

ANNEXURE B Detailed site investigation report Kilbirnie Park



Kilbirnie Park - Detailed Site Investigation

State Highway 1 (SH1) Wellington Improvements Project

New Zealand Transport Agency Waka Kotahi

44 Bowen Street,
Wellington

Prepared by:

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Basis of Report

This report has been prepared by SLR Consulting New Zealand Limited (SLR) with all reasonable skill, care and diligence, and taking account of the timescale and resources allocated to it by agreement with New Zealand Transport Agency Waka Kotahi (the Client). Information reported herein is based on the interpretation of data collected, which has been accepted in good faith as being accurate and valid. SLR may have used AI in the preparation of this document.

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Executive Summary

SLR Consulting New Zealand Limited (SLR) has completed a Detailed Site Investigation (DSI) of the northern area of Kilbirnie Park for New Zealand Transport Agency Waka Kotahi (NZTA) in relation to the State Highway 1 (SH1) Wellington Improvements project (the Project). The DSI report is to be read in conjunction with the Preliminary Site Investigation (PSI) report (SLR 2026) presented as **Annexure A** to the Contaminated Land Assessment Technical Specialist Report.

The purpose of the DSI was to assess the nature and extent of contaminants of potential concern (CoPC) in soil and groundwater within Kilbirnie Park affected by the Project, assess the effects on (risk to) human health and the environment from any identified CoPC and assess the proposed works in relation to applicability of the Ministry for the Environment (MfE) National Environmental Standard for Assessing and Managing Contaminants in Soil (NES-CS) and the Greater Wellington Regional Council (GWRC) operative Natural Resources Plan (NRP). Kilbirnie Park is a closed landfill listed on the Greater Wellington Regional Council's (GWRC) Selected Land Use Register (SLUR) as SN/05/012/02 category I Verified History of Hazardous Activity or Industry, and is Hazardous and Industries List (HAIL) land category HAIL G3 Landfill sites; closed landfill.

The DSI comprised site works including the advancement, logging and sampling of two groundwater monitoring wells (KP01 and KP02) installed within the northern end of Kilbirnie Park. The site investigation works were undertaken in conjunction with geotechnical investigations by Tonkin and Taylor (T+T).

Drilling works were undertaken over the period 9 - 10 February 2026 using a combination of hydrovac and sonic drilling method. The works encountered soils interpreted as fill to approximately 1.5 - 1.7 metres (m) below ground level (bgl), underlain by inferred natural ground comprising sandy and gravely silt to total depth (6 m), inferred to be as highly weathered sandstone and siltstone. No visual or olfactory indicators of contamination were encountered and no anthropogenic materials were noted.

Groundwater monitoring wells were installed in each well bore on completion of drilling. A groundwater monitoring event was undertaken on 17 February 2026 following well development. Sampling was completed by low-flow micro-purge techniques using a peristaltic pump. Groundwater was recorded at 0.96 m below top of casing (btoc) in monitoring well KP01 and at 1.26 m btoc of casing in KP02.

Laboratory analysis of soils reported minor exceedances of background soil concentration values for heavy metals. The findings are consistent with results reported previously for soils in the northern part of Kilbirnie Park.

The concentrations of CoPC recorded in groundwater from monitoring wells KP01 and KP02 do not indicate the presence of landfill leachate below the area of Kilbirnie Park affected by the Project.

Analysis results were compared background soil concentrations and human health and environmental guidelines including the Australian and New Zealand Guidelines (ANZG) Ecological Default Guideline Values (DGVs) for Marine Water at 95% species protection.

A conceptual site model (CSM) was also prepared for the qualitative assessment of effects of the contaminants in soil and ground on human health and the environment.

Key findings are as follows:



- Concentrations of CoPC from soil samples collected within the proposed development area for the Project are highly unlikely to pose a risk to human health from disturbance of these soils during and following road construction works.

Soil disturbance would likely be a controlled activity in accordance with Regulation 9(1) of the NES-CS.
- Shallow groundwater flow is expected to be to the north and northeast, with discharge to Evans Bay located some 130 m northeast of the Project area.
- The concentrations of CoPC recorded in groundwater from monitoring wells KP01 and KP02 do not indicate the presence of landfill leachate below the development area for the Project.
- Concentrations of dissolved copper and zinc exceeded their adopted 95% species protection values in both groundwater samples analysed. Attenuation of metals will occur in groundwater between Kilbirnie Park and Evans Bay and in the receiving environment, with metals concentrations in the receiving environment expected to be less than ANZG criteria. The potential passive discharge of contaminants in groundwater from the area affected by the Project are therefore unlikely to pose an unacceptable risk to surface waters, and is assessed as permitted under Rule R82 of the GWRC NRP.
- The groundwater results indicate that dewatering may comply with NRP Rule R159, however, pretreatment may be required to achieve suitable water quality for discharge to Evans Bay. Effects of dewatering on Evans Bay, if required, without mitigation, are qualitatively assessed as Negligible to Low.
- Except for discharges associated with dewatering, effects of the ground disturbance works on human health and the environment are assessed as Negligible.



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Acronyms and Abbreviations

ANZG	Australian and New Zealand Guidelines
CEnvP – SC	Certified Environmental Practitioner – Site Contamination
CLMG	Contaminated Land Management Guidelines
CoC	Chain of Custody
CoPC	Contaminants of Potential Concern
DQOs	Data Quality Objectives
DSI	Detailed Site Investigation
GWRC	Greater Wellington Regional Council
IANZ	International Accreditation New Zealand
LNAPL	Light non-aqueous phase liquid
LOR	Limit of Reporting
m bgl	Meters Below Ground Level
MfE	Ministry for the Environment
NES-CS	Resource Management (National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health) Regulations 2011
NRP	Natural Resources Plan
PA	Permitted Activity
PID	Photo Ionisation Detector
PSI	Preliminary Site Investigation
QA/QC	Quality Assurance/Quality Control
SCS	Soil Contaminant Standards
RPD	Relative percentage difference
SLR	SLR Consulting New Zealand Limited
SQEP	Suitably Qualified and Experienced Practitioner
swl	Static water level
TPH	Total Petroleum Hydrocarbons
VOC	Volatile Organic Compounds
WCC	Wellington City Council



1.0 Introduction

1.1 Report Context

This Detailed Site Investigation (DSI) report has been prepared for the New Zealand Transport Agency Waka Kotahi (NZTA) by SLR Consulting New Zealand Limited (SLR) as part of site investigations for the proposed State Highway (SH) 1 Wellington Improvements Project (the Project). It presents the findings of a soil and groundwater investigation undertaken within the northern end of Kilbirnie Park located on SH 1, Kilbirnie, Wellington. The DSI comprises **Annexure B** to the Statement of Evidence presented in the covering Contaminated Land Assessment Technical Specialist Report and provides technical information used to inform the Statement of Evidence.

The location and layout of Kilbirnie Park is shown in **Figure A1, 0**.

As currently proposed for the Project, SH1 on the northern boundary of Kilbirnie Park will be extended to the south beyond the existing Kilbirnie Park boundary by approximately 8 m. A 10 m strip beside the SH1 widening within Kilbirnie Park will also be required as temporary construction space, mainly used to access and to provide a staging area off the main Project Alignment adjacent to the works. Reinstatement of the temporary construction space includes re-establishment of a grass playing surface and reconstruction of a cricket pitch.

The extents of the permanent and temporary works are shown in **Figure 1** and **Figure 2**.



Figure 1 Plan view of SH 1 Wellington Improvements in relation to Kilbirnie Park (from General Arrangement Sheet 20 SH1WI-DES-00-GEN-DGR 5-C4434.01)



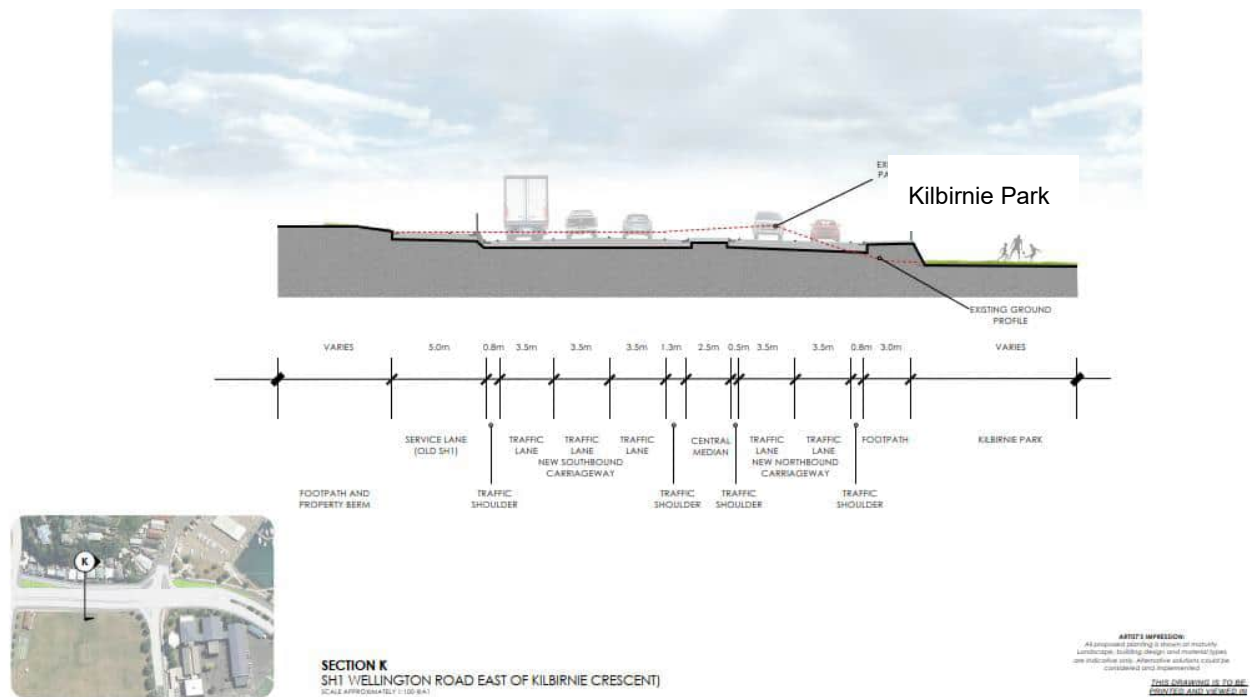


Figure 2 North-South schematic section of proposed SH1 expansion into Kilbirnie Park (from Cross Section K, SH1WI-DES-00-UDL-DGR Sheet 00511)

The Preliminary Site Investigation (PSI) by SLR in 2026 (SLR 2026) for the Project identified that Kilbirnie Park is a closed landfill listed on the Greater Wellington Regional Council's (GWRC) Selected Land Use Register (SLUR) as SN/05/012/02 category I Verified History of Hazardous Activity or Industry, and is Hazardous Activities and Industries List (HAIL) land category HAIL G3 Landfill sites; closed landfill. No specific information about the contamination status of soil or groundwater within the area of Kilbirnie Park affected by the Project was available for the PSI. This DSI has been undertaken to address this data gap.

The PSI is **Annexure A** to the Statement of Evidence presented in the covering Contaminated Land Assessment Technical Specialist Report.

1.2 Resource Consent Framework

As Kilbirnie Park is HAIL land, the proposed ground disturbance and change of use of the land require consideration under the Resource Management (National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health) Regulations 2011 (NES-CS) and potential requirements under the GWRC Natural Resource Plan (NRP) in relation to contaminant discharges to the environment. The NES-CS and the GWRC NRP are discussed further in the covering Contaminated Land Assessment Technical Specialist Report.

1.3 DSI Objectives

The objectives of the DSI were to:

- Assess the nature and extent of contaminants of potential concern (CoPC) in soil and groundwater within the area of Kilbirnie Park affected by the Project.
- Assess the effects of the works on human health and environment in relation to the CoPC as a result of the Project.



- Provide a preliminary assessment of the proposed works in relation to applicability of the NES-CS and GWRC NRP.

1.4 Scope of Work

The scope of the DSI comprised the following:

- Advancement, logging and sampling of two groundwater monitoring wells installed within the northern end of Kilbirnie Park.
- Analysis of soil and groundwater samples.
- Preparation of the DSI report.

The site investigation works were undertaken in conjunction with geotechnical investigations by Tonkin and Taylor (T+T). The geotechnical investigation works are reported by T+T under separate cover.

This DSI report should be read in conjunction with the PSI report presented as **Annexure A** of the Contaminated Land Assessment Technical Specialist Report.



2.0 Environmental Setting

Kilbirnie Park is a Wellington City Council (WCC) owned park used for recreation activities, with a cricket pavilion located in the northwestern corner of the park. It is located immediately to the south of SH1 (Wellington Road), between Kilbirnie Crescent to the west and Evans Bay Parade to the east, at an elevation of approximately 4 m in the west reducing to approximately 2 m on the eastern side of the park.

Residential housing is the predominant land use to the north of SH1 and to the west of Kilbirnie Crescent. St Patrick's College is located to east of Evans Bay Parade.

The Waipapa Awa is piped below SH1 to the north of Kilbirnie Park and discharges to Evans Bay approximately 130 m northeast of the park. Evans Bay is closest mapped open surface water body.

As described in the PSI (SLR 2026), Kilbirnie Park is listed on the GWRC SLUR (SN/05/012/02) under HAIL G3 Landfill sites and is documented as a closed landfill. It is mapped as overlying Holocene human-made deposits (landfill and reclamation fill) overlying marine shoreline deposits, which overlie greywacke bedrock. Previous investigations indicate that shallow groundwater is present at about 1.5 m below ground level (bgl), with groundwater flow to the east towards Evans Bay. Shallow groundwater is not utilised for potable supply.

Figure 3 below presents a snip from the GWRC SLUR database of the northern end of Kilbirnie Park showing the proposed encroachment of SH1 as part of the Project and the extent of the closed landfill (purple shading), which abuts current SH1. The types and location of filling activities are not well documented, although previous investigations within the park have encountered silty clay with siltstone gravels indicative of weathered greywacke in the northern part of the park (MWH 2005), and anthropogenic wastes and indications of landfill leachate in the south. These studies are described further in the PSI (**Annexure A**).



Figure 3 Proposed SH1 widening through the northern extent of Kilbirnie Park SN/05/012/02





3.0 Site Investigation

3.1 Data Quality Objectives

Data Quality Objectives (DQOs) were established prior to the site investigation to define the type, quantity and quality of data needed to support decisions relating to the assessment of contamination. The DQOs are summarised below:

Purpose and Objectives:

- Assist to establish the nature and extent of contamination in soils, including landfilled materials within the area of Kilbirnie Park affected by the Project.
- Assist to determine potential effects of chemical contaminants within soils, landfilled materials and in groundwater on human health and environment in relation to the Project.

Data Required:

- Samples of soils/waste materials and groundwater for laboratory analysis.
- Analyses of samples for contaminants of potential concern (CoPC).
- Soil CoPC include heavy metals (arsenic, cadmium, chromium, copper, lead, nickel and zinc) and total petroleum hydrocarbons (TPH). Asbestos in soil will also be assessed if fill containing anthropogenic materials is encountered.
- Groundwater CoPC comprise heavy metals (total and dissolved) and TPH. Major ions and nutrients will also be assessed as landfill leachate indicators.

Study boundaries:

- Study boundaries comprise the northern part of Kilbirnie Park affected by the Project.

Data Interpretation

- Extent of landfilling and main types of waste and their distribution in the soil profile based on visual assessment and the results of laboratory analysis of samples.
- Laboratory analysis data will be compared against appropriate assessment criteria to assess the risk posed by the CoPCs to human health and environment in relation to the Project.

Data Reliability

- Data reliability will be assessed against data quality indicators set out in the investigation design.

Investigation Design

- Investigations will comprise the installation of two machine drilled monitoring wells within the western and eastern parts of the study area.
- Soil and groundwater samples will be collected using SLR standardised sampling methods.
- Samples will be analysed by a laboratory holding International Accreditation New Zealand (IANZ) accreditation for the analyses undertaken.



- Standard quality assurance/quality control (QA/QC) protocols will be implemented to ensure data collection is suitable precise, accurate, and complete.
- Analytical results obtained will be assessed against the nominated assessment guidelines.
- Limits of reporting (LORs) will be at or less than the environmental assessment criteria to ensure data are suitably sensitive for risk assessment purposes.
- Design and execution will comply with CLMG No 5 Site investigation and analysis of soils.

3.2 Monitoring Well Drilling and Installation

Two groundwater monitoring well bores (KP01 and KP02) were drilled by Griffiths Drilling (NZ) Limited (Griffiths) under the supervision of SLR and T+T over the period 9 - 10 February 2026. The initial 1.5 m of each bore was excavated using hydrovac as part of services identification and clearance. Bores were then completed to target depth of 6 m below ground level (bgl) using the sonic drilling method.

Groundwater monitoring wells were installed in each well bore on completion of drilling. The monitoring wells comprised 50 mm diameter PVC pipe with machine slotted screens placed from 1 m below ground level (m bgl) to 6 m bgl. The well screens were designed to screen across the shallow water table to allow detection and monitoring of light non aqueous phase liquids (LNAPL), such as liquid petroleum hydrocarbons. The monitoring wells were finished with flush mounted well tobies buried a few centimetres below ground level. The well completions are shown on the soil logs in 0.

The monitoring wells were developed by Griffiths on completion of installation to facilitate groundwater sampling.

The monitoring well locations are shown on **Figure A1, 0**. Photographs taken during the works are presented in 0.

3.3 Soil Logging and Sampling

Environmental logging of the soils encountered was undertaken by SLR from soil core collected and boxed by Griffiths during drilling.

Soil samples representative of the soils encountered were collected by SLR to total depth. All soil samples were subject to monitoring of volatile organic compounds (VOCs) in the headspace of the soils using a calibrated photoionisation detector (PID) fitted with a 10.2 eV lamp.

Soil samples were then placed in laboratory supplied sample jars and identified with a unique sample identifier, which was documented on the sample label and on the chain of custody CoC) form.

The samples were placed into a chilled container and transported under CoC to Hill Laboratories Ltd.

Soil logs, sample numbers, sampling depths and headspace VOC concentrations are presented on the soil logs in 0. Photographs of soils encountered are presented in 0. Geotechnical logs prepared by T+T are presented in 0.



3.4 Groundwater Sampling

Groundwater samples were collected by SLR on 17 February 2026 using the following methodology:

- VOC concentrations in the monitoring well headspace was measured using the PID on well opening.
- An oil-water interface probe was used to establish the static water level (swl) and check for the presence of light non-aqueous phase liquid (LNAPL).
- Groundwater sampling was completed using low-flow micro-purge techniques using a peristaltic pump. Groundwater field parameters including dissolved oxygen, temperature, pH, electrical conductivity and redox potential were monitored until these parameters indicated that the water being removed was stable/consistent. Purge water was captured for secure disposal and disposed via trade waste following receipt of analysis results.
- Groundwater samples were collected directly into laboratory-supplied bottles identified with a unique sample identifier which was documented on the sample label, and on the chain of custody form.
- The samples were placed into a chilled container and transported under CoC conditions to Hill Laboratories Ltd for analysis.

Sampling field sheets are presented in **0**.

3.5 Analysis Schedule

All samples were analysed by Hill Laboratories Ltd for the following CoPCs:

Soil:

- Total Metals - Arsenic, Cadmium, Chromium, Copper, Lead, Nickel and Zinc
- TPH.

Groundwater:

- Total and dissolved metals (Arsenic, Cadmium, Chromium, Copper, Lead, Nickel and Zinc).
- TPH.
- Anions, cations and nutrients: - Ammonium, Calcium (total and dissolved), Chloride, Dissolved Organic Carbon (DOC), Magnesium (total and dissolved), Nitrate (as N), Nitrite (as N), Nitrate & Nitrite (as N), Potassium (total and dissolved), Reactive Phosphorus as P, Sodium (total and dissolved), Sulphate, Alkalinity (total) as CaCO_3 , Hardness as CaCO_3 .

No asbestos in soil analyses were undertaken as no anthropogenic materials were encountered. Any primary soil samples not initially analysed were held cold at the laboratory.

Chain of Custody documents and laboratory results as received are presented in **0**.



3.6 Quality Assurance/Quality Control

The works were undertaken in general accordance with CLMG No 5 and A National Protocol for State of the Environment Groundwater Sampling in New Zealand (December 2016) in compliance with SLR field quality assurance protocols by a suitably qualified and experienced contaminated land scientist practitioner under the supervision of suitably qualified and experienced practitioner (SQEP). All tools used for sampling were decontaminated and washed between samples to remove the risk of cross contamination. Nitrile gloves were also used and disposed of between each sample. Samples were analysed by Hill Laboratories, which is an IANZ accredited laboratory, with accredited methodologies for analysis for the presence of identified CoPC, as detailed in 0.

A duplicate water sample (QAQC01) was collected from KP02 for quality assurance / quality control purposes. Quality assurance and quality control results are provided in Table G3, 0. The calculated relative percentage differences (RPDs) for the duplicate (QAQC01) and primary sample (KP02) for individual analytes ranged between 0% and 37%.

The soil and groundwater analysis results are considered to be suitable for use in this DSI.



4.0 Investigation Results

4.1 Ground Encountered

Surficial soils comprised topsoil to 0.2 m bgl.

In borehole KP01, the surficial soils were underlain by sandy silt interpreted as fill to depth of approximately 1.5 m. The fill was underlain by silt with minor gravel and sand to approximately 3 m bgl. This material is interpreted to be natural ground comprising weathered siltstone. The silt was underlain to total depth by gravelly silt, interpreted to be natural ground comprising highly weathered sandstone.

In borehole KP02, the surficial fill was underlain by sandy fine to coarse gravel as fill to about 1.6 m bgl. This was underlain by sandy gravel with silt to total depth. This material was interpreted to be natural ground comprising highly weathered sandstone.

No anthropogenic materials were encountered and no visual or olfactory indications of contamination were noted. Soil headspace VOC concentrations were less than 2 ppm.

4.2 Groundwater Encountered

Groundwater was encountered during drilling at about 1.8 m bgl in KP01 and 1.7 m bgl in KP02.

Swl were measured using an oil water interface probe on 17 February 2026 and were recorded at 0.96 m below top of casing (btoc) in monitoring well KP01 and at 1.26 m btoc of casing in KP02 (0). No LNAPL was recorded. No VOCs were detected in monitoring well headspaces when first opened.

Purge water was noted as turbid (brown) in KP01 and slightly turbid (light brown) in KP02. No sheen or odours were noted.

Field quality parameters recorded electrical conductivity (EC) in groundwater of approximately 1000 uS/cm in monitoring well KP01 and 1,330 uS/cm in KP02, and pH of 5.4 and 5.96, respectively. Field redox and dissolved oxygen (DO) readings indicated slightly aerobic conditions.

4.3 Analytical Results

4.3.1 Evaluation Criteria

A tabulated summary of the analytical results is presented as **Table G1** (soil) and **Table G2** (groundwater), in **0**. The following assessment criteria are also presented:

Background Soil Concentrations:

- Background soil concentrations for soils in the Wellington Region sourced from URS (2003). Main Soil Type 2 (Greywacke as parent rock) was used. Exceedance of background soil concentrations on HAIL land triggers assessment under the NES-CS.

Soil Human Health Guidelines

- Soil Contaminant Standards (SCS) from the NES-CS for the protection of human health. Commercial / industrial land use has been used as a conservative assessment of risk to the health of construction workers during road construction and



future maintenance. Recreational land use has also been used for the assessment in relation to the temporary construction area of the site that will be returned to recreational land use post construction, notwithstanding that this will include the re-establishment of a grass playing surface. These criteria provide a conservative assessment of risk from metals in soil to users of the park post construction;

- In the absence of New Zealand specific human health risk assessment criteria for concentrations of nickel and zinc in soil, the Australian National Environment Protection Council National Environment Protection (Assessment of Site Contamination) Measure 1999, Amendment No.1 (2013) – Health Investigation Levels using 'commercial / industrial exposure scenario guidelines and recreation use scenario guidelines have been adopted in accordance with the hierarchy for selecting Soil Guidelines Values (SGVs) as detailed in Contaminated Land Management Guidelines No.2 Hierarchy and Application in New Zealand of Environmental Guideline Values (MfE 2011).
- Tier 1 acceptance criteria for petroleum hydrocarbons in soil from MfE (1999). All Pathways criteria for Commercial / Industrial land use for Sand at less than 1 m depth have been used a conservative assessment of risk to the health of construction workers during road construction and future maintenance. All pathways Tier 1 acceptance criteria for Residential land use have also been used for the assessment, affecting the temporary construction area of the site that will be returned to recreational land use post construction. These criteria provide a conservative assessment of risk from petroleum hydrocarbons in soil to users of the park post construction. There are no MfE (1999) Tier 1 criteria for Recreational land use.

Groundwater Human Health Guidelines

- Tier 1 acceptance criteria for petroleum hydrocarbons in groundwater from MfE (1999) in relation to risk to human health from the inhalation of petroleum vapours in outdoor air. Residential land use has been used as a conservative assessment of risk to the health of construction workers during road construction and future maintenance and park users post construction.
- Standards and Aesthetic values for New Zealand drinking water are also presented for reference.

Groundwater Environmental Guidelines

- Ecological Default Guideline Values (DGVs) for Marine Water at 95% species protection from Australian and New Zealand Guidelines (ANZG) (2018), where available, have been used to assess the impact of the discharge of groundwater from the site during construction works as passive discharge, or from dewatered groundwater with discharge to stormwater and Evans Bay. Evans Bay is considered to be a slightly to moderately disturbed system.

4.3.2 Soil

Concentrations of heavy metals in soils marginally exceeded the published background concentrations for cadmium, chromium, lead, nickel and zinc, with the majority of exceedances in soil from KP02. No TPH was detected, except for a trace of C15-C36 range TPH (83 mg/kg) in shallow fill in KP02 (0.3m to 0.5 m bgl).



Concentrations of all CoPC were well below their respective SCS or Tier 1 acceptance criteria for the protection of human health for both commercial industrial and recreational land uses.

4.3.3 Groundwater

The following is noted in relation to the groundwater analysis results:

- Dissolved arsenic, cadmium, chromium, copper, nickel and zinc were detected in groundwater.
- Except for cadmium on KP02, total metals concentrations exceeded laboratory limit of reporting (LOR) for all metals in groundwater from monitoring wells KP01 and KP02. In all cases, the results were greater than their respective results for dissolved metals.
- Concentrations of dissolved copper in groundwater from both KP01 (0.0031 mg/L) and KP02 (0.0026 mg/L) exceeded the ANZG DGV of 0.0006 mg/L.
- Concentrations of dissolved zinc in groundwater from both KP01 (0.017 mg/L) and KP02 (0.0113 mg/L) exceeded the ANZG DGV of 0.008 mg/L.
- All other dissolved metals analyses complied with their respective ANZG DGV.
- The result for ammonium as N also complied with the ANZG DGV. No DGVs are available for the other CoPC.
- No TPH was detected and the results complied with the Tier 1 acceptance criteria for outdoor air exposure.
- All analytical results were less than the drinking water guideline values shown for reference.

The groundwater results do not indicate the presence of landfill leachate.



5.0 Conceptual Site Model

A Conceptual Site Model (CSM) is presented in **Table 1**. The CSM is based on the findings of the PSI (**Annexure A**) and the laboratory analytical results. It provides a description of the identified potential contaminant sources, pathways in the environment and potential receptors, and a qualitative assessment of source-pathway-receptor (SPR) linkages in relation to the Project. An effect on (risk to) human health or the environment is only present if there is a complete SPR linkage. An assessment of effects based on the qualitative risk assessment terminology presented in the PSI (SLR 2026) is also provided.



Table 1 Conceptual Site Model and Qualitative Assessment of Effects

Source	Pathway	Receptor	Discussion	SPR Linkage	Effects
CoPCs in soil	Direct contact, inhalation and/or ingestion	Human Health: Park users post development. Road Construction and maintenance/excavation workers	The concentrations of CoPC in soil samples were well below the adopted protection of human health criteria.	Incomplete Insufficient source concentrations	Negligible
	Stockpiling, offsite disposal	Stormwater/surface water	Some metals detected at concentrations marginally higher than background concentrations. Standard earthworks controls apply.	Incomplete Insufficient source concentrations	Negligible
CoPCs in Groundwater	Direct contact, inhalation and/or ingestion	Human Health: Park users post development.	Groundwater located approximately 1 m bgl. No indication of landfill leachate in groundwater.	Incomplete Insufficient source concentrations	Negligible
		Human Health Road Construction and maintenance/excavation workers	Groundwater located approximately 1 m bgl. No indication of landfill leachate in groundwater. Contact with groundwater possible during groundworks (e.g., piling).	Incomplete Insufficient source concentrations	Negligible
	Passive discharge to surface water	Waipapa Awa	Waipapa Awa located below SH1 is piped. Ingress considered unlikely.	Incomplete No pathway	Negligible
	Passive discharge offsite	Marine Environment	Concentrations of dissolved copper and zinc exceeded their adopted 95% species protection values in both groundwater samples analysed. Shallow groundwater discharges to Evans Bay approximately 130 m northeast of Project area. Attenuation of metals will occur in groundwater between Kilbirnie Park and	Incomplete Insufficient source concentrations	Negligible



Source	Pathway	Receptor	Discussion	SPR Linkage	Effects
			Evans Bay and in the receiving environment. Exceedances in the receiving environment expected to be less than ANZG criteria.		
	Discharge to Evans Bay via stormwater during dewatering for road construction/maintenance.	Marine Environment	Concentrations of dissolved copper and zinc exceeded their adopted 95% species protection values in both groundwater samples analysed. Potential discharge to surface water during dewatering for road construction/maintenance, if required, with discharge to Evans Bay.	Potentially complete	Negligible to Low



6.0 Regulatory Assessment

6.1 NES-CS

The proposed development works impact the northern extent of Kilbirnie Park which has been subject to HAIL and is therefore subject to the provisions of the NES-CS. The portion of Kilbirnie Park impacted by the works is considered to be a Piece of Land in accordance with Regulation 5(7) of the NES-CS.

Based on the results of the DSI, heavy metals concentrations in soil marginally exceed background concentrations but do not exceed their respective SCS for protection of human health for commercial/industrial or recreational land uses. Soil disturbance is therefore potentially a controlled activity in accordance with Regulation 9(1) of the NES-CS.

Applicability of soil disturbance volumes and /or timeframes required for the Project to meet the permitted activity (PA) requirements set out in Regulation 8(3) of the NES-CS have not been assessed.

6.2 GWRC Natural Resources Plan

Kilbirnie Park is HAIL land listed on the GWRC SLUR as HAIL G3 and SLUR category I - Verified History of Hazardous Activity or Industry.

Discharges from contaminated land as a permitted activity are covered under Rule R82 of the GWRC NRP. The closest open water body (Evans Bay) is 130 m northeast of the park. The findings of the DSI indicate that potential passive discharges from area of Kilbirnie Park affected by the Project would be unlikely to pose an unacceptable risk to Evans Bay owing to available attenuation of metals will that occur in groundwater between Kilbirnie Park and Evans Bay and dilution in the receiving environment. Passive discharge in groundwater therefore appears to be a permitted activity under Rule R82 of the GWRC NRP.

Dewatering, if required during the construction phase of the project, will need to be assessed in relation to Rule R159 of the GWRC NRP, which addresses dewatering from SLUR sites and HAIL land to surface water as a permitted activity. For Kilbirnie Park, this may comprise the discharge of dewatered groundwater to stormwater, with discharge to Evans Bay as the receiving environment. The groundwater results indicate that dewatering may comply with Rule R159, however, pretreatment to may be required achieve suitable water quality for discharge to Evans Bay.



7.0 Conclusions

- Observations and analysis results for soils in the northern area of Kilbirnie Park affected by the Project comprises top soil and sandy gravel fill to about 1.5 m bgl, overlying natural ground. No anthropogenic materials (landfilled wastes) are present. There are minor exceedances of background soil concentration values. The findings are consistent with results reported in MWH (2005) for the northern area of Kilbirnie Park.
- Concentrations of CoPC from soil samples collected within the proposed development area for the Project are highly unlikely to pose a risk to human health from disturbance of these soils during and following road construction works.
- Soil disturbance would likely be a controlled activity in accordance with Regulation 9(1) of the NES-CS.
- Shallow groundwater is present at approximately 1 m bgl to 1.3 m bgl. Groundwater flow is expected to be to the north and northeast, with discharge to Evans Bay located some 130 m northeast of the Project area.
- The concentrations of CoPC recorded in groundwater from monitoring wells KP01 and KP02 do not indicate the presence of landfill leachate below the development area for the Project.
- Concentrations of dissolved copper and zinc exceeded their adopted 95% species protection values in both groundwater samples analysed. Attenuation of metals will occur in groundwater between Kilbirnie Park and Evans Bay and in the receiving environment, with metals concentrations in the receiving environment expected to be less than ANZG criteria. The potential passive discharge of contaminants in groundwater from the area affected by the Project are therefore unlikely to pose an unacceptable risk to surface waters, and is assessed as permitted under Rule R82 of the GWRC NRP.
- The groundwater results indicate that dewatering may comply with NRP Rule R159, however, pretreatment may be required to achieve suitable water quality for discharge to Evans Bay. Effects of dewatering on Evans Bay, if required, without mitigation, are qualitatively assessed as Negligible to Low.
- Except for discharges associated with dewatering, effects of the ground disturbance works on human health and the environment are assessed as Negligible.



