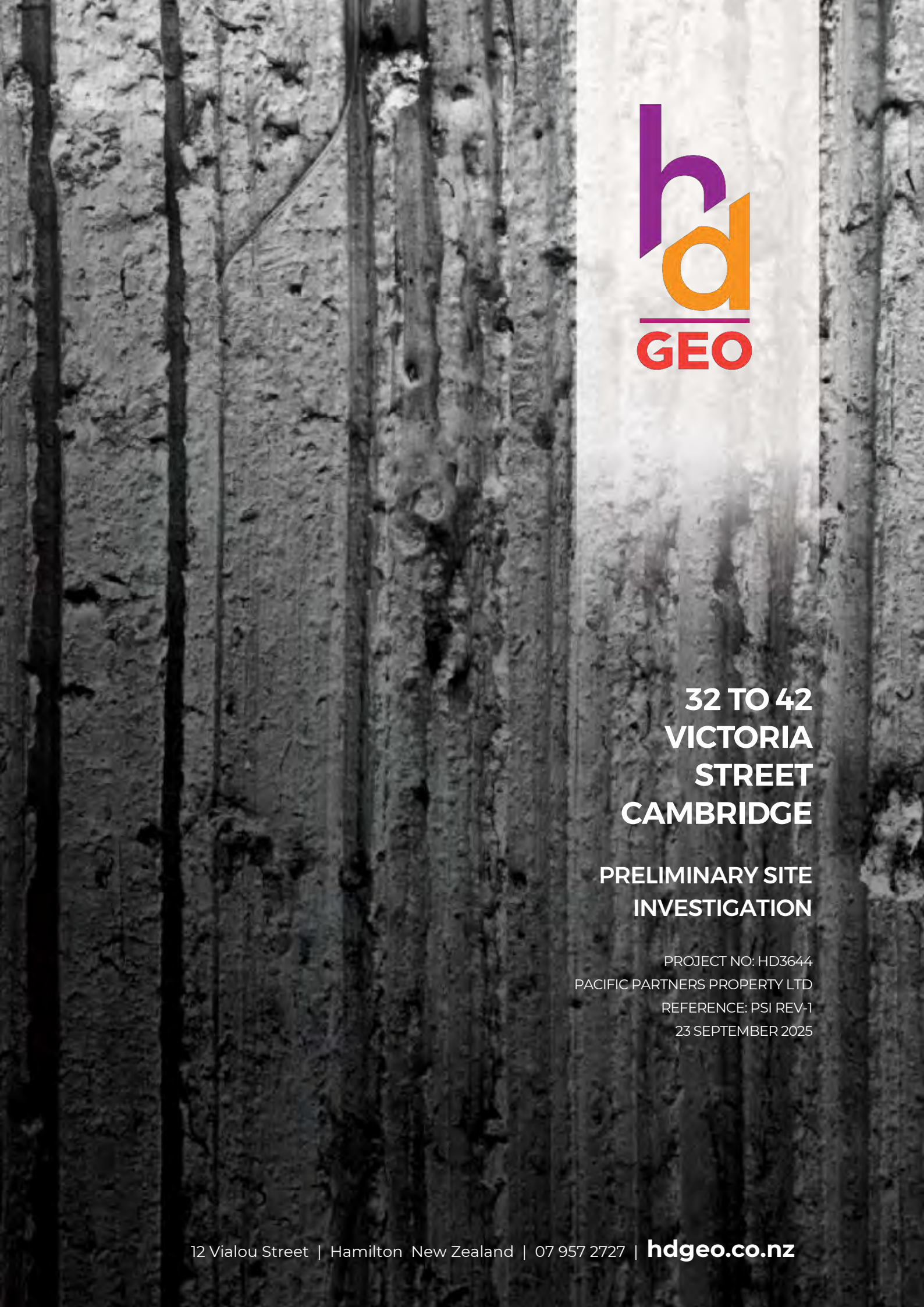


32 TO 42 VICTORIA STREET CAMBRIDGE

PRELIMINARY SITE INVESTIGATION

PROJECT NO: HD3644
PACIFIC PARTNERS PROPERTY LTD
REFERENCE: PSI REV-1
23 SEPTEMBER 2025

12 Vialou Street | Hamilton New Zealand | 07 957 2727 | **hdgeo.co.nz**

Executive summary

Introduction

Pacific Partners Property Limited (the client) propose to redevelop 32 to 42 Victoria Street, Cambridge (the site) with a mixed commercial and residential development. Appendix A contains concept plans showing the proposed development.

The National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health (NESCS) requires consideration where certain activities, including soil disturbance, are proposed at confirmed or potential hazardous activities and industries list (HAIL) sites.

Investigation and findings

Our desktop study and site inspection identified the following potential HAIL activities:

- A historic engineering workshop (D.5)
- Dry-cleaning premises (A.5)
- An underground storage tank (A.17)
- A historic motor vehicle workshop (F.4)
- The presence of uncontrolled fill (G.3)
- The potential use and degradation of asbestos building material and lead based paint (I)

Because the buildings on site are tenanted and will be operational throughout the client's consenting and design phases, our investigation was limited to the hardstand on the west side of the site. We collected and analysed samples from 3 locations at multiple depths, and found that:

- all soil samples collected had contaminant concentrations below commercial/industrial human health guidelines
- copper and zinc exceed the applied ecological guidelines within the uncontrolled fill
- select heavy metals exceed the Class 3 waste acceptance criteria within the uncontrolled fill

Conclusions

Our conclusions are that:

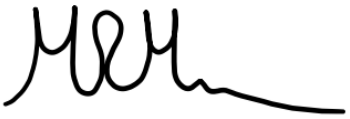
- there are 6 'pieces of land' present on site, with their preliminary extents mapped in Appendix A, figure 104.
- from the limited data, our initial assessment is that there is no risk to human health from the uncontrolled fill on the site
- the risk to human health and the environment from the remaining 5 'pieces of land' has not been fully assessed or determined
- if off-site disposal of the uncontrolled fill is needed, it must be taken to a Class 1 or 2 facility
- a DSI is needed to investigate, assess, and refine all 6 identified 'pieces of land', specifically:
    - the extent of the uncontrolled fill
    - potential for a fuel UST associated with the motor vehicle workshop
    - potential for soil contamination associated with the drycleaners
    - degraded building materials (lead and asbestos) leading to incidental soil contamination

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Report sign off

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Version no.	Prepared by	Description	Dated
Initial	Matt Moore	Initial report	05/05/25
Rev 1	Paul Gibbins	Updated potential HAIL activities and CSM	23/09/25

1. Introduction

1.1. The development

Pacific Partners Property Limited (the client) propose to redevelop 32 to 42 Victoria Street, Cambridge (the site) with a mixed commercial and residential development. This will include:

- basement: vehicle parking
- ground floor and Level 1: office use
- level 2: either residential apartments or office use
- level 3: residential apartments

Appendix A contains concept plans showing the proposed development.

1.2. The issue

Waipā District Council (WDC) list the site in their online database as a potential hazardous activities and industries list[1] (HAIL) site. Appendix D contains a Council plan of the potential HAIL extents.

1.3. The regulatory context

The National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health (NESCS) requires consideration where certain activities, including soil disturbance, are proposed at confirmed or potential HAIL sites.

Soil disturbance will be required to facilitate the construction of the basement, for building foundation, and to install utilities. Therefore, the NESCS may apply to the proposed development.

1.4. Our engagement, objectives, and scope

We (HD Geo) have been engaged to complete this preliminary site investigation (PSI). This PSI gives recommendations on further work that will be required for the proposed development in relation to the NESCS.

The objectives of this PSI are to:

- determine any sources of potential soil contamination at the site (HAIL activities)
- determine if any impacted soils on the site are likely to present a risk to human health or the environment as part of, or due to, the proposed development
- determine where and how soils can be disposed of, should off-site disposal be required
- determine if there is a requirement for any further investigation, remediation, and/or reporting under the NESCS

The scope of this PSI is limited to:

- a desktop study, including review of historic and recent aerial photos, geology and hydrogeology, applicable council records, and any other relevant environmental studies
- a site inspection to identify features of interest and potential contamination sources
- the limited collection and analysis of soil samples to determine HAIL activity status
- preparation of a report consistent with Ministry for the Environment's Contaminated Land Management Guidelines No. 1[2]

[1] Ministry for the Environment (MfE) *Hazardous Activities and Industries List (HAIL).* October 2011
[2] Ministry for the Environment. 2021. *Contaminated land management guidelines No 1: Reporting on contaminated sites in New Zealand (Revised 2021).* Wellington: Ministry for the Environment

2. Site information

Site details are included in Table 1.

Table 1: Site details[3]

Item	Description
Site address	32 to 42 Victoria Street, Cambridge
Current legal descriptions	Lots 1, 2, 3, 4, 6 DPS 131401; Lot 1 DPS 77837; Lots 7 to 9 DP 4011; Lot 3 DP 364495
Zoning[4]	Commercial
Approximate area	1,994 m^2
Current use	Commercial
District Council	Waipā District Council
Regional Council	Waikato Regional Council

2.1. Site description

The site is located at 32 to 42 Victoria Street, Cambridge. It is bounded by Victoria Street to the south-west, a service lane to the north-west, north, and east, and a commercial building to the south-east.

The site is mostly covered in buildings and is used for commercial tenancies, including retail, food, and office buildings. The north-east and east sides of the site are covered in a mix of concrete, gravel, and asphalt hardstand and is used for vehicle parking.

We have included a plan showing the site location in Appendix B.

3. Preliminary desktop risk assessment

We completed a desktop study before the site visit to identify areas of interest. This included a review of historic[5] and recent[6] aerial images, geological maps, and the evaluation of existing records.

3.1. Historical aerial photos

Our aerial photo review evaluated previous land uses and areas of interest. Aerial photos are provided in Appendix C and described in Table 2.

Table 2: Historical aerial photos

Year	Description
1943	There are 5 buildings throughout the site, including in the north-west and south-east portions and along the north-east boundary. The balance of the site appears to be grassed, with access tracks between the buildings. The site is immediately surrounded by roads and commercial buildings to the north, west, and south-west, and undeveloped land to the east and south-east.

[3] Waipā District Council, Intra Maps, accessed 28/04/25. https://waipadc.spatial.t1cloud.com/spatial/IntraMaps/?configId=6aa41407-1db8-44e1-8487-0b9a08965283&project=affd0934-6c16-44e6-90d4-b245ea9bdd6c
[4] Waipā District Council, Waipā District Plan, accessed 28/04/25. https://eplan.waipadc.govt.nz/eplan/property/1865599/1743911/5823610/5760244/0/72
[5] Sourced from http://retrolens.nz and licensed by LINZ CC-BY. Accessed 31/03/25
[6] Google Earth Pro

Year	Description
1953	A building has been constructed along the south-west boundary. Off-site, a road has been constructed to the south-east and east. A building has been constructed along the south-east boundary, and buildings constructed to the north and north-east.
1961	A building in the north-west corner has been demolished and replaced with a larger building. An extension has been constructed to a building near the centre of the site. The site has been covered in hardstand. Off-site, a building has been constructed along the entire south-east boundary. Commercial development can be seen to the east.
1971 to 1995	The building located along the north-east boundary has been demolished. By 1995, awnings have been constructed on the north and west sides of the buildings along the boundaries. Off-site, commercial development can be seen in all directions.
2006 to 2024	No significant changes can be seen on site or in the immediately surrounding area.

3.2. Council records

We requested records from Waikato Regional Council (WRC) and WDC. We have provided Council responses in Appendix D.

WRC list the site in their land use information register as being subject to the following HAIL activities:

- Engineering workshop (D.5), associated with Cambridge Engineering and Implement Company
- Motor vehicle workshop (F.4), associated with Stihl, Kirby's Motors, and Cambridge Honda Centre

WDC confirmed that their records are the same as WRC's. In addition, WDC map several surrounding potential HAIL sites including:

- along the south site boundary
- to the north-east, on the opposite side of the service lane
- to the south and south-east, on the opposite side of Commerce Street

We reviewed the available WDC property records for the site. Key points of interest include:

- the north-east building in the Cambridge Honda Centre was used as their workshop
- there was a sump directly south-east of the workshop. The property records indicate that the sump is disused, backfilled with aggregate, and covered with concrete

3.3. Geology

The geologic map[7] of the area indicates that the site is underlain by the Hinuera Formation, consisting of 'cross-bedded pumice sand, silt and gravel with interbedded peat'.

The New Zealand Geotechnical Database lists 4 cone penetrometer tests (CPTs) within 200 m of the site, within the same mapped ground conditions. The CPTs were driven up to 20 m below ground level (bgl) and generally identified:

- interbedded sand and silt through the soil profile
- no groundwater within 20 m of the ground surface

[7] 1:250,000 Geological Map of New Zealand (QMAP). *New Zealand Geology Web Map*. GNS, 2013. http://data.gns.cri.nz/geology/. Accessed 29/04/25

3.4. Topography and surface water

The site is level and sits 62 m above sea level. The wider area is relatively flat, with a gentle rise in elevation to the north. Approximately 170 m south-west of the site, the terrain slopes steeply down towards the Waikato River, located 19 m above sea level. The Waikato River is approximately 260 m south-west, 370 m south, and 600 m east of the site. The surrounding topography also slopes steeply down towards a plateau 190 m east of the site, which then slopes down to the Waikato River.

Other bodies of water include the Karapiro Stream, approximately 520 m to the east, and Te Kautu Lake, approximately 650 m to the north.

Appendix B, figure 102, maps the topography and surface water bodies surrounding the site.

3.5. Hydrogeology and groundwater

Based on our review of the ground conditions within and surrounding the site, it is likely that groundwater is greater than 20 m deep and flows towards the Waikato River.

4. Site inspection

We completed a site walkover to identify features that have the potential to cause soil contamination on site. During our site walkover, the current owners were present.

Our site inspection generally confirmed the findings and conclusions of our desktop assessment.

During our inspection, we identified:

- a small area of the former motor vehicle workshop has asbestos cladding on the first floor. The owner confirmed that the asbestos cladding used to run across most of the second floor, but was partially replaced
- a series of manholes near the centre of the site. The owner confirmed that there were grease traps used by the current tenants

In addition, the current owners informed us of:

- the potential for an underground fuel storage tank (UST) to be present around the motor vehicle workshop. The location of this UST and whether it remains in situ is not known
- a large void underneath the flooring of the motor vehicle workshop, with the soil within the void being sand. The motor vehicle workshop has concrete flooring
- a concrete pad on the south-east side of the motor vehicle workshop, which was historically used as a washdown area. There is a water grate within the concrete pad
- the current tenancies in the buildings, which will remain in operation while their development goes through consenting and design phases
- a potential drycleaning operation that had historically been conducted at the premises

We have included photos from our site walkover in Appendix E.

5. Preliminary conceptual site model

To complete the preliminary risk assessment, we use the source-pathway-receptor (SPR) model. To build the SPR model, we used the desktop assessment to identify potential sources, pathways and receptors that could contribute to a potential risk to human health or the environment. If any of the 3 aspects of the SPR model are missing, there cannot be a risk to human health.

5.1. Preliminary contamination source assessment

Based on our desktop study, we identified that the site has been subject to the following potential/confirmed HAIL activities. The contaminants of potential concern (COPC) for each identified potential/confirmed HAIL activity are detailed in our conceptual site model (CSM).

5.1.1. Engineering workshop (HAIL D.5)

- WRC map a building in the south portion as an engineering workshop associated with Cambridge Engineering and Implement Company. Neither WRC nor WDC hold any additional information for this land use
- The available property records do not have any additional information for this land use
- The building is currently used as a mix of offices and takeaway stores

5.1.2. Motor vehicle workshop (HAIL F.4)

- WRC map a building in the north-west portion as a motor vehicle workshop associated with Stihl, Kirby's Motor, and Cambridge Honda Centre
- A motor vehicle workshop was confirmed in the property files
- A disused sump, associated with the motor vehicle workshop, was identified in the property files

5.1.3. Asbestos building material and lead-based paint (HAIL I)

- The aerial imagery assessment has confirmed buildings were present on-site at the time lead-based paints[8] and asbestos[9] were widespread in construction methods/materials
- Where the buildings are still present, the presence of asbestos-containing material (ACM) can be visually assessed
- Where buildings have been demolished the presence of ACM cannot be determined

5.1.4. Drycleaning premises (HAIL A.5)

- Discussion with the landowner has identified that one of the buildings on the site was potentially used as drycleaners, although this is unconfirmed.

5.1.5. Underground storage tank (HAIL A.17)

- There is potential that an underground storage tank (UST) for petrol and/or diesel was historically or is currently located on the site
- There is no documentation that we have reviewed that records the removal of a UST

5.2. Preliminary migration pathways assessment

We have identified the expected geology is hardstand underlain by sand and silt of the Hinuera Formation. Groundwater is likely to be >20 m bgl.

The current hardstand capping is likely to restrict the migration of solid contaminants, such as paint flakes, dust, and fibres. However, there is potential for contamination to have migrated to the on-site soils prior to the site being capped with hardstand.

Where the source of contamination is in a liquid form (such as solvents and hydrocarbons), the mapped granular geology is likely to allow the deeper migration of contaminants. While the relatively deep groundwater is unlikely to be a large influence on contaminant movement, there is

[8] Lead based paints were common in New Zealand until the 1980s. Source: *Guidelines for the management of lead-based paint*. Occupational safety and health service 1995. Revised by the Ministry of Health 2013.
[9] Buildings constructed or renovated before 2000 are likely to contain asbestos materials. Source: Worksafe New Zealand. Retrieved from https://www.worksafe.govt.nz/topic-and-industry/asbestos/working-with-asbestos/where-asbestos-can-be-found/

potential for heavy sources of contamination (leaking fuel tanks, sumps used to dispose waste oil) to have migrated vertically to groundwater.

Due to the relatively flat topography of the site, it is unlikely that any potential soil contamination has migrated to or from neighbouring sites via overland flow of stormwater. Instead, contaminants transported by stormwater is likely to be directed into municipal drains.

A pathway may exist for volatile contaminants or ground gas to move through soil. This pathway must be considered if contamination capable of volatilising or generating ground gas is discovered during the investigation. The pathway is heavily influenced by the soil type and other confining structures (such as buildings or concrete pads).

5.3. Preliminary receptor assessment

The client proposed redeveloping the site into a multi-storey mixed-use development. The entire site will be sealed with a mix of buildings and hardstand trafficking/parking areas.

As the site will be fully sealed, we consider construction workers during soil excavation and maintenance activities to be the primary site receptors. If a source of volatile contamination is identified, future retail/office workers and residents may also be site receptors.

5.4. Preliminary conceptual site model

A conceptual site model (CSM) is a communication tool for considering potential human health and environmental risk at a site. Our preliminary CSM is presented in Table 3.

Table 3: Preliminary conceptual site model

SOURCE		PATHWAY		RECEPTOR
HAIL	**COPC**	**Migration pathways**	**Routes of entry**	**Potential receptors**
Engineering workshop (D.5)	Heavy metals, total petroleum hydrocarbons (TPH), semi-volatile organic compounds (SVOC)	Soil disturbance, dust/vapour generation, hydraulic movement	Dermal contact, inhalation of dust or vapours, ingestion of dust or soil	Construction/ maintenance workers, soil biota, future site users (vapour pathway only)
Drycleaners (A.5)	Perchloroethylene (PCE), other chlorinated solvents (VOCs), TPH	Soil disturbance, dust/vapour generation, hydraulic movement	Dermal contact, inhalation of dust or vapours, ingestion of dust or soil	Construction/ maintenance workers, soil biota, future site users (vapour pathway only)
Underground Storage tank (A.17)	TPH, PAH, BTEX	Soil disturbance, dust/vapour generation, hydraulic movement	Dermal contact, inhalation of dust or vapours, ingestion of dust or soil	Construction/ maintenance workers, soil biota, future site users (vapour pathway only)
Motor vehicle workshop (F.4)	Heavy metals, TPH, volatile organic compounds (VOC)	Soil disturbance, dust/vapour generation, hydraulic movement	Dermal contact, inhalation of dust or vapours, ingestion of dust or soil	Construction/ maintenance workers, soil biota, future site users (vapour pathway only)

SOURCE		PATHWAY		RECEPTOR
HAIL	**COPC**	**Migration pathways**	**Routes of entry**	**Potential receptors**
Asbestos building material and lead-based paint (I)	Lead	Soil disturbance, dust generation	Dermal contact, inhalation of dust, ingestion of dust or soil	Construction/ maintenance workers, soil biota
	Asbestos	Surface water run-off, soil disturbance, dust/fibre generation	Inhalation of fibres	Site workers

6. Soil sampling and laboratory testing

6.1. Sampling rationale

We completed a limited intrusive sampling investigation to collect some initial site data and initially characterise some areas of the site.

