



Detailed Site Investigation Report

Project
Canterbury Olympic Ice Rink
Portion of 17A Phillips Avenue, Canterbury, NSW 2193

Prepared for
The Ice Skating Club of NSW Cooperative Limited

Date
10/01/2025

Report No
18587-ER-3-1



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The findings presented in this report are based on specific data and information made available during the course of this project. To the best of Alliance's knowledge, these findings represent a reasonable interpretation of the general condition of the site at the time of report completion.

No warranties are made as to the information provided in this report. All conclusions and recommendations made in this report are of the professional opinions of personnel involved with the project and while normal checking of the accuracy of data has been conducted, any circumstances outside the scope of this report or which are not made known to personnel and which may impact on those opinions is not the responsibility of Alliance.

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Executive Summary

Alliance Geotechnical Pty Ltd (Alliance) was engaged by The Ice Skating Club of NSW Cooperative Limited to undertake a detailed site investigation (DSI) at a portion of 17A Phillips Avenue, Canterbury (refer **Figure 1**, with the 'site' boundaries outlined in **Figure 2**).

At the commencement of the project, Alliance had the following project appreciation:

- The site is owned by The Council of the Municipality of Canterbury;
- The site is predominantly unsealed vegetation with a small portion in the northeast corner occupied with part of an existing ice rink building;
- The site is proposed for redevelopment, including demolition of grandstands, removal of hardstand and existing lighting to make way for the construction of an extension with a lift pit and above ground alterations to the western portion. A copy of the proposed development plans is presented in **Appendix A**. In the context of land contamination, this is considered to be a land use scenario generally consistent with:
 - Commercial / industrial such as shops, offices, factories, and industrial sites.
- The proposed land use scenario will include a reticulated potable water supply will be available at the site;
- A preliminary site investigation (PSI) of the site was reported in Alliance (2024a). The PSI identified a number of potential land contamination risks at the site, and further assessment of those risks was recommended;
- For the purpose of assessing acid sulfate soils, it is assumed:
 - The maximum depth of soil disturbance will be 1m below ground level (bgl);
 - The material to be disturbed, during redevelopment will be <500m³; and
 - Dewatering, or groundwater drawdown is not required for the development works.
- A waste classification and virgin excavated natural material (VENM) assessment of the site was reported in Alliance (2024b). The chemical data from Alliance (2024b) will be used as part of this investigation;
- This DSI is required to assist the client to address development consent decision making processes set out in State Environmental Planning Policy (SEPP) Resilience and Hazards 2021¹; and
- The client does not require the report to be reviewed by a Certified Environmental Practitioner – Site Contamination Specialist (CEnvP-SC).

The objectives of this project were to:

- Assess the potential for land contamination to be present in the areas of environmental concern (AEC) identified in the preliminary site investigation (PSI) prepared for the site;
- Assess whether potential acid sulfate soils (PASS) or actual acid sulfate soils (AASS) requiring management identified in Alliance (2024b), in the context of the proposed maximum depth of disturbance and maximum groundwater drawdown depth, for the proposed redevelopment of the site;

¹ 'SEPP55 – Remediation of Land' was repealed on 1 March 2022

- Assess whether identified potential land contamination would present an unacceptable human health or ecological exposure risk, based on the proposed land use scenario;
- Assess whether the site is suitable, in the context of land contamination, for the proposed land use scenario; and
- Provide recommendations for further investigations, and management or remediation of land contamination (if warranted).

The following scope of works was undertaken to address the project objectives:

- A desktop review of previous reports;
- Preparation of a sampling and analysis quality plan;
- Intrusive investigations on site;
- Laboratory analysis; and
- Assessment of data and reporting.

The nominated scope of works was primarily undertaken with reference to relevant sections of ANZG 2018, HEPA (2020), NEPC (2013), NSW EPA (2020a), NSW EPA (2020b), and WA DOH (2009), as well as other references presented in **Section 14**.

A number of areas of environmental concern (AEC) and contaminants of potential concern (COPC) associated with potential land contaminating activities undertaken at the site, have been identified as part of this project. The AEC, land contaminating activity and COPC are presented in the table below. The locations of the identified AEC are presented in **Figure 7**.

ID	AEC	Land Contaminating Activity (Source)	COPC
AEC01	Site footprint (920m ² and ~1m thick)	Uncontrolled filling Migration / leaching of hazardous building materials from adjacent ice-skating rink building	Asbestos

Based on the assessment undertaken by Alliance of site history information, fieldwork observations and data, and laboratory analytical data, in the context of the proposed land use scenario and objectives of this project, Alliance has made the following conclusions:

- There is a potential for land contamination to be present on the site;
- Detected concentrations of friable asbestos in soils in TP03 (AEC01) may present an unacceptable human health exposure risk. Further assessment would be required to draw a conclusion on that risk;
- The previously issued waste classification assessment Alliance (2024b) is considered to now be out of date and requires updating;
- The site could be made suitable for the following land use scenario:
 - Commercial / industrial such as shops, offices, factories and industrial sites,

subject to the undertaking of a supplementary contamination assessment (SCA), and management / remediation of identified unacceptable human health exposure risks.

- A duty to report land contamination under section 60 of the Contaminated Land Management Act 1997 can be triggered when:
 - friable asbestos is detected above the adopted health screening level in a soil sample, AND
 - a person has been or foreseeably will be, exposed to elevated levels of asbestos fibres by breathing them into their lungs.

It is plausible that this test may be satisfied for this site, if it were to be assessed; and

- Specific assumptions that apply to the adopted land use scenario, are presented in **Section 5** of this report.
- In the event the proposed development changes from that which was considered during this assessment, then the data must be re-assessed, which may result in a difference outcome.

Based on these conclusions, Alliance makes the following recommendations:

- Alliance (2024b) must be updated to include consideration of this additional data prior to any disturbance of soils;
- An interim management plan (IMP) should be prepared that outline mitigation measures to be implemented onsite to adequately manage identified asbestos risks onsite, prior to further assessment, management or remediation of the site;
- An assessment of whether the friable asbestos in soil test in NSW EPA (2015) has been satisfied, should be undertaken, to inform duty to report land contamination under section 60 of the Contaminated Land Management Act 1997 decision making (noting the decision making may require advice from a suitably experienced legal practitioner);
- A remedial action plan (RAP) should be prepared to address the identified unacceptable human health exposure risks identified within AEC01. The RAP should include a methodology for
 - delineation of identified land contamination risks in AEC01; and
 - validation of management / remedial works.
- Further assessment, management or remedial planning works for the site, be undertaken by a suitably experienced environmental consultant.

This report must be read in conjunction with the **Important Information About This Report** statements at the front of this report.

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1 Introduction

1.1 Background

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At the commencement of the project, Alliance had the following project appreciation:

- The site is owned by The Council of the Municipality of Canterbury;
- The site is predominantly unsealed vegetation with a small portion in the northeast corner occupied with part of an existing ice rink building;
- The site is proposed for redevelopment, including demolition of grandstands, removal of hardstand and existing lighting to make way for the construction of an extension with a lift pit and above ground alterations to the western portion. A copy of the proposed development plans is presented in **Appendix A**. In the context of land contamination, this is considered to be a land use scenario generally consistent with:
 - Commercial / industrial such as shops, offices, factories, and industrial sites.
- The proposed land use scenario will include a reticulated potable water supply will be available at the site;
- A preliminary site investigation (PSI) of the site was reported in Alliance (2024a). The PSI identified a number of potential land contamination risks at the site, and further assessment of those risks was recommended;
- For the purpose of assessing acid sulfate soils, it is assumed:
 - The maximum depth of soil disturbance will be 1m below ground level (bgl);
 - The material to be disturbed, during redevelopment will be <500m³; and
 - Dewatering, or groundwater drawdown is not required for the development works.
- A waste classification and virgin excavated natural material (VENM) assessment of the site was reported in Alliance (2024b). The chemical data from Alliance (2024b) will be used as part of this investigation;
- This DSI is required to assist the client to address development consent decision making processes set out in State Environmental Planning Policy (SEPP) Resilience and Hazards 2021²; and
- The client does not require the report to be reviewed by a Certified Environmental Practitioner – Site Contamination Specialist (CEnvP-SC).

² 'SEPP55 – Remediation of Land' was repealed on 1 March 2022

1.2 Objectives

The objectives of this project were to:

- Assess the potential for land contamination to be present in the areas of environmental concern (AEC) identified in the preliminary site investigation (PSI) prepared for the site;
- Assess whether potential acid sulfate soils (PASS) or actual acid sulfate soils (AASS) requiring management identified in Alliance (2024b), in the context of the proposed maximum depth of disturbance and maximum groundwater drawdown depth, for the proposed redevelopment of the site;
- Assess whether identified potential land contamination would present an unacceptable human health or ecological exposure risk, based on the proposed land use scenario;
- Assess whether the site is suitable, in the context of land contamination, for the proposed land use scenario; and
- Provide recommendations for further investigations, and management or remediation of land contamination (if warranted).

1.3 Scope of Work

The following scope of works was undertaken to address the project objectives:

- A desktop review of previous reports;
- Preparation of a sampling and analysis quality plan;
- Intrusive investigations on site;
- Laboratory analysis; and
- Assessment of data and reporting.

The nominated scope of works was primarily undertaken with reference to relevant sections of ANZG 2018, HEPA (2020), NEPC (2013), NSW EPA (2020a), NSW EPA (2020b), and WA DOH (2009), as well as other references presented in **Section 14**.

2 Site Identification

2.1 Site Details

Site identification details are presented in **Table 2.1**.

Table 2.1 Site Identification Details

Cadastral Identification	A portion of Lot 1 in DP818459
Geographic Coordinates (Google Earth)	33°54'34" S and 151°06'47" E
Site Area	Approximately 920m ²
Local Government Authority	Canterbury City Council
Current Zoning	RE1: Public Recreation

A copy of a Section 10.7 planning certificate for the site presented in Alliance (2024a) notes that indoor recreation facilities are permitted with consent on land zoned as RE1 – Public Recreation.

2.2 Site Layout

The layout of the site is presented in **Figure 2**. The layout plan includes locations of:

- Site access points;
- Current buildings / structures;

A copy of a detail and level survey of the site is presented in **Appendix B**.

3 Site Environmental Setting

3.1 Geology

The NSW seamless geology dataset v2.4 accessed via <https://minview.geoscience.nsw.gov.au> indicated that the site is likely to be underlain by quaternary deposits of silt, clay, (fluvially deposited) lithic to quartz-lithic sand and gravel.

Observations made of the soils encountered during previous investigation works on site within Alliance (2024b) (outlined in **Section 4.2**), were recorded on field logs. A copy of those logs is presented in **Appendix C**.

A summary of those observations, in the context of subsurface conditions at the site, is presented in **Table 3.1**.

Table 3.1 Site Specific Geology

Unit	Description	Depth to base of layer (m bgl)
Fill	SAND, fine to medium grained, brown / pale yellow, with fine to coarse gravels of sandstone, ironstone, and brick, trace low plasticity clay, glass, and rootlets, dry to moist.	0.3-1.0
Natural	CLAY, low to medium plasticity, pale grey / orange / red / brown, with fine grained sand, trace rootlets, dry to moist.	1.0-3.4
Natural	Sandy CLAY, low to medium plasticity, pale grey / orange / brown, fine grained sand, trace rootlets, dry to moist.	0.7-1.2

3.2 Site Topography and Elevation

A detail and level survey plan of the site indicated that:

- the topography of the site is generally flat with a minor south-east facing slope.
- the surface of the site was located at an elevation of approximately 5.49m Australian Height Datum (AHD) in the north-east, 5.8m AHD in the north-west, 5.3m AHD in the south-west and 4.74m AHD in the south-east.

A copy of the detail and level survey is presented in **Appendix B**.

3.3 Acid Sulfate Soils

A review of <https://www.environment.nsw.gov.au/eSpade2Webapp> indicated that the site is located in an area mapped as:

- L4: low probability >3m below ground surface

Assessment of acid sulfate soils was reported in Alliance (2024b). A summary of the findings of Alliance (2024b) is presented within **Section 4.2**.

Further assessment of acid sulfate soils in the context of the objectives is considered warranted.

3.4 Hydrogeology and Hydrology

A review of readily available online maps indicated that surface water bodies located on or near the site included:

- Cooks River, located approximately 160m to the north and east; and
- Cup and Saucer Creek (tributary of the Cooks River), located approximately 990m to the south-east.

Based on the location of the identified surface water bodies and the site surface topography, the inferred groundwater flow direction at the site is considered likely to be towards the south-east.

Based on site surface topography and site elevation, the inferred surface water flow direction at the site is considered likely to be towards the south-east.

A search of <https://www.environment.nsw.gov.au/eSpade2WebApp> was undertaken by Alliance, and there was no data related to the hydrogeological landscape available for the locality of the site.

A search of <https://realtimedata.watarnsw.com.au/water.stm> indicated that:

- there are four registered groundwater features located within a 500m radius of the site; and
- authorised uses of these monitoring wells include:
 - domestic; and
 - monitoring.

Information presented in records obtained for these registered groundwater monitoring wells, indicated that:

- boreholes were drilled to depths of between 5m and 15m bgl;
- the geology encountered during drilling (using rotary methods) included Gravelly CLAY and Sandy CLAY.
- rock was encountered in GW114567, GW114568 and GW114569 at a depth of 1m bgl, and was comprised of SANDSTONE.
- depth to standing water level was not provided in any wells.
- GW114567, GW114568 and GW114569 had a licence status 'cancelled'.

The domestic well (GW105215) was located approximately 210m north of the site in an inferred up-gradient location. Based on distance and inferred groundwater flow direction, the potential for plausible contaminant source/s on site to be migrating to that well, is considered to be low to negligible, and not warranting further assessment in the context of this investigation.

The monitoring wells (GW114567, GW114568 and GW114569) were located a minimum of 430m east of the site on the opposite side of the Cooks River (likely associated with horse racing track related infrastructure). Based on distance and inferred groundwater flow direction, the potential for a groundwater contaminant source/s that these wells may be monitoring, to be impacting the site, is considered to be low to negligible, and not warranting further assessment in the context of this investigation.

A copy of the online search record is presented in **Appendix D**.

4 Previous Contamination Assessments

A copy of the following reports:

- Alliance 2024a 'Preliminary Site Investigation, Canterbury Ice Rink, Portion of 17A Phillips Avenue, Canterbury, NSW 2193' dated 4 December 2024, ref 18587-ER-2-1; and
- Alliance 2024b 'Waste Classification and Virgin Excavated Natural Material Report, Canterbury Ice Rink, Portion of 17A Phillips Avenue, Canterbury, NSW 2193' dated 4 December 2024, ref 18587-ER-1-1.

were reviewed by Alliance.

4.1 Alliance (2024a)

The objectives of this project were to:

- Assess the potential for land contamination to be present at the site as a result of current and previous land use activities;
- Assess whether the site is suitable, in the context of land contamination, for the proposed land use scenario; and
- Provide recommendations for further investigations, and management or remediation of land contamination (if warranted).

The following scope of works was undertaken address the project objectives:

- A desktop review of site history;
- A site walkover to inform an understanding of current site conditions;
- Assessment of data and reporting.

A number of areas of environmental concern (AEC) and contaminants of potential concern (COPC) associated with potential land contaminating activities undertaken at the site, were identified as part of this project. The AEC, land contaminating activity and COPC are presented within **Table 4.1**.

Table 4.1 Alliance (2024a) Source, Pathway and Receptor Links

ID	AEC	Land Contaminating Activity (Source)	COPC
AEC01	Site footprint (920m ² and ~1m thick)	Uncontrolled filling Migration / leaching of hazardous building materials from adjacent ice-skating rink building Application of termite treatment chemicals on eastern boundary of site (for ice skating rink building)	Petroleum hydrocarbons, polycyclic aromatic hydrocarbons, pesticides, polychlorinated biphenyl, metals, asbestos
	Site footprint (920m ² and 1m maximum disturbance depth)	Acid sulfate soils	Sulfidic ores and hydrogen sulfide

Based on the assessment undertaken by Alliance of site history information and site walkover observations, in the context of the proposed land use scenario and objectives of this project, Alliance (2024a) made the following conclusions:

- There is a potential for unacceptable land contamination to be present at the site as a result of previous land use activities;
- There is a potential for acid sulfate soils risks requiring management to be present at the site;
- The identified potential land contamination may present an unacceptable human health risk to commercial workers and intrusive maintenance workers;
- The site could be made suitable for the following land use scenario:
 - commercial / industrial such as shops, offices, factories, and industrial sites,

subject to the undertaking of a detailed site investigation (DSI), and management or remediation of identified unacceptable human health risks (if warranted);

Specific assumptions that apply to the adopted land use scenario, are presented in **Section 5** of this report.

Based on those conclusions, Alliance (2024a) made the following recommendations:

- A DSI should be undertaken to address the identified potentially unacceptable human health risks in this PSI. In the event unacceptable human health risks are identified in the DSI, a remedial action plan (RAP) should be prepared and implemented to address those risks;
- An acid sulfate soils assessment should be undertaken to address the potential for acid sulfate soils risks requiring management to be present at the site (in the context of the proposed development). In the event acid sulfate soil risk requiring management are identified in the DSI, an acid sulfate soils management plan (ASSMP) should be prepared and implemented to address those risks;
- The DSI, acid sulfate soils assessment, and preparation of the RAP and ASSMP (if warranted) should be undertaken by a suitably experienced environmental consultant.

4.2 Alliance (2024b)

The objective of this project was to provide a waste classification and virgin excavated natural material assessment of the materials assessed within the site.

The following scope of work was undertaken to address the project objective:

- Preparation of a sampling and analysis quality plan;
- Intrusive investigations on site comprising drilling of eight boreholes using a combination of a hand auger and push tubes;
- Laboratory analysis of samples for TRH/BTEX, PAH, OCP, PCB, metals (8), asbestos presence / absence, pHF/pHFox field screen and chromium reducible sulfur (CRS); and
- Assessment of data and reporting.

Based on an assessment of desktop review data, fieldwork observations and laboratory analytical data, the report considered that the material assessed at the time of the report would classify as the following:

- The fill material would be classified as General Solid Waste (Non-Putrescible);
- The natural material above 2.0m bgl would classify as virgin excavated natural material; and
- The natural material below 2.0m bgl would not classify as VENM due to detectable concentrations of reduced inorganic sulfur (RIS) above the laboratory limit of reporting and considered to contain sulfidic ores and soils.

A copy of the sampling plan from Alliance (2024b) is presented within **Figure 4**.

See **Appendix C** for a copy of Alliance (2024b) logs.

As part of this assessment, Alliance will use the data collected during Alliance (2024b) in the context of the proposed land use scenario for the site.

5 Conceptual Site Model

5.1 Preamble

A conceptual site model (CSM) is a representation of site related information regarding contamination sources, receptors and exposure pathways between those sources and receptors. The initial CSM is constructed from the information obtained during the PSI.

The CSM identifies complete and potential pathways between the known or potential source(s) and the receptors. Where a pathway between a source and a receptor is incomplete, the exposure to chemical substances via that pathway cannot occur, but the potential for that pathway to be completed (for example, by abstraction of groundwater or a change in land use) should be considered in the assessment.

5.2 Land Use

5.2.1 Adopted Land use Scenario

For the purpose of this project, Alliance understands that the proposed land use scenario for the site includes:

- Commercial / industrial such as shops, offices, factories, and industrial sites.

Section 3.2.5.3 of NEPC (2013i) advises that:

- although many commercial premises welcome children on an intermittent basis, it is unlikely that children visit the majority of workplaces frequently;
- in commercial premises where children are regular visitors, such as shopping centres, both the duration and frequency of child exposures are generally lower than that of a full-time employee.

Alliance considers an ice-skating rink to be comparable to a shopping centre, in the context of land use scenarios, for the purpose of land contamination assessment.

5.2.2 Assumptions for Adopted Land Use Scenario

Section 3 of NEPC (2013i) advises that the commercial/industrial land use scenario, which assumes typical commercial or light industrial properties, consisting of single or multistorey buildings where work areas are on the ground floor (constructed on a ground level slab) or above subsurface structures (such as basement car parks or storage areas).

The dominant users of commercial / industrial sites are adult employees who are largely involved in office-based or light industrial activities.

The outdoor areas of the commercial/industrial facilities are largely covered by hardstand, with some limited areas of landscaping or lawns and facilities. Opportunities for direct access to soil by employees using these facilities are likely to be minimal, but there may be potential for employees to inhale, ingest, or come into direct dermal contact with dust particulates derived from the soil on the site.

The land use scenario does not include more sensitive uses that may be permitted under relevant commercial or industrial zonings. These more sensitive uses include childcare, educational facilities, caretaker residences, hotels, and hostels, etc. Information on uses permitted under local council zoning schemes for commercial/industrial land use can be obtained from local council planning zones/schemes. Should these more sensitive uses be permitted, then 'residential with accessible soil,' 'residential with minimal access to soil', or 'public open space' land use scenarios should be considered.

5.3 Sources of Contamination

A number of potential land contaminating activities have been identified for the site, based on the site history review and site walkover observations. These include:

- Uncontrolled filling;
- Termite treatment of building immediately adjacent eastern boundary; and
- Use of hazardous building materials on building immediately adjacent eastern boundary.

Table J1 in Appendix J of AS 4482.1-2005³, Table B1 in Appendix B of WA DWER (2021) and Table B1 and Table B2 in Appendix B of HEPA (2020) provides guidance on chemicals associated with land uses activities. That guidance provides a basis for deciding on contaminants of potential concern (COPC) for each relevant land use activity. Information on COPC adopted for this project is presented in **Section 5.6** of this report.

5.4 Receptors

5.4.1 Identified Receptors

Based on the adopted land use scenario in **Section 5.2**, receptors at the site would primarily be commercial workers and intrusive maintenance workers.

5.4.2 Assumptions for Identified Receptors

The receptors at a commercial/industrial site are predominantly adult employees, who are largely involved in office-based or light indoor industrial activities. The employees who are most susceptible to health risks associated with volatile soil contaminants are the employees who work in offices on the ground floor, as the greatest potential for vapour intrusion occurs with workspaces immediately overlying contaminated soil.

Employees may make use of outdoor areas of a commercial/industrial premises for activities such as meal breaks. Opportunities for direct access to soil by employees using these facilities are likely to be minimal, but there may be potential for employees to inhale, ingest, or come into direct dermal contact with dust particulates derived from the soil on the site.

³ Alliance understands this standard has been withdrawn, however, guidance on the Aged Standards Review process at <https://www.standards.org.au/standards-development/aged-standards>, indicates that it is still possible for a withdrawn standard to be used within an industry or reference by a government if chosen to do so. On the basis that this standard is referenced in NEPC (2013b), it is considered reasonable to still refer to it, within the context of this project.

Intrusive maintenance workers are assumed to be adult workers who carry out work in shallow trenches (maximum depth of 1m). The work may include work related to telephone, electricity, gas, water, and sewer. It is also assumed that the workers will follow industry accepted procedures in relation to health and safety. The assumptions do not extend to work in deep trenches (such as deep sewers), on the basis that deep trench work would usually require confined space health and safety procedures to be followed, including the use of personal protective equipment.

In the context of petroleum hydrocarbons, exposure⁴ may occur through:

- inhalation of volatiles from contaminants at any depth (soil and groundwater); and
- direct contact (dust inhalation, ingestion, and dermal contact) for contaminated soils from surface to 2m below ground surface (i.e. trench walls for surface to 1m, trench floor 1 to 2m below ground surface).

Potential acute exposure risks or explosion hazards associated with very high concentrations of vapours are not considered in this scenario.

5.5 Exposure Pathways

5.5.1 Human Health

5.5.1.1 Dermal Contact / Ingestion / Dust Inhalation

Site history information and observations made during the site walkover reported in Alliance (2024a), indicated a potential for contaminants to be present in soils at the site, which could present a dermal contact, ingestion, or dust inhalation risk to human health.

Further assessment of dermal contact, dust inhalation and ingestion risk are considered warranted.

5.5.1.2 Vapour Intrusion / Inhalation

A vapour intrusion / inhalation exposure risk to human health can be present when a vapour source (either primary or secondary⁵) is present.

Site history information and observations made during the site walkover reported in Alliance (2024a), did not indicate a potential for a primary or secondary source of vapour to be present on the site.

Site history information and observations made during the site walkover reported in Alliance (2024a), indicated a potential for historical uncontrolled filling to be present at the site. However, Alliance notes that the activity of transporting, placement and spreading of uncontrolled fill soils would typically include significant disturbance of those soils, which can result in the volatilisation of those contaminants that could normally present a vapour intrusion / inhalation risk (e.g. light fraction petroleum hydrocarbons, naphthalene and chlorinated hydrocarbons).

On that basis, Alliance considers that the potential for contaminants to be present in the uncontrolled filling, at concentrations which could present a vapour intrusion / inhalation risk, would be low.

⁴ Section 2.1.4 of Friebe, E & Nadebaum, P 2011

⁵ Primary sources typically include underground storage tanks. Secondary sources typically include significantly contaminated soil or groundwater.

Further assessment of vapour intrusion / inhalation risks associated with the uncontrolled filling, is considered not warranted.

5.5.1.3 Asbestos Inhalation

Site history information and observations made during the site walkover reported in Alliance (2024a), indicated a potential for ACM, FA and/or AF to be present in soils at the site.

The proposed redevelopment will include earthworks and bulk excavation of soil where transient construction workers may be at risk of exposure to land contamination risks as a result of potential asbestos contamination in soils.

Further assessment of asbestos exposure risk is considered warranted.

5.5.2 Management Limits for Petroleum Hydrocarbons

Section 2.9 of NEPC (2013a) states that there are a number of policy considerations which reflect the nature and properties of petroleum hydrocarbons:

- Formation of observable light non-aqueous phase liquids (LNAPL);
- Exposure of workers in trenches to petroleum hydrocarbon vapours;
- Fire and explosive hazards;
- Effects on buried infrastructure e.g., penetration of, or damage to, in-ground services by hydrocarbons;
- Aesthetic considerations and
- Technological factors.

Site history information and walkover observations reported in Alliance (2024a) indicated a potential for these policy considerations to be associated with relevant identified areas of environmental concern (AEC) at the site, in the context of the proposed future land use scenario. On that basis, further assessment of petroleum hydrocarbons in soils in the context of those policy considerations, is considered warranted.

5.5.3 Hazardous Ground Gases

Based on information within Alliance (2024a), Alliance considers that further assessment of hazardous ground gas in the context of this project, is considered not warranted.

5.5.4 Aesthetics

Site history information and observations made during the site walkover reported within Alliance (2024a) and considered during the aesthetics risk assessment presented within Alliance (2024a) did not identify the potential for unacceptable aesthetics risks to be present at the site.

Further assessment of aesthetic risks is considered not warranted.

5.5.5 Terrestrial Ecosystems

Site history information and observations made during the site walkover reported within Alliance (2024a), did not indicate a potential for contaminants which may present a risk to terrestrial ecosystems, to be present on site. An assessment of that risk was presented within Alliance (2024a), taking into consideration Section 3.4.2 of NEPC (2013a). Further consideration of terrestrial ecosystem risks was considered not warranted.

5.5.6 Groundwater

Section 2.2 of NSW DEC (2007) provides guidance on the need for the potential for groundwater contamination to be assessed, for the purposes of evaluating whether it may pose an unacceptable risk to human health and/or the environment.

Section 3.2 of NEPC (2013h) provides guidance on the environmental values (that are conducive to public benefit, welfare, safety or health) and that require protection from the effects of pollution, waste discharge and deposits. These values include:

- Ecosystem protection;
- Aquaculture and human consumers of food;
- Agricultural water (irrigation and stock water);
- Recreation and aesthetics;
- Drinking water; and
- Industrial water.

An assessment of those values was presented in Alliance (2024b) and Section 3.4, and based on that assessment, further consideration of the above groundwater values is considered not warranted.

5.6 Source, Pathway and Receptor Links

Based on:

- The identified sources of contamination associated with the locations of where potential land contaminating activities have been undertaken at the site (areas of environmental concern or AEC);
- The identified contaminants of potential concern (COPC) associated with those land contaminating activities;
- The receptors identified for the site, based on the proposed land use scenario; and
- The exposure pathways between the identified sources and receptors that have been assessed as being potentially or actually complete,

a conceptual site model (CSM) that identifies plausible source-pathway-receptor linkages for the site, is presented **Table 5.6**.

The locations of the AEC are presented in **Figure 3**.

Table 5.6 Source, Pathway and Receptor Links

ID	AEC	Land Contaminating Activity (Source)	COPC	Exposure Pathway	Receptor
AEC01	Site footprint (920m ² and ~1m thick)	Uncontrolled filling Migration / leaching of hazardous building materials from adjacent ice-skating rink building Application of termite treatment chemicals on eastern boundary of site (for ice skating rink building)	Petroleum hydrocarbons, polycyclic aromatic hydrocarbons, pesticides, polychlorinated biphenyl, metals, asbestos	Dermal contact Soil Ingestion Dust inhalation Inhalation (asbestos) Management limits	Commercial workers Intrusive maintenance workers
	Site footprint (920m ² and 1m maximum disturbance depth)	Acid sulfate soils	Sulfidic ores and hydrogen sulfide	Building / infrastructure and ecosystem contact H ₂ S inhalation	Site environment and structures Intrusive maintenance workers

6 Data Quality Objectives

6.1 Step 1: State the problem

The reason the project is being undertaken, is set out in **Section 1.1** of this report.

The objective of this project is set out in **Section 1.2** of this report.

The project team and technical support experts identified for the project include the Alliance project director, Alliance project manager, Alliance field staff and Alliance's subcontractors.

The design and undertaking of this project will be constrained by the client's financial and time budgets.

The regulatory authorities associated with this project include NSW EPA, the local planning authority, and SafeWork NSW.

6.2 Step 2: Identify the decision / goal of the study

The decisions that need to be made during this project, to address the project objectives, include:

- Is the data collected for the project, suitable for assessing land contamination and acid sulfate soil exposure risks?
- Do the detected concentrations of contaminants of potential concern identified in the CSM, present an unacceptable exposure risk to the receptors identified in the CSM, based on the proposed land use scenario?
- Is the site suitable, in the context of land contamination, for the proposed land use scenario?
- Are potential acid sulfate soils (PASS) or actual acid sulfate soils (AASS) requiring management, present on the site, in the context of the proposed maximum depth of disturbance, for the proposed redevelopment of the site?
- Is an acid sulfate soils management plan (ASSMP) required for the proposed redevelopment of the site?

6.3 Step 3: Identify the information inputs

The information inputs required to make the decisions for the project set out in **Section 6.2**, include:

- Data obtained during the site history review and site walkover;
- Identification of sample media that needs to be collected, as set out in **Section 6.7**;
- Parameters that will be measured in each relevant sample, as set out in **Section 6.7**;
- The analytical methods required for each identified COPC, so that assessment can be made relative to adopted site criteria. These are set out in **Section 6.7** of this report;
- The field pH and peroxide testing result indicators in Table 5.1 of Sullivan et al (2018a);
- Guidance provided in Section 5.1 and Figure 5.2 of Sullivan et al (2018a), including:

- Observations made that indicate potential acid sulfate soils, including:
 - waterlogged soils;
 - unripe muds (soft, buttery, blue grey or dark greenish grey);
 - silty sands or sands (mid to dark grey) or bottom sediments (dark grey to black);
 - peat or peaty soils;
 - coffee rock horizons; or
 - sulfurous smell;
- Observations made that indicate actual acid sulfate soils including:
 - sulfurous smell;
 - presence of jarositic horizons, substantial iron oxide mottling in soils;
 - presence of corroded mollusc shells;
 - dead, dying or stunted vegetation;
 - scalding of bare low-lying areas; or
 - corrosion of concrete or steel structures; and
- The action criteria set out in Table 5.4 of Sullivan et al (2018a), adopted based on the texture range⁶ of the material being assessed and the tonnage of material proposed to be disturbed;
- The sulfur trail (% sulfur) and (mol H⁺/t) acid trail laboratory analytical results;
- The percentage of reduced inorganic sulfur (RIS) by mass⁷ in the samples analysed by the laboratory; and
- The site criteria for the media of concern. These criteria are set out in **Table 6.3** and will be adopted based on the proposed land use scenario⁸, identified receptors, and site-specific soil and groundwater conditions (where relevant).

⁶ Refer Table D1 in Sullivan et al (2018a)

⁷ Section 1.3 of Sullivan et al (2018b)

⁸ The land use scenarios in Section 2.2 of NEPC (2013a) will be considered when adopting human health assessment criteria.

Table 6.3 Adopted Tier 1 Site Assessment Screening Criteria

Exposure Pathway	Land Use Scenario ⁹	Criteria Reference
Human health dermal contact / ingestion / dust inhalation	HIL D - Commercial / industrial	Table 1A(1) in NEPC (2013a) Table B4 in Friebe, E & Nadebaum P (2011)
Human health (asbestos)	HSL - Commercial / Industrial D	Table 7 in NEPC (2013a) ¹⁰
Management Limits (petroleum hydrocarbons)	Commercial / industrial coarse and fine	Table 1B(7) in NEPC (2013a)
Acid sulfate soils		Section 5.1, Figure 5.2 and Table 5.4 in Sullivan et al (2018a) and Section 1.3 of Sullivan et al (2018b)

6.4 Step 4: Define the boundaries of the study

The spatial extent of the project will be limited to:

- The boundaries of the site as set out in **Section 2** and **Figure 2**; and
- Physical constraints or infrastructure on site or on land adjacent to the site, that prevents safe and reasonable access for project team members and/or typical and readily available equipment used for projects of this nature.

The scale of the decisions required (as set out in **Section 6.2**) will be based on the boundaries of the site set out in **Section 2** and **Figure 2**.

The vertical and lateral extents of investigation will be limited to the distribution of contamination assessed in the CSM (refer **Section 5.6**), based on the CSM, which are likely to be:

- The inferred vertical extent of each identified AEC, likely to be to the base of fill material in those AEC;
- 1m below the maximum depth of disturbance (2m bgl); and
- The inferred lateral boundaries of each identified AEC.

The time and budget constraints of this project will be as per those set out in the contract (and any subsequent variations to that contract) between the client and Alliance.

The temporal boundaries of the project will include:

- Availability of project team members (including subcontractors and subconsultants) to collect and assess relevant project data;
- The availability of site access to undertake fieldwork; and
- Meteorological conditions including heat, cold, wind and rain, which may constrain undertaking of fieldwork, or may affect the quality of the data being collected.

⁹ Consideration will be given to soil type, soil texture, soil depth.

¹⁰ A depth of up to 10cm below ground level is adopted to define 'surface soil'.

6.5 Step 5: Develop the analytical approach

6.5.1 Field Duplicates and Triplicates

A minimum of one set of field duplicates and triplicates will be collected for each set of 20 samples collected (an equivalent of 5%), excluding asbestos samples.

Field duplicate and triplicate samples will be collected by splitting one bulk sample across three separate sample containers. Soil samples will not be homogenised, particularly where volatile or semi volatile COPC are being considered.

Analysis of the duplicate samples and triplicate samples will be scheduled based on at least one of the analytes that the relevant parent sample is being analysed for.

The relative percent difference (RPD) of the detected concentrations in the parent and duplicate, and the parent and triplicate, will be calculated, and the result compared to the relevant data quality indicator (DQI), as set out in **Section 6.5.5**.

6.5.2 Trip Spikes and Trip Blanks

One trip spike and one trip blank will be used for each day of sampling¹¹.

A minimum of one trip spike and one trip blank will be scheduled for BTEX analysis, during the project, provided the sample preservation, handling, transport and storage procedures used are the same for each day of sampling undertaken.

6.5.3 Equipment Rinsate Blanks

One rinsate blank will be used for each day of sampling¹².

One rinsate blank will be collected for every 10 primary samples collected, when PFAS is a contaminant of potential concern.

A minimum of one rinsate blank will be scheduled for analysis for at least one of the COPC, during the project, provided sample collection and equipment decontamination procedures are the same for each day of sampling.

Analysis of the rinsate blank will be based on at least one of the analytes that the parent sample is being analysed for (excluding asbestos).

6.5.4 Analytical Laboratory Quality Assurance and Quality Control

The primary analytical laboratory will:

¹¹ When samples are being collected on that day, that will be analysed for BTEX and/or TRH C₆-C₁₀.

¹² Only where non-disposable sampling equipment is being used on that day.

- be NATA accredited for the methods used; and
- use a quality assurance and quality control (QA/QC) program that will typically include analysis of method blanks, matrix spikes, surrogate spikes, laboratory control samples and laboratory duplicates.

The primary analytical laboratory will report on whether the analytical results of the QA/QC program are within the criteria set out in the laboratory's adopted data quality objectives.