8.0 Closure

We trust this report meets your requirements

Sincerely,

SLR Consulting New Zealand Limited



Michael King

Senior Project Consultant – Land Quality and
Remediation



Kevin Tearney, CEnvP-SC

Technical Director – Land Quality and
Remediation

9.0 Certifying Statement

This DSI has been prepared under the supervision of Kevin Tearney, a Certified Environmental Practitioner Site Contamination (CEnvP SC) # SC41072 and a Suitably Qualified and Experienced Practitioner (SQEP) as required under the NES-CS and as defined in the NES-CS Users' Guide 2012 (MfE 2012). It meets the requirements set out in the Ministry for the Environment (MfE) Contaminated Land Management Guideline (CLMG) No 1. Reporting on contaminated sites in New Zealand (MfE 2021a), CLMG No 5 Site investigation and analysis of soils (MfE 2021b) and as referenced in the NES-CS.

Kevin William Tearney CEnvP SC #SC41072



19 June 2026

References

Australia and New Zealand Guidelines (2018). Guidelines for fresh and Marine water quality.

Greater Wellington Regional Council (2023). Operative Natural Resources Plan for the Wellington Region 2023. Greater Wellington Regional Council, Wellington, New Zealand.

Ministry for the Environment, (1999). Guidelines for Assessing and Managing Petroleum Hydrocarbon Contaminated Sites in New Zealand

Ministry for the Environment (2012). Users' Guide National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health. Ministry for the Environment, Wellington, New Zealand.

Ministry for the Environment (2021a). Contaminated Land Management Guidelines No. 1 – Reporting on Contaminated Sites in New Zealand (Revised 2021). Ministry for the Environment, Wellington, New Zealand.

Ministry for the Environment (2021b). Contaminated Land Management Guidelines No. 5 – Site Investigation and Analysis of Soils (Revised 2021). Ministry for the Environment, Wellington, New Zealand.



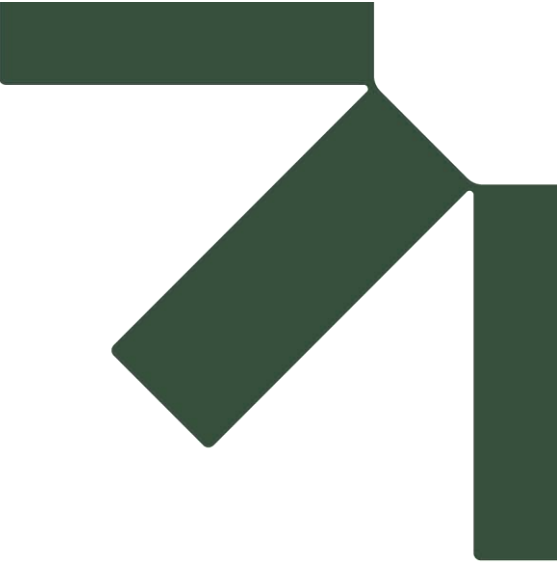
MWH (2005). Kilbirnie Park Closed Landfill Soil Contamination and Leachate Characterisation Project. MWH on behalf of Wellington City Council, Wellington, New Zealand.

SLR (2026). Preliminary Site Investigation State Highway 1 Wellington Improvements Project (Annexure A, Contaminated Land Assessment Technical Specialist Report).

URS (2003). Determination of Common Pollutant Background Soil Concentrations for the Wellington Region. Greater Wellington the Regional Council August 2003 48235-002/R001_WRC_REPORT.DOC.

Water Services (Drinking Water Standards for New Zealand) Regulations 2022





Attachment A Figures

Kilbirnie Park - Detailed Site Investigation

State Highway 1 (SH1) Wellington Improvements Project

New Zealand Transport Agency Waka Kotahi

SLR Project No.: 820.030609.00001

19 June 2026



Legend

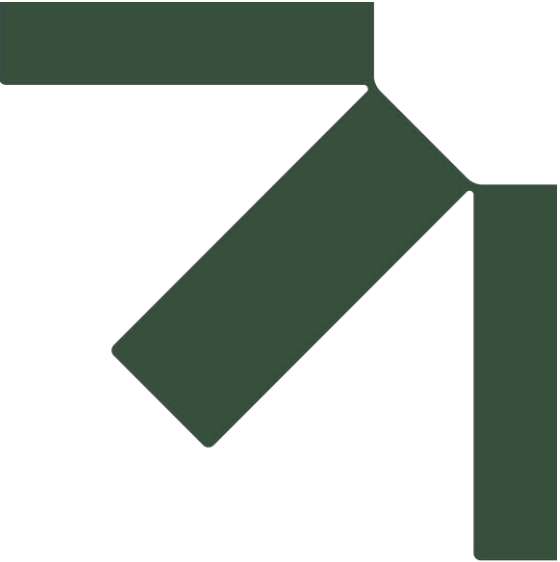
- Kilbirnie Park Well Locations
- Kilbirnie Park

0 25 m 50 m
LINZ CC BY 4.0 © Imagery Basemap contributors



Produced by **Datanest.earth**

Title: Site and Sample Location Plan		
Client: NZTA		Size: A4
Project: SH1 Wellington Improvements	Drawn: MK	Appendix: A1
Date: 12-03-2026	Checked: KT	
Proj No: 820.030609.00001	Scale: 1:2500	Version: Final



Attachment B Bore Logs

Kilbirnie Park - Detailed Site Investigation

State Highway 1 (SH1) Wellington Improvements Project

New Zealand Transport Agency Waka Kotahi

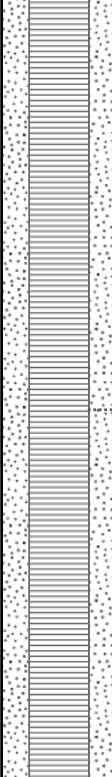
SLR Project No.: 820.030609.00001

19 June 2026

UTM : 60G	Driller Rig : Sonic	Job Number : 820.030609.00001
Latitude : -41.31241	Driller Supplier : Griffiths	Client : NZTA
Longitude : 174.79394	Logged By : Michael King	Project : SH1 Wellington Improvements
Elevation : Not Surveyed	Reviewed By : Kevin Tearney	Location : Kilbirnie Park, Wellington
Total Depth : 6 m	Date : 09/02/2026	Loc Comment :

PID (ppm)	Sample	Moisture	Water Level	Depth (m)	Graphic Log	LITHOLOGICAL DESCRIPTION	COMMENTS / CONTAMINANT INDICATORS	Well Diagram	Elevation (m)
		D		0.1		Silty fine to medium SAND; Brown. dense; dry. [TOPSOIL]			
				0.2		Sandy SILT; Grey with orange mottling. dry; low plasticity; sand, fine. [FILL]			
1.2	KP01_0.3-0.5			0.3					
				0.4					
				0.5					
				0.6					
				0.7					
				0.8					
	KP01_0.8-1.0	D		0.9					
				1.0					
1.3				1.1					
				1.2					
				1.3					
	KP01_1.3-1.5			1.4					
				1.5					
1.1				1.6		Siltsone, grey, dry.			
				1.7					
				1.8					
				1.9					
				2.0					
				2.1					
				2.2					
				2.3					
				2.4					
				2.5					
				2.6					
				2.7					
				2.8					
				2.9					
				3.0					
0.9				3.1					
				3.2					
				3.3					
				3.4					
				3.5					
				3.6					
	KP01_2.5-2.7			3.7					
				3.8					
				3.9					
1.9				4.0					
				4.1					
				4.2					
				4.3					
				4.4					
				4.5					
				4.6					
				4.7					
				4.8					
				4.9					
				5.0					
				5.1					
				5.2					
				5.3					
				5.4					
				5.5					
				5.6					
				5.7					
				5.8					
				5.9					
				6.0					

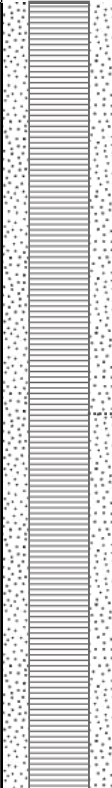
UTM : 60G	Driller Rig : Sonic	Job Number : 820.030609.00001
Latitude : -41.31241	Driller Supplier : Griffiths	Client : NZTA
Longitude : 174.79394	Logged By : Michael King	Project : SH1 Wellington Improvements
Elevation : Not Surveyed	Reviewed By : Kevin Tearney	Location : Kilbirnie Park, Wellington
Total Depth : 6 m	Date : 09/02/2026	Loc Comment :

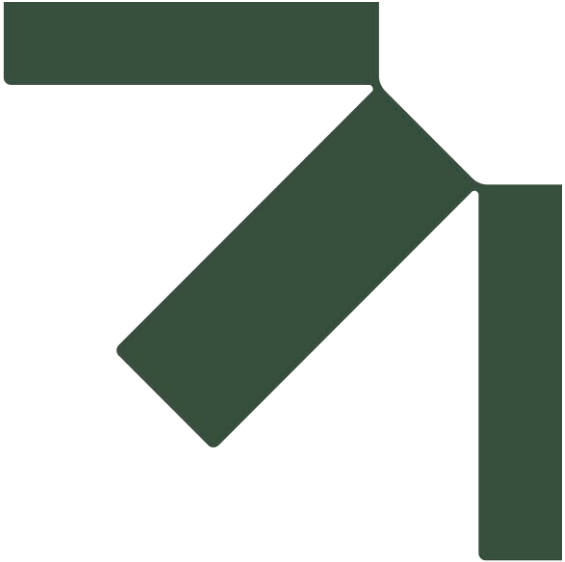
PID (ppm)	Sample	Moisture	Water Level	Depth (m)	Graphic Log	LITHOLOGICAL DESCRIPTION	COMMENTS / CONTAMINANT INDICATORS	Well Diagram	Elevation (m)
		D		4.1		Sandstone, orange-brown, dry. (continued)	No staining, no odour, no waste		
				4.2					
				4.3					
				4.4					
				4.5					
				4.6					
				4.7					
				4.8					
				4.9					
				5.0					
				5.1					
				5.2					
1.2	KP01_5.5-5.7			5.3		KP01 Terminated at 6 m (Target depth was reached at 6 m.)			
				5.4					
				5.5					
				5.6					
				5.7					
				5.8					
				5.9					

UTM : 60G	Driller Rig : Sonic	Job Number : 820.030609.00001
Latitude : -41.31262	Driller Supplier : Griffiths	Client : NZTA
Longitude : 174.79512	Logged By : Michael King	Project : SH1 Wellington Improvements
Elevation : Not Surveyed	Reviewed By : Kevin Tearney	Location : Kilbirnie Park, Wellington
Total Depth : 6 m	Date : 09/02/2026	Loc Comment :

PID (ppm)	Sample	Moisture	Water Level	Depth (m)	Graphic Log	LITHOLOGICAL DESCRIPTION	COMMENTS / CONTAMINANT INDICATORS	Well Diagram	Elevation (m)
0.0	KP02_0.3-0.5	D	1.70 m	0.1		Sandy SILT; Brown. dry; low plasticity; sand, fine to medium. [TOPSOIL]	Hydrovac, low recovery. Appears to be coarse angular fill from beneath topsoil to top of weathered greywace silts. No anthropogenic material observed during hydrovac.		
				0.2		Sandy fine to coarse GRAVEL; Grey brown. mildly dense; dry; angular; sand, fine to medium. [FILL]			
		D		0.3					
				0.4					
0.4	KP02_1.5-1.7			0.5					
				0.6					
		D		0.7					
				0.8					
1.6	KP02_3.1-3.3			0.9					
				1.0					
		D		1.1					
				1.2					
				1.3					
				1.4					
		D		1.5					
				1.6					
				1.7					
				1.8					
		D		1.9					
				2.0					
				2.1					
				2.2					
		D		2.3					
				2.4					
				2.5					
				2.6					
		D		2.7					
				2.8					
				2.9					
				3.0					
		D		3.1					
				3.2					
				3.3					
				3.4					
		D		3.5					
				3.6					
				3.7					
				3.8					
		D		3.9					
				4.0					

UTM : 60G	Driller Rig : Sonic	Job Number : 820.030609.00001
Latitude : -41.31262	Driller Supplier : Griffiths	Client : NZTA
Longitude : 174.79512	Logged By : Michael King	Project : SH1 Wellington Improvements
Elevation : Not Surveyed	Reviewed By : Kevin Tearney	Location : Kilbirnie Park, Wellington
Total Depth : 6 m	Date : 09/02/2026	Loc Comment :

PID (ppm)	Sample	Moisture	Water Level	Depth (m)	Graphic Log	LITHOLOGICAL DESCRIPTION	COMMENTS / CONTAMINANT INDICATORS	Well Diagram	Elevation (m)
		D		4.1		Sandstone, orange-brown, dry. (continued)			
				4.2					
				4.3					
				4.4					
				4.5					
				4.6					
				4.7					
				4.8					
				4.9					
				5.0					
				5.1					
				5.2					
	KP02_5.5-5.7			5.3					
				5.4					
				5.5					
				5.6					
				5.7					
				5.8					
				5.9					
						KP02 Terminate at 6 m (Target depth was reached at 6 m.)			



Attachment C Photolog

Kilbirnie Park - Detailed Site Investigation

State Highway 1 (SH1) Wellington Improvements Project

New Zealand Transport Agency Waka Kotahi

SLR Project No.: 820.030609.00001

19 June 2026

SH1 Wellington Improvements - Photolog

Photo 1: KP02 0.3 to 0.5 m depth hydrovac 09-02-2026



Photo 2: KP02 0.3 to 0.5 m depth hydrovac 09-02-2026



Photo 3:KP02 End of hydrovac 1.5 m depth 09-02-2026



Photo 4:KP02 End of hydrovac 1.5 m depth 09-02-2026



Photo 5: KP02 1.5 to 4.95 m depth 09-02-2026 (photo from T&T Borehole log KP02)



Photo 6: KP02 4.95 to 6.0 m depth 09-02-2026 (photo from T&T Borehole log KP02)



Photo 7: KP02 Flush mounted to by 09-02-2026. Subsequently lowered to finish a few cm below ground level



Photo 8: KP02 Flush mounted to by 09-02-2026. Subsequently lowered to finish a few cm below ground level



Photo 9:KP01 0.3 to 0.5 m bgl 09-02-2026



Photo 10:KP01 0.3 to 0.5 m bgl 09-02-2026



Photo 11:KP01 0.8 to 1.0 m bgl 09-02-2026



Photo 12:KP01 0.8 to 1.0 m bgl 09-02-2026



Photo 13:KP01 Core box 1 09-02-2026

CAUTION

LIFT WITH CARE

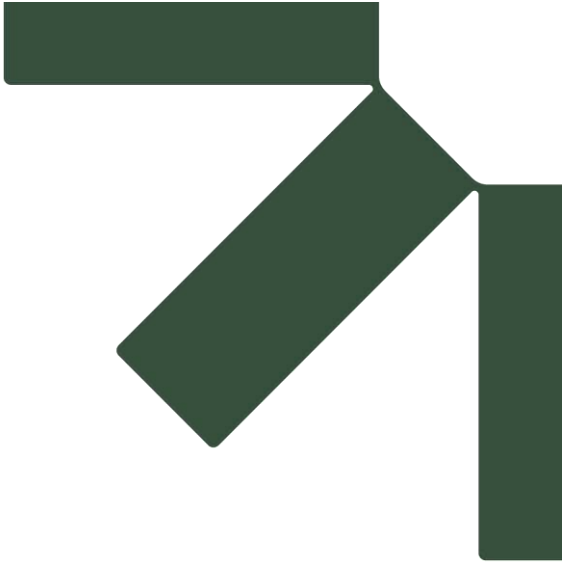
CLIENT : NZTA **DATE:** 9/2/26
PROJECT NO: 1097483.0004 **SITE:** Kilberrit park
BORE NO: KP01
BOX NO: 1 **OF** 2
FROM 1.5 **METRES TO** 3.8 **METRES**

Photo 14:KP01 Core box 1 1.5-3.8 m 09-02-2026



Photo 15:KP01 3.8 to 6.0 core box 09-02-2026





Attachment D Tonkin + Taylor Bore Logs

Kilbirnie Park - Detailed Site Investigation

State Highway 1 (SH1) Wellington Improvements Project

New Zealand Transport Agency Waka Kotahi

SLR Project No.: 820.030609.00001

19 June 2026

BOREHOLE LOG

BOREHOLE LOG

DRAFT
Coordinates and RL subject to
change pending survey of hole
location

BOREHOLE No.:

KP01

SHEET: 2 OF 2

DRILLED BY: Ethan

LOGGED BY: ELGR

CHECKED: NCP

START DATE: 09/02/2026

FINISH DATE: 10/02/2026

CONTRACTOR: Griffiths Drilling

PROJECT: SH1WI - Hydrogeological Investigations
JOB No.: 1097483.0004
LOCATION: North western corner of Kilbirnie Park

CO-ORDINATES: 5425009 mN
(NZTM2000) 1750162 mE

DIRECTION:
ANGLE FROM HORIZ.: -90°

R.L. GROUND: 4m

DATUM: NZVD2016
SURVEY:

GEOLOGICAL UNIT	MATERIAL DESCRIPTION	Rock Weathering USP SW RW CW CW USP SW RW CW CW	Rock Strength USP SW RW CW CW	Sampling Method Core Recovery (%)	Testing	RL (m)	Depth (m)	Graphic Log	ROCK MASS DISCONTINUITIES				Water Level (Ref #) / Fluid Loss (%)	Casing	Installation	Core Box No
	SOIL: Classification, colour, consistency / density, moisture, plasticity ROCK: Weathering, colour, fabric, name, strength, cementation								Defect Log	Fracture Spacing (mm)	RQD (%)	Description & Additional Observations				
Rekaiia Terrane	[CONT] 3.05m: Highly weathered, brown, SANDSTONE. Weak to moderately strong, fine to medium grained. Recovered as: Gravelly SILT, minor sand. Very dense, moist; gravel, fine to coarse, sub-rounded to angular, slightly to moderately weathered, moderately strong to strong, greywacke; sand, fine to medium. 5.44 - 5.48m: Recovered as fine to medium SAND; greyish brown. 5.90 - 6.00m: Limonite staining on gravel.			SNC	96	-2	5.5									Box 3.85-6.00m
	6m: Target depth					-3	6.5									
						-4	7.5									
						-5	8.5									
						-6	9.5									

COMMENTS:

- 1) Logged to NZGS 2005 Standards; 2) Raw SPT values shown, energy transfer ratio of 84.3%; 3) SPT Liner compatible, no liner used; 4) GWL measured on the completion of drilling; 5) On completion of drilling standpipe piezometer installed. Screen depth 1 to 6 mbgl

REF	DATE / TIME	HOLE (m)	CASING (m)	GWL (m)
1	2026-02-10 13:40	6.00m	4.50m	1.78m

CORE PHOTOS

BOREHOLE No.: **KP01**

Hole Location: North western corner of Kilbirnie Park

SHEET: 1 OF 1

PROJECT: SH1WI - Hydrogeological Investigations		LOCATION: Wellington City	JOB No.: 1097483.0004
CO-ORDINATES: (NZTM2000)	5425009 mN 1750162 mE	DRILL TYPE: ML	HOLE STARTED: 09/02/2026
R.L.:	4m	METHOD: Sonic core drilling	HOLE FINISHED: 10/02/2026
DATUM:	NZVD2016		DRILLED BY: Griffiths Drilling
			LOGGED BY: ELGR
			CHECKED: NCP



0.00-3.85m



3.85-6.00m



Tonkin+Taylor

DRAFT
Coordinates and RL subject to
change pending survey of hole
location

BOREHOLE LOG

BOREHOLE No.:

KP02

SHEET: 1 OF 2

DRILLED BY: Ethan

LOGGED BY: ELGR

CHECKED: NCP

START DATE: 09/02/2026

FINISH DATE: 09/02/2026

CONTRACTOR: Griffiths Drilling

PROJECT: SH1WI - Hydrogeological Investigations
JOB No.: 1097483.0004
LOCATION: North eastern corner of Kilbirnie Park

CO-ORDINATES: 5424984 mN
(NZTM2000) 1750258 mE

DIRECTION:
ANGLE FROM HORIZ.: -90°

R.L. GROUND: 2.50m

DATUM: NZVD2016
SURVEY: GIS\Web map
viewer

GEOLOGICAL UNIT	MATERIAL DESCRIPTION		Rock Weathering	Rock Strength	Sampling Method Core Recovery (%)	Testing	RL (m)	Depth (m)	Graphic Log	ROCK MASS DISCONTINUITIES					Water Level (Ref #) / Fluid Loss (%)	Casing	Installation	Core Box No
	SOIL: Classification, colour, consistency / density, moisture, plasticity	ROCK: Weathering, colour, fabric, name, strength, cementation								Description & Additional Observations	Fracture Spacing (mm)	RQD (%)						
														Defect Log				
Fill	0.00m: NO RECOVERY - Hydrovac excavation. Log description below logged down hole, depths and description approximate. 0.00 - 0.20m: Sandy SILT, some rootlets, trace clay. Stiff, moist, low plasticity. 0.20 - 0.30m: Sandy SILT, some gravel, minor rootlets, trace clay; brown. Stiff, moist, low plasticity; sand, fine to medium; gravel, fine to medium, sub-rounded to sub-angular, slightly weathered, strong, greywacke. Brick fragments. 0.30 - 1.50m: Fine to coarse GRAVEL, some sand, minor cobbles; greyish brown. Tightly packed. Gravel, sub-rounded to angular, slightly weathered, greywacke ; sand, fine to coarse; cobbles, sub-angular, slightly weathered, strong, greywacke.		UW SW MW CW FW	UW SW MW CW FW	HVAC	0					2000 1000 500 200 100 50 20		25 50 75					
	1.50m: Sandy fine to medium GRAVEL, trace plastic; brown. Medium dense, wet, well graded. Gravel, sub-rounded to angular, slightly to moderately weathered, moderately strong to strong, greywacke; sand, fine to medium.				SPT	84	3A// 32/23 N=10											
	1.70m: Gravelly SILT, minor sand, trace clay; bluish grey. Stiff, moist, low plasticity. Gravel, fine to medium, sub-rounded to sub-angular, slightly weathered, strong, greywacke; sand, fine.																	
	1.88m: NO RECOVERY.																	
Quaternary Alluvium	1.95m: Silty fine to medium GRAVEL, some sand, trace clay; bluish grey mottled brown. Medium dense, moist, well graded. Gravel, sub-rounded to angular, slightly weathered, strong, greywacke; sand, fine to medium.				SNC	100												
	2.10m: SILT, some clay, minor sand and minor gravel; bluish grey. Very stiff, moist, high plasticity. Gravel, fine to medium, sub-rounded to sub-angular, slightly weathered, strong, greywacke.																	
	2.95 - 3.00m: Some gravel; gravel, fine to coarse.																	
Rakaia Terrane	3.00m: Fine to medium GRAVEL, minor sand; bluish grey. Medium dense, moist, well graded. Gravel, sub-angular to angular, slightly weathered, strong, greywacke; sand, fine to coarse.				SPT	78	2B// 33/55 N=16											
	3.05m: Highly weathered, brownish grey, SANDSTONE. Weak, fine grained. Recovered as: fine to medium SAND, some gravel, minor silt. Medium dense, moist; gravel, fine to medium, sub-angular to angular, moderately weathered, moderately strong, greywacke.												3.45 - 3.90m: core baked					
	3.35m: NO RECOVERY.																	
	3.45m: Highly weathered, greyish brown mottled orange brown, SANDSTONE. Weak, fine grained. Recovered as: SILT, some sand, minor clay and minor gravel. Very stiff, moist, low plasticity; sand, fine; gravel, fine to medium, sub-rounded to sub-angular, slightly weathered, strong, greywacke.				SNC	100												
	4.05m: Highly weathered, orange brown mottled greyish brown, SANDSTONE. Weak, fine grained. Recovered as: Gravelly SILT, minor clay and minor sand. Stiff, saturated, low plasticity; gravel, fine to medium, sub-rounded to sub-angular, slightly weathered, strong, greywacke; sand, fine to medium.												4.25 - 4.50m: core baked					
	4.25m: Highly weathered, orange brown, SANDSTONE. Weak, fine to medium grained. Recovered as: Gravelly fine to medium SAND, minor silt. Very stiff, moist; gravel, fine to medium, sub-rounded to sub-angular, slightly weathered, strong, greywacke; sand, fine to medium.				SPT	89	4A// 34/42 N=13											

Box 0.00-4.45m

Box 4.45-5.00m

COMMENTS:

- 1) Logged to NZGS 2005 Standards; 2) Raw SPT values shown, energy transfer ratio of 84.3%; 3) SPT Liner compatible, no liner used; 4) GWL measured on the completion of drilling; 5) On completion of drilling standpipe piezometer installed. Screen depth 1 to 6 mbgl

REF	DATE / TIME	HOLE (m)	CASING (m)	GWL (m)
1	2026-03-09 13:44	6.00m	4.50m	1.70m



BOREHOLE LOG

BOREHOLE No.:
KP02

SHEET: 2 OF 2

DRILLED BY: Ethan

LOGGED BY: ELGR

CHECKED: NCP

START DATE: 09/02/2026

FINISH DATE: 09/02/2026

CONTRACTOR: Griffiths Drilling

PROJECT: SH1WI - Hydrogeological Investigations
JOB No.: 1097483.0004
LOCATION: North eastern corner of Kilbirnie Park

CO-ORDINATES: 5424984 mN
(NZTM2000) 1750258 mE

DIRECTION:
ANGLE FROM HORIZ.: -90°

R.L. GROUND: 2.50m

DATUM: NZVD2016
SURVEY: GIS\Web map
viewer

GEOLOGICAL UNIT	MATERIAL DESCRIPTION	Rock Weathering		Rock Strength		Sampling Method	Core Recovery (%)	Testing	RL (m)	Depth (m)	Graphic Log	ROCK MASS DISCONTINUITIES				Water Level (Ref #) / Fluid Loss (%)	Casing	Installation	Core Box No
	SOIL: Classification, colour, consistency / density, moisture, plasticity ROCK: Weathering, colour, fabric, name, strength, cementation	USP SW HW CWS CWS	USP SW HW CWS CWS	USP SW HW CWS CWS	USP SW HW CWS CWS							Defect Log	Fracture Spacing (mm)	RQD (%)	Description & Additional Observations				
Rakaia Terrane	4.95m: Highly weathered, light brown mottled orange brown and light grey, SANDSTONE. Weak, fine grained. Recovered as: Sandy SILT, some gravel, trace clay. Very stiff, moist, low plasticity; sand, fine to medium; gravel, fine to medium, sub-rounded to angular, slightly to moderately weathered, moderately strong to strong, greywacke. 5.45 - 5.55m: Orange brown. 5.55 - 6.00m: Light brown.					SNC	100		-3	5.5					5.65 - 6.00m: core partially baked				Box 4.45-6.00m
	6m: Target depth								-4	6.5									
									-5	7.5									
									-6	8.5									
									-7	9.5									

COMMENTS:

1) Logged to NZGS 2005 Standards; 2) Raw SPT values shown, energy transfer ratio of 84.3%; 3) SPT Liner compatible, no liner used; 4) GWL measured on the completion of drilling; 5) On completion of drilling standpipe piezometer installed. Screen depth 1 to 6 mbgl

REF	DATE / TIME	HOLE (m)	CASING (m)	GWL (m)
1	2026-03-09 13:44	6.00m	4.50m	1.70m

CORE PHOTOS

BOREHOLE No.: **KP02**

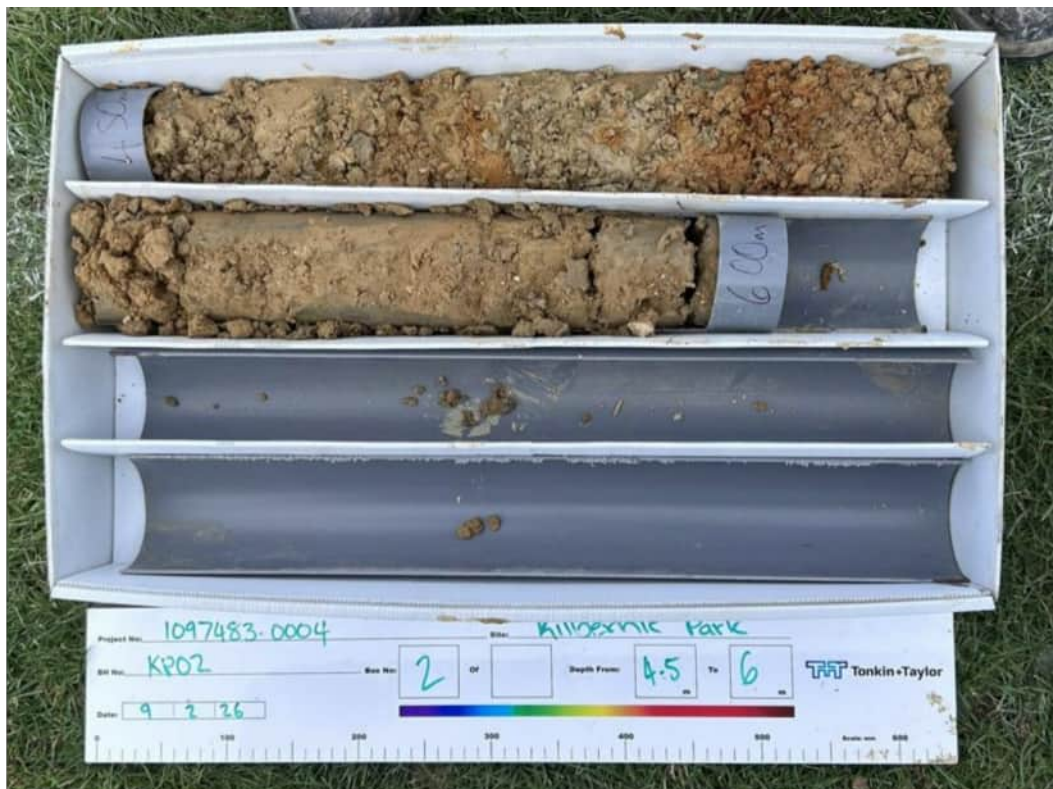
Hole Location: North eastern corner of Kilbirnie Park

SHEET: 1 OF 1

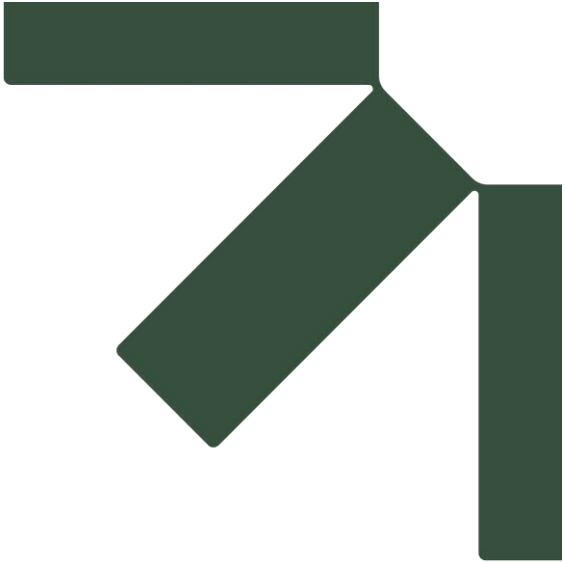
PROJECT: SH1WI - Hydrogeological Investigations		LOCATION: Wellington City	JOB No.: 1097483.0004
CO-ORDINATES: (NZTM2000)	5424984 mN 1750258 mE	DRILL TYPE: ML	HOLE STARTED: 09/02/2026
R.L.:	2.50m	METHOD: Sonic core drilling	HOLE FINISHED: 09/02/2026
DATUM:	NZVD2016		DRILLED BY: Griffiths Drilling
			LOGGED BY: ELGR
			CHECKED: NCP



0.00-4.45m



4.45-6.00m



Attachment E Groundwater Monitoring Field Sheets

Kilbirnie Park - Detailed Site Investigation

State Highway 1 (SH1) Wellington Improvements Project

New Zealand Transport Agency Waka Kotahi

SLR Project No.: 820.030609.00001

19 June 2026

Groundwater Sampling Form

(with criteria specific to A National Protocol for the State of the Environment Groundwater Sampling in New Zealand, MfE, 2006)

Job Information			
Date: 17-2-26	Time: Arrive:	Depart: 14:42	
Project Name: SAI Improvements	Project Number:		
Site Location:	Operator:		
Well ID: KPO1	Weather: Dry, Humid		
Equipment			
Water quality equipment description:	Calibration Records Filed?	Y	N
Interface Probe Number:	Calibration Records Filed?	Y	N
Purging Equipment Type: (Please circle)	Bailer Type: Plastic Teflon Pump Type: Peristaltic Submersible Micro-purge Other:		

Well Gauging and Purge Volume Calculations								
Casing Diameter	25mm	50mm	50mm	50mm	100mm	100mm	100mm	Volume of water in a well $V = \pi \times r^2 \times h$ $V = \text{Volume in litres}$ $\pi = 3.142$ $r = \text{radius in m}$ $h = \text{Height of water column in m}$
Bore Diameter	50mm	100mm	125mm	200mm	125mm	200mm	250mm	
Conversion Factor (volume L/m)	0.93	3.73	5.06	10.8	10.8	14.2	20.2	
Total Well Depth (-) Water Level (=) Water Column 5.66 - 0.93 = _____ Water Column (x) Conversion Factor (=) Litres per 1 Well Volume _____ m (x) _____ (=) _____ L								

Water Quality Parameters								Low Flow Sampling	
Beginning Purging Time:				End Purging Time:				Fill Time:	Discharge Time:
Litres	Time	DO (mg/L)	Cond. (µS/cm)	pH	Redox (mV)	Temp °C	DTW (mbTOC)	Comments	
	13:39						0.96	100ml/min no rain	
	13:45						1.06	drop 75ml/min	
	13:47	1.43	1007	5.41	1525	18.9	1.07	turbid, no sheer, no odour	
	13:49	1.31	1005	5.46	1520	19.1	1.105	brown	
	13:51	1.27	1006	5.40	1518	19.1	1.125	scum out	
	13:53	1.22	1006	5.40	1513	19.1	1.135		
	13:55	1.17	1004	5.40	1508	19.2	1.155	Start sampling	
	14:13						1.200		
	14:19						1.205	Finish	
Stabilisation Criteria		±10% ¹	±3% or ±5% if <100*	±0.1*	±10mV ¹	±0.1*	Example Comments: clear / slightly cloudy / turbid / very turbid / colour / no odour / slight odour / strong odour / describe odour (hydrocarbon/solvent/organic)		
		*Based on MfE National Protocol for SOE Groundwater Sampling in NZ, 2006 *Based on Vic EPA (Australia) 669 Low Flow: Max flow rate = 0.5 L/min Max drawdown = 0.2cm - Well stable when 3 consecutive readings (either 3 min or 0.5L apart)							
Total Well Volume							Did field parameters stabilise?	Y	N
Actual amount of water removed prior to sampling							Was the well dry purged?	Y	N

Field Quality Control Checks					
Was pre-cleaning sampling equipment used for these samples?	Y	N	-	Consistent with COC form?	Y N
Was pre-cleaning sampling equipment properly protected from contamination?	Y	N	-	COC Filled Out?	Y N
Were gas bubbles present in vials at time of collection?	Y	N	NA	Time Sample Collected:	
Was sample filtered for metals prior to preservations?	Y	N	NA	Sample ID:	KPO1
Analytes:					

13:38 logger removed,
13:41 logger replaced.

