]	0.27	0.15	0.092	0.11	0.071	0.11	0.34	0.34	0.23	0.11	0.13	0.14	0.11	0.088	0.090	0.18	0.31	0.11	0.14	0.13	0.12
Nickel	mg/kg	105		16.7	14.2	3.1	3.1	2.8	6.69	20.3	16.4	14.9	6.79	5.0	9.34	4.8	3.5	6.62	10.7	18.3	8.53	5.95	6.08	5.84
Zinc	mg/kg	400		72.4	28.7	26.0	28.1	13.5	41.3	118	83.7	100	65.9	36.1	48.3	35.5	23.7	40.4	113	98.5	51.0	27.9	33.7	35.0
NA																								
cis-Nonachlor	mg/kg dry wt			<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Halogenated Benzenes																								
Hexachlorobenzene	mg/kg			<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Inorganics																								
Moisture	%			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Organochlorine Pesticides																								
2,4-DDT	mg/kg			0.008	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.009	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
chlordane	mg/kg			<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
o,p-DDD	mg/kg			<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
o,p'-DDE	mg/kg			<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
trans-Nonachlor	mg/kg			<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
4,4-DDE	mg/kg			0.046	0.013	<0.005	<0.005	<0.005	<0.005	0.020	0.048	0.033	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.017	<0.005	<0.005	<0.005	<0.005
a-BHC	mg/kg			<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Aldrin	mg/kg		45 [#10]	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
b-BHC	mg/kg			<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Chlordane (cis)	mg/kg			<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Chlordane (trans)	mg/kg			<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
d-BHC	mg/kg			<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
DDD	mg/kg			0.012	<0.003	<0.003	<0.003	<0.003	<0.003	0.003	0.005	0.006	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	0.006	<0.003	<0.003	<0.003	<0.003
DDT	mg/kg	12 [#3]	240 [#11]	0.023	<0.005	<0.005	<0.005	<0.005	<0.005	0.013	0.037	0.019	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Dieldrin	mg/kg		45 [#10]	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Endosulfan I	mg/kg			<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Endosulfan II	mg/kg			<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Endosulfan sulphate	mg/kg			<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Endrin	mg/kg			<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Endrin aldehyde	mg/kg			<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Endrin ketone	mg/kg			<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Heptachlor	mg/kg			<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
g-BHC (Lindane)	mg/kg			<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Heptachlor epoxide	mg/kg			<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Methoxychlor	mg/kg			<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01

Comments
#1 Value is for total chromium
#2 Value is for benzo (a) pyrene (equivalent)
#3 Total DDT includes the sum of DDT (dichlorodiphenyltrichloroethane), DDD (dichlorodiphenyldichloroethane) and DDE (dichlorodiphenyldichloroethylene
#4 Default value is for pH of 5. Concentrations increase with increasing pH (see methodology)
#5 Value for hexavalent chromium
#6 No limit. Derived value exceeds 10,000 mg/kg.
#7 Value is for inorganic lead
#8 Value is for inorganic mercury
#9 Value is for BaP TEQ. Refer NES Users' Guide for notes
#10 The SCS value is applicable to either dieldrin or aldrin separately, or to the sum of aldrin and dielrin if both are involved.
#11 DDT (as the sum of DDT and its metabolites DDD and DDE

Environmental Standards
Auckland Council, 2016, Auckland Unitary Plan - Chapter E30 - Permitted Activity Criteria.
Ministry for the Environment, 2012, NESCS - High density residential