We considered the following when developing our sampling and analysis plan:

- the preliminary CSM
- CLMG No. 5[10]
- the HAIL areas and COPC identified during the desktop investigation

As the buildings will remain operational while the client goes through their consenting and design phases, our sampling was limited to the parking areas at the rear of the site.

Based on the limited area available for sampling, we chose to target the following areas:

- directly east of the former motor vehicle workshop and concrete washdown area. This area is also adjacent to an area of building formerly clad in ACM
- between the former motor vehicle workshop and engineering workshop. This area is also the location of a building removed between 1961 and 1971
- directly east of the former engineering workshop

6.2. Ground conditions, samples collected, and analysis requested

We were engaged to complete a geotechnical investigation of the site at the same time as our environmental sampling. Our geotechnical investigation included 3 CPTs to 20 m bgl and 3 flight augers to 5 m bgl. Our environmental samples were collected from the soil recovered from the flight augers.

Appendix B contains a figure showing sample locations.

6.2.1. Geotechnical investigation

Our flight augers encountered:

- up to 0.2 m of gravel hardstand
- uncontrolled fill (sand, topsoil, inert manufactured material) below the hardstand and ranging from 0.5 m to 1.5 m bgl
- native sand and silt below the uncontrolled fill to 5 m bgl

[10] Ministry for the Environment. 2021. *Contaminated land management guidelines No. 5: Site investigation and analysis of soils (Revised 2021)*. Wellington: Ministry for the Environment

- no groundwater within the tested 5 m

The CPTs encountered the same geology (gravel hardstand and uncontrolled fill underlain by native silt/sand), with the native sand/silt encountered to 20 m bgl. No groundwater was interpreted within the CPTs.

6.2.2. Addition to our preliminary CSM

Our flight augers encountered uncontrolled fill ranging from 0.5 m to 1.5 m bgl. The presence of uncontrolled fill or fill of unknown origin is considered a HAIL activity under G.3 (landfill sites).

Our addition of HAIL G.3 to the preliminary CSM is presented in Table 4.

Table 4: Addition to our preliminary CSM

SOURCE		PATHWAY		RECEPTOR
HAIL	**COPC**	**Migration pathways**	**Routes of entry**	**Potential receptors**
Uncontrolled fill (G.3)	Heavy metals, total petroleum hydrocarbons (TPH), semi-volatile organic compounds (SVOC)	Soil disturbance, dust generation, hydraulic movement	Dermal contact, inhalation of dust or vapours, ingestion of dust or soil	Construction/ maintenance workers, soil biota, future site users (vapour pathway only)

6.2.3. Samples collected and analysis requested

Details of sampling locations and analytes for each identified activity is shown in Table 5 below. Based on the soil recovered and the sample locations, we chose to screen select soil samples for heavy metals, polycyclic aromatic hydrocarbons (PAH), and asbestos.

Table 5: Sample details

Sample ID	Sampled depths (m bgl)	Comments	Analytes
ES01	0.4	Uncontrolled fill with intermixed glass, aggregate, and glazed ceramics encountered from 0.2 m to 1.5 m bgl. No chemical staining or odour noted in the recovered soil.	Heavy metals, PAH, semi-quantitative asbestos
	0.9		Heavy metals
	1.5	Soil consisted of native sand/silt, with no visual or olfactory evidence of contamination.	Heavy metals
	2.5, 3.5, 5		Placed in cold storage
ES02	0.4	Uncontrolled fill with intermixed glass, aggregate, and glazed ceramics encountered from 0.2 m to 1.5 m bgl. No chemical staining or odour noted in the recovered soil.	Heavy metals, PAH
	0.6	Soil consisted of native sand/silt, with no visual or olfactory evidence of contamination.	Heavy metals
	1.5, 2.5, 3.5, 4.9		Placed in cold storage
ES03	0.4	Uncontrolled fill with intermixed glass, aggregate, and glazed ceramics encountered from 0.2 m to 1.5 m bgl. No chemical staining or odour noted in the recovered soil.	Heavy metals, PAH
	1	Soil consisted of native sand/silt, with no visual or olfactory evidence of contamination.	Heavy metals
	2.5, 3.5, 4.9		Placed in cold storage

We note that our site sampling only investigated the uncontrolled fill, and therefore did not address any of the following potential HAIL activities:

- Engineering workshop
- Motor vehicle workshop
- Potential underground storage tanks (UST)
- Potential dr cleaning facility
- Soils impacted from lead-based paint and asbestos building materials

6.3. Applied quality assurance and quality control

We applied the following quality assurance (QA) procedures:

- Our site investigation was completed following our standard operating procedures and in general accordance with CLMG No. 5
- A suitably qualified and experienced practitioner (SQEP) with contaminated land experience oversaw the investigation. A suitable trained technician collected the samples
- We chose Hill Labs to analyse our samples, who is IANZ accredited for the analyses requested. Samples were transported to Hill Labs under chain-of-custody protocols

We applied the following quality control (QC) procedures:

- We collected a duplicate sample from ES01 at 0.4 m depth to calculate the relative percent differences (RPD) for heavy metals
- We set a conservative data quality objective (DQO) of 50% for the calculated RPD, accounting for the non-homogenous nature of the uncontrolled fill and the primary receptors
- We requested the QC data completed by Hill Labs for the runs containing our samples to review

7. Laboratory results and evaluation of QC

We have provided a summary table of laboratory results in Appendix G and laboratory reports in Appendix H. The laboratory results were compared to the following commercial/industrial human health guidelines (the guidelines) and are discussed below:

- NESCS soil contaminant standards[11] for heavy metals and benzo(a)pyrene
- National Environmental Protection Measure (NEPM)[12] standards for nickel and zinc
- Ministry for the Environment (MfE) petroleum hydrocarbon Tier 1 guidelines for naphthalene and pyrene[13]
- New Zealand guidelines for assessing and managing asbestos in soil (GAMAS) for asbestos[14]

We also compared results to:

- ecological soil guideline values[15] (EcoSGV) (60% land use protection) for heavy metals, fluoranthene, and benzo(a)pyrene
- Waikato background concentrations[16] for assessment of NESCS consenting requirements

[11] Ministry for the Environment. 2012. Users' Guide: National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health. Wellington: Ministry for the Environment.
[12] National Environmental Protection Council. National Environmental Protection (Site Contamination) Measure. *Schedule B1 – Guideline on investigation levels for soil and groundwater*. Revised 2013.
[13] Ministry for the Environment. *Guidelines for assessing and managing petroleum hydrocarbon contaminated sites in New Zealand (revised 2011)*. Module 4: Tier 1 soil acceptance criteria. Dated August 1999
[14] Building Research Association of New Zealand. New Zealand guidelines for assessing and managing soil. November 2017
[15] Landcare Research. User Guide: Background soil concentrations and soil guideline values for the protection of ecological receptors (Eco-SGVs) – Consultation draft. Envirolink grant: C09X1402 / 1935-GSDC156, issued June 2019
[16] Waikato Regional Council. *Natural background concentrations in the Waikato region*. https://www.waikatoregion.govt.nz/services/waste-hazardous-substances-and-contaminated-sites/contaminated-sites/natural-background-concentrations/. Accessed 30/01/25

- WasteMINZ class 3 waste acceptance criteria[17] (WAC) and the Waikato regional cleanfill criteria[18] (WCC) to assess off-site disposal options

7.1.1. Human health risk

- All heavy metals and PAH are below the guidelines
- Asbestos was not detected in soil

7.1.2. Environmental risk

- Copper and zinc exceed the EcoSGV at location ES01, 0.4 m depth
- Zinc exceeds the EcoSGV at locations ES01, 0.9 m depth, and ES03, 0.4 m depth

7.1.3. Waste assessment

- Select heavy metals exceed the WCC and Class 3 WAC for all samples analysed within the uncontrolled fill
- Heavy metals and PAH are below the WCC for all samples analysed within the native soil

7.1.4. Background concentrations assessment

- Select heavy metals are elevated above expected background concentrations within all samples except ES02 at 0.6 m depth

7.2. Evaluation of QC

The outcomes of the QC applied to our investigation are below:

- the calculated RPDs for heavy metals ranged from 0% to 26% (Appendix G), within the applied DQO of 40%
- the Hill Labs sample runs containing our samples (Appendix H) had QC results (blanks, sample spikes, reference materials) within acceptable ranges

Based on the QC completed, we believe that the collected data is representative of contaminant concentrations in the on-site soil and can be relied upon for assessing potential risk to human health and consenting requirements under the NESCS.

8. Site evaluation and revised risk assessment

8.1. Source evaluation

8.1.1. Engineering workshop (HAIL D.5) & Motor vehicle workshop (HAIL F.4)

Our desktop study and site investigation has confirmed the presence of a motor vehicle workshop and engineering workshop. These areas are 'pieces of land' under the NESCS, with an uncharacterised risk to human health. Additional soil sampling and analysis will be required following the demolition of the buildings in the form of a detailed site investigation (DSI). Specific areas that must be investigated include:

- underneath the building slabs for both the former vehicle workshop and engineering workshop, including:
    - any areas where visual or olfactory evidence of contamination are observed on the concrete flooring or underlying soil

[17] WasteMINZ. *Technical Guidelines for Disposal to Land.* September 2023
[18] Waikato Regional Council. *Standard operating policies for defining cleanfill acceptance criteria*. Revised 15/09/2018

    - any potentially contaminating structures, such as vehicle inspection pits or chemical/fuel storage bunds/bunkers
- the disused sump, south-east of the motor vehicle workshop and mapped in Appendix A, figure 104
- the potential UST associated with the former motor vehicle workshop

8.1.2. Uncontrolled fill (HAIL G.3)

Our investigation encountered uncontrolled fill with concentrations of heavy metals above waste disposal and environmental guidelines. As the extent of the uncontrolled fill is not known, the entire site is a 'piece of land' under the NESCS. The extent of this 'piece of land' must be refined as part of a DSI.

A risk to human health does not exist for the proposed works, as all COPC are below the applied human health guidelines relevant to site workers (the primary receptors).

8.1.3. Asbestos building material and lead based paint (HAIL I)

All lead concentrations are below the applied human health and ecological guidelines, and no asbestos was detected in soil tested. However, none of the samples were collected adjacent the buildings, where paint and building material contamination is typically deposited.

Although the site is covered in hardstand and therefore it is more likely than not that no lead or asbestos has entered soil, it would be prudent to collect some additional soil data after building demolition to appropriately characterise the soils for risk assessment and disposal.

It remains undetermined whether HAIL I applies.

8.1.4. Drycleaning premises (HAIL A.5)

There is no conclusive qualitative or quantitative data to rule out risk from contaminants associate with drycleaning activities.

Further testing for these contaminants should be completed once the site is cleared and the site can be investigated in more detail.

It remains undetermined whether HAIL A.5 applies.

8.1.5. Underground storage tank (HAIL A.17)

None of the sampling data indicates that there is any risk to human health from hydrocarbons in soil, however, the potential tank has not been fully investigated, and it is not known where the tank was located.

We recommend further investigation after the buildings on site are demolished to address any risks to human health and/or the environment from hydrocarbons stored in USTs.

It remains undetermined whether HAIL A.17 applies.

8.2. Revised preliminary CSM

We have revised our preliminary CSM based on the results of our sampling, and an evaluation of the risk to human health for the proposed works and landuse. The revised CSM is shown in Table 6.

Table 6: Revised preliminary CSM and NESCS evaluation

SOURCE		PATHWAY		RECEPTOR	ASSESSMENT
HAIL	**COPC**	**Pathways**	**Routes of entry**	**Potential receptors**	**Assessment**
Engineering workshop (D.5)	Heavy metals, TPH, SVOC	Soil disturbance, dust/vapour generation, hydraulic movement	Dermal contact, inhalation of dust or vapours, ingestion of dust or soil	Construction/ maintenance workers, soil biota, future site users (vapour pathway only)	These areas remain uncharacterised. These areas are confirmed HAIL which requires further investigation.
Motor vehicle workshop (F.4)	Heavy metals, TPH, VOC				
Uncontrolled fill (G.3)	Heavy metals	Soil disturbance, dust generation	Dermal contact, inhalation of dust, ingestion of dust or soil		All COPC are below the guidelines. This area is a confirmed HAIL, with the extent requiring refinement.
Drycleaners (A.5)	Perchloroethylene (PCE), other chlorinated solvents (VOCs), TPH	Soil disturbance, dust/vapour generation, hydraulic movement	Dermal contact, inhalation of dust or vapours, ingestion of dust or soil	Construction/ maintenance workers, soil biota, future site users (vapour pathway only)	This area remains uncharacterised. This area is an unconfirmed HAIL which requires further investigation.
Underground Storage tank (A.17)	TPH, PAH, BTEX	Soil disturbance, dust/vapour generation, hydraulic movement	Dermal contact, inhalation of dust or vapours, ingestion of dust or soil	Construction/ maintenance workers, soil biota, future site users (vapour pathway only)	This area remains uncharacterised. This area is an unconfirmed HAIL which requires further investigation.
Asbestos building material and lead-based paint (I)	Heavy metals, asbestos	Soil disturbance, dust generation	Dermal contact, inhalation of dust/fibres, ingestion of dust or soil	Construction/ maintenance workers, soil biota, future site users (vapour pathway only)	This area remains uncharacterised. This area is an unconfirmed HAIL which requires further investigation.

9. Regulatory assessment and WAC

9.1. NESCS

The NESCS applies when a person wants to do a specific activity (in this case, soil disturbance) on a 'piece of land' (land where an activity described on the HAIL is, has, or more likely than not has been undertaken on it).

The NESCS applies to the site because the following HAIL activities are (or have been) present:

- An engineering workshop (HAIL D.5)
- A motor vehicle workshop (HAIL F.4)

- Uncontrolled filling (HAIL G.3) across the investigation area

The following HAIL activities have also potentially occurred on the site and have not been fully investigated.

- Drycleaning activities (HAIL A.5)
- A hydrocarbon Underground Storage Tank (HAIL A.17)
- Incidental asbestos and lead contamination from degrading building materials (HAIL I)

All 6 HAIL activities are 'pieces of land' under the NESCS. A map showing the preliminary 'piece of land' extents is included in Appendix A, figure 104.

As consent has been applied for on a site where HAIL activities have been undertaken and there is no DSI fully investigating a site, the application is a discretionary activity under the NESCS.

9.2. WasteMINZ WAC and offsite disposal

Copper, lead, and zinc are present in the uncontrolled fill at concentrations exceeding the WCC and Class 3 WAC. Therefore, the soil must be disposed at a Class 1 or 2 disposal facility.

We have completed TCLP testing of the soil (see Appendix H), which confirms that the uncontrolled fill soil is suitable for off-site disposal at a Class 1 or 2 facility.

10. Conclusions

Our conclusions are that:

- there are 6 potential 'pieces of land' on the site, with their preliminary extents mapped in Appendix A, figure 104. These 'pieces of land' are associated with:
    - a former engineering workshop
    - a former motor vehicle workshop
    - the presence of uncontrolled fill within the site
    - a former dry cleaners
    - an underground storage tank
    - degraded lead-based paint and asbestos building materials
- from the limited data, our initial assessment is that there is no risk to human health from the uncontrolled fill on the site
- the risk to human health and the environment from the remaining 5 'pieces of land' has not been fully assessed or determined
- if off-site disposal of the uncontrolled fill is needed, it must be taken to a Class 1 or 2 facility
- a DSI is needed to investigate, assess, and refine all 6 identified 'pieces of land', specifically:
    - the extent of the uncontrolled fill
    - potential for a fuel UST associated with the motor vehicle workshop
    - potential for soil contamination associated with the drycleaners
    - degraded building materials (lead and asbestos) leading to incidental soil contamination

11. Next steps

We have identified 6 'pieces of land' on the site and determined the NESCS will apply for the proposed soil disturbance.

We recommend that Consent is granted under the NESCS with the following conditions in place:

- Before any earthworks are completed on the site, a detailed site investigation must be completed for the site. The DSI must be prepared by a suitably qualified and experienced practitioner (SQEP) and submitted to Waipa District Council (WDC) for review and certification. The DSI must include:

    a) additional site investigation and soil sampling

    b) further characterisation of the uncontrolled fill on site

    c) further assessment of the extent of the uncontrolled fill on the site

- any matters arising from review of the DSI must be resolved in consultation with WDC prior to the DSI being certified.
- Before any earthworks are completed on the site, a contaminated soil management plan (CSMP) / Remediation Action Plan (RAP) must be prepared by a suitably qualified and experienced practitioner (SQEP) and submitted to WDC for review and certification.

We have prepared a draft DSI sampling and analysis plan for the proposed DSI, included in Appendix I.

11.1. Further works

After consent is granted, the following is likely to be required to enable your proposed development:

- a DSI, to investigation, assess, and refine the 6 identified 'pieces of land'
- a site management plan (SMP), to put controls in place to manage the disturbance, handling, and disposal of contaminated soil
- a remedial action plan (RAP) should the DSI identify a risk to human health, to safely manage site remediation. If site remediation is needed, oversight and validation sampling by a SQEP would also be required
- a site validation report (SVR) detailing the management (and remediation, if needed) of the 'pieces of land' and confirming that all NESCS-related conditions have been achieved

12. Limitations

This document does not include any assessment or consideration of potential health and safety issues under the Health and Safety Work Act 2015. HD Geo 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 HD Geo. This document may be transmitted, reproduced, or disseminated only in full. This report has been prepared for the client, their professional advisers, and the relevant territorial and regional authorities for the purposes detailed above and may not be relied on by any other party for any other purposes.

From a technical perspective, the subsurface environment at the 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, or chemical movement. HD Geo's professional opinions are based on its professional judgement, experience, and training. It is possible that testing and analysis might produce different results and/or different opinions. Should additional information become available, this report should be updated accordingly.

13. Certification

This report presents information from an environmental site investigation conducted by and under the oversight of a SQEP with contaminated land expertise, as required by the National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health and who is a Certified Environmental Practitioner. Detailed qualifications are available upon request.



Matt Moore

Certified Environmental Practitioner, CEnvP #1703

APPENDIX A - SITE CONCEPT PLANS

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Site Description

Cambridge, New Zealand
Waipa District

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32 Victoria Street - LOT 7 DP 4011

Zone: Commercial, with '*Character precincts overlay*'
Wind Zone: Medium
(branz inforamation inidcative ONLY)
Earthquake Zone: 1
Exposure Zone: B
Rainfall Range: 80-90mm

Site Coverage / Area (Approx. only)

Site area (Total) =	**2145m²**
Existing Building Coverage =	1514m²
Proposed Building Coverage =	1748m²

Line to perimeter of site indicates construction demarcation line. Construction confined to within this area.