Groundwater Sampling Form

(with criteria specific to A National Protocol for the State of the Environment Groundwater Sampling in New Zealand, MfE, 2006)

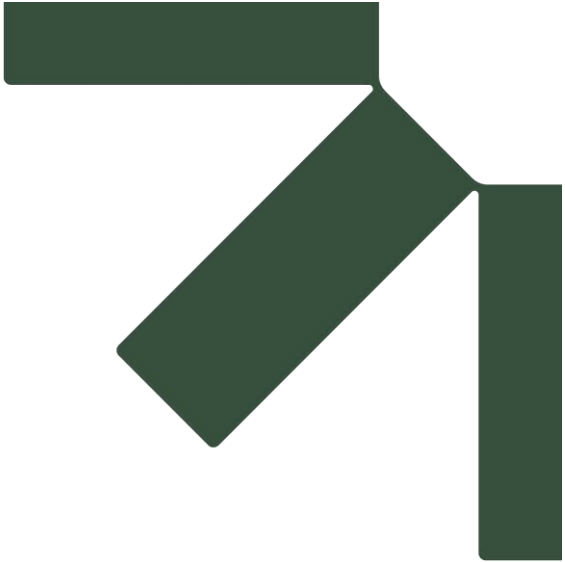
Job Information			
Date: 17-2-28	Time: 12:00 arrive:	Depart:	
Project Name: SH1	Project Number:		
Site Location: K	Operator:		
Well ID: KPO2	Weather: wet		
Equipment			
Water quality equipment description:	Calibration Records Filed?	Y	N
Interface Probe Number:	Calibration Records Filed?	Y	N
Purging Equipment Type: (Please circle)	Bailer Type: Plastic Teflon Pump Type: Peristaltic Submersible Micro-purge Other:		

Well Gauging and Purge Volume Calculations								
Casing Diameter	25mm	50mm	50mm	50mm	100mm	100mm	100mm	Volume of water in a well $V = \pi \times r^2 \times h$ V = Volume in litres $\pi = 3.142$ r = radius in m h = Height of water column in m
Bore Diameter	50mm	100mm	125mm	200mm	125mm	200mm	250mm	
Conversion Factor (volume L/m)	0.93	3.73	5.06	10.8	10.8	14.2	20.2	
Total Well Depth (-) Water Level (=) Water Column 5.48 - 1.260 = 4.22 m								
Water Column (x) Conversion Factor (=) Litres per 1 Well Volume 4.22 x 10.8 = 45.58 L								

Water Quality Parameters								Low Flow Sampling	
Beginning Purging Time:				End Purging Time:				Fill Time:	Discharge Time:
Litres	Time	DO (mg/L)	Cond. (µS/cm)	pH	Redox (mV)	Temp (°C)	DTW (mbTOC)	Comments	
	12:29						1.260	slight turbid, no shear or abn.	
	12:35						1.265	YSI arrived, 100m/aa	
0.8	12:37	34.8	1350	5.97	163.4	18.3	1.265		
0.8	12:39	1.54	1331	5.96	159.2	18.3	1.265		
1.2	12:41	0.94	1328	5.96	156.5	18.3	1.265		
1.4	12:43	0.82	1333	5.96	155.5	18.3	1.265		
1.6	12:45	0.78	1332	5.97	154.8	18.3	1.265		
1.8	12:47	0.69	1330	5.97	154.5	18.3	1.265	Start sampling	
Stabilisation Criteria		±10%'	±3% or ±5% if <100*	±0.1*	±10mV'	±0.1*	Example Comments: clear / slightly cloudy / turbid / very turbid / colour / no odour / slight odour / strong odour / describe odour (hydrocarbon/solvent/organic) *Based on MfE National Protocol for SOE Groundwater Sampling in NZ, 2006 *Based on Vic EPA (Australia) 669 Low Flow: Max flow rate = 0.5 L/min Max drawdown = 0.2cm - Well stable when 3 consecutive readings (either 3 min or 0.5L apart)		
Total Well Volume							Did field parameters stabilise?	Y	N
Actual amount of water removed prior to sampling							Was the well dry purged?	Y	N

Field Quality Control Checks					
Was pre-cleaning sampling equipment used for these samples?	Y	N	-	Consistent with COC form?	Y N
Was pre-cleaning sampling equipment properly protected from contamination?	Y	N	-	COC Filled Out?	Y N
Were gas bubbles present in vials at time of collection?	Y	N	NA	Time Sample Collected:	
Was sample filtered for metals prior to preservations?	Y	N	NA	Sample ID: KPO2	
Analytes:				QA/QC	

12:14 water logger removed. 13:02 logger replaced.
 12:34 YSI delivered, 12:34 finish sampling.



Attachment F Laboratory Analytical Reports

Kilbirnie Park - Detailed Site Investigation

State Highway 1 (SH1) Wellington Improvements Project

New Zealand Transport Agency Waka Kotahi

SLR Project No.: 820.030609.00001

19 June 2026



Hill Laboratories

TRIED, TESTED AND TRUSTED

Quote No 97403
 Primary Contact Michael King
 Submitted By Michael King
 Client Name SLR Consulting New Zealand Limited

Address

Postcode

Phone Mobile

Email

Charge To SLR Consulting New Zealand Limited

Client Reference SH1 Improvements 2026

Order No 820.030609.00001 - 0007

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

ANALYSIS REQUEST

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

Job No: Date Recv: 10-Feb-26 10:32

409 4870

Received by: Tyler Ritchie



3140948702

CHAIN OF CUSTODY RECORD

Sent to
 Hill Laboratories

Date & Time: 10-2-26

Name: M King

☒ Tick if you require COC
 to be emailed back

Signature: [Signature]

Received at
 Hill Laboratories
 (Refer to Lab created Job
 No above)

Date & Time:

Name:

Signature:

Condition

☐ Room Temp ☐ Chilled ☐ Frozen

Temp:

12.2°C

ADDITIONAL INFORMATION / KNOWN HAZARDS

Priority ☐ Low ☐ Normal ☒ High

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

Requested Reporting Date:

No.	Sample Name	Sample Date	Sample Time	Sample Type	Tests Required (if not as per Quote)
1	KP01-0.3-0.5	9-2-26		Seal	
2	KP01-0.8-1.0				
3	KP01-1.3-1.5				
4	KP01-2.5-2.7				
5	KP01-3.6-3.8				
6	KP01-5.5-5.7	10-2-26			
7	KP02-0.3-0.5	9-2-26			
8	KP02-1.5-1.7				
9	KP02-3.1-3.3				
10	KP02-5.5-5.7				
11					
12					

Continued on next page

Job Information Summary

Page 1 of 2

Client:	SLR Consulting New Zealand Limited	Lab No:	4094870
Contact:	Michael King	Date Registered:	11-Feb-2026 10:07 am
	C/- SLR Consulting New Zealand Limited	Priority:	High
	PO Box 25356	Quote No:	97403
	Featherston Street	Order No:	820.030609.00001 - 0007
	Wellington 6146	Client Reference:	SH1 Improvements 2026
		Add. Client Ref:	
		Submitted By:	Michael King
		Charge To:	SLR Consulting New Zealand Limited
		Target Date:	16-Feb-2026 4:30 pm

Samples

No	Sample Name	Sample Type	Containers	Tests Requested
1	KP01_0.3-0.5 09-Feb-2026	Soil	GSoil300	Heavy Metals, Screen Level, Total Petroleum Hydrocarbons in Soil
2	KP01_0.8-1.0 09-Feb-2026	Soil	GSoil300	Heavy Metals, Screen Level, Total Petroleum Hydrocarbons in Soil
3	KP01_1.3-1.5 09-Feb-2026	Soil	GSoil300	Hold Cold
4	KP01_2.5-2.7 09-Feb-2026	Soil	GSoil300	Hold Cold
5	KP01_3.6-3.8 09-Feb-2026	Soil	GSoil300	Heavy Metals, Screen Level, Total Petroleum Hydrocarbons in Soil
6	KP01_5.5-5.7 10-Feb-2026	Soil	GSoil300	Hold Cold
7	KP02_0.3-0.5 09-Feb-2026	Soil	cGSoil, GSoil300	Heavy Metals, Screen Level, Total Petroleum Hydrocarbons in Soil
8	KP02_1.5-1.7 09-Feb-2026	Soil	GSoil300	Heavy Metals, Screen Level, Total Petroleum Hydrocarbons in Soil
9	KP02_3.1-3.3 09-Feb-2026	Soil	GSoil300	Hold Cold
10	KP02_5.5-5.7 09-Feb-2026	Soil	GSoil300	Heavy Metals, Screen Level, Total Petroleum Hydrocarbons in Soil

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).	-	1-2, 5, 7-8, 10
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	1-2, 5, 7-8, 10
Heavy Metals, Screen Level	Dried sample, < 2mm fraction. Nitric/Hydrochloric acid digestion. Complies with NES Regulations. ICP-MS screen level, interference removal by Kinetic Energy Discrimination if required. US EPA 200.2 (modified), APHA 3125 B: Online Edition.	0.10 - 4 mg/kg dry wt	1-2, 5, 7-8, 10
Total Petroleum Hydrocarbons in Soil			
Client Chromatogram for TPH by FID	Small peaks associated with QC compounds may be visible in chromatograms with low TPH concentrations. QC peaks are as follows: one peak in the C12 - 14 band, the C21 - 25 band and the C30 - 36 band. All QC peaks are corrected for in the reported TPH concentrations.	-	1-2, 5, 7-8, 10

Sample Type: Soil			
Test	Method Description	Default Detection Limit	Sample No
C7 - C9	Solvent extraction, GC-FID analysis. Tested on as received sample. In-house based on US EPA 8015.	20 mg/kg dry wt	1-2, 5, 7-8, 10
C10 - C14	Solvent extraction, GC-FID analysis. Tested on as received sample. In-house based on US EPA 8015.	20 mg/kg dry wt	1-2, 5, 7-8, 10
C15 - C36	Solvent extraction, GC-FID analysis. Tested on as received sample. In-house based on US EPA 8015.	40 mg/kg dry wt	1-2, 5, 7-8, 10
Total hydrocarbons (C7 - C36)	Calculation: Sum of carbon bands from C7 to C36. In-house based on US EPA 8015.	70 mg/kg dry wt	1-2, 5, 7-8, 10

Certificate of Analysis

Page 1 of 3

Client:	SLR Consulting New Zealand Limited	Lab No:	4094870	SPV1
Contact:	Michael King	Date Received:	10-Feb-2026	
	C/- SLR Consulting New Zealand Limited	Date Reported:	16-Feb-2026	
	PO Box 25356	Quote No:	97403	
	Featherston Street	Order No:	820.030609.00001 - 0007	
	Wellington 6146	Client Reference:	SH1 Improvements 2026	
		Submitted By:	Michael King	

Sample Type: Soil						
Sample Name:	KP01_0.3-0.5	KP01_0.8-1.0	KP01_3.6-3.8	KP02_0.3-0.5	KP02_1.5-1.7	
	09-Feb-2026	09-Feb-2026	09-Feb-2026	09-Feb-2026	09-Feb-2026	
Lab Number:	4094870.1	4094870.2	4094870.5	4094870.7	4094870.8	
Individual Tests						
Dry Matter	g/100g as rcvd	80	78	93	85	87
Heavy Metals, Screen Level						
Total Recoverable Arsenic	mg/kg dry wt	4	2	5	5	< 2
Total Recoverable Cadmium	mg/kg dry wt	< 0.10	< 0.10	< 0.10	0.19	0.17
Total Recoverable Chromium	mg/kg dry wt	12	15	21	17	19
Total Recoverable Copper	mg/kg dry wt	8	10	16	22	16
Total Recoverable Lead	mg/kg dry wt	12.3	11.4	20	115	17.3
Total Recoverable Nickel	mg/kg dry wt	5	5	17	13	15
Total Recoverable Zinc	mg/kg dry wt	37	15	76	127	65
Total Petroleum Hydrocarbons in Soil						
C7 - C9	mg/kg dry wt	< 20	< 20	< 20	< 20	< 20
C10 - C14	mg/kg dry wt	< 20	< 20	< 20	< 20	< 20
C15 - C36	mg/kg dry wt	< 40	< 40	< 40	83	< 40
Total hydrocarbons (C7 - C36)	mg/kg dry wt	< 80	< 80	< 80	83	< 80

Sample Name:		KP02_5.5-5.7 09-Feb-2026
Lab Number:		4094870.10
Individual Tests		
Dry Matter	g/100g as rcvd	85
Heavy Metals, Screen Level		
Total Recoverable Arsenic	mg/kg dry wt	8
Total Recoverable Cadmium	mg/kg dry wt	< 0.10
Total Recoverable Chromium	mg/kg dry wt	16
Total Recoverable Copper	mg/kg dry wt	19
Total Recoverable Lead	mg/kg dry wt	17.7
Total Recoverable Nickel	mg/kg dry wt	15
Total Recoverable Zinc	mg/kg dry wt	63
Total Petroleum Hydrocarbons in Soil		
C7 - C9	mg/kg dry wt	< 20
C10 - C14	mg/kg dry wt	< 20
C15 - C36	mg/kg dry wt	< 40
Total hydrocarbons (C7 - C36)	mg/kg dry wt	< 80

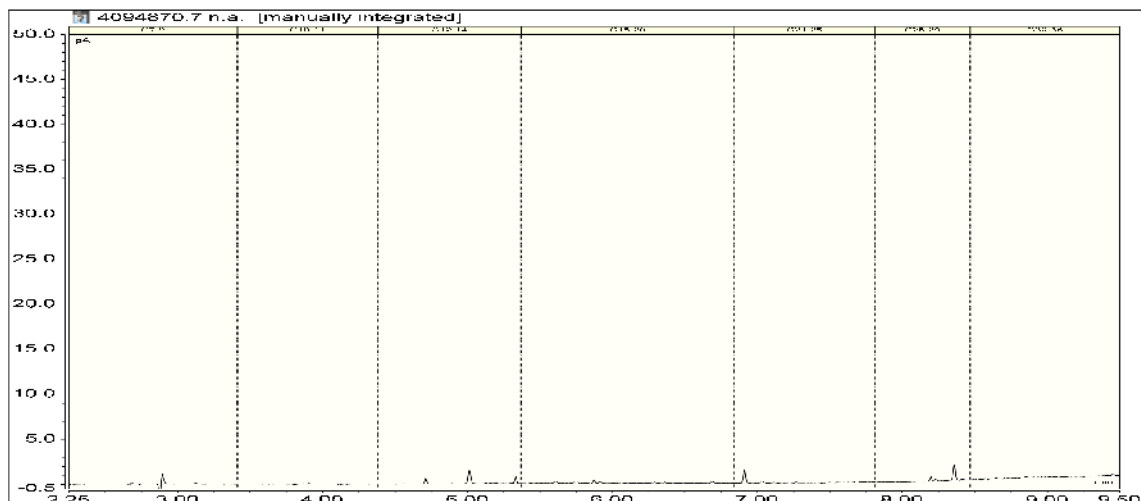


This Laboratory is accredited by International Accreditation New Zealand (IANZ), which represents New Zealand in the International Laboratory Accreditation Cooperation (ILAC). Through the ILAC Mutual Recognition Arrangement (ILAC-MRA) this accreditation is internationally recognised. The tests reported 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.

4094870.7

KP02_0.3-0.5 09-Feb-2026

Client Chromatogram for TPH by FID



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).	-	1-2, 5, 7-8, 10
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	1-2, 5, 7-8, 10
Heavy Metals, Screen Level	Dried sample, < 2mm fraction. Nitric/Hydrochloric acid digestion. Complies with NES Regulations. ICP-MS screen level, interference removal by Kinetic Energy Discrimination if required. US EPA 200.2 (modified), APHA 3125 B: Online Edition.	0.10 - 4 mg/kg dry wt	1-2, 5, 7-8, 10
Total Petroleum Hydrocarbons in Soil			
Client Chromatogram for TPH by FID	Small peaks associated with QC compounds may be visible in chromatograms with low TPH concentrations. QC peaks are as follows: one peak in the C12 - 14 band, the C21 - 25 band and the C30 - 36 band. All QC peaks are corrected for in the reported TPH concentrations.	-	7
C7 - C9	Solvent extraction, GC-FID analysis. Tested on as received sample. In-house based on US EPA 8015.	20 mg/kg dry wt	1-2, 5, 7-8, 10
C10 - C14	Solvent extraction, GC-FID analysis. Tested on as received sample. In-house based on US EPA 8015.	20 mg/kg dry wt	1-2, 5, 7-8, 10
C15 - C36	Solvent extraction, GC-FID analysis. Tested on as received sample. In-house based on US EPA 8015.	40 mg/kg dry wt	1-2, 5, 7-8, 10
Total hydrocarbons (C7 - C36)	Calculation: Sum of carbon bands from C7 to C36. In-house based on US EPA 8015.	70 mg/kg dry wt	1-2, 5, 7-8, 10

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

Testing was completed between 13-Feb-2026 and 16-Feb-2026. 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.

A handwritten signature in blue ink, consisting of several overlapping loops and a long horizontal stroke extending to the right.

Ara Heron BSc (Tech)
Client Services Manager - Environmental



Hill Laboratories

TRIED, TESTED AND TRUSTED

Quote No 97403
Primary Contact Michael King
Submitted By Michael King
Client Name SLR Consulting New Zealand Limited

Address

Postcode

Phone

Mobile

Email

Charge To SLR Consulting New Zealand Limited

Client Reference SH1 Improvements GW

Order No 820.030609.00001 - 0007

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

- ☒ Email Primary Contact ☒ Email Submitter ☐ Email Client
☐ Email Other
☐ Other

ADDITIONAL INFORMATION / KNOWN HAZARDS

Nutrients (DOC, DRP, NO₃, NO₂ and ammonium (NH₄))
Major ions (Ca, Mg, Na, K, Cl, SO₄, alkalinity and hardness)

ANALYSIS REQUEST

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

Job No: Date Recv: 17-Feb-26 15:06

410 2920

Received by: Tyler Ritchie

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



3141029209

CHAIN OF CUSTODY RECORD

Sent to
Hill Laboratories

Date & Time: 17-02-26

Name: M King

☒ Tick if you require COC
to be emailed back

Signature: [Signature]

Received at
Hill Laboratories
(Refer to Lab created Job
No above)

Date & Time:

Name:

Signature:

Condition

☐ Room Temp ☐ Chilled ☐ Frozen

Temp:

19.3°C

Priority ☐ Low ☐ Normal ☒ High

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

Requested Reporting Date:

No.	Sample Name	Sample Date	Sample Time	Sample Type	Tests Required (if not as per Quote)
1	KP01	17-02-26		Water	Metals (total and dissolved), TPH, Major Ions, Nutrients
2	KP02	↓		↓	Metals (total and dissolved), TPH, Major Ions, Nutrients
3	QSO1 QAQC01	↓		↓	Metals (total and dissolved), TPH, Major Ions, Nutrients
4					
5					
6					
7					
8					
9					
10					
11					
12					

Continued on next page

Job Information Summary

Page 1 of 2

Client:	SLR Consulting New Zealand Limited	Lab No:	4102920
Contact:	Michael King	Date Registered:	18-Feb-2026 10:06 am
	C/- SLR Consulting New Zealand Limited	Priority:	High
	PO Box 25356	Quote No:	97403
	Featherston Street	Order No:	820.030609.00001 - 0007
	Wellington 6146	Client Reference:	SH1 Improvements GW
		Add. Client Ref:	
		Submitted By:	Michael King
		Charge To:	SLR Consulting New Zealand Limited
		Target Date:	24-Feb-2026 4:30 pm

Samples

No	Sample Name	Sample Type	Containers	Tests Requested
1	KP01 17-Feb-2026	Ground Water	UP1L, TPH250, TOC125, UPte100, N100	Total Hardness, Nitrate-N, Total Alkalinity, Heavy metals, dissolved, trace As,Cd,Cr,Cu,Ni,Pb,Zn, Dissolved Calcium, Dissolved Magnesium, Dissolved Potassium, Dissolved Sodium, Chloride, Total Ammoniacal-N, Nitrite-N, Dissolved Reactive Phosphorus, Sulphate, Heavy metals, totals, trace As,Cd,Cr,Cu,Ni,Pb,Zn, Total Calcium, Total Magnesium, Total Potassium, Total Sodium, Total Petroleum Hydrocarbons in Water, Dissolved Organic Carbon (DOC)
2	KP02 17-Feb-2026	Ground Water	UP1L, TPH250, TOC125, UPte100, N100	Total Hardness, Nitrate-N, Total Alkalinity, Heavy metals, dissolved, trace As,Cd,Cr,Cu,Ni,Pb,Zn, Dissolved Calcium, Dissolved Magnesium, Dissolved Potassium, Dissolved Sodium, Chloride, Total Ammoniacal-N, Nitrite-N, Dissolved Reactive Phosphorus, Sulphate, Heavy metals, totals, trace As,Cd,Cr,Cu,Ni,Pb,Zn, Total Calcium, Total Magnesium, Total Potassium, Total Sodium, Total Petroleum Hydrocarbons in Water, Dissolved Organic Carbon (DOC)
3	QAQC01 17-Feb-2026	Ground Water	UP1L, TPH250, TOC125, UPte100, N100	Total Hardness, Nitrate-N, Total Alkalinity, Heavy metals, dissolved, trace As,Cd,Cr,Cu,Ni,Pb,Zn, Dissolved Calcium, Dissolved Magnesium, Dissolved Potassium, Dissolved Sodium, Chloride, Total Ammoniacal-N, Nitrite-N, Dissolved Reactive Phosphorus, Sulphate, Heavy metals, totals, trace As,Cd,Cr,Cu,Ni,Pb,Zn, Total Calcium, Total Magnesium, Total Potassium, Total Sodium, Total Petroleum Hydrocarbons in Water, Dissolved Organic Carbon (DOC)

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: Aqueous			
Test	Method Description	Default Detection Limit	Sample No
Individual Tests			
Filtration, Unpreserved	Sample filtration through 0.45µm membrane filter.	-	1-3
Total Digestion	Nitric acid digestion. APHA 3030 E (modified) : Online Edition.	-	1-3
Total Alkalinity	Titration to pH 4.5 (M-alkalinity), autotitrator. APHA 2320 B (modified for Alkalinity <20) : Online Edition.	1.0 g/m ³ as CaCO ₃	1-3
Total Hardness	Calculation from Dissolved Calcium and Dissolved Magnesium. APHA 2340 B : Online Edition.	1.0 g/m ³ as CaCO ₃	1-3
Filtration for dissolved metals analysis	Sample filtration through 0.45µm membrane filter and preservation with nitric acid. APHA 3030 B : Online Edition.	-	1-3
Dissolved Calcium	Filtered sample, ICP-MS, trace level. APHA 3125 B : Online Edition.	0.05 g/m ³	1-3

Sample Type: Aqueous			
Test	Method Description	Default Detection Limit	Sample No
Total Calcium	Nitric acid digestion, ICP-MS, trace level. APHA 3125 B : Online Edition.	0.053 g/m ³	1-3
Dissolved Magnesium	Filtered sample, ICP-MS, trace level. APHA 3125 B : Online Edition.	0.02 g/m ³	1-3
Total Magnesium	Nitric acid digestion, ICP-MS, trace level. APHA 3125 B : Online Edition.	0.021 g/m ³	1-3
Dissolved Potassium	Filtered sample, ICP-MS, trace level. APHA 3125 B : Online Edition.	0.05 g/m ³	1-3
Total Potassium	Nitric acid digestion, ICP-MS, trace level. APHA 3125 B : Online Edition.	0.053 g/m ³	1-3
Dissolved Sodium	Filtered sample, ICP-MS, trace level. APHA 3125 B : Online Edition.	0.02 g/m ³	1-3
Total Sodium	Nitric acid digestion, ICP-MS, trace level. APHA 3125 B : Online Edition.	0.021 g/m ³	1-3
Chloride	Filtered sample. Ion Chromatography. APHA 4110 B (modified) : Online Edition.	0.5 g/m ³	1-3
Total Ammoniacal-N	Phenol/hypochlorite colourimetry. Flow injection analyser. (NH ₄ -N = NH ₄ ⁺ -N + NH ₃ -N). APHA 4500-NH ₃ H (modified) : Online Edition.	0.010 g/m ³	1-3
Nitrite-N	Automated Azo dye colorimetry, Flow injection analyser. APHA 4500-NO ₃ ⁻ I (modified) : Online Edition.	0.002 g/m ³	1-3
Nitrate-N	Calculation: (Nitrate-N + Nitrite-N) - Nitrite-N. In-House.	0.0010 g/m ³	1-3
Nitrate-N + Nitrite-N	Total oxidised nitrogen. Automated cadmium reduction, flow injection analyser. APHA 4500-NO ₃ ⁻ I (modified) : Online Edition.	0.002 g/m ³	1-3
Dissolved Reactive Phosphorus	Filtered sample. Molybdenum blue colourimetry. Flow injection analyser. APHA 4500-P G (modified) : Online Edition.	0.004 g/m ³	1-3
Sulphate	Filtered sample. Ion Chromatography. APHA 4110 B (modified) : Online Edition.	0.5 g/m ³	1-3
Dissolved Organic Carbon (DOC)	Filtered sample, Supercritical persulphate oxidation, IR detection, for Total C. Acidification, purging for Total Inorganic C. TOC = TC -TIC. APHA 5310 C (modified) : Online Edition.	0.5 g/m ³	1-3
Heavy metals, dissolved, trace As,Cd,Cr,Cu,Ni,Pb,Zn	0.45µm Filtration, ICP-MS, trace level. APHA 3125 B : Online Edition.	0.00005 - 0.0010 g/m ³	1-3
Heavy metals, totals, trace As,Cd,Cr,Cu,Ni,Pb,Zn	Nitric acid digestion, ICP-MS, trace level. APHA 3125 B : Online Edition.	0.000053 - 0.0011 g/m ³	1-3
Total Petroleum Hydrocarbons in Water			
C7 - C9	Solvent extraction, GC-FID analysis. In-house based on US EPA 8015.	0.10 g/m ³	1-3
C10 - C14	Solvent extraction, GC-FID analysis. In-house based on US EPA 8015.	0.2 g/m ³	1-3
C15 - C36	Solvent extraction, GC-FID analysis. In-house based on US EPA 8015.	0.4 g/m ³	1-3
Total hydrocarbons (C7 - C36)	Calculation: Sum of carbon bands from C7 to C36. In-house based on US EPA 8015.	0.7 g/m ³	1-3

Certificate of Analysis

Page 1 of 3

Client:	SLR Consulting New Zealand Limited	Lab No:	4102920	SPv1
Contact:	Michael King	Date Received:	17-Feb-2026	
	C/- SLR Consulting New Zealand Limited	Date Reported:	24-Feb-2026	
	PO Box 25356	Quote No:	97403	
	Featherston Street	Order No:	820.030609.00001 - 0007	
	Wellington 6146	Client Reference:	SH1 Improvements GW	
		Submitted By:	Michael King	

Sample Type: Aqueous

Sample Name:		KP01 17-Feb-2026	KP02 17-Feb-2026	QAQC01 17-Feb-2026
Lab Number:		4102920.1	4102920.2	4102920.3
Individual Tests				
Total Alkalinity	g/m ³ as CaCO ₃	43	175	171
Total Hardness	g/m ³ as CaCO ₃	85	126	126
Dissolved Calcium	g/m ³	20	26 #1	26
Total Calcium	g/m ³	21	25 #1	26
Dissolved Magnesium	g/m ³	8.5	15.2	15.0
Total Magnesium	g/m ³	10.6	16.0	16.1
Dissolved Potassium	g/m ³	2.2	3.5	3.5 #1
Total Potassium	g/m ³	3.7	3.6	3.5 #1
Dissolved Sodium	g/m ³	54	79	80 #1
Total Sodium	g/m ³	54	80	78 #1
Chloride	g/m ³	60	66	66
Total Ammoniacal-N	g/m ³	0.048	0.170	0.165
Nitrite-N	g/m ³	< 0.002	0.008	0.007
Nitrate-N	g/m ³	0.088	1.27	1.27
Nitrate-N + Nitrite-N	g/m ³	0.090	1.27	1.28
Dissolved Reactive Phosphorus	g/m ³	< 0.004	0.061	0.049
Sulphate	g/m ³	61	14.3	14.6
Dissolved Organic Carbon (DOC)	g/m ³	6.2	6.4	9.3
Heavy metals, dissolved, trace As,Cd,Cr,Cu,Ni,Pb,Zn				
Dissolved Arsenic	g/m ³	0.0012	0.0030	0.0034
Dissolved Cadmium	g/m ³	0.00007	< 0.00005	< 0.00005
Dissolved Chromium	g/m ³	0.0007	< 0.0005	< 0.0005
Dissolved Copper	g/m ³	0.0031	0.0026	0.0026
Dissolved Lead	g/m ³	< 0.00010	< 0.00010	< 0.00010
Dissolved Nickel	g/m ³	0.0043	0.0015	0.0015 #1
Dissolved Zinc	g/m ³	0.0171	0.0113	0.0105
Heavy metals, totals, trace As,Cd,Cr,Cu,Ni,Pb,Zn				
Total Arsenic	g/m ³	0.0027	0.0043	0.0047
Total Cadmium	g/m ³	0.000099	< 0.000053	0.000054
Total Chromium	g/m ³	0.0113	0.00075	< 0.00053
Total Copper	g/m ³	0.0092	0.0041	0.0036
Total Lead	g/m ³	0.0116	0.00040	0.00031
Total Nickel	g/m ³	0.0102	0.00172	0.00147 #1
Total Zinc	g/m ³	0.043	0.0115	0.0114



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: Aqueous			
Sample Name:	KP01 17-Feb-2026	KP02 17-Feb-2026	QAQC01 17-Feb-2026
Lab Number:	4102920.1	4102920.2	4102920.3
Total Petroleum Hydrocarbons in Water			
C7 - C9	g/m ³	< 0.10	< 0.10
C10 - C14	g/m ³	< 0.2	< 0.2
C15 - C36	g/m ³	< 0.4	< 0.4
Total hydrocarbons (C7 - C36)	g/m ³	< 0.7	< 0.7

Analyst's Comments

#1 It has been noted that the result for the dissolved fraction was greater than that for the total fraction, but within analytical variation of the methods.