	Unit	Auckland Unitary Plan - Chapter E30 - Permitted Activity Criteria.	NESCS - High density residential												
Lab Report Number				19-24864	19-24864	19-24864	19-24864	19-23142	19-23142	19-24864	19-23142	19-23142	19-23142	19-23142	19-23142	19-23142
Field ID				BH306_0.35-0.45	BH306_1.5-1.6	BH308 0.1-0.15	BH308_0.45-0.55	BH309_0.05-0.1	BH309_0.55-0.7	BH312_1.1-1.2	TP301_0.1-0.15	TP301_0.5-0.55	TP304_0.1-0.15	TP304_0.5-0.6	TP305_0.1-0.15	TP305_0.7-0.8
Depth				0.35 - 0.45	1.5 - 1.6	0.0-0.15	0.45 - 0.55	0.05 - 0.1	0.55 - 0.7	1.1 - 1.2	0.1 - 0.15	0.5 - 0.55	0.1 - 0.15	0.5 - 0.6	0.1 - 0.15	0.7 - 0.8
Date				11/07/2019	11/07/2019	16/07/2019	16/07/2019	8/07/2019	8/07/2019	11/07/2019	8/07/2019	8/07/2019	5/07/2019	5/07/2019	5/07/2019	5/07/2019
Metals																
Arsenic	mg/kg	100	45	2.7	2.4	7.9	4.6	7.2	11	8.6	5.6	3.7	12	3.1	6.2	2.9
Cadmium	mg/kg	7.5	230[#4]	0.087	0.074	0.46	0.13	0.36	0.654	0.567	0.29	0.060	0.773	0.077	0.46	0.037
Chromium (III+VI)	mg/kg	400[#1]	1,500[#5]	13.1	10	40.8	67.8	34.9	44.4	39.4	30.6	19.6	37.3	17.3	38.8	49.3
Copper	mg/kg	325	10,000[#6]	8.01	8.02	43.8	18.4	32.0	67.8	55.3	42.8	10.8	78.3	9.23	33.4	14.3
Lead	mg/kg	250	500[#7]	20.0	21.1	92.9	26.5	88.2	220	173	87.5	12.6	186	23.6	85.8	14.8
Mercury	mg/kg	0.75	1,000[#8]	0.10	0.11	0.32	0.26	0.20	0.33	0.34	0.29	0.093	0.39	0.096	0.35	0.33
Nickel	mg/kg	105		5.0	4.6	18.2	14.7	17.9	22.9	75.5	17.8	24.3	24.1	6.69	19.7	11.4
Zinc	mg/kg	400		18.6	16.0	73.6	30.1	107	124	154	87.7	25.5	131	17.9	79.7	24.9
PAH																
1-Methylnaphthalene	mg/kg			<0.01	<0.01	<0.01	<0.01	<0.01	0.01	0.01	<0.01	<0.01	<0.01	<0.01	0.01	<0.01
2-methylnaphthalene	mg/kg			<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Acenaphthene	mg/kg			0.02	<0.01	0.04	<0.01	<0.01	0.05	0.05	<0.01	<0.01	<0.01	<0.01	0.01	<0.01
Acenaphthylene	mg/kg			<0.01	<0.01	0.04	0.02	0.03	0.09	0.11	0.06	<0.01	0.05	<0.01	0.05	<0.01
Anthracene	mg/kg			<0.01	<0.01	0.22	0.05	0.04	0.16	0.22	0.07	<0.01	0.06	<0.01	0.10	<0.01
Benz(a)anthracene	mg/kg			0.03	0.04	0.91	0.35	0.32	0.83	1.76	0.63	<0.02	0.51	0.07	0.39	<0.02
Benzo(a) pyrene	mg/kg	20[#2]		0.06	0.09	1.15	0.47	0.63	1.68	2.47	1.20	<0.01	0.90	0.15	0.63	0.03
Benzo(a)pyrene TEQ (LOR)	mg/kg	20[#2]	24[#9]	0.08	0.13	1.53	0.62	0.80	2.11	3.33	1.54	0.03	1.16	0.19	0.79	0.05
Benzo(b)fluoranthene	mg/kg			0.05	0.08	1.10	0.46	0.65	1.62	2.50	1.33	<0.02	0.92	0.13	0.60	0.04
Benzo(g,h,i)perylene	mg/kg			<0.02	0.03	0.32	0.12	0.14	0.33	0.82	0.29	<0.02	0.23	0.03	0.12	<0.02
Benzo(k)fluoranthene	mg/kg			0.02	0.03	0.37	0.14	0.24	0.49	0.80	0.44	<0.01	0.32	0.06	0.17	0.02
Chrysene	mg/kg			0.04	0.06	0.78	0.33	0.26	0.66	1.44	0.52	<0.01	0.36	0.06	0.27	0.02
Dibenz(a,h)anthracene	mg/kg			<0.01	<0.01	0.07	0.02	0.02	0.06	0.19	0.05	<0.01	0.04	<0.01	0.02	<0.01
Fluoranthene	mg/kg			0.08	0.11	1.81	0.79	0.48	1.56	3.10	0.85	<0.02	0.74	0.11	0.65	0.03
Fluorene	mg/kg			0.02	<0.01	0.04	<0.01	<0.01	0.03	0.05	0.01	<0.01	<0.01	<0.01	0.02	<0.01
Indeno(1,2,3-c,d)pyrene	mg/kg			0.02	0.04	0.46	0.18	0.18	0.46	1.20	0.39	<0.01	0.29	0.04	0.16	<0.01
Naphthalene	mg/kg			0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.04	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Phenanthrene	mg/kg			0.06	0.04	0.86	0.24	0.18	0.81	1.05	0.33	<0.01	0.25	0.04	0.56	0.02
Pyrene	mg/kg			0.08	0.11	1.86	0.82	0.49	1.60	3.31	0.96	<0.02	0.81	0.11	0.66	0.03
Benzo[a]pyrene TEQ (Zero)	mg/kg	20[#2]	24[#9]	0.07	0.12	1.53	0.62	0.80	2.11	3.33	1.54	<0.01	1.16	0.18	0.79	0.03
NA																
cis-Nonachlor	mg/kg dry wt			-	-	-	-	-	-	-	-	-	-	-	-	-
Halogenated Benzenes																
Hexachlorobenzene	mg/kg			-	-	-	-	-	-	-	-	-	-	-	-	-
Inorganics																
Moisture	%			21	21	36	45	36	31	23	31	20	31	23	35	44
Asbestos																
Presence / Absence				Absent	Absent	Absent	Absent	Absent	Absent	-	Absent	Absent	Present	Absent	Absent	Absent
AF/FA Semi-Quantitative	w/w%			-	-	-	-	-	-	-	-	-	<0.001	-	-	-