6.5.5 Data Quality Indicators

A set of data quality indicators (DQI) will be adopted for assessing the completeness, comparability, representativeness, precision and bias (accuracy) of data collected during fieldwork, the analytical data produced by the laboratory. Each of these DQI, and associated target criteria are set out in **Table 6.5.5**.

Table 6.5.5. Data Quality Indicators and Target Criteria

Completeness			
<i>Field Considerations</i>	<i>Target Criteria</i>	<i>Laboratory Considerations</i>	<i>Target Criteria</i>
Experienced sampling team used	Yes	Complete sample receipt advice and chain of custody attached	Yes
Sampling devices and equipment set out in sampling plan were used (refer Section 6.7).	Yes	Critical samples identified in sampling plan, analysed	Yes
Critical locations in sampling plan, sampled (refer Section 6.7).	Yes	Analysis undertaken addresses COPC in sampling plan (refer Section 6.7)	Yes
Critical samples in sampling plan, collected (refer Section 6.7).	Yes	Analytical methods reported in laboratory documentation and appropriate limit of reporting used	Yes
Completed field and calibration logs attached	Yes	Sample holding times met (refer Section 6.7)	Yes
Completed chain of custody attached	Yes		
Comparability			
<i>Field Considerations</i>	<i>Target Criteria</i>	<i>Laboratory Considerations</i>	<i>Target Criteria</i>
Same sampling team used for all work.	Yes	Same laboratory used for all analysis (refer Section 6.7).	Yes
Weather conditions suitable for sampling.	Yes	Comparable methods if different laboratories used Refer Section 6.7).	Yes
Same sample types collected and preserved in same way (refer Section 6.7).	Yes	Comparable limits of reporting if different laboratories used.	Yes
Relevant samples stored in insulated containers and chilled (refer Section 6.7).	Yes	Comparable units of measure if different laboratories have been used (refer Section 6.7).	Yes

Table 6.5.5. Data Quality Indicators and Target Criteria

Representativeness			
<i>Field Considerations</i>	<i>Target Criteria</i>	<i>Laboratory Considerations</i>	<i>Target Criteria</i>
Media identified in sampling plan, sampled (refer Section 6.7).	Yes	Samples identified in sampling plan, analysed.	Yes
Samples required by sampling plan, collected (refer Section 6.7).	Yes		
Precision			
<i>Field Considerations</i>	<i>Target Criteria</i>	<i>Laboratory Considerations</i>	<i>Target Criteria</i>
Minimum 5% duplicates and triplicates collected and analysed (refer Section 6.5).	Yes	All laboratory duplicate RPDs within laboratory acceptance criteria (refer Section 6.5).	Yes
RPD unlimited where detected concentrations are <10 times the limit of reporting.	Yes		
RPD within 50% where detected concentrations are 10-20 times the limit of reporting.	Yes		
RPD within 30% where detected concentrations are >20 times the limit of reporting.	Yes		
Bias (Accuracy)			
<i>Field Considerations</i>	<i>Target Criteria</i>	<i>Laboratory Considerations</i>	<i>Target Criteria</i>
Trip blank analyte results less than limit of reporting (refer Section 6.5).	Yes	Laboratory method blank results within laboratory acceptance limits (refer Section 6.5).	Yes
Trip spike analyte results less between 60% and 140% (refer Section 6.5).	Yes	Laboratory control sample results within laboratory acceptance limits (refer Section 6.5).	Yes
Rinsate blank analyte results less than limit of reporting (refer Section 6.5).	Yes	Laboratory spike sample results within laboratory acceptance limits.	Yes

6.5.6 If / Then Statements

If the field and laboratory analytical dataset meets the DQI target assessment criteria, then the data may be considered adequately complete, comparable, representative, precise and unbiased, for the purpose of addressing the decisions / goals of this project as set out in **Section 6.2**.

If the field and laboratory analytical dataset does not meet the DQI target assessment criteria, then additional data may need to be collected to address gaps identified in the data.

If the field and laboratory analytical results are within the adopted land contamination assessment criteria (refer **Section 6.3**), then it may be assessed that identified land contamination at the site does not present an unacceptable human health exposure risk.

If the field and laboratory analytical results are outside adopted land contamination assessment criteria (refer **Section 6.3**), then it may be assessed that identified land contamination at the site presents an unacceptable human health exposure risk, or that supplementary site specific qualitative / quantitative risk assessment may be required.

6.6 Step 6: Performance and Acceptance Criteria

6.6.1 If / Then Decisions

There are two types of decision error:

- Sampling errors – these occur when the sampling program does not adequately detect variability of a contaminant from point to point across a site. That is, the samples collected are not representative of site conditions (e.g. an appropriate number of representative samples have not been collected from each stratum, to account for estimated variability in that contaminant); and
- Measurement errors - these occur during sample collection, preparation, analysis and reduction of data.

During land contamination assessment, these errors can result in either:

- a Type I error, where land contamination human health exposure risks are considered to be acceptable, when they are not acceptable; or
- a Type II error, where land contamination human health exposure risks are considered to be unacceptable, when they are acceptable.

During acid sulfate soils assessment, these errors can result in either:

- a Type I error, where acid sulfate soils are assessed as not requiring management, when they do require management; or
- a Type II error, where acid sulfate soils are assessed as requiring management, when they do not require management.

For decision rules to be sound, they should be designed to mitigate risk of decision errors occurring. The risk of decision error on this project will be mitigated by:

- Ensuring fieldwork is undertaken by suitably experienced field staff and sub-contractors, with reference to the DQO adopted for this project;
- Ensuring laboratory analysis is undertaken by NATA accredited laboratories; and
- Ensuring assessment of field and laboratory analytical data is undertaken by suitably experienced environmental consultants and/or outsourcing assessment to technical experts (if warranted).

6.7 Step 7: Develop the plan for obtaining data

6.7.1 Sampling Point Densities and Locations

Section 5.1 in NSW EPA (2022) provides guidance regarding probabilistic sampling and judgement sampling.

A probabilistic sampling design uses random selection that when properly applied, results in unbiased and independent data. For an optimal design, using probabilistic sampling, an accurate CSM is required, including a clear definition of the population to be sampled. Systematic grid-based sampling is a probabilistic method.

A judgemental sampling design requires decisions on where and/or when to collect samples and relies on good site histories and/or site features being clear and distinct. The method can be efficient for assessing areas of worse case impacts and can be useful where site history is inadequate, or the features of concern are obscured or not discernible. Targeted sampling is a judgemental method. Section 6.2.1 in NEPC (2013b) advises that judgemental sampling and the selection of samples (number, location, timing, etc) should be based on knowledge of the site and professional judgement. In these instances, sampling would be expected to be localised to known or potentially contaminated areas identified from knowledge of the site either from the site history or an earlier phase of land contamination assessment. Judgemental sampling can be used to investigate sub-surface contamination issues in site assessment.

Stratified sampling comprises a combination of systematic and judgemental sampling, for sites with different uses, features and complex contaminant distributions, where a site is divided into various non-overlapping sub areas, according to geological and geographical features. Each sub area can then be treated as an individual decision area with different sampling patterns and sampling densities applied. For example, one area might require targeted sampling while a neighbouring one might need systematic sampling.

A stratified sampling strategy requires reliable prior knowledge of the site. NEPC (2013b) notes that stratified sampling can provide

- potential for achieving greater precision in estimates of the mean and variance where the measurement of interest is strongly correlated with the variable used to define the strata; and
- calculation of reliable estimates for subgroups of special interest.

Table 2 in NSW EPA (2022) provides guidance on minimum sampling point densities required for characterising a site, based on detecting circular hot spots, by using a systematic sampling pattern.

Section 4.1 and Table 1 of WA DOH (2009) provides guidance on asbestos in soil sampling densities (in-situ and stockpiles), relative to the likelihood of asbestos being present on the site, based on assessment of site history.

Table 6.1 of Sullivan et al (2018a) provides guidance on sampling point densities for small volumes of disturbance ($\leq 1,000\text{m}^3$), prior to disturbance;

Section 6.5 of Sullivan et al (2018a) provides guidance on the target depth of sampling points, which includes:

- The depth of soil sampling required depends on the maximum depth of disturbance and whether the groundwater level is expected to be altered as a consequence of the undertaken activities (for example drainage or pumping);

- Where no groundwater alteration is expected, soil sampling locations need to extend to at least one metre below the maximum depth of disturbance; and

Section 6.6 of Sullivan et al (2018a) provides guidance on soil sampling equipment. It is noted that borehole drilling can result in shattering some shell and carbonate materials and this should be considered when selecting sampling methods for the site.

The scope of this project has included collection of data that provides an understanding of:

- site history;
- the locations of potentially contaminated areas;
- the identified COPC;
- laydown mechanisms for COPC in the AEC;
- the likely lateral and vertical extent of potential contamination in the AEC;
- the location/s of potential acid sulfate soil material;
- the lateral extent of proposed disturbance;
- the maximum depth of the proposed disturbance; and
- constraints on site which may restrict the use of certain sampling techniques.

On that basis, it is considered reasonable to adopt a systematic grid-based sampling pattern using the sampling point densities set out in **Table 6.7.1** and **Figure 4 and 5**.

Alliance notes that this SAQP allows for using the sampling points and chemical data collected within Alliance (2024b), along with additional test pits for asbestos assessment in accordance with WA DOH (2009) which was not completed during Alliance (2024b).

Table 6.7.1 Sampling Point Densities and Locations

ID	AEC	Sampling Point Pattern	Sampling Point ID	Method	Target Depth (m bgl)
AEC01	Site footprint (920m ² and ~1m thick)	Systematic	BH01-BH08 (from Alliance (2024b)) TP01-TP08	Hand auger / borehole Test pit	1m, 0.3m into natural, or practical refusal
	Site footprint (920m ² and 1m maximum disturbance depth)	Systematic	BH01, BH04, BH05 and BH06 (from Alliance (2024b))	Borehole (push tube)	2m, or practical refusal

6.7.2 Sampling Methods

6.7.2.1 Surface Soils

A grid-based walkover of the site will be undertaken using north-south and east-west transects. Each transect will be set out on a nominal 2m spacing. The walkover will be undertaken to make a visual assessment of evidence indicating a potential for visible asbestos to be present in surface soils (nominally top 10cm). Locations where that evidence is observed will be recorded. A record will be kept of areas subjected to the walkover where constraints are present that prevent a reasonable visual assessment of the surface (e.g. vegetation, hardstand or stored materials).

6.7.2.2 Soils for Contaminants of Potential Concern

Soil samples will be collected from each relevant sampling point, at the surface at 0.0-0.1m or 0.0-0.15m, unless there is evidence of a thin surficial layer of contamination. Samples will then be collected at regular intervals thereafter (typically at depth intervals of no more than 0.5m), or where there is a change in lithology, or where there is visual/olfactory evidence of potential contamination. Samples will also typically be collected beneath the point where fill meets the underlying natural soil.

Samples requiring asbestos gravimetric screening for asbestos containing material (ACM) and fibrous asbestos (FA) will be 10L in volume and will be collected and screened with reference to Table 5 in WA DOH (2009), including but not limited to, separate samples for each stratum of fill material encountered during in-situ soil sampling.

Samples requiring asbestos fines (AF) and fibrous asbestos (FA) analysis, will be collected as separate samples to the aforementioned 10L bulk samples.

Samples will be submitted to a NATA accredited laboratory for analysis.

6.7.2.3 Soils for Acid Sulfate Soils

Soil samples will be collected from each relevant sampling point, at the surface at 0.0-0.1m. Samples will then be collected at depth intervals of no more than 0.5m, or where there is a change in lithology, and where there is visual/olfactory evidence of potential ASS material.

Samples will be submitted to a NATA accredited laboratory for analysis.

A log for each sampling point will be prepared. The log will include information such as:

- the Australian Map Grid (AMG) reference for the sampling point;
- the surface elevation and base elevation for the sampling point, relative to Australian Height Datum (AHD)
- a description of the soil profile/s encountered, including soil texture. For the purpose of assessing soil texture, guidance in Appendix D of Sullivan et al (2018a) will be referred to;
- absence / presence of organic matter and other features (e.g. jarosite, odour);
- absence / presence of shell material, its location within the profile and its size and relative abundance;
- water inflow relative to the soil surface; and

- depth/s of sample collection.

6.7.3 Decontamination

Non-disposable sampling equipment will be decontaminated between sampling points to mitigate potential for cross contamination of samples. Decontamination will include the following procedure:

- Washing off the non-disposable sampling equipment with a solution of potable water and phosphate free detergent (e.g. Decon 90), noting that Decon 90 will not be used on equipment used for collection of samples that will be analysed for PFAS compounds;
- Rinsing the washed equipment with distilled or de-ionised water; and
- Air drying of the rinsed equipment.

6.7.4 Headspace Screening

When COPC identified for the site include volatiles (e.g. BTEX, TRH or VOC), collected soil samples will be subjected to headspace screening for ionisable volatile organic compounds, using a calibrated photo-ionisation detector (PID) fitted with a 10.6 eV lamp. A sub sample from each collected sample will be placed in a zip lock bag, sealed, and shaken. Each zip lock bag will then be pierced with the tip of a PID and the results recorded on the relevant sampling point borehole or test pit log.

6.7.5 Sample Identification, Handling, Storage and Transport

Soil samples will be:

- identified using the relevant Alliance project number, the sampling point identification number and the sampling depth interval (e.g. BH01/0.0-0.1 or HA01/0.5-0.6), and date the sample was collected;
- placed in laboratory supplied zip lock bags (preferably HDPE and minimum 30µm thickness) for acid sulfate soils with the air removed or laboratory prepared containers (containing preservatives as appropriate), and stored in insulated containers with ice; and
- transported to the relevant analytical laboratory by Alliance or a third-party courier, using chain of custody (COC) documentation, for receipt by the laboratory within 24 hours of collection for acid sulfate soils. If the 24-hour receipt cannot be achieved for acid sulfate soils, then samples will be frozen.

6.7.6 Selection of Laboratory

The analytical laboratories used for this project will reputable industry recognised environmental laboratories, that are NATA accredited for the analytical methods used.

6.7.7 Scheduling of Laboratory Analysis

Collected samples will be scheduled for laboratory analysis based on:

- The COPC identified for the AEC the sample was collected from;

- Observations made of the sample when collected (including staining, odour, presence of anthropogenic materials, and presence of potential asbestos containing materials);
- The results of sample headspace screening (if applicable); and
- The need for specific qualitative or quantitative data to inform assessment of risk associated with other laboratory analytical data (e.g. pH, cation exchange capacity, clay content, organic carbon content).

The laboratory analytical schedule (including upper limiting sample quantities) adopted for this project, is set out in **Table 6.7.7**.

Table 6.7.7 Laboratory Analytical Quantities

ID	AEC	Sampling Point ID	TRH/BTEX	PAH	OCP	PCB	Metals (8)	Asbestos (0.001%)	pHF/pHFox	CRS
AEC01	Site footprint (920m ² and ~1m thick)	BH01-BH08 (from Alliance (2024b)) TP01-TP08 (for asbestos analysis only)	8	8	8	8	8	8	-	-
	Site footprint (920m ² and 1m maximum disturbance depth)	BH01, BH04, BH05 and BH06 (from Alliance (2024b))	-	-	-	-	-	-	20	8

6.7.8 Analytical Methods, Limits of Reporting and Holding Times

The analytical methods, limits of reporting and sample holding times adopted for this project, are set out in **Table 6.7.8**

Table 6.7.8 Analytical Methods, Limits of Reporting and Holding Times

Analyte	Method	Limit of Reporting (mg/kg)	Limit of Reporting (µg/L)	Limit of Reporting (ug/m ³)	Holding Time
BTEX and TRH C ₆ -C ₁₀	USEPA 5030, 8260B and 8020	0.2-0.5	1-2 and 50	-	14 days
TRH C ₁₀ -C ₄₀	USEPA 8015B & C	20-100	50-500	-	14 days
PAH	USEPA 8270	0.1-0.2	0.5-10	-	14 days
PCB	USEPA 8270	0.2	-	-	14 days
OCP	USEPA 8081	0.2	-	-	14 days
Metals	USEPA 6010, 6020	0.4-5	0.0002-0.001	-	6 months
Metals (Hg and Cr ^{vi})	USEPA 8015B & C	0.05-2	0.1-5	-	6 months (soils) 28 days (waters)
Asbestos ID	AS4926	Absence / presence	-	-	No limit
Asbestos (WA DOH)	Inhouse	0.001% w/w	-	-	No limit
pHF and pHFox	AN104	0.1 pH unit	-	-	24 hours
CRS	AS 4969	0.005%	-	-	24 hours / 7 days if frozen/dried

7 Fieldwork

7.1 Soils

Fieldwork was carried out over two occasions, the first being the fieldwork for Alliance (2024b) and the second, to carry out asbestos in soils assessment in accordance with WA DOH (2009) guidance, which was not carried out during Alliance (2024b).

7.1.1 Sampling

7.1.1.1 Alliance (2024b) fieldwork

Soil sampling works were undertaken on 18 November 2024 by a suitably experienced Alliance environmental consultant (Daniel Hilton) to collect samples for chemical analysis.

These works included:

- Undertaking a survey of each sampling point by a service locating contractor for buried metallic services;
- Drilling of four boreholes (BH02, BH04, BH05 and BH08) using a track mounted drilling rig fitted with push tubes and augers; and
- Drilling of four boreholes (BH01, BH03, BH06 and BH07) using a hand auger.

Soil samples were collected at each sampling point, at the surface and at regular intervals thereafter, or at depths where visual or olfactory evidence of contamination was encountered.

Samples were collected directly from the push tube liner or hand auger, using a fresh pair of nitrile gloves.

Samples were placed in suitable laboratory prepared containers and labelled. Samples collected for acid sulfate soils assessment had the air removed from the zip lock bag, and the sample sealed with the zip lock.

Boreholes were backfilled with excess drill cuttings and clean sand, and the surface reinstated with rapid-set concrete.

Duplicate and triplicate samples were collected by splitting the primary sample across three sample containers (without homogenising, to avoid loss of volatiles).

Rinsate samples were collected following decontamination of re-usable sampling equipment, by pouring deionised water across the equipment and collecting the runoff in laboratory prepared sample containers.

A trip spike, trip blank and field blank was used.

Samples were placed in insulated containers with ice and ice bricks.

Sampling point locations were confirmed on a site plan. The sampling point location plan is presented in **Figure 4**.

7.1.1.2 Additional Fieldwork

Soil sampling works were undertaken on 6 January 2025 by suitably experienced Alliance environmental consultants (Sam Jones) to complete the asbestos in soils assessment in accordance with WA DOH (2009).

These works included:

- Undertaking a survey of each sampling point by a service locating contractor for buried metallic services;
- Excavation of eight test pits (TP01 to TP08) using a 3.5 tonne tracked hydraulic excavator.

A grid-based walkover of the surface of the site, was undertaken for the purpose of assessing the presence of visible asbestos in surface soils.

A 10L bulk sample was collected at each test pit sampling point, at the surface and for each metre (or part thereof) of inferred fill material encountered. Sub samples of 500ml volume were taken as separate samples to 10L bulk samples.

Samples were placed in suitable laboratory prepared containers and labelled.

Test pits were backfilled with excavated soils and track rolled.

Sampling point locations were confirmed on a site plan. The sampling point location plan is presented in **Figure 5**.

Image 7.1.1.1 Test pit works a



7.1.2 Site Specific Geology

Observations made of the soils encountered during intrusive investigation works on site, were recorded on relevant field logs. A copy of those logs is presented in **Appendix E**.

A summary of those observations, in the context of subsurface conditions at the site, is presented in **Table 7.1.2**.

Observations during Alliance (2024b) fieldwork are presented within **Table 3.1**. A copy of those logs are presented in **Appendix C**.

p

Table 7.1.2. Site Specific Geology

Unit	Description	Depth (m bgl)
Fill	Gravelly Silty SAND / Silty Sandy CLAY, subangular, brown / dark brown, minor clay, with rootlets, roots, glass, brick, sandstone cobbles, plaster, trace slag	0-1.0
Natural	Silty CLAY / Silty Gravelly CLAY, low to medium plasticity, pale grey mottled pale orange / brown mottles pale orange with trace sand	0.5-1.3
Natural	Clayey SAND, fine grained, subrounded, pale grey mottled pale orange	1-1.3

Image 7.1.2.1 Example geology encountered during works



7.1.3 Soil Staining and Odours

Visual evidence of staining was not observed in the soil samples collected.

Olfactory evidence of odours was not detected in the soil samples collected.

7.1.4 Headspace Screening

Headspace screening was not carried out during either phase of investigation. Discussion around this is made within **Appendix G**.

7.1.5 Asbestos Containing Materials and Fibrous Asbestos

Evidence of visual asbestos in surface soils was not observed a grid-based walkover of the site.

The 10L bulk soil samples were weighed and the weights recorded (to inform assessment of site-specific soil densities). The samples were then screened by spreading on contrasting plastic.

Visual evidence of potential asbestos containing materials (ACM) was not observed in the samples collected.

Image 7.1.5.1 Example of gravimetric screening carried out



7.1.6 Observations of Potential ASS Material Indicators

During the fieldwork, Alliance made the following observations of the soils assessed:

- Unripe muds (soft, sticky and can be squeezed between fingers, blue grey or dark greenish grey mud with a high water content) or waterlogged soils, were not encountered;
- Estuarine silty sands or sands (mid to dark grey) or bottom sediments (dark grey to black for example monosulfidic black oozes) were not encountered;
- Peat or peaty soils were not encountered;
- Coffee rock horizons were not encountered;
- A sulfurous smell for example hydrogen sulfide or 'rotten egg' gas, was not encountered;
- Jarositic horizons or substantial iron oxide mottling in the surface encrustations or in any material excavated and left exposed, were not encountered;
- Presence of corroded mollusc shells were not encountered;
- Dead, dying or stunted vegetation was not encountered;
- Scalding or bare low-lying areas were not encountered; and
- Corrosion of concrete or steel structures was not encountered.

8 Laboratory Analysis

The collected samples were transported to the analytical laboratory using chain of custody (COC) protocols.

A selection of those samples were scheduled for laboratory analysis, taking into consideration the laboratory analytical schedule presented in **Table 6.7.7**, observations made in the field, and the results of field and headspace screening.

A copy of the COC, sample receipts and certificates of analysis, is presented in **Appendix F**.

The relevant laboratory analytical results were tabulated and presented in the attached **Table LR1**, **Table LR2** and **Table LR3**, to allow comparison with assessment criteria adopted for this project.

9 Data Quality Indicator (DQI) Assessment

In order to assess the quality of the field and laboratory analytical data collected for this project, that data was compared against the data quality indicators (DQI) established for this project (refer **Section 6.5.5**).

The results of that comparison is presented in **Appendix G**.

The DQI comparison results indicate that the field and laboratory data are adequately complete, comparable, representative, precise and unbiased (accurate), with in the context and objectives of this project.

10 Site Characterisation Discussion

10.1 Exposure Pathways

10.1.1 Human Health

10.1.1.1 Dermal Contact / Ingestion / Dust Inhalation

The detected concentrations of the relevant COPC in the soil samples analysed, were less than the adopted human health dermal contact, ingestion and dust inhalation assessment criteria.

Further assessment of dermal contact, ingestion and dust inhalation human health exposure risks is considered not warranted.

10.1.1.2 Asbestos Containing Materials

Fragments of ACM encountered during field screening, that would not pass through a 7mm x 7mm sieve, were not observed during field screening of relevant bulk soil samples.

No asbestos containing fragments were identified during the gravimetric assessment.

Further assessment of ACM in soil human health exposure risks is considered not warranted.

10.1.1.3 Fibrous Asbestos / Asbestos Fines

The concentrations of FA and AF detected in the soil samples analysed, were less than the adopted health screening level of 0.001% w/w, with the exception of the concentration detected in sample TP03/0.0-0.2 (0.003 % w/w). The sampling points where the exceedances of the adopted criterion occurred, are presented graphically in **Figure 6**.

Further assessment of fibrous asbestos / asbestos fines in soil human health exposure risks is considered warranted.

10.1.1.4 Asbestos in Surface Soils

Evidence of visible asbestos in surface soils was not observed during fieldwork.

Further assessment of visible asbestos in surface soil risks is considered not warranted.

10.1.2 Management Limits for Petroleum Hydrocarbons

The detected concentrations of the relevant COPC in the soil samples analysed, were less than the adopted management limits for petroleum hydrocarbon assessment criteria.

Further assessment of management limit soil risks is considered not warranted.

10.2 Acid Sulfate Soils Screening

10.2.1 Field pH

On the basis that:

- The pHF analytical results were greater than the preliminary 'actual acid sulfate soils' screening criterion of $\text{pH} \leq 4$; and
- Jarosite was not observed in the soils assessed,

actual acid sulfate soils (AASS) are unlikely to be present in the soils assessed.

10.2.2 Field pHFox

The pH delta between pHF and pHFox results was often greater than one pH unit, however on the basis that:

- pHFox analytical results were only below 3 for one sample (BH02-0_0.1);
- Reaction rates were predominately no reaction to moderate reaction ratings with only four noted as strong and none as extreme;

Widespread potential acid sulfate soils (PASS) are unlikely to be present in the soils assessed.

10.3 Chromium Reducible Sulfur

A selection of the soil samples based on field screening results, spatial / lithological representativeness, and professional judgement, were subjected to chromium reducible sulfur (CRS) laboratory analysis.

For the purpose of deriving action criteria, Alliance (2024b) reviewed:

- Observations of the soils encountered and reported in the borehole logs, and their textures in the context of Table 5.1 of Sullivan et al (2018a) and Appendix D in Sullivan et al (2018b); and
- Information regarding the extent of proposed soil disturbance of less than 1,000 tonne based on Table 5.4 of Sullivan et al (2018b).

The CRS laboratory analytical results were compared with the adopted action criteria, which was adopted as the following:

- Fill: Coarse and Peats (sands to loamy sands), ≥ 0.03 % sulfur and ≥ 18 mol H+/t.
- Natural: Medium (clayey sand to light clays), ≥ 0.06 % sulfur and ≥ 36 mol H+/t.

The sulfur trail (% sulfur) and (mol H+/t) acid trail analytical results, using the CRS method, were greater than the relevant action criteria in Table 5.4 of Sullivan et al (2018), in one of the samples analysed (BH02-0_0.1). When considered in the context of the screening results, this indicated that potential acid sulfate soils (PASS) may be present on site at that sampling point.

10.4 Site Specific Risk Assessment

Guidance in Section 1.3 of Sullivan et al (2018a) and Section 1.4 of Sullivan et al (2018b) advises that naturally occurring acidic soils:

- Are not uncommon;
- Are not necessarily acid sulfate soils;
- Are not considered an environmental hazard;
- Are usually part of an acidophilic ecosystems whose health depends on maintaining an acidic environment;
- Do not require management to change their acidity; and
- If limed, can lead to unnaturally alkaline environments, and can result in ecological damage to acidophilic organisms that relied on the acid nature of these ecosystems.

Therefore, distinction needs to be made between acid soils and acid sulfate soils.

Guidance in Section 1.3 of Sullivan et al (2018b) advises that in order for soils to be considered sulfidic (in the context of ASS material), essentially the soil material needs to contain greater than or equal to 0.01% reduced inorganic sulfur (RIS) by mass.

The percentage of RIS (by mass) detected in the soil sample analysed where the relevant action criteria was exceeded (reported as chromium reducible sulfur (s-SCr)) was less than 0.01%.

Alliance notes that the concentration of RIS within sample BH02-2.5-2.6 was 0.012%, however this sample did not exceed the action criteria, that would necessitate management in the context of acid sulfate soils.

This combined with a weight of evidence approach based on the available data indicated that the soils assessed are naturally occurring acidic soils, and not acid sulfate soils that require management.

Therefore, further assessment and management of acid sulfate soils, in the context of this project is considered not warranted.

11 Revised Conceptual Site Model

Consistent with guidance provided in Section 4.2 of NEPC (2013b), the conceptual site model (CSM) presented in **Section 5.6** has reviewed to reflect the data collected during this project, and subsequent assessment of that data against the screening criteria adopted for this project.

An updated CSM is presented in **Table 11**. The locations of the AEC considered in the CSM, are presented in **Figure 7**.

Table 11 Revised Conceptual Site Model

ID	AEC	Land Contaminating Activity (Source)	COPC	Exposure Pathway	Receptor	Outcome
AEC01	Site footprint (920m ² and ~1m thick)	Uncontrolled filling Migration / leaching of hazardous building materials from adjacent ice-skating rink building Application of termite treatment chemicals on eastern boundary of site (for ice skating rink building)	Petroleum hydrocarbons, polycyclic aromatic hydrocarbons, pesticides, polychlorinated biphenyl, metals, asbestos	Dermal contact Soil Ingestion Dust inhalation Inhalation (asbestos) Management limits	Commercial workers Intrusive maintenance workers	The field and laboratory analytical data for site soils were less than or equal the adopted Tier 1 screening criteria, with the exception of asbestos fines within TP03-0-0.2. Further assessment of asbestos fines is considered warranted.
	Acid sulfate soils	Sulfidic ores and hydrogen sulfide	Building / infrastructure and ecosystem contact H ₂ S inhalation	Site environment and structures Intrusive maintenance workers	Acid sulfate soils	The field and laboratory analytical data for site soils were less than or equal the adopted Tier 1 screening. No further assessment warranted.

12 Duty to Report Contamination

Section 1.3 of NSW EPA (2020b) states that contaminated land consultants should take reasonable steps to draw the client's attention to its potential duty to report contamination under section 60 of the Contaminated Land Management Act 1997.

Section 2 in NSW EPA (2015) includes guidance on how to address reporting obligations under section 60 of the Contaminated Land Management Act 1997, including those parties required to notify EPA as soon as practical after they become aware of contamination. Those parties include:

- Anyone whose activities have contaminated land; or
- An owner of land that has been contaminated.

Alliance understands that the client is the owner and/or occupier of the land that the site is located on. However, the scope of work that Alliance was engaged to undertake for this project, did not include assessment of site contamination data against the relevant duty to report notification triggers provided in NSW EPA (2015).

Alliance notes however that a duty to report can be triggered when:

- friable asbestos is detected above the adopted health screening level in a soil sample, AND
- a person has been or foreseeably will be, exposed to elevated levels of asbestos fibres by breathing them into their lungs.

It is plausible that this test may be satisfied for this site, if it were to be assessed.

If the client:

- has undertaken activities on the site that may have contaminated the land; or
- is the owner of the land that may have been contaminated;

then NSW EPA (2015) includes guidance on when the client should seek further advice about site contamination and its obligations regarding the duty to report. Additional information on the client's duty to report can be found at www.epa.nsw.gov.au.

13 Conclusions and Recommendations

Based on the assessment undertaken by Alliance of site history information, fieldwork observations and data, and laboratory analytical data, in the context of the proposed land use scenario and objectives of this project, Alliance has made the following conclusions:

- There is a potential for land contamination to be present on the site;
- Detected concentrations of friable asbestos in soils in TP03 (AEC01) may present an unacceptable human health exposure risk. Further assessment would be required to draw a conclusion on that risk;
- The previously issued waste classification assessment Alliance (2024b) is considered to now be out of date and requires updating;
- The site could be made suitable for the following land use scenario:
 - Commercial / industrial such as shops, offices, factories and industrial sites,

subject to the undertaking of a supplementary contamination assessment (SCA), and management / remediation of identified unacceptable human health exposure risks.

- A duty to report land contamination under section 60 of the Contaminated Land Management Act 1997 can be triggered when:
 - friable asbestos is detected above the adopted health screening level in a soil sample, AND
 - a person has been or foreseeably will be, exposed to elevated levels of asbestos fibres by breathing them into their lungs.

It is plausible that this test may be satisfied for this site, if it were to be assessed; and

- Specific assumptions that apply to the adopted land use scenario, are presented in **Section 5** of this report.
- In the event the proposed development changes from that which was considered during this assessment, then the data must be re-assessed, which may result in a difference outcome.

Based on these conclusions, Alliance makes the following recommendations:

- Alliance (2024b) must be updated to include consideration of this additional data prior to any disturbance of soils;
- An interim management plan (IMP) should be prepared that outline mitigation measures to be implemented onsite to adequately manage identified asbestos risks onsite, prior to further assessment, management or remediation of the site;
- An assessment of whether the friable asbestos in soil test in NSW EPA (2015) has been satisfied, should be undertaken, to inform duty to report land contamination under section 60 of the Contaminated Land Management Act 1997 decision making (noting the decision making may require advice from a suitably experienced legal practitioner);
- A remedial action plan (RAP) should be prepared to address the identified unacceptable human health exposure risks identified within AEC01. The RAP should include a methodology for
 - delineation of identified land contamination risks in AEC01; and
 - validation of management / remedial works.

- Further assessment, management or remedial planning works for the site, be undertaken by a suitably experienced environmental consultant.

This report must be read in conjunction with the ***Important Information About This Report*** statements at the front of this report.

14 References

Alliance 2024a 'Preliminary Site Investigation, Canterbury Ice Rink, Portion of 17A Phillips Avenue, Canterbury, NSW 2193' dated 4 December 2024, ref 18587-ER-2-1.

Alliance 2024b 'Waste Classification and Virgin Excavated Natural Material Report, Canterbury Ice Rink, Portion of 17A Phillips Avenue, Canterbury, NSW 2193' dated 4 December 2024, ref 18587-ER-1-1.

ANZG 2018, 'Australian and New Zealand guidelines for fresh and marine water quality' (<https://www.waterquality.gov.au/anz-guidelines>).

AS 4482.1-2005 'Guide to the investigation and sampling of sites with potentially contaminated soil, Part 1: Non-volatile and semi-volatile compounds' dated November 2005.

AS 4482.2-1999 'Guide to the sampling and investigation of potentially contaminated soil, Part 1: Non-volatile and semi-volatile compounds' dated September 1999.

Friebel, E & Nadebaum, P 2011, 'Health screening levels for petroleum hydrocarbons in soil and groundwater. Part 2: Application document', CRC CARE Technical Report No. 10.

HEPA 2020, 'PFAS National Environmental Management Plan', dated January 2020, version 2.0

National Environment Protection Council (NEPC) 2013a, 'Schedule B(1) Guideline on Investigation Levels for Soil and Groundwater', National Environment Protection (Assessment of Site Contamination) Measure (NEPM) as amended in May 2013.

National Environment Protection Council (NEPC) 2013b, 'Schedule B(2) Guideline on Site Characterisation', National Environment Protection (Assessment of Site Contamination) Measure (NEPM) as amended in May 2013.

National Environment Protection Council (NEPC) 2013c, 'Schedule B(3) Guideline on Laboratory Analysis of Potentially Contaminated Soil', National Environment Protection (Assessment of Site Contamination) Measure (NEPM) as amended in May 2013.

National Environment Protection Council (NEPC) 2013d, 'Schedule B(4) Guideline on Site-Specific Health Risk Assessment Methodology', National Environment Protection (Assessment of Site Contamination) Measure (NEPM) as amended in May 2013.

National Environment Protection Council (NEPC) 2013e, 'Schedule B(5a) Guideline on Ecological Risk Assessment', National Environment Protection (Assessment of Site Contamination) Measure (NEPM) as amended in May 2013.

National Environment Protection Council (NEPC) 2013f, 'Schedule B(5b) Guideline on Methodology to Derive Ecological Investigation Levels in Contaminated Soils', National Environment Protection (Assessment of Site Contamination) Measure (NEPM) as amended in May 2013.

National Environment Protection Council (NEPC) 2013g, 'Schedule B(5c) Guideline on Ecological Investigation Levels for Arsenic, Chromium (III), Copper, DDT, Lead, Naphthalene, Nickel and Zinc', National Environment Protection (Assessment of Site Contamination) Measure (NEPM) as amended in May 2013.

National Environment Protection Council (NEPC) 2013h, 'Schedule B(6) Guideline on The Framework for Risk-Based Assessment of Groundwater Contamination', National Environment Protection (Assessment of Site Contamination) Measure (NEPM) as amended in May 2013.

National Environment Protection Council (NEPC) 2013i, 'Schedule B(7) Guideline on Derivation of Health-Based Investigation Levels', National Environment Protection (Assessment of Site Contamination) Measure (NEPM) as amended in May 2013.

NSW DEC 2007, 'Contaminated Sites: Guidelines for the Assessment and Management of Groundwater Contamination' dated March 2007, ref: DEC 2007/144.

NSW EPA 2015, 'Guidelines on the Duty to Report Contamination under the Contaminated Land Management Act 1997' dated September 2015, ref: EPA 2015/0164.