Samples 2-3 Comment:

Please note that the level of Uncertainty of Measurement (UOM) for the DOC result is significantly greater than that usually reported for this analyte (up to 100-200% at the 95% confidence level).

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: Aqueous			
Test	Method Description	Default Detection Limit	Sample No
Individual Tests			
Filtration, Unpreserved	Sample filtration through 0.45µm membrane filter.	-	1-3
Total Digestion	Nitric acid digestion. APHA 3030 E (modified) : Online Edition.	-	1-3
Total Alkalinity	Titration to pH 4.5 (M-alkalinity), autotitrator. APHA 2320 B (modified for Alkalinity <20) : Online Edition.	1.0 g/m ³ as CaCO ₃	1-3
Total Hardness	Calculation from Dissolved Calcium and Dissolved Magnesium. APHA 2340 B : Online Edition.	1.0 g/m ³ as CaCO ₃	1-3
Filtration for dissolved metals analysis	Sample filtration through 0.45µm membrane filter and preservation with nitric acid. APHA 3030 B : Online Edition.	-	1-3
Dissolved Calcium	Filtered sample, ICP-MS, trace level. APHA 3125 B : Online Edition.	0.05 g/m ³	1-3
Total Calcium	Nitric acid digestion, ICP-MS, trace level. APHA 3125 B : Online Edition.	0.053 g/m ³	1-3
Dissolved Magnesium	Filtered sample, ICP-MS, trace level. APHA 3125 B : Online Edition.	0.02 g/m ³	1-3
Total Magnesium	Nitric acid digestion, ICP-MS, trace level. APHA 3125 B : Online Edition.	0.021 g/m ³	1-3
Dissolved Potassium	Filtered sample, ICP-MS, trace level. APHA 3125 B : Online Edition.	0.05 g/m ³	1-3
Total Potassium	Nitric acid digestion, ICP-MS, trace level. APHA 3125 B : Online Edition.	0.053 g/m ³	1-3
Dissolved Sodium	Filtered sample, ICP-MS, trace level. APHA 3125 B : Online Edition.	0.02 g/m ³	1-3
Total Sodium	Nitric acid digestion, ICP-MS, trace level. APHA 3125 B : Online Edition.	0.021 g/m ³	1-3
Chloride	Filtered sample. Ion Chromatography. APHA 4110 B (modified) : Online Edition.	0.5 g/m ³	1-3
Total Ammoniacal-N	Phenol/hypochlorite colourimetry. Flow injection analyser. (NH ₄ ⁺ -N + NH ₃ -N). APHA 4500-NH ₃ H (modified) : Online Edition.	0.010 g/m ³	1-3
Nitrite-N	Automated Azo dye colorimetry, Flow injection analyser. APHA 4500-NO ₂ ⁻ I (modified) : Online Edition.	0.002 g/m ³	1-3
Nitrate-N	Calculation: (Nitrate-N + Nitrite-N) - Nitrite-N. In-House.	0.0010 g/m ³	1-3
Nitrate-N + Nitrite-N	Total oxidised nitrogen. Automated cadmium reduction, flow injection analyser. APHA 4500-NO ₃ ⁻ I (modified) : Online Edition.	0.002 g/m ³	1-3
Dissolved Reactive Phosphorus	Filtered sample. Molybdenum blue colourimetry. Flow injection analyser. APHA 4500-P G (modified) : Online Edition.	0.004 g/m ³	1-3
Sulphate	Filtered sample. Ion Chromatography. APHA 4110 B (modified) : Online Edition.	0.5 g/m ³	1-3
Dissolved Organic Carbon (DOC)	Filtered sample, Supercritical persulphate oxidation, IR detection, for Total C. Acidification, purging for Total Inorganic C. TOC = TC -TIC. APHA 5310 C (modified) : Online Edition.	0.5 g/m ³	1-3

Sample Type: Aqueous			
Test	Method Description	Default Detection Limit	Sample No
Heavy metals, dissolved, trace As,Cd,Cr,Cu,Ni,Pb,Zn	0.45µm Filtration, ICP-MS, trace level. APHA 3125 B : Online Edition.	0.00005 - 0.0010 g/m ³	1-3
Heavy metals, totals, trace As,Cd,Cr,Cu,Ni,Pb,Zn	Nitric acid digestion, ICP-MS, trace level. APHA 3125 B : Online Edition.	0.000053 - 0.0011 g/m ³	1-3
Total Petroleum Hydrocarbons in Water			
C7 - C9	Solvent extraction, GC-FID analysis. In-house based on US EPA 8015.	0.10 g/m ³	1-3
C10 - C14	Solvent extraction, GC-FID analysis. In-house based on US EPA 8015.	0.2 g/m ³	1-3
C15 - C36	Solvent extraction, GC-FID analysis. In-house based on US EPA 8015.	0.4 g/m ³	1-3
Total hydrocarbons (C7 - C36)	Calculation: Sum of carbon bands from C7 to C36. In-house based on US EPA 8015.	0.7 g/m ³	1-3

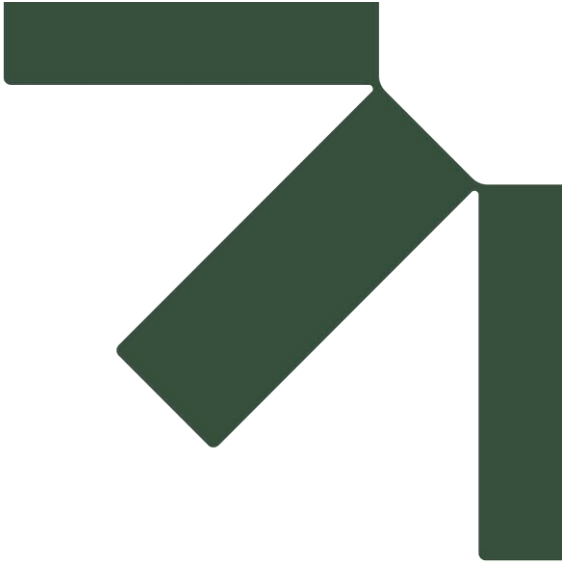
These samples were collected by yourselves (or your agent) and analysed as received at the laboratory.

Testing was completed between 18-Feb-2026 and 24-Feb-2026. 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.

Ara Heron BSc (Tech)
Client Services Manager - Environmental



Attachment G Tabulated Results Summary

Kilbirnie Park - Detailed Site Investigation

State Highway 1 (SH1) Wellington Improvements Project

New Zealand Transport Agency Waka Kotahi

SLR Project No.: 820.030609.00001

19 June 2026

Location / Sample Name		KP01			KP02			Human Health, Industrial	Human Health, Recreational/Residential	Background: Wellington, Main Soil Type 2 (Greywacke) ⁷
Depth		0.3m - 0.5m	0.8m - 1m	3.6m - 3.8m	0.3m - 0.5m	1.5m - 1.7m	5.5m - 5.7m			
Sampled Date		09-02-2026	09-02-2026	09-02-2026	09-02-2026	09-02-2026	09-02-2026			
Lab Sample No.		4094870_1	4094870_2	4094870_5	4094870_7	4094870_8	4094870_10			
Heavy Metals	Units									
Arsenic	mg/kg	4	2	5	5	< 2	8	70 ¹	80 ⁴	2 - 7
Cadmium	mg/kg	< 0.1	< 0.1	< 0.1	0.19	0.17	< 0.1	1,300 ¹	400 ⁴	0.1 - 0.1
Chromium (III+VI)	mg/kg	12	15	21	17	19	16	6,300 ¹	2,700 ⁴	6 - 16
Copper	mg/kg	8	10	16	22	16	19	10,000 ¹	10,000 ⁴	3 - 25
Lead	mg/kg	12.3	11.4	20	115	17.3	17.7	3,300 ¹	880 ⁴	5.9 - 78.6
Nickel	mg/kg	5	5	17	13	15	15	6,000 ²	1,200 ⁵	4 - 13
Zinc	mg/kg	37	15	76	127	65	63	400,000 ²	30,000 ⁵	24 - 105
Total Petroleum Hydrocarbons										
C7-C9 Fraction	mg/kg	< 20	< 20	< 20	< 20	< 20	< 20	120 ^{m3}	120 ^{m6}	-
C10-C14 Fraction	mg/kg	< 20	< 20	< 20	< 20	< 20	< 20	(1,500) ^{x3}	(470) ^{x6}	-
C15-C36 Fraction	mg/kg	< 40	< 40	< 40	83	< 40	< 40	NA ³	NA ⁶	-
C7-C36 Fraction	mg/kg	< 80	< 80	< 80	83	< 80	< 80	-	-	<30 - 190

Criteria adopted from the following guidelines:

¹Methodology for Deriving Soil Guideline Values Protective of Human Health (NES, 2011) Criteria for Human Health, Industrial

²NEPM 2013 Criteria for Human Health, HIL D (Commercial / Industrial) from table Table 1A(1)

³Guidelines for Assessing and Managing Petroleum Hydrocarbon Contaminated Sites in New Zealand (MfE 1999) Criteria for Human Health, Industrial Sand <1m All Pathways

⁴Methodology for Deriving Soil Guideline Values Protective of Human Health (NES, 2011) Criteria for Human Health, Industrial

⁵NEPM 2013 Criteria for Human Health, HIL D (Commercial / Industrial) from table Table 1A(1)

⁶Guidelines for Assessing and Managing Petroleum Hydrocarbon Contaminated Sites in New Zealand (MfE 1999) Criteria for Human Health, Residential Sand <1m All Pathways

⁷Background: Wellington, Main Soil Type 2 (Greywacke) - Determination of Common Pollutant Background Concentrations for the Wellington Regional Greater Wellington regional Council, 2003

Notes:

This table does not represent the full analytical results, please refer to the laboratory results for full details.

The following notes indicate the limiting pathway for each criterion: v - Volatilisation, s - Soil Ingestion d - Dermal, p - Produce, m - Maintenance/Excavation, x - PAH surrogate

Brackets denote values exceed threshold likely to correspond to formation of residual separate phase hydrocarbons.

NA indicates estimated criterion exceeds 20,000 mg/kg. At 20,000 mg/kg residual separate phase is expected to have formed in soil matrix. Some aesthetic impact may be noted.

Location / Sample Name		KP01	KP02	ANZG - toxicant DGVs Ecological, Marine Water 95% ¹	Human Health, Drinking Water ²	Aesthetic Values for Drinking Water ³	Petroleum Hydrocarbon Guidelines MfE 1999 , Residential Sand Inhalation to outdoor air ⁴
Sampled Date		17-02-2026	17-02-2026				
Lab Sample No.		4102920_1	4102920_2				
Metals (Dissolved)	Units						
Arsenic	g/m3	0.0012	0.0030	-	0.01	-	-
Cadmium	g/m3	0.000070	< 0.00005	0.0055	0.004	-	-
Chromium (III+VI)	g/m3	0.0007	< 0.0005	0.0044	0.05	-	-
Copper	g/m3	0.0031	0.0026	0.0006	2	<1	-
Lead	g/m3	< 0.00010	< 0.00010	0.0044	0.01	-	-
Nickel	g/m3	0.0043	0.00150	0.0059	0.08	-	-
Zinc	g/m3	0.017	0.0113	0.008	-	<1.5	-
Metals (Total)							
Arsenic	g/m3	0.0027	0.0043	-	-	-	-
Cadmium	g/m3	0.000099	< 0.000053	-	-	-	-
Chromium (III+VI)	g/m3	0.0113	0.00075	-	-	-	-
Copper	g/m3	0.0092	0.0041	-	-	<1	-
Lead	g/m3	0.0116	0.0004	-	-	-	-
Nickel	g/m3	0.0102	0.00172	-	-	-	-
Zinc	g/m3	0.043	0.0115	-	-	<1.5	-
Total Petroleum Hydrocarbons							
C7-C9 Fraction	g/m3	< 0.1	< 0.1	-	-	-	S ⁵
C10-C14 Fraction	g/m3	< 0.2	< 0.2	-	-	-	S ⁵
C15-C36 Fraction	g/m3	< 0.4	< 0.4	-	-	-	S ⁵
C7-C36 Fraction	g/m3	< 0.7	< 0.7	-	-	-	-
Other							
Ammonium as N	g/m3	0.048	0.170	0.91	-	<1.5	-
Calcium (Total)	g/m3	21	25	-	-		-
Calcium (Dissolved)	g/m3	20	26	-	-		-
Chloride	g/m3	60	66	-	-	<250	-
Dissolved Organic Carbon	g/m3	6.2	6.4	-	-	-	-
Magnesium (Total)	g/m3	10.6	16.0	-	-	-	-
Magnesium (Dissolved)	g/m3	8.5	15.2	-	-	-	-
Nitrate (as N)	g/m3	0.088	1.27	-	50	-	-
Nitrite (as N)	g/m3	< 0.002	0.008	-	3	-	-
Nitrate & Nitrite (as N)	g/m3	0.09	1.27	-	-	-	-
Potassium (Total)	g/m3	3.7	3.6	-	-	-	-
Potassium (Dissolved)	g/m3	2.2	3.5	-	-	-	-
Reactive Phosphorus as P (Orthophosphate as P)	g/m3	< 0.004	0.061	-	-	-	-
Sodium (Total)	g/m3	54	80	-	-	<200	-
Sodium (Dissolved)	g/m3	54	79	-	-	<200	-
Sulphate	g/m3	61	14.3	-	-	<250	-
Alkalinity (total) as CaCO3	g/m3 as caco3	43	175	-	-	-	-
Hardness as CaCO3	g/m3 as caco3	85	126	-	-	<200 ⁶ 100-300 ⁷	-

Criteria adopted from the following guide

¹ANZ Guidelines for Fresh & Marinewater Quality - toxicant DGVs Criteria for Ecological, Marine Water 95% (dissolved)

²Water Servies Drinking Water Standards for New Zealand Regulations 2022

³Taumata Arowai, Aesthetic Values for Drinking Water Notice 2022

⁴Petroleum Hydrocarbon Guidelines MfE 1999 Criteria for Human Health, Residential Sand Inhalation of outdoor air

⁵Calculated water criteria exceeds solubility limit for pure compound in water

⁶Scale deposition, scum formation (pH and alkalinity dependent) Low hardness (<100) may be more corrosive

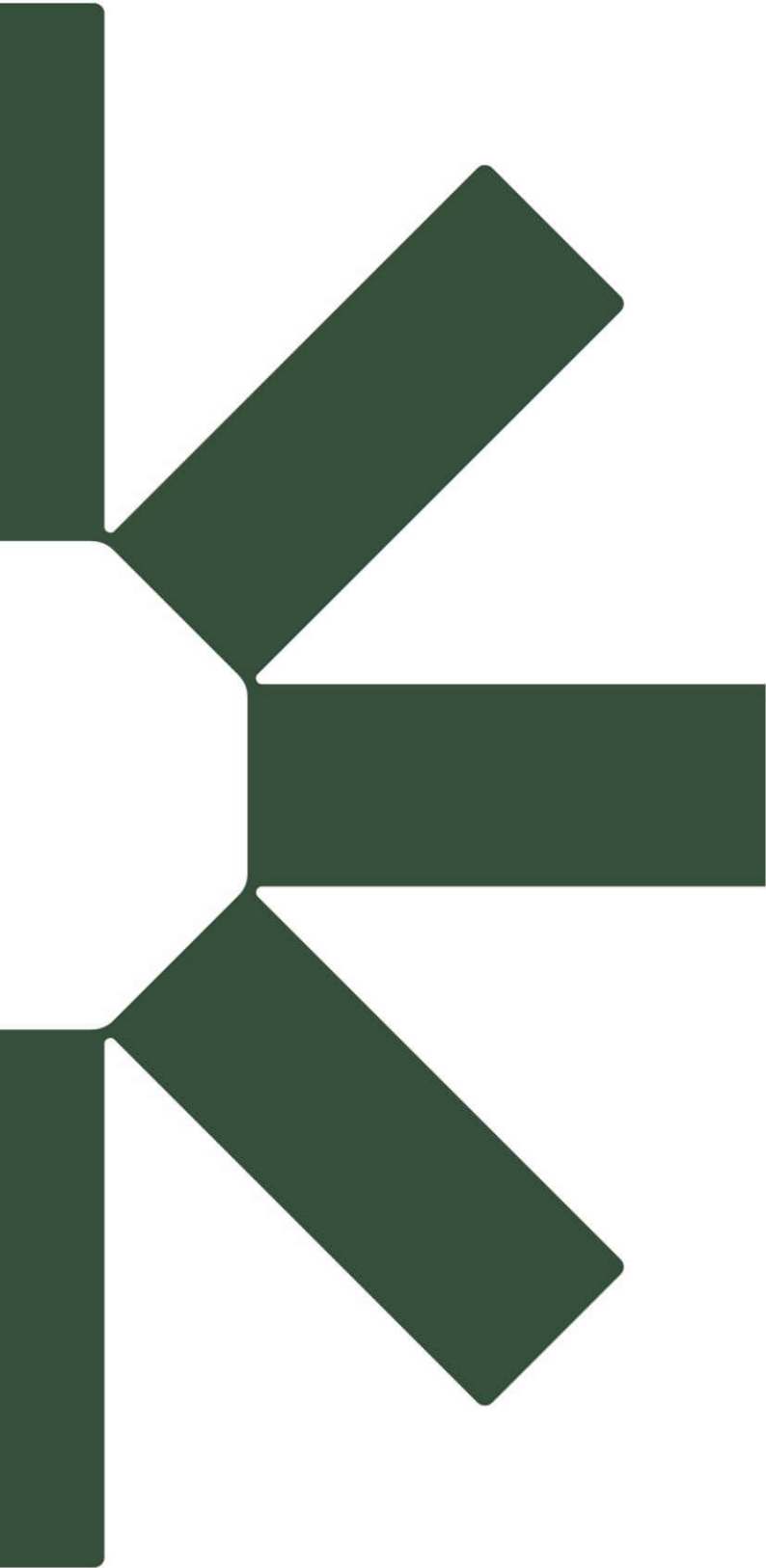
⁷Taste threshold (Ca; counter ion dependent)

Notes:

This table does not represent the full analytical results, please refer to the laboratory results for full details.

Location / Sample Name		KP02	QAQC01	RPD
Sampled Date		17-02-2026	17-02-2026	
Lab Sample No.		4102920_2	4102920_3	
Metals (Dissolved)	Units			
Arsenic	g/m3	0.003	0.0034	12.50%
Cadmium	g/m3	< 0.00005	< 0.00005	-
Chromium (III+VI)	g/m3	0.00075	< 0.00053	-
Copper	g/m3	0.0041	0.0036	12.99%
Lead	g/m3	0.0004	0.00031	25.35%
Nickel	g/m3	0.0015	0.0015	0%
Zinc	g/m3	0.0113	0.0105	7.34%
Metals (Total)				
Arsenic	g/m3	0.0043	0.0047	8.89%
Cadmium	g/m3	< 0.000053	0.000054	-
Chromium (III+VI)	g/m3	< 0.0005	< 0.0005	-
Copper	g/m3	0.0026	0.0026	0%
Lead	g/m3	< 0.0001	< 0.0001	-
Nickel	g/m3	0.00172	0.00147	15.67%
Zinc	g/m3	0.0115	0.0114	0.87%
Total Petroleum Hydrocarbons				
C7-C9 Fraction	g/m3	< 0.1	< 0.1	-
C10-C14 Fraction	g/m3	< 0.2	< 0.2	-
C15-C36 Fraction	g/m3	< 0.4	< 0.4	-
C7-C36 Fraction	g/m3	< 0.7	< 0.7	-
Other				
Ammonium as N	g/m3	0.17	0.165	2.99%
Calcium (Total)	g/m3	25	26	3.92%
Calcium (Dissolved)	g/m3	26	26	0%
Chloride	g/m3	66	66	0%
Dissolved Organic Carbon	g/m3	6.4	9.3	36.94%
Magnesium (Total)	g/m3	16	16.1	0.62%
Magnesium (Dissolved)	g/m3	15.2	15	1.32%
Nitrate (as N)	g/m3	1.27	1.27	0%
Nitrite (as N)	g/m3	0.008	0.007	0.78%
Nitrate & Nitrite (as N)	g/m3	1.27	1.28	13.33%
Potassium (Total)	g/m3	3.6	3.5	2.82%
Potassium (Dissolved)	g/m3	3.5	3.5	0%
Reactive Phosphorus as P (Orthophosphate as P)	g/m3	0.061	0.049	21.82%
Sodium (Total)	g/m3	80	78	2.53%
Sodium (Dissolved)	g/m3	79	80	1.26%
Sulphate	g/m3	14.3	14.6	2.08%
Alkalinity (total) as CaCO3	g/m3 as caco3	175	171	2.31%
Hardness as CaCO3	g/m3 as caco3	126	126	0%

Note
RPD values not calculated where one of both lab results are below the laboratory LOR



Making Sustainability Happen

ANNEXURE C Detailed site investigation report Gazley Mitsubishi



Gazley Mitsubishi - Detailed Site Investigation

State Highway 1 (SH1) Wellington Improvements Project

New Zealand Transport Agency Waka Kotahi

44 Bowen Street,
Wellington

Prepared by:

SLR Consulting New Zealand Limited

SLR Project No.: 820.030609.00001

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19 June 2026

Revision: 1.0

Revision Record

Revision	Date	Prepared By	Checked By	Authorised By
1.0	3 June 2026	Michael King	Kevin Tearney	James Blackwell
	Click to enter a date.			
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	Click to enter a date.			

Basis of Report

This report has been prepared by SLR Consulting New Zealand Limited (SLR) with all reasonable skill, care and diligence, and taking account of the timescale and resources allocated to it by agreement with New Zealand Transport Agency Waka Kotahi (the Client). Information reported herein is based on the interpretation of data collected, which has been accepted in good faith as being accurate and valid. SLR may have used AI in the preparation of this document.

This report is for the exclusive use of the Client. No warranties or guarantees are expressed or should be inferred by any third parties. This report may not be relied upon by other parties without written consent from SLR.

SLR disclaims any responsibility to the Client and others in respect of any matters outside the agreed scope of the work.



Executive Summary

SLR Consulting New Zealand Limited (SLR) has completed a Detailed Site Investigation (DSI) of the Gazley Mitsubishi site (GM site) for New Zealand Transport Agency Waka Kotahi (NZTA) in relation to the State Highway 1 (SH1) Wellington Improvements project (the Project). The DSI report is to be read in conjunction with the Preliminary Site Investigation (PSI) report (SLR 2026) presented as **Annexure A** to the Contaminated Land Assessment Technical Specialist Report.

The purpose of the DSI was to assess the nature and extent of contaminants of potential concern (CoPC) in soil and groundwater within the GM site affected by the Project, assess the risk to human health and the environment from any identified CoPC and assess the proposed works in relation to applicability of the Ministry for the Environment (MfE) National Environmental Standard for Assessing and Managing Contaminants in Soil (NES-CS) and the Greater Wellington Regional Council (GWRC) operative Natural Resources Plan (NRP).

The DSI works comprised the advancement, logging and sampling of two groundwater monitoring wells (GM01 and GM02) installed within an asphalt vehicle storage and display carpark on the southern boundary of the GM site affected by the Project. No boreholes were advanced within the GM site owing to access restrictions. The site investigation works were undertaken in conjunction with geotechnical investigations by Tonkin and Taylor (T+T).

Drilling works were undertaken on 29 March 2026 using a combination of hydrovac and sonic drilling method. The works encountered soils interpreted as fill to approximately 1.6 metres (m) below ground level (bgl), underlain by sandy and gravely silt to total depth (10 m) inferred to be natural ground. No visual or olfactory indicators of contamination were encountered.

Groundwater monitoring wells were installed to 7 m depth in each well bore on completion of drilling. A groundwater monitoring event was undertaken on 19 April 2026 following well development. Sampling was completed by low-flow micro-purge techniques using a peristaltic pump. Groundwater was recorded at 0.96 m bgl in GM01 and 1.71 m bgl in GM02.

Observations and analysis results for soils indicate that fill soils below the asphalt within the vehicle storage and display carpark are contaminated by polycyclic aromatic hydrocarbons (PAH), potentially derived from coal tar. The contamination of the fill does not appear to be linked to the storage and use of hazardous substances at the GM site.

Soil and groundwater sample analysis results were compared background soil concentrations and human health and environmental guidelines, including the Australian and New Zealand Guidelines (ANZG) Ecological Default Guideline Values (DGVs) for Marine Water at 95% species protection for assessment of groundwater.

A conceptual site model (CSM) was also prepared for the qualitative assessment of effects of the contaminants in soil and groundwater on human health and the environment. The CSM was constrained by soil and groundwater data available only from locations GM01 and GM02. It may therefore not be fully representative of the whole GM site.

Key findings are as follows:

- Concentrations of PAH do not indicate a significant effect on human health from disturbance of these soils during road construction works. These soils are therefore considered to be non-HAIL unclassified fill as described in the PSI (**Annexure A**). It is also inferred that fill below the balance of the GM site is likely to also contain non-HAIL unclassified fill potentially contaminated by PAH. Management of these soils during ground disturbance will be required.



- The underlying natural ground soils also do not appear to be contaminated by CoPCs associated with the storage and use of hazardous substances at the GM site. No additional management of these soils during ground disturbance will be required.
- Observations and analysis results for groundwater indicate that the storage and use of hazardous substances at the GM site and adjacent HAIL land have not resulted in groundwater contamination. However, concentrations of copper, and zinc in groundwater exceeded their respective ANZG DGVs for 95% marine species protection.
- Soil disturbance for the Project would not meet the Permitted Activity requirements of Regulation 8(3) of the NES-CS. Soil disturbance would be a controlled activity in accordance with Regulation 9(1) of the NES-CS.
- Potential passive discharges in groundwater from the GM site are unlikely to pose an unacceptable risk to the Waitangi Awa, which is piped in the vicinity of the Gazley Mitsubishi property, or to Wellington Harbour which is located some 900 m from Gazley Mitsubishi property. Passive discharges in groundwater therefore appear to be permitted under Rule R82 of the GWRC NRP.
- Dewatering in relation to Rule R159 of the GWRC NRP is potentially a permitted activity, as the Waitangi Awa is piped in the vicinity of the Gazley Mitsubishi property, and Wellington Harbour which is located some 900 m from Gazley Mitsubishi property. Pretreatment to remove sediment from dewatered groundwater is likely to be required.
- Except for discharges associated with dewatering, and excavation and management of fill, effects of the ground disturbance works on human health and the environment are qualitatively assessed as Negligible. The effects of discharges associated with dewatering, and excavation and management of fill, without mitigation, are qualitatively assessed as Negligible to Low.

The findings of the DSI are constrained by soil and groundwater data available from locations GM01 and GM02 only, which are adjacent to the GM site. Findings may therefore not be fully representative of the whole GM site. Further investigations following removal of the Gazley Mitsubishi offices, showroom and workshop are recommended to provide additional information.



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Acronyms and Abbreviations

CEnvP – SC	Certified Environmental Practitioner – Site Contamination
CLMG	Contaminated Land Management Guidelines
CoC	Chain of Custody
CoPC	Contaminants of Potential Concern
DQOs	Data Quality Objectives
DSI	Detailed Site Investigation
GWRC	Greater Wellington Regional Council
IANZ	International Accreditation New Zealand
LNAPL	Light non-aqueous phase liquid
LOR	Limit of Reporting
m asl	metres above sea level
m bgl	Metres below ground level
MfE	Ministry for the Environment
NES-CS	Resource Management (National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health) Regulations 2011
NRP	Natural Resources Plan
PID	Photo Ionisation Detector
PSI	Preliminary Site Investigation
QA/QC	Quality Assurance/Quality Control
RPD	Relative percentage difference
SLR	SLR Consulting New Zealand Limited
SQEP	Suitably Qualified and Experienced Practitioner
swl	Static water level
TPH	Total Petroleum Hydrocarbons
VOC	Volatile Organic Compounds
WCC	Wellington City Council



1.0 Introduction

1.1 Report Context

This Detailed Site Investigation (DSI) report has been prepared for the New Zealand Transport Agency Waka Kotahi (NZTA) by SLR Consulting New Zealand Limited (SLR) as part of site investigations for the proposed State Highway (SH) 1 Wellington Improvements Project (the Project). It presents the findings of a soil and groundwater investigation undertaken to assess the presence and nature of soil and groundwater contamination primarily associated with commercial activities undertaken within the Gazley Mitsubishi property (GM site) located at 75-78 Cambridge Terrace Wellington. The GM site is currently a motor vehicle dealership and has a history of storage and use of petroleum hydrocarbons. The DSI comprises **Annexure C** to the Statement of Evidence presented in the covering Contaminated Land Assessment Technical Specialist Report and provides technical information used to inform the Statement of Evidence.

The location and layout of the GM site is shown in **Figure A1, Attachment A**.

As currently proposed for the Project, the Sussex Street to Cambridge Terrace connection will require the demolition of the current Gazley Mitsubishi building as well as bulk earthworks within the GM site and within adjoining land to the south, to establish the Sussex Street to Cambridge Terrace connection south of Barker Street, part of which will be placed in a trench section that will tie into Cambridge Terrace. Dewatering during earthworks will be required. The properties to the north of the GM site will also be required as temporary construction space.

The extent of the permanent and temporary works is shown in **Figure 1**.

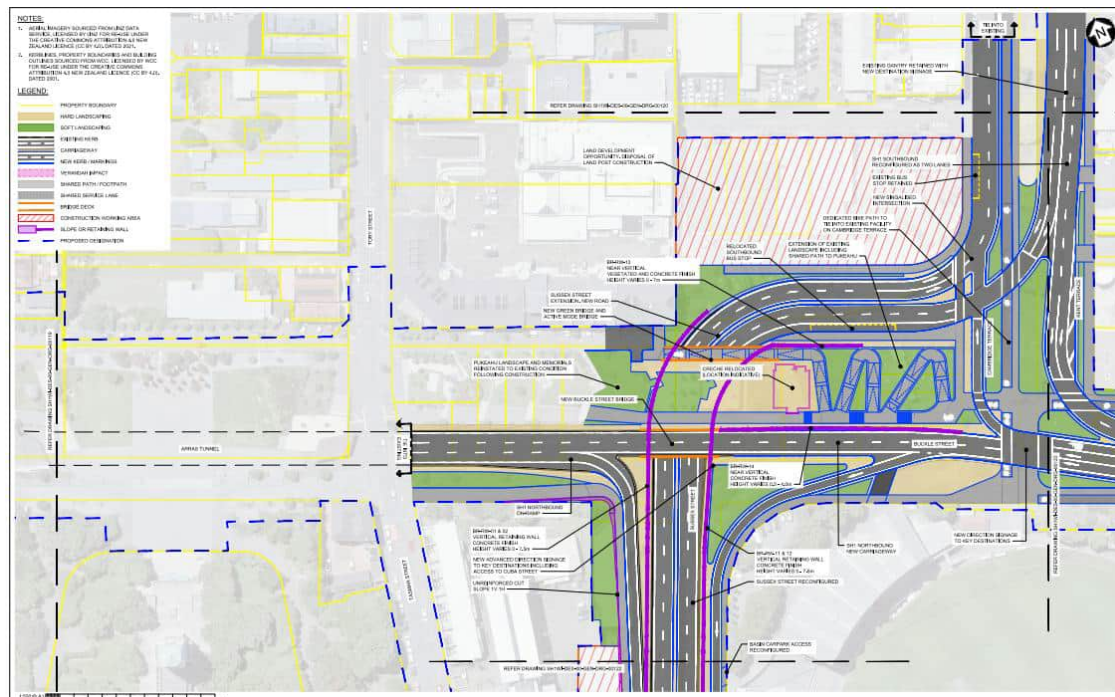


Figure 1 Plan view of SH 1 Wellington Improvements in relation to Gazley Mitsubishi (from General Arrangement Sheet 11 SH1WI-DES-00-GEN-DGR 5-C44340.01)



The Preliminary Site Investigation (PSI) by SLR in 2026 (SLR 2026) for the Project identified that the GM site is listed on the Greater Wellington Regional Council's (GWRC) Selected Land Use Register (SLUR) as SN/05/230/02. SN/05/230/02 is more likely than not associated with Hazardous Activity or Industry, Hazardous Activities and Industries List (HAIL) land, categories F7: *Vehicle refuelling, service and repair - Service stations, including retail or commercial refuelling facilities* and F4: *Vehicle refuelling, service and repair - Motor vehicle workshops*. No specific information about the contamination status of soil or groundwater within the site that will be affected by the Project was available for the PSI. This DSI was therefore undertaken to address this data gap.

1.2 Resource Consent Framework

As the GM site is HAIL land, the proposed ground disturbance and change of use of the land require consideration under the Resource Management (National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health) Regulations 2011 (NES-CS), and potential requirements under the GWRC Natural Resource Plan (NRP) in relation to contaminant discharges to the environment. The NES-CS and the GWRC NRP are discussed further in the covering Contaminated Land Assessment Technical Specialist Report.