Comments

#1 Value is for total chromium
#2 Value is for benzo (a) pyrene (equivalent)
#3 Total DDT includes the sum of DDT (dichlorodiphenyltrichloroethane), DDD (dichlorodiphenyldichloroethane) and DDE (dichlorodiphenyldichloroethylene).
#4 Default value is for pH of 5. Concentrations increase with increasing pH (see methodology).
#5 Value for hexavalent chromium
#6 No limit. Derived value exceeds 10,000 mg/kg.
#7 Value is for inorganic lead
#8 Value is for inorganic mercury
#9 Value is for BaP TEQ. Refer NES Users' Guide for notes.
#10 The SCS value is applicable to either dieldrin or aldrin separately, or to the sum of aldrin and dielrin if both are involved.
#11 DDT (as the sum of DDT and its metabolites DDD and DDE)

Environmental Standards

Auckland Council, 2016, Auckland Unitary Plan - Chapter E30 - Permitted Activity Criteria.
Ministry for the Environment, 2012, NESCS - High density residential

	Unit	Auckland Unitary Plan - Chapter E30 - Permitted Activity Criteria.	NESCS - High density residential								
Lab Report Number				19-24864	19-24864	19-24864	19-24864	19-24864	19-24864	19-24864	19-24864
Field ID				BH310_0.0-0.15	BH310_0.45-0.55	TP306_0.2-0.3	TP307 0.0-0.1	TP308_0.2-0.25	TP309_0.0-0.1	TP310_0.3-0.35	TP310_0.6-0.65
Depth				0 - 0.15	0.45 - 0.55	0.2 - 0.3	0.0-0.01	0.2 - 0.25	0 - 0.1	0.3 - 0.35	0.6 - 0.65
Date				17/07/2019	17/07/2019	17/07/2019	17/07/2019	18/07/2019	17/07/2019	17/07/2019	17/07/2019
Metals											
Arsenic	mg/kg	100	45	4.3	8.0	5.0	3.0	5.9	5.0	3.4	1.8
Cadmium	mg/kg	7.5	230[#4]	0.17	0.687	0.42	0.35	0.47	0.24	0.13	0.049
Chromium (III+VI)	mg/kg	400[#1]	1,500[#5]	36.7	48.8	108	25.7	87.3	43.2	20.9	11
Copper	mg/kg	325	10,000[#6]	27.5	43.7	31.7	10.6	29.4	28.4	24.3	8.77
Lead	mg/kg	250	500[#7]	79.0	123	30.1	22.5	57.9	58.9	86.6	11.7
Mercury	mg/kg	0.75	1,000[#8]	0.19	0.24	0.26	0.14	0.28	0.18	0.19	0.10
Nickel	mg/kg	105		34.7	30.2	52.1	11.7	42.3	45.5	24.4	9.58
Zinc	mg/kg	400		87.3	141	57.9	26.5	68.9	77.7	71.9	17.2
PAH											
1-Methylnaphthalene	mg/kg			<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.32	<0.01
2-methylnaphthalene	mg/kg			<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.35	<0.01
Acenaphthene	mg/kg			0.02	0.08	<0.01	<0.01	<0.01	0.02	0.33	<0.01
Acenaphthylene	mg/kg			0.06	0.08	<0.01	0.01	<0.01	0.03	2.26	<0.01
Anthracene	mg/kg			0.10	0.27	<0.01	0.02	0.02	0.07	5.24	<0.01
Benz(a)anthracene	mg/kg			0.87	2.03	0.03	0.06	0.12	0.39	10.46	0.06
Benzo(a) pyrene	mg/kg	20[#2]		1.37	2.84	0.05	0.11	0.21	0.66	9.46	0.11
Benzo(a)pyrene TEQ (LOR)	mg/kg	20[#2]	24[#9]	1.82	3.85	0.07	0.14	0.27	0.87	14.27	0.15
Benzo(b)fluoranthene	mg/kg			1.26	2.70	0.06	0.09	0.19	0.63	10.86	0.11