Site Boundary

Site Plan - Existing

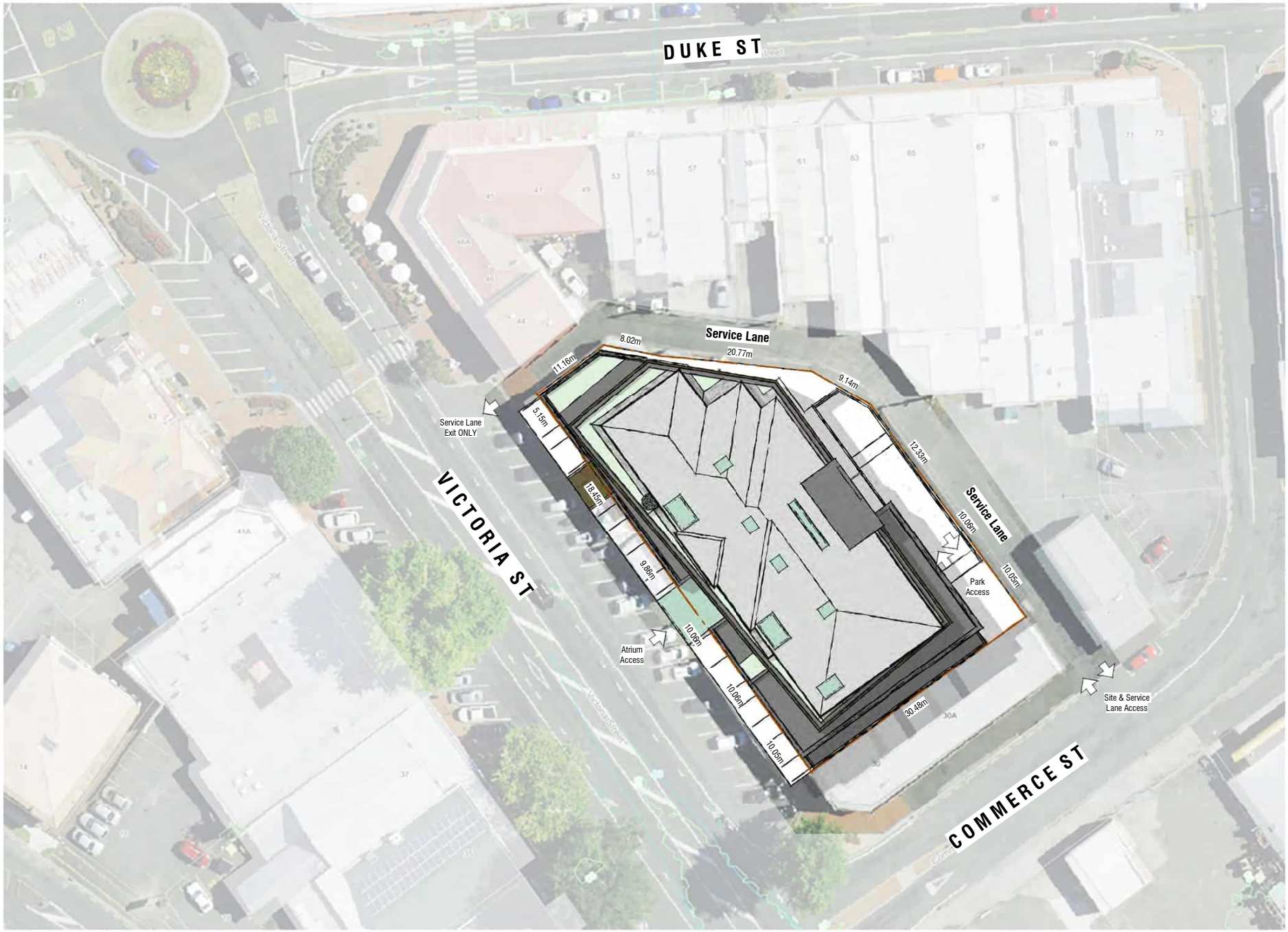
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Cambridge Development
32-42 Victoria St, Cambridge
Feasiblity

Job No.	Scale [A3]	Drawing No.	Rev	Issue Date	Drawing Title	Print Date
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Site Boundary

Site Plan - Proposed

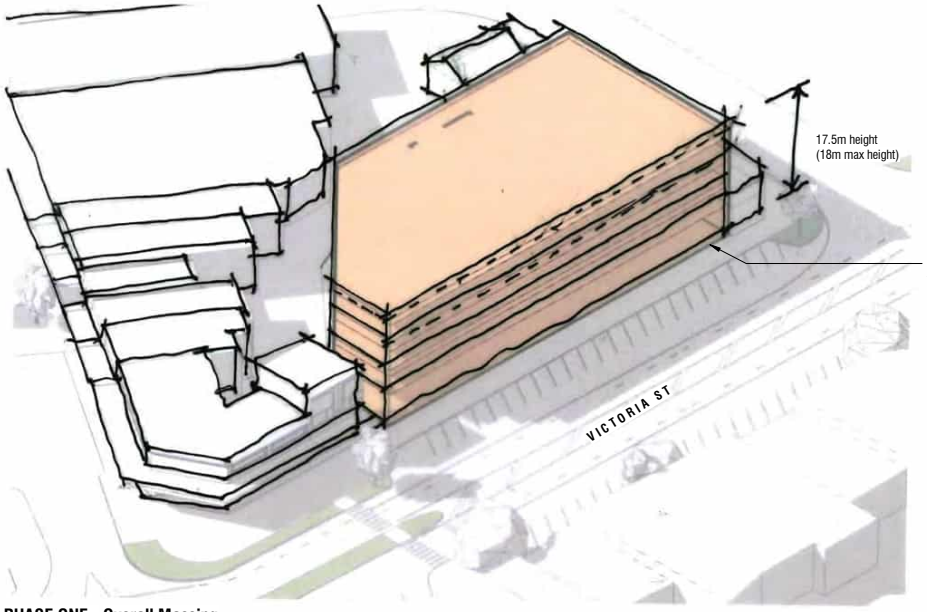
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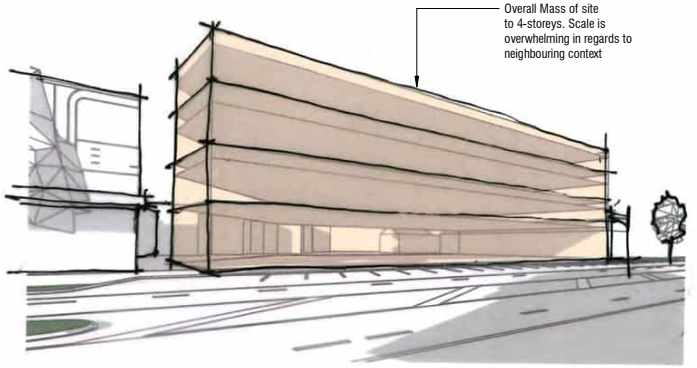
Cambridge Development
32-42 Victoria St, Cambridge
Feasiblity

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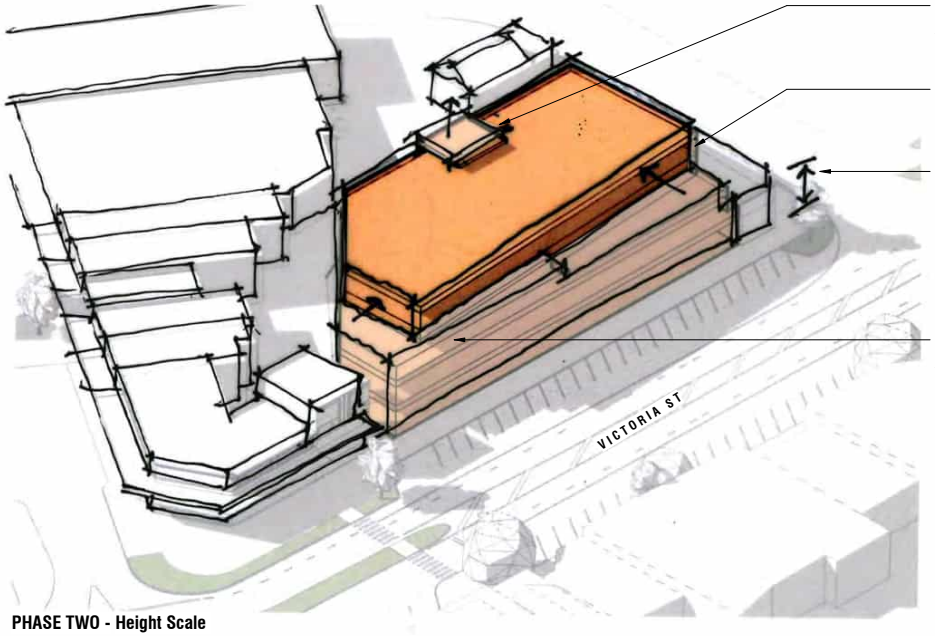
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PHASE ONE - Overall Massing





PHASE TWO - Height Scale

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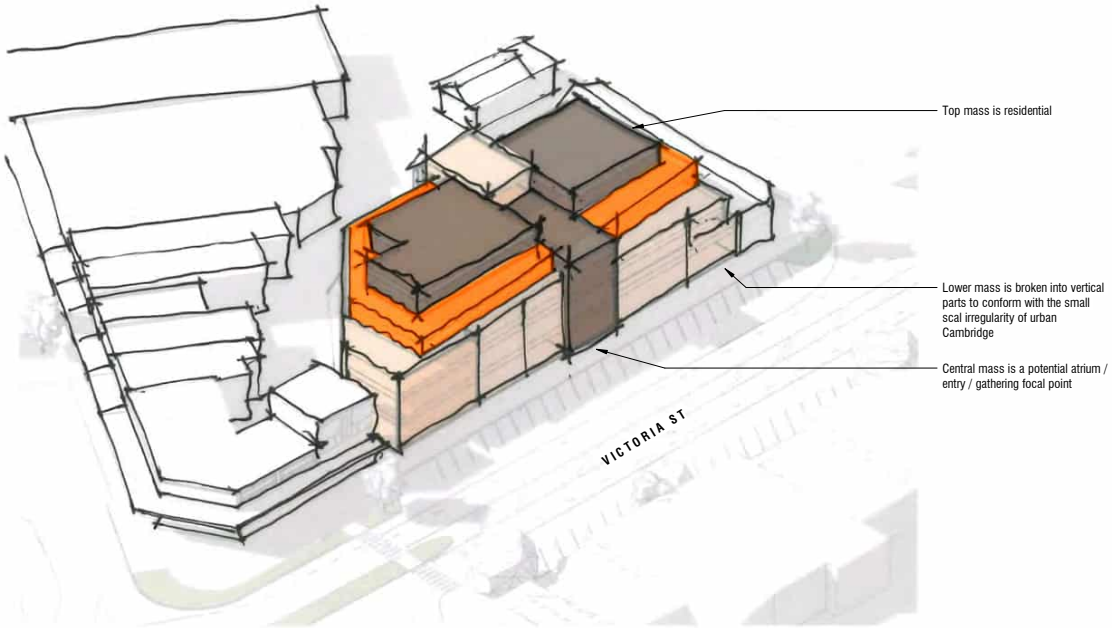
32-42 Victoria St, Cambridge

Feasiblity

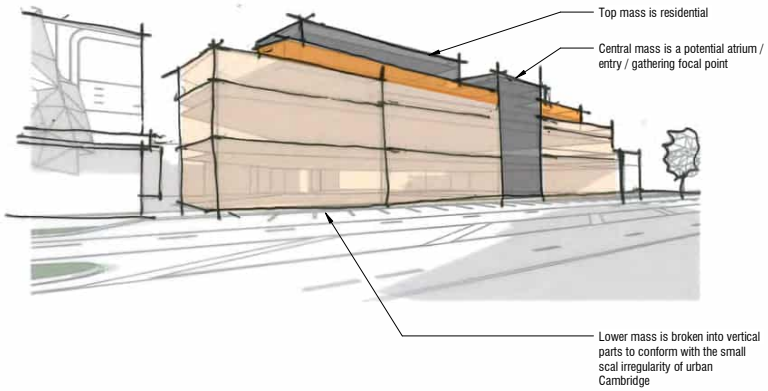
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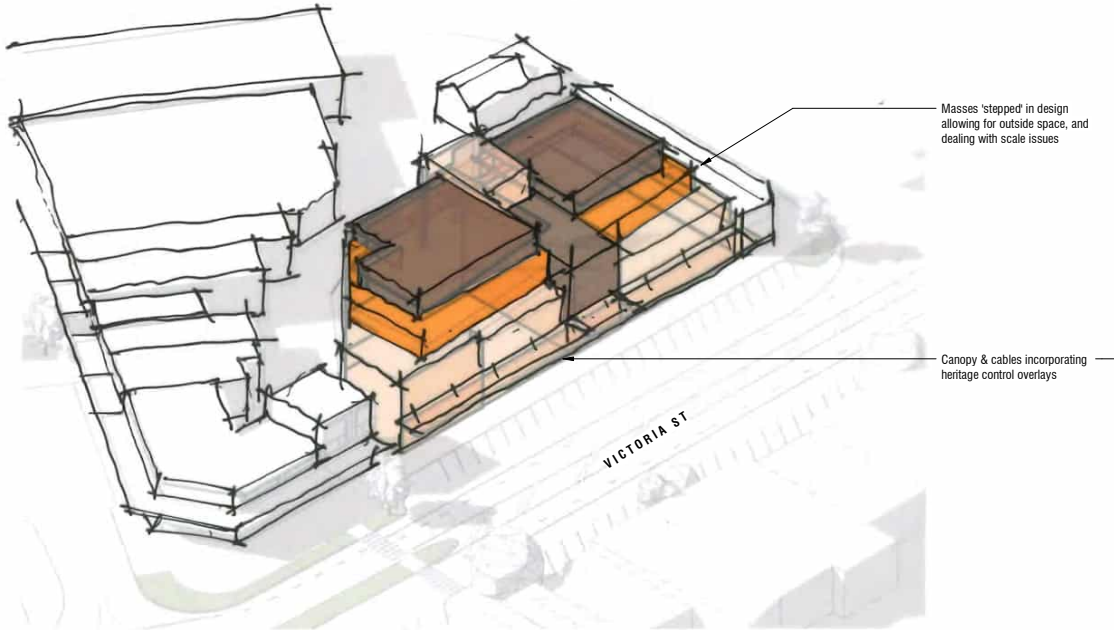
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PHASE Three- Vertical Articulation & Developed Forms





PHASE Four - Heritage Overlays Incorporated



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6968		SK1.06		July 2023	3D PHASES	16/02/2024 11:39:13 am

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Waipa District

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32 Victoria Street - LOT 7 DP 4011

Zone: Commercial, with *'Character precincts overlay'*
Wind Zone: Medium
(branz inforamation inidcative ONLY)
Earthquake Zone: 1
Exposure Zone: B
Rainfall Range: 80-90mm

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Proposed Building Coverage =	1748m²

Line to perimeter of site indicates construction demarcation line. Construction confined to within this area.

Site Boundary

Building Areas (Approximate Only)

PROPOSED BUILDINGS

Basement Carpark

Total Area =	**1765m²** *(Gross)*
Parking =	1396m² *(Net)*, 38 Parks
Core (Lobby / Plant & Riser) =	235m² *(Gross)*
Storage =	71m² *(Gross)*

L0 - Ground Floor (Retail & Cafe)

Total Area =	**1387m²** *(Gross)* Excluding Atrium space & Loading Bays
WC (Toilets) =	18.8m² *(Net)*
Core (Lobby / Stairs & Lifts) =	110m² *(Gross)*
Good & Services / Loading =	167m² *(Gross)*
Retail Tenancies =	**1076m² *(Net)***
Atrium =	185m² *(Net)*

L1 - First Floor (Office Tenancies)

Total Area =	**1500m²** *(Gross)* Excluding Atrium space & Outdoor Space
WC (Toilets) =	18.8m² *(Net)*
Core (Lobby / Stairs & Lifts) =	118m² *(Gross)*
Office Tenancies =	**1158m² *(Net)***
Atrium Void =	112m² *(Net)*
Outdoor Space =	68m² *(Gross)*

L2 - Second Floor (Office Tenancies) OPTION 1

Total Area =	**1133m²** *(Gross)* Excluding Atrium space & Outdoor Space
WC (Toilets) =	18.8m² *(Net)*
Core (Lobby / Stairs & Lifts) =	118m² *(Gross)*
Office Tenancies =	**906m² *(Net)***
Atrium Void =	112m² *(Net)*
Outdoor Space =	84m² *(Gross)*

L2 - Second Floor (Apartments) OPTION 2

Apartment Tenancies =	**846m² *(Net)***

REFER DRAWINGS FOR APARTMENT AREAS

L3 - Third Floor (Apartments)

Total Area =	**760m²** *(Gross)* Excluding Outdoor Space
WC (Toilets) =	18.8m² *(Net)*
Core (Lobby / Stairs & Lifts) =	118m² *(Gross)*
Apartment Tenancies =	**730m² *(Net)***
Outdoor Space =	410m² *(Gross)*

REFER DRAWINGS FOR APARTMENT AREAS

Basment (1-200)

Scale 1 : 200 (A3)

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32-42 Victoria St, Cambridge
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Job No.	Scale [A3]	Drawing No.	Rev	Issue Date	Drawing Title	Print Date
6968	As indicated	SK2.00		July 2023	Plans - Basement	16/02/2024 11:39:13 am

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Building Areas (Approximate Only)

PROPOSED BUILDINGS

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L0 - Ground Floor (Retail & Cafe)

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Atrium Void =	112m² *(Net)*
Outdoor Space =	84m² *(Gross)*

L2 - Second Floor (Apartments) OPTION 2

Apartment Tenancies =	**846m² *(Net)***

REFER DRAWINGS FOR APARTMENT AREAS

L3 - Third Floor (Apartments)

Total Area =	**760m²** *(Gross)* Excluding Outdoor Space
WC (Toilets) =	18.8m² *(Net)*
Core (Lobby / Stairs & Lifts) =	118m² *(Gross)*
Apartment Tenancies =	**730m² *(Net)***
Outdoor Space =	410m² *(Gross)*

REFER DRAWINGS FOR APARTMENT AREAS

Ground Floor - Retail (1-200)

Scale 1 : 200 (A3)

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32-42 Victoria St, Cambridge
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Job No.	Scale [A3]	Drawing No.	Rev	Issue Date	Drawing Title	Print Date
6968	As indicated	SK2.01		July 2023	Plans - GF	16/02/2024 11:39:16 am

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L1 - First Floor (Office Tenancies)

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Outdoor Space =	84m² *(Gross)*

L2 - Second Floor (Apartments) OPTION 2

Apartment Tenancies =	**846m² *(Net)***

REFER DRAWINGS FOR APARTMENT AREAS

L3 - Third Floor (Apartments)

Total Area =	**760m²** *(Gross)* Excluding Outdoor Space
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Core (Lobby / Stairs & Lifts) =	118m² *(Gross)*
Apartment Tenancies =	**730m² *(Net)***
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REFER DRAWINGS FOR APARTMENT AREAS

Level 1 - Office (1-200)

Scale 1 : 200 (A3)

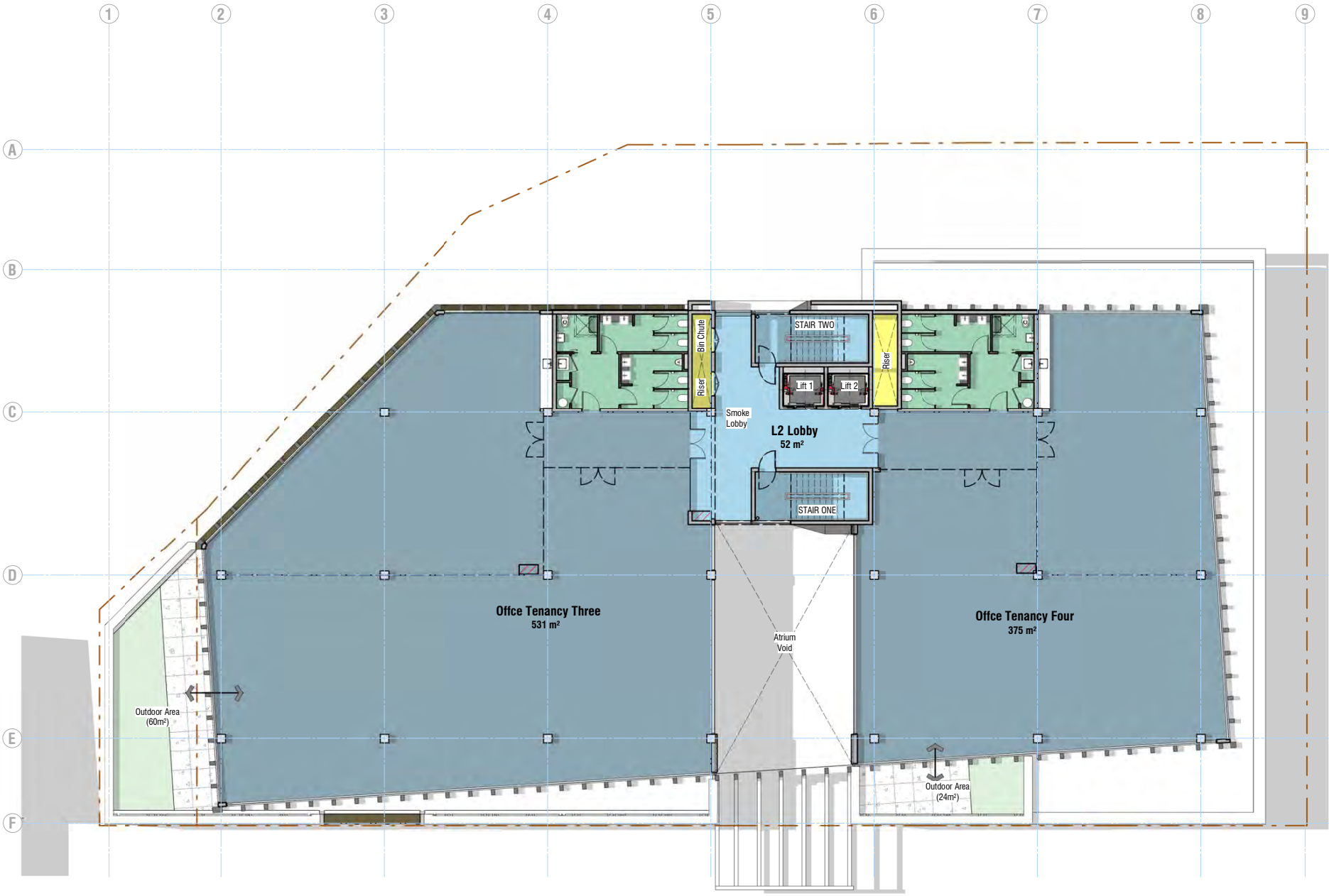
Cambridge Development

32-42 Victoria St, Cambridge
Feasiblity

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Apartment Tenancies =	**846m² *(Net)***