NSW EPA 2020a, 'Assessment and management of hazardous ground gases' dated May 2020, ref: EPA 2019P2047

NSW EPA 2020b, 'Contaminated Land Guidelines: Consultants reporting on contaminated land' dated May 2020, ref: EPA2020P2233.

NSW EPA 2022, 'Contaminated Land Guidelines: Sampling design part 1 – application' dated August 2022, ref: EPA 2022P3915.

Sullivan et al 2018a, 'National Acid Sulfate Soils Guidance: National acid sulfate soils sampling and identification methods manual' dated June 2018

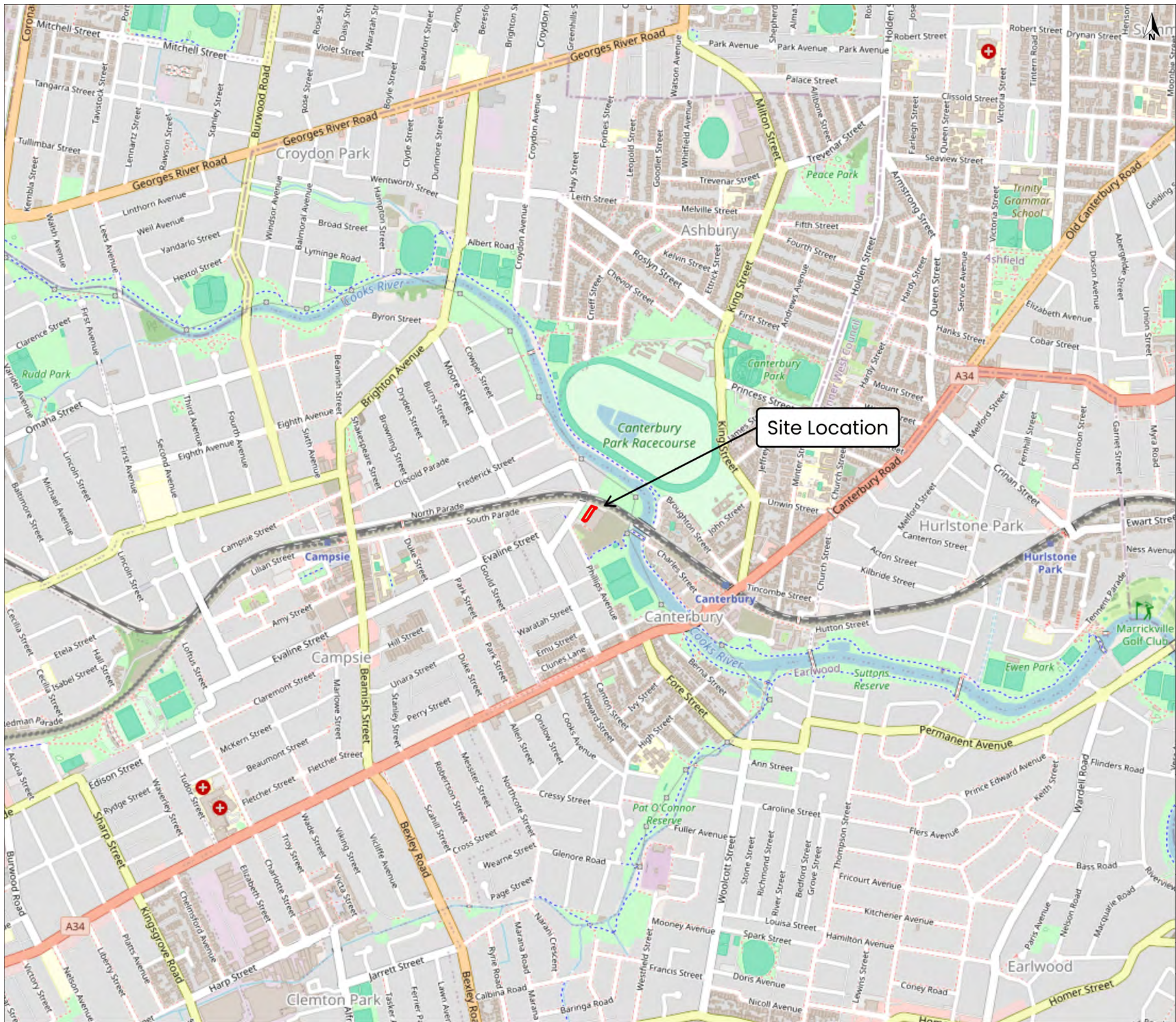
Sullivan et al 2018b, 'National Acid Sulfate Soils Guidance: National acid sulfate soils identification and laboratory methods manual' dated June 2018

WA DWER 2021, 'Assessment and management of contaminated sites', dated November 2021.

WA DOH 2009, 'Guidelines for the Assessment, Remediation and Management of Asbestos Contaminated Sites in Western Australia', dated May 2009.

Warne et al 2018, 'Revised Method for Deriving Australian and New Zealand Water Quality Guideline Values for Toxicants – update of 2015 version'. Prepared for the revision of the Australian and New Zealand Guidelines for Fresh and Marine Water Quality.

FIGURES



Legend
Site Boundary

0 250 m 500 m
© OpenStreetMap contributors

alliance

Produced by **Datanest.earth**

Title: Site Locality Plan		
Client: The Ice Skating Club of NSW Cooperative Limited		Size: A3
Project: Canterbury Olympic Ice Rink	Drawn: DH	Figure No.: 1
Date: 07-01-2025	Checked: JR	
Proj No: 18587	Scale: 1:13500	Version: ER-3-1



Legend

- Site Access
- Site Boundary

0 5 m 10 m
© Nearmap

alliance

Produced by **Datanest.earth**

Title: Site Layout Plan

Client:
The Ice Skating Club of NSW
Cooperative Limited

Size: A3

Project:
Canterbury
Olympic Ice Rink

Drawn: DH

Figure No.: 2

Date: 07-01-2025

Checked:
SW

Proj No: 18587

Scale: 1:393

Version:
ER-3-1



Legend

- Site Boundary
- AEC01 - Site Footprint

0 5 m 10 m
© Nearmap

alliance

Produced by **Datanest.earth**

Title: Areas of Environmental Concern

Client:
The Ice Skating Club of NSW
Cooperative Limited

Size: A3

Project:
Canterbury
Olympic Ice Rink

Drawn: DH

Figure No.: 3

Date: 07-01-2025

Checked:
SW

Proj No: 18587

Scale: 1:391

Version:
ER-3-1



Legend

- Site Boundary
- Approximate Acid Sulfate and Waste Classification
- Bore Locations
- Approximate Waste Classification Bore Locations

0 2.5 m 5 m
© Nearmap

alliance

Produced by **Datanest.earth**

Title: Alliance (2024b) Sampling Plan

Client:
The Ice Skating Club of NSW
Cooperative Limited

Size: A3

Project:
Canterbury
Olympic Ice Rink

Drawn: DH

Figure No.: 4

Date: 07-01-2025

Checked:
SW

Proj No: 18587

Scale: 1:278

Version:
ER-3-1



- Legend**
- Approximate Test Pit Locations
 - Site Boundary

0 5 m 10 m
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Produced by **Datanest.earth**

Title: Sampling Point Layout Plan

Client:
The Ice Skating Club of NSW
Cooperative Limited

Size: A3

Project:
Canterbury
Olympic Ice Rink

Drawn: DH

Figure No.: 5

Date: 07-01-2025

Checked:
SW

Proj No: 18587

Scale: 1:384

Version:
ER-3-1



Legend

- Approximate Test Pit Locations
- Site Boundary
- AEC01 – Site Footprint

0 5 m 10 m

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Produced by **Datanest.earth**

Title: Exceedances – Soils		
Client: The Ice Skating Club of NSW Cooperative Limited		Size: A3
Project: Canterbury Olympic Ice Rink	Drawn: DH	Figure No.: 6
Date: 08-01-2025	Checked: SW	
Proj No: 18587	Scale: 1:328	Version: ER-3-1



Legend

- Site Boundary
- AEC01 - Site Footprint

0 2.5 m 5 m
© Nearmap

alliance

Produced by **Datanest.earth**

Title: Revised Areas of Environmental Concern

Client: The Ice Skating Club of NSW Cooperative Limited		Size: A3
Project: Canterbury Olympic Ice Rink	Drawn: DH	Figure No.: 7
Date: 08-01-2025	Checked: SW	
Proj No: 18587	Scale: 1:247	Version: ER-3-1

TABLES

Table LR1 - Laboratory Analytical Results - Soils



	Metals								Asbestos
	Arsenic	Cadmium	Chromium (III+VI)**	Copper	Lead	Mercury	Nickel	Zinc	Asbestos I.D
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	Comment
EQL	2	0.4	5	5	5	0.1	5	5	
CRC Care HSL-D Commercial / Industrial									
NEPM 2013 Table 1B(7) Management Limits Comm / Ind, Coarse Soil									
NEPM 2013 Table 1B(7) Management Limits Comm / Ind, Fine Soil									
NEPM 2013 Table 1A(1) HILs Comm/Ind D Soil	3,000	900		240,000	1,500	730	6,000	400,000	

Field ID	Date									
BH01-0.0-0.1	18 Nov 2024	14	<0.4	22	17	71	0.2	<5	58	ND
BH01-0.3-0.4	18 Nov 2024	34	<0.4	28	54	270	1.0	13	210	ND
BH01-0.6-0.7	18 Nov 2024	3.9	<0.4	8.1	17	67	0.4	<5	27	ND
BH02-0.0-0.1	18 Nov 2024	9.4	<0.4	14	9.3	40	0.1	<5	27	ND
BH02-0.5-0.6	18 Nov 2024	5.6	<0.4	11	<5	20	<0.1	<5	<5	ND
BH03-0.0-0.1	18 Nov 2024	18	<0.4	22	8.9	96	0.2	<5	93	ND
BH03-0.3-0.4	18 Nov 2024	9.1	<0.4	12	<5	17	<0.1	<5	<5	ND
BH04-0.0-0.1	18 Nov 2024	9.4	<0.4	14	5.6	130	0.3	<5	140	ND
BH04-0.5-0.6	18 Nov 2024	20	<0.4	23	<5	22	<0.1	<5	15	ND
BH05-0.0-0.1	18 Nov 2024	11	<0.4	16	71	1,300	0.5	<5	490	ND
BH05-0.5-0.6	18 Nov 2024	11	<0.4	19	11	140	0.2	<5	77	ND
BH05-0.6-0.7	18 Nov 2024	22	<0.4	27	<5	43	<0.1	<5	16	ND
BH06-0.0-0.1	18 Nov 2024	13	<0.4	20	12	63	0.2	<5	40	ND
BH06-0.5-0.6	18 Nov 2024	17	<0.4	27	<5	26	<0.1	<5	<5	ND
BH07-0.0-0.1	18 Nov 2024	12	<0.4	18	36	200	0.2	6.2	110	ND
BH07-0.5-0.6	18 Nov 2024	10	<0.4	17	6.5	41	<0.1	<5	<5	ND
BH08-0.0-0.1	18 Nov 2024	10.0	<0.4	15	9.6	47	<0.1	<5	29	ND
BH08-0.5-0.6	18 Nov 2024	12	<0.4	15	<5	20	<0.1	<5	<5	ND
DUP01	18 Nov 2024	9.1	<0.4	15	7.6	69	0.1	<5	71	

Statistics									
Number of Results	19	19	19	19	19	19	19	19	18
Number of Detects	19	0	19	13	19	11	2	14	18
Minimum Concentration	3.9	<0.4	8.1	<5	17	0.1	<5	<5	1
Minimum Detect	3.9	ND	8.1	5.6	17	0.1	6.2	15	1
Maximum Concentration	34	<0.4	28	71	1,300	1	13	490	1
Maximum Detect	34	ND	28	71	1,300	1	13	490	1
Average Concentration *	13	0.2	18	15	141	0.2	3.2	74	1
Median Concentration *	11	0.2	17	8.9	63	0.1	2.5	29	1
Standard Deviation *	6.8	0	5.6	19	288	0.23	2.5	115	0
95% UCL (Student's-t) *	15.89	0.2	20.3	22.25	255.9	0.293	4.246	120.2	1
% of Detects	100	0	100	68	100	58	11	74	100
% of Non-Detects	0	100	0	32	0	42	89	26	0

* A Non Detect Multiplier of 0.5 has been applied.
**Chromium VI
D / ND = Detect / Non=Detect
Environmental Standards
CRC Care, 2011, CRC Care HSL-D Commercial / Industrial
NEPM, NEPM 2013 Table 1B(7) Management Limits Comm / Ind, Coarse Soil
NEPM, NEPM 2013 Table 1B(7) Management Limits Comm / Ind, Fine Soil
2013, NEPM 2013 Table 1A(1) HILs Comm/Ind D Soil

Table LR1 - Laboratory Analytical Results - Soils



	BTEX							TRH							TPH				
	Naphthalene (VOC)	Benzene	Toluene	Ethylbenzene	Xylene (m & p)	Xylene (o)	Xylene Total	C6-C10 Fraction (F1)	C6-C10 (F1 minus BTEX)	>C10-C16 Fraction (F2)	>C10-C16 Fraction (F2 minus Naphthalene)	>C16-C34 Fraction (F3)	>C34-C40 Fraction (F4)	>C10-C40 Fraction (Sum)	C6-C9 Fraction	C10-C14 Fraction	C15-C28 Fraction	C29-C36 Fraction	C10-C36 Fraction (Sum)
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL	0.5	0.1	0.1	0.1	0.2	0.1	0.3	20	20	50	50	100	100	100	20	20	50	50	50
CRC Care HSL-D Commercial / Industrial	11,000	430	99,000	27,000			81,000	26,000		20,000		27,000	38,000						
NEPM 2013 Table 18(7) Management Limits Comm / Ind, Coarse Soil								700		1,000		3,500	10,000						
NEPM 2013 Table 18(7) Management Limits Comm / Ind, Fine Soil								800		1,000		5,000	10,000						
NEPM 2013 Table 1A(1) HILs Comm/Ind D Soil																			

Field ID	Date																		
BH01-0.0-0.1	18 Nov 2024	<0.5	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<20	<20	<50	<50	<100	<100	<100	<20	<20	<50	<50
BH01-0.3-0.4	18 Nov 2024	<0.5	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<20	<20	<50	<50	150	<100	150	<20	<20	120	50
BH01-0.6-0.7	18 Nov 2024	<0.5	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<20	<20	<50	<50	<100	<100	<100	<20	<20	<50	<50
BH02-0.0-0.1	18 Nov 2024	<0.5	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<20	<20	<50	<50	110	<100	110	<20	<20	63	<50
BH02-0.5-0.6	18 Nov 2024	<0.5	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<20	<20	<50	<50	<100	<100	<100	<20	<20	<50	<50
BH03-0.0-0.1	18 Nov 2024	<0.5	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<20	<20	<50	<50	<100	<100	<100	<20	23	<50	<50
BH03-0.3-0.4	18 Nov 2024	<0.5	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<20	<20	<50	<50	<100	<100	<100	<20	<20	<50	<50
BH04-0.0-0.1	18 Nov 2024	<0.5	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<20	<20	<50	<50	<100	<100	<100	<20	<20	<50	<50
BH04-0.5-0.6	18 Nov 2024	<0.5	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<20	<20	<50	<50	<100	<100	<100	<20	22	<50	<50
BH05-0.0-0.1	18 Nov 2024	<0.5	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<20	<20	<50	<50	<100	<100	<100	<20	<20	<50	<50
BH05-0.5-0.6	18 Nov 2024	<0.5	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<20	<20	<50	<50	<100	<100	<100	<20	<20	<50	<50
BH05-0.6-0.7	18 Nov 2024	<0.5	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<20	<20	<50	<50	300	570	870	<20	<20	93	400
BH06-0.0-0.1	18 Nov 2024	<0.5	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<20	<20	<50	<50	<100	<100	<100	<20	<20	<50	<50
BH06-0.5-0.6	18 Nov 2024	<0.5	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<20	<20	<50	<50	<100	<100	<100	<20	<20	<50	<50
BH07-0.0-0.1	18 Nov 2024	<0.5	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<20	<20	<50	<50	<100	<100	<100	<20	<20	<50	<50
BH07-0.5-0.6	18 Nov 2024	<0.5	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<20	<20	<50	<50	<100	<100	<100	<20	<20	<50	<50
BH08-0.0-0.1	18 Nov 2024	<0.5	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<20	<20	<50	<50	<100	<100	<100	<20	<20	<50	<50
BH08-0.5-0.6	18 Nov 2024	<0.5	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<20	<20	<50	<50	<100	<100	<100	<20	<20	<50	<50
DUP01	18 Nov 2024																		

Statistics																			
Number of Results	19	19	19	19	19	19	19	19	19	18	18	18	18	18	19	18	18	18	18
Number of Detects	0	0	0	0	0	0	0	0	0	0	0	3	1	3	0	2	3	2	3
Minimum Concentration	<0.5	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<20	<20	<50	<50	<100	<100	<100	<20	<20	<50	50	<50
Minimum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	110	570	110	ND	22	63	50	63
Maximum Concentration	<0.5	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<20	<20	<50	<50	300	570	870	<20	23	120	400	493
Maximum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	300	570	870	ND	23	120	400	493
Average Concentration *	0.25	0.05	0.05	0.05	0.1	0.05	0.15	10	10	25	25	73	79	104	10	11	36	47	61
Median Concentration *	0.25	0.05	0.05	0.05	0.1	0.05	0.15	10	10	25	25	50	50	50	10	10	25	25	25
Standard Deviation *	0	0	0	0	0	0	0	0	0	0	0	63	123	193	0	4	27	88	113
95% UCL (Student's-t) *	0.25	0.05	0.05	0.05	0.1	0.05	0.15	10	10	25	25	98.47	129.1	183.5	10	13.05	47.44	83.4	107.6
% of Detects	0	0	0	0	0	0	0	0	0	0	0	17	6	17	0	11	17	11	17
% of Non-Detects	100	100	100	100	100	100	100	100	100	100	100	83	94	83	100	89	83	89	83

* A Non Detect Multiplier of 0.5 has been applied.

**Chromium VI

D / ND = Detect /

Non=Detect

Environmental Standards

CRC Care, 2011, CRC Care HSL-D Commercial / Industrial

NEPM, NEPM 2013 Table 18(7) Management Limits Comm / Ind, Coarse Soil

NEPM, NEPM 2013 Table 18(7) Management Limits Comm / Ind, Fine Soil

2013, NEPM 2013 Table 1A(1) HILs Comm/Ind D Soil

Table LR1 - Laboratory Analytical Results - Soils



	PAH																		Halogenated Benzenes
	Acenaphthene	Acenaphthylene	Anthracene	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b+j)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Chrysene	Dibenz(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-c,d)pyrene	Naphthalene	Phenanthrene	Pyrene	Benzo(a)pyrene TEQ calc (Zero)	PAHs (Sum of total)	Hexachlorobenzene
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.05
CRC Care HSL-D Commercial / Industrial														11,000					
NEPM 2013 Table 1B(7) Management Limits Comm / Ind, Coarse Soil																			
NEPM 2013 Table 1B(7) Management Limits Comm / Ind, Fine Soil																			
NEPM 2013 Table 1A(1) HILs Comm/Ind D Soil																	40	4,000	80

Field ID	Date																		
BH01-0.0-0.1	18 Nov 2024	<0.5	<0.5	<0.5	<0.5	0.5	<0.5	<0.5	0.6	<0.5	<0.5	0.9	<0.5	<0.5	<0.5	<0.5	0.8	0.6	2.8
BH01-0.3-0.4	18 Nov 2024	<0.5	<0.5	1.9	1.9	1.7	1.8	0.9	2.2	2.7	0.5	6.0	<0.5	0.8	<0.5	5.8	4.1	2.9	30
BH01-0.6-0.7	18 Nov 2024	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
BH02-0.0-0.1	18 Nov 2024	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.7	<0.5	<0.5	<0.5	<0.5	0.6	<0.5	1.3
BH02-0.5-0.6	18 Nov 2024	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
BH03-0.0-0.1	18 Nov 2024	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
BH03-0.3-0.4	18 Nov 2024	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
BH04-0.0-0.1	18 Nov 2024	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
BH04-0.5-0.6	18 Nov 2024	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
BH05-0.0-0.1	18 Nov 2024	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.8	<0.5	<0.5	<0.5	<0.5	0.7	<0.5	1.5
BH05-0.5-0.6	18 Nov 2024	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
BH05-0.6-0.7	18 Nov 2024	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
BH06-0.0-0.1	18 Nov 2024	<0.5	<0.5	<0.5	<0.5	0.6	1.0	<0.5	0.9	0.5	<0.5	0.9	<0.5	<0.5	<0.5	<0.5	0.8	0.8	4.7
BH06-0.5-0.6	18 Nov 2024	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
BH07-0.0-0.1	18 Nov 2024	<0.5	<0.5	0.7	0.6	0.6	1.1	0.5	1.0	0.6	<0.5	0.8	<0.5	<0.5	<0.5	<0.5	0.8	0.9	6.7
BH07-0.5-0.6	18 Nov 2024	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
BH08-0.0-0.1	18 Nov 2024	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
BH08-0.5-0.6	18 Nov 2024	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
DUP01	18 Nov 2024																		

Statistics																			
Number of Results	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18
Number of Detects	0	0	2	2	4	3	2	4	3	1	6	0	1	0	1	6	4	6	0
Minimum Concentration	<0.5	<0.5	<0.5	<0.5	0.5	<0.5	0.5	<0.5	0.5	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Minimum Detect	ND	ND	0.7	0.6	0.5	1	0.5	0.6	0.5	0.5	0.7	ND	0.8	ND	5.8	0.6	0.6	1.3	ND
Maximum Concentration	<0.5	<0.5	1.9	1.9	1.7	1.8	0.9	2.2	2.7	0.5	6	<0.5	0.8	<0.5	5.8	4.1	2.9	30	<0.5
Maximum Detect	ND	ND	1.9	1.9	1.7	1.8	0.9	2.2	2.7	0.5	6	ND	0.8	ND	5.8	4.1	2.9	30	ND
Average Concentration *	0.25	0.25	0.37	0.36	0.38	0.43	0.3	0.46	0.42	0.26	0.73	0.25	0.28	0.25	0.56	0.6	0.48	2.8	0.05
Median Concentration *	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.025
Standard Deviation *	0	0	0.4	0.39	0.35	0.43	0.16	0.49	0.58	0.059	1.3	0	0.13	0	1.3	0.9	0.64	7	0.073
95% UCL (Student's-t) *	0.25	0.25	0.529	0.522	0.527	0.601	0.366	0.658	0.656	0.288	1.278	0.25	0.334	0.25	1.095	0.97	0.744	5.661	0.0798
% of Detects	0	0	11	11	22	17	11	22	17	6	33	0	6	0	6	33	22	33	0
% of Non-Detects	100	100	89	89	78	83	89	78	83	94	67	100	94	100	94	67	78	67	100

* A Non Detect Multiplier of 0.5 has been applied.

**Chromium VI

D / ND = Detect /

Non=Detect

Environmental Standards

CRC Care, 2011, CRC Care HSL-D Commercial / Industrial

NEPM, NEPM 2013 Table 1B(7) Management Limits Comm / Ind, Coarse Soil

NEPM, NEPM 2013 Table 1B(7) Management Limits Comm / Ind, Fine Soil

2013, NEPM 2013 Table 1A(1) HILs Comm/Ind D Soil

Table LR1 - Laboratory Analytical Results - Soils



	Organochlorine Pesticides																							
	Organochlorine pesticides EPAVic	Other organochlorine pesticides EPAVic	4,4-DDE	a-BHC	Aldrin	Aldrin + Dieldrin	b-BHC	Chlordane	d-BHC	DDD	DDT	DDT+DDE+DDD	Dieldrin	Endosulfan I	Endosulfan II	Endosulfan sulphate	Endrin	Endrin aldehyde	Endrin ketone	g-BHC (Lindane)	Heptachlor	Heptachlor epoxide	Methoxychlor	Toxaphene
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL	0.1	0.1	0.05	0.05	0.05	0.05	0.05	0.1	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.5
CRC Care HSL-D Commercial / Industrial																								
NEPM 2013 Table 1B(7) Management Limits Comm / Ind, Coarse Soil																								
NEPM 2013 Table 1B(7) Management Limits Comm / Ind, Fine Soil																								
NEPM 2013 Table 1A(1) HILs Comm/Ind D Soil						45		530				3,600					100				50		2,500	160

Field ID	Date																							
BH01-0.0-0.1	18 Nov 2024	<0.1	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.5	
BH01-0.3-0.4	18 Nov 2024	<1	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<10	
BH01-0.6-0.7	18 Nov 2024	<0.1	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.5	
BH02-0.0-0.1	18 Nov 2024	<0.1	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.5	
BH02-0.5-0.6	18 Nov 2024	<0.1	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.5	
BH03-0.0-0.1	18 Nov 2024	<0.1	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.5	
BH03-0.3-0.4	18 Nov 2024	<0.1	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.5	
BH04-0.0-0.1	18 Nov 2024	<0.1	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.5	
BH04-0.5-0.6	18 Nov 2024	<0.1	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.5	
BH05-0.0-0.1	18 Nov 2024	<0.1	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.5	
BH05-0.5-0.6	18 Nov 2024	<0.1	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.5	
BH05-0.6-0.7	18 Nov 2024	<0.1	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.5	
BH06-0.0-0.1	18 Nov 2024	<0.1	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.5	
BH06-0.5-0.6	18 Nov 2024	<0.1	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.5	
BH07-0.0-0.1	18 Nov 2024	<10	<10	<0.5	<0.5	<0.5	<0.5	<0.5	<10	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	
BH07-0.5-0.6	18 Nov 2024	<0.1	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.5	
BH08-0.0-0.1	18 Nov 2024	<0.1	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.5	
BH08-0.5-0.6	18 Nov 2024	<0.1	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.5	
DUP01	18 Nov 2024																							

Statistics																								
Number of Results	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18
Number of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minimum Concentration	<0.1	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.5	<0.5
Minimum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Maximum Concentration	<10	<10	<0.5	<0.5	<0.5	<0.5	<0.5	<10	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<10	<10
Maximum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Average Concentration *	0.35	0.35	0.05	0.05	0.05	0.05	0.05	0.35	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.53
Median Concentration *	0.05	0.05	0.025	0.025	0.025	0.025	0.025	0.05	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.25
Standard Deviation *	1.2	1.2	0.073	0.073	0.073	0.073	0.073	1.2	0.073	0.073	0.073	0.073	0.073	0.073	0.073	0.073	0.073	0.073	0.073	0.073	0.073	0.073	0.073	1.1
95% UCL (Student's-t) *	0.828	0.828	0.0798	0.0798	0.0798	0.0798	0.0798	0.828	0.0798	0.0798	0.0798	0.0798	0.0798	0.0798	0.0798	0.0798	0.0798	0.0798	0.0798	0.0798	0.0798	0.0798	0.0798	0.986
% of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% of Non-Detects	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100

* A Non Detect Multiplier of 0.5 has been applied.
**Chromium VI
D / ND = Detect / Non=Detect
Environmental Standards
CRC Care, 2011, CRC Care HSL-D Commercial / Industrial
NEPM, NEPM 2013 Table 1B(7) Management Limits Comm / Ind, Coarse Soil
NEPM, NEPM 2013 Table 1B(7) Management Limits Comm / Ind, Fine Soil
2013, NEPM 2013 Table 1A(1) HILs Comm/Ind D Soil

Table LR1 - Laboratory Analytical Results - Soils



	PCBs							
	Arochlor 1016	Arochlor 1221	Arochlor 1232	Arochlor 1242	Arochlor 1248	Arochlor 1254	Arochlor 1260	PCBs (Sum of total)
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
CRC Care HSL-D Commercial / Industrial								
NEPM 2013 Table 1B(7) Management Limits Comm / Ind, Coarse Soil								
NEPM 2013 Table 1B(7) Management Limits Comm / Ind, Fine Soil								
NEPM 2013 Table 1A(1) HILs Comm/Ind D Soil								7

Field ID	Date								
BH01-0.0-0.1	18 Nov 2024	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
BH01-0.3-0.4	18 Nov 2024	<1	<1	<1	<1	<1	<1	<1	<1
BH01-0.6-0.7	18 Nov 2024	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
BH02-0.0-0.1	18 Nov 2024	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
BH02-0.5-0.6	18 Nov 2024	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
BH03-0.0-0.1	18 Nov 2024	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
BH03-0.3-0.4	18 Nov 2024	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
BH04-0.0-0.1	18 Nov 2024	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
BH04-0.5-0.6	18 Nov 2024	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
BH05-0.0-0.1	18 Nov 2024	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
BH05-0.5-0.6	18 Nov 2024	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
BH05-0.6-0.7	18 Nov 2024	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
BH06-0.0-0.1	18 Nov 2024	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
BH06-0.5-0.6	18 Nov 2024	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
BH07-0.0-0.1	18 Nov 2024	<1	<1	<1	<1	<1	<1	<1	<1
BH07-0.5-0.6	18 Nov 2024	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
BH08-0.0-0.1	18 Nov 2024	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
BH08-0.5-0.6	18 Nov 2024	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
DUP01	18 Nov 2024								

Statistics								
Number of Results	18	18	18	18	18	18	18	18
Number of Detects	0	0	0	0	0	0	0	0
Minimum Concentration	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Minimum Detect	ND	ND	ND	ND	ND	ND	ND	ND
Maximum Concentration	<1	<1	<1	<1	<1	<1	<1	<1
Maximum Detect	ND	ND	ND	ND	ND	ND	ND	ND
Average Concentration *	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Median Concentration *	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Standard Deviation *	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15
95% UCL (Student's-t) *	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16
% of Detects	0	0	0	0	0	0	0	0
% of Non-Detects	100	100	100	100	100	100	100	100

* A Non Detect Multiplier of 0.5 has been applied.

**Chromium VI

D / ND = Detect /

Non=Detect

Environmental Standards

CRC Care, 2011, CRC Care HSL-D Commercial / Industrial

NEPM, NEPM 2013 Table 1B(7) Management Limits Comm / Ind, Coarse Soil

NEPM, NEPM 2013 Table 1B(7) Management Limits Comm / Ind, Fine Soil

2013, NEPM 2013 Table 1A(1) HILs Comm/Ind D Soil



	Acid Sulphate Soils - Field				Acid Sulphate Soils			Acid Sulphate Soils - Acid Base Accounting	Acid Sulphate Soils - Acidity Trail		Acid Sulphate Soils - Liming Rate		Acid Sulphate Soils - Potential Acidity	
	pHF	pHFox	Difference between pHF & pHFox	Reaction Rate	Net Acidity (Acidity Units) - CRS Suite	Net Acidity (Sulfur Units) - CRS Suite	s-CRS Suite - Net Acidity - NASSG (Excluding ANC)	ANC Fineness Factor	Titratable Actual Acidity (sulfur units)	Titratable Actual Acidity	CRS Suite - Liming Rate	Liming Rate excluding ANC	Chromium Reducible Sulphur (acidity units)	Chromium Reducible Sulfur
	-	-		-	MOL H+/T	% S	% S	-	%S	mole H+/t	KG CaCO3/T	kg CaCO3/t	mole H+/t	%S
EQL	0.1	0.1	0.2	0	10	0.02	0.02	-	0.003	2	1	1	3	0.005
Sullivan 2018 Acid Sulfate Soils Action Criteria (Coarse and Peats), 1–1000 t materials disturbed	<4	<3	<1	≥ 3	≥ 18	≥ 0.03	-	-	-	-	-	-	-	0.1
Sullivan 2018 Acid Sulfate Soils Action Criteria (clayey sand to light clays), 1–1000 t materials disturbed	<4	<3	<1	≥ 3	≥ 36	≥ 0.06	-	-	-	-	-	-	-	0.1

Matrix																
Field ID	Date	Description														
BH02-0.0-0.1	18/11/24	Fill	5.9	2.7		3.0	37	0.06	0.06	1.5	0.060	37	2.8	2.8	<3	<0.005
BH02-0.5-0.6	18/11/24	Nat	5.0	4.1		2.0	-	-	-	-	-	-	-	-	-	-
BH02-1.0-1.1	18/11/24	Nat	4.7	3.7		3.0	-	-	-	-	-	-	-	-	-	-
BH02-1.5-1.6	18/11/24	Nat	5.3	4.2		1.0	-	-	-	-	-	-	-	-	-	-
BH02-2.0-2.1	18/11/24	Nat	5.7	4.7		1.0	-	-	-	-	-	-	-	-	-	-
BH02-2.5-2.6	18/11/24	Nat	6.0	3.7		1.0	17	0.03	0.03	1.5	0.020	10	1.3	1.3	7.7	0.012
BH02-3.0-3.1	18/11/24	Nat	5.7	3.8		1.0	13	0.02	0.02	1.5	0.020	13	1.0	1.0	<3	<0.005
BH02-3.3-3.4	18/11/24	Nat	6.0	4.2		2.0	<10	<0.02	<0.02	1.5	0.010	7.0	<1	<1	<3	<0.005
BH04-0.0-0.1	18/11/24	Fill	6.6	3.7		3.0	-	-	-	-	-	-	-	-	-	-
BH04-0.5-0.6	18/11/24	Nat	4.9	4.1		2.0	-	-	-	-	-	-	-	-	-	-
BH04-0.7-0.8	18/11/24	Nat	4.7	3.9		2.0	-	-	-	-	-	-	-	-	-	-
BH04-0.9-1.0	18/11/24	Nat	4.8	3.9		2.0	-	-	-	-	-	-	-	-	-	-
BH04-1.2-1.3	18/11/24	Nat	5.1	4.1		1.0	13	0.02	0.02	1.5	0.020	13	<1	<1	<3	<0.005
BH04-1.7-1.8	18/11/24	Nat	5.5	3.9		1.0	-	-	-	-	-	-	-	-	-	-
BH05-0.0-0.1	18/11/24	Fill	6.6	3.4		3.0	<10	<0.02	<0.02	1.5	0.010	6.0	<1	<1	<3	<0.005
BH05-0.5-0.6	18/11/24	Fill	7.0	4.7		2.0	<10	<0.02	<0.02	1.5	0.010	5.0	<1	<1	<3	<0.005
BH05-0.6-0.7	18/11/24	Nat	7.1	5.7		2.0	-	-	-	-	-	-	-	-	-	-
BH05-1.1-1.2	18/11/24	Nat	6.6	5.2		2.0	-	-	-	-	-	-	-	-	-	-
BH05-1.6-1.7	18/11/24	Nat	6.1	4.1		2.0	-	-	-	-	-	-	-	-	-	-
BH05-1.9-2.0	18/11/24	Nat	5.3	4.0		1.0	19	0.03	0.03	1.5	0.030	19	1.4	1.4	<3	<0.005
BH08-0.0-0.1	18/11/24	Fill	6.2	3.7		3.0	-	-	-	-	-	-	-	-	-	-
BH08-0.5-0.6	18/11/24	Nat	5.0	4.2		2.0	-	-	-	-	-	-	-	-	-	-
BH08-1.0-1.1	18/11/24	Nat	5.0	4.2		1.0	-	-	-	-	-	-	-	-	-	-
BH08-1.5-1.6	18/11/24	Nat	5.5	4.3		1.0	-	-	-	-	-	-	-	-	-	-
BH08-1.9-2.0	18/11/24	Nat	6.0	4.6		1.0	-	-	-	-	-	-	-	-	-	-

Statistics															
Minimum Detect	4.7	2.7		1	13	0.02	0.02	1.5	0.01	5	1	1	7.7	0.012	
Maximum Detect	7.1	5.7		3	37	0.06	0.06	1.5	0.06	37	2.8	2.8	7.7	0.012	
Average Concentration *	5.7	4.1		1.8	14	0.024	0.024	1.5	0.023	14	1.1	1.1	2.3	0.0037	
Standard Deviation *	0.72	0.58		0.76	11	0.017	0.017	0	0.017	10	0.8	0.8	2.2	0.0034	
95% UCL (Student's-t) *	5.939	4.311		2.061	21.44	0.035	0.035	1.5	0.0337	20.75	1.597	1.597	3.743	0.00594	

* A Non Detect Multiplier of 0.5 has been applied.