Benzo(g,h,i)perylene	mg/kg			0.48	0.91	0.02	0.03	0.06	0.22	3.14	0.04
Benzo(k)fluoranthene	mg/kg			0.53	1.10	0.02	0.03	0.05	0.23	4.28	0.03
Chrysene	mg/kg			0.79	1.69	0.05	0.07	0.12	0.44	8.83	0.06
Dibenz(a,h)anthracene	mg/kg			0.10	0.25	<0.01	<0.01	0.01	0.04	0.66	<0.01
Fluoranthene	mg/kg			1.55	3.58	0.08	0.17	0.23	0.86	102.93	0.10
Fluorene	mg/kg			0.02	0.06	<0.01	<0.01	<0.01	0.01	0.86	<0.01
Indeno(1,2,3-c,d)pyrene	mg/kg			0.65	1.32	0.03	0.04	0.08	0.29	4.75	0.05
Naphthalene	mg/kg			<0.01	0.01	<0.01	<0.01	<0.01	<0.01	0.30	<0.01
Phenanthrene	mg/kg			0.48	1.27	0.03	0.12	0.08	0.34	113.15	0.01
Pyrene	mg/kg			1.73	3.76	0.08	0.16	0.25	0.95	96.02	0.11
Benzo[a]pyrene TEQ (Zero)	mg/kg	20[#2]	24[#9]	1.82	3.85	0.06	0.13	0.27	0.87	14.27	0.14
NA											
cis-Nonachlor	mg/kg dry wt			<0.01	-	<0.01	<0.01	<0.01	<0.01	-	-
Halogenated Benzenes											
Hexachlorobenzene	mg/kg			<0.005	-	<0.005	<0.005	<0.005	<0.005	-	-
Inorganics											
Moisture	%			31	44	30	25	34	35	23	19
Organochlorine Pesticides											
2,4-DDT	mg/kg			<0.005	-	0.007	<0.005	<0.005	<0.005	-	-
chlordane	mg/kg			<0.020	-	<0.020	<0.020	<0.020	<0.020	-	-
o,p-DDD	mg/kg			<0.005	-	<0.005	<0.005	<0.005	<0.005	-	-
o,p'-DDE	mg/kg			<0.005	-	<0.005	<0.005	<0.005	<0.005	-	-
trans-Nonachlor	mg/kg			<0.01	-	<0.01	<0.01	<0.01	<0.01	-	-
4,4-DDE	mg/kg			<0.005	-	0.116	<0.005	<0.005	<0.005	-	-
a-BHC	mg/kg			<0.005	-	<0.005	<0.005	<0.005	<0.005	-	-
Aldrin	mg/kg		45[#10]	<0.005	-	<0.005	<0.005	<0.005	<0.005	-	-
b-BHC	mg/kg			<0.005	-	<0.005	<0.005	<0.005	<0.005	-	-
Chlordane (cis)	mg/kg			<0.005	-	<0.005	<0.005	<0.005	<0.005	-	-
Chlordane (trans)	mg/kg			<0.01	-	<0.01	<0.01	<0.01	<0.01	-	-
d-BHC	mg/kg			<0.005	-	<0.005	<0.005	<0.005	<0.005	-	-
DDD	mg/kg			<0.003	-	0.012	<0.003	<0.003	<0.003	-	-
DDT	mg/kg	12[#3]	240[#11]	<0.005	-	0.035	<0.005	<0.005	<0.005	-	-
Dieldrin	mg/kg		45[#10]	<0.05	-	<0.05	<0.05	<0.05	<0.05	-	-
Endosulfan I	mg/kg			<0.005	-	<0.005	<0.005	<0.005	<0.005	-	-
Endosulfan II	mg/kg			<0.01	-	<0.01	<0.01	<0.01	<0.01	-	-
Endosulfan sulphate	mg/kg			<0.005	-	<0.005	<0.005	<0.005	<0.005	-	-
Endrin	mg/kg			<0.05	-	<0.05	<0.05	<0.05	<0.05	-	-
Endrin aldehyde	mg/kg			<0.01	-	<0.01	<0.01	<0.01	<0.01	-	-
Endrin ketone	mg/kg			<0.005	-	<0.005	<0.005	<0.005	<0.005	-	-
Heptachlor	mg/kg			<0.005	-	<0.005	<0.005	<0.005	<0.005	-	-
g-BHC (Lindane)	mg/kg			<0.005	-	<0.005	<0.005	<0.005	<0.005	-	-
Heptachlor epoxide	mg/kg			<0.005	-	<0.005	<0.005	<0.005	<0.005	-	-
Methoxychlor	mg/kg			<0.01	-	<0.01	<0.01	<0.01	<0.01	-	-
Asbestos											
Presence / Absence				Absent	Absent	Absent	Absent	Absent	Absent	-	Absent