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REFER DRAWINGS FOR APARTMENT AREAS

Level 2 - Office (1-200)
Scale 1 : 200 (A3)

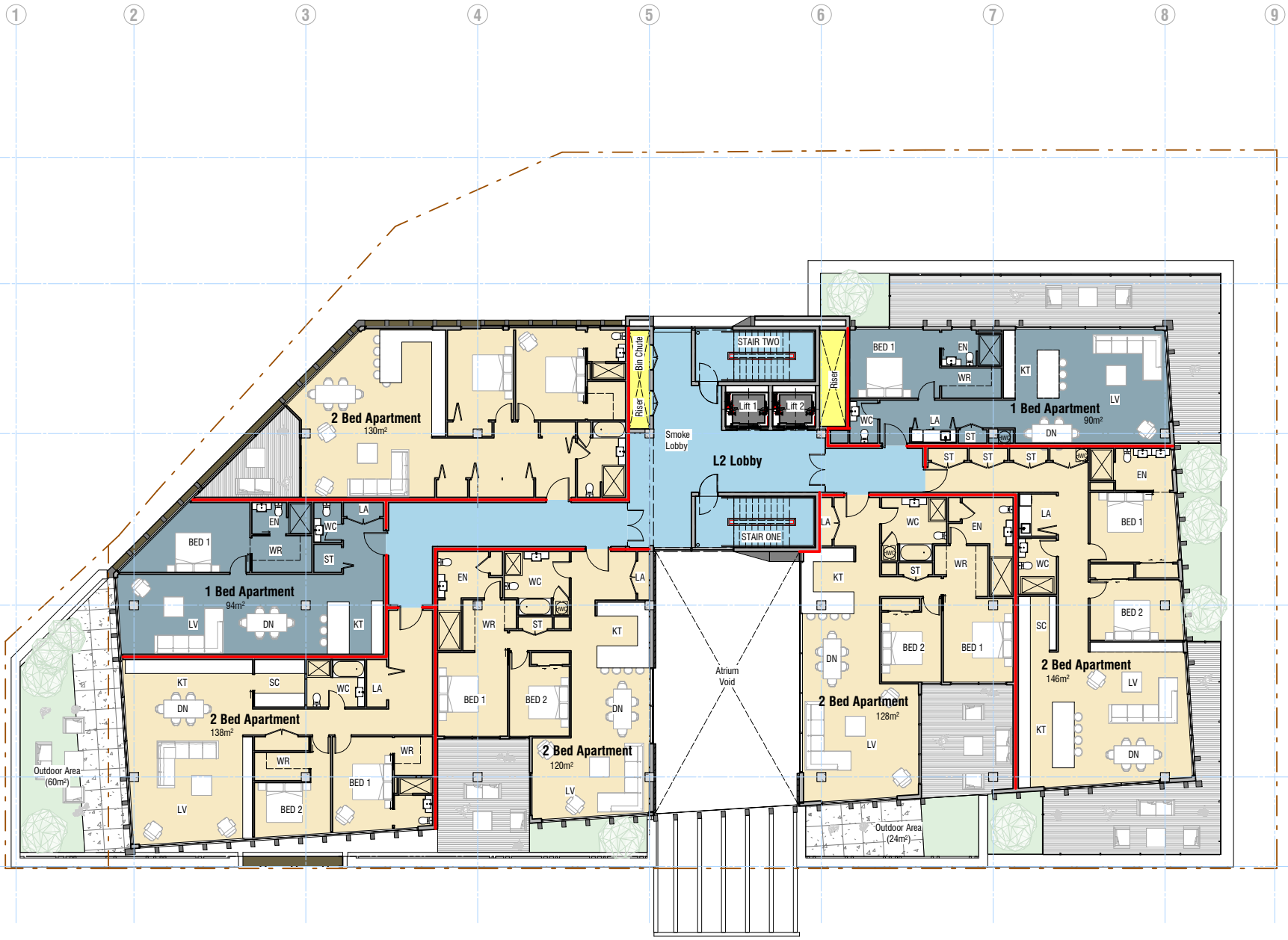
OPTION 1 - Level 2 Office Tenancies

Cambridge Development
32-42 Victoria St, Cambridge
Feasiblity

Job No.	Scale [A3]	Drawing No.	Rev	Issue Date	Drawing Title	Print Date
6968	As indicated	SK2.03		July 2023	Plans - L2	16/02/2024 11:39:19 am

BOON
design thinkers

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Site Description

Cambridge, New Zealand
Waipa District

40-42 Victoria St - LOT 1 DPS 13401, LOT 2 DPS 13401, LOT 4 DPS 13401
38 Victoria Street - LOT 1 DPS 77837
36 Victoria Street - LOT 9 DP 4011
34 Victoria Street - LOT 3 DP 364495, LOT 8 DP 4011
32 Victoria Street - LOT 7 DP 4011

Zone: Commercial, with *'Character precincts overlay'*
Wind Zone: Medium
(branz inforamation inidcative ONLY)
Earthquake Zone: 1
Exposure Zone: B
Rainfall Range: 80-90mm

Site Coverage / Area (Approx. only)

Site area (Total) = **2145m²**
Existing Building Coverage = 1514m²
Proposed Building Coverage = 1748m²

Line to perimeter of site indicates construction demarcation line. Construction confined to within this area.

Site Boundary

Building Areas (Approximate Only)

PROPOSED BUILDINGS

Basement Carpark
Total Area = **1765m²** *(Gross)*
Parking = 1396m² *(Net)*, 38 Parks
Core (Lobby / Plant & Riser) = 235m² *(Gross)*
Storage = 71m² *(Gross)*

L0 - Ground Floor (Retail & Cafe)
Total Area = **1387m²** *(Gross)* Excluding Atrium space & Loading Bays
WC (Toilets) = 18.8m² *(Net)*
Core (Lobby / Stairs & Lifts) = 110m² *(Gross)*
Good & Services / Loading = 167m² *(Gross)*
Retail Tenancies = 1076m² *(Net)*
Atrium = 185m² *(Net)*

L1 - First Floor (Office Tenancies)
Total Area = **1500m²** *(Gross)* Excluding Atrium space & Outdoor Space
WC (Toilets) = 18.8m² *(Net)*
Core (Lobby / Stairs & Lifts) = 118m² *(Gross)*
Office Tenancies = 1158m² *(Net)*
Atrium Void = 112m² *(Net)*
Outdoor Space = 68m² *(Gross)*

L2 - Second Floor (Office Tenancies) OPTION 1
Total Area = **1133m²** *(Gross)* Excluding Atrium space & Outdoor Space
WC (Toilets) = 18.8m² *(Net)*
Core (Lobby / Stairs & Lifts) = 118m² *(Gross)*
Office Tenancies = 906m² *(Net)*
Atrium Void = 112m² *(Net)*
Outdoor Space = 84m² *(Gross)*

L2 - Second Floor (Apartments) OPTION 2
Apartment Tenancies = 846m² *(Net)*
REFER DRAWINGS FOR APARTMENT AREAS

L3 - Third Floor (Apartments)
Total Area = **760m²** *(Gross)* Excluding Outdoor Space
WC (Toilets) = 18.8m² *(Net)*
Core (Lobby / Stairs & Lifts) = 118m² *(Gross)*
Apartment Tenancies = 730m² *(Net)*
Outdoor Space = 410m² *(Gross)*
REFER DRAWINGS FOR APARTMENT AREAS

Level 2 - Apartments (1-200)
Scale 1 : 200 (A3)

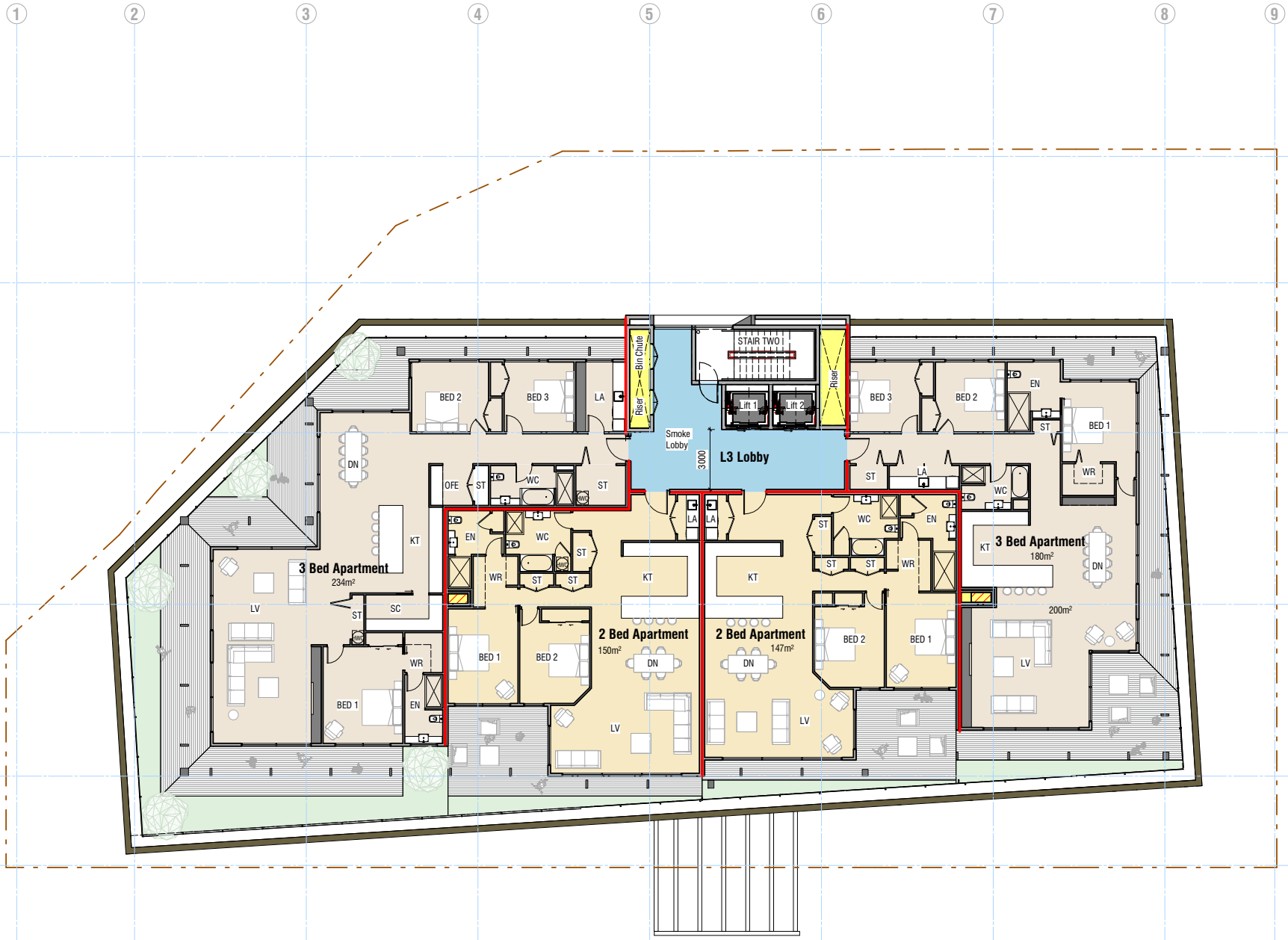
OPTION 2 - Level 2 Apartments

Cambridge Development
32-42 Victoria St, Cambridge
Feasiblity

Job No.	Scale [A3]	Drawing No.	Rev	Issue Date	Drawing Title	Print Date
6968	As indicated	SK2.04		July 2023	Plans - L2 (Apartments)	16/02/2024 11:39:26 am

BOON design thinkers

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Site Description

Cambridge, New Zealand
Waipa District

40-42 Victoria St - LOT 1 DPS 13401, LOT 2 DPS 13401, LOT 4 DPS 13401
38 Victoria Street - LOT 1 DPS 77837
36 Victoria Street - LOT 9 DP 4011
34 Victoria Street - LOT 3 DP 364495, LOT 8 DP 4011
32 Victoria Street - LOT 7 DP 4011

Zone: Commercial, with '*Character precincts overlay*'
Wind Zone: Medium
(branz inforamation inidcative ONLY)
Earthquake Zone: 1
Exposure Zone: B
Rainfall Range: 80-90mm

Site Coverage / Area (Approx. only)

Site area (Total) =	**2145m²**
Existing Building Coverage =	1514m²
Proposed Building Coverage =	1748m²

Line to perimeter of site indicates construction demarcation line. Construction confined to within this area.

Site Boundary

Building Areas (Approximate Only)

PROPOSED BUILDINGS

Basement Carpark
Total Area = **1765m²** *(Gross)*
Parking = 1396m² *(Net)*, 38 Parks
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Total Area = **1387m²** *(Gross)* Excluding Atrium space & Loading Bays
WC (Toilets) = 18.8m² *(Net)*
Core (Lobby / Stairs & Lifts) = 110m² *(Gross)*
Good & Services / Loading = 167m² *(Gross)*
Retail Tenancies = 1076m² *(Net)*
Atrium = 185m² *(Net)*

L1 - First Floor (Office Tenancies)
Total Area = **1500m²** *(Gross)* Excluding Atrium space & Outdoor Space
WC (Toilets) = 18.8m² *(Net)*
Core (Lobby / Stairs & Lifts) = 118m² *(Gross)*
Office Tenancies = 1158m² *(Net)*
Atrium Void = 112m² *(Net)*
Outdoor Space = 68m² *(Gross)*

L2 - Second Floor (Office Tenancies) OPTION 1
Total Area = **1133m²** *(Gross)* Excluding Atrium space & Outdoor Space
WC (Toilets) = 18.8m² *(Net)*
Core (Lobby / Stairs & Lifts) = 118m² *(Gross)*
Office Tenancies = 906m² *(Net)*
Atrium Void = 112m² *(Net)*
Outdoor Space = 84m² *(Gross)*

L2 - Second Floor (Apartments) OPTION 2
Apartment Tenancies = 846m² *(Net)*
REFER DRAWINGS FOR APARTMENT AREAS

L3 - Third Floor (Apartments)
Total Area = **760m²** *(Gross)* Excluding Outdoor Space
WC (Toilets) = 18.8m² *(Net)*
Core (Lobby / Stairs & Lifts) = 118m² *(Gross)*
Apartment Tenancies = 730m² *(Net)*
Outdoor Space = 410m² *(Gross)*
REFER DRAWINGS FOR APARTMENT AREAS

Level 3 - Residential (1-200)

Scale 1 : 200 (A3)

Cambridge Development

32-42 Victoria St, Cambridge
Feasiblity

Job No.	Scale [A3]	Drawing No.	Rev	Issue Date	Drawing Title	Print Date
6968	As indicated	SK2.05		July 2023	Plans - L3	16/02/2024 11:39:30 am

BOON
design thinkers

APPENDIX B - SITE INVESTIGATION PLANS



CLIENT	Pacific Partners Property Limited
TITLE	32 to 42 Victoria Street, Cambridge Site location and sampling plan

Project Number	Drawing Reference	Drawn By	Date	Reviewed By	Date
HD3644	HD3644-101	MM	11/04/25	PG	11/04/25

SCALE 1:500

0 15 30 45 m

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CLIENT: Pacific Partners Property Limited			TITLE: 32 to 42 Victoria Street, Cambridge Local water bodies and topography		
Project Number	Drawing Reference	Drawn By	Date	Reviewed By	Date
HD3644	HD3644-102	MM	28/04/25	PG	28/04/25
SCALE: 1:2,500	0	80	160	240 m	

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NOTES:

1. The whole site is a piece of land that is potetnially impacted with uncontrolled fill

2. There is a potential underground storage tank (UST) on the site, however it's location is unknown

CLIENT	TITLE
Pacific Partners Property Limited	32 to 42 Victoria Street, Cambridge Identified 'pieces of land'

Project Number	Drawing Reference	Drawn By	Date	Reviewed By	Date
HD3644	HD3644-104 - Rev1	Paul Gibbins	23/09/25	PG	23/09/25

SCALE 1:400 — 0 — 15 — 30 — 45 m

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APPENDIX C - HISTORIC AERIAL IMAGERY



CLIENT: Pacific Partners Property Limited			TITLE: 32 to 42 Victoria Street, Cambridge Historic aerial images - 1943		
Project Number	Drawing Reference	Drawn By	Date	Reviewed By	Date
HD3644	HD3644-103a	MM	11/04/25	PG	11/04/25
SCALE: 1:800	0	25	50	75 m	

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CLIENT: Pacific Partners Property Limited			TITLE: 32 to 42 Victoria Street, Cambridge Historic aerial images - 1953		
Project Number	Drawing Reference	Drawn By	Date	Reviewed By	Date
HD3644	HD3644-103b	MM	11/04/25	PG	11/04/25
SCALE: 1:800	0	25	50	75 m	

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CLIENT: Pacific Partners Property Limited			TITLE: 32 to 42 Victoria Street, Cambridge Historic aerial images - 1961		
Project Number	Drawing Reference	Drawn By	Date	Reviewed By	Date
HD3644	HD3644-103c	MM	11/04/25	PG	11/04/25
SCALE: 1:800	0	25	50	75 m	

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CLIENT: Pacific Partners Property Limited			TITLE: 32 to 42 Victoria Street, Cambridge Historic aerial images - 1971		
Project Number	Drawing Reference	Drawn By	Date	Reviewed By	Date
HD3644	HD3644-103d	MM	11/04/25	PG	11/04/25
SCALE: 1:800	0	25	50	75 m	

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CLIENT	Pacific Partners Property Limited
TITLE	32 to 42 Victoria Street, Cambridge Historic aerial images - 1979

Project Number	Drawing Reference	Drawn By	Date	Reviewed By	Date
HD3644	HD3644-103e	MM	11/04/25	PG	11/04/25

SCALE 1:800

0 25 50 75 m

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CLIENT	Pacific Partners Property Limited
TITLE	32 to 42 Victoria Street, Cambridge Historic aerial images - 1995

Project Number	Drawing Reference	Drawn By	Date	Reviewed By	Date
HD3644	HD3644-103f	MM	11/04/25	PG	11/04/25