Table LR3 - Summary Analytical Table - Asbestos in Soils



Sample ID	Date Sampled	Asbestos Health Screening Level NEPM ASC 2013 (% w/w) HIL D - FA/AF	Asbestos Health Screening Level NEPM ASC 2013 (% w/w) HIL D - Bonded ACM	Laboratory Results			On-site gravimetric results		
				Asbestos Detected/ Not-Detected	Percentage of AF/FA <7mm (%w/w)	Percentage of Bonded ACM >7mm (500ml) (%w/w)	Weight of Sample (10L) (g)	Onsite weight of ACM fragment >7mm (g)	Percentage of Bonded ACM >7mm (10L) (%w/w)
TP01 0.00-0.10	07.01.2025	0.001%	0.05%	Not-Detected	-	-	11700.00	Not detected	Not detected
TP01 0.10-1.00	07.01.2025	0.001%	0.05%	Not-Detected	-	-	12300.00	Not detected	Not detected
TP01 0-1.00	07.01.2025			Not-Detected	Not-Detected	-	-	-	-
TP02 0.0-0.10	07.01.2025	0.001%	0.05%	Not-Detected	-	-	13500.00	Not detected	Not detected
TP02 0.10-0.60	07.01.2025	0.001%	0.05%	Not-Detected	-	-	13700.00	Not detected	Not detected
TP02 0-0.60	07.01.2025			Not-Detected	Not-Detected	-	-	-	-
TP03 0.0-0.10	07.01.2025	0.001%	0.05%	Not-Detected	-	-	12700.00	Not detected	Not detected
TP03 0.10-0.20	07.01.2025	0.001%	0.05%	Not-Detected	-	-	12500.00	Not detected	Not detected
TP03 0-0.20	07.01.2025			Detected	0.003%	-	-	-	-
TP03 0.20-0.60	07.01.2025	0.001%	0.05%	Not-Detected	Not-Detected	Not-Detected	13100.00	Not detected	Not detected
TP04 0.0-0.10	07.01.2025	0.001%	0.05%	Not-Detected	-	-	12500.00	Not detected	Not detected
TP04 0.10-0.20	07.01.2025	0.001%	0.05%	Not-Detected	-	-	13800.00	Not detected	Not detected
TP04 0.20-0.60	07.01.2025	0.001%	0.05%	Not-Detected	Not-Detected	Not-Detected	13000.00	Not detected	Not detected
TP04 0.0-0.20	07.01.2025			Not-Detected	Not-Detected	-	-	-	-
TP05 0.0-0.10	07.01.2025	0.001%	0.05%	Not-Detected	-	-	13000.00	Not detected	Not detected
TP05 0.10-0.50	07.01.2025	0.001%	0.05%	Not-Detected	-	-	14200.00	Not detected	Not detected
TP05 0.0-0.50	07.01.2025			Not-Detected	Not-Detected	-	-	-	-
TP05 0.50-1.00	07.01.2025	0.001%	0.05%	Not-Detected	Not-Detected	Not-Detected	13200.00	Not detected	Not detected
TP06 0.0-0.10	07.01.2025	0.001%	0.05%	Not-Detected	-	-	13500.00	Not detected	Not detected
TP06 0.10-0.50	07.01.2025	0.001%	0.05%	Not-Detected	-	-	14000.00	Not detected	Not detected
TP06 0.0-0.50	07.01.2025			Not-Detected	Not-Detected	-	-	-	-
TP06 0.50-1.00	07.01.2025	0.001%	0.05%	Not-Detected	Not-Detected	Not-Detected	13100.00	Not detected	Not detected
TP07 0.0-0.10	07.01.2025	0.001%	0.05%	Not-Detected	Not-Detected	Not-Detected	12700.00	Not detected	Not detected
TP07 0.10-0.70	07.01.2025	0.001%	0.05%	Not-Detected	Not-Detected	Not-Detected	12600.00	Not detected	Not detected
TP08 0.0-0.10	07.01.2025	0.001%	0.05%	Not-Detected	Not-Detected	Not-Detected	13200.00	Not detected	Not detected
TP08 0.10-0.70	07.01.2025	0.001%	0.05%	Not-Detected	Not-Detected	Not-Detected	13600.00	Not detected	Not detected

	Highlighted concentration exceeds the adopted site criteria - Asbestos Health Screening Level (w/w) - NEPM ASC 2013 AF/FA
	Highlighted concentration exceeds the adopted site criteria - Asbestos Health Screening Level (w/w) - NEPM ASC 2013 Bonded ACM
	Highlighted concentration exceeds the adopted site criteria - Asbestos Health Screening Level (w/w) - NEPM ASC 2013 Surface Soil
	Asbestos Detected
ACM	Asbestos Containing Material
FA and AF	Fibrous Asbestos and Asbestos Fines
-	No published criteria or sample not analysed
NL	Not Limiting
*	Detected at below the limit of reporting
	Weight of soil in the field based on assumed density of 1.65/kg based on WA DOH (2009) Guidance



		Metals							
		Arsenic	Cadmium	Chromium (III+VI)	Copper	Lead	Mercury	Nickel	Zinc
		mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL		2	0.4	2	5	5	0.1	2	5

Field ID	Date								
BH03-0.0-0.1	18 Nov 2024	18	<0.4	22	8.9	96	0.2	<5	93
DUP01	18 Nov 2024	9.1	<0.4	15	7.6	69	0.1	<5	71
RPD		66	0	38	16	33	67	0	27
BH03-0.0-0.1	18 Nov 2024	18	<0.4	22	8.9	96	0.2	<5	93
Trip01	18 Nov 2024	9	<1	19	8	92	0.1	2	83
RPD		67	0	15	11	4	67	0	11

*RPDs have only been considered where a concentration is greater than 1 times the EQL.
**Elevated RPDs are highlighted as per QAQC Profile settings (Acceptable RPDs for each EQL multiplier range are: 99999999 (0 - 10 x EQL); 50 (10 - 20 x EQL); 30 (> 20 x EQL))
***Interlab Duplicates are matched on a per compound basis as methods vary between laboratories. Any methods in the row header relate to those used in the primary laboratory



	BTEX														TRH			TPH	
	Naphthalene (VOC)		Benzene		Toluene		Ethylbenzene		Xylene (m & p)		Xylene (o)		Xylene Total		C6-C10 Fraction (F1)		C6-C10 (F1 minus BTEX)	C6-C9 Fraction	
	mg/kg	%	mg/kg	%	mg/kg	%	mg/kg	%	mg/kg	%	mg/kg	%	mg/kg	%	mg/kg	%	mg/kg	mg/kg	%
EQL	0.5	1	0.1	1	0.1	1	0.1	1	0.2	1	0.1	1	0.3	1	20	1	20	20	1

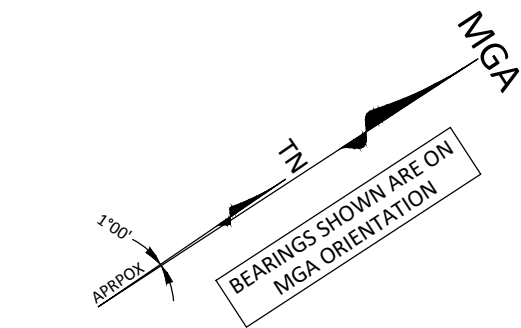
Field ID	Date																		
TRIP BLANK	18 Nov 2024	<0.5	-	<0.1	-	<0.1	-	<0.1	-	<0.2	-	<0.1	-	<0.3	-	<20	-	<20	<20
TRIP SPIKE	18 Nov 2024	-	84	-	93	-	79	-	93	-	78	-	94	-	88	-	91	-	91

Statistics																			
Minimum Detect	ND	84	ND	93	ND	79	ND	93	ND	78	ND	94	ND	88	ND	91	ND	ND	91
Maximum Detect	ND	84	ND	93	ND	79	ND	93	ND	78	ND	94	ND	88	ND	91	ND	ND	91
Average Concentration *																			
Standard Deviation *																			
95% UCL (Student's-t) *																			

* A Non Detect Multiplier of 0.5 has been applied.

APPENDIX A – Proposed Development Plans

APPENDIX B – Detail and Level Survey



WAIROA

STREET

BENCHMARK
SSM130856 IN KERB
RL 6.14 A.H.D.

UNDERGROUND SERVICES LEGEND

QUALITY LEVEL B (AS 5488.1:2019)

W POTABLE WATER MAIN
D STORMWATER PIPE
E ELECTRICITY CABLES

CAUTION: FIBRE OPTIC CABLES ARE PRESENT IN THIS AREA

SERVICES NOTES:-

- ONLY THOSE SERVICES VISIBLE AT THE TIME OF SURVEY HAVE BEEN LOCATED AND IF SHOWN AS 'P' OR 'F' ARE QUALITY LEVEL A AS DEFINED BY AS 5488.1:2019. LEVELS SHOWN ARE SURFACE LEVELS UNLESS NOTED OTHERWISE.
- UNDERGROUND SERVICES HAVE BEEN LOCATED FOR POSITION AND DEPTH AND HAVE BEEN DETERMINED FROM USING EQUIPMENT ON REPORT PROVIDED BY 'ON POINT LOCATING' ON 04/03/2024. ALL RELEVANT AUTHORITIES MUST BE CONTACTED TO DETERMINE THE FULL EXTENT OF SERVICES PRIOR TO ANY PLANNING OR WORKS NEAR THE SITE.

GENERAL NOTES

ONLY TREES GREATER THAN 3.5 METRES IN HEIGHT ARE SHOWN ON THIS PLAN AND THEIR POSITIONS ARE DIAGRAMMATIC ONLY AND MAY REQUIRE ADDITIONAL SURVEY WHERE CRITICAL TO DESIGN.

CONTOURS ARE INDICATIVE AT GROUND FORM ONLY. SPOT LEVELS ONLY SHOULD BE USED FOR CALCULATIONS OF QUANTITIES WITH CAUTION.

LEVELS ARE ON AUSTRALIAN HEIGHT DATUM (AHD).

ALL SETOUT LEVELS MUST BE REFERRED TO THE BENCH MARK SHOWN ON THIS PLAN.

BOUNDARY NOTES

A BASIC BOUNDARY SURVEY HAS BEEN DONE SUITABLE FOR DA LODGEMENT PURPOSES.

BOUNDARIES HAVE NOT BEEN MARKED.

SURVEY INFORMATION NOTES

THE ORIGIN OF COORDINATES COMES FROM SSM130856 E325538.961 N6246304.717 CLASS B POSITIONAL UNCERTAINTY (PU) 0.02 (MGA2020) ADOPTED FROM SCIMS DATED 01/03/2024.

THE ORIGIN OF LEVELS COMES FROM SSM130856 RL6.141 CLASS LB POSITIONAL UNCERTAINTY (PU) 0.01 ADOPTED FROM SCIMS DATED 01/03/2024.

THE ORIENTATION OF THIS PLAN IS MGA NORTH WHICH HAS BEEN DETERMINED BY A COORDINATE JOIN BETWEEN SSM130856 AND SSM130869.

CERTIFICATE OF TITLE NOTES

THE FOLLOWING INFORMATION RELATES TO THE CERTIFICATE OF TITLE OF THE SUBJECT LOT:

- LOT 1 IN DP818459
(CT EDITION 4 DATED 04/10/2005 SEARCH DATE 08/03/2024)

- BENEFITED BY:

- RIGHT OF WAY (Z43673)
- RIGHT OF CARRIAGEWAY 2 WIDE AND VARIABLE (DP818459) SHOWN AS (C)
- EASEMENT FOR SERVICES 2 WIDE AND VARIABLE (DP818459) SHOWN AS (D)
- EASEMENT FOR SERVICES VARIABLE WIDTH (DP818459)
- EASEMENT FOR SERVICES 6 WIDE (DP818459) SHOWN AS (F)
- EASEMENT FOR SEWERAGE (DP818459)

- LOT 2 IN DP818459
(CT EDITION 1 DATED 14/09/1992 SEARCH DATE 12/03/2024)

- AFFECTED BY:

- RIGHT OF CARRIAGE 2 WIDE AND VARIABLE (DP818459) SHOWN AS (C)
- EASEMENT FOR SERVICES 2 WIDE AND VARIABLE (DP818459) SHOWN AS (D)
- EASEMENT FOR SERVICES VARIABLE WIDTH (DP818459)
- EASEMENT FOR SERVICES 6 WIDE (DP818459) SHOWN AS (F)
- EASEMENT FOR SEWERAGE PURPOSES OVER EXISTING LINE OF PIPES (DP818459)
- RESTRICTION(S) ON THE USE OF LAND (DP818459)

- BENEFITED BY:

- RIGHT OF WAY (Z43673)

COVENANTS AND RESTRICTIONS NOTED ON THE TITLE HAVE NOT BEEN INVESTIGATED. THESE SHOULD BE INVESTIGATED PRIOR TO DESIGN TO ENSURE ANY FUTURE DEVELOPMENT COMPLIES.

SERVICES NOTES

NO UNDERGROUND SURVEY SEARCH HAS BEEN UNDERTAKEN. THERE MAY BE ADDITIONAL SERVICES WITHIN THE SURVEY AREA.

ONLY THOSE SERVICES VISIBLE AT THE TIME OF SURVEY HAVE BEEN LOCATED AND ARE QUALITY LEVEL A AS DEFINED BY AS 5488.1:2019.

UNDERGROUND SERVICES HAVE BEEN LOCATED FOR BY 'ON POINT LOCATING' ON 04/03/2024 USING EQUIPMENT AS NOTED ON REPORT PROVIDED DATED 04/03/2024. THE SERVICE POSITION IS SHOWN ON THE PLAN AND THEIR RESPECTIVE DEPTH AND QUALITY ARE AS STATED IN THE TABLE. UNDERGROUND SERVICE LOCATION WAS ONLY UNDERTAKEN ON THE QUOTED AREA

ALL RELEVANT AUTHORITIES MUST BE CONTACTED TO DETERMINE THE FULL EXTENT OF SERVICES PRIOR TO ANY PLANNING OR WORKS NEAR THE SITE.

LEGEND

TAG	DESCRIPTION
B	BOLLARD
GR	GRATE
LP	LIGHT POLE
PC	PEDESTRIAN CROSSING
PP	POWER POLE
SS	STREET SIGN
SWP	STORMWATER PIT
VC	VEHICLE CROSSING

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PROJECT:

DETAIL AND LEVEL SURVEY OF
LOT 1 IN DP818459 AND
PART OF LOT 2 IN DP818459

17A PHILLIPS AVENUE
CANTERBURY

CLIENT: HUNTER SCOTT

FILE: 9132 17A PHILLIPS AVENUE CANTERBURY

LGA: CANTERBURY - BANKSTOWN

REF: 9132

ISSUE: A

SURVEY DATE: 05/03/2024

SCALE: 1:200

SHEET 1 OF 1 SHEETS



SDG Pty Ltd
abn 85 213 523 621
Suite 1, 3 Railway Street, Baulkham Hills NSW 2153
t: (02) 9630 7955 w: sdg.net.au
Liability limited by a scheme approved
under Professional Standards Legislation

MICHAEL TRIFIRO ID: SU008624
REGISTERED LAND SURVEYOR

SERVICES-ELECTRICITY

No	Surface RL	Approx Depth	Service RL
21	5.17	0.70	4.47
22	5.18	0.70	4.48
23	5.21	0.70	4.51
24	5.29	0.70	4.59
25	5.56	0.50	5.06
26	5.55	0.60	4.95
27	5.69	0.70	4.99
28	5.72	0.60	5.12

SERVICES-POTABLE WATER

No	Surface RL	Approx Depth	Service RL
29	4.75	0.40	4.35
30	4.66	0.50	4.16
31	4.63	0.50	4.13
32	4.59	0.50	4.09
33	4.62	0.40	4.22
34	4.71	0.70	4.01
35	5.18	0.50	4.68
36	5.23	0.50	4.73
37	5.27	0.40	4.87
38	5.41	0.50	4.91
39	5.53	0.50	5.03
40	5.54	0.60	4.94
41	5.28	0.40	4.88
42	5.24	0.50	4.74
43	5.36	0.60	4.76
44	5.34	0.60	4.74
45	5.34	0.60	4.74
46	5.33	0.70	4.63
47	5.41	0.70	4.71
48	5.53	0.80	4.73
49	5.52	0.60	4.92
50	5.56	0.80	4.76
51	5.57	0.80	4.77
52	5.57	0.80	4.77
53	5.48	0.80	4.68
54	5.49	0.80	4.69
55	5.60	0.50	5.10
56	5.55	0.50	5.05
57	5.53	0.50	5.03
58	5.50		

SERVICES-DRAINAGE

No	Surface RL	Approx Depth	Service RL	COMMENT
59	4.64	0.40	4.24	
60	4.65	0.70	3.95	
61	4.75	0.90	3.850	DIAMETER 150
62	4.75	0.95	3.80	DIAMETER 150
63	4.58	0.7	3.88	DIAMETER 150
64	4.76	0.9	3.86	DIAMETER 150
65	5.58	1.20	4.38	DIAMETER 300
66	5.57	1.23	4.34	DIAMETER 300

Schedule of Trees

No	Diam	Spread	Height
1	0.8	5	8
2	0.5	10	15
3	1	10	5
4	1	10	5
5	0.8	5	10
6	1	10	5
7	0.4	8	6
8	0.6	15	15
9	0.6	15	15
10	0.4	10	10
11	0.6	15	15
12	0.5	6	6
13	0.5	6	6
14	0.5	6	6
15	0.4	6	6
16	0.6	20	15
17	0.3	8	8

2 4 6 8 10 20
1:200

CANTERBURY LEISURE AND AQUATIC CENTRE
(UNDER CONSTRUCTION)

SINGLE STOREY
COMMERCIAL BUILDING
"CANTERBURY ICE RINK"
No. 17A

1
DP818459
4637m² (deed)
4638m² (calc)

Schedule of Easements & Restrictions

No	Description
(G)	RIGHT OF CARRIAGE WAY 2 WIDE AND VARIABLE (DP818459)
(D)	EASEMENT FOR SERVICES 2 WIDE AND VARIABLE (DP818459)
(F)	EASEMENT FOR SERVICES 6 WIDE (DP818459)

ISSUE DATE AMENDMENT
A 05/03/2024 ORIGINAL ISSUE

SURV CHK
EA CT



GDA2020



MICHAEL TRIFIRO ID: SU008624
REGISTERED LAND SURVEYOR

APPENDIX C – Alliance (2024b) Field Records

COMMENTS

Disclaimer This log is intended for environmental not geotechnical purposes.
produced by ESlog.ESdat.net on 19 Nov 2024

CLIENT The Ice Skating Club of NSW Cooperative LTD
PROJECT Waste Classification & VENM Assessment
PROJECT NUMBER 18587
ADDRESS 17A Phillips Avenue, Canterbury

CONTRACTOR Epoca Environmental
DRILLER BD
RIG TYPE Geoprobe 7822DT
BOREHOLE SIZE 125mm

STARTED 18/11/24
FINISHED 18/11/24
LOGGED DH
CHECKED JR

COMMENTS Push tube refusal at 2.3m bgl, drilling advanced with solid flight auger to 3.4m bgl.

Method	Depth (m)	Graphic Log	Material Description	Samples	Additional Observations
HA	0.5		(FILL) SAND, fine to medium grained, brown, trace glass, rootlets and medium ironstone gravels, dry to moist.	0.0-0.1 J + ASB + ASS	FILL No PACM, odour or staining. No visual or olfactory indicators of PASS or ASS.
	0.5		CLAY, low to medium plasticity, pale grey mottled orange and red, trace rootlets, dry to moist.	0.5-0.6 J + ASB + ASS	NATURAL No PACM, odour or staining. No visual or olfactory indicators of PASS or ASS.
	0.8-0.9			J + ASB	
PT	1		CLAY, low to medium plasticity, pale grey mottled orange and red, with fine sand, dry to moist.	1.0-1.1 ASS	NATURAL No PACM, odour or staining. No visual or olfactory indicators of PASS or ASS.
	1.5			1.5-1.6 ASS	
	2			2.0-2.1 ASS	
SFA	2.5			2.5-2.6 ASS	
	3			3.0-3.1 ASS	
				3.3-3.4 ASS	
	3.5		BH02 terminated at 3.4m bgl, target depth.		
	4				

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produced by ESlog.ESdat.net on 19 Nov 2024

Page 3 of 8

CLIENT The Ice Skating Club of NSW Cooperative LTD
PROJECT Waste Classification & VENM Assessment
PROJECT NUMBER 18587
ADDRESS 17A Phillips Avenue, Canterbury

CONTRACTOR Epoca Environmental
DRILLER BD
RIG TYPE Geoprobe 7822DT
BOREHOLE SIZE 125mm

STARTED 18/11/24
FINISHED 18/11/24
LOGGED DH
CHECKED JR

COMMENTS Push tube refusal at 1.5m bgl, drilling advanced with solid flight auger to 2.0m bgl

Method	Depth (m)	Graphic Log	Material Description	Samples	Additional Observations
HA			(FILL) SAND, fine to medium grained, brown, with fine to medium sandstone and ironstone gravels, trace low plasticity clay and glass, dry to moist.	0.0-0.1 J + ASB + ASS rinsate-01	FILL No PACM, odour or staining. No visual or olfactory indicators of PASS or ASS.
	0.5		Sandy CLAY, medium plasticity, brown and orange, with fine sand, trace rootlets, dry to moist.	0.5-0.6 J + ASB + ASS	NATURAL No PACM, odour or staining. No visual or olfactory indicators of PASS or ASS.
			Sandy CLAY, medium plasticity, pale grey mottled orange, with fine sand, trace rootlets, dry to moist.	0.7-0.8 J + ASB + ASS	NATURAL No PACM, odour or staining. No visual or olfactory indicators of PASS or ASS.
				0.9-1.0 J + ASB + ASS	
PT	1				
			CLAY, low to medium plasticity, grey, dry	1.2-1.3 ASS	NATURAL No PACM, odour or staining. No visual or olfactory indicators of PASS or ASS.
SFA	1.5				
				1.7-1.8 ASS	
	2		BH04 terminated at 2.0m bgl, target depth.		
	2.5				

CLIENT The Ice Skating Club of NSW Cooperative LTD
PROJECT Waste Classification & VENM Assessment
PROJECT NUMBER 18587
ADDRESS 17A Phillips Avenue, Canterbury

CONTRACTOR Epoca Environmental
DRILLER BD
RIG TYPE Geoprobe 7822DT
BOREHOLE SIZE 125mm

STARTED 18/11/24
FINISHED 18/11/24
LOGGED DH
CHECKED JR

COMMENTS

Method	Depth (m)	Graphic Log	Material Description	Samples	Additional Observations
HA	0.5		(FILL) SAND, fine to medium grained, brown, trace fine to medium gravels of sandstone and brick, trace glass, dry to moist.	0.0-0.1 J + ASB + ASS Dup02 Trip02	FILL No PACM, odour or staining. No visual or olfactory indicators of PASS or ASS.
				0.5-0.6 J + ASB + ASS	
			CLAY, low to medium plasticity, pale grey mottled orange, trace fine sand and rootlets, dry to moist.	0.6-0.7 J + ASB + ASS	NATURAL No PACM, odour or staining. No visual or olfactory indicators of PASS or ASS.
PT	1			0.9-1.0 J + B	
				1.1-1.2 ASS	
				1.6-1.7 ASS	
				1.9-2.0 ASS	Strong rotten egg odour observed in soil arisings from 1.9m bgl.
	2		BH05 terminated at 2.0m bgl, target depth.		
	2.5				

COMMENTS

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COMMENTS

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produced by ESlog.ESdat.net on 19 Nov 2024

CLIENT The Ice Skating Club of NSW Cooperative LTD
PROJECT Waste Classification & VENM Assessment
PROJECT NUMBER 18587
ADDRESS 17A Phillips Avenue, Canterbury

CONTRACTOR Epoca Environmental
DRILLER BD
RIG TYPE Geoprobe 7822DT
BOREHOLE SIZE 125mm

STARTED 18/11/24
FINISHED 18/11/24
LOGGED DH
CHECKED JR

COMMENTS Push tube refusal at 1.8m bgl, drilling advanced with solid flight auger to 2.0m bgl.

Method	Depth (m)	Graphic Log	Material Description	Samples	Additional Observations
HA			(FILL) SAND, fine to medium grained, brown, trace medium to coarse ironstone gravels, trace rootlets, dry to moist.	0.0-0.1 J + ASB + ASS	FILL No PACM, odour or staining. No visual or olfactory indicators of PASS or ASS.
	0.5		CLAY, low to medium plasticity, pale grey mottled orange, dry to moist.	0.5-0.6 J + ASB + ASS	NATURAL No PACM, odour or staining. No visual or olfactory indicators of PASS or ASS.
PT	1			0.8-0.9 J + ASB	
	1.5		CLAY, low to medium plasticity, pale grey, orange and red, dry to moist.	1.0-1.1 ASS	
SFA	2			1.5-1.6 ASS	NATURAL No PACM, odour or staining. No visual or olfactory indicators of PASS or ASS.
				1.9-2.0 ASS	Moderate rotten egg odour observed in soil arisings from 1.9m bgl.
	2.5		BH05 terminated at 2.0m bgl, target depth.		

APPENDIX D – Groundwater Records

State Overview

[State Overview](#)

Rivers and Streams

[favourites](#) [search](#) [download sites](#)[find a site](#)[Real Time Data - Rivers And Streams](#)

Daily River Reports

[Daily River Reports](#)

Dams

[favourites](#) [search](#) [download sites](#)[find a site](#)[Real Time Data - Major Dams](#)

Groundwater (Telemetered data)

[favourites](#) [search](#) [download sites](#)[find a site](#)[Real Time Data - Bores](#)

All Groundwater Site details

[search](#) [download sites](#) [find a site](#)[search by licence](#)[All Groundwater Map](#)

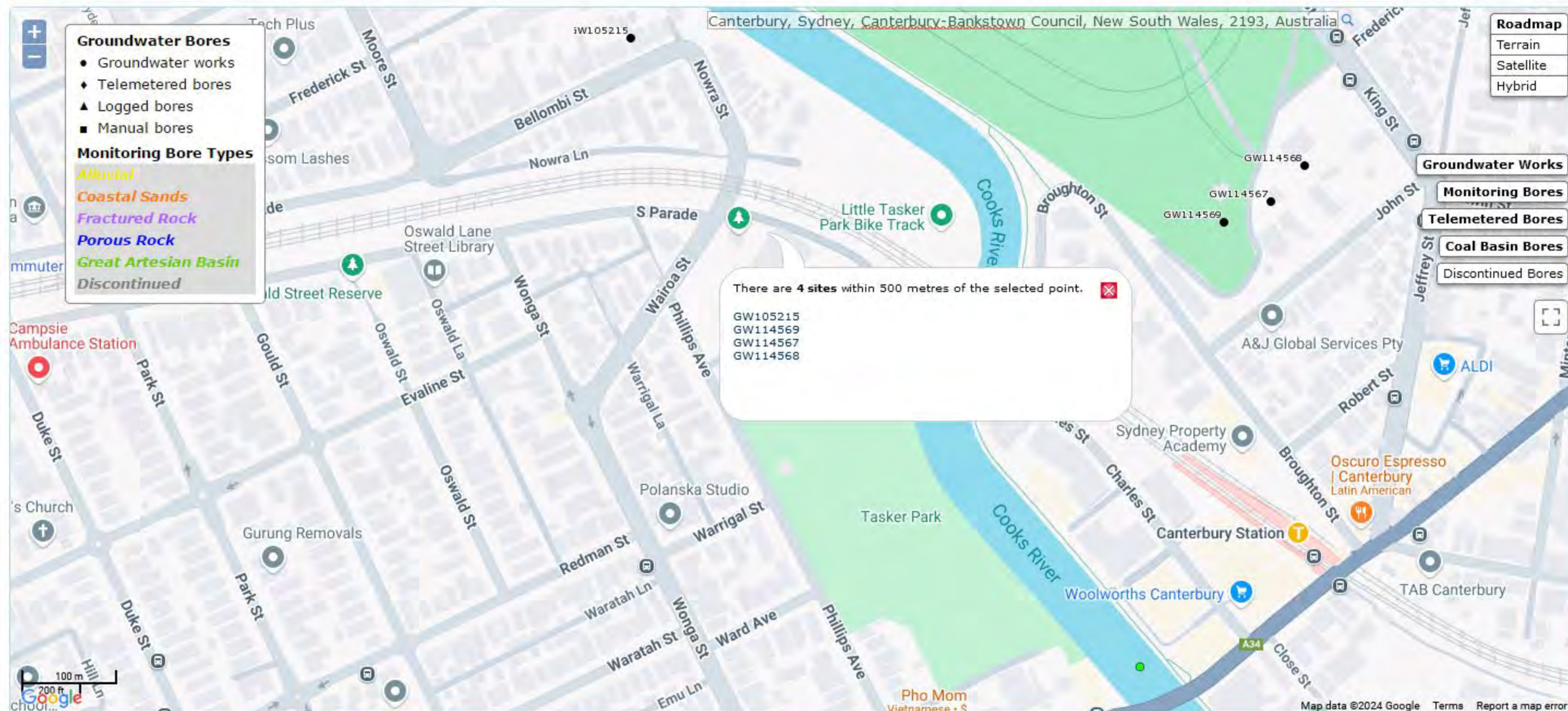
Meteorology

[favourites](#) [search](#) [download sites](#)[find a site](#)[Real Time Data - Weather Stations](#)

All Groundwater Site Details

ALL GROUNDWATER MAP

All data times are Eastern Standard Time

[Map](#)[Info](#)

Scale = 1 : 3385

325359, 6246217, 56

WaterNSW

Work Summary

GW105215**Licence:** 10BL161418**Licence Status:** CONVERTED**Authorised Purpose(s):** DOMESTIC
Intended Purpose(s): DOMESTIC**Work Type:** Bore**Work Status:** Supply Obtained**Construct.Method:****Owner Type:** Private**Commenced Date:****Completion Date:** 05/06/2003**Final Depth:** 15.00 m**Drilled Depth:****Contractor Name:** (None)**Driller:****Assistant Driller:****Property:** N/A NSW**Standing Water Level**
(m):**GWMA:****GW Zone:****Salinity Description:**
Yield (L/s):

Site Details

Site Chosen By:**County**
Form A: CUMBERLAND
Licensed: CUMBERLA**Parish**
ST GEORGE
STGEORGE**Cadastre**
LT 7 DP 12648
Whole Lot 7//12648**Region:** 10 - Sydney South Coast**CMA Map:** 9130-3S**River Basin:** 213 - SYDNEY COAST - GEORGES
RIVER**Grid Zone:****Scale:****Area/District:****Elevation:** 0.00 m (A.H.D.)**Elevation Source:** (Unknown)**Northing:** 6246456.000**Easting:** 325448.000**Latitude:** 33°54'28.3"S**Longitude:** 151°06'43.2"E**GS Map:** -**MGA Zone:** 56**Coordinate Source:** Unknown

Construction

Negative depths indicate Above Ground Level; C-Cemented; SL-Slot Length; A-Aperture; GS-Grain Size; Q-Quantity; PL-Placement of Gravel Pack; PC-Pressure Cemented; S-Sump; CE-Centralisers

Hole	Pipe	Component	Type	From (m)	To (m)	Outside Diameter (mm)	Inside Diameter (mm)	Interval	Details
1		Hole	Hole	0.00	15.00	175			Hand Drilled
1	1	Casing	Lining	0.00	0.00				

Remarks

05/06/2003: Form A Remarks:

Bore was dug by hand by licensee.

*** End of GW105215 ***

Warning To Clients: This raw data has been supplied to the WaterNSW by drillers, licensees and other sources. WaterNSW does not verify the accuracy of this data. The data is presented for use by you at your own risk. You should consider verifying this data before relying on it. Professional hydrogeological advice should be sought in interpreting and using this data.

WaterNSW

Work Summary

GW114567**Licence:** 10BL604312**Licence Status:** CANCELLED**Authorised Purpose(s):** MONITORING BORE
Intended Purpose(s): MONITORING BORE**Work Type:** Bore**Work Status:** Equipped**Construct.Method:** Auger - Solid**Owner Type:** Private**Commenced Date:**
Completion Date: 11/09/2014**Final Depth:** 4.00 m
Drilled Depth: 5.00 m**Contractor Name:** EPOCA ENVIRONMENTAL**Driller:** Daniel Giles Fox**Assistant Driller:****Property:** AUSTRALIAN TURF CLUB 98 KING
ST CANTERBURY 2193 NSW**Standing Water Level**
(m):**GWMA:**
GW Zone:**Salinity Description:**
Yield (L/s):

Site Details

Site Chosen By:**County**
Form A: CUMBERLAND
Licensed: CUMBERLA**Parish**
PETERSHAM
PETERSHA**Cadastre**
7//1129704
Whole Lot 7//1129704**Region:** 10 - Sydney South Coast**CMA Map:****River Basin:** - Unknown
Area/District:**Grid Zone:****Scale:****Elevation:** 0.00 m (A.H.D.)
Elevation Unknown
Source:**Northing:** 6246319.000
Easting: 326033.000**Latitude:** 33°54'33.1"S
Longitude: 151°07'05.9"E**GS Map:** -**MGA Zone:** 56**Coordinate Source:** Unknown

Construction

Negative depths indicate Above Ground Level; C-Cemented; SL-Slot Length; A-Aperture; GS-Grain Size; Q-Quantity; PL-Placement of Gravel Pack; PC-Pressure Cemented; S-Sump; CE-Centralisers

Hole	Pipe	Component	Type	From (m)	To (m)	Outside Diameter (mm)	Inside Diameter (mm)	Interval	Details
1		Hole	Hole	0.00	4.00	100			Auger - Solid Flight
1		Annulus	Bentonite/Grout	1.00	1.50				
1		Annulus	Waterworn/Rounded	1.50	5.00				Graded
1	1	Casing	Pvc Class 18	0.00	2.00	63	50		Seated on Bottom, Screwed
1	1	Opening	Slots - Horizontal	2.00	5.00	63		0	Casing - Machine Slotted, PVC Class 18, Screwed, SL: 40.0mm, A: 0.40mm

Drillers Log

From (m)	To (m)	Thickness (m)	Drillers Description	Geological Material	Comments
0.00	0.10	0.10	BITUMEN / ROADBASE	Fill	
0.10	0.30	0.20	FILL: GRAVELLY CLAY,GREY/BROWN,SOFT	Fill	
0.30	1.00	0.70	SANDY CLAY YELLOW / BROWN	Sandy Clay	

1.00	3.00	2.00	SANDSTONE WEATHERED,YELLOW/ BROWN,HARD	Sandstone	
3.00	5.00	2.00	SANDSTONE WEATHERED,YELLOW/ BROWN,HARD	Sandstone	

*** End of GW114567 ***

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WaterNSW

Work Summary

GW114568**Licence:** 10BL604312**Licence Status:** CANCELLED**Authorised Purpose(s):** MONITORING BORE
Intended Purpose(s): MONITORING BORE**Work Type:** Bore**Work Status:** Equipped**Construct.Method:** Auger - Solid**Owner Type:** Private**Commenced Date:**
Completion Date: 30/03/2011**Final Depth:** 4.00 m
Drilled Depth: 5.00 m**Contractor Name:** EPOCA ENVIRONMENTAL**Driller:** Daniel Giles Fox**Assistant Driller:****Property:** AUSTRALIAN TURF CLUB 98 KING
ST CANTERBURY 2193 NSW**Standing Water Level**
(m):**GWMA:**
GW Zone:**Salinity Description:**
Yield (L/s):

Site Details

Site Chosen By:**County**
Form A: CUMBERLAND
Licensed: CUMBERLA**Parish**
PETERSHAM
PETERSHA**Cadastre**
7//1129704
Whole Lot 7//1129704**Region:** 10 - Sydney South Coast**CMA Map:****River Basin:** - Unknown
Area/District:**Grid Zone:****Scale:****Elevation:** 0.00 m (A.H.D.)
Elevation Unknown
Source:**Northing:** 6246352.000
Easting: 326064.000**Latitude:** 33°54'32.0"S
Longitude: 151°07'07.1"E**GS Map:** -**MGA Zone:** 56**Coordinate Source:** Unknown

Construction

Negative depths indicate Above Ground Level; C-Cemented; SL-Slot Length; A-Aperture; GS-Grain Size; Q-Quantity; PL-Placement of Gravel Pack; PC-Pressure Cemented; S-Sump; CE-Centralisers

Hole	Pipe	Component	Type	From (m)	To (m)	Outside Diameter (mm)	Inside Diameter (mm)	Interval	Details
1		Hole	Hole	0.00	4.00	100			Auger - Solid Flight
1		Annulus	Bentonite/Grout	1.00	1.50				
1		Annulus	Waterworn/Rounded	1.50	5.00				Graded
1	1	Casing	Gab Monitoring Po	0.00	1.00				
1	1	Casing	Pvc Class 18	0.00	2.00	63	50		Seated on Bottom, Screwed
1	1	Opening	Slots - Horizontal	2.00	5.00	63		0	Casing - Machine Slotted, PVC Class 18, Screwed, SL: 40.0mm, A: 0.40mm

Drillers Log

From (m)	To (m)	Thickness (m)	Drillers Description	Geological Material	Comments
0.00	0.10	0.10	BITUMEN / ROADBASE	Fill	
0.10	0.30	0.20	FILL, GRAVELLY CLAY, GREY BROWN, SOFT LOW PLASTICITY	Fill	

0.30	1.00	0.70	SANDY CLAY YELLOW/BROWN,SOFT	Sandy Clay	
1.00	3.00	2.00	WEATHERED SANDSTONE YELLOW BROWN HARD	Sandstone	
3.00	5.00	2.00	WEATHERED SANDSTONE YELLOW BROWN HARD	Sandstone	

*** End of GW114568 ***

Warning To Clients: This raw data has been supplied to the WaterNSW by drillers, licensees and other sources. WaterNSW does not verify the accuracy of this data. The data is presented for use by you at your own risk. You should consider verifying this data before relying on it. Professional hydrogeological advice should be sought in interpreting and using this data.