1.3 DSI Objectives

The objectives of the DSI were to:

- Assess the nature and extent of contaminants of potential concern (CoPC) in soil and groundwater affected by the proposed Sussex Street extension works for the Project.
- Assess the effects of the works on (risks to) human health and environment in relation to the CoPC as a result of the Project.
- Provide a preliminary assessment of the proposed works in relation to applicability of the NES-CS and GWRC NRP.

1.4 Scope of Work

The scope of the DSI comprised the following:

- Advancement, logging and sampling of two groundwater monitoring wells installed within the proposed Sussex Street trench immediately to the south of the GM site.
- Analysis of soil and groundwater samples.
- Preparation of the DSI report.

The site investigation works were undertaken in conjunction with geotechnical investigations by Tonkin and Taylor (T+T). The geotechnical investigation works are reported by T+T under separate cover.

1.5 Report Status

This DSI has been prepared under the supervision of Kevin Tearney, a Certified Environmental Practitioner Site Contamination (CEnvP SC) # SC41072 and a Suitably Qualified and Experienced Practitioner (SQEP) as required under the NES-CS and as defined in the NES-CS Users' Guide 2012 (MfE 2012). It meets the requirements set out in the Ministry for the Environment (MfE) Contaminated Land Management Guideline (CLMG) No 1. Reporting on contaminated sites in New Zealand (MfE 2021a), CLMG No 5 Site investigation and analysis of soils (MfE 2021b) and as referenced in the NES-CS.



This DSI report should be read in conjunction with the PSI report presented in the Contaminated Land Assessment Technical Specialist Report.

2.0 Environmental Setting

The GM site lies at an elevation of approximately 6 m above sea level (m asl) at 75-78 Cambridge Terrace, Wellington. It is occupied by the Gazley Mitsubishi vehicle dealership, comprising offices, showroom and a vehicle serving and maintenance workshop. Adjoining premises comprise a vehicle testing station, Guardian Alarms and a RS Lane Paint and Panel Assessment Centre. Barker Street lies to north and is occupied by commercial buildings mainly associated with vehicle parking, display and servicing. Cambridge Terrace lies to the east.

A retaining wall is located on the western boundary of the GM site, with the Wellington City Council (WCC) archives building and the Te Papa Wet Stores located on elevated land to west between the GM site and Tory Street, at an elevation of approximately 17 m asl. Open space land associated with Pukeahu National War Memorial Park is present to southwest bounded by SH1 to the south, which slopes down towards an open space area of asphalt hardstand and Cambridge Terrace. The asphalt hardstand area also abuts part of the southern boundary of the GM site and is used for vehicle parking and display by the Gazley Mitsubishi dealership. The Basin Reserve lies to the south of Sussex Street.

Waitangi Awa is piped and flows north-eastward through the Basin Reserve and lies below Cambridge Terrace and discharges to Lambton Harbour at Waitangi Park approximately 900 m to the north of the GM site. Wellington Harbour is closest mapped open surface water body.

As described in the PSI (**Annexure A**), the current Gazley Mitsubishi property is listed on the GWRC SLUR SN/05/230/02 under HAIL F7: Vehicle refuelling, service and repair - Service stations, including retail or commercial refuelling facilities and HAIL F4: Vehicle refuelling, service and repair - Motor vehicle workshops relating to the former Kirk Motors Ltd. WCC files indicate that an underground storage tank (UST) for petroleum hydrocarbons was located in the northwestern portion of the property with a pump/bowser located next to the western wall of the workshop building, within the existing building. It was reportedly removed in 1998. A site walkover completed on 22 January 2026 by SLR did not identify any evidence of the UST or associated infrastructure and the current property owner was not aware of a UST ever being present (post 1998). The workshop activities observed include the storage and use of new and used oils in above ground drums and tanks. Used oil is removed from site for treatment/disposal. The concrete flooring of the workshop appeared to be in good order with no excessive cracking or staining.

Figure 2 below presents a snip from the GWRC SLUR data base overlaid with the proposed Sussex Street to Cambridge Terrace Connection as part of the Project. The inferred location of the former UST is indicated. The approximate location of the UST is also shown in **Figure A1, Attachment A**. Trenching for the proposed Sussex Street extension will not require ground disturbance in the location of the inferred former UST.





Figure 2 Proposed Sussex Street to Cambridge Terrace connection through Gazley Mitsubishi SN/05/230/02

3.0 Site Investigation

3.1 Data Quality Objectives

Data Quality Objectives (DQOs) were established prior to the site investigation to define the type, quantity and quality of data needed to support decisions relating to the assessment of contamination. The DQOs are summarised below:

Purpose and Objectives:

- Assist to establish the nature and extent of contamination in soil and groundwater at the GM site associated with hazardous substances storage and use at the GM site and adjacent HAIL land at SLUR site SN/05/206/02. SLUR site SN/05/206/02 is a former WWC depot site and currently includes the Te Papa wet stores recorded as holding up 150,000 L of isopropyl alcohol preservative.
- Assist to determine potential effects of chemical contaminants within soils and groundwater on human health and the environment in relation to the Project.

Data Required:

- Samples of soils and groundwater for laboratory analysis.
- Analyses of samples for contaminants of potential concern (CoPC).
- Soil CoPC include heavy metals (arsenic, cadmium, chromium, copper, lead, nickel and zinc), total petroleum hydrocarbons (TPH), benzene, toluene, ethylbenzene and xylenes (BTEX) and polycyclic aromatic hydrocarbons (PAH). Asbestos in soil will also be assessed if fill containing anthropogenic materials is encountered.
- Groundwater CoPC comprise heavy metals (total and dissolved), TPH, and BTEX.



Study boundaries:

- Study boundaries comprise the southern part of the GM site directly affected by ground disturbance for the proposed Sussex Street extension.

Data Interpretation

- Nature and extent of contamination in soil and groundwater based on visual assessment and field measurements and the results of laboratory analysis of samples.
- Laboratory analysis data will be compared against appropriate assessment criteria to assess the risk posed by the CoPCs to human health and environment in relation to the Project.

Data Reliability

- Data reliability will be assessed against data quality indicators set out in the investigation design.

Investigation Design

- Investigations will comprise the installation of two machine drilled monitoring wells within the southern part of the study area.
- Soil and groundwater samples will be collected using SLR standardised sampling methods.
- Samples will be analysed by a laboratory holding International Accreditation New Zealand (IANZ) accreditation for the analyses undertaken.
- Standard quality assurance/quality control (QA/QC) protocols will be implemented to ensure data collection is suitable precise, accurate, and complete.
- Analytical results obtained will be assessed against the nominated assessment guidelines.
- Limits of reporting (LORs) will be at or less than the environmental assessment criteria to ensure data are suitably sensitive for risk assessment purposes.
- Design and execution will comply with CLMG No 5 Site investigation and analysis of soils.

3.2 Monitoring Well Drilling and Installation

Two groundwater monitoring well bores (GM01 and GM02) were drilled by Griffiths Drilling (NZ) Limited (Griffiths) under supervision of SLR and T+T on 29 March 2026 at the locations shown in **Figure A1, Attachment A**. The monitoring well bores were positioned within the asphalt hardstand land immediately adjacent to the Gazley Mitsubishi workshop, in the line of the proposed Sussex Street extension. This land is owned by NZTA and is leased by Gazley Mitsubishi. Monitoring well bores were not drilled within GM site itself owing to access constraints. This included the inferred location of the former UST, also considering that that proposed Sussex Street extension will not require ground disturbance in the location of the inferred former UST.

The initial 1.5 m of each bore was excavated using hydrovac as part of services identification and clearance. Bores were then completed to target depth of 10 m below ground level (bgl) using the sonic drilling method.



Groundwater monitoring wells were installed in each well bore on completion of drilling. The monitoring wells comprised 50 mm diameter PVC pipe with machine slotted screens placed from 1 m below ground level (m bgl) to 7 m bgl. The well screens were designed to screen across the shallow water table to allow detection and monitoring of light non aqueous phase liquids (LNAPL), such as liquid petroleum hydrocarbons. The monitoring wells were finished with flush mounted well tobies. The well completions are shown on the soil logs in **Attachment B**.

The monitoring wells were developed by Griffiths one week after completion of well installation, to facilitate groundwater sampling.

The monitoring well locations are shown on **Figure A1, Attachment A**. Photographs taken during the works are presented in **Attachment C**.

3.3 Soil Logging and Sampling

Environmental logging of the soils encountered was undertaken by SLR from soil core collected and boxed by Griffiths during drilling.

Soil samples representative of the soils encountered were also collected by SLR to total depth. All soil samples were subject to monitoring of volatile organic compounds (VOCs) in the headspace of the soils using a calibrated photoionisation detector (PID) fitted with a 10.2 eV lamp.

Soil samples were then placed in laboratory supplied sample jars and identified with a unique sample identifier which was documented on the sample label and on the chain of custody (CoC) form.

The samples were placed into a chilled container and transported under CoC to Hill Laboratories Ltd.

Soil logs, sample numbers, sampling depths and headspace VOC concentrations are presented on the soil logs in **Attachment B**. Photographs of soils encountered are presented in **Attachment C**. Geotechnical logs prepared by T+T are presented in **Attachment D**.

3.4 Groundwater Sampling

Groundwater samples were collected by SLR on 19 April 2026 using the following methodology:

- VOC concentrations in the monitoring well headspace was measured using the PID on well opening.
- An oil-water interface probe was used to establish the static water level (swl) and check for the presence of LNAPL.
- Groundwater sampling was completed using low-flow micro-purge techniques using a peristaltic pump. Groundwater field parameters including dissolved oxygen, temperature, pH, electrical conductivity and redox potential were monitored until these parameters indicated that the water being removed was stable/consistent. Purge water was captured for secure disposal pending laboratory analytical results.
- Groundwater samples were collected directly into laboratory-supplied bottles identified with a unique sample identifier which was documented on the sample label, and on the chain of custody form.
- The samples were placed into a chilled container and transported under CoC to Hill Laboratories Ltd.



Sampling field sheets are presented in **Attachment E**.

3.5 Analysis Schedule

All samples were analysed by Hill Laboratories Ltd for the following CoPCs:

Soil:

- Soil samples in the upper 3.6 m for Total Metals (Arsenic, Cadmium, Chromium, Copper, Lead, Nickel and Zinc), TPH, BTEX and PAH.
- Soils samples between 3.6 m bgl to 6.7 m bgl for Total Metals and TPH.
- Soils from the base of each monitoring well borehole for Total Metals only.

No asbestos in soil analysis was undertaken as other than a fragment of red brick encountered at the base of the fill in GM02 no anthropogenic materials were encountered.

Groundwater:

- Total and dissolved metals (Arsenic, Cadmium, Chromium, Copper, Lead, Nickel and Zinc).
- TPH and BTEX.

Chain of Custody documents and laboratory results as received are presented in **Attachment F**.

3.6 Quality Assurance/Quality Control

The site works were undertaken in accordance with SLR Standard Operating Procedures under the supervision of Kevin Tearney (CEnvP SC). All tools used for sampling were decontaminated and washed between samples to remove the risk of cross contamination. Nitrile gloves were also used and disposed of between each sample. Samples were analysed by Hill Laboratories, which is an IANZ accredited laboratory, with accredited methodologies for analysis for the presence of identified CoPC, as detailed in **Attachment F**.

Duplicate samples were collected as follows:

- Soil sample GM15SS as duplicate for GM12SS at 3.5-3.6 m bgl in borehole GM01.
- Duplicate water sample (QAQC01) collected from GM01.

Quality assurance and quality control results are provided in **Table G3** (soil) and **G4** (water), **Attachment G**.

The calculated relative percentage differences (RPDs) for the soil duplicate (GM15SS) and primary sample (GM12SS) for individual analytes ranged between 0% and 4.3%.

The calculated RPDs for the water duplicate (QC01) and primary sample (GM01) for individual analytes ranged between 4% and 29%.

The soil and groundwater analysis results are considered to be suitable for use in this DSI.



4.0 Investigation Results

4.1 Ground Encountered

Surficial soils comprised silty, coarse gravel fill to about 1.6 m bgl. A brick fragment was present at the base of the fill at GM02. The fill was underlain by natural ground comprising silty clay/silty clay containing interbedded with fine sand and gravelly fine sands with occasional shell fragments from about 5 m bgl. These natural soils are interpreted to comprise marine sediments as described in the Technical Assessment #15 Groundwater Assessment prepared for the Project, which will be excavated for the Sussex Street extension.

Apart from the small brick fragment at the base of the fill at location GM02, no anthropogenic materials were encountered, and no visual or olfactory indications of contamination were noted. Soil headspace VOC concentrations were consistently 0 ppm.

4.2 Groundwater Encountered

Groundwater was present in the base of the GM01 hydrovac hole during drilling. No specific water strikes were evident during drilling in either borehole. Groundwater was present at 1.78 m bgl in the monitoring well installed in GM02 immediately prior to leaving site on 29 March 2026 (1405 hrs), having decreased from 1.28 m bgl at 1150 hr following piezometer installation.

Swl were measured using an oil water interface probe on 19 April 2026 prior to sampling. Groundwater levels were recorded at 0.94 m below top of casing (btoc) in monitoring well GM01 and at 1.71 m btoc of casing in GM02 (**Attachment B**). No LNAPL was recorded. No VOCs were detected in monitoring well headspaces when first opened.

Purge water was noted as very turbid (brown) in GM01 and moderately turbid (cloudy yellow) in GM02. No sheen or odours were noted.

Field quality parameters recoded electrical conductivity (EC) in groundwater of approximately 330 uS/cm in monitoring well GM01 and 980 uS/cm in GM02, and pH of 6.24 and 6.23, respectively. Field redox and dissolved oxygen (DO) readings indicated slightly aerobic conditions.

4.3 Analytical Results

4.3.1 Evaluation Criteria

A tabulated summary of the analytical results is presented as **Table G1** (soil) and **Table G2** (groundwater), in **Attachment G**. The following assessment criteria are also presented:

Background Soil Concentrations

- Background soil concentrations for soils in the Wellington Region sourced from URS (2003). Main Soil Type 2 (Greywacke as parent rock) was used. Exceedance of background soil concentrations on HAIL land triggers assessment under the NES-CS.

Soil Human Health Guidelines

- Soil Contaminant Standards (SCS) from the NES-CS for the protection of human health. Commercial / industrial land use has been used as a conservative



assessment of risk to the health of construction workers during road construction and future maintenance.

- In the absence of New Zealand specific human health risk assessment criteria for concentrations of nickel and zinc in soil, the Australian National Environment Protection Council National Environment Protection (Assessment of Site Contamination) Measure 1999, Amendment No.1 (2013) – Health Investigation Levels using 'commercial / industrial exposure scenario guidelines have been adopted in accordance with the hierarchy for selecting Soil Guidelines Values (SGVs) as detailed in Contaminated Land Management Guidelines No.2 Hierarchy and Application in New Zealand of Environmental Guideline Values (MfE 2011).
- Tier 1 acceptance criteria for petroleum hydrocarbons in soil from MfE (1999). All Pathways criteria for Commercial / Industrial land use for Sand at less than 1 m depth have been used a conservative assessment of risk to the health of construction workers during road construction and future maintenance.

Groundwater Human Health Guidelines

- Tier 1 acceptance criteria for petroleum hydrocarbons in groundwater from MfE (1999) in relation to risk to human health from the inhalation of petroleum vapours in outdoor air.
- Standards and Aesthetic values for New Zealand drinking water are also presented for reference.

Groundwater Environmental Guidelines

- Ecological Default Guideline Values (DGVs) for Marine Water at 95% species protection from Australian and New Zealand Guidelines (ANZG) (2018), where available, have been used to assess the impact of the discharge of groundwater from the site during construction works as passive discharge, or from dewatered groundwater with discharge to stormwater and Wellington Harbour, which is considered to be a slightly to moderately disturbed system.

4.3.2 Soil

The following is noted in relation to the soil analysis results:

- Concentrations of heavy metals in shallow fill soils (< 1.6 m bgl) exceeded their respective published background concentrations for cadmium, chromium, nickel, lead, zinc, with the greatest exceedances recorded for lead and zinc. The results indicate some anthropogenic impact in the fill soils by metals. All results were well below SCS for commercial industrial land use, indicating low risk to the health in relation to a commercial industrial land use scenario. Anthropogenic impact from metals was generally not evident in the natural ground.
- No BTEX was detected in the fill or natural ground.
- Multiple PAH congeners were detected in the shallow fill sample from borehole GM01 (0.3 - 0.5 m) and in the two deeper samples of fill from borehole GM04 (0.8 - 1.0 m and 1.6 m). Low concentrations of C15 to C36 TPH were also detected in these samples. Comparison of the sample chromatograms with reference



chromatograms provided by Hill Laboratories¹ indicates coal tar as a potential source of the PAH in the fill.

With the exception of trace levels of perylene, concentrations of all PAH congeners were below the laboratory limit of reporting (LOR) in samples collected within natural ground soils below 1.5 m bgl in both bores. Trace levels of perylene only were detected in natural ground soils in borehole GM01 at 2 - 2.1 m bgl (0.093 mg/kg) and 3.5 - 3.6 m bgl and in GM02 at 2.0 - 2.2 m bgl (0.25 mg/kg).

- C15 to C36 range TPH were detected above published background concentrations in GM01 shallow fill (310 mg/kg). No other TPH were detected in GM01 samples analysed. Minor C15 to C36 range TPH were detected above the laboratory LOR in the shallow fill soils of GM02. No other TPH were detected in GM02 samples analysed.
- TPH and all PAH congeners concentrations were well below their respective SCS or Tier 1 acceptance criteria for the protection of human health, where available.

4.3.3 Groundwater

The following is noted in relation to the groundwater analysis results:

- Dissolved copper, nickel and zinc were detected in groundwater from both GM01 and GM02.
 - Concentrations of dissolved copper in groundwater from both GM01 (0.0023 mg/L) and GM02 (0.0016 mg/L) exceeded the ANZG DGV of 0.0006 mg/L.
 - The concentrations of dissolved zinc in groundwater from GM01 (0.013 mg/L) exceeded the ANZG DGV of 0.008 mg/L.
 - All other dissolved metals analyses complied with their respective ANZG DGV.
- All total metals analysed were recorded above laboratory LOR in groundwater from both GM01 and GM02, except for cadmium in GM02. There are no relevant guideline values for total metals.
- A trace of C7 to C36 range TPH was detected in GM01 (0.6 mg/L). All other TPH results were below laboratory LOR. All sample concentrations complied with the Tier 1 acceptance criteria for outdoor air exposure.
- Trace xylenes were detected in groundwater from GM02 (0.0077 mg/L). All other BTEX analytes were below the laboratory LOR.
- All results meet the drinking water guideline values shown for reference.

5.0 Conceptual Site Model

A Conceptual Site Model (CSM) is presented in **Table 1**. It is an update of the CSM presented in the PSI report (**Annexure A**), based on the results of soil and groundwater information obtained from locations GM01 and GM02. It provides a description of the identified potential contaminant sources, pathways in the environment and potential receptors, and a qualitative assessment of source-pathway-receptor (SPR) linkages in relation to the Project. A risk to human health or the environment is only present if there is a

¹ https://www.hill-labs.co.nz/media/cwcl5aag/30491a8_tph-reference-chromatograms-compilation.pdf.



complete SPR linkage. An assessment of effects based on the qualitative risk assessment terminology presented in the PSI (**Annexure A**) is also provided.

The CSM is constrained by soil and groundwater data available from locations GM01 and GM02 only. It may therefore not be fully representative of the whole GM site.



Table 1: Conceptual Site Model and Qualitative Assessment of Effects

Source	Pathway	Receptor	Discussion	SPR Linkage	Effects
CoPCs in fill soil	Direct contact, inhalation and/or ingestion	Human Health: Road construction and maintenance/excavation workers	Fill contains PAH. Concentrations of CoPC in soil samples were well below the adopted human health criteria.	Incomplete Insufficient source concentrations	Low
	Stockpiling, offsite disposal	Stormwater/surface water including Wellington Harbour	Fill contains PAH. Effects relate to discharges to the environment associated with excavation, stockpiling and offsite disposal. Management required.	Potentially Complete Potential discharges during earthworks, requires ongoing management during excavation and earthworks phase.	Negligible to Low
CoPCs in natural ground	Direct contact, inhalation and/or ingestion	Human Health: Road construction and maintenance/excavation workers	Concentrations of CoPC in soil samples were well below the adopted human health criteria.	Incomplete Insufficient source concentrations	Negligible
CoPCs in Groundwater	Direct contact, inhalation and/or ingestion	Human Health: Road construction and maintenance/excavation workers	Groundwater located approximately 1 to 1.7 m bgl. Contact with groundwater possible during groundworks (e.g. excavation, piling).	Incomplete Insufficient source concentrations	Negligible



Source	Pathway	Receptor	Discussion	SPR Linkage	Effects
	Passive groundwater discharge to surface water	Waitangi Awa	Awa is piped. Ingress considered unlikely.	Incomplete	Negligible
	Passive discharge offsite	Marine Environment	Wellington Harbour is located > 100 m from the GM site.	Incomplete Insufficient source concentrations	Negligible
	Discharge to Wellington Harbour via stormwater during dewatering for road construction/maintenance.	Marine Environment	Concentrations of dissolved copper in both groundwater samples analysed and zinc in GM01 exceeded their adopted 95% species protection. Potential discharge to surface water and Wellington Harbour during dewatering for road construction/maintenance.	Potentially complete Potential discharge to surface water and Wellington Harbour during dewatering for road construction/maintenance.	Negligible to Low



6.0 Regulatory Assessment

6.1 NES-CS

The proposed development works impact the GM site which is HAIL land. It is therefore subject to the provisions of the NES-CS and is considered to be a Piece of Land in accordance with Regulation 5(7) of the NES-CS.

Based on the results of the DSI, PAH congeners are present in shallow fill soils above background concentrations and heavy metals concentrations in shallow fill soil marginally exceed background concentrations. Concentrations of all CoPC do not exceed their respective protection of human health for commercial/industrial land uses. Soil disturbance is potentially therefore a controlled activity in accordance with Regulation 9(1) of the NES-CS.

Applicability of soil disturbance volumes and /or timeframes required for the Project to meet the permitted activity (PA) requirements set out in Regulation 8(3) of the NES-CS have not been assessed.

6.2 GWRC Natural Resources Plan

The Gazley Mitsubishi property is HAIL land listed on the GWRC SLUR as HAIL F7 and HAIL F4, SLUR category I - Verified History of Hazardous Activity or Industry.

Discharges from contaminated land as a permitted activity are covered under Rule R82 of the GWRC NRP. The closest open water body (Wellington Harbour) is some 900 m north of the GM site. The findings of the DSI indicate that any potential passive discharge in groundwater from the GM site is unlikely to pose an unacceptable risk to Waitangi Awa which is piped, or to Wellington Harbour owing the attenuation of metals will that occur in groundwater between the GM site and Wellington Harbour and available dilution in Wellington Harbour. A potential passive discharge from the GM site therefore appears to be a permitted activity under Rule R82 of the GWRC NRP.

Dewatering as permitted activity is covered under Rule R159 of the GWRC NRP. Dewatering from HAIL land is not a default permitted activity under Rule 159(c)(iii). Initial assessment indicates that dewatering is potentially a permitted activity, owing to the available dilution in Wellington Harbour, considered to be the receiving environment. Pretreatment to remove sediment from dewatered groundwater would likely be required.

7.0 Conclusions

- Observations and analysis results for soils indicate that fill soils below the asphalt within the vehicle storage and display carpark are contaminated by PAH, potentially derived from coal tar. The contamination of the fill does not appear to be linked to the storage and use of hazardous substances at the GM site.
- The concentrations of PAH detected do not indicate a significant effect on human health from disturbance of these soils during road construction works. These soils are therefore considered to be non-HAIL unclassified fill as described in the PSI (**Annexure A**). On the basis of these results, it is also inferred that fill below the balance of the GM site also likely contains non-HAIL unclassified fill potentially contaminated by PAH. Management of these soils during ground disturbance will be required.
- The underlying natural ground soils also do not appear to be contaminated by CoPCs associated with the storage and use of hazardous substances at the GM site. No additional management of these soils during ground disturbance will be required.



- Observations and analysis results for groundwater indicate that the storage and use of hazardous substances at the GM site or adjacent HAIL land has not resulted in groundwater contamination. However, concentrations of copper, and zinc in groundwater exceeded their respective ANZG DGVs for 95% marine species protection.
- Soil disturbance would be a controlled activity in accordance with Regulation 9(1) of the NES-CS.
- Potential passive discharges from the GM site are unlikely to pose an unacceptable risk to surface waters, and therefore appear to be permitted under Rule R82 of the GWRC NRP.
- Dewatering in relation to Rule R159 of the GWRC NRP is potentially a permitted activity, owing to the available dilution in Wellington Harbour, considered to be the receiving environment. Pretreatment to remove sediment from dewatered groundwater would likely be required.
- Except for discharges associated with dewatering, and excavation and management of fill, effects of the ground disturbance works on human health and the environment are qualitatively assessed as Negligible. The effects of discharges associated with dewatering, and excavation and management of fill, without mitigation, are qualitatively assessed as Negligible to Low.

The findings of the DSI are constrained by soil and groundwater data available from locations GM01 and GM02 only, which are adjacent to the GM site. Findings may therefore not be fully representative of the whole GM site. Further investigations following removal of the Gazley Mitsubishi offices, showroom and workshop may be required to provide additional information.

8.0 Closure

We trust this report meets your requirements.

Sincerely,

SLR Consulting New Zealand Limited



Michael King

Senior Project Consultant – Land Quality and Remediation



Kevin Tearney, CEnvP-SC

Technical Director – Land Quality and Remediation

9.0 Certifying Statement

This DSI has been prepared under the supervision of Kevin Tearney, a Certified Environmental Practitioner Site Contamination (CEnvP SC) # SC41072 and a Suitably Qualified and Experienced Practitioner (SQEP) as required under the NES-CS and as defined in the NES-CS Users' Guide 2012 (MfE 2012). It meets the requirements set out in the Ministry for the Environment (MfE) Contaminated Land Management Guideline (CLMG)



No 1. Reporting on contaminated sites in New Zealand (MfE 2021a), CLMG No 5 Site investigation and analysis of soils (MfE 2021b) and as referenced in the NES-CS.

Kevin William Tearney CEnvP SC #SC41072

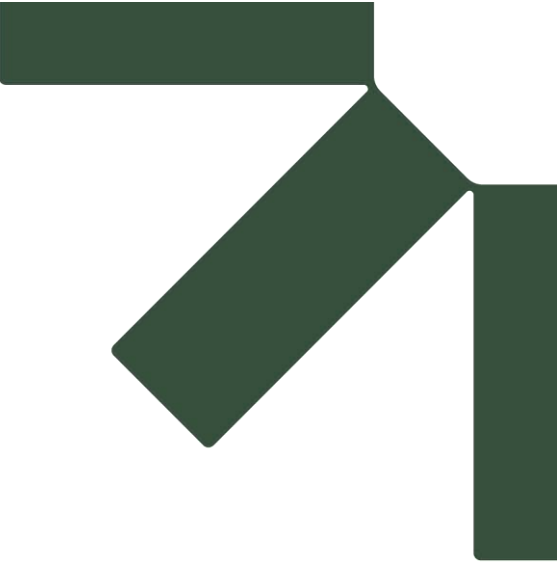


19 June 2026

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- URS (2003). Determination of Common Pollutant Background Soil Concentrations for the Wellington Region. Greater Wellington the Regional Council August 2003 48235-002/R001_WRC_REPORT.DOC.
- Water Services (Drinking Water Standards for New Zealand) Regulations 2022.





Attachment A Figures

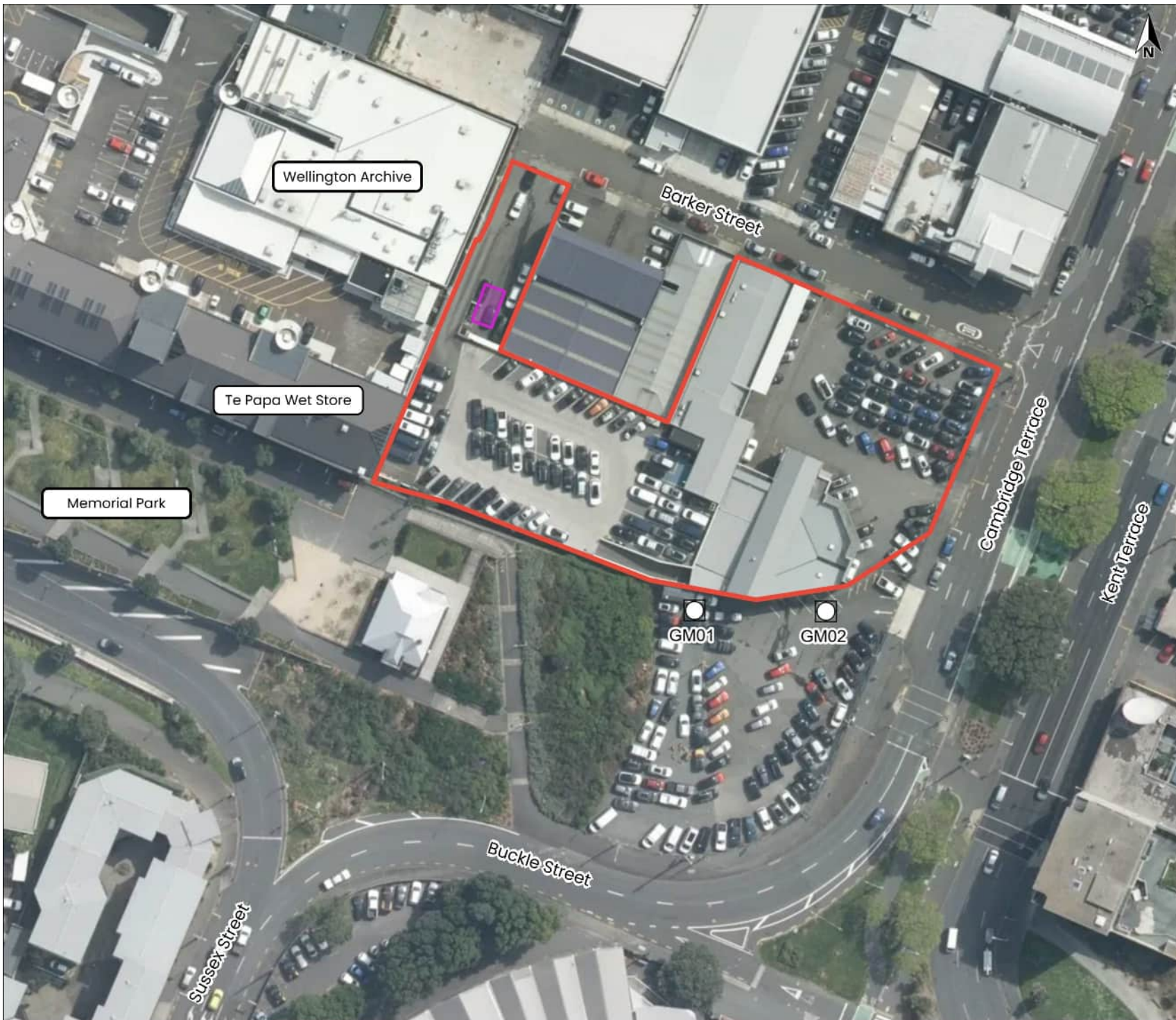
Gazley Mitsubishi - Detailed Site Investigation

State Highway 1 (SH1) Wellington Improvements Project

New Zealand Transport Agency Waka Kotahi

SLR Project No.: 820.030609.00001

19 June 2026



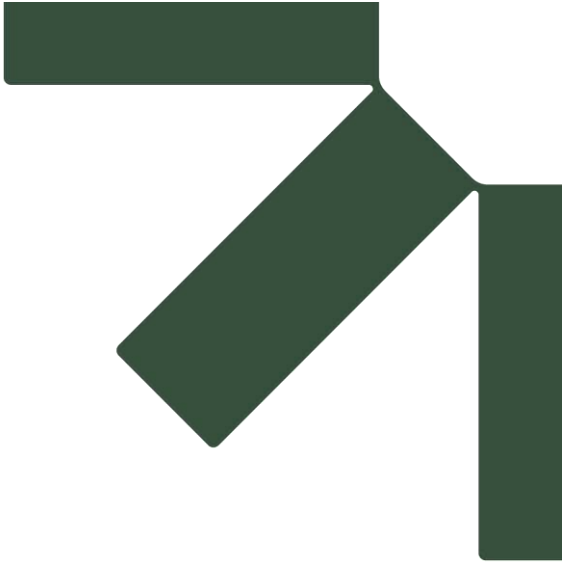
- Legend**
- Gazley Mitsubishi Property
 - Gazley Mitsubishi GM Bores
 - Approximate Former UST Location

0 10 m 20 m
LINZ CC BY 4.0 © Imagery Basemap contributors



Produced by **Datanest.earth**

Title: GM Site and Sample Location Plan		
Client: NZTA		Size: A4
Project: SH1 Wellington Improvements	Drawn: MK	Appendix: A1
Date: 12-03-2026	Checked: KT	
Proj No: 820.030609.00001	Scale: 1:1000	Version: Final