SCALE 1:800

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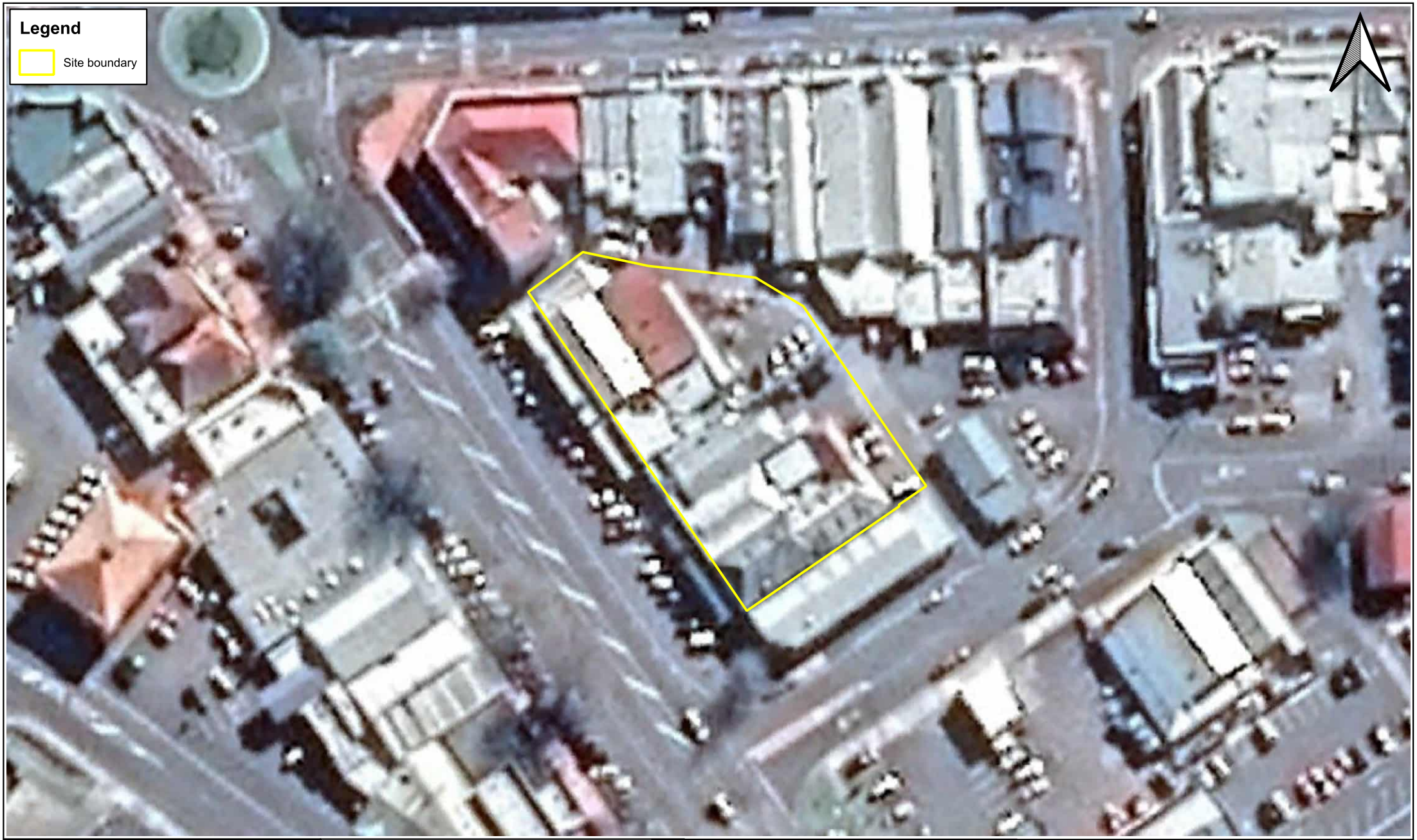
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CLIENT: Pacific Partners Property Limited			TITLE: 32 to 42 Victoria Street, Cambridge Historic aerial images - 2006		
Project Number	Drawing Reference	Drawn By	Date	Reviewed By	Date
HD3644	HD3644-103g	MM	11/04/25	PG	11/04/25
SCALE: 1:800	0	25	50	75 m	

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CLIENT: Pacific Partners Property Limited			TITLE: 32 to 42 Victoria Street, Cambridge Historic aerial images - 2013		
Project Number	Drawing Reference	Drawn By	Date	Reviewed By	Date
HD3644	HD3644-103h	MM	11/04/25	PG	11/04/25
SCALE: 1:800	0 25 50 75 m				

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CLIENT	Pacific Partners Property Limited
TITLE	32 to 42 Victoria Street, Cambridge Historic aerial images - 2024

Project Number	Drawing Reference	Drawn By	Date	Reviewed By	Date
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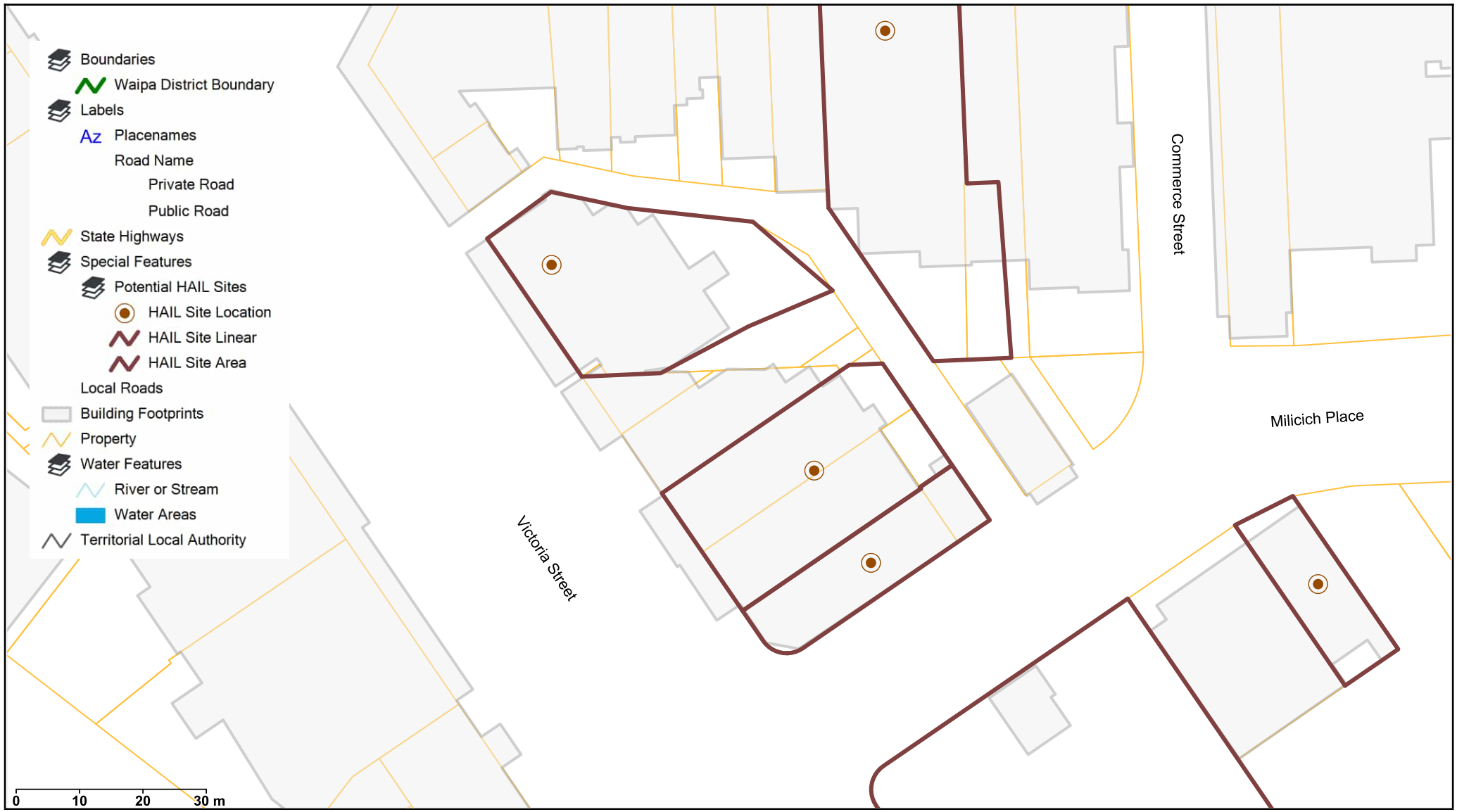
0 25 50 75 m

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APPENDIX D - COUNCIL RESPONSES

Print Date: 03/04/2025



Scale: 1:750

Original Sheet Size A4

Projection: NZGD2000 / New Zealand Transverse Mercator 2000
Bounds: 1817163.38444057,5802841.33315503
1817372.37521634,5802960.85184156

Digital map data sourced from Land Information New Zealand. CROWN COPYRIGHT RESERVED. Copyright © Waipa District Council. Aerial Photography from Terralink, NZ Aerial Mapping, NZ Aerial Surveys, and AAM NZ Ltd & Landpro Ltd (Flown 2002, 2006, 2007, 2008, 2010, 2012, 2015, 2017, 2018 and 2021).
The information displayed has been taken from Waipa District Council's databases and maps.
It is made available in good faith but its accuracy or completeness is not guaranteed and should be interpreted conservatively.
If the information is relied on in support of a resource consent it should be verified independently.

Matt Moore

From: Joshua Evans <Joshua.Evans@waikatoregion.govt.nz>
Sent: Friday, 4 April 2025 10:44 am
To: Matt Moore
Subject: RE Land Use Information Register enquiry 32 - 42 Victoria Street, Cambridge (REQ219085) Multiple LUI

Dear Matt,

Thank you for your enquiry regarding information the Waikato Regional Council may hold relating to potential contamination at the properties indicated below:

32 – 42 Victoria Street, Cambridge



Background: The Waikato Regional Council maintains a register of properties known to be contaminated on the basis of chemical measurements, or potentially contaminated on the basis of past land use. This register (called the Land Use Information Register) is still under development and should not be regarded as comprehensive. The 'potentially contaminated' category is gradually being compiled with reference to past or present land uses that have a greater than average chance of causing contamination, as outlined in the Ministry for the Environment's Hazardous Activities and Industries List (HAIL):
http://www.mfe.govt.nz/sites/default/files/hazards/contaminated-land/is-land-contaminated/hazardous-activities-industries-list.pdf

This property:

- I can confirm that **several** sites within your area of interest **does** appear on the Land Use Information Register, as indicated by the area shaded yellow on the map below.



WRC REF	Site name	Classification	HAIL Code & Description	Comments and files or documents held
LUI07771	Cambridge Engineering and Implement Company Limited	Verified HAIL - No Sampling	D5. Engineering workshops with metal fabrication (Unknown – Current)	This site is included on the register for land use information only; we do not hold soil investigation reports regarding the presence or otherwise of hazardous substances in the soil.
LUI04058	Stihl Shop (Other Known Occupiers: Kirkbys Motor and Cycle Garage/Cabridge Honda Centre)	Verified HAIL - No Sampling	F4. Motor vehicle workshops (Unknown period)	This site is included on the register for land use information only; we do not hold soil investigation reports regarding the presence or otherwise of hazardous substances in the soil.

District Councils: Our records are not integrated with those of territorial authorities, so it would also be worth contacting Waipa District Council to complete your audit of Council records if you have not already done so. In general, information about known contaminated land will be included on a property LIM produced by the territorial authority.

Rural Land Considerations: Examples of sites that are "more likely than not" to have soil contamination (HAIL sites) include timber treatment activities, service stations and/or petroleum storage, panel beaters, spray painters, etc. Whilst pastoral farming is not included on this list, typical farming activities of horticulture, sheep dipping, chemical storage, petroleum storage and workshops are; but are more difficult to identify and may not be as well represented on the Land Use Information Register. Therefore, individuals interested in pastoral land may be interested in completing further investigations in accordance with Ministry for the Environment Guidelines prior to land purchase and/or development.

Additional Information: Please note that:

- Significant use of lead-based paint on buildings can, in some cases, pose a contamination risk; the use of lead-based paint is not recorded on the Land Use Information Register.
- Buildings in deteriorated or derelict condition which contain asbestos can result in asbestos fibres in soil; the use of asbestos in building materials is not recorded on the Land Use Information Register.
- The long term, frequent use of superphosphate fertilisers can potentially result in elevated levels of cadmium in soil; the use of superphosphate fertiliser is not recorded on the Land Use Information Register.
- We are not currently resourced to fully incorporate historic aerial photographs in our region-wide assessment of HAIL activities. A significant proportion of the Crown historical aerial image archive for the Waikato region is available to view free of charge at http://retrolens.nz/. We recommend this resource is consulted for any HAIL assessment.

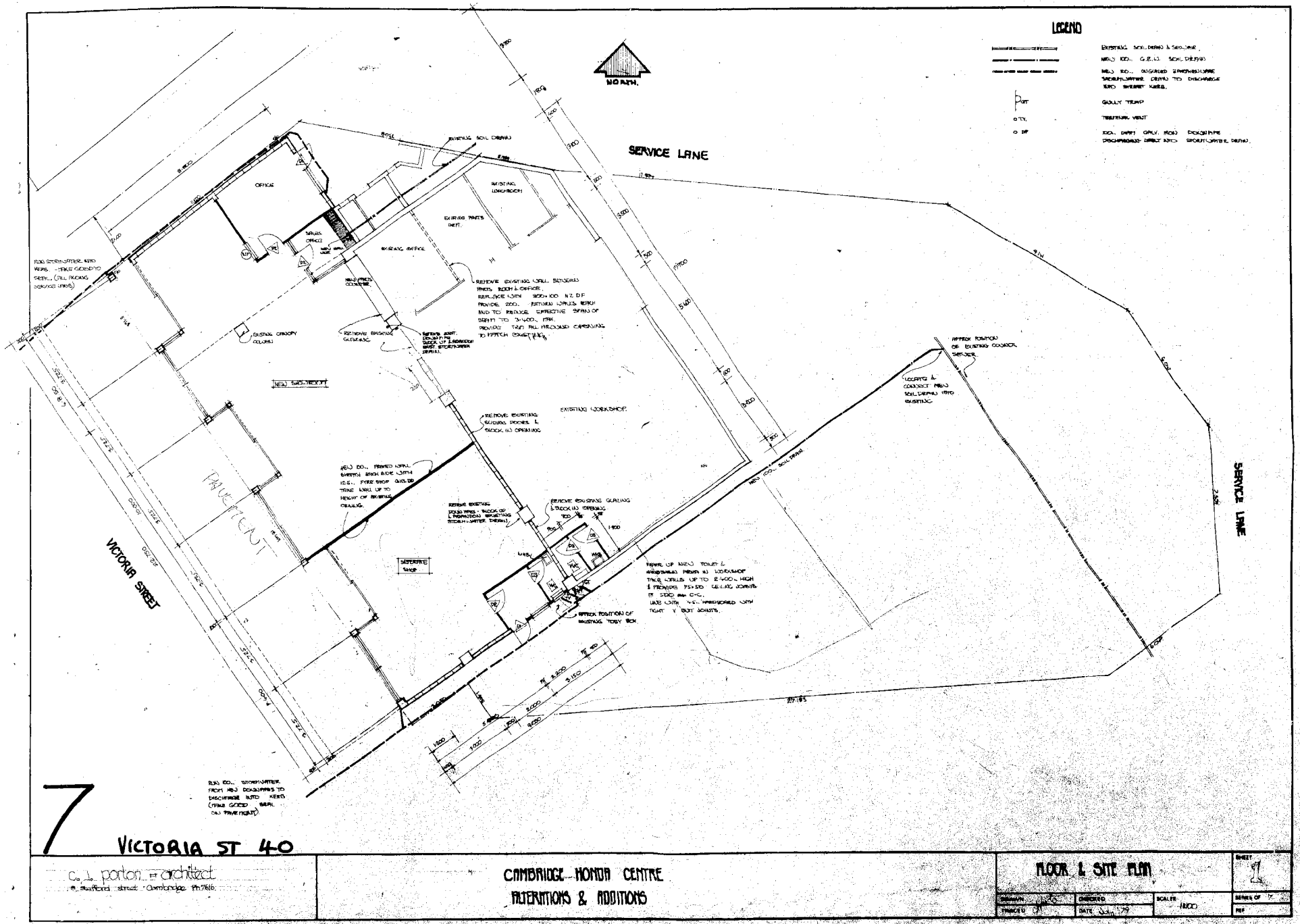
- Due to the large volume of enquiries being received, we may not be able to respond to your enquiry as quickly as previously. We are resourced to meet **20 day** response times as per LGOIMA, but endeavour to respond more quickly when workload permits. If your enquiry is urgent, please note this first in your enquiry and we will do our best to assist.

Please feel free to contact me if you have any further queries on this matter. For any new enquiries or requests for information please continue to use the Request for Service form for 'Contaminated Land/HAIL.'

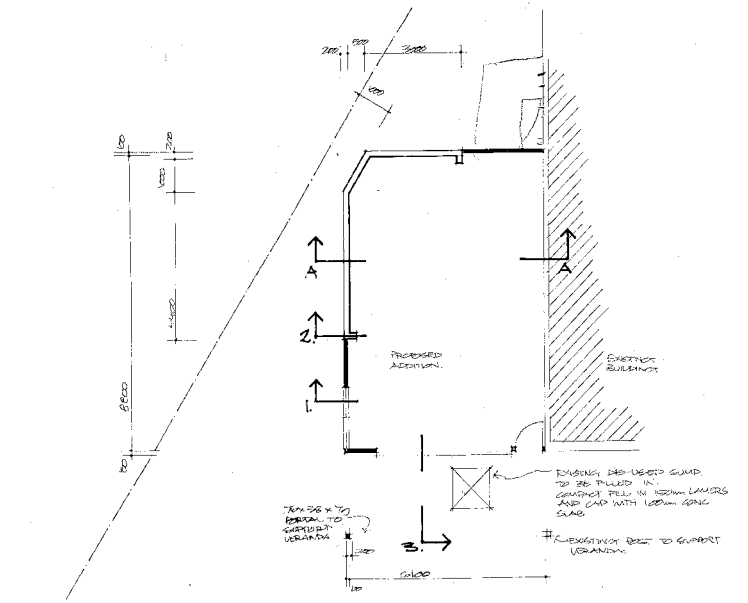
Regards,

Joshua Evans | SCIENTIST - CONTAMINATED LAND | Geothermal & Air, Land Ecology & Contamination, Science, Policy
WAIKATO REGIONAL COUNCIL | Te Kaunihera ā Rohe o Waikato
P: +6478592860
M: +64212208095
F: facebook.com/waikatoregion
Private Bag 3038, Waikato Mail Centre, Hamilton, 3240

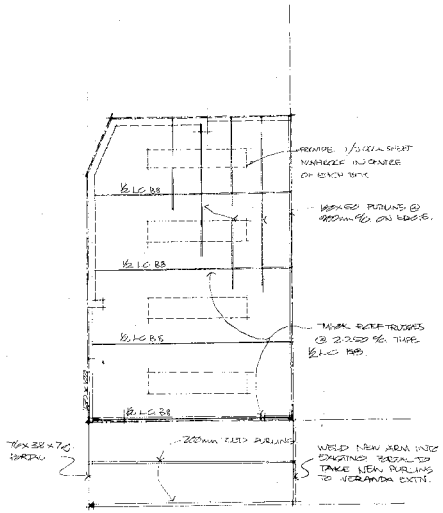
****
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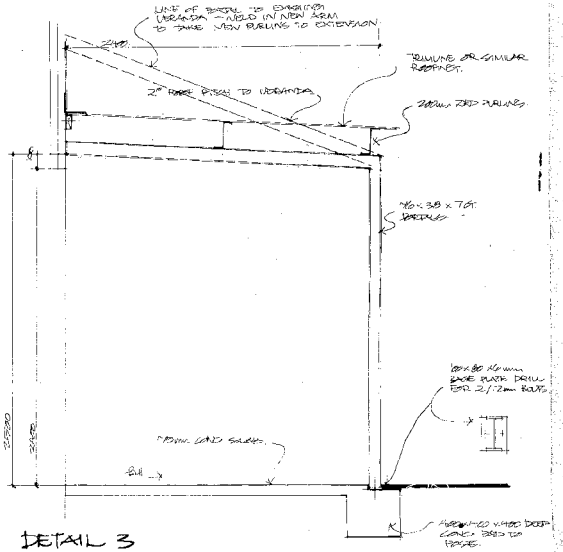


MICROBOX
13/11/95
MICROFILM RECORDS (WAIKATO) LTD HAMILTON

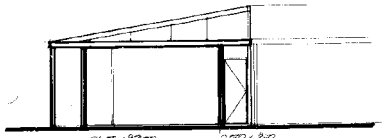


FLOOR/SITE PLAN 1:100

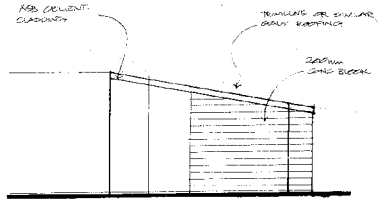




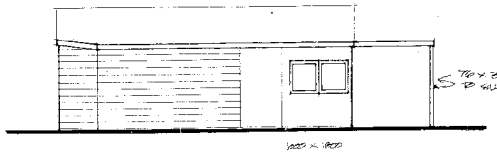
DETAIL 3
THRO' VERANDA. 1:25



EAST ELEVATION 1:100



WEST ELEVATION 1:100



SOUTH ELEVATION 1:100

Signed ... BUILDING INSPECTOR

PROPOSED ADDITIONS TO THE CAMBRIDGE HONDA CENTRE
VICTORIA STREET – CAMBRIDGE

FLOOR, SITE & FRAMING PLANS & ELEVATIONS
DRAWN • [illegible]
DATE • JULY 1981
SCALES • AS SHOWN
SHEET 1

MICROBOX
MICROFILM RECORDS (WAIKATO) LTD HAMILTON

APPENDIX E - SITE PHOTOS

HD3644 – 32 to 42 Victoria Street, Cambridge photo log – Taken 07.04.25



Photo 1: Former motor vehicle workshop (Honda Motors), north portion of site, facing west



Photo 2: Former engineering workshop (Engineering and Implement Co Ltd), facing west



Photo 3: Anecdotally-mention potential drycleaners, centre of site, facing west

HD3644 – 32 to 42 Victoria Street, Cambridge photo log – Taken 07.04.25



Photo 4: Former motor vehicle workshop (Honda Motors), north portion of site, facing southwest



Photo 5: Disused washdown bay outside motor vehicle workshop



Photo 6: ACM-cladding on north building (red circle) – formerly ran across entire upper floor.