WaterNSW

Work Summary

GW114569**Licence:** 10BL604312**Licence Status:** CANCELLED**Authorised Purpose(s):** MONITORING BORE
Intended Purpose(s): MONITORING BORE**Work Type:** Bore**Work Status:** Equipped**Construct.Method:** Auger - Solid**Owner Type:** Private**Commenced Date:**
Completion Date: 30/03/2011**Final Depth:** 4.00 m
Drilled Depth: 5.00 m**Contractor Name:** EPOCA ENVIRONMENTAL**Driller:** Daniel Giles Fox**Assistant Driller:****Property:** AUSTRALIAN TURF CLUB 98 KING
ST CANTERBURY 2193 NSW**Standing Water Level**
(m):**GWMA:**
GW Zone:**Salinity Description:**
Yield (L/s):

Site Details

Site Chosen By:**County**
Form A: CUMBERLAND
Licensed: CUMBERLA**Parish**
PETERSHAM
PETERSHA**Cadastre**
7//1129704
Whole Lot 7//1129704**Region:** 10 - Sydney South Coast**CMA Map:****River Basin:** - Unknown
Area/District:**Grid Zone:****Scale:****Elevation:** 0.00 m (A.H.D.)
Elevation Unknown
Source:**Northing:** 6246299.000
Easting: 325991.000**Latitude:** 33°54'33.7"S
Longitude: 151°07'04.3"E**GS Map:** -**MGA Zone:** 56**Coordinate Source:** Unknown

Construction

Negative depths indicate Above Ground Level; C-Cemented; SL-Slot Length; A-Aperture; GS-Grain Size; Q-Quantity; PL-Placement of Gravel Pack; PC-Pressure Cemented; S-Sump; CE-Centralisers

Hole	Pipe	Component	Type	From (m)	To (m)	Outside Diameter (mm)	Inside Diameter (mm)	Interval	Details
1		Hole	Hole	0.00	4.00	100			Auger - Solid Flight
1		Annulus	Bentonite/Grout	1.00	1.50				
1		Annulus	Waterworn/Rounded	1.50	5.00				Graded
1	1	Casing	Gab Monitoring Po	0.00	1.00				
1	1	Casing	Pvc Class 18	0.00	2.00	63	50		Seated on Bottom, Screwed
1	1	Opening	Slots - Horizontal	2.00	5.00	63		0	Casing - Machine Slotted, PVC Class 18, Screwed, SL: 40.0mm, A: 0.40mm

Drillers Log

From (m)	To (m)	Thickness (m)	Drillers Description	Geological Material	Comments
0.00	0.10	0.10	BITUMEN / ROADBASE	Fill	
0.10	0.30	0.20	FILL GRAVELLY CLAY GREY/ BROWN,SOFT,LOW PLASTICITY	Fill	

0.30	1.00	0.70	SANDY CLAY YELLOW/BROWN, SOFT	Sandy Clay	
1.00	3.00	2.00	SANDSTONE WEATHRED YELLOW/ BROWN,HARD	Sandy Clay	
3.00	5.00	2.00	SANDSTONE WEATHRED YELLOW/ BROWN,HARD,WET	Sandstone	

*** End of GW114569 ***

Warning To Clients: This raw data has been supplied to the WaterNSW by drillers, licensees and other sources. WaterNSW does not verify the accuracy of this data. The data is presented for use by you at your own risk. You should consider verifying this data before relying on it. Professional hydrogeological advice should be sought in interpreting and using this data.

APPENDIX E – Field Records

Test Pit Log

Client: The Ice Skating Club of NSW Cooperative Limited						Started: 6/01/2025		
Project: Detailed Site Investigation						Finished: 6/01/2025		
Location: 17A Phillips Avenue, Canterbury NSW				Hole Location: Refer to Figure 5		Test Pit Size: 0.3 m		
Rig Type: 3.5t tracked hydraulic excavator				Hole Coordinates E, N		Driller: Paris		Logged: SJ
RL Surface: m				Contractor: Smart Scan		Bearing: ---		Checked: SW

Method	Water	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description	Samples Tests Remarks	Moisture Condition	Consistency/Density Index	Additional Observations
E	Not Encountered		0.5		-	FILL: Gravelly Silty SAND, subangular, well graded, dark brown, with minor clay, with rootlets, roots, glass, brick, sandstone cobbles, plaster.	0.0-1.0	M	-	FILL No PACM, staining, or odour. AQ: 0.0-0.1: 11.7Kgs AQ: 0.1-1.0: 12.3Kgs
			1.0		SC	Clayey SAND, fine grained, subrounded, pale grey mottled pale orange.		M	-	NATURAL No PACM, staining, or odour.
			1.5			Target depth. Test Pit TP01 terminated at 1.3m				

Test Pit Log

Client: The Ice Skating Club of NSW Cooperative Limited						Started: 6/01/2025				
Project: Detailed Site Investigation						Finished: 6/01/2025				
Location: 17A Phillips Avenue, Canterbury NSW				Hole Location: Refer to Figure 5		Test Pit Size: 0.3 m				
Rig Type: 3.5t tracked hydraulic excavator			Hole Coordinates E, N			Driller: Paris		Logged: SJ		
RL Surface: m			Contractor: Smart Scan			Bearing: ---		Checked: SW		
Method	Water	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description	Samples Tests Remarks	Moisture Condition	Consistency/Density Index	Additional Observations
E	Not Encountered		0.5		-	FILL: Silty SAND, subangular, well graded, dark brown, with minor clay and gravel, trace plastic and brick.	0.0-0.6	M	-	FILL No PACM, staining, or odour. AQ: 0.0-0.1: 13.5Kgs AQ: 0.1-0.6: 13.7Kgs
					CL-CI	Silty CLAY, low to medium plasticity, pale grey mottled pale orange.		M	-	NATURAL No PACM, staining, or odour.
			1.0			Target depth. Test Pit TP02 terminated at 0.9m				
			1.5							

Test Pit Log

Client: The Ice Skating Club of NSW Cooperative Limited						Started: 6/01/2025				
Project: Detailed Site Investigation						Finished: 6/01/2025				
Location: 17A Phillips Avenue, Canterbury NSW				Hole Location: Refer to Figure 5		Test Pit Size: 0.3 m				
Rig Type: 3.5t tracked hydraulic excavator				Hole Coordinates E, N		Driller: Paris		Logged: SJ		
RL Surface: m				Contractor: Smart Scan		Bearing: ---		Checked: SW		
Method	Water	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description	Samples Tests Remarks	Moisture Condition	Consistency/Density Index	Additional Observations
E	Not Encountered				-	FILL: Silty SAND, subangular, well graded, dark brown, with minor clay, rootlets, glass and brick.	0.0-0.2	M	-	FILL No PACM, staining, or odour. AQ: 0.0-0.1: 12.7Kgs AQ: 0.1-0.6: 12.5Kgs
				-	FILL: Silty Sandy CLAY, low plasticity, brown with minor orange mottling, with minor brick, glass, trace slag.	0.2-0.6	M	-	FILL No PACM, staining, or odour. AQ: 0.1-0.6: 13.1Kgs	
			0.5		CL-CI	Silty CLAY, low to medium plasticity, pale grey mottled pale orange.		M	-	NATURAL No PACM, staining, or odour.
			1.0			Target depth. Test Pit TP03 terminated at 0.9m				
			1.5							

Test Pit Log

Client: The Ice Skating Club of NSW Cooperative Limited						Started: 6/01/2025				
Project: Detailed Site Investigation						Finished: 6/01/2025				
Location: 17A Phillips Avenue, Canterbury NSW				Hole Location: Refer to Figure 5		Test Pit Size: 0.3 m				
Rig Type: 3.5t tracked hydraulic excavator		Hole Coordinates E, N		Driller: Paris		Logged: SJ				
RL Surface: m		Contractor: Smart Scan		Bearing: ---		Checked: SW				
Method	Water	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description	Samples Tests Remarks	Moisture Condition	Consistency/Density Index	Additional Observations
E	Not Encountered				-	FILL: Silty SAND, subangular, well graded, dark brown, with minor clay, rootlets, glass and brick.	0.0-0.2	M	-	FILL No PACM, staining, or odour. AQ: 0.0-0.1: 12.5Kgs AQ: 0.1-0.6: 13.8Kgs
				-	FILL: Silty Sandy CLAY, low plasticity, brown with minor orange mottling, with minor brick, glass, trace slag.	0.2-0.6	M	-	FILL No PACM, staining, or odour. AQ: 0.1-0.6: 13.9Kgs	
			0.5		CL-CI	Silty CLAY, low to medium plasticity, pale grey mottled pale orange.		M	-	NATURAL No PACM, staining, or odour.
			1.0			Target depth. Test Pit TP04 terminated at 0.9m				
			1.5							

Test Pit Log

Client: The Ice Skating Club of NSW Cooperative Limited						Started: 6/01/2025				
Project: Detailed Site Investigation						Finished: 6/01/2025				
Location: 17A Phillips Avenue, Canterbury NSW				Hole Location: Refer to Figure 5		Test Pit Size: 0.3 m				
Rig Type: 3.5t tracked hydraulic excavator				Hole Coordinates E, N		Driller: Paris		Logged: SJ		
RL Surface: m				Contractor: Smart Scan		Bearing: ---		Checked: SW		
Method	Water	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description	Samples Tests Remarks	Moisture Condition	Consistency/ Density Index	Additional Observations
E	Not Encountered				-	FILL: Silty Gravelly SAND, subangular, well graded, dark brown, with clay, minor roots, rootlets, glass, and brick.	0.0-0.5	M	-	FILL No PACM, staining, or odour. AQ: 0.0-0.1: 13.6Kgs AQ: 0.1-0.6: 14.2Kgs
			0.5		CL-CI	Silty Gravelly CLAY, low to medium plasticity, brown mottled pale orange, with trace sand.				
			1.0		CL-CI	Silty CLAY, low to medium plasticity, pale grey mottled pale orange.		M	-	NATURAL No PACM, staining, or odour.
			1.5			Target depth. Test Pit TP05 terminated at 1.3m				

Test Pit Log

Client: The Ice Skating Club of NSW Cooperative Limited						Started: 6/01/2025				
Project: Detailed Site Investigation						Finished: 6/01/2025				
Location: 17A Phillips Avenue, Canterbury NSW				Hole Location: Refer to Figure 5		Test Pit Size: 0.3 m				
Rig Type: 3.5t tracked hydraulic excavator		Hole Coordinates E, N		Driller: Paris		Logged: SJ				
RL Surface: m		Contractor: Smart Scan		Bearing: ---		Checked: SW				
Method	Water	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description	Samples Tests Remarks	Moisture Condition	Consistency/ Density Index	Additional Observations
E	Not Encountered				-	FILL: Silty Gravelly SAND, subangular, well graded, dark brown, with clay, minor roots, rootlets, glass, and brick.	0.0-0.5	M	-	FILL No PACM, staining, or odour. AQ: 0.0-0.1: 13.5Kgs AQ: 0.1-0.6: 14.0Kgs
			0.5		CL-CI	Silty Gravelly CLAY, low to medium plasticity, brown mottled pale orange, with trace sand.	0.5-1.0	M	-	NATURAL No PACM, staining, or odour. AQ: 0.1-0.6: 13.1Kgs
			1.0		CL-CI	Silty CLAY, low to medium plasticity, pale grey mottled pale orange.		M	-	NATURAL No PACM, staining, or odour.
			1.5			Target depth. Test Pit TP06 terminated at 1.3m				

Test Pit Log

Client: The Ice Skating Club of NSW Cooperative Limited						Started: 6/01/2025				
Project: Detailed Site Investigation						Finished: 6/01/2025				
Location: 17A Phillips Avenue, Canterbury NSW				Hole Location: Refer to Figure 5		Test Pit Size: 0.3 m				
Rig Type: 3.5t tracked hydraulic excavator		Hole Coordinates E, N		Driller: Paris		Logged: SJ				
RL Surface: m		Contractor: Smart Scan		Bearing: ---		Checked: SW				
Method	Water	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description	Samples Tests Remarks	Moisture Condition	Consistency/Density Index	Additional Observations
E	Not Encountered				-	FILL: Silty SAND, subangular, well graded, dark brown, with minor clay, rootlets.	0.0-0.1	M	-	FILL No PACM, staining, or odour. AQ: 0.0-0.1: 12.7Kgs
					-	FILL: Gravelly Silty SAND, subangular, well graded, brown, with clay.	0.1-0.7	M	-	FILL No PACM, staining, or odour. AQ: 0.1-0.6: 12.6Kgs
			0.5							
			1.0		CL-CI	Silty CLAY, low to medium plasticity, pale grey mottled pale orange.		M	-	NATURAL No PACM, staining, or odour.
			1.5			Target depth. Test Pit TP07 terminated at 1m				

Test Pit Log

Client: The Ice Skating Club of NSW Cooperative Limited						Started: 6/01/2025				
Project: Detailed Site Investigation						Finished: 6/01/2025				
Location: 17A Phillips Avenue, Canterbury NSW				Hole Location: Refer to Figure 5		Test Pit Size: 0.3 m				
Rig Type: 3.5t tracked hydraulic excavator		Hole Coordinates E, N		Driller: Paris		Logged: SJ				
RL Surface: m		Contractor: Smart Scan		Bearing: ---		Checked: SW				
Method	Water	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description	Samples Tests Remarks	Moisture Condition	Consistency/ Density Index	Additional Observations
E	Not Encountered				-	FILL: Silty SAND, subangular, well graded, dark brown, with minor clay, rootlets.	0.0-0.1	M	-	FILL No PACM, staining, or odour. AQ: 0.0-0.1: 13.2Kgs
				-	FILL: Gravelly Silty SAND, subangular, well graded, brown, with clay.	0.1-0.7	M	-	FILL No PACM, staining, or odour. AQ: 0.1-0.6: 13.6Kgs	
			0.5							
			1.0		CL-CI	Silty CLAY, low to medium plasticity, pale grey mottled pale orange.		M	-	NATURAL No PACM, staining, or odour.
			1.5			Target depth. Test Pit TP08 terminated at 1m				

APPENDIX F – Laboratory Documentation



Melbourne Laboratory
2 Kingston Town Close, Oakleigh, VIC 3166
03 8564 5000 EnviroSampleVic@eurofins.com

**Please
analyse pHF /
pHFOX Field
Screens on a
24 hr TAT**

1161470

Company		ALLIANCE GEOTECHNICAL		Project №		18587		Project Manager		J. Roesler		Sampler(s)		D. Hilton					
Address		10 WELDER ROAD, SEVEN HILLS NSW		Project Name		Canterbury Ice Skating Rink		EDD Format (ESdat, EQUIS, Custom)		Esdat		Handed over by		D. Hilton					
Contact Name		Jason		Analyses (Note: Where metals are requested please specify "Total" or "Filter" if SUEPCOs must be used to interpret SUEPCo pricing)		WAC Suite 2		pHF / pHFOX Field Screen		Metals (8)		BTEXN/TRH C6-C10		HOLD		Email for Invoice		jason@allgeo.com.au	
Phone №		404043810														Email for Results		jason@allgeo.com.au daniel@allgeo.com.au	
Special Directions																Containers		Turnaround Time (TAT) Requirements (please wait no more days if not longer)	
Purchase Order		-														1L Plastic		250mL Plastic	
Quote ID №																☐ Overnight (9am)* ☐ 1 Day* ☐ 3 Day* ☐ Other { } * Surcharges apply			
No		Client Sample ID		Sampled Date/Time (dd/mm/yy hh:mm)		Matrix (Solid (S) Water (W))										Sample Comments / Dangerous Goods Hazard Warning			
1		BH06-0.5-0.6		18/11/24		S		X								X X			
2		BH06-0.8-0.9		18/11/24		S				X						X X			
3		BH07-0.0-0.1		18/11/24		S		X								X X			
4		BH07-0.5-0.6		18/11/24		S		X								X X			
5		BH07-0.8-0.9		18/11/24		S				X						X X			
6		BH08-0.0-0.1		18/11/24		S		X		X						X X X			
7		BH08-0.5-0.6		18/11/24		S		X		X						X X X			
8		BH08-0.8-0.9		18/11/24		S				X						X X			
9		BH08-1.0-1.1		18/11/24		S				X						X X			
10		BH08-1.5-1.6		18/11/24		S				X						X X			
11		BH08-1.9-2.0		18/11/24		S				X						X X			
12		Dup01		18/11/24		S				X						X X			
13		Trip01		18/11/24		S		Please forward Trip01 to ALS for Metals (8) analysis								X X			
14		Dup02		18/11/24		S				X						X X			
15		Trip02		18/11/24		S				X						X X			
16		rinsate-01		18/11/24		S				X						X X			
17		trip spike / blank		18/11/24		S				X						X X			
18																			
19																			
20																			
21																			
22																			
23																			
24																			
25																			
26																			
27																			
28																			
29																			
30																			
Total Counts				6		5		1		1		6				1 1 5 12 8			
Method of Shipment		☒ Courier (#) ☐ Hand Delivered ☐ Postal		Name		D Hilton		DH		Date		18/11/2024		Time		-			
Eurofins mgt Laboratory Use Only		Received By		SYD BNE MEL PER ADL NTL DRW		Signature		Date		/ /		Time		Temperature					
		Received By		SYD BNE MEL PER ADL NTL DRW		Signature		Date		/ /		Time		Report №					

Submission of samples to the laboratory will be deemed as acceptance of Eurofins | mgt Standard Terms and Conditions unless agreed otherwise. A copy of Eurofins | mgt Standard Terms and Conditions is available on request.

Eurofins Environment Testing Australia Pty Ltd trading as Eurofins | mgt

Eurofins Environment Testing Australia Pty Ltd

ABN: 50 005 085 521

Melbourne	Geelong	Sydney	Canberra	Brisbane	Newcastle
6 Monterey Road Dandenong South VIC 3175 +61 3 8564 5000 NATA# 1261 Site# 1254	19/8 Lewalan Street Grovedale VIC 3216 +61 3 8564 5000 NATA# 1261 Site# 25403	179 Magowar Road Girraween NSW 2145 +61 2 9900 8400 NATA# 1261 Site# 18217	Unit 1,2 Dacre Street Mitchell ACT 2911 +61 2 6113 8091 NATA# 1261 Site# 25466	1/21 Smallwood Place Murarie QLD 4172 T: +61 7 3902 4600 NATA# 1261 Site# 20794 & 2780	1/2 Frost Drive Mayfield West NSW 2304 +61 2 4968 8448 NATA# 1261 Site# 25079

Eurofins ARL Pty Ltd

ABN: 91 05 0159 898

Perth
46-48 Banksia Road Welshpool WA 6106 +61 8 6253 4444 NATA# 2377 Site# 2370 & 2554

Eurofins Environment Testing NZ Ltd

NZBN: 9429046024954

Auckland	Auckland (Focus)	Christchurch	Tauranga
35 O'Rorke Road Penrose, Auckland 1061 +64 9 526 4551 IANZ# 1327	Unit C1/4 Pacific Rise, Mount Wellington, Auckland 1061 +64 9 525 0568 IANZ# 1308	43 Detroit Drive Rolleston, Christchurch 7675 +64 3 343 5201 IANZ# 1290	1277 Cameron Road, Gate Pa, Tauranga 3112 +64 9 525 0568 IANZ# 1402

Sample Receipt Advice

Company name:	Alliance Geotechnical
Contact name:	Jason Roesler
Project name:	CANTERBURY ICE SKATING RINK
Project ID:	18587
Turnaround time:	5 Day
Date/Time received	Nov 18, 2024 6:10 PM
Eurofins reference	1161470

Sample Information

- ✓ A detailed list of analytes logged into our LIMS, is included in the attached summary table.
- ✓ All samples have been received as described on the above COC.
- ✓ COC has been completed correctly.
- ✓ Attempt to chill was evident.
- ✓ Appropriately preserved sample containers have been used.
- ✓ All samples were received in good condition.
- ✓ Samples have been provided with adequate time to commence analysis in accordance with the relevant holding times.
- ✓ Appropriate sample containers have been used.
- ✓ Sample containers for volatile analysis received with zero headspace.
- ✓ Split sample sent to requested external lab.
- ✗ Some samples have been subcontracted.
- N/A Custody Seals intact (if used).

Notes

TRIP01 forwarded to ALS.
Samples received by the laboratory after 5.30pm are deemed to have been received the following working day.

Contact

If you have any questions with respect to these samples, please contact your Analytical Services Manager:

Andrew Black on phone : (+61) 2 9900 8490 or by email: AndrewBlack@eurofins.com

Results will be delivered electronically via email to Jason Roesler - jason@allgeo.com.au.

Note: A copy of these results will also be delivered to the general Alliance Geotechnical email address.



web: www.eurofins.com.au
email: EnviroSales@eurofins.com

Melbourne 6 Monterey Road Dandenong South VIC 3175 +61 3 8564 5000 NATA# 1261 Site# 1254	Geelong 19/8 Lewalan Street Grovedale VIC 3216 +61 3 8564 5000 NATA# 1261 Site# 25403	Sydney 179 Magowar Road Girraween NSW 2145 +61 2 9900 8400 NATA# 1261 Site# 18217	Canberra Unit 1,2 Dacre Street Mitchell ACT 2911 +61 2 6113 8091 NATA# 1261 Site# 25466	Brisbane 1/21 Smallwood Place Murarrie QLD 4172 T: +61 7 3902 4600 NATA# 1261 Site# 20794 & 2780	Newcastle 1/2 Frost Drive Mayfield West NSW 2304 +61 2 4968 8448 NATA# 1261 Site# 25079
---	--	--	--	---	--

Perth 46-48 Banksia Road Welshpool WA 6106 +61 8 6253 4444 NATA# 2377 Site# 2370 & 2554
--

Auckland 35 O'Rorke Road Penrose, Auckland 1061 +64 9 526 4551 IANZ# 1327	Auckland (Focus) Unit C1/4 Pacific Rise, Mount Wellington, Auckland 1061 +64 9 525 0568 IANZ# 1308	Christchurch 43 Detroit Drive Rolleston, Christchurch 7675 +64 3 343 5201 IANZ# 1290	Tauranga 1277 Cameron Road, Gate Pa, Tauranga 3112 +64 9 525 0568 IANZ# 1402
---	--	--	--

Company Name: Alliance Geotechnical

Address: 10 Welder Road
Seven Hills
NSW 2147

Project Name: CANTERBURY ICE SKATING RINK

Project ID: 18587

Order No.:

Report #: 1161470

Phone: 1800 288 188

Fax: 02 9675 1888

Received: Nov 18, 2024 6:10 PM

Due: Nov 25, 2024

Priority: 5 Day

Contact Name: Jason Roesler

Eurofins Analytical Services Manager : Andrew Black

Sample Detail						HOLD*	Acid Sulfate Soils Field pH Test	Metals M8	Moisture Set	BTEXN and Volatile TRH	BTEXN and Volatile TRH	Alliance WAC Suite 2-TRH/BTEXN/PAH/M8/OCp/PCB/Asb
Sydney Laboratory - NATA # 1261 Site # 18217						X	X	X	X	X	X	X
External Laboratory												
No	Sample ID	Sample Date	Sampling Time	Matrix	LAB ID							
1	BH01-0.0-0.1	Nov 18, 2024		Soil	S24-No0047927				X			X
2	BH01-0.3-0.4	Nov 18, 2024		Soil	S24-No0047928				X			X
3	BH01-0.6-0.7	Nov 18, 2024		Soil	S24-No0047929				X			X
4	BH02-0.0-0.1	Nov 18, 2024		Soil	S24-No0047930		X		X			X
5	BH02-0.5-0.6	Nov 18, 2024		Soil	S24-No0047931		X		X			X
6	BH02-1.0-1.1	Nov 18, 2024		Soil	S24-No0047932		X					
7	BH02-1.5-1.6	Nov 18, 2024		Soil	S24-No0047933		X					
8	BH02-2.0-2.1	Nov 18, 2024		Soil	S24-No0047934		X					
9	BH02-2.5-2.6	Nov 18, 2024		Soil	S24-No0047935		X					
10	BH02-3.0-3.1	Nov 18, 2024		Soil	S24-No0047936		X					
11	BH02-3.3-3.4	Nov 18, 2024		Soil	S24-No0047937		X					
12	BH03-0.0-0.1	Nov 18, 2024		Soil	S24-No0047938				X			X
13	BH03-0.3-0.4	Nov 18, 2024		Soil	S24-No0047939				X			X
14	BH04-0.0-0.1	Nov 18, 2024		Soil	S24-No0047940		X		X			X



Melbourne 6 Monterey Road Dandenong South VIC 3175 +61 3 8564 5000 NATA# 1261 Site# 1254	Geelong 19/8 Lewalan Street Grovedale VIC 3216 +61 3 8564 5000 NATA# 1261 Site# 25403	Sydney 179 Magowar Road Girraween NSW 2145 +61 2 9900 8400 NATA# 1261 Site# 18217	Canberra Unit 1,2 Dacre Street Mitchell ACT 2911 +61 2 6113 8091 NATA# 1261 Site# 25466	Brisbane 1/21 Smallwood Place Murarrie QLD 4172 T: +61 7 3902 4600 NATA# 1261 Site# 20794 & 2780	Newcastle 1/2 Frost Drive Mayfield West NSW 2304 +61 2 4968 8448 NATA# 1261 Site# 25079
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Perth 46-48 Banksia Road Welshpool WA 6106 +61 8 6253 4444 NATA# 2377 Site# 2370 & 2554
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Auckland 35 O'Rorke Road Penrose, Auckland 1061 +64 9 526 4551 IANZ# 1327	Auckland (Focus) Unit C1/4 Pacific Rise, Mount Wellington, Auckland 1061 +64 9 525 0568 IANZ# 1308	Christchurch 43 Detroit Drive Rolleston, Christchurch 7675 +64 3 343 5201 IANZ# 1290	Tauranga 1277 Cameron Road, Gate Pa, Tauranga 3112 +64 9 525 0568 IANZ# 1402
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Company Name: Alliance Geotechnical

Address: 10 Welder Road
Seven Hills
NSW 2147

Project Name: CANTERBURY ICE SKATING RINK

Project ID: 18587

Order No.:

Report #: 1161470

Phone: 1800 288 188

Fax: 02 9675 1888

Received: Nov 18, 2024 6:10 PM

Due: Nov 25, 2024

Priority: 5 Day

Contact Name: Jason Roesler

Eurofins Analytical Services Manager : Andrew Black

Sample Detail						HOLD*	Acid Sulfate Soils Field pH Test	Metals M8	Moisture Set	BTEXN and Volatile TRH	BTEXN and Volatile TRH	Alliance WAC Suite 2-TRH/BTEXN/PAH/M8/OC/PCEB/Asb
Sydney Laboratory - NATA # 1261 Site # 18217						X	X	X	X	X	X	X
15	BH04-0.5-0.6	Nov 18, 2024		Soil	S24-No0047941		X		X			X
16	BH04-0.7-0.8	Nov 18, 2024		Soil	S24-No0047942		X					
17	BH04-0.9-1.0	Nov 18, 2024		Soil	S24-No0047943		X					
18	BH04-1.2-1.3	Nov 18, 2024		Soil	S24-No0047944		X					
19	BH04-1.7-1.8	Nov 18, 2024		Soil	S24-No0047945		X					
20	BH05-0.0-0.1	Nov 18, 2024		Soil	S24-No0047946		X		X			X
21	BH05-0.5-0.6	Nov 18, 2024		Soil	S24-No0047947		X		X			X
22	BH05-0.6-0.7	Nov 18, 2024		Soil	S24-No0047948		X		X			X
23	BH05-1.1-1.2	Nov 18, 2024		Soil	S24-No0047949		X					
24	BH05-1.6-1.7	Nov 18, 2024		Soil	S24-No0047950		X					
25	BH05-1.9-2.0	Nov 18, 2024		Soil	S24-No0047951		X					
26	BH06-0.0-0.1	Nov 18, 2024		Soil	S24-No0047952				X			X
27	BH06-0.5-0.6	Nov 18, 2024		Soil	S24-No0047953				X			X
28	BH07-0.0-0.1	Nov 18, 2024		Soil	S24-No0047954				X			X
29	BH07-0.5-0.6	Nov 18, 2024		Soil	S24-No0047955				X			X
30	BH08-0.0-0.1	Nov 18, 2024		Soil	S24-No0047956		X		X			X
31	BH08-0.5-0.6	Nov 18, 2024		Soil	S24-No0047957		X		X			X



Eurofins Environment Testing Australia Pty Ltd

ABN: 50 005 085 521

Melbourne	Geelong	Sydney	Canberra	Brisbane	Newcastle
6 Monterey Road Dandenong South VIC 3175 +61 3 8564 5000 NATA# 1261 Site# 1254	19/8 Lewalan Street Grovedale VIC 3216 +61 3 8564 5000 NATA# 1261 Site# 25403	179 Magowar Road Girraween NSW 2145 +61 2 9900 8400 NATA# 1261 Site# 18217	Unit 1,2 Dacre Street Mitchell ACT 2911 +61 2 6113 8091 NATA# 1261 Site# 25466	1/21 Smallwood Place Murarrie QLD 4172 T: +61 7 3902 4600 NATA# 1261 Site# 20794 & 2780	1/2 Frost Drive Mayfield West NSW 2304 +61 2 4968 8448 NATA# 1261 Site# 25079

Eurofins ARL Pty Ltd

ABN: 91 05 0159 898

Perth
46-48 Banksia Road Welshpool WA 6106 +61 8 6253 4444 NATA# 2377 Site# 2370 & 2554

Eurofins Environment Testing NZ Ltd

NZBN: 9429046024954

Auckland	Auckland (Focus)	Christchurch	Tauranga
35 O'Rorke Road Penrose, Auckland 1061 +64 9 526 4551 IANZ# 1327	Unit C1/4 Pacific Rise, Mount Wellington, Auckland 1061 +64 9 525 0568 IANZ# 1308	43 Detroit Drive Rolleston, Christchurch 7675 +64 3 343 5201 IANZ# 1290	1277 Cameron Road, Gate Pa, Tauranga 3112 +64 9 525 0568 IANZ# 1402

Company Name: Alliance Geotechnical

Address: 10 Welder Road
Seven Hills
NSW 2147

Project Name: CANTERBURY ICE SKATING RINK

Project ID: 18587

Order No.:

Report #: 1161470

Phone: 1800 288 188

Fax: 02 9675 1888

Received:

Due: Nov 18, 2024 6:10 PM

Priority: 5 Day

Contact Name: Jason Roesler

Eurofins Analytical Services Manager : Andrew Black

Sample Detail						HOLD*	Acid Sulfate Soils Field pH Test	Metals M8	Moisture Set	BTEXN and Volatile TRH	BTEXN and Volatile TRH	Alliance WAC Suite 2-TRH/BTEXN/PAH/M8/OC/P/PCB/Asb
Sydney Laboratory - NATA # 1261 Site # 18217						X	X	X	X	X	X	X
32	BH08-1.0-1.1	Nov 18, 2024		Soil	S24-No0047958		X					
33	BH08-1.5-1.6	Nov 18, 2024		Soil	S24-No0047959		X					
34	BH08-1.9-2.0	Nov 18, 2024		Soil	S24-No0047960		X					
35	DUP01	Nov 18, 2024		Soil	S24-No0047961			X	X			
36	TRIP SPIKE	Nov 18, 2024		Trip Spike (solid)	S24-No0047962						X	
37	TRIP BLANK	Nov 18, 2024		Trip Blank (solid)	S24-No0047963					X		
38	TSL	Nov 18, 2024		Trip Spike (solid)	S24-No0047964						X	
39	BH01-0.9-1.0	Nov 18, 2024		Soil	S24-No0047965	X						
40	BH02-0.8-0.9	Nov 18, 2024		Soil	S24-No0047966	X						
41	BH03-0.7-0.8	Nov 18, 2024		Soil	S24-No0047967	X						
42	BH05-0.9-1.0	Nov 18, 2024		Soil	S24-No0047968	X						
43	BH06-0.8-0.9	Nov 18, 2024		Soil	S24-No0047969	X						
44	BH07-0.8-0.9	Nov 18, 2024		Soil	S24-No0047970	X						
45	BH08-0.8-0.9	Nov 18, 2024		Soil	S24-No0047971	X						
46	DUP02	Nov 18, 2024		Soil	S24-No0047972	X						



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ABN: 50 005 085 521

Melbourne 6 Monterey Road Dandenong South VIC 3175 +61 3 8564 5000 NATA# 1261 Site# 1254	Geelong 19/8 Lewalan Street Grovedale VIC 3216 +61 3 8564 5000 NATA# 1261 Site# 25403	Sydney 179 Magowar Road Girraween NSW 2145 +61 2 9900 8400 NATA# 1261 Site# 18217	Canberra Unit 1,2 Dacre Street Mitchell ACT 2911 +61 2 6113 8091 NATA# 1261 Site# 25466	Brisbane 1/21 Smallwood Place Murarrie QLD 4172 T: +61 7 3902 4600 NATA# 1261 Site# 20794 & 2780	Newcastle 1/2 Frost Drive Mayfield West NSW 2304 +61 2 4968 8448 NATA# 1261 Site# 25079
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ABN: 91 05 0159 898

Perth 46-48 Banksia Road Welshpool WA 6106 +61 8 6253 4444 NATA# 2377 Site# 2370 & 2554
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Company Name: Alliance Geotechnical
Address: 10 Welder Road
Seven Hills
NSW 2147

Order No.:
Report #: 1161470
Phone: 1800 288 188
Fax: 02 9675 1888

Received: Nov 18, 2024 6:10 PM
Due: Nov 25, 2024
Priority: 5 Day
Contact Name: Jason Roesler

Project Name: CANTERBURY ICE SKATING RINK
Project ID: 18587

Eurofins Analytical Services Manager : Andrew Black

Sample Detail						HOLD*	Acid Sulfate Soils Field pH Test	Metals M8	Moisture Set	BTEXN and Volatile TRH	BTEXN and Volatile TRH	Alliance WAC Suite 2-TRH/BTEXN/PAH/M8/OC/PCEB/Asb
Sydney Laboratory - NATA # 1261 Site # 18217						X	X	X	X	X	X	X
47	TRIP02	Nov 18, 2024		Soil	S24-No0047973	X						
48	RINSATE-01	Nov 18, 2024		Water	S24-No0047974	X						
Test Counts						10	25	1	19	1	2	18

Alliance Geotechnical
10 Welder Road
Seven Hills
NSW 2147



NATA Accredited
Accreditation Number 1261
Site Number 18217

Accredited for compliance with ISO/IEC 17025—Testing
 NATA is a signatory to the ILAC Mutual Recognition
 Arrangement for the mutual recognition of the
 equivalence of testing, medical testing, calibration,
 inspection, proficiency testing scheme providers and
 reference materials producers reports and certificates.

Attention: Jason Roesler
Report 1161470-AID
Project Name **CANTERBURY ICE SKATING RINK**
Project ID **18587**
Received Date Nov 18, 2024
Date Reported Nov 27, 2024

Methodology:

Asbestos Fibre
 Identification

Conducted in accordance with the Australian Standard AS 5370:2024* Sampling and qualitative identification of asbestos in bulk materials (ISO 22262-1:2012, MOD), formerly AS 4964-2004 and in-house Method LTM-ASB-8020 by polarised light microscopy (PLM) and dispersion staining (DS) techniques.
NOTE: Positive Trace Analysis results indicate the sample contains detectable respirable fibres.

Man-made vitreous
 fibre (MMVF)

Fibres exhibiting isotropic characteristics, including glass fibres, glass wool, rock wool, slag wool, ceramic fibres and bio-soluble fibres. NOTE: previously known as "synthetic mineral fibre" (SMF). Simple analytical procedures such as polarised light microscopy cannot detect or reliably identify asbestos in some types of commercial products containing asbestos, either because the fibres are below the resolution of optical microscopy or because the matrix material adheres too strongly to the fibres. For these types of products, electron microscopy may be necessary.