Comments
#1 Value is for total chromium
#2 Value is for benzo (a) pyrene (equivalent)
#3 Total DDT includes the sum of DDT (dichlorodiphenyltrichloroethane), DDD (dichlorodiphenyldichloroethane) and DDE (dichlorodiphenyldichloroethylene).
#4 Default value is for pH of 5. Concentrations increase with increasing pH (see methodology).
#5 Value for hexavalent chromium
#6 No limit. Derived value exceeds 10,000 mg/kg.
#7 Value is for inorganic lead
#8 Value is for inorganic mercury
#9 Value is for BaP TEQ. Refer NES Users' Guide for notes.
#10 The SCS value is applicable to either dieldrin or aldrin separately, or to the sum of aldrin and dielrin if both are involved.
#11 DDT (as the sum of DDT and its metabolites DDD and DDE)

Environmental Standards
Auckland Council, 2016, Auckland Unitary Plan - Chapter E30 - Permitted Activity Criteria.
Ministry for the Environment, 2012, NESCS - High density residential

Lab Report Number			19-23142	19-23142	19-23142	19-23142	19-23142	19-23142	19-26125	19-26125	19-26125	19-26125	19-26125	19-26125	19-26125	19-26125	19-26125	19-26125	19-26125	19-26125	19-26125	19-26125	19-26125
Field ID			BH301_0.0-0.2	BH301_0.3-0.4	BH302_0.0-0.15	BH303_0.0-0.15	BH303_0.5-0.6	BH305_0.0-0.15	TP401_0.05-0.1	TP402_0.05-0.1	TP403_0.05-0.1	TP404_0.1-0.15	TP405_0.1-0.15	TP406_0.1-0.15	TP407_0.05-0.1	TP408_0.1-0.15	TP409_0.0-0.1	TP410_0.05-0.1	TP411_0.05-0.1	TP412_0.05-0.1	TP413_0.05-0.1	TP414_0.1-0.15	TP415_0.05-0.1
Depth			0 - 0.2	0.3 - 0.4	0 - 0.15	0 - 0.15	0.5 - 0.6	0 - 0.15	0.05 - 0.1	0.05 - 0.1	0.05 - 0.1	0.1 - 0.15	0.1 - 0.15	0.1 - 0.15	0.05 - 0.1	0.1 - 0.15	0 - 0.1	0.05 - 0.1	0.05 - 0.1	0.05 - 0.1	0.05 - 0.1	0.1 - 0.15	0.05 - 0.1
Date			3/07/2019	3/07/2019	4/07/2019	7/07/2019	7/07/2019	8/07/2019	2/08/2019	2/08/2019	2/08/2019	2/08/2019	2/08/2019	2/08/2019	2/08/2019	2/08/2019	2/08/2019	2/08/2019	2/08/2019	2/08/2019	2/08/2019	2/08/2019	2/08/2019
	Unit	Auckland Unitary Plan - Chapter E30 - Background - Volcanic Soils.	Hazardous Waste Guidelines - Landfill WAC & Landfill Classification - Class A																				
Metals																							
Arsenic	mg/kg	12	100	13.0	3.6	12	3.6	1.7	5.2	8.6	15.4	13.7	13.6	24.1	7.8	19.1	4.1	2.7	15.8	10	5.1	18.8	5.2	6.6
Cadmium	mg/kg	0.65	20	0.644	0.16	0.13	0.13	0.019	0.19	0.564	0.812	0.548	0.23	0.27	0.18	0.21	0.13	0.14	0.31	0.509	0.090	0.19	0.18	0.13
Chromium (III+VI)	mg/kg	125[#1]	100[#3]	40.4	64.7	7.4	8.6	8.4	11	45.6	39.6	30.5	11	11	14.7	11	7.9	12.5	19.6	35.8	12	12	12	10
Copper	mg/kg	90	100	75.9	25.3	75.9	24.1	4.8	41.8	44.2	89.7	78.9	79.2	102	64.2	42.5	32.6	14.0	75.2	62.7	27.5	55.9	127	26.3
Lead	mg/kg	65[#2]	100	118	29.5	78.3	44.4	7.09	65.1	101	140	134	129	113	101	87.1	44.0	43.0	110	101	45.1	95.0	37.8	59.6
Mercury	mg/kg	0.45	4	0.27	0.15	0.092	0.11	0.071	0.11	0.34	0.34	0.23	0.11	0.13	0.14	0.11	0.088	0.090	0.18	0.31	0.11	0.14	0.13	0.12
Nickel	mg/kg	320	200	16.7	14.2	3.1	3.1	2.8	6.69	20.3	16.4	14.9	6.79	5.0	9.34	4.8	3.5	6.62	10.7	18.3	8.53	5.95	6.08	5.84
Zinc	mg/kg	1,160	200	72.4	28.7	26.0	28.1	13.5	41.3	118	83.7	100	65.9	36.1	48.3	35.5	23.7	40.4	113	98.5	51.0	27.9	33.7	35.0
NA																								
cis-Nonachlor	mg/kg dry wt			<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Halogenated Benzenes																								
Hexachlorobenzene	mg/kg			<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Inorganics																								
Moisture	%			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Organochlorine Pesticides																								
2,4-DDT	mg/kg			0.008	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.009	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
chlordane	mg/kg			<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
o,p-DDD	mg/kg			<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
o,p'-DDE	mg/kg			<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
trans-Nonachlor	mg/kg			<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
4,4-DDE	mg/kg			0.046	0.013	<0.005	<0.005	<0.005	<0.005	0.020	0.048	0.033	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.017	<0.005	<0.005	<0.005	<0.005
a-BHC	mg/kg			<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Aldrin	mg/kg		0.00016	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
b-BHC	mg/kg			<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Chlordane (cis)	mg/kg			<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Chlordane (trans)	mg/kg			<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
d-BHC	mg/kg			<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
DDD	mg/kg			0.012	<0.003	<0.003	<0.003	<0.003	<0.003	0.003	0.005	0.006	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	0.006	<0.003	<0.003	<0.003	<0.003
DDT	mg/kg		500	0.023	<0.005	<0.005	<0.005	<0.005	<0.005	0.013	0.037	0.019	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Dieldrin	mg/kg		8	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Endosulfan I	mg/kg		6[#5]	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Endosulfan II	mg/kg		6[#5]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Endosulfan sulphate	mg/kg			<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Endrin	mg/kg			<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Endrin aldehyde	mg/kg			<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Endrin ketone	mg/kg			<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Heptachlor	mg/kg			<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
g-BHC (Lindane)	mg/kg			<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Heptachlor epoxide	mg/kg		1,500	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Methoxychlor	mg/kg			<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01