APPENDIX F - SOIL INVESTIGATION LOGS



CLIENT	Pacific Partners Property Limited
TITLE	32-42 Victoria St Development Site Investigation Plan

Project Number	Drawing Reference	Drawn By	Date	Reviewed By	Date
HD3644	HD3644-101-R0	BK	05/05/2025	AH	06/05/2025

SCALE 1:450

0 20 40 m

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INVESTIGATION LOG

Job No.:	HD3644
Client:	Pacific Partners Property Limited
No.:	FA01
Project:	32 to 42 Victoria Road, Cambridge
Location:	Southern test, towards road
Date:	07.04.25
Co-ordinates:	1817290mE, 5802903mN (NZTM)
Logged By:	FG
Elevation:	63m (NZVD2016)
Checked By:	BK

Geology	Geological Interpretation (refer to separate Geotechnical and Geological Information sheet for further information)	Depth (m)	Legend	Scala Penetrometer (Blows / 100 mm)	Vane Shear Strength (kPa)	Water
Uncontrolled Fill	GRAVEL; grey. Dry to moist; gravel, fine to coarse, angular to subangular.	0.2		3 4		Groundwater Not Encountered
	SAND, with some organics and silt and gravel; black. Very loose to medium dense; moist; sand, medium to coarse; gravel, fine to medium, subangular to subround.	0.4		3 1		
		0.6		1 2		
		0.8		2 3		
Hinuera Formation	SAND, with some silt and gravel; orange brown. Loose to medium dense; moist; sand, medium to coarse; gravel, fine to medium, subround to rounded.	1.0		3 2		
		1.2		3 3		
		1.4		4 6		
		1.6		5 6		
		1.8		5 4		
		2.0		4 3		
		2.2		4 3		
		2.4		4 3		
	Silty SAND; greyish white. Medium dense; moist; low dilatency; sand, fine to medium.	2.6		4 4		
		2.8		5 5		
		3.0		6 7		
	SAND, with some gravel; dark brown. Medium dense to dense; moist; sand, medium to coarse; gravel, fine to coarse, subround to rounded.	3.2		8 9		
		3.4		9 8		
	Silty SAND; greyish white. Medium dense to dense; moist; low dilatency; sand, fine to medium.	3.6		7 9		
		3.8		10 12		
		4.0		7 9		
		4.2		6 7		
		4.4		6 5		
		4.6		6 6		
		4.8		6 5		
	EOH: 5.00 m	5.0		5		

Photo



Remarks

Flight auger completed to target depth of 5.0m.
Ground water was not encountered.
Soil and rock descriptions logged in accordance with NZGS guidelines. Backfilled with arisings on completion.

Shear Vanes
- Peak
- Remouded

Water
- Standing Water Level
- Out flow
- In flow

Investigation Type
- [x] Hand Auger
- [ ] Investigation Pit
- [ ] Machine Borehole

Generated with CORE-GS by Geroc - 5/05/2025 5:02:11 pm

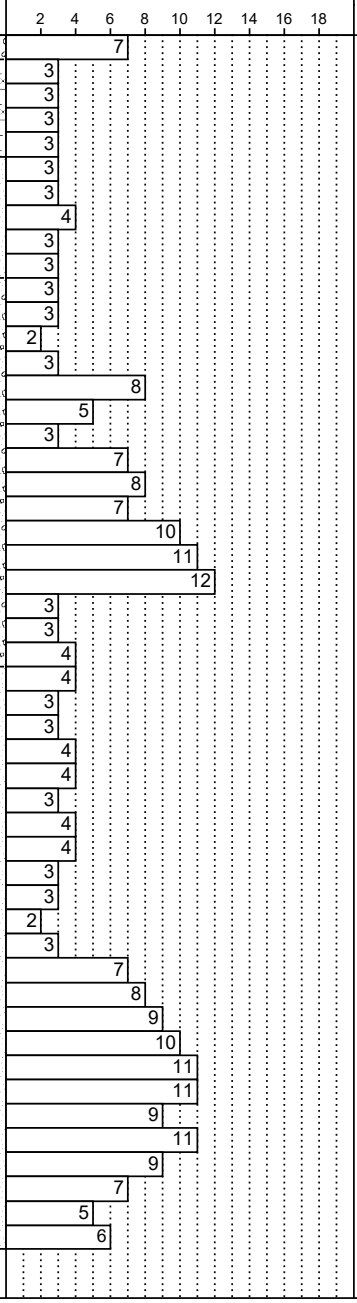
INVESTIGATION LOG

Job No.:	HD3644
No.:	FA02
Client:	Pacific Partners Property Limited
Project:	32 to 42 Victoria Road, Cambridge
Location:	Central test within carpark
Co-ordinates:	1817282mE, 5802912mN (NZTM)
Elevation:	63m (NZVD2016)
Date:	07.04.25
Logged By:	FG
Checked By:	BK

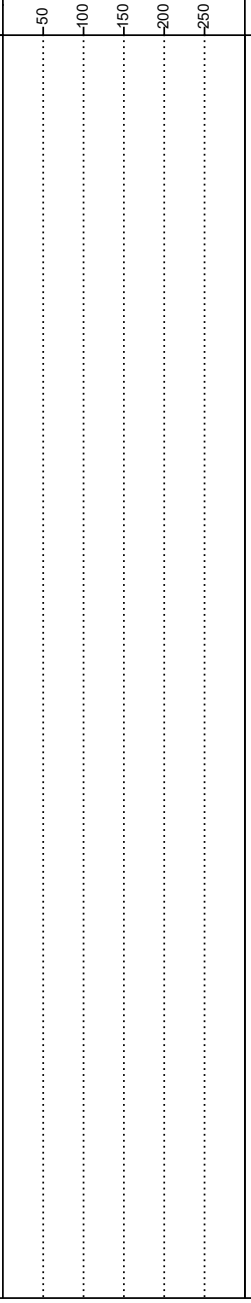
Geology	Geological Interpretation (refer to separate Geotechnical and Geological Information sheet for further information)	Depth (m)
Uncontrolled Fill	GRAVEL; grey. Dry to moist; gravel, fine to coarse, angular to subangular.	0.2
	Clayey SILT; orange brown. Medium dense; moist; low plasticity.	0.4
Hinuera Formation	Silty SAND; orange brown. Medium dense; moist; low dilatency; sand, fine.	1.0
	SAND, with some gravel; brown. Medium dense to dense; moist; sand, fine to coarse; gravel, fine to coarse, subround to rounded.	2.6
	Silty SAND; greyish white. Medium dense to dense; moist to wet; low dilatency; sand, fine.	5.0
	EOH: 5.00 m	

Legend

Scala Penetrometer (Blows / 100 mm)



Vane Shear Strength (kPa)
Vane:



Water: Groundwater Not Encountered

Photo



Remarks

Flight auger completed to target depth of 5.0m.
Ground water was not encountered.
Soil and rock descriptions logged in accordance with NZGS guidelines. Backfilled with arisings on completion.

Shear Vanes
- Peak
- Remoulded

Water
- Standing Water Level
- Out flow
- In flow

Investigation Type
- [x] Hand Auger
- [ ] Investigation Pit
- [ ] Machine Borehole

Generated with CORE-GS by Geroc - 5/05/2025 5:02:12 pm

INVESTIGATION LOG

Job No.:	HD3644
No.:	FA03
Client:	Pacific Partners Property Limited
Project:	32 to 42 Victoria Road, Cambridge
Location:	Northern test towards industrial buildings
Co-ordinates:	1817268mE, 5802924mN (NZTM)
Elevation:	63m (NZVD2016)
Date:	07.04.25
Logged By:	FG
Checked By:	BK

Geology	Geological Interpretation (refer to separate Geotechnical and Geological Information sheet for further information)	Depth (m)	Legend	Scala Penetrometer (Blows / 100 mm)	Vane Shear Strength (kPa) Vane:	Water
Uncontrolled Fill	GRAVEL; grey. Very dense; dry to moist; gravel, fine to coarse.	0.2		17, 17		Groundwater Not Encountered
	SAND, with some organics and clay and gravel; black brown. Very loose to medium dense; moist; sand, medium to coarse; gravel, fine to medium, angular to subround; some glass and ceramic.	0.4		11, 3, 3		
		0.6		1, 1		
		0.8		1, 1		
		1.0		3		
		1.2		2, 3		
		1.4		3, 2		
Hinuera Formation	SAND, with some silt and gravel; orange brown. Loose to medium dense; moist; sand, medium to coarse; gravel, fine to medium, subround to rounded, pumicious.	1.6		2, 3		
		1.8		5		
		2.0		3, 3, 3		
		2.2		3, 3		
		2.4		3, 2		
	SILT, with some clay; greyish brown. Medium dense; moist; low plasticity.	2.6		3, 3		
	SAND, with some silt; greyish whote. Very loose to medium dense; moist; low dilatency; sand, fine to coarse.	2.8		1, 2		
		3.0		3, 3, 3		
		3.2		4, 3		
	3.5 m: Becomes wet.	3.4		5, 3		
		3.6		5, 5		
		3.8		7, 5		
	Silty SAND; greyish brown. Medium dense to dense; wet; low dilatency.	4.0		3, 6		
		4.2		7, 7		
		4.4		6, 10		
		4.6		9, 9		
		4.8		8, 8		
	EOH: 5.00 m	5.0				

Photo



Remarks

Flight auger completed to target depth of 5.0m.
Ground water was not encountered.
Soil and rock descriptions logged in accordance with NZGS guidelines. Backfilled with arisings on completion.

Shear Vanes
- Peak
- Remoulded

Water
- Standing Water Level
- Out flow
- In flow

Investigation Type
- [x] Hand Auger
- [ ] Investigation Pit
- [ ] Machine Borehole

Generated with CORE-GS by Geroc - 5/05/2025 5:02:12 pm

APPENDIX G - TABULATED RESULTS

HD3644 - 32 to 42 Victoria Street, Cambridge
Laboratory results summary table

	Sample Name:	Commercial/ industrial assessment criteria*	Class 3 waste acceptance criteria[1] (Managed fill)	Waikato regional cleanfill criteria[2]	Ecological soil guideline values[3]	Waikato background concentrations[4]	ES01-0.4 07-04-25	ES01r-0.4 07-04-25	ES01-0.9 07-04-25	ES01-1.5 07-04-25	ES02-0.4 07-04-25	ES02-0.6 07-04-25	ES03-0.4 07-04-25	ES03-1.0 07-04-25
	Lab Number:						3847392	3847392	3847392	3847392	3847393	3847393	3847393	3847393
Dry Matter	g/100g as rcvd						77	-	-	-	74	-	81	-
Heavy Metals, Screen Level														
Total Recoverable Arsenic	mg/kg dry wt	70	140	17	150	6.8	16	17	11	6	8	6	13	5
Total Recoverable Cadmium	mg/kg dry wt	1,300	10	0.8	33	0.22	0.91	0.95	0.45	0.2	0.44	< 0.10	1.03	0.19
Total Recoverable Chromium	mg/kg dry wt	6,300	150	56	650	30	27	30	20	10	10	9	71	11
Total Recoverable Copper	mg/kg dry wt	>10,000	280	120	320	25	**470**	**610**	143	29	76	9	230	26
Total Recoverable Lead	mg/kg dry wt	3,300	460	78	2,500	20	1,410	1,400	830	78	550	19.6	670	68
Total Recoverable Nickel	mg/kg dry wt	4,000	320	33	NA	7.6	7	7	9	5	15	5	31	5
Total Recoverable Zinc	mg/kg dry wt	400,000	1,200	175	430	53	**2,100**	**2,200**	800	144	310	51	550	91
Polycyclic Aromatic Hydrocarbons Screening in Soil														
Total of Reported PAHs in Soil	mg/kg dry wt						6.4	-	-	-	0.9	-	3.9	-
1-Methylnaphthalene	mg/kg dry wt						0.013	-	-	-	< 0.013	-	0.032	-
2-Methylnaphthalene	mg/kg dry wt						0.016	-	-	-	< 0.013	-	0.038	-
Acenaphthylene	mg/kg dry wt						0.065	-	-	-	< 0.013	-	0.04	-
Acenaphthene	mg/kg dry wt						< 0.013	-	-	-	< 0.013	-	< 0.012	-
Anthracene	mg/kg dry wt						0.044	-	-	-	< 0.013	-	0.029	-
Benzo[a]anthracene	mg/kg dry wt						0.42	-	-	-	0.056	-	0.22	-
Benzo[a]pyrene (BAP)	mg/kg dry wt						0.68	-	-	-	0.079	-	0.36	-
Benzo[a]pyrene Potency Equivalency Factor (PEF) NES	mg/kg dry wt	35	125	2	47		1	-	-	-	0.12	-	0.54	-
Benzo[a]pyrene Toxic Equivalence (TEF)	mg/kg dry wt						0.99	-	-	-	0.118	-	0.53	-
Benzo[b]fluoranthene + Benzo[j]fluoranthene	mg/kg dry wt						0.75	-	-	-	0.097	-	0.41	-
Benzo[e]pyrene	mg/kg dry wt						0.4	-	-	-	0.051	-	0.24	-
Benzo[g,h,i]perylene	mg/kg dry wt						0.57	-	-	-	0.069	-	0.34	-
Benzo[k]fluoranthene	mg/kg dry wt						0.29	-	-	-	0.039	-	0.16	-
Chrysene	mg/kg dry wt						0.44	-	-	-	0.062	-	0.26	-
Dibenzo[a,h]anthracene	mg/kg dry wt						0.102	-	-	-	< 0.013	-	0.06	-
Fluoranthene	mg/kg dry wt				190		0.79	-	-	-	0.127	-	0.5	-
Fluorene	mg/kg dry wt						< 0.013	-	-	-	< 0.013	-	< 0.012	-
Indeno(1,2,3-c,d)pyrene	mg/kg dry wt						0.57	-	-	-	0.067	-	0.31	-
Naphthalene	mg/kg dry wt	210					< 0.07	-	-	-	< 0.07	-	0.07	-
Perylene	mg/kg dry wt						0.15	-	-	-	0.017	-	0.076	-
Phenanthrene	mg/kg dry wt						0.21	-	-	-	0.044	-	0.2	-
Pyrene	mg/kg dry wt	NA					0.86	-	-	-	0.132	-	0.55	-
Asbestos (semi-quantitative)														
Asbestos presence/absence	Present/absent						Absent							
Asbestos in ACM (% total sample)	% w/w	0.01					<0.001	-	-	-	-	-	-	-
Combined fibrous asbestos (% total sample)	% w/w	0.001					<0.001	-	-	-	-	-	-	-

* Nickel and zinc from the NEPM. All other heavy metals and benzo(a)pyrene from the NESCS. Asbestos from the NZ Guidelines for Assessing and Managing Asbestos in Soil. All other assessment criteria from the Petroleum Hydrocarbon Tier 1 guidelines, using silty sand soil <1 m depth.

[1] WasteMINZ Technical Guidelines for Disposal to Land. Revision 3.1, issued September 2023.

[2] Waikato Regional Council. Standard operating policies for defining cleanfill acceptance criteria. Revised 15/09/2018.

[3] Landcare Research. *Updated user guide: Background soil concentrations and soil guideline values for the protection of ecological receptors - Consultation draft* . Using commercial/industrial (60% land use protection), recent soils.

[4] Waikato Regional Council, *Upper limit background concentrations for selected elements in soil of the Waikato region, acid recoverable data* .

NOTE: Samples in bold exceed both the EcoSGV and Class 3 WAC

Relative percent differences

Sample Name:	ES01-0.4	ES01r-0.4	**RPD****
Lab Number:	3847392.1	3847392.2	
Arsenic	16	17	6%
Cadmium	0.91	0.95	4%
Chromium	27	30	11%
Copper	470	610	26%
Lead	1410	1400	1%
Nickel	7	7	0%
Zinc	2100	2200	5%

**Relative Percent Difference. Calculated as ((x2 - x1)|/((x2 + x1)/2)

APPENDIX H - LABORATORY REPORTS

Hill Laboratories
TRIED, TESTED AND TRUSTED

ANALYSIS REQUEST

Job No: 384 7392 Date Recv: 07-Apr-25 15:27

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

T 0508 HILL LAB (44 555 22
T +64 7 858 2000
E mail@hill-labs.co.nz
W www.hill-laboratories.com

Received by: Emma Bartlett

3138473925

Quote No 91878

Primary Contact Matt Moore

Submitted By Matt Moore

Client Name HD Geo Limited 245781

Address PO Box 9266, Waikato Mail Centre
Hamilton 3240

Phone 07 957 2727 *Mobile* 027 701 9529

Email matt@hdgeo.co.nz

Charge To HD Geo Limited 245781

Client Reference HD3644

Order No

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

☑ *Email Primary Contact* ☐ *Email Submitter* ☐ *Email Client*
☐ *Email Other* _____
☐ *Other* _____

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

ADDITIONAL INFORMATION / KNOWN HAZARDS

CHAIN OF CUSTODY RECORD

Sent to Hill Laboratories
☑ *Tick if you require COC to be emailed back*
Date & Time: 7-4-25 13 55
Name: Matt Moore
Signature:

Received at Hill Laboratories
Date & Time:
Name:
Signature:

Condition ☐ *Room Temp* ☐ *Chilled* ☐ *Frozen* *Temp:* 23

☐ **Sample & Analysis details checked**
Signature:

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

NOTE: The estimated turnaround time for the types and number of samples and analyses specified on this quote is by 4:30 pm, 10 working days following the day of receipt of the samples at the laboratory.