Attachment B Bore Logs

Gazley Mitsubishi - Detailed Site Investigation

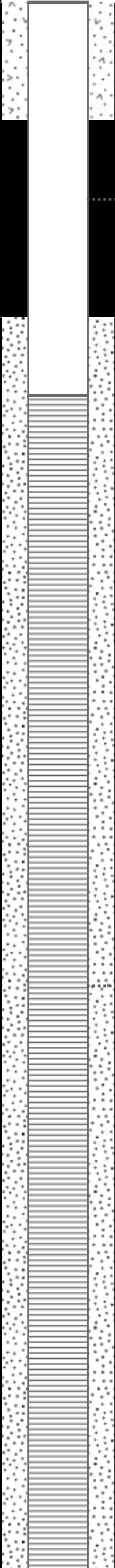
State Highway 1 (SH1) Wellington Improvements Project

New Zealand Transport Agency Waka Kotahi

SLR Project No.: 820.030609.00001

19 June 2026

Job Number : 820.030609.00001
Client : NZTA
Project : SH1 Wellington Improvements
Location : Gazley Mitsubishi
Loc Comment :

PID (ppm)	Sample	Moisture	Water Level	Depth (m)	Graphic Log	LITHOLOGICAL DESCRIPTION	COMMENTS / CONTAMINANT INDICATORS	Well Diagram	Elevation (m)				
				0.1		Sandy fine to coarse GRAVEL minor silt; dry; sand. [FILL]	No staining, no odour, no waste						
0.0	GM03SS		 0.95 m	0.2									
		0.3											
		0.4											
		0.5											
		0.6											
		0.7											
		0.8											
		0.9											
		1.0											
		1.1											
		1.2											
		1.3											
0.0	GM04SS			1.4		Clayey SILT minor fine sand; dry; low plasticity. [FILL]	Slight odour						
			1.5										
			1.6										
			1.7										
			1.8										
			1.9										
			2.0										
	GM11SS		2.1										
0.0			2.2							Clayey SILT; low plasticity.			
			2.3										
			2.4										
			2.5										
			2.6										
			2.7										
			2.8										
			2.9										
			3.0										
			3.1										
			3.2										
			3.3										
			3.4										
			3.5			No staining, no odour, no waste, Shell in sand matrix, trace organic material							
0.0	GM12SS, GM15SS		3.6										
			3.7										
			3.8										
			3.9										

UTM : 60G	Driller Rig : Sonic	Job Number : 820.030609.00001
Latitude : -41.29888	Driller Supplier : Griffiths	Client : NZTA
Longitude : 174.78037	Logged By : Michael King	Project : SH1 Wellington Improvements
Elevation : Not Surveyed	Reviewed By : Kevin Tearney	Location : Gazley Mitsubishi
Total Depth : 10 m	Date : 29/03/2026	Loc Comment :

PID (ppm)	Sample	Moisture	Water Level	Depth (m)	Graphic Log	LITHOLOGICAL DESCRIPTION	COMMENTS / CONTAMINANT INDICATORS	Well Diagram	Elevation (m)
0.0				4.1		Cobbly SILT; low plasticity; cobbles.			
				4.2		Clayey SILT; low plasticity.			
				4.3					
				4.4					
0.0	GM13SS			4.5					
				4.6					
				4.7					
				4.8					
				4.9					
0.0				5.0					
				5.1					
				5.2					
				5.3					
				5.4					
				5.5					
				5.6					
				5.7					
				5.8					
				5.9					
				6.0					
				6.1					
				6.2					
0.0				6.3		Gravelly fine SAND			
				6.4					
				6.5					
0.0	GM14SS			6.6		Gravelly SILT; low plasticity			
				6.7					
				6.8					
0.0				6.9					
				7.0					
				7.1					
				7.2					
				7.3					
				7.4					
				7.5		SILT; low plasticity.			
				7.6					
				7.7					
				7.8					
0.0				7.9					

0.80-7.00, Filter Pack
1.00-7.00, 50mm PVC Slotted

7.00-10.00, Bentonite

UTM : 60G	Driller Rig : Sonic	Job Number : 820.030609.00001
Latitude : -41.29888	Driller Supplier : Griffiths	Client : NZTA
Longitude : 174.78037	Logged By : Michael King	Project : SH1 Wellington Improvements
Elevation : Not Surveyed	Reviewed By : Kevin Tearney	Location : Gazley Mitsubishi
Total Depth : 10 m	Date : 29/03/2026	Loc Comment :

PID (ppm)	Sample	Moisture	Water Level	Depth (m)	Graphic Log	LITHOLOGICAL DESCRIPTION	COMMENTS / CONTAMINANT INDICATORS	Well Diagram	Elevation (m)
	GM16SS					SILT; low plasticity. (continued)		7.00-10.00, Bentonite	
0.0				8.1		Gravelly SILT; low plasticity			
				8.2					
				8.3					
				8.4					
				8.5		Silty fine SAND			
				8.6					
				8.7					
				8.8					
				8.9					
		9.0			SILT; low plasticity.				
				9.1					
				9.2					
				9.3					
				9.4					
				9.5					
				9.6					
				9.7					
				9.8					
				9.9					
0.0						Silty fine SAND			
						GM01 Terminated at 10 m (Target depth was reached at 10 m.)			

UTM : 60G	Driller Rig : Sonic	Job Number : 820.030609.00001
Latitude : -41.29888	Driller Supplier : Griffiths	Client : NZTA
Longitude : 174.78067	Logged By : Michael King	Project : SH1 Wellington Improvements
Elevation : Not Surveyed	Reviewed By : Kevin Tearney	Location : Gazley Mitsubishi
Total Depth : 10 m	Date : 29/03/2026	Loc Comment :

PID (ppm)	Sample	Moisture	Water Level	Depth (m)	Graphic Log	LITHOLOGICAL DESCRIPTION	COMMENTS / CONTAMINANT INDICATORS	Well Diagram	Elevation (m)
				0.1		Sandy fine to coarse GRAVEL minor silt; dry; sand. [FILL]			
0.0	GM01SS			0.2					
				0.3					
				0.4					
				0.5					
				0.6					
				0.7					
0.0	GM02SS			0.8					
				0.9					
				1.0					
				1.1					
				1.2					
				1.3					
				1.4					
	GM05SS			1.5		Sandy fine to medium GRAVEL; . dry; sand. [FILL]	Red brick fragments, No staining, no odour		
0.0				1.6					
				1.7		SILT; grey to dark grey. low plasticity.			
				1.8					
0.0	GM06SS			1.9					
				2.0					
				2.1					
				2.2					
				2.3					
				2.4					
				2.5					
				2.6					
				2.7					
				2.8					
				2.9					
				3.0					
				3.1					
				3.2					
				3.3					
				3.4					
0.0	GM07SS			3.5					
				3.6					
				3.7					
				3.8					
				3.9					

UTM : 60G	Driller Rig : Sonic	Job Number : 820.030609.00001
Latitude : -41.29888	Driller Supplier : Griffiths	Client : NZTA
Longitude : 174.78067	Logged By : Michael King	Project : SH1 Wellington Improvements
Elevation : Not Surveyed	Reviewed By : Kevin Tearney	Location : Gazley Mitsubishi
Total Depth : 10 m	Date : 29/03/2026	Loc Comment :

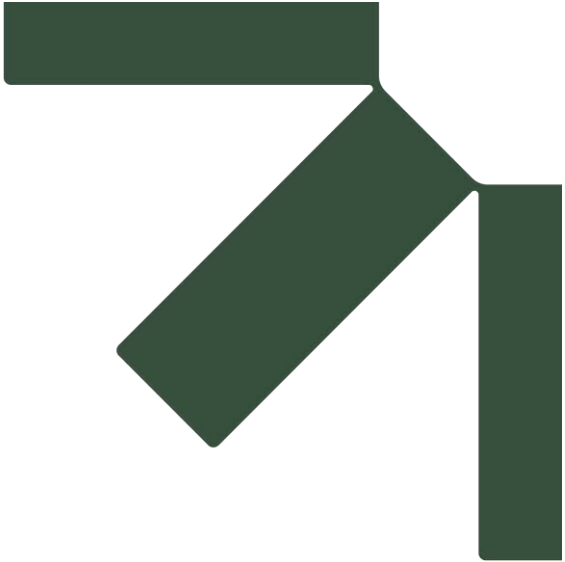
PID (ppm)	Sample	Moisture	Water Level	Depth (m)	Graphic Log	LITHOLOGICAL DESCRIPTION	COMMENTS / CONTAMINANT INDICATORS	Well Diagram	Elevation (m)
0.0	GM08SS			4.1		SILT; grey to dark grey. low plasticity. (continued)			
				4.2					
				4.3					
				4.4					
				4.5					
				4.6					
				4.7					
				4.8					
				4.9					
				5.0		fine SAND minor silt;			
				5.1					
				5.2					
				5.3					
				5.4					
				5.5		Clayey SILT; dark brown. low plasticity.			
				5.6					
				5.7		fine to medium SAND trace silt and trace gravel			
				5.8					
				5.9		Gravelly SILT; low plasticity;			
				6.0		Gravelly fine SAND;			
				6.1					
				6.2					
				6.3					
				6.4					
				6.5		Gravelly SILT; low plasticity;			
				6.6					
				6.7					
				6.8					
				6.9					
				7.0		Gravelly SILT; low plasticity			
				7.1					
				7.2					
				7.3					
				7.4					
				7.5		Sandy SILT; low plasticity			
				7.6					
				7.7					
				7.8					
				7.9					

0.80-7.00, Filter Pack
1.00-7.00, 50mm PVC Slotted

7.00-10.00, Bentonite

UTM : 60G	Driller Rig : Sonic	Job Number : 820.030609.00001
Latitude : -41.29888	Driller Supplier : Griffiths	Client : NZTA
Longitude : 174.78067	Logged By : Michael King	Project : SH1 Wellington Improvements
Elevation : Not Surveyed	Reviewed By : Kevin Tearney	Location : Gazley Mitsubishi
Total Depth : 10 m	Date : 29/03/2026	Loc Comment :

PID (ppm)	Sample	Moisture	Water Level	Depth (m)	Graphic Log	LITHOLOGICAL DESCRIPTION	COMMENTS / CONTAMINANT INDICATORS	Well Diagram	Elevation (m)
				8.1		Sandy SILT; low plasticity; sand. (continued)			
				8.2					
				8.3					
				8.4					
				8.5					
				8.6					
				8.7					
				8.8					
				8.9		Gravelly fine SAND;			
				9.0					
				9.1					
				9.2					
				9.3		Clayey SILT; high plasticity.			
				9.4					
				9.5					
				9.6					
				9.7					
				9.8					
				9.9					
0.0 0.0	GM17SS								
						GM02 Terminated at 10 m (Target depth was reached at 10 m.)			



Attachment C Photolog

Gazley Mitsubishi - Detailed Site Investigation

State Highway 1 (SH1) Wellington Improvements Project

New Zealand Transport Agency Waka Kotahi

SLR Project No.: 820.030609.00001

19 June 2026

SH1 Wellington Improvements – Gazley Mitsubishi DSI Photolog

Photo 1:GM02 Gravel Fill encountered during hydrovac 29-03-2026



Photo 2:GM02 Brick Fragment at base of Fill 29-03-2026



Photo 3:GM02 Soil Core 1.95 m to 4.5 m bgl 29-03-2026



Photo 4:GM02 Soil Core 4.5 m to 7.5 m bgl 29-03-2026



Photo 5:GM02 Core 7.5 m to 10 m bgl 29-03-2026



Photo 6:GM01 Core 1.5 m to 4.5 m bgl 29-03-2026



Photo 7: GM01 Core 4.5 m to 7.2 m bgl 29-03-2026

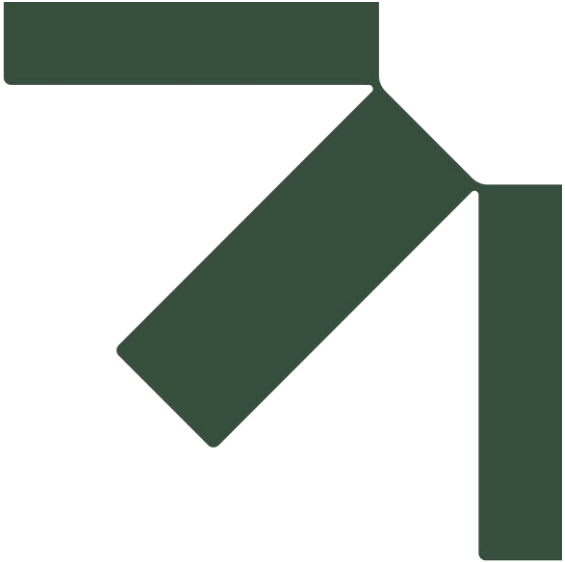


Photo 8: GM01 Core 7.2 m to 9.4 m bgl 29-03-2026



Photo 9: GM01 Core 9.4 m to 10 m bgl 29-03-2026





Attachment D T & T Borehole Logs

Gazley Mitsubishi - Detailed Site Investigation

State Highway 1 (SH1) Wellington Improvements Project

New Zealand Transport Agency Waka Kotahi

SLR Project No.: 820.030609.00001

19 June 2026

BOREHOLE LOG

DRAFT
Coordinates and RL subject to
change pending survey of hole
location

BOREHOLE No.: **GM01**

Hole Location: 75 - 78 Cambridge Terrace, Te
Aro, Wellington (Gazely Mitsubishi)

SHEET: 1 OF 2

PROJECT: SH1WI - Hydrogeological Investigations										LOCATION: Wellington City										JOB No.: 1097483.0004																	
CO-ORDINATES: 5426534 mN (NZTM2000) 1749057 mE					DRILL TYPE: XLonic					HOLE STARTED: 29/03/2026																											
R.L.: 6.50m					METHOD: Sonic core drilling					HOLE FINISHED: 29/03/2026																											
DATUM: NZVD2016					DRILL FLUID:					DRILLED BY: Griffiths Drilling																											
										LOGGED BY: ELGR					CHECKED: NCP																						
GEOLOGICAL		METHOD OBSERVATIONS										ENGINEERING DESCRIPTION																									
GEOLOGICAL UNIT/ ADDITIONAL OBSERVATIONS		INSTALLATION		FLUID LOSS (%)		WATER		CASING		CORE RECOVERY (%)		METHOD		TESTS		RL (m)		DEPTH (m)		GRAPHIC LOG		WEATHERING CLASSIFICATION		MOISTURE CLASSIFICATION		CONSISTENCY / DENSITY CLASSIFICATION		ESTIMATED SOIL SHEAR STRENGTH (Su, kPa)		ESTIMATED ROCK COMPRESSIVE STRENGTH (Su, MPa)		DEFECT SPACING (mm)		DESCRIPTION			
Fill										0		HVAC						6		N/L														0.00m: NOT LOGGED - Hydrovac excavation. Materials logged downhole. Depths and descriptions of log below are approximate.			
										89		SPT		0.00// 0.00/0.00 N=0				1		N/L														0.00 - 1.50m: Sandy fine to coarse GRAVEL; dark bluish grey. Tightly packed, wet. Gravel, sub-rounded to angular, slightly to moderately weathered, moderately strong to strong, greywacke; sand, fine to coarse.			
										100		SNC						5		N/L														0.10 - 1.50m: Brownish grey with thin brown layers (up to 20mm thick).			
										100		SNC						2		N/L														1.50m: Gravelly SILT, some clay; brownish grey. Firm, wet, high plasticity; gravel, fine to medium, sub-angular to angular, slightly weathered, strong, greywacke.			
										100		SNC						4		N/L														1.55m: SILT, some clay, trace gravel; brownish grey. Firm, wet, high plasticity; gravel, fine to medium, sub-angular to angular, slightly weathered, strong, greywacke. Slightly odorous.			
										100		SNC						3		N/L														1.60m: Clayey SILT; bluish grey. Firm, moist, high plasticity.			
										100		SNC						3		N/L														1.65 - 1.67m: Trace gravel.			
										100		SNC						3		N/L														1.85 - 1.95m: Brown.			
										100		SNC						3		N/L														2.15 - 2.22m: Brown.			
										100		SNC						3		N/L														2.22m: SILT, some clay, trace organics and trace sand; brownish grey. Firm, moist, high plasticity; sand, fine; organics, wood fragments (partially decomposed).			
										100		SNC						3		N/L														2.25 - 2.27m: Trace gravel.			
										100		SNC						3		N/L														2.38m: SILT, minor sand; light brown mottled brown. Firm, moist, non-plastic; sand, fine.			
										100		SNC						3		N/L														2.60 - 3.00m: Bluish grey.			
										100		SNC						3		N/L														3.00 - 3.10m: Trace clay; bluish grey.			
										100		SNC						3		N/L														3.00m: SILT, minor clay and minor sand; greyish brown. Firm, moist, low plasticity; sand, fine.			
										100		SNC						3		N/L														3.45m: SILT, trace organics and trace clay and trace sand; dark greyish brown. Firm, moist, low plasticity; organics, shell fragments.			
										100		SNC						4		N/L														3.95m: Silty COBBLES, trace clay; dark grey. "Medium dense", moist. Cobbles, sub-angular, slightly weathered, strong, greywacke.			
										100		SNC						4		N/L														4.15m: SILT, minor sand; light greyish brown. Firm, wet, non-plastic; sand, fine.			
										100		SNC						2		N/L														4.40m: SILT, minor clay, trace sand; brown. Stiff, moist, low plasticity; sand, fine.			
										100		SNC						2		N/L														4.15 - 4.20m: Trace gravel; mottled greenish brown and light bluish grey; gravel, fine.			
										100		SNC						2		N/L														4.45 - 4.50m: Bluish grey.			
										100		SNC						5		N/L														4.95m: SILT, some clay, trace organics; bluish grey. Very stiff, moist, high plasticity; organics, wood fragments (partially decomposed).			
										100		SNC						1		N/L														5.20 - 5.25m: Fine GRAVEL; dark bluish grey. Gravel, sub-rounded to sub-angular, slightly weathered, strong, greywacke.			
										100		SNC								N/L														5.40m: SILT, trace clay; bluish grey. Very stiff, moist, low plasticity.			
										100		SNC								N/L														5.65m: SILT, trace sand; light greyish brown. Firm, moist, non-plastic; sand, fine.			
COMMENTS: 1) Logged to NZGS 2005 Standards; 2) Raw SPT values shown, energy transfer ratio of 83.5%; 3) SPT Liner compatible, no liner used; 4) GWL measured on the completion of drilling; 5) On completion of drilling standpipe piezometer installed. Screen depth 1 to 7 mbgl																																					
Hole Depth 10m																																					



SHEET: 2 OF 2

TTTNZ_20240924 - BoreLog (Piezo) - 17/06/2026 3:38:08 pm - Produced with Core-GS by GeRoc



Tonkin+Taylor

DRAFT
Coordinates and RL subject to
change pending survey of hole
location

CORE PHOTOS

BOREHOLE No.: **GM01**

Hole Location: 75 - 78 Cambridge Terrace, Te
Aro, Wellington (Gazely Mitsubishi)

SHEET: 1 OF 2

PROJECT: SH1WI - Hydrogeological Investigations		LOCATION: Wellington City	JOB No.: 1097483.0004
CO-ORDINATES: (NZTM2000)	5426534 mN 1749057 mE	DRILL TYPE: XLSonic	HOLE STARTED: 29/03/2026
R.L.:	6.50m	METHOD: Sonic core drilling	HOLE FINISHED: 29/03/2026
DATUM:	NZVD2016	DRILL FLUID:	DRILLED BY: Griffiths Drilling
			LOGGED BY: ELGR CHECKED: NCP



0.00-4.50m



4.50-7.20m



Tonkin+Taylor

DRAFT

Coordinates and RL subject to
change pending survey of hole
location

CORE PHOTOS

BOREHOLE No.: **GM01**

Hole Location: 75 - 78 Cambridge Terrace, Te
Aro, Wellington (Gazely Mitsubishi)

SHEET: 2 OF 2

PROJECT: SH1WI - Hydrogeological Investigations		LOCATION: Wellington City	JOB No.: 1097483.0004
CO-ORDINATES: (NZTM2000)	5426534 mN 1749057 mE	DRILL TYPE: XLSonic	HOLE STARTED: 29/03/2026
R.L.:	6.50m	METHOD: Sonic core drilling	HOLE FINISHED: 29/03/2026
DATUM:	NZVD2016	DRILL FLUID:	DRILLED BY: Griffiths Drilling
		LOGGED BY: ELGR	CHECKED: NCP



7.20-9.40m



9.40-10.00m

PROJECT: SH1WI - Hydrogeological Investigations										LOCATION: Wellington City										JOB No.: 1097483.0004																			
CO-ORDINATES: 5426533 mN (NZTM2000) 1749077 mE										DRILL TYPE: XL Sonic										HOLE STARTED: 29/03/2026																			
R.L.: 7m										METHOD: Sonic core drilling										HOLE FINISHED: 29/03/2026																			
DATUM: NZVD2016										DRILL FLUID:										DRILLED BY: Griffiths Drilling																			
																				LOGGED BY: ELGR										CHECKED: NCP									
GEOLOGICAL		METHOD OBSERVATIONS										ENGINEERING DESCRIPTION																											
GEOLOGICAL UNIT/ ADDITIONAL OBSERVATIONS		INSTALLATION		FLUID LOSS (%)		WATER		CASING		CORE RECOVERY (%)		METHOD		TESTS		RL (m)		DEPTH (m)		GRAPHIC LOG		WEATHERING CLASSIFICATION		MOISTURE CLASSIFICATION		CONSISTENCY / DENSITY CLASSIFICATION		ESTIMATED SOIL SHEAR STRENGTH (c_u , kPa)		ESTIMATED ROCK COMPRESSIVE STRENGTH (c_{br} , MPa)		DEFECT SPACING (mm)		DESCRIPTION					
										0		HVAC																											
Fill																																		0.00m: NOT LOGGED - Hydrovac excavation. Material logged downhole. Log and descriptions below are approximate.					
																																		0.00 - 0.10m: Concrete. 0.10 - 0.25m: Fine to coarse GRAVEL, minor sand; grey. Tightly packed, wet. Gravel, sub-rounded to angular, unweathered to slightly weathered, strong to very strong, greywacke. 0.25 - 0.75m: Sandy fine to coarse GRAVEL; brownish grey. Tightly packed, wet. Gravel, sub-rounded to angular, slightly to moderately weathered, moderately strong to strong, greywacke. 0.75 - 1.50m: Silty fine to coarse GRAVEL, some sand, minor cobbles; brown mottled grey. Tightly packed, wet. Gravel, sub- rounded to angular, slightly to moderately weathered, moderately strong to strong, greywacke; sand, fine to coarse; cobbles, sub-angular, slightly weathered, strong, greywacke.					
																																		1.40 - 1.50m: Red bricks up to 400mm long (approximately).					
																																		1.50m: Fine to medium GRAVEL; red and brown. Loose, moist. Gravel, sub-rounded, moderately weathered, moderately strong, greywacke and brick fragments.					
																																		1.55m: Gravelly SAND, minor clay; grey. Loose, saturated, low plasticity; gravel, fine to medium, sub- rounded to angular, slightly weathered, strong.					
																																		1.58m: SILT, minor clay; dark grey. Firm, moist, low plasticity. Slightly odorous.					
																																		1.63m: NO RECOVERY.					
																																		1.95m: Clayey SILT; bluish grey mottled dark brown. Stiff, moist, high plasticity.					
																																		2.25m: SILT, minor clay and minor sand; bluish grey. Firm, moist, low plasticity; sand, fine.					
																																		2.40 - 2.55m: Greenish grey.					
																																		2.55m: SILT, some clay; greenish brown mottled brown. Firm, moist, high plasticity.					
																																		2.95 - 3.00m: Brown.					
																																		3.00m: SILT, some sand; greenish grey. Firm to stiff, moist, non-plastic; sand, fine.					
																																		3.07 - 3.45m: Brownish grey.					
																																		3.45m: SILT, trace organics and trace clay; dark grey. Firm, wet, low plasticity; organics, shell fragments.					
																																		4.25m: SILT, minor clay, trace organics; greyish brown. Firm, moist, low plasticity; organics, shell fragments and wood fragments (partially decomposed).					
																																		4.50m: SILT, some clay, trace organics; brown. Firm, moist, non-dilatant; organics, shell fragments and wood fragments (partially decomposing).					
																																		4.78m: Sandy SILT, trace organics; brownish grey. Firm to stiff, moist, non-plastic; sand, fine; organics, shell fragments.					
																																		4.95m: Fine SAND, minor silt, trace organics; dark greyish brown. "Loose", wet; organics, wood fragments (decomposed).					
																																		5.45m: SILT, some clay, minor gravel, trace organics; dark brown mottled yellowish brown. Stiff, moist, high plasticity; gravel, fine to medium, sub-angular to angular, slightly weathered, strong, greywacke; organics, wood fragments (decomposed).					
																																		5.70m: Fine to medium SAND, trace silt and trace					
COMMENTS: 1) Logged to NZGS 2005 Standards; 2) Raw SPT values shown, energy transfer ratio of 83.5%; 3) SPT Liner compatible, no liner used; 4) GWL measured on the completion of drilling; 5) On completion of drilling standpipe piezometer installed. Screen depth 1 to 7 mbgl																																							
Hole Depth 10m																																							

COMMENTS: 1) Logged to NZGS 2005 Standards; 2) Raw SPT values shown, energy transfer ratio of 83.5%; 3) SPT Liner compatible, no liner used; 4) GWL measured on the completion of drilling; 5) On completion of drilling standpipe piezometer installed. Screen depth 1 to 7 m bgl

Hole Depth
10m

Scale 1:30

Rev.: A

PROJECT: SH1WI - Hydrogeological Investigations										LOCATION: Wellington City										JOB No.: 1097483.0004																			
CO-ORDINATES: 5426533 mN (NZTM2000) 1749077 mE										DRILL TYPE: XL Sonic										HOLE STARTED: 29/03/2026																			
R.L.: 7m										METHOD: Sonic core drilling										HOLE FINISHED: 29/03/2026																			
DATUM: NZVD2016										DRILL FLUID:										DRILLED BY: Griffiths Drilling																			
																				LOGGED BY: ELGR										CHECKED: NCP									
GEOLOGICAL	METHOD OBSERVATIONS														ENGINEERING DESCRIPTION																								
GEOLOGICAL UNIT/ ADDITIONAL OBSERVATIONS	INSTALLATION	FLUID LOSS (%)	WATER	CASING	CORE RECOVERY (%)	METHOD	TESTS	RL (m)	DEPTH (m)	GRAPHIC LOG	WEATHERING CLASSIFICATION	MOISTURE CLASSIFICATION	CONSISTENCY / DENSITY CLASSIFICATION	ESTIMATED SOIL SHEAR STRENGTH (kPa)	ESTIMATED ROCK COMPRESSIVE STRENGTH (kPa)	DEFECT SPACING (mm)	DESCRIPTION																						
6.95-7.50m: Core partially baked <																																							

COMMENTS: 1) Logged to NZGS 2005 Standards; 2) Raw SPT values shown, energy transfer ratio of 83.5%; 3) SPT Liner compatible, no liner used; 4) GWL measured on the completion of drilling; 5) On completion of drilling standpipe piezometer installed. Screen depth 1 to 7 mbgl

Hole Depth
10m

Scale 1:30

Rev.: A

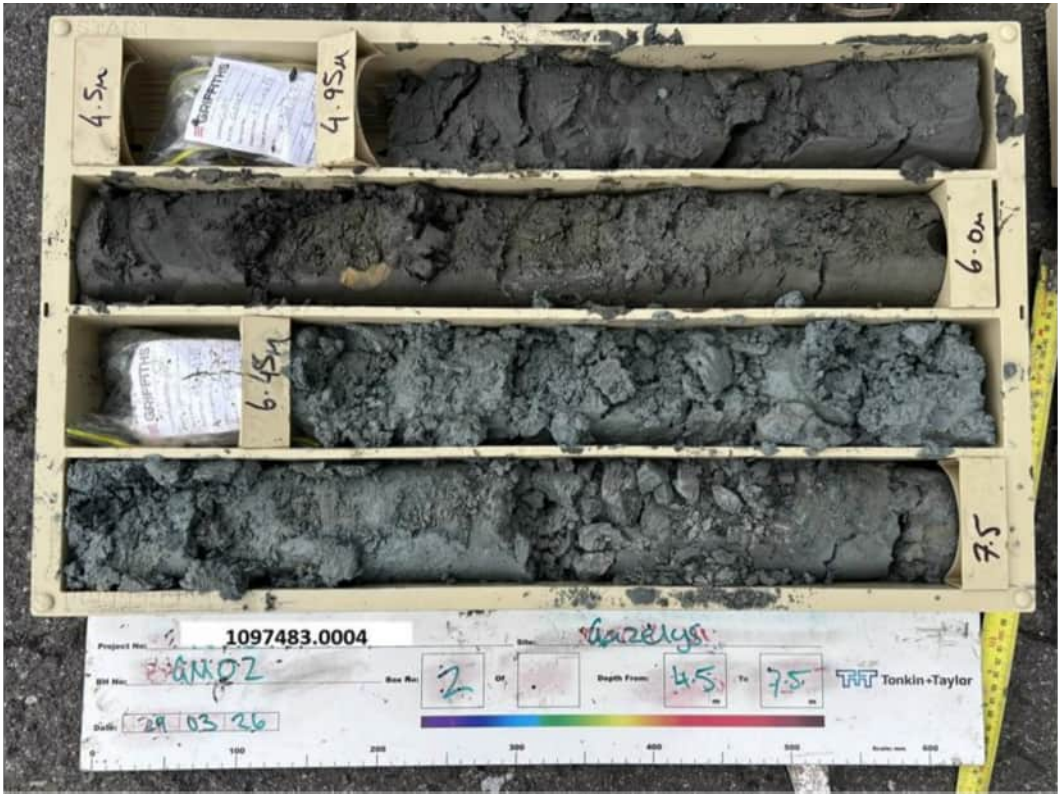
CORE PHOTOS

BOREHOLE No.: GM02
Hole Location: 75-78 Cambridge Terrace, Te Aro, Wellington (Gazely Mitsubishi)
SHEET: 1 OF 2

PROJECT: SH1WI - Hydrogeological Investigations	LOCATION: Wellington City	JOB No.: 1097483.0004
CO-ORDINATES: 5426533 mN (NZTM2000) 1749077 mE	DRILL TYPE: XL Sonic	HOLE STARTED: 29/03/2026
R.L.: 7m	METHOD: Sonic core drilling	HOLE FINISHED: 29/03/2026
DATUM: NZVD2016	DRILL FLUID:	DRILLED BY: Griffiths Drilling
		LOGGED BY: ELGR CHECKED: NCP



0.00-4.50m



4.50-7.50m

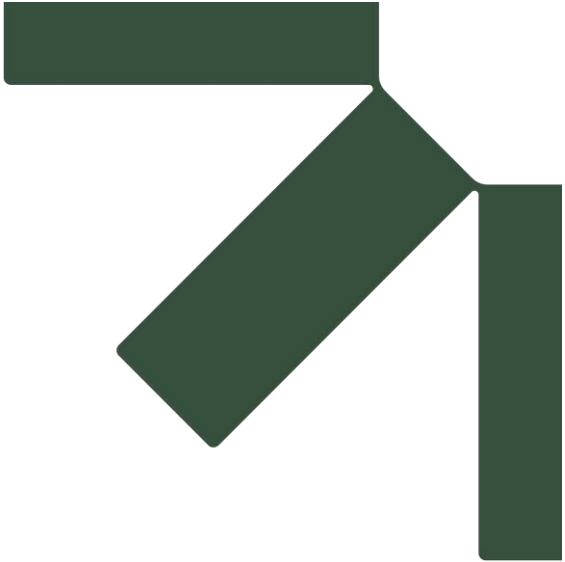
CORE PHOTOS

BOREHOLE No.: GM02
Hole Location: 75-78 Cambridge Terrace, Te Aro, Wellington (Gazely Mitsubishi)
SHEET: 2 OF 2

PROJECT: SH1WI - Hydrogeological Investigations	LOCATION: Wellington City	JOB No.: 1097483.0004
CO-ORDINATES: 5426533 mN (NZTM2000) 1749077 mE	DRILL TYPE: XL Sonic	HOLE STARTED: 29/03/2026
R.L.: 7m	METHOD: Sonic core drilling	HOLE FINISHED: 29/03/2026
DATUM: NZVD2016	DRILL FLUID:	DRILLED BY: Griffiths Drilling
		LOGGED BY: ELGR CHECKED: NCP