Subsampling Soil
 Samples

The sample submitted is dried and passed through a 10 mm sieve followed by a 2 mm sieve. All fibrous matter greater than 10 mm and greater than 2 mm and the material passing through the 2 mm sieve are retained and analysed for the presence of asbestos. If the sub 2mm fraction is greater than approximately 30 g to 60 g, then a subsampling routine based on ISO 3082:2017(E) is employed.
NOTE: Depending on the nature and size of the soil sample, the sub-2 mm residue material may need to be subsampled for trace analysis, in accordance with AS 5370:2024.*

Bonded asbestos-
 containing material
 (ACM)

The material is first examined, and any fibres are isolated for identification by PLM and DS. Where required, interfering matrices may be removed by disintegration using a range of heat, chemical or physical treatments, possibly in combination. The resultant material is then further examined in accordance with AS 5370:2024*.
NOTE: Even after disintegration, it may be difficult to detect the presence of asbestos in some asbestos-containing bulk materials using PLM and DS. This is due to the low grade or small length or diameter of the asbestos fibres present in the material or to the fact that very fine fibres have been distributed intimately throughout the materials. Vinyl/asbestos floor tiles, some asbestos-containing sealants and mastics, asbestos-containing epoxy resins and some ore samples are examples of these types of material, which are difficult to analyse.

Limit of Reporting
 (LOR)

The performance limitation of the AS 5370:2024* method for non-homogeneous samples is around 0.1 g/kg (equivalent to 0.01% (w/w)). Where no asbestos is found by PLM and DS, including Trace Analysis, this is considered to be at the nominal reporting limit of 0.01% (w/w). The NEPM screening level of 0.001% (w/w) is intended as an on-site determination, not a laboratory limit of reporting, per se. Examination of large sample size (e.g., 500 mL) may improve the likelihood of detecting asbestos, particularly AF, to aid assessment against the NEPM criteria. Gravimetric determinations to this level of accuracy are outside of AS 5370:2024*, and hence, NATA Accreditation does not cover the performance of this service (non-NATA results are shown with an asterisk).
NOTE: NATA News March 2014, p.7, states in relation to AS 4964-2004: "This is a qualitative method with a nominal reporting limit of 0.01 % " and that currently in Australia "there is no validated method available for the quantification of asbestos". This report is consistent with the analytical procedures and reporting recommendations in the NEPM and the WA DoH.

Project Name CANTERBURY ICE SKATING RINK
Project ID 18587
Date Sampled Nov 18, 2024
Report 1161470-AID

Client Sample ID	Eurofins Sample No.	Date Sampled	Sample Description	Result
BH01-0.0-0.1	24-No0047927	Nov 18, 2024	Approximate Sample 212g Sample consisted of: Brown fine-grained clayey sandy soil and rocks	No asbestos detected at the reporting limit of 0.01% w/w. Organic fibre detected. No trace asbestos detected.
BH01-0.3-0.4	24-No0047928	Nov 18, 2024	Approximate Sample 228g Sample consisted of: Brown fine-grained clayey sandy soil and rocks	No asbestos detected at the reporting limit of 0.01% w/w. Organic fibre detected. No trace asbestos detected.
BH01-0.6-0.7	24-No0047929	Nov 18, 2024	Approximate Sample 221g Sample consisted of: Brown fine-grained clayey sandy soil, cement and rocks	No asbestos detected at the reporting limit of 0.01% w/w. Organic fibre detected. No trace asbestos detected.
BH02-0.0-0.1	24-No0047930	Nov 18, 2024	Approximate Sample 225g Sample consisted of: Brown fine-grained clayey sandy soil and rocks	No asbestos detected at the reporting limit of 0.01% w/w. Organic fibre detected. No trace asbestos detected.
BH02-0.5-0.6	24-No0047931	Nov 18, 2024	Approximate Sample 188g Sample consisted of: Brown fine-grained clayey sandy soil and rocks	No asbestos detected at the reporting limit of 0.01% w/w. Organic fibre detected. No trace asbestos detected.
BH03-0.0-0.1	24-No0047938	Nov 18, 2024	Approximate Sample 218g Sample consisted of: Brown fine-grained clayey sandy soil and rocks	No asbestos detected at the reporting limit of 0.01% w/w. Organic fibre detected. No trace asbestos detected.
BH03-0.3-0.4	24-No0047939	Nov 18, 2024	Approximate Sample 215g Sample consisted of: Brown coarse-grained clayey sandy soil and rocks	No asbestos detected at the reporting limit of 0.01% w/w. Organic fibre detected. No trace asbestos detected.
BH04-0.0-0.1	24-No0047940	Nov 18, 2024	Approximate Sample 215g Sample consisted of: Brown coarse-grained clayey sandy soil and rocks	No asbestos detected at the reporting limit of 0.01% w/w. Organic fibre detected. No trace asbestos detected.

Client Sample ID	Eurofins Sample No.	Date Sampled	Sample Description	Result
BH04-0.5-0.6	24-No0047941	Nov 18, 2024	Approximate Sample 217g Sample consisted of: Brown coarse-grained clayey sandy soil and rocks	No asbestos detected at the reporting limit of 0.01% w/w. Organic fibre detected. No trace asbestos detected.
BH05-0.0-0.1	24-No0047946	Nov 18, 2024	Approximate Sample 270g Sample consisted of: Brown fine-grained clayey sandy soil, organic debris and rocks	No asbestos detected at the reporting limit of 0.01% w/w. Organic fibre detected. No trace asbestos detected.
BH05-0.5-0.6	24-No0047947	Nov 18, 2024	Approximate Sample 255g Sample consisted of: Brown fine-grained clayey sandy soil and rocks	No asbestos detected at the reporting limit of 0.01% w/w. Organic fibre detected. No trace asbestos detected.
BH05-0.6-0.7	24-No0047948	Nov 18, 2024	Approximate Sample 281g Sample consisted of: Brown coarse-grained clayey sandy soil and rocks	No asbestos detected at the reporting limit of 0.01% w/w. Organic fibre detected. No trace asbestos detected.
BH06-0.0-0.1	24-No0047952	Nov 18, 2024	Approximate Sample 319g Sample consisted of: Brown fine-grained clayey sandy soil, organic debris and rocks	No asbestos detected at the reporting limit of 0.01% w/w. Organic fibre detected. No trace asbestos detected.
BH06-0.5-0.6	24-No0047953	Nov 18, 2024	Approximate Sample 289g Sample consisted of: Brown coarse-grained clayey sandy soil and rocks	No asbestos detected at the reporting limit of 0.01% w/w. Organic fibre detected. No trace asbestos detected.
BH07-0.0-0.1	24-No0047954	Nov 18, 2024	Approximate Sample 205g Sample consisted of: Brown fine-grained clayey sandy soil and rocks	No asbestos detected at the reporting limit of 0.01% w/w. Organic fibre detected. No trace asbestos detected.
BH07-0.5-0.6	24-No0047955	Nov 18, 2024	Approximate Sample 203g Sample consisted of: Brown coarse-grained clayey sandy soil and rocks	No asbestos detected at the reporting limit of 0.01% w/w. Organic fibre detected. No trace asbestos detected.
BH08-0.0-0.1	24-No0047956	Nov 18, 2024	Approximate Sample 232g Sample consisted of: Brown fine-grained clayey sandy soil and rocks	No asbestos detected at the reporting limit of 0.01% w/w. Organic fibre detected. No trace asbestos detected.
BH08-0.5-0.6	24-No0047957	Nov 18, 2024	Approximate Sample 198g Sample consisted of: Brown coarse-grained clayey sandy soil and rocks	No asbestos detected at the reporting limit of 0.01% w/w. Organic fibre detected. No trace asbestos detected.

Sample History

Where samples are submitted/analysed over several days, the last date of extraction is reported.

If the date and time of sampling are not provided, the Laboratory will not be responsible for compromised results should testing be performed outside the recommended holding time.

Description	Testing Site	Extracted	Holding Time
Asbestos - LTM-ASB-8020	Sydney	Nov 18, 2024	Indefinite



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Melbourne 6 Monterey Road Dandenong South VIC 3175 +61 3 8564 5000 NATA# 1261 Site# 1254	Geelong 19/8 Lewalan Street Grovedale VIC 3216 +61 3 8564 5000 NATA# 1261 Site# 25403	Sydney 179 Magowar Road Girraween NSW 2145 +61 2 9900 8400 NATA# 1261 Site# 18217	Canberra Unit 1,2 Dacre Street Mitchell ACT 2911 +61 2 6113 8091 NATA# 1261 Site# 25466	Brisbane 1/21 Smallwood Place Murarrie QLD 4172 T: +61 7 3902 4600 NATA# 1261 Site# 20794 & 2780	Newcastle 1/2 Frost Drive Mayfield West NSW 2304 +61 2 4968 8448 NATA# 1261 Site# 25079
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Perth 46-48 Banksia Road Welshpool WA 6106 +61 8 6253 4444 NATA# 2377 Site# 2370 & 2554
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Company Name: Alliance Geotechnical
Address: 10 Welder Road
Seven Hills
NSW 2147

Order No.:
Report #: 1161470
Phone: 1800 288 188
Fax: 02 9675 1888

Received: Nov 18, 2024 6:10 PM
Due: Nov 25, 2024
Priority: 5 Day
Contact Name: Jason Roesler

Project Name: CANTERBURY ICE SKATING RINK
Project ID: 18587

Eurofins Analytical Services Manager : Andrew Black

Sample Detail						HOLD*	Acid Sulfate Soils Field pH Test	Metals M8	Moisture Set	BTEXN and Volatile TRH	BTEXN and Volatile TRH	Alliance WAC Suite 2-TRH/BTEXN/PAH/M8/OCp/PCB/Asb
Sydney Laboratory - NATA # 1261 Site # 18217						X	X	X	X	X	X	X
External Laboratory												
No	Sample ID	Sample Date	Sampling Time	Matrix	LAB ID							
1	BH01-0.0-0.1	Nov 18, 2024		Soil	S24-No0047927				X			X
2	BH01-0.3-0.4	Nov 18, 2024		Soil	S24-No0047928				X			X
3	BH01-0.6-0.7	Nov 18, 2024		Soil	S24-No0047929				X			X
4	BH02-0.0-0.1	Nov 18, 2024		Soil	S24-No0047930		X		X			X
5	BH02-0.5-0.6	Nov 18, 2024		Soil	S24-No0047931		X		X			X
6	BH02-1.0-1.1	Nov 18, 2024		Soil	S24-No0047932		X					
7	BH02-1.5-1.6	Nov 18, 2024		Soil	S24-No0047933		X					
8	BH02-2.0-2.1	Nov 18, 2024		Soil	S24-No0047934		X					
9	BH02-2.5-2.6	Nov 18, 2024		Soil	S24-No0047935		X					
10	BH02-3.0-3.1	Nov 18, 2024		Soil	S24-No0047936		X					
11	BH02-3.3-3.4	Nov 18, 2024		Soil	S24-No0047937		X					
12	BH03-0.0-0.1	Nov 18, 2024		Soil	S24-No0047938				X			X
13	BH03-0.3-0.4	Nov 18, 2024		Soil	S24-No0047939				X			X
14	BH04-0.0-0.1	Nov 18, 2024		Soil	S24-No0047940		X		X			X



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Melbourne 6 Monterey Road Dandenong South VIC 3175 +61 3 8564 5000 NATA# 1261 Site# 1254	Geelong 19/8 Lewalan Street Grovedale VIC 3216 +61 3 8564 5000 NATA# 1261 Site# 25403	Sydney 179 Magowar Road Girraween NSW 2145 +61 2 9900 8400 NATA# 1261 Site# 18217	Canberra Unit 1,2 Dacre Street Mitchell ACT 2911 +61 2 6113 8091 NATA# 1261 Site# 25466	Brisbane 1/21 Smallwood Place Murarrie QLD 4172 T: +61 7 3902 4600 NATA# 1261 Site# 20794 & 2780	Newcastle 1/2 Frost Drive Mayfield West NSW 2304 +61 2 4968 8448 NATA# 1261 Site# 25079
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Perth 46-48 Banksia Road Welshpool WA 6106 +61 8 6253 4444 NATA# 2377 Site# 2370 & 2554
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Address: 10 Welder Road
Seven Hills
NSW 2147

Order No.:
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Phone: 1800 288 188
Fax: 02 9675 1888

Received: Nov 18, 2024 6:10 PM
Due: Nov 25, 2024
Priority: 5 Day
Contact Name: Jason Roesler

Project Name: CANTERBURY ICE SKATING RINK
Project ID: 18587

Eurofins Analytical Services Manager : Andrew Black

Sample Detail						HOLD*	Acid Sulfate Soils Field pH Test	Metals M8	Moisture Set	BTEXN and Volatile TRH	BTEXN and Volatile TRH	Alliance WAC Suite 2-TRH/BTEXN/PAH/M8/OC/P/PCB/Asb
Sydney Laboratory - NATA # 1261 Site # 18217						X	X	X	X	X	X	X
15	BH04-0.5-0.6	Nov 18, 2024		Soil	S24-No0047941		X		X			X
16	BH04-0.7-0.8	Nov 18, 2024		Soil	S24-No0047942		X					
17	BH04-0.9-1.0	Nov 18, 2024		Soil	S24-No0047943		X					
18	BH04-1.2-1.3	Nov 18, 2024		Soil	S24-No0047944		X					
19	BH04-1.7-1.8	Nov 18, 2024		Soil	S24-No0047945		X					
20	BH05-0.0-0.1	Nov 18, 2024		Soil	S24-No0047946		X		X			X
21	BH05-0.5-0.6	Nov 18, 2024		Soil	S24-No0047947		X		X			X
22	BH05-0.6-0.7	Nov 18, 2024		Soil	S24-No0047948		X		X			X
23	BH05-1.1-1.2	Nov 18, 2024		Soil	S24-No0047949		X					
24	BH05-1.6-1.7	Nov 18, 2024		Soil	S24-No0047950		X					
25	BH05-1.9-2.0	Nov 18, 2024		Soil	S24-No0047951		X					
26	BH06-0.0-0.1	Nov 18, 2024		Soil	S24-No0047952				X			X
27	BH06-0.5-0.6	Nov 18, 2024		Soil	S24-No0047953				X			X
28	BH07-0.0-0.1	Nov 18, 2024		Soil	S24-No0047954				X			X
29	BH07-0.5-0.6	Nov 18, 2024		Soil	S24-No0047955				X			X
30	BH08-0.0-0.1	Nov 18, 2024		Soil	S24-No0047956		X		X			X
31	BH08-0.5-0.6	Nov 18, 2024		Soil	S24-No0047957		X		X			X



web: www.eurofins.com.au
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Melbourne 6 Monterey Road Dandenong South VIC 3175 +61 3 8564 5000 NATA# 1261 Site# 1254	Geelong 19/8 Lewalan Street Grovedale VIC 3216 +61 3 8564 5000 NATA# 1261 Site# 25403	Sydney 179 Magowar Road Girraween NSW 2145 +61 2 9900 8400 NATA# 1261 Site# 18217	Canberra Unit 1,2 Dacre Street Mitchell ACT 2911 +61 2 6113 8091 NATA# 1261 Site# 25466	Brisbane 1/21 Smallwood Place Murarrie QLD 4172 T: +61 7 3902 4600 NATA# 1261 Site# 20794 & 2780	Newcastle 1/2 Frost Drive Mayfield West NSW 2304 +61 2 4968 8448 NATA# 1261 Site# 25079	Perth 46-48 Banksia Road Welshpool WA 6106 +61 8 6253 4444 NATA# 2377 Site# 2370 & 2554	Auckland 35 O'Rorke Road Penrose, Auckland 1061 +64 9 526 4551 IANZ# 1327	Auckland (Focus) Unit C1/4 Pacific Rise, Mount Wellington, Auckland 1061 +64 9 525 0568 IANZ# 1308	Christchurch 43 Detroit Drive Rolleston, Christchurch 7675 +64 3 343 5201 IANZ# 1290	Tauranga 1277 Cameron Road, Gate Pa, Tauranga 3112 +64 9 525 0568 IANZ# 1402
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Company Name: Alliance Geotechnical

Address: 10 Welder Road
Seven Hills
NSW 2147

Project Name: CANTERBURY ICE SKATING RINK

Project ID: 18587

Order No.:

Report #: 1161470

Phone: 1800 288 188

Fax: 02 9675 1888

Received: Nov 18, 2024 6:10 PM

Due: Nov 25, 2024

Priority: 5 Day

Contact Name: Jason Roesler

Eurofins Analytical Services Manager : Andrew Black

Sample Detail						HOLD*	Acid Sulfate Soils Field pH Test	Metals M8	Moisture Set	BTEXN and Volatile TRH	BTEXN and Volatile TRH	Alliance WAC Suite 2-TRH/BTEXN/PAH/M8/OC/PCEB/Asb
Sydney Laboratory - NATA # 1261 Site # 18217						X	X	X	X	X	X	X
32	BH08-1.0-1.1	Nov 18, 2024		Soil	S24-No0047958		X					
33	BH08-1.5-1.6	Nov 18, 2024		Soil	S24-No0047959		X					
34	BH08-1.9-2.0	Nov 18, 2024		Soil	S24-No0047960		X					
35	DUP01	Nov 18, 2024		Soil	S24-No0047961			X	X			
36	TRIP SPIKE	Nov 18, 2024		Trip Spike (solid)	S24-No0047962						X	
37	TRIP BLANK	Nov 18, 2024		Trip Blank (solid)	S24-No0047963					X		
38	BH01-0.9-1.0	Nov 18, 2024		Soil	S24-No0047965	X						
39	BH02-0.8-0.9	Nov 18, 2024		Soil	S24-No0047966	X						
40	BH03-0.7-0.8	Nov 18, 2024		Soil	S24-No0047967	X						
41	BH05-0.9-1.0	Nov 18, 2024		Soil	S24-No0047968	X						
42	BH06-0.8-0.9	Nov 18, 2024		Soil	S24-No0047969	X						
43	BH07-0.8-0.9	Nov 18, 2024		Soil	S24-No0047970	X						
44	BH08-0.8-0.9	Nov 18, 2024		Soil	S24-No0047971	X						
45	DUP02	Nov 18, 2024		Soil	S24-No0047972	X						
46	TRIP02	Nov 18, 2024		Soil	S24-No0047973	X						



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ABN: 50 005 085 521

Melbourne 6 Monterey Road Dandenong South VIC 3175 +61 3 8564 5000 NATA# 1261 Site# 1254	Geelong 19/8 Lewalan Street Grovedale VIC 3216 +61 3 8564 5000 NATA# 1261 Site# 25403	Sydney 179 Magowar Road Girraween NSW 2145 +61 2 9900 8400 NATA# 1261 Site# 18217	Canberra Unit 1,2 Dacre Street Mitchell ACT 2911 +61 2 6113 8091 NATA# 1261 Site# 25466	Brisbane 1/21 Smallwood Place Murarrie QLD 4172 T: +61 7 3902 4600 NATA# 1261 Site# 20794 & 2780	Newcastle 1/2 Frost Drive Mayfield West NSW 2304 +61 2 4968 8448 NATA# 1261 Site# 25079
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ABN: 91 05 0159 898

Perth 46-48 Banksia Road Welshpool WA 6106 +61 8 6253 4444 NATA# 2377 Site# 2370 & 2554
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NZBN: 9429046024954

Auckland 35 O'Rorke Road Penrose, Auckland 1061 +64 9 526 4551 IANZ# 1327	Auckland (Focus) Unit C1/4 Pacific Rise, Mount Wellington, Auckland 1061 +64 9 525 0568 IANZ# 1308	Christchurch 43 Detroit Drive Rolleston, Christchurch 7675 +64 3 343 5201 IANZ# 1290	Tauranga 1277 Cameron Road, Gate Pa, Tauranga 3112 +64 9 525 0568 IANZ# 1402
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Company Name: Alliance Geotechnical
Address: 10 Welder Road
Seven Hills
NSW 2147

Order No.:
Report #: 1161470
Phone: 1800 288 188
Fax: 02 9675 1888

Received: Nov 18, 2024 6:10 PM
Due: Nov 25, 2024
Priority: 5 Day
Contact Name: Jason Roesler

Project Name: CANTERBURY ICE SKATING RINK
Project ID: 18587

Eurofins Analytical Services Manager : Andrew Black

Sample Detail						HOLD*	Acid Sulfate Soils Field pH Test	Metals M8	Moisture Set	BTEXN and Volatile TRH	BTEXN and Volatile TRH	Alliance WAC Suite 2-TRH/BTEXN/PAH/M8/OCp/PCB/Asb
Sydney Laboratory - NATA # 1261 Site # 18217						X	X	X	X	X	X	X
47	RINSATE-01	Nov 18, 2024		Water	S24-No0047974	X						
Test Counts						10	25	1	19	1	1	18

Internal Quality Control Review and Glossary General

1. QC data may be available on request.
2. All soil results are reported on a dry basis, unless otherwise stated.
3. Samples were analysed on an 'as received' basis.
4. Information identified on this report with the colour **blue** indicates data provided by customer that may have an impact on the results.
5. This report replaces any interim results previously issued.

Holding Times

Please refer to the most recent version of the 'Sample Preservation and Container Guide' for holding times (QS3001).

Units

% w/w:	Percentage weight-for-weight basis, e.g. of asbestos in asbestos-containing finds in soil samples (% w/w)
F/field	Airborne fibre filter loading as Fibres (N) per Fields counted (n)
F/mL	Airborne fibre reported concentration as Fibres per millilitre of air drawn over the sampler membrane (C)
g, kg	Mass, e.g. of whole sample (M) or asbestos-containing find within the sample (m)
g/kg	Concentration in grams per kilogram
L, mL	Volume, e.g. of air as measured in AFM (V = r x t)
L/min	Airborne fibre sampling Flowrate as litres per minute of air drawn over the sampler membrane (r)
min	Time (t), e.g. of air sample collection period

Calculations

Airborne Fibre Concentration: $C = \left(\frac{A}{a}\right) \times \left(\frac{N}{n}\right) \times \left(\frac{1}{r}\right) \times \left(\frac{1}{t}\right) = K \times \left(\frac{N}{n}\right) \times \left(\frac{1}{V}\right)$

Asbestos Content (as asbestos): $\% w/w = \frac{(m \times P_A)}{M}$

Weighted Average (of asbestos): $\%_{WA} = \sum \frac{(m \times P_A) \times x}{x}$

Terms

%asbestos	Estimated percentage of asbestos in a given matrix may be derived from knowledge or experience of the material, informed by HSG264 <i>Appendix 2</i> , else assumed to be 15% in accordance with WA DOH <i>Appendix 2</i> (PA). This estimate is not NATA-accredited.
ACM	Asbestos Containing Materials. Asbestos contained within a non-asbestos matrix, typically presented in bonded (non-friable) condition. For the purposes of the NEPM and WA DOH, ACM corresponds to material larger than 7 mm x 7 mm.
AF	Asbestos Fines. Asbestos contamination within a soil sample, as defined by WA DOH. Includes loose fibre bundles and small pieces of friable and non-friable material such as asbestos cement fragments mixed with soil. Considered under the NEPM as equivalent to "non-bonded / friable".
AFM	Airborne Fibre Monitoring, e.g., by the MFM.
Amosite	Amosite Asbestos Detected. Amosite may also refer to Fibrous Grunerite or Brown Asbestos. Identified in accordance with AS 5370:2024* Sampling and qualitative identification of asbestos in bulk materials (ISO 22262-1:2012, MOD), formerly AS 4964-2004.
AS	Australian Standard.
Asbestos Content (as asbestos)	Total %w/w asbestos content in asbestos-containing finds in a soil sample (% w/w).
Chrysotile	Chrysotile Asbestos Detected. Chrysotile may also refer to Fibrous Serpentine or White Asbestos. Identified in accordance with AS 5370:2024* Sampling and qualitative identification of asbestos in bulk materials (ISO 22262-1:2012, MOD), formerly AS 4964-2004..
COC	Chain of Custody.
Crocidolite	Crocidolite Asbestos Detected. Crocidolite may also refer to Fibrous Riebeckite or Blue Asbestos. Identified in accordance with AS 5370:2024* Sampling and qualitative identification of asbestos in bulk materials (ISO 22262-1:2012, MOD), formerly AS 4964-2004..
Dry	Sample is dried by heating prior to analysis.
DS	Dispersion Staining. Technique required for unequivocal Identification of asbestos fibres by PLM.
FA	Fibrous Asbestos. Asbestos-containing material that is wholly or in part friable, including materials with higher asbestos content with a propensity to become friable with handling, and any material that was previously non-friable and in a severely degraded condition. For the purposes of the NEPM and WA DOH, FA generally corresponds to material larger than 7 mm x 7 mm, although FA may be more difficult to distinguish visibly and may be assessed as AF.
Fibre Count	Total of all fibres (whether asbestos or not) meeting the counting criteria set out in the NOHSC:3003
Fibre ID	Fibre Identification. Unequivocal identification of asbestos fibres according to AS 5370:2024* Sampling and qualitative identification of asbestos in bulk materials (ISO 22262-1:2012, MOD), formerly AS 4964-2004.. Includes Chrysotile, Amosite (Grunerite) or Crocidolite asbestos.
Friable	Asbestos-containing materials of any size that may be broken or crumbled by hand pressure. For the purposes of the NEPM, this includes both AF and FA. It is outside of the laboratory's remit to assess the degree of friability.
HSG248	UK HSE HSG248, <i>Asbestos: The Analysts Guide</i> , 2 nd Edition (2021), ISBN: 9780616667079.
HSG264	UK HSE HSG264, <i>Asbestos: The Survey Guide</i> (2012), ISBN: 9780717665020
ISO (also ISO/IEC)	International Organization for Standardization / International Electrotechnical Commission.
K Factor	Microscope constant (K) as derived from the effective filter area of the given AFM membrane used for collecting the sample (A) and the projected eyepiece graticule area of the specific microscope used for the analysis (a).
LOR	Limit of Reporting.
MFM (also NOHSC:3003)	Membrane Filter Method. As described by the Australian Government National Occupational Health and Safety Commission, <i>Guidance Note on the Membrane Filter Method for Estimating Airborne Asbestos Fibres</i> , 2nd Edition [NOHSC:3003(2005)].
MMVF	Man-Made Vitreous Fibre - exhibiting isotropic characteristics, including glass fibres, glass wool, rock wool, slag wool, ceramic fibres and "bio-soluble fibres". NOTE: previously known as "synthetic mineral fibre" (SMF).
NEPM (also ASC NEPM)	National Environment Protection (Assessment of Site Contamination) Measure, (2013, as amended).
Organic	Organic Fibres Detected. Organic may refer to Natural or Man-Made Polymeric Fibres. Identified in accordance with AS 5370:2024* Sampling and qualitative identification of asbestos in bulk materials (ISO 22262-1:2012, MOD), formerly AS 4964-2004..
PCM	Phase Contrast Microscopy. This is used for fibre counting according to the MFM.
PLM	Polarised Light Microscopy. As used for Fibre Identification and Trace Analysis according to AS 5370:2024* Sampling and qualitative identification of asbestos in bulk materials (ISO 22262-1:2012, MOD), formerly AS 4964-2004..
Sampling	Unless otherwise stated, Eurofins are not responsible for sampling equipment or the sampling process.
SRA	Sample Receipt Advice.
Trace Analysis	An analytical procedure is used to detect the presence of respirable fibres (particularly asbestos) in a given sample matrix.
UK HSE HSG	United Kingdom, Health and Safety Executive, Health and Safety Guidance, publication.
UMF	Unidentified Mineral Fibre Detected. Fibrous minerals that are detected but have not been unequivocally identified by PLM with DS according to AS 5370:2024* Sampling and qualitative identification of asbestos in bulk materials (ISO 22262-1:2012, MOD), formerly AS 4964-2004.. It may include (but is not limited to) actinolite, anthophyllite, or tremolite asbestos.
WA DOH	Reference document for the NEPM. Government of Western Australia, <i>Guidelines for the Assessment, Remediation and Management of Asbestos-Contaminated Sites in Western Australia</i> (updated 2021), including Appendix Four: <i>Laboratory analysis</i>
Weighted Average	Combined average %w/w asbestos content of all asbestos-containing finds in the given aliquot or total soil sample (% _{WA}).

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	Yes
Sample correctly preserved	Yes
Appropriate sample containers have been used	Yes
Sample containers for volatile analysis received with minimal headspace	Yes
Samples received within HoldingTime	Yes
Some samples have been subcontracted	No

Sayeed Abu Senior Analyst-Asbestos

Laxman Dias Senior Analyst-Asbestos



Glenn Jackson
Managing Director

Final Report – this report replaces any previously issued Report

- Indicates Not Requested

* Indicates NATA accreditation does not cover the performance of this service

Measurement uncertainty of test data is available on request or please [click here](#).

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Alliance Geotechnical
10 Welder Road
Seven Hills
NSW 2147



NATA Accredited
Accreditation Number 1261
Site Number 18217

Accredited for compliance with ISO/IEC 17025 – Testing
 NATA is a signatory to the ILAC Mutual Recognition
 Arrangement for the mutual recognition of the
 equivalence of testing, medical testing, calibration,
 inspection, proficiency testing scheme providers and
 reference materials producers reports and certificates.

Attention: **Jason Roesler**

Report **1161470-S**
 Project name **CANTERBURY ICE SKATING RINK**
 Project ID **18587**
 Received Date **Nov 18, 2024**

Client Sample ID			BH01-0.0-0.1	^{G01} BH01-0.3-0.4	BH01-0.6-0.7	BH02-0.0-0.1
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S24- No0047927	S24- No0047928	S24- No0047929	S24- No0047930
Date Sampled			Nov 18, 2024	Nov 18, 2024	Nov 18, 2024	Nov 18, 2024
Test/Reference	LOR	Unit				
BTEX						
Benzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Toluene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Ethylbenzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
m&p-Xylenes	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
o-Xylene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Xylenes - Total*	0.3	mg/kg	< 0.3	< 0.3	< 0.3	< 0.3
4-Bromofluorobenzene (surr.)	1	%	108	99	122	92
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene ^{N02}	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Total Recoverable Hydrocarbons						
TRH C6-C9	20	mg/kg	< 20	< 20	< 20	< 20
TRH C10-C14	20	mg/kg	< 20	< 20	< 20	< 20
TRH C15-C28	50	mg/kg	< 50	120	< 50	63
TRH C29-C36	50	mg/kg	< 50	50	< 50	< 50
TRH C10-C36 (Total)	50	mg/kg	< 50	170	< 50	63
TRH C6-C10	20	mg/kg	< 20	< 20	< 20	< 20
TRH C6-C10 less BTEX (F1) ^{N04}	20	mg/kg	< 20	< 20	< 20	< 20
TRH >C10-C16	50	mg/kg	< 50	< 50	< 50	< 50
TRH >C10-C16 less Naphthalene (F2) ^{*N01}	50	mg/kg	< 50	< 50	< 50	< 50
TRH >C16-C34	100	mg/kg	< 100	150	< 100	110
TRH >C34-C40	100	mg/kg	< 100	< 100	< 100	< 100
TRH >C10-C40 (total)*	100	mg/kg	< 100	150	< 100	110
Polycyclic Aromatic Hydrocarbons						
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	0.6	2.9	< 0.5	< 0.5
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	0.9	2.9	0.6	0.6
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	1.2	2.9	1.2	1.2
Acenaphthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Acenaphthylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Anthracene	0.5	mg/kg	< 0.5	1.9	< 0.5	< 0.5
Benz(a)anthracene	0.5	mg/kg	< 0.5	1.9	< 0.5	< 0.5
Benzo(a)pyrene	0.5	mg/kg	0.5	1.7	< 0.5	< 0.5
Benzo(b&j)fluoranthene ^{N07}	0.5	mg/kg	< 0.5	1.8	< 0.5	< 0.5
Benzo(g,h,i)perylene	0.5	mg/kg	< 0.5	0.9	< 0.5	< 0.5
Benzo(k)fluoranthene	0.5	mg/kg	0.6	2.2	< 0.5	< 0.5
Chrysene	0.5	mg/kg	< 0.5	2.7	< 0.5	< 0.5

Client Sample ID			BH01-0.0-0.1	^{G01} BH01-0.3-0.4	BH01-0.6-0.7	BH02-0.0-0.1
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S24- No0047927	S24- No0047928	S24- No0047929	S24- No0047930
Date Sampled			Nov 18, 2024	Nov 18, 2024	Nov 18, 2024	Nov 18, 2024
Test/Reference	LOR	Unit				
Polycyclic Aromatic Hydrocarbons						
Dibenz(a,h)anthracene	0.5	mg/kg	< 0.5	0.5	< 0.5	< 0.5
Fluoranthene	0.5	mg/kg	0.9	6.0	< 0.5	0.7
Fluorene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	< 0.5	0.8	< 0.5	< 0.5
Naphthalene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Phenanthrene	0.5	mg/kg	< 0.5	5.8	< 0.5	< 0.5
Pyrene	0.5	mg/kg	0.8	4.1	< 0.5	0.6
Total PAH*	0.5	mg/kg	2.8	30	< 0.5	1.3
2-Fluorobiphenyl (surr.)	1	%	88	96	86	80
p-Terphenyl-d14 (surr.)	1	%	84	115	88	133
Organochlorine Pesticides						
Chlordanes - Total	0.1	mg/kg	< 0.1	< 1	< 0.1	< 0.1
4,4'-DDD	0.05	mg/kg	< 0.05	< 0.5	< 0.05	< 0.05
4,4'-DDE	0.05	mg/kg	< 0.05	< 0.5	< 0.05	< 0.05
4,4'-DDT	0.05	mg/kg	< 0.05	< 0.5	< 0.05	< 0.05
α-HCH	0.05	mg/kg	< 0.05	< 0.5	< 0.05	< 0.05
Aldrin	0.05	mg/kg	< 0.05	< 0.5	< 0.05	< 0.05
β-HCH	0.05	mg/kg	< 0.05	< 0.5	< 0.05	< 0.05
δ-HCH	0.05	mg/kg	< 0.05	< 0.5	< 0.05	< 0.05
Dieldrin	0.05	mg/kg	< 0.05	< 0.5	< 0.05	< 0.05
Endosulfan I	0.05	mg/kg	< 0.05	< 0.5	< 0.05	< 0.05
Endosulfan II	0.05	mg/kg	< 0.05	< 0.5	< 0.05	< 0.05
Endosulfan sulphate	0.05	mg/kg	< 0.05	< 0.5	< 0.05	< 0.05
Endrin	0.05	mg/kg	< 0.05	< 0.5	< 0.05	< 0.05
Endrin aldehyde	0.05	mg/kg	< 0.05	< 0.5	< 0.05	< 0.05
Endrin ketone	0.05	mg/kg	< 0.05	< 0.5	< 0.05	< 0.05
γ-HCH (Lindane)	0.05	mg/kg	< 0.05	< 0.5	< 0.05	< 0.05
Heptachlor	0.05	mg/kg	< 0.05	< 0.5	< 0.05	< 0.05
Heptachlor epoxide	0.05	mg/kg	< 0.05	< 0.5	< 0.05	< 0.05
Hexachlorobenzene	0.05	mg/kg	< 0.05	< 0.5	< 0.05	< 0.05
Methoxychlor	0.05	mg/kg	< 0.05	< 0.5	< 0.05	< 0.05
Toxaphene	0.5	mg/kg	< 0.5	< 10	< 0.5	< 0.5
Aldrin and Dieldrin (Total)*	0.05	mg/kg	< 0.05	< 0.5	< 0.05	< 0.05
DDT + DDE + DDD (Total)*	0.05	mg/kg	< 0.05	< 0.5	< 0.05	< 0.05
Vic EPA IWRG 621 OCP (Total)*	0.1	mg/kg	< 0.1	< 1	< 0.1	< 0.1
Vic EPA IWRG 621 Other OCP (Total)*	0.1	mg/kg	< 0.1	< 1	< 0.1	< 0.1
Dibutylchlorendate (surr.)	1	%	57	^{Q09} INT	60	^{Q09} INT
Tetrachloro-m-xylene (surr.)	1	%	83	77	85	101
Polychlorinated Biphenyls						
Aroclor-1016	0.1	mg/kg	< 0.1	< 1	< 0.1	< 0.1
Aroclor-1221	0.1	mg/kg	< 0.1	< 1	< 0.1	< 0.1
Aroclor-1232	0.1	mg/kg	< 0.1	< 1	< 0.1	< 0.1
Aroclor-1242	0.1	mg/kg	< 0.1	< 1	< 0.1	< 0.1
Aroclor-1248	0.1	mg/kg	< 0.1	< 1	< 0.1	< 0.1
Aroclor-1254	0.1	mg/kg	< 0.1	< 1	< 0.1	< 0.1
Aroclor-1260	0.1	mg/kg	< 0.1	< 1	< 0.1	< 0.1
Total PCB*	0.1	mg/kg	< 0.1	< 1	< 0.1	< 0.1
Dibutylchlorendate (surr.)	1	%	57	^{Q09} INT	60	^{Q09} INT
Tetrachloro-m-xylene (surr.)	1	%	83	77	85	101