Requested Reporting Date: _____

Quoted Sample Types

Soil (Soil), Dried Paint (Paint), Building Material (BM), Ground Water (GW)

No.	Sample Name	Sample Date/Time	Sample Type	Tests Required
1	ES01-0.4	7-4-25	Soil	Heavy metals + PAH
2	ES01-0.4			
3	ES01-0.9			
4	ES01-1.5			
5	ES02-0.4			+ PAH
6	ES02-0.6			
7	ES03-0.4			+ PAH
8	ES03-1.0			
9	ES01-0.4-1.0			Semi q asbestos
10	All other samples			Hold cold

R J Hill Laboratories Limited
1/17 Print Place
Middleton
Christchurch 8024 New Zealand

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

Certificate of Analysis

Client:	HD Geo Limited	**Lab No:**	3847812	A2Pv1
Contact:	Matt Moore	**Date Received:**	07-Apr-2025	
	C/- HD Geo Limited	**Date Reported:**	11-Apr-2025	
	PO Box 9266	**Quote No:**	91878	
	Waikato Mail Centre	**Order No:**		
	Hamilton 3240	**Client Reference:**	HD3644	
		Submitted By:	Matt Moore	

Sample Type: Soil

		Sample Name:	ES01-0.4-1.0 07-Apr-2025
		Lab Number:	3847812.1
Asbestos Presence / Absence			Asbestos NOT detected.
Description of Asbestos Form			-
Asbestos in ACM as % of Total Sample*	% w/w		< 0.001
Combined Fibrous Asbestos + Asbestos Fines as % of Total Sample*	% w/w		< 0.001
Asbestos as Fibrous Asbestos as % of Total Sample*	% w/w		< 0.001
Asbestos as Asbestos Fines as % of Total Sample*	% w/w		< 0.001
As Received Weight	g		747.4
Dry Weight	g		624.6
Moisture*	%		16
Sample Fraction >10mm	g dry wt		61.8
Sample Fraction <10mm to >2mm	g dry wt		162.7
Sample Fraction <2mm	g dry wt		399.3
<2mm Subsample Weight	g dry wt		51.8
Weight of Asbestos in ACM (Non-Friable)	g dry wt		< 0.00001
Weight of Asbestos as Fibrous Asbestos (Friable)	g dry wt		< 0.00001
Weight of Asbestos as Asbestos Fines (Friable)*	g dry wt		< 0.00001

Glossary of Terms

• Loose fibres (Minor) - One or two fibres/fibre bundles identified during analysis by stereo microscope/PLM.
• Loose fibres (Major) - Three or more fibres/fibre bundles identified during analysis by stereo microscope/PLM.
• ACM Debris (Minor) - One or two small (<2mm) pieces of material attached to fibres identified during analysis by stereo microscope/PLM.
• ACM Debris (Major) - Large (>2mm) piece, or more than three small (<2mm) pieces of material attached to fibres identified during analysis by stereo microscope/PLM.
• Unknown Mineral Fibres - Mineral fibres of unknown type detected by polarised light microscopy including dispersion staining. The fibres detected may or may not be asbestos fibres. To confirm the identities, another independent analytical technique may be required.
• Trace - Trace levels of asbestos, as defined by AS4964-2004.
For further details, please contact the Asbestos Team.

Please refer to the BRANZ New Zealand Guidelines for Assessing and Managing Asbestos in Soil.
https://www.branz.co.nz/asbestos

The following assumptions have been made:

1. Asbestos Fines in the <2mm fraction, after homogenisation, is evenly distributed throughout the fraction
2. The weight of asbestos in the sample is unaffected by the ashing process.

Results are representative of the sample provided to Hill Laboratories only.

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

Summary of Methods

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

Sample Type: Soil

Test	Method Description	Default Detection Limit	Sample No
New Zealand Guidelines Semi Quantitative Asbestos in Soil			
As Received Weight	Measurement on analytical balance. Analysed at Hill Laboratories - Asbestos; Unit 1, 17 Print Place, Middleton, Christchurch.	0.1 g	1
Dry Weight	Sample dried at 100 to 105°C, measurement on balance. Analysed at Hill Laboratories - Asbestos; Unit 1, 17 Print Place, Middleton, Christchurch.	0.1 g	1
Moisture*	Sample dried at 100 to 105°C. Calculation = (As received weight - Dry weight) / as received weight x 100.	1 %	1
Sample Fraction >10mm	Sample dried at 100 to 105°C, 10mm sieve, measurement on analytical balance. Analysed at Hill Laboratories - Asbestos; Unit 1, 17 Print Place, Middleton, Christchurch.	0.1 g dry wt	1
Sample Fraction <10mm to >2mm	Sample dried at 100 to 105°C, 10mm and 2mm sieve, measurement on analytical balance. Analysed at Hill Laboratories - Asbestos; Unit 1, 17 Print Place, Middleton, Christchurch.	0.1 g dry wt	1
Sample Fraction <2mm	Sample dried at 100 to 105°C, 2mm sieve, measurement on analytical balance. Analysed at Hill Laboratories - Asbestos; Unit 1, 17 Print Place, Middleton, Christchurch.	0.1 g dry wt	1
Asbestos Presence / Absence	Examination using Low Powered Stereomicroscopy followed by 'Polarised Light Microscopy' including 'Dispersion Staining Techniques'. Analysed at Hill Laboratories - Asbestos; Unit 1, 17 Print Place, Middleton, Christchurch. AS 4964 (2004) - Method for the Qualitative Identification of Asbestos in Bulk Samples.	0.01%	1
Description of Asbestos Form	Description of asbestos form and/or shape if present.	-	1
Weight of Asbestos in ACM (Non-Friable)	Measurement on analytical balance, from the >10mm Fraction. Weight of asbestos based on assessment of ACM form. Analysed at Hill Laboratories - Asbestos; Unit 1, 17 Print Place, Middleton, Christchurch. New Zealand Guidelines for Assessing and Managing Asbestos in Soil, November 2017.	0.00001 g dry wt	1
Asbestos in ACM as % of Total Sample*	Calculated from weight of asbestos in ACM and sample dry weight. New Zealand Guidelines for Assessing and Managing Asbestos in Soil, November 2017.	0.001 % w/w	1
Weight of Asbestos as Fibrous Asbestos (Friable)	Measurement on analytical balance, from the >10mm Fraction. Analysed at Hill Laboratories - Asbestos; Unit 1, 17 Print Place, Middleton, Christchurch. New Zealand Guidelines for Assessing and Managing Asbestos in Soil, November 2017.	0.00001 g dry wt	1
Asbestos as Fibrous Asbestos as % of Total Sample*	Calculated from weight of fibrous asbestos and sample dry weight. New Zealand Guidelines for Assessing and Managing Asbestos in Soil, November 2017.	0.001 % w/w	1
Weight of Asbestos as Asbestos Fines (Friable)*	Measurement on analytical balance, from the <10mm Fractions. Analysed at Hill Laboratories - Asbestos; Unit 1, 17 Print Place, Middleton, Christchurch. New Zealand Guidelines for Assessing and Managing Asbestos in Soil, November 2017.	0.00001 g dry wt	1
Asbestos as Asbestos Fines as % of Total Sample*	Calculated from weight of asbestos fines and sample dry weight. New Zealand Guidelines for Assessing and Managing Asbestos in Soil, November 2017.	0.001 % w/w	1
Combined Fibrous Asbestos + Asbestos Fines as % of Total Sample*	Calculated from weight of fibrous asbestos plus asbestos fines and sample dry weight. New Zealand Guidelines for Assessing and Managing Asbestos in Soil, November 2017.	0.001 % w/w	1

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

Testing was completed on 11-Apr-2025. For completion dates of individual analyses please contact the laboratory.

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

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



Dexter Paguirigan Dip Chem Engineering Tech
Laboratory Technician - Asbestos

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

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

Certificate of Analysis

Client:	HD Geo Limited	**Lab No:**	3847392	SPv2
Contact:	Matt Moore	**Date Received:**	07-Apr-2025	
	C/- HD Geo Limited	**Date Reported:**	28-Apr-2025	**(Amended)**
	PO Box 9266	**Quote No:**	91878	
	Waikato Mail Centre	**Order No:**		
	Hamilton 3240	**Client Reference:**	HD3644	
		Submitted By:	Matt Moore	

Sample Type: Soil

Sample Name:		ES01-0.4 07-Apr-2025	ES01r-0.4 07-Apr-2025	ES01-0.9 07-Apr-2025	ES01-1.5 07-Apr-2025	ES02-0.4 07-Apr-2025
Lab Number:		3847392.1	3847392.2	3847392.3	3847392.4	3847392.5
Individual Tests						
Dry Matter	g/100g as rcvd	77	-	-	-	74
TCLP Weight of Sample Taken	g	50	-	50	-	-
TCLP Initial Sample pH	pH Units	8.3	-	8.6	-	-
TCLP Acid Adjusted Sample pH	pH Units	1.9	-	1.8	-	-
TCLP Extractant Type*		NaOH/Acetic acid at pH 4.93 +/- 0.05	-	NaOH/Acetic acid at pH 4.93 +/- 0.05	-	-
TCLP Extraction Fluid pH	pH Units	4.9	-	4.9	-	-
TCLP Post Extraction Sample pH	pH Units	5.2	-	5.9	-	-
Heavy Metals, Screen Level						
Total Recoverable Arsenic	mg/kg dry wt	16	17	11	6	8
Total Recoverable Cadmium	mg/kg dry wt	0.91	0.95	0.45	0.20	0.44
Total Recoverable Chromium	mg/kg dry wt	27	30	20	10	10
Total Recoverable Copper	mg/kg dry wt	470	610	143	29	76
Total Recoverable Lead	mg/kg dry wt	1,410	1,400	830	78	550
Total Recoverable Nickel	mg/kg dry wt	7	7	9	5	15
Total Recoverable Zinc	mg/kg dry wt	2,100	2,200	800	144	310
Polycyclic Aromatic Hydrocarbons Screening in Soil*						
Total of Reported PAHs in Soil	mg/kg dry wt	6.4	-	-	-	0.9
1-Methylnaphthalene	mg/kg dry wt	0.013	-	-	-	< 0.013
2-Methylnaphthalene	mg/kg dry wt	0.016	-	-	-	< 0.013
Acenaphthylene	mg/kg dry wt	0.065	-	-	-	< 0.013
Acenaphthene	mg/kg dry wt	< 0.013	-	-	-	< 0.013
Anthracene	mg/kg dry wt	0.044	-	-	-	< 0.013
Benzo[a]anthracene	mg/kg dry wt	0.42	-	-	-	0.056
Benzo[a]pyrene (BAP)	mg/kg dry wt	0.68	-	-	-	0.079
Benzo[a]pyrene Potency Equivalency Factor (PEF) NES*	mg/kg dry wt	1.00	-	-	-	0.120
Benzo[a]pyrene Toxic Equivalence (TEF)*	mg/kg dry wt	0.99	-	-	-	0.118
Benzo[b]fluoranthene + Benzo[j] fluoranthene	mg/kg dry wt	0.75	-	-	-	0.097
Benzo[e]pyrene	mg/kg dry wt	0.40	-	-	-	0.051
Benzo[g,h,i]perylene	mg/kg dry wt	0.57	-	-	-	0.069
Benzo[k]fluoranthene	mg/kg dry wt	0.29	-	-	-	0.039
Chrysene	mg/kg dry wt	0.44	-	-	-	0.062
Dibenzo[a,h]anthracene	mg/kg dry wt	0.102	-	-	-	< 0.013
Fluoranthene	mg/kg dry wt	0.79	-	-	-	0.127
Fluorene	mg/kg dry wt	< 0.013	-	-	-	< 0.013
Indeno(1,2,3-c,d)pyrene	mg/kg dry wt	0.57	-	-	-	0.067

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

Sample Type: Soil						
Sample Name:		ES01-0.4 07-Apr-2025	ES01r-0.4 07-Apr-2025	ES01-0.9 07-Apr-2025	ES01-1.5 07-Apr-2025	ES02-0.4 07-Apr-2025
Lab Number:		3847392.1	3847392.2	3847392.3	3847392.4	3847392.5
Polycyclic Aromatic Hydrocarbons Screening in Soil*						
Naphthalene	mg/kg dry wt	< 0.07	-	-	-	< 0.07
Perylene	mg/kg dry wt	0.150	-	-	-	0.017
Phenanthrene	mg/kg dry wt	0.21	-	-	-	0.044
Pyrene	mg/kg dry wt	0.86	-	-	-	0.132

Sample Name:		ES02-0.6 07-Apr-2025	ES03-0.4 07-Apr-2025	ES03-1.0 07-Apr-2025
Lab Number:		3847392.6	3847392.7	3847392.8
Individual Tests				
Dry Matter	g/100g as rcvd	-	81	-
TCLP Weight of Sample Taken	g	-	50	-
TCLP Initial Sample pH	pH Units	-	8.8	-
TCLP Acid Adjusted Sample pH	pH Units	-	2.2	-
TCLP Extractant Type*		-	NaOH/Acetic acid at pH 4.93 +/- 0.05	-
TCLP Extraction Fluid pH	pH Units	-	4.9	-
TCLP Post Extraction Sample pH	pH Units	-	5.8	-
Heavy Metals, Screen Level				
Total Recoverable Arsenic	mg/kg dry wt	6	13	5
Total Recoverable Cadmium	mg/kg dry wt	< 0.10	1.03	0.19
Total Recoverable Chromium	mg/kg dry wt	9	71	11
Total Recoverable Copper	mg/kg dry wt	9	230	26
Total Recoverable Lead	mg/kg dry wt	19.6	670	68
Total Recoverable Nickel	mg/kg dry wt	5	31	5
Total Recoverable Zinc	mg/kg dry wt	51	550	91
Polycyclic Aromatic Hydrocarbons Screening in Soil*				
Total of Reported PAHs in Soil	mg/kg dry wt	-	3.9	-
1-Methylnaphthalene	mg/kg dry wt	-	0.032	-
2-Methylnaphthalene	mg/kg dry wt	-	0.038	-
Acenaphthylene	mg/kg dry wt	-	0.040	-
Acenaphthene	mg/kg dry wt	-	< 0.012	-
Anthracene	mg/kg dry wt	-	0.029	-
Benzo[a]anthracene	mg/kg dry wt	-	0.22	-
Benzo[a]pyrene (BAP)	mg/kg dry wt	-	0.36	-
Benzo[a]pyrene Potency Equivalency Factor (PEF) NES*	mg/kg dry wt	-	0.54	-
Benzo[a]pyrene Toxic Equivalence (TEF)*	mg/kg dry wt	-	0.53	-
Benzo[b]fluoranthene + Benzo[j] fluoranthene	mg/kg dry wt	-	0.41	-
Benzo[e]pyrene	mg/kg dry wt	-	0.24	-
Benzo[g,h,i]perylene	mg/kg dry wt	-	0.34	-
Benzo[k]fluoranthene	mg/kg dry wt	-	0.160	-
Chrysene	mg/kg dry wt	-	0.26	-
Dibenzo[a,h]anthracene	mg/kg dry wt	-	0.060	-
Fluoranthene	mg/kg dry wt	-	0.50	-
Fluorene	mg/kg dry wt	-	< 0.012	-
Indeno(1,2,3-c,d)pyrene	mg/kg dry wt	-	0.31	-
Naphthalene	mg/kg dry wt	-	0.07	-
Perylene	mg/kg dry wt	-	0.076	-
Phenanthrene	mg/kg dry wt	-	0.20	-
Pyrene	mg/kg dry wt	-	0.55	-

Sample Type: Aqueous				
Sample Name:		ES01-0.4 [TCLP Extract]	ES01-0.9 [TCLP Extract]	ES03-0.4 [TCLP Extract]
Lab Number:		3847392.19	3847392.20	3847392.21

Sample Type: Aqueous				
Sample Name:		ES01-0.4 [TCLP Extract]	ES01-0.9 [TCLP Extract]	ES03-0.4 [TCLP Extract]
Lab Number:		3847392.19	3847392.20	3847392.21
Individual Tests				
Total Copper	g/m^3	0.48	-	-
Total Lead	g/m^3	0.88	0.125	0.179
Total Zinc	g/m^3	16.7	-	-

Analyst's Comments

Amended Report: This certificate of analysis replaces report '3847392-SPv1' issued on 09-Apr-2025 at 4:23 pm.
Reason for amendment: Additional testing added, at the request of the client.

Summary of Methods

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

Sample Type: Soil			
Test	**Method Description**	**Default Detection Limit**	**Sample No**
Individual Tests			
Environmental Solids Sample Drying*	Air dried at 35°C Used for sample preparation. May contain a residual moisture content of 2-5%. (Free water removed before analysis, non-soil objects such as sticks, leaves, grass and stones also removed).	-	1-8
Total of Reported PAHs in Soil	Sonication extraction, GC-MS/MS analysis. In-house based on US EPA 8270.	0.03 mg/kg dry wt	1, 5, 7
Dry Matter	Dried at 103°C for 4-22hr (removes 3-5% more water than air dry) , gravimetry. (Free water removed before analysis, non-soil objects such as sticks, leaves, grass and stones also removed). US EPA 3550.	0.10 g/100g as rcvd	1, 5, 7
Benzo[a]pyrene Potency Equivalency Factor (PEF) NES*	BaP Potency Equivalence calculated from; Benzo(a)anthracene x 0.1 + Benzo(b)fluoranthene x 0.1 + Benzo(j)fluoranthene x 0.1 + Benzo(k)fluoranthene x 0.1 + Benzo(a)pyrene x 1.0 + Chrysene x 0.01 + Dibenzo(a,h)anthracene x 1.0 + Fluoranthene x 0.01 + Indeno(1,2,3-c,d)pyrene x 0.1. Ministry for the Environment. 2011. Methodology for Deriving Standards for Contaminants in Soil to Protect Human Health. Wellington: Ministry for the Environment.	0.024 mg/kg dry wt	1, 5, 7
Benzo[a]pyrene Toxic Equivalence (TEF)*	Benzo[a]pyrene Toxic Equivalence (TEF) calculated from; Benzo[a]pyrene x 1.0 + Benzo(a)anthracene x 0.1 + Benzo(b) fluoranthene x 0.1 + Benzo(k)fluoranthene x 0.1 + Chrysene x 0.01 + Dibenzo(a,h)anthracene x 1.0 + Indeno(1,2,3-c,d)pyrene x 0.1. Guidelines for assessing and managing contaminated gasworks sites in New Zealand (GMG) (MfE, 1997).	0.024 mg/kg dry wt	1, 5, 7
Heavy Metals, Screen Level	Dried sample, < 2mm fraction. Nitric/Hydrochloric acid digestion US EPA 200.2. Complies with NES Regulations. ICP-MS screen level, interference removal by Kinetic Energy Discrimination if required.	0.10 - 4 mg/kg dry wt	1-8
Polycyclic Aromatic Hydrocarbons Screening in Soil*	Sonication extraction, GC-MS/MS analysis. Tested on as received sample. In-house based on US EPA 8270.	0.010 - 0.05 mg/kg dry wt	1, 5, 7
TCLP Profile*	Extraction at 30 +/- 2 rpm for 18 +/- 2 hours, (Ratio 1g sample : 20g extraction fluid). US EPA 1311.	-	1, 3, 7
TCLP Profile			
TCLP Weight of Sample Taken	Gravimetric. US EPA 1311.	0.1 g	1, 3, 7
TCLP Initial Sample pH	pH meter. US EPA 1311.	0.1 pH Units	1, 3, 7
TCLP Acid Adjusted Sample pH	pH meter. US EPA 1311.	0.1 pH Units	1, 3, 7
TCLP Extractant Type*	US EPA 1311.	-	1, 3, 7
TCLP Extraction Fluid pH	pH meter. US EPA 1311.	0.1 pH Units	1, 3, 7
TCLP Post Extraction Sample pH	pH meter. US EPA 1311.	0.1 pH Units	1, 3, 7

Sample Type: Aqueous			
Test	**Method Description**	**Default Detection Limit**	**Sample No**
Individual Tests			
Total Digestion of Extracted Samples*	Nitric acid digestion. APHA 3030 E (modified) : Online Edition.	-	19-21
Total Copper	Nitric acid digestion, ICP-MS, screen level. APHA 3125 B : Online Edition.	0.011 g/m^3	19

Sample Type: Aqueous			
Test	**Method Description**	**Default Detection Limit**	**Sample No**
Total Lead	Nitric acid digestion, ICP-MS, screen level. APHA 3125 B : Online Edition.	0.0021 g/m^3	19-21
Total Zinc	Nitric acid digestion, ICP-MS, screen level. APHA 3125 B : Online Edition.	0.053 g/m^3	19

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

Testing was completed between 07-Apr-2025 and 28-Apr-2025. For completion dates of individual analyses please contact the laboratory.