7.50-10.00m



Attachment E Groundwater Monitoring Field Sheets

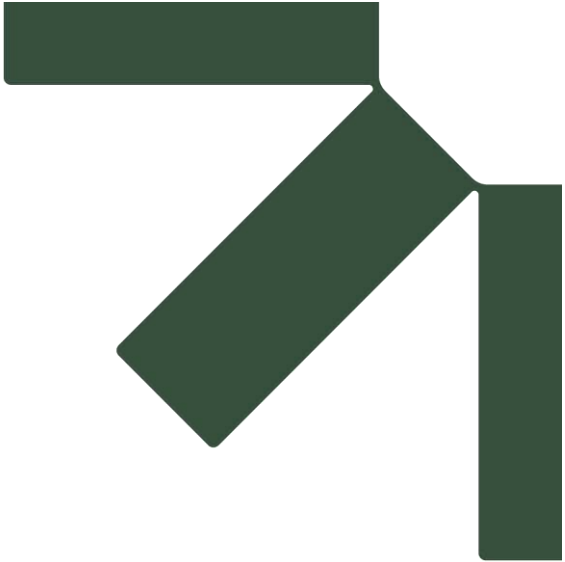
Gazley Mitsubishi - Detailed Site Investigation

State Highway 1 (SH1) Wellington Improvements Project

New Zealand Transport Agency Waka Kotahi

SLR Project No.: 820.030609.00001

19 June 2026



Attachment F Laboratory Analytical Reports

Gazley Mitsubishi - Detailed Site Investigation

State Highway 1 (SH1) Wellington Improvements Project

New Zealand Transport Agency Waka Kotahi

SLR Project No.: 820.030609.00001

19 June 2026

Quote No 97403

Primary Contact Michael King

Submitted By Michael King Kevin Tearney

Client Name SLR Consulting New Zealand Limited

Address

Postcode

Phone

Mobile

Email

Charge To SLR Consulting New Zealand Limited

Client Reference SH1 Wellington Improvements Gazley

Order No 820.030609.00001

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 ktearney@slrconsulting.com
☐ Other

ANALYSIS REQUEST

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

Job No: Date Recv: 01-Apr-26 06:26

416 0342

Received by: Gabriel Hazard



314 1603423

CHAIN OF CUSTODY RECORD

Sent to
Hill Laboratories

Date & Time:

Name:

☒ Tick if you require COC
to be emailed back

Signature:

Received at
Hill Laboratories
(Refer to Lab created Job
No above)

Date & Time:

Name:

Signature:

Condition

☐ Room Temp

☐ Chilled

☐ Frozen

Temp:

9.3

ADDITIONAL INFORMATION / KNOWN HAZARDS

Anion / Cation profile, dissolved metals trace level,
Total Nitrogen, Heavy metals, dissolved, trace
As, Cd, Cr, Cu, Ni, Pb, Zn, Heavy metals, totals, trace
As, Cd, Cr, Cu, Ni, Pb, Zn, Total Petroleum
Hydrocarbons in Water, Total Phosphorus

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

Requested Reporting Date:

No.	Sample Name	Sample Date	Sample Time	Sample Type	Tests Required (if not as per Quote)
1	G-Mφ1SS	29/3/26	815	Soil	Metals TPH + PAH + BTEX
2	G-Mφ2SS	29/3/26	820	Soil	" - " - "
3	G-Mφ3SS	29/3/26	850	Soil	" - " - "
4	G-Mφ4SS	29/3/26	855	Soil	" - " - "
5	G-Mφ5SS	29/3/26	925	Soil	" - " - "
6	G-Mφ6SS	29/3/26	940	Soil	" - " - "
7	G-Mφ7SS	29/3/26	945	Soil	" - " - "
8	G-Mφ8SS	29/3/26	1000	Soil	Metals TPH
9	G-Mφ9SS	29/3/26	1020	Soil	Metals TPH
10	G-Mφ10SS	29/3/26	1025	Soil	Metals TPH
11	G-Mφ11SS	29/3/26	1230	Soil	Metals TPH + BTEX + PAH
12	G-Mφ12SS	29/3/26	1240	Soil	Metals TPH + BTEX + PAH

Continued on next page

No.	Sample Name	Sample Date	Sample Time	Sample Type	Tests Required (if not as per Quote)
13	GM 13SS	29/3/26	1245	Soil	Metals & TPH
14	GM 14SS	29/3/26	1250	Soil	Metals TPH
15	GM 15SS D	29/3/26	1305	Soil	Metals TPH
16	GM 16SS	29/3/26	1310	Soil	Metals
17	GM 17SS	29/3/26	1310	Soil	Metals
18					
19					
20					
21					
22					
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40					

Job Information Summary

Page 1 of 2

Client:	SLR Consulting New Zealand Limited	Lab No:	4160342
Contact:	Michael King	Date Registered:	01-Apr-2026 2:17 pm
	C/- SLR Consulting New Zealand Limited	Priority:	High
	PO Box 25356	Quote No:	97403
	Featherston Street	Order No:	820.030609.00001
	Wellington 6146	Client Reference:	SH1 Wellington Improvements Gazley
		Add. Client Ref:	
		Submitted By:	Kevin Tearney
		Charge To:	SLR Consulting New Zealand Limited
		Target Date:	08-Apr-2026 4:30 pm

Samples

No	Sample Name	Sample Type	Containers	Tests Requested
1	GM01SS 29-Mar-2026 8:15 am	Soil	GSoil300	Heavy Metals, Screen Level, Polycyclic Aromatic Hydrocarbons Screening in Soil, TPH + BTEX profile, Soil
2	GM02SS 29-Mar-2026 8:20 am	Soil	GSoil300	Heavy Metals, Screen Level, Polycyclic Aromatic Hydrocarbons Screening in Soil, TPH + BTEX profile, Soil
3	GM03SS 29-Mar-2026 8:50 am	Soil	GSoil300	Heavy Metals, Screen Level, Polycyclic Aromatic Hydrocarbons Screening in Soil, TPH + BTEX profile, Soil
4	GM04SS 29-Mar-2026 8:55 am	Soil	GSoil300	Heavy Metals, Screen Level, Polycyclic Aromatic Hydrocarbons Screening in Soil, TPH + BTEX profile, Soil
5	GM05SS 29-Mar-2026 9:25 am	Soil	GSoil300	Heavy Metals, Screen Level, Polycyclic Aromatic Hydrocarbons Screening in Soil, TPH + BTEX profile, Soil
6	GM06SS 29-Mar-2026 9:40 am	Soil	GSoil300	Heavy Metals, Screen Level, Polycyclic Aromatic Hydrocarbons Screening in Soil, TPH + BTEX profile, Soil
7	GM07SS 29-Mar-2026 9:45 am	Soil	GSoil300	Heavy Metals, Screen Level, Polycyclic Aromatic Hydrocarbons Screening in Soil, TPH + BTEX profile, Soil
8	GM08SS 29-Mar-2026 10:00 am	Soil	GSoil300	Heavy Metals, Screen Level, Total Petroleum Hydrocarbons in Soil
9	GM09SS 29-Mar-2026 10:20 am	Soil	GSoil300	Heavy Metals, Screen Level, Total Petroleum Hydrocarbons in Soil
10	GM10SS 29-Mar-2026 10:25 am	Soil	GSoil300	Heavy Metals, Screen Level, Total Petroleum Hydrocarbons in Soil
11	GM11SS 29-Mar-2026 12:30 pm	Soil	GSoil300	Heavy Metals, Screen Level, Polycyclic Aromatic Hydrocarbons Screening in Soil, TPH + BTEX profile, Soil
12	GM12SS 29-Mar-2026 12:40 pm	Soil	GSoil300	Heavy Metals, Screen Level, Polycyclic Aromatic Hydrocarbons Screening in Soil, TPH + BTEX profile, Soil
13	GM13SS 29-Mar-2026 12:45 pm	Soil	GSoil300	Heavy Metals, Screen Level, TPH + BTEX profile, Soil
14	GM14SS 29-Mar-2026 12:50 pm	Soil	GSoil300	Heavy Metals, Screen Level, TPH + BTEX profile, Soil
15	GM15SS 29-Mar-2026 1:05 pm	Soil	GSoil300	Heavy Metals, Screen Level, TPH + BTEX profile, Soil
16	GM16SS 29-Mar-2026 1:10 pm	Soil	GSoil300	Heavy Metals, Screen Level
17	GM17SS 29-Mar-2026 1:10 pm	Soil	GSoil300	Heavy Metals, Screen Level

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).	-	1-17
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	1-7, 11-12
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	1-15
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	1-7, 11-12
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	1-7, 11-12
Heavy Metals, Screen Level	Dried sample, < 2mm fraction. Nitric/Hydrochloric acid digestion. Complies with NES Regulations. ICP-MS screen level, interference removal by Kinetic Energy Discrimination if required. US EPA 200.2 (modified), APHA 3125 B: Online Edition.	0.10 - 4 mg/kg dry wt	1-17
BTEX in Soil by Headspace GC-MS	Solvent extraction, Headspace GC-MS analysis. Tested on as received sample. In-house based on US EPA 8260 and 5021.	0.05 - 0.10 mg/kg dry wt	1-7, 11-12
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	1-7, 11-12
Total Petroleum Hydrocarbons in Soil			
Client Chromatogram for TPH by FID	Small peaks associated with QC compounds may be visible in chromatograms with low TPH concentrations. QC peaks are as follows: one peak in the C12 - 14 band, the C21 - 25 band and the C30 - 36 band. All QC peaks are corrected for in the reported TPH concentrations.	-	1-7, 11-15
C7 - C9	Solvent extraction, GC-FID analysis. Tested on as received sample. In-house based on US EPA 8015.	20 mg/kg dry wt	1-15
C10 - C14	Solvent extraction, GC-FID analysis. Tested on as received sample. In-house based on US EPA 8015.	20 mg/kg dry wt	1-15
C15 - C36	Solvent extraction, GC-FID analysis. Tested on as received sample. In-house based on US EPA 8015.	40 mg/kg dry wt	1-15
Total hydrocarbons (C7 - C36)	Calculation: Sum of carbon bands from C7 to C36. In-house based on US EPA 8015.	70 mg/kg dry wt	1-15

Certificate of Analysis

Page 1 of 6

Client:	SLR Consulting New Zealand Limited	Lab No:	4160342	SPV3
Contact:	Michael King	Date Received:	01-Apr-2026	
	C/- SLR Consulting New Zealand Limited	Date Reported:	15-Apr-2026	
	PO Box 25356	Quote No:	97403	
	Featherston Street	Order No:	820.030609.00001	
	Wellington 6146	Client Reference:	SH1 Wellington Improvements Gazley	
		Submitted By:	Kevin Tearney	

Sample Type: Soil

Sample Name:	GM01SS 29-Mar-2026 8:15 am	GM02SS 29-Mar-2026 8:20 am	GM03SS 29-Mar-2026 8:50 am	GM04SS 29-Mar-2026 8:55 am	GM05SS 29-Mar-2026 9:25 am
Lab Number:	4160342.1	4160342.2	4160342.3	4160342.4	4160342.5

Individual Tests

Dry Matter	g/100g as rcvd	91	86	75	70	71
Heavy Metals, Screen Level						
Total Recoverable Arsenic	mg/kg dry wt	7	4	10	2	6
Total Recoverable Cadmium	mg/kg dry wt	< 0.10	< 0.10	0.54	0.14	0.12
Total Recoverable Chromium	mg/kg dry wt	16	14	20	16	14
Total Recoverable Copper	mg/kg dry wt	16	12	34	7	21
Total Recoverable Lead	mg/kg dry wt	20	45	163	18.4	135
Total Recoverable Nickel	mg/kg dry wt	15	9	12	9	9
Total Recoverable Zinc	mg/kg dry wt	76	75	220	170	130

BTEX in Soil by Headspace GC-MS

Benzene	mg/kg dry wt	< 0.05	< 0.05	< 0.06	< 0.07	< 0.07
Toluene	mg/kg dry wt	< 0.05	< 0.05	< 0.06	< 0.07	< 0.07
Ethylbenzene	mg/kg dry wt	< 0.05	< 0.05	< 0.06	< 0.07	< 0.07
m&p-Xylene	mg/kg dry wt	< 0.10	< 0.10	< 0.12	< 0.13	< 0.13
o-Xylene	mg/kg dry wt	< 0.05	< 0.05	< 0.06	< 0.07	< 0.07

Polycyclic Aromatic Hydrocarbons Screening in Soil*

Total of Reported PAHs in Soil	mg/kg dry wt	< 0.3	25	45	< 0.4	3.9
1-Methylnaphthalene	mg/kg dry wt	< 0.011	0.063	0.084	< 0.015	< 0.014
2-Methylnaphthalene	mg/kg dry wt	< 0.011	0.036	0.061	< 0.015	< 0.014
Acenaphthylene	mg/kg dry wt	< 0.011	0.33	0.39	< 0.015	0.021
Acenaphthene	mg/kg dry wt	< 0.011	0.075	0.043	< 0.015	< 0.014
Anthracene	mg/kg dry wt	< 0.011	0.53	0.49	< 0.015	0.040
Benzo[a]anthracene	mg/kg dry wt	< 0.011	1.79	2.9	< 0.015	0.28
Benzo[a]pyrene (BAP)	mg/kg dry wt	< 0.011	1.79	3.5	< 0.015	0.40
Benzo[a]pyrene Potency Equivalency Factor (PEF) NES*	mg/kg dry wt	< 0.026	2.6	5.3	< 0.035	0.57
Benzo[a]pyrene Toxic Equivalence (TEF)*	mg/kg dry wt	< 0.026	2.6	5.2	< 0.035	0.56
Benzo[b]fluoranthene + Benzo[j] fluoranthene	mg/kg dry wt	< 0.011	2.0	4.5	< 0.015	0.46
Benzo[e]pyrene	mg/kg dry wt	< 0.011	0.94	2.1	< 0.015	0.23
Benzo[g,h,i]perylene	mg/kg dry wt	< 0.011	0.96	2.2	< 0.015	0.27
Benzo[k]fluoranthene	mg/kg dry wt	< 0.011	0.79	1.71	< 0.015	0.147
Chrysene	mg/kg dry wt	< 0.011	1.75	3.0	< 0.015	0.27
Dibenzo[a,h]anthracene	mg/kg dry wt	< 0.011	0.21	0.47	< 0.015	0.050
Fluoranthene	mg/kg dry wt	< 0.011	4.2	7.5	< 0.015	0.50
Fluorene	mg/kg dry wt	< 0.011	0.31	0.20	< 0.015	0.015
Indeno(1,2,3-c,d)pyrene	mg/kg dry wt	< 0.011	1.09	2.6	< 0.015	0.27



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:		GM01SS 29-Mar-2026 8:15 am	GM02SS 29-Mar-2026 8:20 am	GM03SS 29-Mar-2026 8:50 am	GM04SS 29-Mar-2026 8:55 am	GM05SS 29-Mar-2026 9:25 am
Lab Number:		4160342.1	4160342.2	4160342.3	4160342.4	4160342.5
Polycyclic Aromatic Hydrocarbons Screening in Soil*						
Naphthalene	mg/kg dry wt	< 0.06	< 0.06	0.08	< 0.08	< 0.07
Perylene	mg/kg dry wt	< 0.011	0.40	0.66	0.018	0.128
Phenanthrene	mg/kg dry wt	< 0.011	2.9	5.3	< 0.015	0.176
Pyrene	mg/kg dry wt	< 0.011	4.3	7.6	< 0.015	0.59
Total Petroleum Hydrocarbons in Soil						
C7 - C9	mg/kg dry wt	< 20	< 20	< 20	< 20	< 20
C10 - C14	mg/kg dry wt	< 20	< 20	< 20	< 20	< 20
C15 - C36	mg/kg dry wt	< 40	161	310	< 40	78
Total hydrocarbons (C7 - C36)	mg/kg dry wt	< 80	165	310	< 80	80
Sample Name:		GM06SS 29-Mar-2026 9:40 am	GM07SS 29-Mar-2026 9:45 am	GM08SS 29-Mar-2026 10:00 am	GM09SS 29-Mar-2026 10:20 am	GM10SS 29-Mar-2026 10:25 am
Lab Number:		4160342.6	4160342.7	4160342.8	4160342.9	4160342.10
Individual Tests						
Dry Matter	g/100g as rcvd	77	77	70	78	87
Heavy Metals, Screen Level						
Total Recoverable Arsenic	mg/kg dry wt	3	2	8	12	5
Total Recoverable Cadmium	mg/kg dry wt	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Total Recoverable Chromium	mg/kg dry wt	15	8	12	7	18
Total Recoverable Copper	mg/kg dry wt	6	4	6	3	11
Total Recoverable Lead	mg/kg dry wt	19.4	7.7	9.0	5.2	16.3
Total Recoverable Nickel	mg/kg dry wt	9	5	7	5	12
Total Recoverable Zinc	mg/kg dry wt	55	27	36	22	57
BTEX in Soil by Headspace GC-MS						
Benzene	mg/kg dry wt	< 0.06	< 0.06	-	-	-
Toluene	mg/kg dry wt	< 0.06	< 0.06	-	-	-
Ethylbenzene	mg/kg dry wt	< 0.06	< 0.06	-	-	-
m&p-Xylene	mg/kg dry wt	< 0.11	< 0.11	-	-	-
o-Xylene	mg/kg dry wt	< 0.06	< 0.06	-	-	-
Polycyclic Aromatic Hydrocarbons Screening in Soil*						
Total of Reported PAHs in Soil	mg/kg dry wt	< 0.3	< 0.4	-	-	-
1-Methylnaphthalene	mg/kg dry wt	< 0.013	< 0.013	-	-	-
2-Methylnaphthalene	mg/kg dry wt	< 0.013	< 0.013	-	-	-
Acenaphthylene	mg/kg dry wt	< 0.013	< 0.013	-	-	-
Acenaphthene	mg/kg dry wt	< 0.013	< 0.013	-	-	-
Anthracene	mg/kg dry wt	< 0.013	< 0.013	-	-	-
Benzo[a]anthracene	mg/kg dry wt	< 0.013	< 0.013	-	-	-
Benzo[a]pyrene (BAP)	mg/kg dry wt	< 0.013	< 0.013	-	-	-
Benzo[a]pyrene Potency Equivalency Factor (PEF) NES*	mg/kg dry wt	< 0.031	< 0.032	-	-	-
Benzo[a]pyrene Toxic Equivalence (TEF)*	mg/kg dry wt	< 0.031	< 0.031	-	-	-
Benzo[b]fluoranthene + Benzo[j] fluoranthene	mg/kg dry wt	< 0.013	< 0.013	-	-	-
Benzo[e]pyrene	mg/kg dry wt	< 0.013	< 0.013	-	-	-
Benzo[g,h,i]perylene	mg/kg dry wt	< 0.013	< 0.013	-	-	-
Benzo[k]fluoranthene	mg/kg dry wt	< 0.013	< 0.013	-	-	-
Chrysene	mg/kg dry wt	< 0.013	< 0.013	-	-	-
Dibenzo[a,h]anthracene	mg/kg dry wt	< 0.013	< 0.013	-	-	-
Fluoranthene	mg/kg dry wt	< 0.013	< 0.013	-	-	-
Fluorene	mg/kg dry wt	< 0.013	< 0.013	-	-	-
Indeno(1,2,3-c,d)pyrene	mg/kg dry wt	< 0.013	< 0.013	-	-	-
Naphthalene	mg/kg dry wt	< 0.07	< 0.07	-	-	-
Perylene	mg/kg dry wt	0.25	< 0.013	-	-	-
Phenanthrene	mg/kg dry wt	< 0.013	< 0.013	-	-	-

Sample Type: Soil						
Sample Name:		GM06SS 29-Mar-2026 9:40 am	GM07SS 29-Mar-2026 9:45 am	GM08SS 29-Mar-2026 10:00 am	GM09SS 29-Mar-2026 10:20 am	GM10SS 29-Mar-2026 10:25 am
Lab Number:		4160342.6	4160342.7	4160342.8	4160342.9	4160342.10
Polycyclic Aromatic Hydrocarbons Screening in Soil*						
Pyrene	mg/kg dry wt	< 0.013	< 0.013	-	-	-
Total Petroleum Hydrocarbons in Soil						
C7 - C9	mg/kg dry wt	< 20	< 20	< 20	< 20	< 20
C10 - C14	mg/kg dry wt	< 20	< 20	< 20	< 20	< 20
C15 - C36	mg/kg dry wt	< 40	< 40	< 40	< 40	< 40
Total hydrocarbons (C7 - C36)	mg/kg dry wt	< 80	< 80	< 80	< 80	< 80
Sample Name:		GM11SS 29-Mar-2026 12:30 pm	GM12SS 29-Mar-2026 12:40 pm	GM13SS 29-Mar-2026 12:45 pm	GM14SS 29-Mar-2026 12:50 pm	GM15SS 29-Mar-2026 1:05 pm
Lab Number:		4160342.11	4160342.12	4160342.13	4160342.14	4160342.15
Individual Tests						
Dry Matter	g/100g as rcvd	78	75	84	86	74
Heavy Metals, Screen Level						
Total Recoverable Arsenic	mg/kg dry wt	2	5	< 2	< 2	5
Total Recoverable Cadmium	mg/kg dry wt	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Total Recoverable Chromium	mg/kg dry wt	13	12	14	20	11
Total Recoverable Copper	mg/kg dry wt	8	6	4	14	6
Total Recoverable Lead	mg/kg dry wt	15.1	10.8	12.2	15.6	9.1
Total Recoverable Nickel	mg/kg dry wt	7	7	7	12	7
Total Recoverable Zinc	mg/kg dry wt	50	39	31	57	35
BTEX in Soil by Headspace GC-MS						
Benzene	mg/kg dry wt	< 0.06	< 0.06	-	-	-
Toluene	mg/kg dry wt	< 0.06	< 0.06	-	-	-
Ethylbenzene	mg/kg dry wt	< 0.06	< 0.06	-	-	-
m&p-Xylene	mg/kg dry wt	< 0.11	< 0.12	-	-	-
o-Xylene	mg/kg dry wt	< 0.06	< 0.06	-	-	-
Polycyclic Aromatic Hydrocarbons Screening in Soil*						
Total of Reported PAHs in Soil	mg/kg dry wt	< 0.3	< 0.4	-	-	-
1-Methylnaphthalene	mg/kg dry wt	< 0.013	< 0.014	-	-	-
2-Methylnaphthalene	mg/kg dry wt	< 0.013	< 0.014	-	-	-
Acenaphthylene	mg/kg dry wt	< 0.013	< 0.014	-	-	-
Acenaphthene	mg/kg dry wt	< 0.013	< 0.014	-	-	-
Anthracene	mg/kg dry wt	< 0.013	< 0.014	-	-	-
Benzo[a]anthracene	mg/kg dry wt	< 0.013	< 0.014	-	-	-
Benzo[a]pyrene (BAP)	mg/kg dry wt	< 0.013	< 0.014	-	-	-
Benzo[a]pyrene Potency Equivalency Factor (PEF) NES*	mg/kg dry wt	< 0.030	< 0.032	-	-	-
Benzo[a]pyrene Toxic Equivalence (TEF)*	mg/kg dry wt	< 0.030	< 0.032	-	-	-
Benzo[b]fluoranthene + Benzo[j] fluoranthene	mg/kg dry wt	< 0.013	< 0.014	-	-	-
Benzo[e]pyrene	mg/kg dry wt	< 0.013	< 0.014	-	-	-
Benzo[g,h,i]perylene	mg/kg dry wt	< 0.013	< 0.014	-	-	-
Benzo[k]fluoranthene	mg/kg dry wt	< 0.013	< 0.014	-	-	-
Chrysene	mg/kg dry wt	< 0.013	< 0.014	-	-	-
Dibenzo[a,h]anthracene	mg/kg dry wt	< 0.013	< 0.014	-	-	-
Fluoranthene	mg/kg dry wt	< 0.013	< 0.014	-	-	-
Fluorene	mg/kg dry wt	< 0.013	< 0.014	-	-	-
Indeno(1,2,3-c,d)pyrene	mg/kg dry wt	< 0.013	< 0.014	-	-	-
Naphthalene	mg/kg dry wt	< 0.07	< 0.07	-	-	-
Perylene	mg/kg dry wt	0.093	0.025	-	-	-
Phenanthrene	mg/kg dry wt	< 0.013	< 0.014	-	-	-
Pyrene	mg/kg dry wt	< 0.013	< 0.014	-	-	-

Sample Type: Soil

Sample Name:		GM11SS 29-Mar-2026 12:30 pm	GM12SS 29-Mar-2026 12:40 pm	GM13SS 29-Mar-2026 12:45 pm	GM14SS 29-Mar-2026 12:50 pm	GM15SS 29-Mar-2026 1:05 pm
Lab Number:		4160342.11	4160342.12	4160342.13	4160342.14	4160342.15
Total Petroleum Hydrocarbons in Soil						
C7 - C9	mg/kg dry wt	< 20	< 20	< 20	< 20	< 20
C10 - C14	mg/kg dry wt	< 20	< 20	< 20	< 20	< 20
C15 - C36	mg/kg dry wt	< 40	< 40	< 40	< 40	< 40
Total hydrocarbons (C7 - C36)	mg/kg dry wt	< 80	< 80	< 80	< 80	< 80

Sample Name:		GM16SS 29-Mar-2026 1:10 pm	GM17SS 29-Mar-2026 1:10 pm
Lab Number:		4160342.16	4160342.17

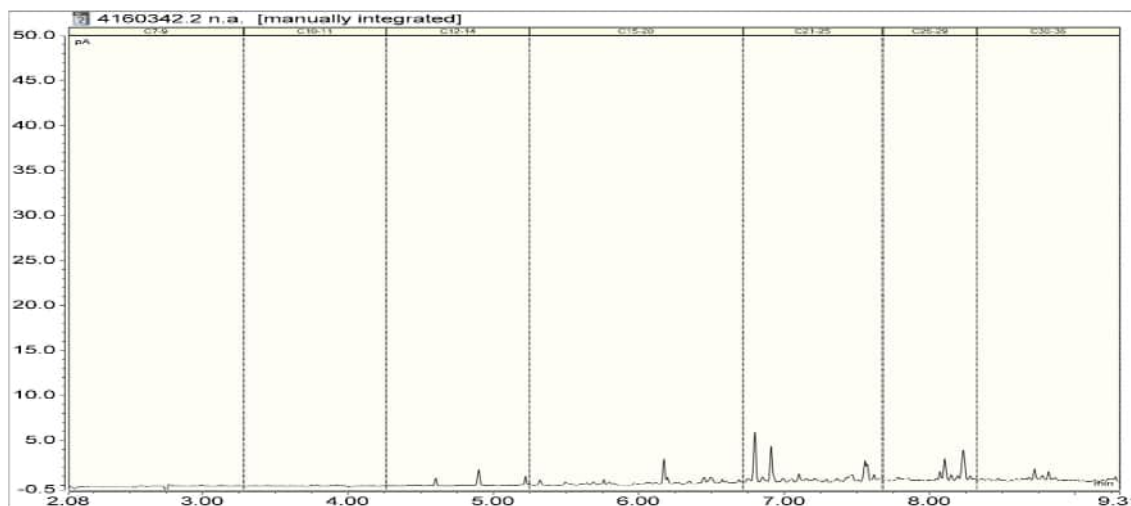
Heavy Metals, Screen Level

Total Recoverable Arsenic	mg/kg dry wt	< 2	3
Total Recoverable Cadmium	mg/kg dry wt	< 0.10	< 0.10
Total Recoverable Chromium	mg/kg dry wt	12	17
Total Recoverable Copper	mg/kg dry wt	9	14
Total Recoverable Lead	mg/kg dry wt	14.9	22
Total Recoverable Nickel	mg/kg dry wt	9	15
Total Recoverable Zinc	mg/kg dry wt	47	60

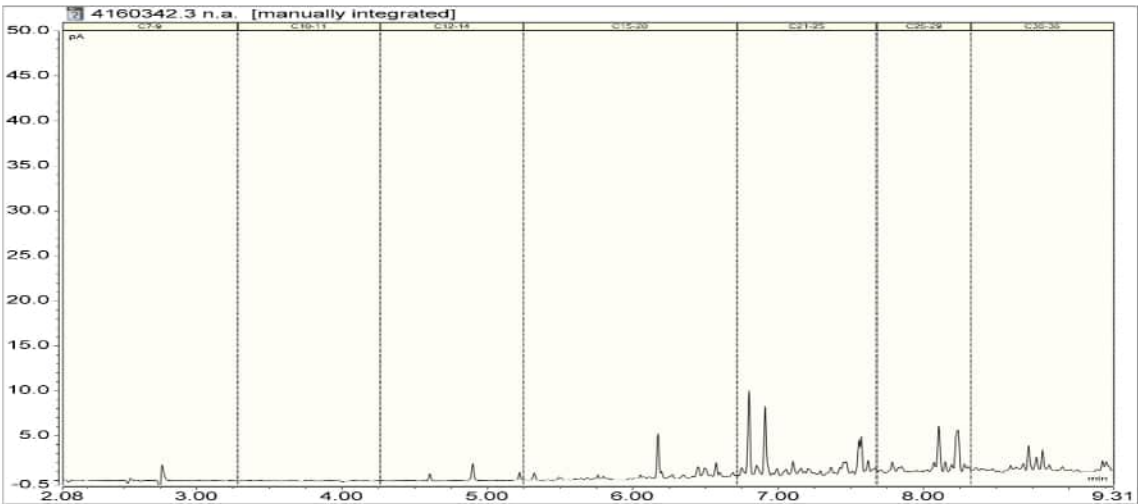
4160342.2

GM02SS 29-Mar-2026 8:20 am

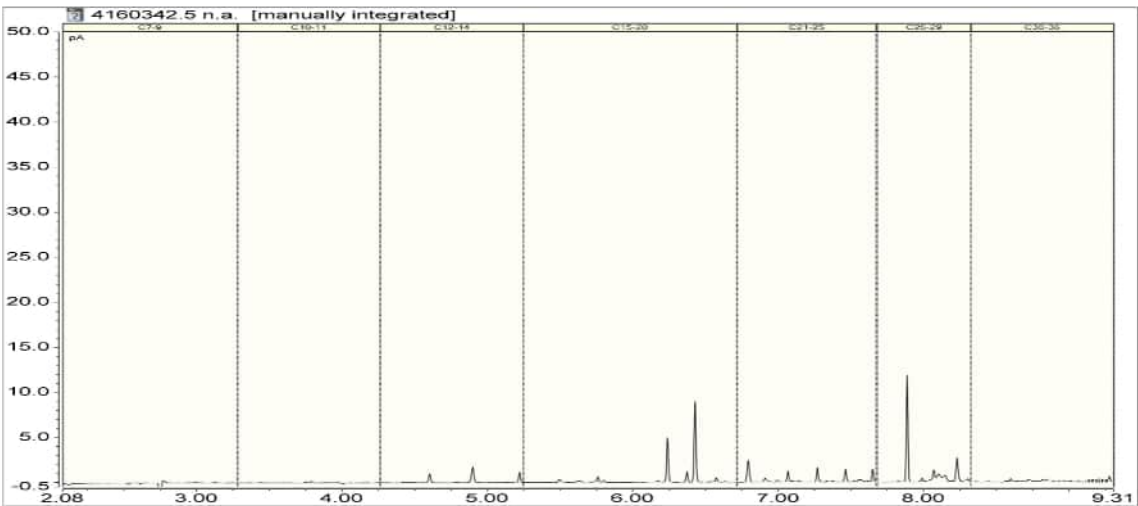
Client Chromatogram for TPH by FID



4160342.3
GM03SS 29-Mar-2026 8:50 am
Client Chromatogram for TPH by FID



4160342.5
GM05SS 29-Mar-2026 9:25 am
Client Chromatogram for TPH by FID



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).	-	1-17
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	1-7, 11-12
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	1-15

Sample Type: Soil			
Test	Method Description	Default Detection Limit	Sample No
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	1-7, 11-12
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	1-7, 11-12
Heavy Metals, Screen Level	Dried sample, < 2mm fraction. Nitric/Hydrochloric acid digestion. Complies with NES Regulations. ICP-MS screen level, interference removal by Kinetic Energy Discrimination if required. US EPA 200.2 (modified), APHA 3125 B: Online Edition.	0.10 - 4 mg/kg dry wt	1-17
BTEX in Soil by Headspace GC-MS	Solvent extraction, Headspace GC-MS analysis. Tested on as received sample. In-house based on US EPA 8260 and 5021.	0.05 - 0.10 mg/kg dry wt	1-7, 11-12
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	1-7, 11-12
Total Petroleum Hydrocarbons in Soil			
Client Chromatogram for TPH by FID	Small peaks associated with QC compounds may be visible in chromatograms with low TPH concentrations. QC peaks are as follows: one peak in the C12 - 14 band, the C21 - 25 band and the C30 - 36 band. All QC peaks are corrected for in the reported TPH concentrations.	-	2-3, 5
C7 - C9	Solvent extraction, GC-FID analysis. Tested on as received sample. In-house based on US EPA 8015.	20 mg/kg dry wt	1-15
C10 - C14	Solvent extraction, GC-FID analysis. Tested on as received sample. In-house based on US EPA 8015.	20 mg/kg dry wt	1-15
C15 - C36	Solvent extraction, GC-FID analysis. Tested on as received sample. In-house based on US EPA 8015.	40 mg/kg dry wt	1-15
Total hydrocarbons (C7 - C36)	Calculation: Sum of carbon bands from C7 to C36. In-house based on US EPA 8015.	70 mg/kg dry wt	1-15

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

Testing was completed between 01-Apr-2026 and 15-Apr-2026. 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.