Client Sample ID			BH01-0.0-0.1	^{G01} BH01-0.3-0.4	BH01-0.6-0.7	BH02-0.0-0.1
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S24-No0047927	S24-No0047928	S24-No0047929	S24-No0047930
Date Sampled			Nov 18, 2024	Nov 18, 2024	Nov 18, 2024	Nov 18, 2024
Test/Reference	LOR	Unit				
Heavy Metals						
Arsenic	2	mg/kg	14	34	3.9	9.4
Cadmium	0.4	mg/kg	< 0.4	< 0.4	< 0.4	< 0.4
Chromium	5	mg/kg	22	28	8.1	14
Copper	5	mg/kg	17	54	17	9.3
Lead	5	mg/kg	71	270	67	40
Mercury	0.1	mg/kg	0.2	1.0	0.4	0.1
Nickel	5	mg/kg	< 5	13	< 5	< 5
Zinc	5	mg/kg	58	210	27	27
Sample Properties						
% Moisture	1	%	13	7.2	5.7	11
Acid Sulfate Soils Field pH Test						
pH-F (Field pH test)*	0.1	pH Units	-	-	-	5.9
pH-FOX (Field pH Peroxide test)*	0.1	pH Units	-	-	-	2.7
Reaction Ratings* ^{S05}	0	comment	-	-	-	3.0

Client Sample ID			BH02-0.5-0.6	BH02-1.0-1.1	BH02-1.5-1.6	BH02-2.0-2.1
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S24-No0047931	S24-No0047932	S24-No0047933	S24-No0047934
Date Sampled			Nov 18, 2024	Nov 18, 2024	Nov 18, 2024	Nov 18, 2024
Test/Reference	LOR	Unit				
BTEX						
Benzene	0.1	mg/kg	< 0.1	-	-	-
Toluene	0.1	mg/kg	< 0.1	-	-	-
Ethylbenzene	0.1	mg/kg	< 0.1	-	-	-
m&p-Xylenes	0.2	mg/kg	< 0.2	-	-	-
o-Xylene	0.1	mg/kg	< 0.1	-	-	-
Xylenes - Total*	0.3	mg/kg	< 0.3	-	-	-
4-Bromofluorobenzene (surr.)	1	%	80	-	-	-
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene ^{N02}	0.5	mg/kg	< 0.5	-	-	-
Total Recoverable Hydrocarbons						
TRH C6-C9	20	mg/kg	< 20	-	-	-
TRH C10-C14	20	mg/kg	< 20	-	-	-
TRH C15-C28	50	mg/kg	< 50	-	-	-
TRH C29-C36	50	mg/kg	< 50	-	-	-
TRH C10-C36 (Total)	50	mg/kg	< 50	-	-	-
TRH C6-C10	20	mg/kg	< 20	-	-	-
TRH C6-C10 less BTEX (F1) ^{N04}	20	mg/kg	< 20	-	-	-
TRH >C10-C16	50	mg/kg	< 50	-	-	-
TRH >C10-C16 less Naphthalene (F2) ^{*N01}	50	mg/kg	< 50	-	-	-
TRH >C16-C34	100	mg/kg	< 100	-	-	-
TRH >C34-C40	100	mg/kg	< 100	-	-	-
TRH >C10-C40 (total)*	100	mg/kg	< 100	-	-	-

Client Sample ID			BH02-0.5-0.6	BH02-1.0-1.1	BH02-1.5-1.6	BH02-2.0-2.1
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S24- No0047931	S24- No0047932	S24- No0047933	S24- No0047934
Date Sampled			Nov 18, 2024	Nov 18, 2024	Nov 18, 2024	Nov 18, 2024
Test/Reference	LOR	Unit				
Polycyclic Aromatic Hydrocarbons						
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	< 0.5	-	-	-
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	0.6	-	-	-
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	1.2	-	-	-
Acenaphthene	0.5	mg/kg	< 0.5	-	-	-
Acenaphthylene	0.5	mg/kg	< 0.5	-	-	-
Anthracene	0.5	mg/kg	< 0.5	-	-	-
Benz(a)anthracene	0.5	mg/kg	< 0.5	-	-	-
Benzo(a)pyrene	0.5	mg/kg	< 0.5	-	-	-
Benzo(b&j)fluoranthene ^{N07}	0.5	mg/kg	< 0.5	-	-	-
Benzo(g,h,i)perylene	0.5	mg/kg	< 0.5	-	-	-
Benzo(k)fluoranthene	0.5	mg/kg	< 0.5	-	-	-
Chrysene	0.5	mg/kg	< 0.5	-	-	-
Dibenz(a,h)anthracene	0.5	mg/kg	< 0.5	-	-	-
Fluoranthene	0.5	mg/kg	< 0.5	-	-	-
Fluorene	0.5	mg/kg	< 0.5	-	-	-
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	< 0.5	-	-	-
Naphthalene	0.5	mg/kg	< 0.5	-	-	-
Phenanthrene	0.5	mg/kg	< 0.5	-	-	-
Pyrene	0.5	mg/kg	< 0.5	-	-	-
Total PAH*	0.5	mg/kg	< 0.5	-	-	-
2-Fluorobiphenyl (surr.)	1	%	100	-	-	-
p-Terphenyl-d14 (surr.)	1	%	129	-	-	-
Organochlorine Pesticides						
Chlordanes - Total	0.1	mg/kg	< 0.1	-	-	-
4.4'-DDD	0.05	mg/kg	< 0.05	-	-	-
4.4'-DDE	0.05	mg/kg	< 0.05	-	-	-
4.4'-DDT	0.05	mg/kg	< 0.05	-	-	-
α-HCH	0.05	mg/kg	< 0.05	-	-	-
Aldrin	0.05	mg/kg	< 0.05	-	-	-
β-HCH	0.05	mg/kg	< 0.05	-	-	-
δ-HCH	0.05	mg/kg	< 0.05	-	-	-
Dieldrin	0.05	mg/kg	< 0.05	-	-	-
Endosulfan I	0.05	mg/kg	< 0.05	-	-	-
Endosulfan II	0.05	mg/kg	< 0.05	-	-	-
Endosulfan sulphate	0.05	mg/kg	< 0.05	-	-	-
Endrin	0.05	mg/kg	< 0.05	-	-	-
Endrin aldehyde	0.05	mg/kg	< 0.05	-	-	-
Endrin ketone	0.05	mg/kg	< 0.05	-	-	-
γ-HCH (Lindane)	0.05	mg/kg	< 0.05	-	-	-
Heptachlor	0.05	mg/kg	< 0.05	-	-	-
Heptachlor epoxide	0.05	mg/kg	< 0.05	-	-	-
Hexachlorobenzene	0.05	mg/kg	< 0.05	-	-	-
Methoxychlor	0.05	mg/kg	< 0.05	-	-	-
Toxaphene	0.5	mg/kg	< 0.5	-	-	-
Aldrin and Dieldrin (Total)*	0.05	mg/kg	< 0.05	-	-	-
DDT + DDE + DDD (Total)*	0.05	mg/kg	< 0.05	-	-	-
Vic EPA IWRG 621 OCP (Total)*	0.1	mg/kg	< 0.1	-	-	-
Vic EPA IWRG 621 Other OCP (Total)*	0.1	mg/kg	< 0.1	-	-	-
Dibutylchlorendate (surr.)	1	%	^{Q09} INT	-	-	-
Tetrachloro-m-xylene (surr.)	1	%	82	-	-	-

Client Sample ID			BH02-0.5-0.6	BH02-1.0-1.1	BH02-1.5-1.6	BH02-2.0-2.1
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S24-No0047931	S24-No0047932	S24-No0047933	S24-No0047934
Date Sampled			Nov 18, 2024	Nov 18, 2024	Nov 18, 2024	Nov 18, 2024
Test/Reference	LOR	Unit				
Polychlorinated Biphenyls						
Aroclor-1016	0.1	mg/kg	< 0.1	-	-	-
Aroclor-1221	0.1	mg/kg	< 0.1	-	-	-
Aroclor-1232	0.1	mg/kg	< 0.1	-	-	-
Aroclor-1242	0.1	mg/kg	< 0.1	-	-	-
Aroclor-1248	0.1	mg/kg	< 0.1	-	-	-
Aroclor-1254	0.1	mg/kg	< 0.1	-	-	-
Aroclor-1260	0.1	mg/kg	< 0.1	-	-	-
Total PCB*	0.1	mg/kg	< 0.1	-	-	-
Dibutylchloredate (surr.)	1	%	Q09INT	-	-	-
Tetrachloro-m-xylene (surr.)	1	%	82	-	-	-
Heavy Metals						
Arsenic	2	mg/kg	5.6	-	-	-
Cadmium	0.4	mg/kg	< 0.4	-	-	-
Chromium	5	mg/kg	11	-	-	-
Copper	5	mg/kg	< 5	-	-	-
Lead	5	mg/kg	20	-	-	-
Mercury	0.1	mg/kg	< 0.1	-	-	-
Nickel	5	mg/kg	< 5	-	-	-
Zinc	5	mg/kg	< 5	-	-	-
Sample Properties						
% Moisture	1	%	17	-	-	-
Acid Sulfate Soils Field pH Test						
pH-F (Field pH test)*	0.1	pH Units	5.0	4.7	5.3	5.7
pH-FOX (Field pH Peroxide test)*	0.1	pH Units	4.1	3.7	4.2	4.7
Reaction Ratings*S05	0	comment	2.0	3.0	1.0	1.0

Client Sample ID			BH02-2.5-2.6	BH02-3.0-3.1	BH02-3.3-3.4	BH03-0.0-0.1
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S24-No0047935	S24-No0047936	S24-No0047937	S24-No0047938
Date Sampled			Nov 18, 2024	Nov 18, 2024	Nov 18, 2024	Nov 18, 2024
Test/Reference	LOR	Unit				
BTEX						
Benzene	0.1	mg/kg	-	-	-	< 0.1
Toluene	0.1	mg/kg	-	-	-	< 0.1
Ethylbenzene	0.1	mg/kg	-	-	-	< 0.1
m&p-Xylenes	0.2	mg/kg	-	-	-	< 0.2
o-Xylene	0.1	mg/kg	-	-	-	< 0.1
Xylenes - Total*	0.3	mg/kg	-	-	-	< 0.3
4-Bromofluorobenzene (surr.)	1	%	-	-	-	56
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene ^{N02}	0.5	mg/kg	-	-	-	< 0.5
Total Recoverable Hydrocarbons						
TRH C6-C9	20	mg/kg	-	-	-	< 20
TRH C10-C14	20	mg/kg	-	-	-	23
TRH C15-C28	50	mg/kg	-	-	-	< 50
TRH C29-C36	50	mg/kg	-	-	-	< 50

Client Sample ID			BH02-2.5-2.6	BH02-3.0-3.1	BH02-3.3-3.4	BH03-0.0-0.1
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S24- No0047935	S24- No0047936	S24- No0047937	S24- No0047938
Date Sampled			Nov 18, 2024	Nov 18, 2024	Nov 18, 2024	Nov 18, 2024
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons						
TRH C10-C36 (Total)	50	mg/kg	-	-	-	< 50
TRH C6-C10	20	mg/kg	-	-	-	< 20
TRH C6-C10 less BTEX (F1) ^{N04}	20	mg/kg	-	-	-	< 20
TRH >C10-C16	50	mg/kg	-	-	-	< 50
TRH >C10-C16 less Naphthalene (F2) ^{*N01}	50	mg/kg	-	-	-	< 50
TRH >C16-C34	100	mg/kg	-	-	-	< 100
TRH >C34-C40	100	mg/kg	-	-	-	< 100
TRH >C10-C40 (total)*	100	mg/kg	-	-	-	< 100
Polycyclic Aromatic Hydrocarbons						
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	-	-	-	< 0.5
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	-	-	-	0.6
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	-	-	-	1.2
Acenaphthene	0.5	mg/kg	-	-	-	< 0.5
Acenaphthylene	0.5	mg/kg	-	-	-	< 0.5
Anthracene	0.5	mg/kg	-	-	-	< 0.5
Benz(a)anthracene	0.5	mg/kg	-	-	-	< 0.5
Benzo(a)pyrene	0.5	mg/kg	-	-	-	< 0.5
Benzo(b,j)fluoranthene ^{N07}	0.5	mg/kg	-	-	-	< 0.5
Benzo(g,h,i)perylene	0.5	mg/kg	-	-	-	< 0.5
Benzo(k)fluoranthene	0.5	mg/kg	-	-	-	< 0.5
Chrysene	0.5	mg/kg	-	-	-	< 0.5
Dibenz(a,h)anthracene	0.5	mg/kg	-	-	-	< 0.5
Fluoranthene	0.5	mg/kg	-	-	-	< 0.5
Fluorene	0.5	mg/kg	-	-	-	< 0.5
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	-	-	-	< 0.5
Naphthalene	0.5	mg/kg	-	-	-	< 0.5
Phenanthrene	0.5	mg/kg	-	-	-	< 0.5
Pyrene	0.5	mg/kg	-	-	-	< 0.5
Total PAH*	0.5	mg/kg	-	-	-	< 0.5
2-Fluorobiphenyl (surr.)	1	%	-	-	-	INT
p-Terphenyl-d14 (surr.)	1	%	-	-	-	74
Organochlorine Pesticides						
Chlordanes - Total	0.1	mg/kg	-	-	-	< 0.1
4,4'-DDD	0.05	mg/kg	-	-	-	< 0.05
4,4'-DDE	0.05	mg/kg	-	-	-	< 0.05
4,4'-DDT	0.05	mg/kg	-	-	-	< 0.05
α-HCH	0.05	mg/kg	-	-	-	< 0.05
Aldrin	0.05	mg/kg	-	-	-	< 0.05
β-HCH	0.05	mg/kg	-	-	-	< 0.05
δ-HCH	0.05	mg/kg	-	-	-	< 0.05
Dieldrin	0.05	mg/kg	-	-	-	< 0.05
Endosulfan I	0.05	mg/kg	-	-	-	< 0.05
Endosulfan II	0.05	mg/kg	-	-	-	< 0.05
Endosulfan sulphate	0.05	mg/kg	-	-	-	< 0.05
Endrin	0.05	mg/kg	-	-	-	< 0.05
Endrin aldehyde	0.05	mg/kg	-	-	-	< 0.05
Endrin ketone	0.05	mg/kg	-	-	-	< 0.05
γ-HCH (Lindane)	0.05	mg/kg	-	-	-	< 0.05
Heptachlor	0.05	mg/kg	-	-	-	< 0.05

Client Sample ID			BH02-2.5-2.6	BH02-3.0-3.1	BH02-3.3-3.4	BH03-0.0-0.1
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S24- No0047935	S24- No0047936	S24- No0047937	S24- No0047938
Date Sampled			Nov 18, 2024	Nov 18, 2024	Nov 18, 2024	Nov 18, 2024
Test/Reference	LOR	Unit				
Organochlorine Pesticides						
Heptachlor epoxide	0.05	mg/kg	-	-	-	< 0.05
Hexachlorobenzene	0.05	mg/kg	-	-	-	< 0.05
Methoxychlor	0.05	mg/kg	-	-	-	< 0.05
Toxaphene	0.5	mg/kg	-	-	-	< 0.5
Aldrin and Dieldrin (Total)*	0.05	mg/kg	-	-	-	< 0.05
DDT + DDE + DDD (Total)*	0.05	mg/kg	-	-	-	< 0.05
Vic EPA IWRG 621 OCP (Total)*	0.1	mg/kg	-	-	-	< 0.1
Vic EPA IWRG 621 Other OCP (Total)*	0.1	mg/kg	-	-	-	< 0.1
Dibutylchlorendate (surr.)	1	%	-	-	-	Q ⁰⁹ INT
Tetrachloro-m-xylene (surr.)	1	%	-	-	-	Q ⁰⁹ INT
Polychlorinated Biphenyls						
Aroclor-1016	0.1	mg/kg	-	-	-	< 0.1
Aroclor-1221	0.1	mg/kg	-	-	-	< 0.1
Aroclor-1232	0.1	mg/kg	-	-	-	< 0.1
Aroclor-1242	0.1	mg/kg	-	-	-	< 0.1
Aroclor-1248	0.1	mg/kg	-	-	-	< 0.1
Aroclor-1254	0.1	mg/kg	-	-	-	< 0.1
Aroclor-1260	0.1	mg/kg	-	-	-	< 0.1
Total PCB*	0.1	mg/kg	-	-	-	< 0.1
Dibutylchlorendate (surr.)	1	%	-	-	-	Q ⁰⁹ INT
Tetrachloro-m-xylene (surr.)	1	%	-	-	-	Q ⁰⁹ INT
Heavy Metals						
Arsenic	2	mg/kg	-	-	-	18
Cadmium	0.4	mg/kg	-	-	-	< 0.4
Chromium	5	mg/kg	-	-	-	22
Copper	5	mg/kg	-	-	-	8.9
Lead	5	mg/kg	-	-	-	96
Mercury	0.1	mg/kg	-	-	-	0.2
Nickel	5	mg/kg	-	-	-	< 5
Zinc	5	mg/kg	-	-	-	93
Sample Properties						
% Moisture	1	%	-	-	-	8.4
Acid Sulfate Soils Field pH Test						
pH-F (Field pH test)*	0.1	pH Units	6.0	5.7	6.0	-
pH-FOX (Field pH Peroxide test)*	0.1	pH Units	3.7	3.8	4.2	-
Reaction Ratings* ^{S05}	0	comment	1.0	1.0	2.0	-

Client Sample ID			BH03-0.3-0.4	BH04-0.0-0.1	BH04-0.5-0.6	BH04-0.7-0.8
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S24- No0047939	S24- No0047940	S24- No0047941	S24- No0047942
Date Sampled			Nov 18, 2024	Nov 18, 2024	Nov 18, 2024	Nov 18, 2024
Test/Reference	LOR	Unit				
BTEX						
Benzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	-
Toluene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	-
Ethylbenzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	-
m&p-Xylenes	0.2	mg/kg	< 0.2	< 0.2	< 0.2	-
o-Xylene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	-
Xylenes - Total*	0.3	mg/kg	< 0.3	< 0.3	< 0.3	-
4-Bromofluorobenzene (surr.)	1	%	99	94	76	-
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene ^{N02}	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Total Recoverable Hydrocarbons						
TRH C6-C9	20	mg/kg	< 20	< 20	< 20	-
TRH C10-C14	20	mg/kg	< 20	< 20	22	-
TRH C15-C28	50	mg/kg	< 50	< 50	< 50	-
TRH C29-C36	50	mg/kg	< 50	< 50	< 50	-
TRH C10-C36 (Total)	50	mg/kg	< 50	< 50	< 50	-
TRH C6-C10	20	mg/kg	< 20	< 20	< 20	-
TRH C6-C10 less BTEX (F1) ^{N04}	20	mg/kg	< 20	< 20	< 20	-
TRH >C10-C16	50	mg/kg	< 50	< 50	< 50	-
TRH >C10-C16 less Naphthalene (F2) ^{*N01}	50	mg/kg	< 50	< 50	< 50	-
TRH >C16-C34	100	mg/kg	< 100	< 100	< 100	-
TRH >C34-C40	100	mg/kg	< 100	< 100	< 100	-
TRH >C10-C40 (total)*	100	mg/kg	< 100	< 100	< 100	-
Polycyclic Aromatic Hydrocarbons						
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	0.6	0.6	0.6	-
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	1.2	1.2	1.2	-
Acenaphthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Acenaphthylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Benz(a)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Benzo(a)pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Benzo(b&j)fluoranthene ^{N07}	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Benzo(g,h,i)perylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Benzo(k)fluoranthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Chrysene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Dibenz(a,h)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Fluoranthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Fluorene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Indeno(1,2,3-cd)pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Naphthalene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Phenanthrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Total PAH*	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
2-Fluorobiphenyl (surr.)	1	%	98	83	85	-
p-Terphenyl-d14 (surr.)	1	%	101	133	106	-

Client Sample ID			BH03-0.3-0.4	BH04-0.0-0.1	BH04-0.5-0.6	BH04-0.7-0.8
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S24- No0047939	S24- No0047940	S24- No0047941	S24- No0047942
Date Sampled			Nov 18, 2024	Nov 18, 2024	Nov 18, 2024	Nov 18, 2024
Test/Reference	LOR	Unit				
Organochlorine Pesticides						
Chlordanes - Total	0.1	mg/kg	< 0.1	< 0.1	< 0.1	-
4,4'-DDD	0.05	mg/kg	< 0.05	< 0.05	< 0.05	-
4,4'-DDE	0.05	mg/kg	< 0.05	< 0.05	< 0.05	-
4,4'-DDT	0.05	mg/kg	< 0.05	< 0.05	< 0.05	-
a-HCH	0.05	mg/kg	< 0.05	< 0.05	< 0.05	-
Aldrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05	-
b-HCH	0.05	mg/kg	< 0.05	< 0.05	< 0.05	-
d-HCH	0.05	mg/kg	< 0.05	< 0.05	< 0.05	-
Dieldrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05	-
Endosulfan I	0.05	mg/kg	< 0.05	< 0.05	< 0.05	-
Endosulfan II	0.05	mg/kg	< 0.05	< 0.05	< 0.05	-
Endosulfan sulphate	0.05	mg/kg	< 0.05	< 0.05	< 0.05	-
Endrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05	-
Endrin aldehyde	0.05	mg/kg	< 0.05	< 0.05	< 0.05	-
Endrin ketone	0.05	mg/kg	< 0.05	< 0.05	< 0.05	-
g-HCH (Lindane)	0.05	mg/kg	< 0.05	< 0.05	< 0.05	-
Heptachlor	0.05	mg/kg	< 0.05	< 0.05	< 0.05	-
Heptachlor epoxide	0.05	mg/kg	< 0.05	< 0.05	< 0.05	-
Hexachlorobenzene	0.05	mg/kg	< 0.05	< 0.05	< 0.05	-
Methoxychlor	0.05	mg/kg	< 0.05	< 0.05	< 0.05	-
Toxaphene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Aldrin and Dieldrin (Total)*	0.05	mg/kg	< 0.05	< 0.05	< 0.05	-
DDT + DDE + DDD (Total)*	0.05	mg/kg	< 0.05	< 0.05	< 0.05	-
Vic EPA IWRG 621 OCP (Total)*	0.1	mg/kg	< 0.1	< 0.1	< 0.1	-
Vic EPA IWRG 621 Other OCP (Total)*	0.1	mg/kg	< 0.1	< 0.1	< 0.1	-
Dibutylchlorendate (surr.)	1	%	62	Q09INT	Q09INT	-
Tetrachloro-m-xylene (surr.)	1	%	93	86	79	-
Polychlorinated Biphenyls						
Aroclor-1016	0.1	mg/kg	< 0.1	< 0.1	< 0.1	-
Aroclor-1221	0.1	mg/kg	< 0.1	< 0.1	< 0.1	-
Aroclor-1232	0.1	mg/kg	< 0.1	< 0.1	< 0.1	-
Aroclor-1242	0.1	mg/kg	< 0.1	< 0.1	< 0.1	-
Aroclor-1248	0.1	mg/kg	< 0.1	< 0.1	< 0.1	-
Aroclor-1254	0.1	mg/kg	< 0.1	< 0.1	< 0.1	-
Aroclor-1260	0.1	mg/kg	< 0.1	< 0.1	< 0.1	-
Total PCB*	0.1	mg/kg	< 0.1	< 0.1	< 0.1	-
Dibutylchlorendate (surr.)	1	%	62	Q09INT	Q09INT	-
Tetrachloro-m-xylene (surr.)	1	%	93	86	79	-
Heavy Metals						
Arsenic	2	mg/kg	9.1	9.4	20	-
Cadmium	0.4	mg/kg	< 0.4	< 0.4	< 0.4	-
Chromium	5	mg/kg	12	14	23	-
Copper	5	mg/kg	< 5	5.6	< 5	-
Lead	5	mg/kg	17	130	22	-
Mercury	0.1	mg/kg	< 0.1	0.3	< 0.1	-
Nickel	5	mg/kg	< 5	< 5	< 5	-
Zinc	5	mg/kg	< 5	140	15	-
Sample Properties						
% Moisture	1	%	13	12	14	-

Client Sample ID			BH03-0.3-0.4	BH04-0.0-0.1	BH04-0.5-0.6	BH04-0.7-0.8
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S24-No0047939	S24-No0047940	S24-No0047941	S24-No0047942
Date Sampled			Nov 18, 2024	Nov 18, 2024	Nov 18, 2024	Nov 18, 2024
Test/Reference	LOR	Unit				
Acid Sulfate Soils Field pH Test						
pH-F (Field pH test)*	0.1	pH Units	-	6.6	4.9	4.7
pH-FOX (Field pH Peroxide test)*	0.1	pH Units	-	3.7	4.1	3.9
Reaction Ratings* ^{S05}	0	comment	-	3.0	2.0	2.0

Client Sample ID			BH04-0.9-1.0	BH04-1.2-1.3	BH04-1.7-1.8	BH05-0.0-0.1
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S24-No0047943	S24-No0047944	S24-No0047945	S24-No0047946
Date Sampled			Nov 18, 2024	Nov 18, 2024	Nov 18, 2024	Nov 18, 2024
Test/Reference	LOR	Unit				
BTEX						
Benzene	0.1	mg/kg	-	-	-	< 0.1
Toluene	0.1	mg/kg	-	-	-	< 0.1
Ethylbenzene	0.1	mg/kg	-	-	-	< 0.1
m&p-Xylenes	0.2	mg/kg	-	-	-	< 0.2
o-Xylene	0.1	mg/kg	-	-	-	< 0.1
Xylenes - Total*	0.3	mg/kg	-	-	-	< 0.3
4-Bromofluorobenzene (surr.)	1	%	-	-	-	94
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene ^{N02}	0.5	mg/kg	-	-	-	< 0.5
Total Recoverable Hydrocarbons						
TRH C6-C9	20	mg/kg	-	-	-	< 20
TRH C10-C14	20	mg/kg	-	-	-	< 20
TRH C15-C28	50	mg/kg	-	-	-	< 50
TRH C29-C36	50	mg/kg	-	-	-	< 50
TRH C10-C36 (Total)	50	mg/kg	-	-	-	< 50
TRH C6-C10	20	mg/kg	-	-	-	< 20
TRH C6-C10 less BTEX (F1) ^{N04}	20	mg/kg	-	-	-	< 20
TRH >C10-C16	50	mg/kg	-	-	-	< 50
TRH >C10-C16 less Naphthalene (F2)* ^{N01}	50	mg/kg	-	-	-	< 50
TRH >C16-C34	100	mg/kg	-	-	-	< 100
TRH >C34-C40	100	mg/kg	-	-	-	< 100
TRH >C10-C40 (total)*	100	mg/kg	-	-	-	< 100
Polycyclic Aromatic Hydrocarbons						
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	-	-	-	< 0.5
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	-	-	-	0.6
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	-	-	-	1.2
Acenaphthene	0.5	mg/kg	-	-	-	< 0.5
Acenaphthylene	0.5	mg/kg	-	-	-	< 0.5
Anthracene	0.5	mg/kg	-	-	-	< 0.5
Benz(a)anthracene	0.5	mg/kg	-	-	-	< 0.5
Benzo(a)pyrene	0.5	mg/kg	-	-	-	< 0.5
Benzo(b&j)fluoranthene ^{N07}	0.5	mg/kg	-	-	-	< 0.5
Benzo(g,h,i)perylene	0.5	mg/kg	-	-	-	< 0.5
Benzo(k)fluoranthene	0.5	mg/kg	-	-	-	< 0.5
Chrysene	0.5	mg/kg	-	-	-	< 0.5
Dibenz(a,h)anthracene	0.5	mg/kg	-	-	-	< 0.5
Fluoranthene	0.5	mg/kg	-	-	-	0.8

Client Sample ID			BH04-0.9-1.0	BH04-1.2-1.3	BH04-1.7-1.8	BH05-0.0-0.1
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S24- No0047943	S24- No0047944	S24- No0047945	S24- No0047946
Date Sampled			Nov 18, 2024	Nov 18, 2024	Nov 18, 2024	Nov 18, 2024
Test/Reference	LOR	Unit				
Polycyclic Aromatic Hydrocarbons						
Fluorene	0.5	mg/kg	-	-	-	< 0.5
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	-	-	-	< 0.5
Naphthalene	0.5	mg/kg	-	-	-	< 0.5
Phenanthrene	0.5	mg/kg	-	-	-	< 0.5
Pyrene	0.5	mg/kg	-	-	-	0.7
Total PAH*	0.5	mg/kg	-	-	-	1.5
2-Fluorobiphenyl (surr.)	1	%	-	-	-	65
p-Terphenyl-d14 (surr.)	1	%	-	-	-	111
Organochlorine Pesticides						
Chlordanes - Total	0.1	mg/kg	-	-	-	< 0.1
4,4'-DDD	0.05	mg/kg	-	-	-	< 0.05
4,4'-DDE	0.05	mg/kg	-	-	-	< 0.05
4,4'-DDT	0.05	mg/kg	-	-	-	< 0.05
α-HCH	0.05	mg/kg	-	-	-	< 0.05
Aldrin	0.05	mg/kg	-	-	-	< 0.05
β-HCH	0.05	mg/kg	-	-	-	< 0.05
δ-HCH	0.05	mg/kg	-	-	-	< 0.05
Dieldrin	0.05	mg/kg	-	-	-	< 0.05
Endosulfan I	0.05	mg/kg	-	-	-	< 0.05
Endosulfan II	0.05	mg/kg	-	-	-	< 0.05
Endosulfan sulphate	0.05	mg/kg	-	-	-	< 0.05
Endrin	0.05	mg/kg	-	-	-	< 0.05
Endrin aldehyde	0.05	mg/kg	-	-	-	< 0.05
Endrin ketone	0.05	mg/kg	-	-	-	< 0.05
γ-HCH (Lindane)	0.05	mg/kg	-	-	-	< 0.05
Heptachlor	0.05	mg/kg	-	-	-	< 0.05
Heptachlor epoxide	0.05	mg/kg	-	-	-	< 0.05
Hexachlorobenzene	0.05	mg/kg	-	-	-	< 0.05
Methoxychlor	0.05	mg/kg	-	-	-	< 0.05
Toxaphene	0.5	mg/kg	-	-	-	< 0.5
Aldrin and Dieldrin (Total)*	0.05	mg/kg	-	-	-	< 0.05
DDT + DDE + DDD (Total)*	0.05	mg/kg	-	-	-	< 0.05
Vic EPA IWRG 621 OCP (Total)*	0.1	mg/kg	-	-	-	< 0.1
Vic EPA IWRG 621 Other OCP (Total)*	0.1	mg/kg	-	-	-	< 0.1
Dibutylchlorendate (surr.)	1	%	-	-	-	Q ⁰⁹ INT
Tetrachloro-m-xylene (surr.)	1	%	-	-	-	71
Polychlorinated Biphenyls						
Aroclor-1016	0.1	mg/kg	-	-	-	< 0.1
Aroclor-1221	0.1	mg/kg	-	-	-	< 0.1
Aroclor-1232	0.1	mg/kg	-	-	-	< 0.1
Aroclor-1242	0.1	mg/kg	-	-	-	< 0.1
Aroclor-1248	0.1	mg/kg	-	-	-	< 0.1
Aroclor-1254	0.1	mg/kg	-	-	-	< 0.1
Aroclor-1260	0.1	mg/kg	-	-	-	< 0.1
Total PCB*	0.1	mg/kg	-	-	-	< 0.1
Dibutylchlorendate (surr.)	1	%	-	-	-	Q ⁰⁹ INT
Tetrachloro-m-xylene (surr.)	1	%	-	-	-	71

Client Sample ID			BH04-0.9-1.0	BH04-1.2-1.3	BH04-1.7-1.8	BH05-0.0-0.1
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S24-No0047943	S24-No0047944	S24-No0047945	S24-No0047946
Date Sampled			Nov 18, 2024	Nov 18, 2024	Nov 18, 2024	Nov 18, 2024
Test/Reference	LOR	Unit				
Heavy Metals						
Arsenic	2	mg/kg	-	-	-	11
Cadmium	0.4	mg/kg	-	-	-	< 0.4
Chromium	5	mg/kg	-	-	-	16
Copper	5	mg/kg	-	-	-	71
Lead	5	mg/kg	-	-	-	1300
Mercury	0.1	mg/kg	-	-	-	0.5
Nickel	5	mg/kg	-	-	-	< 5
Zinc	5	mg/kg	-	-	-	490
Sample Properties						
% Moisture	1	%	-	-	-	8.3
Acid Sulfate Soils Field pH Test						
pH-F (Field pH test)*	0.1	pH Units	4.8	5.1	5.5	6.6
pH-FOX (Field pH Peroxide test)*	0.1	pH Units	3.9	4.1	3.9	3.4
Reaction Ratings* ^{S05}	0	comment	2.0	1.0	1.0	3.0

Client Sample ID			BH05-0.5-0.6	BH05-0.6-0.7	BH05-1.1-1.2	BH05-1.6-1.7
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S24-No0047947	S24-No0047948	S24-No0047949	S24-No0047950
Date Sampled			Nov 18, 2024	Nov 18, 2024	Nov 18, 2024	Nov 18, 2024
Test/Reference	LOR	Unit				
BTEX						
Benzene	0.1	mg/kg	< 0.1	< 0.1	-	-
Toluene	0.1	mg/kg	< 0.1	< 0.1	-	-
Ethylbenzene	0.1	mg/kg	< 0.1	< 0.1	-	-
m&p-Xylenes	0.2	mg/kg	< 0.2	< 0.2	-	-
o-Xylene	0.1	mg/kg	< 0.1	< 0.1	-	-
Xylenes - Total*	0.3	mg/kg	< 0.3	< 0.3	-	-
4-Bromofluorobenzene (surr.)	1	%	62	76	-	-
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene ^{N02}	0.5	mg/kg	< 0.5	< 0.5	-	-
Total Recoverable Hydrocarbons						
TRH C6-C9	20	mg/kg	< 20	< 20	-	-
TRH C10-C14	20	mg/kg	< 20	< 20	-	-
TRH C15-C28	50	mg/kg	< 50	93	-	-
TRH C29-C36	50	mg/kg	< 50	400	-	-
TRH C10-C36 (Total)	50	mg/kg	< 50	493	-	-
TRH C6-C10	20	mg/kg	< 20	< 20	-	-
TRH C6-C10 less BTEX (F1) ^{N04}	20	mg/kg	< 20	< 20	-	-
TRH >C10-C16	50	mg/kg	< 50	< 50	-	-
TRH >C10-C16 less Naphthalene (F2)* ^{N01}	50	mg/kg	< 50	< 50	-	-
TRH >C16-C34	100	mg/kg	< 100	300	-	-
TRH >C34-C40	100	mg/kg	< 100	570	-	-
TRH >C10-C40 (total)*	100	mg/kg	< 100	870	-	-