Comments

#1 Value for total chromium. Work suggests special cases have been found to apply for Ti Point Basalts (Cr), Mt Smart Volcanics (Pb) and as such these lithologies need to be considered individually.
#2 Work suggests special cases have been found to apply for Ti Point Basalts (Cr), Mt Smart Volcanics (Pb) and as such these lithologies need to be considered individually.
#3 Refer to value for Chromium (VI)
#4 Refer to value for Carcinogenic PAHs as Benzo(a)pyrene equivalent
#5 Refer to value for Endosulfan

Environmental Standards

Auckland Council, 2016, Auckland Unitary Plan - Chapter E30 - Background - Volcanic Soils.
MfE, 2004, Hazardous Waste Guidelines - Landfill WAC & Landfill Classification - Class A

			Lab Report Number	19-24864	19-24864	19-24864	19-24864	19-23142	19-23142	19-24864	19-23142	19-23142	19-23142	19-23142	19-23142	19-23142
			Field ID	BH306_0.35-0.45	BH306_1.5-1.6	BH308 0.1-0.15	BH308_0.45-0.55	BH309_0.05-0.1	BH309_0.55-0.7	BH312_1.1-1.2	TP301_0.1-0.15	TP301_0.5-0.55	TP304_0.1-0.15	TP304_0.5-0.6	TP305_0.1-0.15	TP305_0.7-0.8
			Depth	0.35 - 0.45	1.5 - 1.6	0.1-0.15	0.45 - 0.55	0.05 - 0.1	0.55 - 0.7	1.1 - 1.2	0.1 - 0.15	0.5 - 0.55	0.1 - 0.15	0.5 - 0.6	0.1 - 0.15	0.7 - 0.8
			Date	11/07/2019	11/07/2019	16/07/2019	16/07/2019	8/07/2019	8/07/2019	11/07/2019	8/07/2019	8/07/2019	5/07/2019	5/07/2019	5/07/2019	5/07/2019
	Unit	Auckland Unitary Plan - Chapter E30 - Background - Volcanic Soils.	Hazardous Waste Guidelines - Landfill WAC & Landfill Classification - Class A													
Metals																
Arsenic	mg/kg	12	100	2.7	2.4	7.9	4.6	7.2	11	8.6	5.6	3.7	12	3.1	6.2	2.9
Cadmium	mg/kg	0.65	20	0.087	0.074	0.46	0.13	0.36	0.654	0.567	0.29	0.060	0.773	0.077	0.46	0.037
Chromium (III+VI)	mg/kg	125[#1]	100[#3]	13.1	10	40.8	67.8	34.9	44.4	39.4	30.6	19.6	37.3	17.3	38.8	49.3
Copper	mg/kg	90	100	8.01	8.02	43.8	18.4	32.0	67.8	55.3	42.8	10.8	78.3	9.23	33.4	14.3
Lead	mg/kg	65[#2]	100	20.0	21.1	92.9	26.5	88.2	220	173	87.5	12.6	186	23.6	85.8	14.8
Mercury	mg/kg	0.45	4	0.10	0.11	0.32	0.26	0.20	0.33	0.34	0.29	0.093	0.39	0.096	0.35	0.33
Nickel	mg/kg	320	200	5.0	4.6	18.2	14.7	17.9	22.9	75.5	17.8	24.3	24.1	6.69	19.7	11.4
Zinc	mg/kg	1,160	200	18.6	16.0	73.6	30.1	107	124	154	87.7	25.5	131	17.9	79.7	24.9
PAH																
1-Methylnaphthalene	mg/kg			<0.01	<0.01	<0.01	<0.01	<0.01	0.01	0.01	<0.01	<0.01	<0.01	<0.01	0.01	<0.01
2-methylnaphthalene	mg/kg			<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Acenaphthene	mg/kg			0.02	<0.01	0.04	<0.01	<0.01	0.05	0.05	<0.01	<0.01	<0.01	<0.01	0.01	<0.01
Acenaphthylene	mg/kg			<0.01	<0.01	0.04	0.02	0.03	0.09	0.11	0.06	<0.01	0.05	<0.01	0.05	<0.01
Anthracene	mg/kg			<0.01	<0.01	0.22	0.05	0.04	0.16	0.22	0.07	<0.01	0.06	<0.01	0.10	<0.01
Benz(a)anthracene	mg/kg			0.03	0.04	0.91	0.35	0.32	0.83	1.76	0.63	<0.02	0.51	0.07	0.39	<0.02
Benzo(a) pyrene	mg/kg		300	0.06	0.09	1.15	0.47	0.63	1.68	2.47	1.20	<0.01	0.90	0.15	0.63	0.03
Benzo(a)pyrene TEQ (LOR)	mg/kg		300[#4]	0.08	0.13	1.53	0.62	0.80	2.11	3.33	1.54	0.03	1.16	0.19	0.79	0.05
Benzo(b)fluoranthene	mg/kg			0.05	0.08	1.10	0.46	0.65	1.62	2.50	1.33	<0.02	0.92	0.13	0.60	0.04
Benzo(g,h,i)perylene	mg/kg			<0.02	0.03	0.32	0.12	0.14	0.33	0.82	0.29	<0.02	0.23	0.03	0.12	<0.02
Benzo(k)fluoranthene	mg/kg			0.02	0.03	0.37	0.14	0.24	0.49	0.80	0.44	<0.01	0.32	0.06	0.17	0.02
Chrysene	mg/kg			0.04	0.06	0.78	0.33	0.26	0.66	1.44	0.52	<0.01	0.36	0.06	0.27	0.02
Dibenz(a,h)anthracene	mg/kg			<0.01	<0.01	0.07	0.02	0.02	0.06	0.19	0.05	<0.01	0.04	<0.01	0.02	<0.01
Fluoranthene	mg/kg			0.08	0.11	1.81	0.79	0.48	1.56	3.10	0.85	<0.02	0.74	0.11	0.65	0.03
Fluorene	mg/kg			0.02	<0.01	0.04	<0.01	<0.01	0.03	0.05	0.01	<0.01	<0.01	<0.01	0.02	<0.01
Indeno(1,2,3-c,d)pyrene	mg/kg			0.02	0.04	0.46	0.18	0.18	0.46	1.20	0.39	<0.01	0.29	0.04	0.16	<0.01
Naphthalene	mg/kg		200	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.04	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Phenanthrene	mg/kg			0.06	0.04	0.86	0.24	0.18	0.81	1.05	0.33	<0.01	0.25	0.04	0.56	0.02
Pyrene	mg/kg			0.08	0.11	1.86	0.82	0.49	1.60	3.31	0.96	<0.02	0.81	0.11	0.66	0.03
Benzo[a]pyrene TEQ (Zero)	mg/kg		300[#4]	0.07	0.12	1.53	0.62	0.80	2.11	3.33	1.54	<0.01	1.16	0.18	0.79	0.03
NA																
cis-Nonachlor	mg/kg dry wt			-	-	-	-	-	-	-	-	-	-	-	-	-
Halogenated Benzenes																
Hexachlorobenzene	mg/kg			-	-	-	-	-	-	-	-	-	-	-	-	-
Inorganics																
Moisture	%			21	21	36	45	36	31	23	31	20	31	23	35	44