Ara Heron BSc (Tech)
Client Services Manager - Environmental



ANALYSIS REQUEST

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

Job No: Date Recv: 21-Apr-26 10:52

418 6973

Received by: Tyler Ritchie



314 1869731

CHAIN OF CUSTODY RECORD

Sent to
Hill Labs

Date & Time: 20/4/26 18:00

Name: George Hampton

☒ Tick if you require COC
to be emailed back

Signature: [Signature]

Received at
Hill Labs

Date & Time:

Name:

Signature:

Condition

Temp:

☐ Room Temp ☐ Chilled ☐ Frozen

6-2°C

☐ Sample & Analysis details checked

Signature:

Priority ☐ Low ☐ Normal ☒ High

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

Requested Reporting Date:

Quote No 142106

Primary Contact Michael King 278124

Submitted By ~~Michael King~~ George Hampton 278124

Client Name SLR Consulting New Zealand Limited 192683

Address PO Box 25356

Featherston Street, Wellington 6146

Phone 04 390 4334 Mobile 027 349 1487

Email ghampton@slrconsulting.com

Charge To SLR Consulting New Zealand Limited 95478

Client Reference 820.030609.00001

Additional Client Ref

Order No 820.030609.00001

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

Lab to filter for dissolved metals

Quoted Sample Types

Blank (BQ), Ground Water (GW), Soil (Soil)

No.	Sample Name	Sample Date/Time	Sample Type	Tests Required
1	GM01	19/4/26 09:07	GW	Dissolved heavy metals, TPH + BTEX
2	GM02	19/4/26 09:52	GW	Dissolved heavy metals, TPH + BTEX
3	QC01	19/4/26 09:07	GW	Dissolved heavy metals, TPH + BTEX
4				
5				
6				
7				
8				
9				

Job Information Summary

Page 1 of 1

Client:	SLR Consulting New Zealand Limited	Lab No:	4186973
Contact:	Michael King	Date Registered:	22-Apr-2026 10:31 am
	C/- SLR Consulting New Zealand Limited	Priority:	High
	PO Box 25356	Quote No:	142106
	Featherston Street	Order No:	820.030609.00001
	Wellington 6146	Client Reference:	820.030609.00001
		Add. Client Ref:	
		Submitted By:	George Hampton
		Charge To:	SLR Consulting New Zealand Limited
		Target Date:	29-Apr-2026 4:30 pm

Samples

No	Sample Name	Sample Type	Containers	Tests Requested
1	GM01 19-Apr-2026 9:07 am	Ground Water	TPH250, UPte100, VOC40, VOC40	Heavy metals, dissolved, trace As,Cd,Cr,Cu,Ni,Pb,Zn, TPH + BTEX profile, Water
2	GM02 19-Apr-2026 9:52 am	Ground Water	TPH250, UPte100, VOC40, VOC40	Heavy metals, dissolved, trace As,Cd,Cr,Cu,Ni,Pb,Zn, TPH + BTEX profile, Water
3	QC01 19-Apr-2026 9:07 am	Ground Water	TPH250, UPte100, VOC40, VOC40	Heavy metals, dissolved, trace As,Cd,Cr,Cu,Ni,Pb,Zn, TPH + BTEX profile, Water

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: Aqueous

Test	Method Description	Default Detection Limit	Sample No
Individual Tests			
Filtration for dissolved metals analysis	Sample filtration through 0.45µm membrane filter and preservation with nitric acid. APHA 3030 B : Online Edition.	-	1-3
Heavy metals, dissolved, trace As,Cd,Cr,Cu,Ni,Pb,Zn	0.45µm Filtration, ICP-MS, trace level. APHA 3125 B : Online Edition.	0.00005 - 0.0010 g/m ³	1-3
BTEX in Water by Headspace GC-MS	Headspace GC-MS analysis. In-house based on US EPA 8260 and 5021.	0.0010 - 0.002 g/m ³	1-3
Total Petroleum Hydrocarbons in Water			
C7 - C9	Solvent extraction, GC-FID analysis. In-house based on US EPA 8015.	0.10 g/m ³	1-3
C10 - C14	Solvent extraction, GC-FID analysis. In-house based on US EPA 8015.	0.2 g/m ³	1-3
C15 - C36	Solvent extraction, GC-FID analysis. In-house based on US EPA 8015.	0.4 g/m ³	1-3
Total hydrocarbons (C7 - C36)	Calculation: Sum of carbon bands from C7 to C36. In-house based on US EPA 8015.	0.7 g/m ³	1-3

Certificate of Analysis

Page 1 of 3

Client:	SLR Consulting New Zealand Limited	Lab No:	4186973	SPV1
Contact:	Michael King	Date Received:	21-Apr-2026	
	C/- SLR Consulting New Zealand Limited	Date Reported:	28-Apr-2026	
	PO Box 25356	Quote No:	142106	
	Featherston Street	Order No:	820.030609.00001	
	Wellington 6146	Client Reference:	820.030609.00001	
		Submitted By:	George Hampton	

Sample Type: Aqueous

Sample Name:		GM01 19-Apr-2026 9:07 am	GM02 19-Apr-2026 9:52 am	QC01 19-Apr-2026 9:07 am
Lab Number:		4186973.1	4186973.2	4186973.3
Heavy metals, dissolved, trace As,Cd,Cr,Cu,Ni,Pb,Zn				
Dissolved Arsenic	g/m ³	< 0.0010	< 0.0010	< 0.0010
Dissolved Cadmium	g/m ³	< 0.00005	< 0.00005	< 0.00005
Dissolved Chromium	g/m ³	< 0.0005	< 0.0005	< 0.0005
Dissolved Copper	g/m ³	0.0023	0.0016	0.0024
Dissolved Lead	g/m ³	< 0.00010	< 0.00010	< 0.00010
Dissolved Nickel	g/m ³	0.0023	0.0017	0.0022
Dissolved Zinc	g/m ³	0.0125	0.0040	0.0112
Heavy metals, totals, trace As,Cd,Cr,Cu,Ni,Pb,Zn				
Total Arsenic	g/m ³	0.0061	0.0133	0.0060
Total Cadmium	g/m ³	0.000061	< 0.000053	0.000054
Total Chromium	g/m ³	0.0127	0.00128	0.0114
Total Copper	g/m ³	0.0164	0.0034	0.0162
Total Lead	g/m ³	0.0155	0.00134	0.0146
Total Nickel	g/m ³	0.0087	0.0024	0.0081
Total Zinc	g/m ³	0.073	0.0081	0.068
BTEX in Water by Headspace GC-MS				
Benzene	g/m ³	< 0.0010	< 0.0010	< 0.0010
Toluene	g/m ³	< 0.0010	< 0.0010	< 0.0010
Ethylbenzene	g/m ³	< 0.0010	< 0.0010	< 0.0010
m&p-Xylene	g/m ³	< 0.002	0.004	< 0.002
o-Xylene	g/m ³	< 0.0010	0.0037	< 0.0010
Total Petroleum Hydrocarbons in Water				
C7 - C9	g/m ³	< 0.10	< 0.10	< 0.10
C10 - C14	g/m ³	< 0.2	< 0.2	< 0.2
C15 - C36	g/m ³	0.6	< 0.4	0.8
Total hydrocarbons (C7 - C36)	g/m ³	< 0.7	< 0.7	0.8



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.

4186973.1

GM01 19-Apr-2026 9:07 am

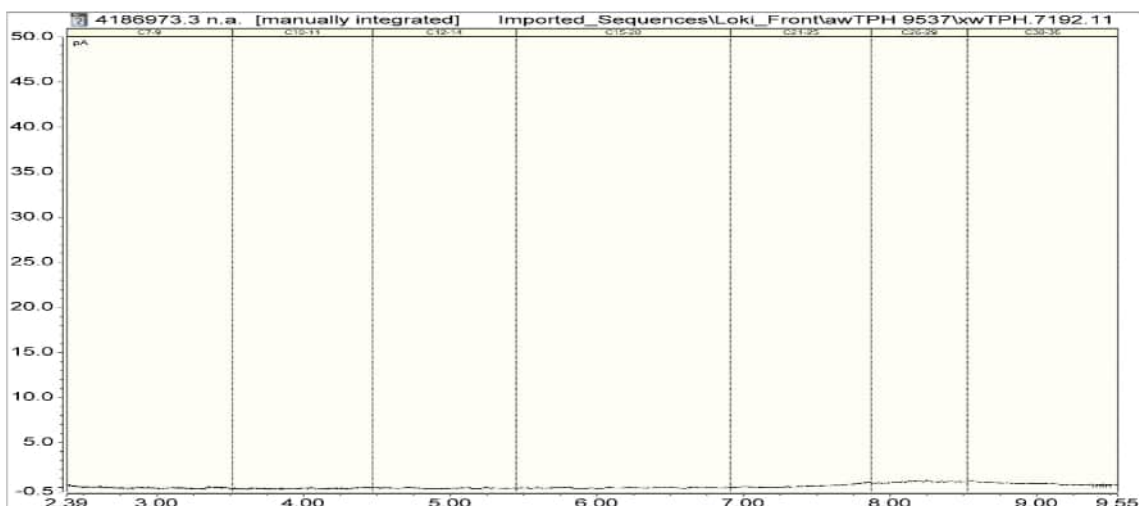
Client Chromatogram for TPH by FID



4186973.3

QC01 19-Apr-2026 9:07 am

Client Chromatogram for TPH by FID



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: Aqueous

Test	Method Description	Default Detection Limit	Sample No
Individual Tests			
Total Digestion	Nitric acid digestion. APHA 3030 E (modified) : Online Edition.	-	1-3
Filtration for dissolved metals analysis	Sample filtration through 0.45µm membrane filter and preservation with nitric acid. APHA 3030 B : Online Edition.	-	1-3
Heavy metals, dissolved, trace As,Cd,Cr,Cu,Ni,Pb,Zn	0.45µm Filtration, ICP-MS, trace level. APHA 3125 B : Online Edition.	0.00005 - 0.0010 g/m ³	1-3
Heavy metals, totals, trace As,Cd,Cr,Cu,Ni,Pb,Zn	Nitric acid digestion, ICP-MS, trace level. APHA 3125 B : Online Edition.	0.000053 - 0.0011 g/m ³	1-3
BTEX in Water by Headspace GC-MS	Headspace GC-MS analysis. In-house based on US EPA 8260 and 5021.	0.0010 - 0.002 g/m ³	1-3
Total Petroleum Hydrocarbons in Water			
C7 - C9	Solvent extraction, GC-FID analysis. In-house based on US EPA 8015.	0.10 g/m ³	1-3
C10 - C14	Solvent extraction, GC-FID analysis. In-house based on US EPA 8015.	0.2 g/m ³	1-3

Sample Type: Aqueous			
Test	Method Description	Default Detection Limit	Sample No
C15 - C36	Solvent extraction, GC-FID analysis. In-house based on US EPA 8015.	0.4 g/m ³	1-3
Total hydrocarbons (C7 - C36)	Calculation: Sum of carbon bands from C7 to C36. In-house based on US EPA 8015.	0.7 g/m ³	1-3

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

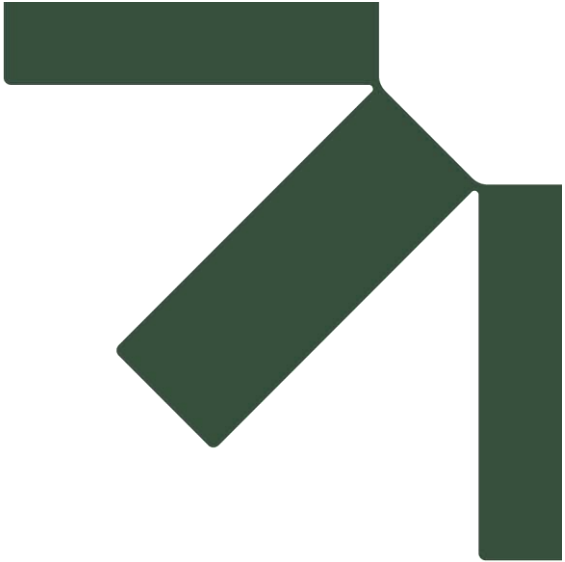
Testing was completed between 22-Apr-2026 and 28-Apr-2026. For completion dates of individual analyses please contact the laboratory.

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
Client Services Manager - Environmental



Attachment G Tabulated Results Summary

Gazley Mitsubishi - Detailed Site Investigation

State Highway 1 (SH1) Wellington Improvements Project

New Zealand Transport Agency Waka Kotahi

SLR Project No.: 820.030609.00001

19 June 2026

Table G1 - Soil Tabulated Results Summary

		GM01								GM02								Human Health Commercial / Industrial	Background: Wellington, Main Soil Type 2 (Greywacke) ⁴
Location / Sample Name		GM03SS	GM04SS	GM11SS	GM12SS	GM13SS	GM14SS	GM16SS	GM01SS	GM02SS	GM05SS	GM06SS	GM07SS	GM08SS	GM09SS	GM10SS	GM17SS		
Depth (m bgl)		0.3-0.5	1.5	2-2.1	3.5-3.6	4.5-4.6	6.6-6.7	10	0.3-0.5	0.8-1.0	1.6	2-2.2	3.4	4.5	5.5	6.4	10		
Sampled Date		29/04/2026	29/04/2026	29/04/2026	29/04/2026	29/04/2026	29/04/2026	29/04/2026	29/04/2026	29/04/2026	29/04/2026	29/04/2026	29/04/2026	29/04/2026	29/04/2026	29/04/2026	29/04/2026		
Lab Sample No.		4160342.3	4160342.4	4160342.11	4160342.12	4160342.13	4160342.14	4160342.16	4160342.1	4160342.2	4160342.5	4160342.6	4160342.7	4160342.8	4160342.9	4160342.1	4160342.17		
Soil Type		Fill	Fill						Fill	Fill	Fill								
Heavy Metals	Units																		
Arsenic	mg/kg	10	2	2	5	< 2	< 2	< 2	7	4	6	3	2	8	12	5	3	70 ¹	2 - 7
Cadmium	mg/kg	0.54	0.14	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	0.12	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	1,300 ¹	< 0.1 - 0.1
Chromium (III+VI)	mg/kg	20	16	13	12	14	20	12	16	14	14	15	8	12	7	18	17	6,300 ¹	6 - 16
Copper	mg/kg	34	7	8	6	4	14	9	16	12	21	6	4	6	3	11	14	10,000 ¹	3 - 25
Lead	mg/kg	163	18	15.1	10.8	12.2	15.6	14.9	20.0	45.0	135.0	19.4	7.7	9.0	5.2	16.3	22.0	3,300 ¹	5.9 - 78.6
Nickel	mg/kg	12	9	7	7	7	12	9	15	9	9	9	5	7	5	12	15	6,000 ²	4 - 13
Zinc	mg/kg	220	170	50	39	31	57	47	76	75	130	55	27	36	22	57	60	400,000 ²	24 - 105
BTEx																			
Benzene	mg/kg	< 0.06	< 0.07	< 0.06	< 0.06	-	-	-	< 0.05	< 0.05	< 0.07	< 0.06	< 0.06	-	-	-	-	3.0 ^{m.3}	
Toluene	mg/kg	< 0.06	< 0.07	< 0.06	< 0.06	-	-	-	< 0.05	< 0.05	< 0.07	< 0.06	< 0.06	-	-	-	-	(94) ^{m.3}	
Ethylbenzene	mg/kg	< 0.06	< 0.07	< 0.06	< 0.06	-	-	-	< 0.05	< 0.05	< 0.07	< 0.06	< 0.06	-	-	-	-	(180) ^{x.3}	
m&p-Xylene	mg/kg	< 0.12	< 0.13	< 0.11	< 0.12	-	-	-	< 0.10	< 0.10	< 0.13	< 0.11	< 0.11	-	-	-	-	-	
o-Xylene	mg/kg	< 0.06	< 0.07	< 0.06	< 0.06	-	-	-	< 0.05	< 0.05	< 0.07	< 0.06	< 0.06	-	-	-	-	-	
Total Xylenes	mg/kg	< 0.18	< 0.2	< 0.17	< 0.18	-	-	-	< 0.15	< 0.15	< 0.2	< 0.17	< 0.17	-	-	-	-	(150) ^{m.3}	
PAH																			
Total of Reported PAHs in Soil	mg/kg	45	< 0.4	< 0.3	< 0.4	-	-	-	< 0.3	25	3.9	< 0.3	< 0.4	-	-	-	-	-	
1-Methylnaphthalene	mg/kg	0.084	< 0.015	< 0.013	< 0.014	-	-	-	< 0.011	0.063	< 0.014	< 0.013	< 0.013	-	-	-	-	-	
2-Methylnaphthalene	mg/kg	0.061	< 0.015	< 0.013	< 0.014	-	-	-	< 0.011	0.036	< 0.014	< 0.013	< 0.013	-	-	-	-	-	
Acenaphthylene	mg/kg	0.39	< 0.015	< 0.013	< 0.014	-	-	-	< 0.011	0.33	0.021	< 0.013	< 0.013	-	-	-	-	-	
Acenaphthene	mg/kg	0.043	< 0.015	< 0.013	< 0.014	-	-	-	< 0.011	0.075	< 0.014	< 0.013	< 0.013	-	-	-	-	-	
Anthracene	mg/kg	0.49	< 0.015	< 0.013	< 0.014	-	-	-	< 0.011	0.53	0.04	< 0.013	< 0.013	-	-	-	-	-	< 0.002 - 0.05
Benzo[a]anthracene	mg/kg	2.9	< 0.015	< 0.013	< 0.014	-	-	-	< 0.011	1.79	0.28	< 0.013	< 0.013	-	-	-	-	-	
Benzo[a]pyrene (BAP)	mg/kg	3.5	< 0.015	< 0.013	< 0.014	-	-	-	< 0.011	1.79	0.4	< 0.013	< 0.013	-	-	-	-	-	
Benzo[a]pyrene Potency Equivalency Factor (PEF) NES	mg/kg	5.3	< 0.035	< 0.030	< 0.032	-	-	-	< 0.026	2.6	0.57	< 0.031	< 0.032	-	-	-	-	35 ¹	< 0.002 - 0.27
Benzo[a]pyrene Toxic Equivalence (TEF)	mg/kg	5.2	< 0.035	< 0.030	< 0.032	-	-	-	< 0.026	2.6	0.56	< 0.031	< 0.031	-	-	-	-	-	
Benzo[b]fluoranthene + Benzo[j]fluoranthene	mg/kg	4.5	< 0.015	< 0.013	< 0.014	-	-	-	< 0.011	2.0	0.46	< 0.013	< 0.013	-	-	-	-	-	
Benzo[e]pyrene	mg/kg	2.1	< 0.015	< 0.013	< 0.014	-	-	-	< 0.011	0.94	0.23	< 0.013	< 0.013	-	-	-	-	-	
Benzo[g,h,i]perylene	mg/kg	2.2	< 0.015	< 0.013	< 0.014	-	-	-	< 0.011	0.96	0.27	< 0.013	< 0.013	-	-	-	-	-	
Benzo[k]fluoranthene	mg/kg	1.71	< 0.015	< 0.013	< 0.014	-	-	-	< 0.011	0.79	0.147	< 0.013	< 0.013	-	-	-	-	-	
Chrysene	mg/kg	3.0	< 0.015	< 0.013	< 0.014	-	-	-	< 0.011	1.75	0.27	< 0.013	< 0.013	-	-	-	-	-	
Dibenzo[a,h]anthracene	mg/kg	0.47	< 0.015	< 0.013	< 0.014	-	-	-	< 0.011	0.21	0.05	< 0.013	< 0.013	-	-	-	-	-	
Fluoranthene	mg/kg	7.5	< 0.015	< 0.013	< 0.014	-	-	-	< 0.011	4.2	0.5	< 0.013	< 0.013	-	-	-	-	-	< 0.002 - 0.55
Fluorene	mg/kg	0.20	< 0.015	< 0.013	< 0.014	-	-	-	< 0.011	0.31	0.015	< 0.013	< 0.013	-	-	-	-	-	
Indeno(1,2,3-c,d)pyrene	mg/kg	2.6	< 0.015	< 0.013	< 0.014	-	-	-	< 0.011	1.09	0.27	< 0.013	< 0.013	-	-	-	-	-	
Naphthalene	mg/kg	0.08	< 0.08	< 0.07	< 0.07	-	-	-	< 0.06	< 0.06	< 0.07	< 0.07	< 0.07	-	-	-	-	(190) ^{x.3}	< 0.002 - 0.01
Perylene	mg/kg	0.66	0.018	0.093	0.025	-	-	-	< 0.011	0.4	0.128	0.25	< 0.013	-	-	-	-	-	
Phenanthrene	mg/kg	5.3	< 0.015	< 0.013	< 0.014	-	-	-	< 0.011	2.9	0.176	< 0.013	< 0.013	-	-	-	-	-	< 0.002 - 0.26
Pyrene	mg/kg	7.6	< 0.015	< 0.013	< 0.014	-	-	-	< 0.011	4.3	0.59	< 0.013	< 0.013	-	-	-	-	NA ³	< 0.002 - 0.57
Total Petroleum Hydrocarbons																			
C7-C9 Fraction	mg/kg	< 20	< 20	< 20	< 20	< 20	< 20	-	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	-	120 ^{m.3}	-
C10-C14 Fraction	mg/kg	< 20	< 20	< 20	< 20	< 20	< 20	-	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	-	(1,500) ^{x.3}	-
C15-C36 Fraction	mg/kg	310	< 40	< 40	< 40	< 40	< 40	-	< 40	161	78	< 40	< 40	< 40	< 40	< 40	-	NA3	-
C7-C36 Fraction	mg/kg	310	< 80	< 80	< 80	< 80	< 80	-	< 80	165	80	< 80	< 80	< 80	< 80	< 80	-	-	<30 - 190

Criteria adopted from the following guidelines:

¹Methodology for Deriving Soil Guideline Values Protective of Human Health (NES, 2011) Criteria for Human Health, Industrial

²NEPM 2013 Criteria for Human Health, HIL D (Commercial / Industrial) from table Table 1A(1)

³Guidelines for Assessing and Managing Petroleum Hydrocarbon Contaminated Sites in New Zealand (MfE 1999) Criteria for Human Health, Industrial Sand <1m All Pathways

⁴Background: Wellington, Main Soil Type 2 (Greywacke) - Determination of Common Pollutant Background Concentrations for the Wellington Regional Greater Wellington regional Council, 2003

Notes:

This table does not represent the full analytical results, please refer to the laboratory results for full details.

The following notes indicate the limiting pathway for each criterion: v - Volatilisation, s - Soil Ingestion d - Dermal, p - Produce, m - Maintenance/Excavation, x - PAH surrogate

Brackets denote values exceed threshold likely to correspond to formation of residual separate phase hydrocarbons.

Table G2 - Water Tabulated Results Summary



Location / Sample Name		GM01	GM02	ANZG - toxicant DGVs Ecological, Marine Water 95% ¹	Human Health, Drinking Water ²	Aesthetic Values for Drinking Water ³	Petroleum Hydrocarbon Guidelines MfE 1999 , Commercial / Industrial Sand Inhalation to outdoor
Sampled Date		19-04-2026	19-04-2026				
Lab Sample No.		4186973.1	4186973.2				
Metals (Dissolved)	Units						
Arsenic	g/m3	< 0.0010	< 0.0010	-	0.01	-	-
Cadmium	g/m3	< 0.00005	< 0.00005	0.0055	0.004	-	-
Chromium (III+VI)	g/m3	< 0.0005	< 0.0005	0.0044	0.05	-	-
Copper	g/m3	0.0023	0.0016	0.0006	2	<1	-
Lead	g/m3	< 0.00010	< 0.00010	0.0044	0.01	-	-
Nickel	g/m3	0.0023	0.00170	0.0059	0.08	-	-
Zinc	g/m3	0.0125	0.0040	0.008	-	<1.5	-
Metals (Total)							
Arsenic	g/m3	0.0061	0.013	-	-	-	-
Cadmium	g/m3	0.000061	< 0.000053	-	-	-	-
Chromium (III+VI)	g/m3	0.0127	0.00128	-	-	-	-
Copper	g/m3	0.0164	0.0034	-	-	<1	-
Lead	g/m3	0.0155	0.0013	-	-	-	-
Nickel	g/m3	0.0087	0.0024	-	-	-	-
Zinc	g/m3	0.0730	0.0081	-	-	<1.5	-
BTEX							
Benzene	g/m3	< 0.0010	< 0.0010	0.7	0.01	-	(340)
Toluene	g/m3	< 0.0010	< 0.0010	0.18	0.8	-	S ⁵
Ethylbenzene	g/m3	< 0.0010	< 0.0010	0.08	-	-	S ⁵
m&p-Xylene	g/m3	< 0.002	0.0040	0.075	-	-	-
o-Xylene	g/m3	< 0.0010	0.0037	-	-	-	-
Total Xylenes	g/m3	< 0.003	0.0077	-	0.6	-	S ⁵
Total Petroleum Hydrocarbons							
C7-C9 Fraction	g/m3	< 0.1	< 0.1	-	-	-	S ⁵
C10-C14 Fraction	g/m3	< 0.2	< 0.2	-	-	-	S ⁵
C15-C36 Fraction	g/m3	0.6	< 0.4	-	-	-	S ⁵
C7-C36 Fraction	g/m3	< 0.7	< 0.7	-	-	-	-

Criteria adopted from the following guidelines:

¹ANZ Guidelines for Fresh & Marinewater Quality - toxicant DGVs Criteria for Ecological, Marine Water 95% (dissolved)

²Water Servies Drinking Water Standards for New Zealand Regulations 2022

³Taumata Arowai, Aesthetic Values for Drinking Water Notice 2022

⁴Petroleum Hydrocarbon Guidelines MfE 1999 Criteria for Human Health, Residential Sand Inhalation of outdoor air

Notes:

This table does not represent the full analytical results, please refer to the laboratory results for full details.

⁵Calculated water criteria exceeds solubility limit for pure compound in water

Values in brackets exceed solubility limit for compound in water when present as part of a typical gasoline mixture.

Table G3 - RPD Soil



Location / Sample Name		GM12SS	GM15SS	RPD
Sampled Date		29/04/2026	29/04/2026	
Lab Sample No.		4102920_2	4102920_3	
Heavy Metals	Units			
Arsenic	mg/kg	5	5	0.0%
Cadmium	mg/kg	< 0.10	< 0.10	-
Chromium (III+VI)	mg/kg	12	11	2.2%
Copper	mg/kg	6	6	0.0%
Lead	mg/kg	10.8	9.1	4.3%
Nickel	mg/kg	7	7	0.0%
Zinc	mg/kg	39	35	2.7%
Total Petroleum Hydrocarbons				
C7-C9 Fraction	mg/kg	< 20	< 20	-
C10-C14 Fraction	mg/kg	< 20	< 20	-
C15-C36 Fraction	mg/kg	< 40	< 40	-
C7-C36 Fraction	mg/kg	< 80	< 80	-

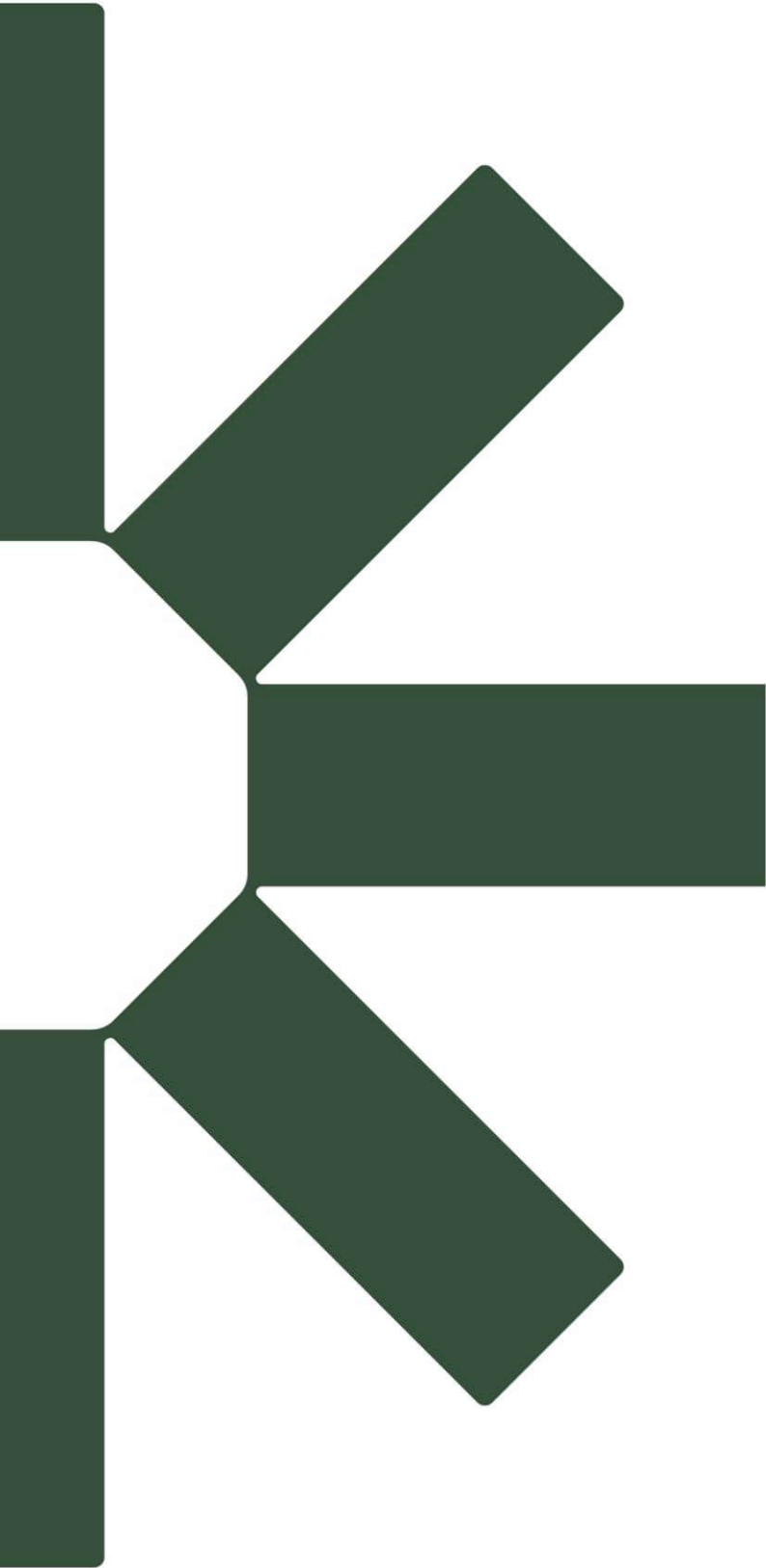
Notes:
RPD not calculated where one or more analytes below laboratory limit of reporting

Table G4 - RPD Water



Location / Sample Name		GM01	QC01	RPD
Sampled Date		19-04-2026	19-04-2026	
Lab Sample No.		4186973.1	4186973.3	
Metals (Dissolved)	Units			
Arsenic	g/m3	< 0.0010	< 0.0010	-
Cadmium	g/m3	< 0.00005	< 0.00005	-
Chromium (III+VI)	g/m3	< 0.0005	< 0.0005	-
Copper	g/m3	0.0023	0.0024	4%
Lead	g/m3	< 0.00010	< 0.00010	-
Nickel	g/m3	0.0023	0.0022	4%
Zinc	g/m3	0.0125	0.0112	11%
Metals (Total)				
Arsenic	g/m3	0.0061	0.006	2%
Cadmium	g/m3	0.000061	0.000054	12%
Chromium (III+VI)	g/m3	0.0127	0.0114	11%
Copper	g/m3	0.0164	0.0162	1%
Lead	g/m3	0.0155	0.0146	6%
Nickel	g/m3	0.0087	0.0081	7%
Zinc	g/m3	0.073	0.068	7%
BTEX				
Benzene	g/m3	< 0.0010	< 0.0010	-
Toluene	g/m3	< 0.0010	< 0.0010	-
Ethylbenzene	g/m3	< 0.0010	< 0.0010	-
m&p-Xylene	g/m3	< 0.002	< 0.002	-
o-Xylene	g/m3	< 0.0010	< 0.0010	-
Total Xylenes	g/m3	< 0.003	< 0.003	-
Total Petroleum Hydrocarbons				
C7-C9 Fraction	g/m3	< 0.1	< 0.1	-
C10-C14 Fraction	g/m3	< 0.2	< 0.2	-
C15-C36 Fraction	g/m3	0.6	0.8	29%
C7-C36 Fraction	g/m3	< 0.7	0.8	-

Notes:
RPD not calculated where one or more analytes below laboratory limit of reporting



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