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

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



Kim Harrison MSc
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Quality Assurance Report

Client:	HD Geo Limited	**Lab No:**	3847392	QCPv2
Contact:	Matt Moore	**Date Received:**	07-Apr-2025	
	C/- HD Geo Limited	**Date Reported:**	28-Apr-2025	**(Amended)**
	PO Box 9266	**Quote No:**	91878	
	Waikato Mail Centre	**Order No:**		
	Hamilton 3240	**Client Reference:**	HD3644	
		Submitted By:	Matt Moore	

Sample Specific QCs

Polycyclic Aromatic Hydrocarbons Screening in Soil

		3847392.1	Control Limits	Outside Limit (Yes/No)
1-methylnaphthalene-d10	%	105	65 – 130	No
Benzo[a]pyrene-d12	%	109	70 – 140	No
Fluoranthene-d10	%	105	66 – 130	No

Polycyclic Aromatic Hydrocarbons Screening in Soil

		3847392.5	Control Limits	Outside Limit (Yes/No)
1-methylnaphthalene-d10	%	97	65 – 130	No
Benzo[a]pyrene-d12	%	101	70 – 140	No
Fluoranthene-d10	%	98	66 – 130	No

Polycyclic Aromatic Hydrocarbons Screening in Soil

		3847392.7	Control Limits	Outside Limit (Yes/No)
1-methylnaphthalene-d10	%	99	65 – 130	No
Benzo[a]pyrene-d12	%	100	70 – 140	No
Fluoranthene-d10	%	99	66 – 130	No

Blank QCs

Digest Blank 1 PrepWS esDig - WS: High Volume Environmental Soils by ICP-MS (HVesTR): 11920.16

		Results	Control Limits	Outside Limit (Yes/No)
Total Recoverable Arsenic	mg/kg dry wt	< 2 ± 1.3	-2.0 – 2.0	No
Total Recoverable Cadmium	mg/kg dry wt	< 0.10 ± 0.066	-0.100 – 0.100	No
Total Recoverable Chromium	mg/kg dry wt	< 2 ± 1.3	-2.0 – 2.0	No
Total Recoverable Copper	mg/kg dry wt	< 2 ± 1.4	-2.0 – 2.0	No
Total Recoverable Lead	mg/kg dry wt	< 0.4 ± 0.26	-0.40 – 0.40	No
Total Recoverable Nickel	mg/kg dry wt	< 2 ± 1.4	-2.0 – 2.0	No
Total Recoverable Zinc	mg/kg dry wt	< 4 ± 2.7	-4.0 – 4.0	No

Digest Blank 2 PrepWS esDig - WS: High Volume Environmental Soils by ICP-MS (HVesTR): 11920.31

		Results	Control Limits	Outside Limit (Yes/No)
Total Recoverable Arsenic	mg/kg dry wt	< 2 ± 1.3	-2.0 – 2.0	No
Total Recoverable Cadmium	mg/kg dry wt	< 0.10 ± 0.066	-0.100 – 0.100	No
Total Recoverable Chromium	mg/kg dry wt	< 2 ± 1.3	-2.0 – 2.0	No
Total Recoverable Copper	mg/kg dry wt	< 2 ± 1.4	-2.0 – 2.0	No
Total Recoverable Lead	mg/kg dry wt	< 0.4 ± 0.26	-0.40 – 0.40	No
Total Recoverable Nickel	mg/kg dry wt	< 2 ± 1.4	-2.0 – 2.0	No
Total Recoverable Zinc	mg/kg dry wt	< 4 ± 2.7	-4.0 – 4.0	No

Blank 1 PrepWS xsSHOC - WS: Polycyclic Aromatic Hydrocarbons Soil Analysis: 16840.1				
		Results	**Control Limits**	**Outside Limit (Yes/No)**
1-Methylnaphthalene	mg/kg dry wt	< 0.010 ± 0.032	0.0 – 0.0100	No
2-Methylnaphthalene	mg/kg dry wt	< 0.010 ± 0.032	0.0 – 0.0100	No
Acenaphthylene	mg/kg dry wt	< 0.010 ± 0.0066	0.0 – 0.0100	No
Acenaphthene	mg/kg dry wt	< 0.010 ± 0.0060	0.0 – 0.0100	No
Anthracene	mg/kg dry wt	< 0.010 ± 0.0061	0.0 – 0.0100	No
Benzo[a]anthracene	mg/kg dry wt	< 0.010 ± 0.0062	0.0 – 0.0100	No
Benzo[a]pyrene (BAP)	mg/kg dry wt	< 0.010 ± 0.0066	0.0 – 0.0100	No
Benzo[b]fluoranthene + Benzo[j] fluoranthene	mg/kg dry wt	< 0.010 ± 0.0064	0.0 – 0.0100	No
Benzo[e]pyrene	mg/kg dry wt	< 0.010 ± 0.0066	0.0 – 0.0100	No
Benzo[g,h,i]perylene	mg/kg dry wt	< 0.010 ± 0.0064	0.0 – 0.0100	No
Benzo[k]fluoranthene	mg/kg dry wt	< 0.010 ± 0.0066	0.0 – 0.0100	No
Chrysene	mg/kg dry wt	< 0.010 ± 0.0066	0.0 – 0.0100	No
Dibenzo[a,h]anthracene	mg/kg dry wt	< 0.010 ± 0.0066	0.0 – 0.0100	No
Fluoranthene	mg/kg dry wt	< 0.010 ± 0.0066	0.0 – 0.0100	No
Fluorene	mg/kg dry wt	< 0.010 ± 0.0066	0.0 – 0.0100	No
Indeno(1,2,3-c,d)pyrene	mg/kg dry wt	< 0.010 ± 0.0066	0.0 – 0.0100	No
Naphthalene	mg/kg dry wt	< 0.05 ± 0.031	0.0 – 0.050	No
Perylene	mg/kg dry wt	< 0.010 ± 0.0066	0.0 – 0.0100	No
Phenanthrene	mg/kg dry wt	< 0.010 ± 0.0066	0.0 – 0.0100	No
Pyrene	mg/kg dry wt	< 0.010 ± 0.0066	0.0 – 0.0100	No

Fluid 1 Blank (plastic) - WS: TCLP - Toxicity Characteristic Leaching Procedure: 5247.19				
		Results	**Control Limits**	**Outside Limit (Yes/No)**
TCLP Weight of Sample Taken	g	1,000	Undefined	N/A [#1]
TCLP Extraction Fluid pH	pH Units	4.9 ± 0.1	Undefined	N/A [#1]
TCLP Post Extraction Sample pH	pH Units	5.0 ± 0.1	Undefined	N/A [#1]

Fluid 1 Blank (glass) - WS: TCLP - Toxicity Characteristic Leaching Procedure: 5247.20				
		Results	**Control Limits**	**Outside Limit (Yes/No)**
TCLP Weight of Sample Taken	g	2,000	Undefined	N/A [#1]
TCLP Extraction Fluid pH	pH Units	4.9 ± 0.1	Undefined	N/A [#1]
TCLP Post Extraction Sample pH	pH Units	4.9 ± 0.1	Undefined	N/A [#1]

Fluid 2 Blank (plastic) - WS: TCLP - Toxicity Characteristic Leaching Procedure: 5247.21				
		Results	**Control Limits**	**Outside Limit (Yes/No)**
TCLP Weight of Sample Taken	g	1,000	Undefined	N/A [#1]
TCLP Extraction Fluid pH	pH Units	2.9 ± 0.1	Undefined	N/A [#1]
TCLP Post Extraction Sample pH	pH Units	2.9 ± 0.1	Undefined	N/A [#1]

20x Dilution Fluid 1 Blank (glass) PrepWS TCLP PrepWS ExtnDig - WS: Env. Waters Totals by ICP-MS (EWT): 22569.36				
		Results	**Control Limits**	**Outside Limit (Yes/No)**
Total Copper	g/m^3	< 0.011 ± 0.0073	-0.0105 – 0.0105	No
Total Lead	g/m^3	< 0.0021 ± 0.0014	-0.0021 – 0.0021	No
Total Zinc	g/m^3	< 0.053	-0.053 – 0.053	No

20x Dilution Fluid 3 Blank (plastic) PrepWS SPLP PrepWS ExtnDig - WS: Env. Waters Totals by ICP-MS (EWT): 22569.37				
		Results	**Control Limits**	**Outside Limit (Yes/No)**
Total Copper	g/m^3	< 0.011 ± 0.0073	-0.0105 – 0.0105	No
Total Lead	g/m^3	< 0.0021 ± 0.0014	-0.0021 – 0.0021	No
Total Zinc	g/m^3	< 0.053	-0.021 – 0.021	No

20x Dilution Fluid 1 Blank (plastic) PrepWS TCLP PrepWS ExtnDig - WS: Env. Waters Totals by ICP-MS (EWT): 22569.38				
		Results	**Control Limits**	**Outside Limit (Yes/No)**
Total Copper	g/m^3	< 0.011 ± 0.0073	-0.0105 – 0.0105	No
Total Lead	g/m^3	< 0.0021 ± 0.0014	-0.0021 – 0.0021	No
Total Zinc	g/m^3	< 0.053	-0.053 – 0.053	No

20x Dilution Fluid 1 Blank (plastic) PrepWS TCLP PrepWS ExtnDig - WS: Env. Waters Totals by ICP-MS (EWT): 22569.39				
		Results	**Control Limits**	**Outside Limit (Yes/No)**
Total Copper	g/m^3	< 0.011 ± 0.0073	-0.0105 – 0.0105	No
Total Lead	g/m^3	< 0.0021 ± 0.0014	-0.0021 – 0.0021	No
Total Zinc	g/m^3	< 0.053	-0.053 – 0.053	No

20x Dilution Fluid 2 Blank (plastic) PrepWS TCLP PrepWS ExtnDig - WS: Env. Waters Totals by ICP-MS (EWT): 22569.40				
		Results	**Control Limits**	**Outside Limit (Yes/No)**
Total Copper	g/m^3	< 0.011 ± 0.0073	-0.0105 – 0.0105	No
Total Lead	g/m^3	< 0.0021 ± 0.0014	-0.0021 – 0.0021	No
Total Zinc	g/m^3	< 0.053	-0.053 – 0.053	No

QC Spike QCs

LCS OC/PAH xsSHOC - WS: Polycyclic Aromatic Hydrocarbons Soil Analysis: 16840.2				
		Results	**Control Limits**	**Outside Limit (Yes/No)**
1-Methylnaphthalene	%	108 ± 27	78 – 122	No
2-Methylnaphthalene	%	104 ± 26	72 – 117	No
Acenaphthylene	%	108.0 ± 9.8	75 – 118	No
Acenaphthene	%	117 ± 34	84 – 119	No
Anthracene	%	108 ± 33	79 – 121	No
Benzo[a]anthracene	%	112 ± 30	81 – 123	No
Benzo[a]pyrene (BAP)	%	119.0 ± 9.1	76 – 123	No
Benzo[b]fluoranthene + Benzo[j]fluoranthene	%	113 ± 24	80 – 121	No
Benzo[e]pyrene	%	102.0 ± 7.8	78 – 110	No
Benzo[g,h,i]perylene	%	119 ± 21	80 – 124	No
Benzo[k]fluoranthene	%	118 ± 15	79 – 121	No
Chrysene	%	113 ± 17	83 – 121	No
Dibenzo[a,h]anthracene	%	125 ± 17	78 – 124	**Yes** [#2]
Fluoranthene	%	114 ± 12	81 – 122	No
Fluorene	%	112 ± 14	86 – 122	No
Indeno(1,2,3-c,d)pyrene	%	119 ± 11	83 – 123	No
Naphthalene	%	105 ± 26	84 – 118	No
Perylene	%	99.0 ± 7.6	76 – 107	No
Phenanthrene	%	116 ± 17	84 – 120	No
Pyrene	%	114 ± 15	79 – 123	No

Sample Spike QCs

SPLP Spike PrepWS ExtnDig - WS: Env. Waters Totals by ICP-MS (EWT): 22569.54				
		Results	**Control Limits**	**Outside Limit (Yes/No)**
Total Copper	%	100 ± 11	80 – 120	No
Total Lead	%	100.0 ± 6.1	80 – 120	No
Total Zinc	%	100	80 – 120	No

Reference Material QCs

SETOC-705 QC - WS: High Volume Environmental Soils by ICP-MS (HVesTR): 11920.17

		Results	Control Limits	Outside Limit (Yes/No)
Total Recoverable Arsenic	mg/kg dry wt	10.1 ± 2.0	9.1 – 12.7	No
Total Recoverable Cadmium	mg/kg dry wt	0.78 ± 0.13	0.70 – 0.98	No
Total Recoverable Chromium	mg/kg dry wt	25.2 ± 4.2	21 – 30	No
Total Recoverable Copper	mg/kg dry wt	12.7 ± 2.2	11.0 – 15.3	No
Total Recoverable Lead	mg/kg dry wt	32.2 ± 4.9	28 – 38	No
Total Recoverable Nickel	mg/kg dry wt	13.2 ± 2.2	11.7 – 16.3	No
Total Recoverable Zinc	mg/kg dry wt	184 ± 14	166 – 230	No

SETOC-705 QC - WS: High Volume Environmental Soils by ICP-MS (HVesTR): 11920.23

		Results	Control Limits	Outside Limit (Yes/No)
Total Recoverable Arsenic	mg/kg dry wt	10.5 ± 2.1	9.1 – 12.7	No
Total Recoverable Cadmium	mg/kg dry wt	0.80 ± 0.13	0.70 – 0.98	No
Total Recoverable Chromium	mg/kg dry wt	26.5 ± 4.4	21 – 30	No
Total Recoverable Copper	mg/kg dry wt	13.2 ± 2.3	11.0 – 15.3	No
Total Recoverable Lead	mg/kg dry wt	33.2 ± 5.0	28 – 38	No
Total Recoverable Nickel	mg/kg dry wt	14.2 ± 2.3	11.7 – 16.3	No
Total Recoverable Zinc	mg/kg dry wt	193 ± 14	166 – 230	No

1% 50ppb TRDig and TDig ME QC PrepWS ExtnDig - WS: Env. Waters Totals by ICP-MS (EWT): 22569.41

		Results	Control Limits	Outside Limit (Yes/No)
Total Copper	g/m^3	0.0515 ± 0.0089	0.045 – 0.055	No
Total Lead	g/m^3	0.0496 ± 0.0033	0.045 – 0.055	No
Total Zinc	g/m^3	0.50	0.45 – 0.55	No

Analyst's Comments

Amended Report: This quality assurance report replaces report '3847392-QCPv1' issued on 09-Apr-2025 at 4:24 pm.
Reason for amendment: Additional testing added, at the request of the client.

[#1] Control limits have not been established for this analyte.

[#2] The Laboratory Control Sample (LCS) spike recovery for this analyte was outside the acceptable range. The corresponding sample result was accepted as the sample spike recovery was acceptable. Indicating an independent anomaly with this QC.

APPENDIX I – DRAFT DSI SAMPLING AND ANALYSIS PLAN



NOTES

1. The underground storage tank location is currently unkown

2. Before excavation, we will locate the UST with ground penetrating radar, and sample the location for TPH, PAH, BTEX and heavy metals

CLIENT: Pacific Partners Property Limited			TITLE: 32 to 42 Victoria Street, Cambridge Proposed DSI sampling plan		
Project Number	Drawing Reference	Drawn By	Date	Reviewed By	Date
HD3644	HD3644-105	PG	23/09/25		
SCALE: 1:500	0 15 30 45 m				

GENERAL NOTES AND DISCLAIMER

1. Coordinates are in NZTM
2. Imagery and cadastral information sourced from LINZ. Crown copyright reserved
3. Areas and dimensions are approximate only, any use or reliance on this plan is at the users risk.
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23 SEPTEMBER 2025

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PO Box 9266
Hamilton 3240
New Zealand
0800 080 088

Hayley Thomas

Email: hayley.thomas@waipadc.govt.nz

HD3644 – 32-42 Victoria Road – LU/0148/25 – RFI Response – NESCS Matters

Waipa District Council (WDC) have reviewed the preliminary site investigation (PSI) prepared by HD Geo for the proposed development at 32-42 Victoria Road, Cambridge. This letter is in response to items 17 and 18, raised in the RFI for LU/0148/25 addressed to Grovic Property Limited c/o Barkers & Associates (B&A).

Our comments on the RFI follow.

17) Revision of the Preliminary Site Investigation to include/address the following matters:

a) ***Discussion and assessment of the potential risk from the historical dry-cleaning activity, potential contaminants of concern, including within the conceptual site model.***

Included in the revised PSI.

b) ***The potential fuel underground storage tank should be included in the conceptual site model.***

Included in the revised PSI.

c) ***The PSI concludes there is no risk from lead-based paint and asbestos containing materials. This is conclusion appears based on three sample locations located some distance from existing structures with only one sample analysed for asbestos. The three data points provided are insufficient to make this conclusion, with no discussion provided in the PSI on potential risk from historic structures.***

We have revised the PSI to describe our assessment more accurately. Further sampling and analysis will be completed in the DSI required by our response to RFI item 18.

d) ***The conceptual site model for uncontrolled fill outlines the soil contaminants of potential concern as heavy metals only. This is considered insufficient to assess risk for fill material from unknown source. It would be expected that total petroleum hydrocarbons, semi-***

volatile organic compounds (predominantly polycyclic aromatic hydrocarbons), and asbestos should be considered and included in the conceptual site model.

In the samples collected from the uncontrolled fill, these were assessed. See table 5. The following samples were tested for heavy metals and PAH:

- ES01 at 0.4 and 0.9 metres below ground level (mbgl)
- ES02 at 0.4 mbgl
- ES03 at 0.4 mbgl

Additionally, the ES01 samples at 0.4 and 0.9 mbgl were tested for semi-quantitative asbestos.

Therefore, we have concluded that heavy metals are the only remaining COPC. However, we will complete some additional analysis for these contaminants in the DSI.

Notwithstanding, the information we currently have is enough to conclude that there is a piece of land, regardless of the other contaminants that may be in the soil.

e) ***As there are volatile contaminants associated with the identified HAIL activities, and potentially subsurface contaminant sources, the development will require disturbance of deeper soil and construction of a basement. Any proposed the sampling and analysis plan (SAP) will need to consider these factors.***

Agree, these will be addressed in the DSI required by our recommended conditions. We have included a proposed sampling plan as part of our PSI revision.

f) ***Consideration of the anecdotal dry-cleaning activity identified by the PSI appendices and resource consent application.***

Included in the revised PSI.

g) ***Revision the conceptual site model to include consideration of the potential location underground fuel storage tank and potential risks.***

Included in the revised PSI.

h) ***Include a wider scope of potential contaminants from the identified uncontrolled fill material onsite.***

As per d), a wider scope has been considered. However, we will further assess these contaminants in our DSI required by the recommended consent conditions.

18) A Draft Contaminated Site Management Plan (CSMP), detailing the controls that will be in place during site clearance, further investigation, and during development of the site, would normally be requested alongside the above. However given the unknowns of the site, a proposed soil sampling and analysis plan is required.

For this development, we recommend that this soil sampling and analysis plan (SSAP) and contaminated site management plan (CSMP) are required as a condition of consent, to be submitted for review and certification by WDC or a representative consultant.

We recommend the following consent conditions for this matter:

> *1) Before any earthworks are completed on the site, a detailed site investigation must be completed for the site. The DSI must be prepared by a suitably qualified and experienced practitioner (SQEP) and submitted to Waipa District Council (WDC) for review and certification. The DSI must include:*
>
> > *a) additional site investigation and soil sampling*
> >
> > *b) further characterisation of the uncontrolled fill on site*
> >
> > *c) further assessment of the extent of the uncontrolled fill on the site*
>
> *2) any matters arising from review of the DSI must be resolved in consultation with WDC prior to the DSI being certified.*
>
> *3) Before any earthworks are completed on the site, a contaminated soil management plan (CSMP) / Remediation Action Plan (RAP) must be prepared by a suitably qualified and experienced practitioner (SQEP) and submitted to WDC for review and certification.*

Closing

We trust that the updated PSI and the responses provided satisfy the requirements of the RFI. Please contact me if you have any questions or need any further information.

Kind regards,



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