Comments
#1 Value for total chromium. Work suggests special cases have been found to apply for Ti Point Basalts (Cr), Mt Smart Volcanics (Pb) and as such these lithologies need to be considered individually.
#2 Work suggests special cases have been found to apply for Ti Point Basalts (Cr), Mt Smart Volcanics (Pb) and as such these lithologies need to be considered individually.
#3 Refer to value for Chromium (VI)
#4 Refer to value for Carcinogenic PAHs as Benzo(a)pyrene equivalent
#5 Refer to value for Endosulfan

Environmental Standards
Auckland Council, 2016, Auckland Unitary Plan - Chapter E30 - Background - Volcanic Soils.
MfE, 2004, Hazardous Waste Guidelines - Landfill WAC & Landfill Classification - Class A

	Unit	Auckland Unitary Plan - Chapter E30 - Background - Volcanic Soils.	Hazardous Waste Guidelines - Landfill WAC & Landfill Classification - Class A								
Lab Report Number				19-24864	19-24864	19-24864	19-24864	19-24864	19-24864	19-24864	19-24864
Field ID				BH310_0.0-0.15	BH310_0.45-0.55	TP306_0.2-0.3	TP307 0.0-0.1	TP308_0.2-0.25	TP309_0.0-0.1	TP310_0.3-0.35	TP310_0.6-0.65
Depth				0 - 0.15	0.45 - 0.55	0.2 - 0.3	0.0-0.01	0.2 - 0.25	0 - 0.1	0.3 - 0.35	0.6 - 0.65
Date				17/07/2019	17/07/2019	17/07/2019	17/07/2019	18/07/2019	17/07/2019	17/07/2019	17/07/2019
Metals											
Arsenic	mg/kg	12	100	4.3	8.0	5.0	3.0	5.9	5.0	3.4	1.8
Cadmium	mg/kg	0.65	20	0.17	0.687	0.42	0.35	0.47	0.24	0.13	0.049
Chromium (III+VI)	mg/kg	125[#1]	100[#3]	36.7	48.8	108	25.7	87.3	43.2	20.9	11
Copper	mg/kg	90	100	27.5	43.7	31.7	10.6	29.4	28.4	24.3	8.77
Lead	mg/kg	65[#2]	100	79.0	123	30.1	22.5	57.9	58.9	86.6	11.7
Mercury	mg/kg	0.45	4	0.19	0.24	0.26	0.14	0.28	0.18	0.19	0.10
Nickel	mg/kg	320	200	34.7	30.2	52.1	11.7	42.3	45.5	24.4	9.58
Zinc	mg/kg	1,160	200	87.3	141	57.9	26.5	68.9	77.7	71.9	17.2
PAH											
1-Methylnaphthalene	mg/kg			<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.32	<0.01
2-methylnaphthalene	mg/kg			<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.35	<0.01
Acenaphthene	mg/kg			0.02	0.08	<0.01	<0.01	<0.01	0.02	0.33	<0.01
Acenaphthylene	mg/kg			0.06	0.08	<0.01	0.01	<0.01	0.03	2.26	<0.01
Anthracene	mg/kg			0.10	0.27	<0.01	0.02	0.02	0.07	5.24	<0.01
Benz(a)anthracene	mg/kg			0.87	2.03	0.03	0.06	0.12	0.39	10.46	0.06
Benzo(a) pyrene	mg/kg		300	1.37	2.84	0.05	0.11	0.21	0.66	9.46	0.11
Benzo(a)pyrene TEQ (LOR)	mg/kg		300[#4]	1.82	3.85	0.07	0.14	0.27	0.87	14.27	0.15
Benzo(b)fluoranthene	mg/kg			1.26	2.70	0.06	0.09	0.19	0.63	10.86	0.11
Benzo(g,h,i)perylene	mg/kg			0.48	0.91	0.02	0.03	0.06	0.22	3.14	0.04
Benzo(k)fluoranthene	mg/kg			0.53	1.10	0.02	0.03	0.05	0.23	4.28	0.03
Chrysene	mg/kg			0.79	1.69	0.05	0.07	0.12	0.44	8.83	0.06
Dibenz(a,h)anthracene	mg/kg			0.10	0.25	<0.01	<0.01	0.01	0.04	0.66	<0.01
Fluoranthene	mg/kg			1.55	3.58	0.08	0.17	0.23	0.86	102.93	0.10
Fluorene	mg/kg			0.02	0.06	<0.01	<0.01	<0.01	0.01	0.86	<0.01
Indeno(1,2,3-c,d)pyrene	mg/kg			0.65	1.32	0.03	0.04	0.08	0.29	4.75	0.05
Naphthalene	mg/kg		200	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	0.30	<0.01
Phenanthrene	mg/kg			0.48	1.27	0.03	0.12	0.08	0.34	113.15	0.01
Pyrene	mg/kg			1.73	3.76	0.08	0.16	0.25	0.95	96.02	0.11
Benzo[a]pyrene TEQ (Zero)	mg/kg		300[#4]	1.82	3.85	0.06	0.13	0.27	0.87	14.27	0.14
NA											
cis-Nonachlor	mg/kg dry wt			<0.01	-	<0.01	<0.01	<0.01	<0.01	-	-
Halogenated Benzenes											
Hexachlorobenzene	mg/kg			<0.005	-	<0.005	<0.005	<0.005	<0.005	-	-
Inorganics											
Moisture	%			31	44	30	25	34	35	23	19
Organochlorine Pesticides											
2,4-DDT	mg/kg			<0.005	-	0.007	<0.005	<0.005	<0.005	-	-
chlordane	mg/kg			<0.020	-	<0.020	<0.020	<0.020	<0.020	-	-
o,p-DDD	mg/kg			<0.005	-	<0.005	<0.005	<0.005	<0.005	-	-
o,p'-DDE	mg/kg			<0.005	-	<0.005	<0.005	<0.005	<0.005	-	-
trans-Nonachlor	mg/kg			<0.01	-	<0.01	<0.01	<0.01	<0.01	-	-
4,4-DDE	mg/kg			<0.005	-	0.116	<0.005	<0.005	<0.005	-	-
a-BHC	mg/kg			<0.005	-	<0.005	<0.005	<0.005	<0.005	-	-
Aldrin	mg/kg		0.00016	<0.005	-	<0.005	<0.005	<0.005	<0.005	-	-
b-BHC	mg/kg			<0.005	-	<0.005	<0.005	<0.005	<0.005	-	-
Chlordane (cis)	mg/kg			<0.005	-	<0.005	<0.005	<0.005	<0.005	-	-
Chlordane (trans)	mg/kg			<0.01	-	<0.01	<0.01	<0.01	<0.01	-	-
d-BHC	mg/kg			<0.005	-	<0.005	<0.005	<0.005	<0.005	-	-
DDD	mg/kg			<0.003	-	0.012	<0.003	<0.003	<0.003	-	-
DDT	mg/kg		500	<0.005	-	0.035	<0.005	<0.005	<0.005	-	-
Dieldrin	mg/kg		8	<0.05	-	<0.05	<0.05	<0.05	<0.05	-	-
Endosulfan I	mg/kg		6[#5]	<0.005	-	<0.005	<0.005	<0.005	<0.005	-	-
Endosulfan II	mg/kg		6[#5]	<0.01	-	<0.01	<0.01	<0.01	<0.01	-	-
Endosulfan sulphate	mg/kg			<0.005	-	<0.005	<0.005	<0.005	<0.005	-	-
Endrin	mg/kg			<0.05	-	<0.05	<0.05	<0.05	<0.05	-	-
Endrin aldehyde	mg/kg			<0.01	-	<0.01	<0.01	<0.01	<0.01	-	-
Endrin ketone	mg/kg			<0.005	-	<0.005	<0.005	<0.005	<0.005	-	-
Heptachlor	mg/kg			<0.005	-	<0.005	<0.005	<0.005	<0.005	-	-
g-BHC (Lindane)	mg/kg			<0.005	-	<0.005	<0.005	<0.005	<0.005	-	-
Heptachlor epoxide	mg/kg		1,500	<0.005	-	<0.005	<0.005	<0.005	<0.005	-	-
Methoxychlor	mg/kg			<0.01	-	<0.01	<0.01	<0.01	<0.01	-	-

Comments

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MfE, 2004, Hazardous Waste Guidelines - Landfill WAC & Landfill Classification - Class A

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