Client Sample ID			BH05-0.5-0.6	BH05-0.6-0.7	BH05-1.1-1.2	BH05-1.6-1.7
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S24- No0047947	S24- No0047948	S24- No0047949	S24- No0047950
Date Sampled			Nov 18, 2024	Nov 18, 2024	Nov 18, 2024	Nov 18, 2024
Test/Reference	LOR	Unit				
Polycyclic Aromatic Hydrocarbons						
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	< 0.5	< 0.5	-	-
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	0.6	0.6	-	-
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	1.2	1.2	-	-
Acenaphthene	0.5	mg/kg	< 0.5	< 0.5	-	-
Acenaphthylene	0.5	mg/kg	< 0.5	< 0.5	-	-
Anthracene	0.5	mg/kg	< 0.5	< 0.5	-	-
Benz(a)anthracene	0.5	mg/kg	< 0.5	< 0.5	-	-
Benzo(a)pyrene	0.5	mg/kg	< 0.5	< 0.5	-	-
Benzo(b&j)fluoranthene ^{N07}	0.5	mg/kg	< 0.5	< 0.5	-	-
Benzo(g,h,i)perylene	0.5	mg/kg	< 0.5	< 0.5	-	-
Benzo(k)fluoranthene	0.5	mg/kg	< 0.5	< 0.5	-	-
Chrysene	0.5	mg/kg	< 0.5	< 0.5	-	-
Dibenz(a,h)anthracene	0.5	mg/kg	< 0.5	< 0.5	-	-
Fluoranthene	0.5	mg/kg	< 0.5	< 0.5	-	-
Fluorene	0.5	mg/kg	< 0.5	< 0.5	-	-
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	< 0.5	< 0.5	-	-
Naphthalene	0.5	mg/kg	< 0.5	< 0.5	-	-
Phenanthrene	0.5	mg/kg	< 0.5	< 0.5	-	-
Pyrene	0.5	mg/kg	< 0.5	< 0.5	-	-
Total PAH*	0.5	mg/kg	< 0.5	< 0.5	-	-
2-Fluorobiphenyl (surr.)	1	%	78	88	-	-
p-Terphenyl-d14 (surr.)	1	%	107	140	-	-
Organochlorine Pesticides						
Chlordanes - Total	0.1	mg/kg	< 0.1	< 0.1	-	-
4,4'-DDD	0.05	mg/kg	< 0.05	< 0.05	-	-
4,4'-DDE	0.05	mg/kg	< 0.05	< 0.05	-	-
4,4'-DDT	0.05	mg/kg	< 0.05	< 0.05	-	-
α-HCH	0.05	mg/kg	< 0.05	< 0.05	-	-
Aldrin	0.05	mg/kg	< 0.05	< 0.05	-	-
β-HCH	0.05	mg/kg	< 0.05	< 0.05	-	-
δ-HCH	0.05	mg/kg	< 0.05	< 0.05	-	-
Dieldrin	0.05	mg/kg	< 0.05	< 0.05	-	-
Endosulfan I	0.05	mg/kg	< 0.05	< 0.05	-	-
Endosulfan II	0.05	mg/kg	< 0.05	< 0.05	-	-
Endosulfan sulphate	0.05	mg/kg	< 0.05	< 0.05	-	-
Endrin	0.05	mg/kg	< 0.05	< 0.05	-	-
Endrin aldehyde	0.05	mg/kg	< 0.05	< 0.05	-	-
Endrin ketone	0.05	mg/kg	< 0.05	< 0.05	-	-
γ-HCH (Lindane)	0.05	mg/kg	< 0.05	< 0.05	-	-
Heptachlor	0.05	mg/kg	< 0.05	< 0.05	-	-
Heptachlor epoxide	0.05	mg/kg	< 0.05	< 0.05	-	-
Hexachlorobenzene	0.05	mg/kg	< 0.05	< 0.05	-	-
Methoxychlor	0.05	mg/kg	< 0.05	< 0.05	-	-
Toxaphene	0.5	mg/kg	< 0.5	< 0.5	-	-
Aldrin and Dieldrin (Total)*	0.05	mg/kg	< 0.05	< 0.05	-	-
DDT + DDE + DDD (Total)*	0.05	mg/kg	< 0.05	< 0.05	-	-
Vic EPA IWRG 621 OCP (Total)*	0.1	mg/kg	< 0.1	< 0.1	-	-
Vic EPA IWRG 621 Other OCP (Total)*	0.1	mg/kg	< 0.1	< 0.1	-	-
Dibutylchloroendate (surr.)	1	%	Q09INT	Q09INT	-	-
Tetrachloro-m-xylene (surr.)	1	%	89	78	-	-

Client Sample ID			BH05-0.5-0.6	BH05-0.6-0.7	BH05-1.1-1.2	BH05-1.6-1.7
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S24-No0047947	S24-No0047948	S24-No0047949	S24-No0047950
Date Sampled			Nov 18, 2024	Nov 18, 2024	Nov 18, 2024	Nov 18, 2024
Test/Reference	LOR	Unit				
Polychlorinated Biphenyls						
Aroclor-1016	0.1	mg/kg	< 0.1	< 0.1	-	-
Aroclor-1221	0.1	mg/kg	< 0.1	< 0.1	-	-
Aroclor-1232	0.1	mg/kg	< 0.1	< 0.1	-	-
Aroclor-1242	0.1	mg/kg	< 0.1	< 0.1	-	-
Aroclor-1248	0.1	mg/kg	< 0.1	< 0.1	-	-
Aroclor-1254	0.1	mg/kg	< 0.1	< 0.1	-	-
Aroclor-1260	0.1	mg/kg	< 0.1	< 0.1	-	-
Total PCB*	0.1	mg/kg	< 0.1	< 0.1	-	-
Dibutylchloroendate (surr.)	1	%	Q09INT	Q09INT	-	-
Tetrachloro-m-xylene (surr.)	1	%	89	78	-	-
Heavy Metals						
Arsenic	2	mg/kg	11	22	-	-
Cadmium	0.4	mg/kg	< 0.4	< 0.4	-	-
Chromium	5	mg/kg	19	27	-	-
Copper	5	mg/kg	11	< 5	-	-
Lead	5	mg/kg	140	43	-	-
Mercury	0.1	mg/kg	0.2	< 0.1	-	-
Nickel	5	mg/kg	< 5	< 5	-	-
Zinc	5	mg/kg	77	16	-	-
Sample Properties						
% Moisture	1	%	11	11	-	-
Acid Sulfate Soils Field pH Test						
pH-F (Field pH test)*	0.1	pH Units	7.0	7.1	6.6	6.1
pH-FOX (Field pH Peroxide test)*	0.1	pH Units	4.7	5.7	5.2	4.1
Reaction Ratings*S05	0	comment	2.0	2.0	2.0	2.0

Client Sample ID			BH05-1.9-2.0	BH06-0.0-0.1	BH06-0.5-0.6	G01BH07-0.0-0.1
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S24-No0047951	S24-No0047952	S24-No0047953	S24-No0047954
Date Sampled			Nov 18, 2024	Nov 18, 2024	Nov 18, 2024	Nov 18, 2024
Test/Reference	LOR	Unit				
BTEX						
Benzene	0.1	mg/kg	-	< 0.1	< 0.1	< 0.1
Toluene	0.1	mg/kg	-	< 0.1	< 0.1	< 0.1
Ethylbenzene	0.1	mg/kg	-	< 0.1	< 0.1	< 0.1
m&p-Xylenes	0.2	mg/kg	-	< 0.2	< 0.2	< 0.2
o-Xylene	0.1	mg/kg	-	< 0.1	< 0.1	< 0.1
Xylenes - Total*	0.3	mg/kg	-	< 0.3	< 0.3	< 0.3
4-Bromofluorobenzene (surr.)	1	%	-	123	90	115
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene ^{N02}	0.5	mg/kg	-	< 0.5	< 0.5	< 0.5
Total Recoverable Hydrocarbons						
TRH C6-C9	20	mg/kg	-	< 20	< 20	< 20
TRH C10-C14	20	mg/kg	-	< 20	< 20	< 20
TRH C15-C28	50	mg/kg	-	< 50	< 50	< 50
TRH C29-C36	50	mg/kg	-	< 50	< 50	< 50

Client Sample ID			BH05-1.9-2.0	BH06-0.0-0.1	BH06-0.5-0.6	G01BH07-0.0-0.1
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S24-No0047951	S24-No0047952	S24-No0047953	S24-No0047954
Date Sampled			Nov 18, 2024	Nov 18, 2024	Nov 18, 2024	Nov 18, 2024
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons						
TRH C10-C36 (Total)	50	mg/kg	-	< 50	< 50	< 50
TRH C6-C10	20	mg/kg	-	< 20	< 20	< 20
TRH C6-C10 less BTEX (F1) ^{N04}	20	mg/kg	-	< 20	< 20	< 20
TRH >C10-C16	50	mg/kg	-	< 50	< 50	< 50
TRH >C10-C16 less Naphthalene (F2) ^{*N01}	50	mg/kg	-	< 50	< 50	< 50
TRH >C16-C34	100	mg/kg	-	< 100	< 100	< 100
TRH >C34-C40	100	mg/kg	-	< 100	< 100	< 100
TRH >C10-C40 (total)*	100	mg/kg	-	< 100	< 100	< 100
Polycyclic Aromatic Hydrocarbons						
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	-	0.8	< 0.5	0.9
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	-	1.1	0.6	1.2
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	-	1.4	1.2	1.4
Acenaphthene	0.5	mg/kg	-	< 0.5	< 0.5	< 0.5
Acenaphthylene	0.5	mg/kg	-	< 0.5	< 0.5	< 0.5
Anthracene	0.5	mg/kg	-	< 0.5	< 0.5	0.7
Benz(a)anthracene	0.5	mg/kg	-	< 0.5	< 0.5	0.6
Benzo(a)pyrene	0.5	mg/kg	-	0.6	< 0.5	0.6
Benzo(b&j)fluoranthene ^{N07}	0.5	mg/kg	-	1.0	< 0.5	1.1
Benzo(g,h,i)perylene	0.5	mg/kg	-	< 0.5	< 0.5	0.5
Benzo(k)fluoranthene	0.5	mg/kg	-	0.9	< 0.5	1.0
Chrysene	0.5	mg/kg	-	0.5	< 0.5	0.6
Dibenz(a,h)anthracene	0.5	mg/kg	-	< 0.5	< 0.5	< 0.5
Fluoranthene	0.5	mg/kg	-	0.9	< 0.5	0.8
Fluorene	0.5	mg/kg	-	< 0.5	< 0.5	< 0.5
Indeno(1,2,3-cd)pyrene	0.5	mg/kg	-	< 0.5	< 0.5	< 0.5
Naphthalene	0.5	mg/kg	-	< 0.5	< 0.5	< 0.5
Phenanthrene	0.5	mg/kg	-	< 0.5	< 0.5	< 0.5
Pyrene	0.5	mg/kg	-	0.8	< 0.5	0.8
Total PAH*	0.5	mg/kg	-	4.7	< 0.5	6.7
2-Fluorobiphenyl (surr.)	1	%	-	107	113	102
p-Terphenyl-d14 (surr.)	1	%	-	86	110	87
Organochlorine Pesticides						
Chlordanes - Total	0.1	mg/kg	-	< 0.1	< 0.1	< 10
4,4'-DDD	0.05	mg/kg	-	< 0.05	< 0.05	< 0.5
4,4'-DDE	0.05	mg/kg	-	< 0.05	< 0.05	< 0.5
4,4'-DDT	0.05	mg/kg	-	< 0.05	< 0.05	< 0.5
α-HCH	0.05	mg/kg	-	< 0.05	< 0.05	< 0.5
Aldrin	0.05	mg/kg	-	< 0.05	< 0.05	< 0.5
β-HCH	0.05	mg/kg	-	< 0.05	< 0.05	< 0.5
δ-HCH	0.05	mg/kg	-	< 0.05	< 0.05	< 0.5
Dieldrin	0.05	mg/kg	-	< 0.05	< 0.05	< 0.5
Endosulfan I	0.05	mg/kg	-	< 0.05	< 0.05	< 0.5
Endosulfan II	0.05	mg/kg	-	< 0.05	< 0.05	< 0.5
Endosulfan sulphate	0.05	mg/kg	-	< 0.05	< 0.05	< 0.5
Endrin	0.05	mg/kg	-	< 0.05	< 0.05	< 0.5
Endrin aldehyde	0.05	mg/kg	-	< 0.05	< 0.05	< 0.5
Endrin ketone	0.05	mg/kg	-	< 0.05	< 0.05	< 0.5
γ-HCH (Lindane)	0.05	mg/kg	-	< 0.05	< 0.05	< 0.5
Heptachlor	0.05	mg/kg	-	< 0.05	< 0.05	< 0.5

Client Sample ID			BH05-1.9-2.0	BH06-0.0-0.1	BH06-0.5-0.6	G01BH07-0.0-0.1
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S24- No0047951	S24- No0047952	S24- No0047953	S24- No0047954
Date Sampled			Nov 18, 2024	Nov 18, 2024	Nov 18, 2024	Nov 18, 2024
Test/Reference	LOR	Unit				
Organochlorine Pesticides						
Heptachlor epoxide	0.05	mg/kg	-	< 0.05	< 0.05	< 0.5
Hexachlorobenzene	0.05	mg/kg	-	< 0.05	< 0.05	< 0.5
Methoxychlor	0.05	mg/kg	-	< 0.05	< 0.05	< 0.5
Toxaphene	0.5	mg/kg	-	< 0.5	< 0.5	< 1
Aldrin and Dieldrin (Total)*	0.05	mg/kg	-	< 0.05	< 0.05	< 0.5
DDT + DDE + DDD (Total)*	0.05	mg/kg	-	< 0.05	< 0.05	< 0.5
Vic EPA IWRG 621 OCP (Total)*	0.1	mg/kg	-	< 0.1	< 0.1	< 10
Vic EPA IWRG 621 Other OCP (Total)*	0.1	mg/kg	-	< 0.1	< 0.1	< 10
Dibutylchlorendate (surr.)	1	%	-	Q09INT	66	Q09INT
Tetrachloro-m-xylene (surr.)	1	%	-	87	110	87
Polychlorinated Biphenyls						
Aroclor-1016	0.1	mg/kg	-	< 0.1	< 0.1	< 1
Aroclor-1221	0.1	mg/kg	-	< 0.1	< 0.1	< 1
Aroclor-1232	0.1	mg/kg	-	< 0.1	< 0.1	< 1
Aroclor-1242	0.1	mg/kg	-	< 0.1	< 0.1	< 1
Aroclor-1248	0.1	mg/kg	-	< 0.1	< 0.1	< 1
Aroclor-1254	0.1	mg/kg	-	< 0.1	< 0.1	< 1
Aroclor-1260	0.1	mg/kg	-	< 0.1	< 0.1	< 1
Total PCB*	0.1	mg/kg	-	< 0.1	< 0.1	< 1
Dibutylchlorendate (surr.)	1	%	-	Q09INT	66	Q09INT
Tetrachloro-m-xylene (surr.)	1	%	-	87	110	87
Heavy Metals						
Arsenic	2	mg/kg	-	13	17	12
Cadmium	0.4	mg/kg	-	< 0.4	< 0.4	< 0.4
Chromium	5	mg/kg	-	20	27	18
Copper	5	mg/kg	-	12	< 5	36
Lead	5	mg/kg	-	63	26	200
Mercury	0.1	mg/kg	-	0.2	< 0.1	0.2
Nickel	5	mg/kg	-	< 5	< 5	6.2
Zinc	5	mg/kg	-	40	< 5	110
Sample Properties						
% Moisture	1	%	-	9.6	16	20
Acid Sulfate Soils Field pH Test						
pH-F (Field pH test)*	0.1	pH Units	5.3	-	-	-
pH-FOX (Field pH Peroxide test)*	0.1	pH Units	4.0	-	-	-
Reaction Ratings* ^{S05}	0	comment	1.0	-	-	-

Client Sample ID			BH07-0.5-0.6	BH08-0.0-0.1	BH08-0.5-0.6	BH08-1.0-1.1
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S24- No0047955	S24- No0047956	S24- No0047957	S24- No0047958
Date Sampled			Nov 18, 2024	Nov 18, 2024	Nov 18, 2024	Nov 18, 2024
Test/Reference	LOR	Unit				
BTEX						
Benzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	-
Toluene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	-
Ethylbenzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	-
m&p-Xylenes	0.2	mg/kg	< 0.2	< 0.2	< 0.2	-
o-Xylene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	-
Xylenes - Total*	0.3	mg/kg	< 0.3	< 0.3	< 0.3	-
4-Bromofluorobenzene (surr.)	1	%	103	119	117	-
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene ^{N02}	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Total Recoverable Hydrocarbons						
TRH C6-C9	20	mg/kg	< 20	< 20	< 20	-
TRH C10-C14	20	mg/kg	< 20	< 20	< 20	-
TRH C15-C28	50	mg/kg	< 50	< 50	< 50	-
TRH C29-C36	50	mg/kg	< 50	< 50	< 50	-
TRH C10-C36 (Total)	50	mg/kg	< 50	< 50	< 50	-
TRH C6-C10	20	mg/kg	< 20	< 20	< 20	-
TRH C6-C10 less BTEX (F1) ^{N04}	20	mg/kg	< 20	< 20	< 20	-
TRH >C10-C16	50	mg/kg	< 50	< 50	< 50	-
TRH >C10-C16 less Naphthalene (F2) ^{*N01}	50	mg/kg	< 50	< 50	< 50	-
TRH >C16-C34	100	mg/kg	< 100	< 100	< 100	-
TRH >C34-C40	100	mg/kg	< 100	< 100	< 100	-
TRH >C10-C40 (total)*	100	mg/kg	< 100	< 100	< 100	-
Polycyclic Aromatic Hydrocarbons						
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	0.6	0.6	0.6	-
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	1.2	1.2	1.2	-
Acenaphthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Acenaphthylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Benz(a)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Benzo(a)pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Benzo(b&j)fluoranthene ^{N07}	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Benzo(g,h,i)perylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Benzo(k)fluoranthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Chrysene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Dibenz(a,h)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Fluoranthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Fluorene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Indeno(1,2,3-cd)pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Naphthalene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Phenanthrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Total PAH*	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
2-Fluorobiphenyl (surr.)	1	%	96	61	59	-
p-Terphenyl-d14 (surr.)	1	%	92	81	56	-

Client Sample ID			BH07-0.5-0.6	BH08-0.0-0.1	BH08-0.5-0.6	BH08-1.0-1.1
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S24- No0047955	S24- No0047956	S24- No0047957	S24- No0047958
Date Sampled			Nov 18, 2024	Nov 18, 2024	Nov 18, 2024	Nov 18, 2024
Test/Reference	LOR	Unit				
Organochlorine Pesticides						
Chlordanes - Total	0.1	mg/kg	< 0.1	< 0.1	< 0.1	-
4,4'-DDD	0.05	mg/kg	< 0.05	< 0.05	< 0.05	-
4,4'-DDE	0.05	mg/kg	< 0.05	< 0.05	< 0.05	-
4,4'-DDT	0.05	mg/kg	< 0.05	< 0.05	< 0.05	-
a-HCH	0.05	mg/kg	< 0.05	< 0.05	< 0.05	-
Aldrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05	-
b-HCH	0.05	mg/kg	< 0.05	< 0.05	< 0.05	-
d-HCH	0.05	mg/kg	< 0.05	< 0.05	< 0.05	-
Dieldrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05	-
Endosulfan I	0.05	mg/kg	< 0.05	< 0.05	< 0.05	-
Endosulfan II	0.05	mg/kg	< 0.05	< 0.05	< 0.05	-
Endosulfan sulphate	0.05	mg/kg	< 0.05	< 0.05	< 0.05	-
Endrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05	-
Endrin aldehyde	0.05	mg/kg	< 0.05	< 0.05	< 0.05	-
Endrin ketone	0.05	mg/kg	< 0.05	< 0.05	< 0.05	-
g-HCH (Lindane)	0.05	mg/kg	< 0.05	< 0.05	< 0.05	-
Heptachlor	0.05	mg/kg	< 0.05	< 0.05	< 0.05	-
Heptachlor epoxide	0.05	mg/kg	< 0.05	< 0.05	< 0.05	-
Hexachlorobenzene	0.05	mg/kg	< 0.05	< 0.05	< 0.05	-
Methoxychlor	0.05	mg/kg	< 0.05	< 0.05	< 0.05	-
Toxaphene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Aldrin and Dieldrin (Total)*	0.05	mg/kg	< 0.05	< 0.05	< 0.05	-
DDT + DDE + DDD (Total)*	0.05	mg/kg	< 0.05	< 0.05	< 0.05	-
Vic EPA IWRG 621 OCP (Total)*	0.1	mg/kg	< 0.1	< 0.1	< 0.1	-
Vic EPA IWRG 621 Other OCP (Total)*	0.1	mg/kg	< 0.1	< 0.1	< 0.1	-
Dibutylchlorendate (surr.)	1	%	59	Q09INT	Q09INT	-
Tetrachloro-m-xylene (surr.)	1	%	87	64	57	-
Polychlorinated Biphenyls						
Aroclor-1016	0.1	mg/kg	< 0.1	< 0.1	< 0.1	-
Aroclor-1221	0.1	mg/kg	< 0.1	< 0.1	< 0.1	-
Aroclor-1232	0.1	mg/kg	< 0.1	< 0.1	< 0.1	-
Aroclor-1242	0.1	mg/kg	< 0.1	< 0.1	< 0.1	-
Aroclor-1248	0.1	mg/kg	< 0.1	< 0.1	< 0.1	-
Aroclor-1254	0.1	mg/kg	< 0.1	< 0.1	< 0.1	-
Aroclor-1260	0.1	mg/kg	< 0.1	< 0.1	< 0.1	-
Total PCB*	0.1	mg/kg	< 0.1	< 0.1	< 0.1	-
Dibutylchlorendate (surr.)	1	%	59	Q09INT	Q09INT	-
Tetrachloro-m-xylene (surr.)	1	%	87	64	57	-
Heavy Metals						
Arsenic	2	mg/kg	10	10.0	12	-
Cadmium	0.4	mg/kg	< 0.4	< 0.4	< 0.4	-
Chromium	5	mg/kg	17	15	15	-
Copper	5	mg/kg	6.5	9.6	< 5	-
Lead	5	mg/kg	41	47	20	-
Mercury	0.1	mg/kg	< 0.1	< 0.1	< 0.1	-
Nickel	5	mg/kg	< 5	< 5	< 5	-
Zinc	5	mg/kg	< 5	29	< 5	-
Sample Properties						
% Moisture	1	%	15	11	14	-

Client Sample ID			BH07-0.5-0.6	BH08-0.0-0.1	BH08-0.5-0.6	BH08-1.0-1.1
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S24-No0047955	S24-No0047956	S24-No0047957	S24-No0047958
Date Sampled			Nov 18, 2024	Nov 18, 2024	Nov 18, 2024	Nov 18, 2024
Test/Reference	LOR	Unit				
Acid Sulfate Soils Field pH Test						
pH-F (Field pH test)*	0.1	pH Units	-	6.2	5.0	5.0
pH-FOX (Field pH Peroxide test)*	0.1	pH Units	-	3.7	4.2	4.2
Reaction Ratings* ^{S05}	0	comment	-	3.0	2.0	1.0

Client Sample ID			BH08-1.5-1.6	BH08-1.9-2.0	DUP01	TRIP SPIKE
Sample Matrix			Soil	Soil	Soil	Trip Spike (solid)
Eurofins Sample No.			S24-No0047959	S24-No0047960	S24-No0047961	S24-No0047962
Date Sampled			Nov 18, 2024	Nov 18, 2024	Nov 18, 2024	Nov 18, 2024
Test/Reference	LOR	Unit				
Heavy Metals						
Arsenic	2	mg/kg	-	-	9.1	-
Cadmium	0.4	mg/kg	-	-	< 0.4	-
Chromium	5	mg/kg	-	-	15	-
Copper	5	mg/kg	-	-	7.6	-
Lead	5	mg/kg	-	-	69	-
Mercury	0.1	mg/kg	-	-	0.1	-
Nickel	5	mg/kg	-	-	< 5	-
Zinc	5	mg/kg	-	-	71	-
Sample Properties						
% Moisture	1	%	-	-	7.3	-
Acid Sulfate Soils Field pH Test						
pH-F (Field pH test)*	0.1	pH Units	5.5	6.0	-	-
pH-FOX (Field pH Peroxide test)*	0.1	pH Units	4.3	4.6	-	-
Reaction Ratings* ^{S05}	0	comment	1.0	1.0	-	-
TRH C6-C10	1	%	-	-	-	91
Total Recoverable Hydrocarbons						
Naphthalene	1	%	-	-	-	84
TRH C6-C9	1	%	-	-	-	91
BTEX						
Benzene	1	%	-	-	-	93
Ethylbenzene	1	%	-	-	-	93
m&p-Xylenes	1	%	-	-	-	78
o-Xylene	1	%	-	-	-	94
Toluene	1	%	-	-	-	79
Xylenes - Total	1	%	-	-	-	88
4-Bromofluorobenzene (surr.)	1	%	-	-	-	105

Client Sample ID			TRIP BLANK
Sample Matrix			Trip Blank (solid)
Eurofins Sample No.			S24- No0047963
Date Sampled			Nov 18, 2024
Test/Reference	LOR	Unit	
BTEX			
Benzene	0.1	mg/kg	< 0.1
Toluene	0.1	mg/kg	< 0.1
Ethylbenzene	0.1	mg/kg	< 0.1
m&p-Xylenes	0.2	mg/kg	< 0.2
o-Xylene	0.1	mg/kg	< 0.1
Xylenes - Total*	0.3	mg/kg	< 0.3
4-Bromofluorobenzene (surr.)	1	%	92
Total Recoverable Hydrocarbons			
TRH C6-C9	20	mg/kg	< 20
TRH C6-C10	20	mg/kg	< 20
TRH C6-C10 less BTEX (F1) ^{N04}	20	mg/kg	< 20
BTEX and Naphthalene			
Naphthalene ^{N02}	0.5	mg/kg	< 0.5

Sample History

Where samples are submitted/analysed over several days, the last date of extraction is reported.

If the date and time of sampling are not provided, the Laboratory will not be responsible for compromised results should testing be performed outside the recommended holding time.

Description	Testing Site	Extracted	Holding Time
BTEX	Sydney	Nov 22, 2024	14 Days
- Method: LTM-ORG-2010 BTEX and Volatile TRH			
Total Recoverable Hydrocarbons	Sydney	Nov 22, 2024	14 Days
- Method: LTM-ORG-2010 TRH C6-C40			
Total Recoverable Hydrocarbons - 1999 NEPM Fractions	Sydney	Nov 22, 2024	14 Days
- Method: LTM-ORG-2010 TRH C6-C40			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Sydney	Nov 20, 2024	14 Days
- Method: LTM-ORG-2010 TRH C6-C40			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Sydney	Nov 20, 2024	14 Days
- Method: LTM-ORG-2010 TRH C6-C40			
Polycyclic Aromatic Hydrocarbons	Sydney	Nov 20, 2024	14 Days
- Method: LTM-ORG-2130 PAH and Phenols in Soil and Water			
Organochlorine Pesticides	Sydney	Nov 20, 2024	14 Days
- Method: LTM-ORG-2220 OCP & PCB in Soil and Water			
Polychlorinated Biphenyls	Sydney	Nov 20, 2024	28 Days
- Method: LTM-ORG-2220 OCP & PCB in Soil and Water			
Metals M8	Sydney	Nov 20, 2024	28 Days
- Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS			
% Moisture	Sydney	Nov 18, 2024	14 Days
- Method: LTM-GEN-7080 Moisture			
Acid Sulfate Soils Field pH Test	Sydney	Nov 18, 2024	7 Days
- Method: LTM-GEN-7060 Determination of field pH (pHF) and field pH peroxide (pHFOX) tests			



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Company Name:

Address:

Project Name:

Project ID:

Alliance Geotechnical

10 Welder Road

Seven Hills

NSW 2147

CANTERBURY ICE SKATING RINK

18587

Order No.:

Report #:

Phone:

Fax:

1161470

1800 288 188

02 9675 1888

Received:

Due:

Priority:

Contact Name:

Nov 18, 2024 6:10 PM

Nov 25, 2024

5 Day

Jason Roesler

Eurofins Analytical Services Manager : Andrew Black

Sample Detail						HOLD*	Acid Sulfate Soils Field pH Test	Metals M8	Moisture Set	BTEXN and Volatile TRH	BTEXN and Volatile TRH	Alliance WAC Suite 2-TRH/BTEXN/PAH/M8/OCp/PCB/Asb
Sydney Laboratory - NATA # 1261 Site # 18217						X	X	X	X	X	X	X
External Laboratory												
No	Sample ID	Sample Date	Sampling Time	Matrix	LAB ID							
1	BH01-0.0-0.1	Nov 18, 2024		Soil	S24-No0047927				X			X
2	BH01-0.3-0.4	Nov 18, 2024		Soil	S24-No0047928				X			X
3	BH01-0.6-0.7	Nov 18, 2024		Soil	S24-No0047929				X			X
4	BH02-0.0-0.1	Nov 18, 2024		Soil	S24-No0047930		X		X			X
5	BH02-0.5-0.6	Nov 18, 2024		Soil	S24-No0047931		X		X			X
6	BH02-1.0-1.1	Nov 18, 2024		Soil	S24-No0047932		X					
7	BH02-1.5-1.6	Nov 18, 2024		Soil	S24-No0047933		X					
8	BH02-2.0-2.1	Nov 18, 2024		Soil	S24-No0047934		X					
9	BH02-2.5-2.6	Nov 18, 2024		Soil	S24-No0047935		X					
10	BH02-3.0-3.1	Nov 18, 2024		Soil	S24-No0047936		X					
11	BH02-3.3-3.4	Nov 18, 2024		Soil	S24-No0047937		X					
12	BH03-0.0-0.1	Nov 18, 2024		Soil	S24-No0047938				X			X
13	BH03-0.3-0.4	Nov 18, 2024		Soil	S24-No0047939				X			X
14	BH04-0.0-0.1	Nov 18, 2024		Soil	S24-No0047940		X		X			X



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Melbourne 6 Monterey Road Dandenong South VIC 3175 +61 3 8564 5000 NATA# 1261 Site# 1254	Geelong 19/8 Lewalan Street Grovedale VIC 3216 +61 3 8564 5000 NATA# 1261 Site# 25403	Sydney 179 Magowar Road Girraween NSW 2145 +61 2 9900 8400 NATA# 1261 Site# 18217	Canberra Unit 1,2 Dacre Street Mitchell ACT 2911 +61 2 6113 8091 NATA# 1261 Site# 25466	Brisbane 1/21 Smallwood Place Murarrie QLD 4172 T: +61 7 3902 4600 NATA# 1261 Site# 20794 & 2780	Newcastle 1/2 Frost Drive Mayfield West NSW 2304 +61 2 4968 8448 NATA# 1261 Site# 25079
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Perth 46-48 Banksia Road Welshpool WA 6106 +61 8 6253 4444 NATA# 2377 Site# 2370 & 2554
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Auckland 35 O'Rorke Road Penrose, Auckland 1061 +64 9 526 4551 IANZ# 1327	Auckland (Focus) Unit C1/4 Pacific Rise, Mount Wellington, Auckland 1061 +64 9 525 0568 IANZ# 1308	Christchurch 43 Detroit Drive Rolleston, Christchurch 7675 +64 3 343 5201 IANZ# 1290	Tauranga 1277 Cameron Road, Gate Pa, Tauranga 3112 +64 9 525 0568 IANZ# 1402
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Company Name: Alliance Geotechnical

Address: 10 Welder Road
Seven Hills
NSW 2147

Project Name: CANTERBURY ICE SKATING RINK

Project ID: 18587

Order No.:

Report #: 1161470

Phone: 1800 288 188

Fax: 02 9675 1888

Received:

Due: Nov 18, 2024 6:10 PM

Priority: Nov 25, 2024

Contact Name: 5 Day
Jason Roesler

Eurofins Analytical Services Manager : Andrew Black

Sample Detail						HOLD*	Acid Sulfate Soils Field pH Test	Metals M8	Moisture Set	BTEXN and Volatile TRH	BTEXN and Volatile TRH	Alliance WAC Suite 2-TRH/BTEXN/PAH/M8/OC/P/CB/Asb
Sydney Laboratory - NATA # 1261 Site # 18217						X	X	X	X	X	X	X
15	BH04-0.5-0.6	Nov 18, 2024		Soil	S24-No0047941		X		X			X
16	BH04-0.7-0.8	Nov 18, 2024		Soil	S24-No0047942		X					
17	BH04-0.9-1.0	Nov 18, 2024		Soil	S24-No0047943		X					
18	BH04-1.2-1.3	Nov 18, 2024		Soil	S24-No0047944		X					
19	BH04-1.7-1.8	Nov 18, 2024		Soil	S24-No0047945		X					
20	BH05-0.0-0.1	Nov 18, 2024		Soil	S24-No0047946		X		X			X
21	BH05-0.5-0.6	Nov 18, 2024		Soil	S24-No0047947		X		X			X
22	BH05-0.6-0.7	Nov 18, 2024		Soil	S24-No0047948		X		X			X
23	BH05-1.1-1.2	Nov 18, 2024		Soil	S24-No0047949		X					
24	BH05-1.6-1.7	Nov 18, 2024		Soil	S24-No0047950		X					
25	BH05-1.9-2.0	Nov 18, 2024		Soil	S24-No0047951		X					
26	BH06-0.0-0.1	Nov 18, 2024		Soil	S24-No0047952				X			X
27	BH06-0.5-0.6	Nov 18, 2024		Soil	S24-No0047953				X			X
28	BH07-0.0-0.1	Nov 18, 2024		Soil	S24-No0047954				X			X
29	BH07-0.5-0.6	Nov 18, 2024		Soil	S24-No0047955				X			X
30	BH08-0.0-0.1	Nov 18, 2024		Soil	S24-No0047956		X		X			X
31	BH08-0.5-0.6	Nov 18, 2024		Soil	S24-No0047957		X		X			X



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Perth
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Auckland	Auckland (Focus)	Christchurch	Tauranga
35 O'Rorke Road Penrose, Auckland 1061 +64 9 526 4551 IANZ# 1327	Unit C1/4 Pacific Rise, Mount Wellington, Auckland 1061 +64 9 525 0568 IANZ# 1308	43 Detroit Drive Rolleston, Christchurch 7675 +64 3 343 5201 IANZ# 1290	1277 Cameron Road, Gate Pa, Tauranga 3112 +64 9 525 0568 IANZ# 1402

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Alliance Geotechnical

10 Welder Road

Seven Hills

NSW 2147

CANTERBURY ICE SKATING RINK

18587

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Phone:

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1161470

1800 288 188

02 9675 1888

Received:

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Priority:

Contact Name:

Nov 18, 2024 6:10 PM

Nov 25, 2024

5 Day

Jason Roesler

Eurofins Analytical Services Manager : Andrew Black

Sample Detail						HOLD*	Acid Sulfate Soils Field pH Test	Metals M8	Moisture Set	BTEXN and Volatile TRH	BTEXN and Volatile TRH	Alliance WAC Suite 2-TRH/BTEXN/PAH/M8/OC/P/PCB/Asb
Sydney Laboratory - NATA # 1261 Site # 18217						X	X	X	X	X	X	X
32	BH08-1.0-1.1	Nov 18, 2024		Soil	S24-No0047958		X					
33	BH08-1.5-1.6	Nov 18, 2024		Soil	S24-No0047959		X					
34	BH08-1.9-2.0	Nov 18, 2024		Soil	S24-No0047960		X					
35	DUP01	Nov 18, 2024		Soil	S24-No0047961			X	X			
36	TRIP SPIKE	Nov 18, 2024		Trip Spike (solid)	S24-No0047962						X	
37	TRIP BLANK	Nov 18, 2024		Trip Blank (solid)	S24-No0047963					X		
38	TSL	Nov 18, 2024		Trip Spike (solid)	S24-No0047964						X	
39	BH01-0.9-1.0	Nov 18, 2024		Soil	S24-No0047965	X						
40	BH02-0.8-0.9	Nov 18, 2024		Soil	S24-No0047966	X						
41	BH03-0.7-0.8	Nov 18, 2024		Soil	S24-No0047967	X						
42	BH05-0.9-1.0	Nov 18, 2024		Soil	S24-No0047968	X						
43	BH06-0.8-0.9	Nov 18, 2024		Soil	S24-No0047969	X						
44	BH07-0.8-0.9	Nov 18, 2024		Soil	S24-No0047970	X						
45	BH08-0.8-0.9	Nov 18, 2024		Soil	S24-No0047971	X						
46	DUP02	Nov 18, 2024		Soil	S24-No0047972	X						



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Company Name: Alliance Geotechnical
Address: 10 Welder Road
Seven Hills
NSW 2147

Order No.:
Report #: 1161470
Phone: 1800 288 188
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Received: Nov 18, 2024 6:10 PM
Due: Nov 25, 2024
Priority: 5 Day
Contact Name: Jason Roesler

Project Name: CANTERBURY ICE SKATING RINK
Project ID: 18587

Eurofins Analytical Services Manager : Andrew Black

Sample Detail						HOLD*	Acid Sulfate Soils Field pH Test	Metals M8	Moisture Set	BTEXN and Volatile TRH	BTEXN and Volatile TRH	Alliance WAC Suite 2-TRH/BTEXN/PAH/M8/OC/PCB/Asb
Sydney Laboratory - NATA # 1261 Site # 18217						X	X	X	X	X	X	X
47	TRIP02	Nov 18, 2024		Soil	S24-No0047973	X						
48	RINSATE-01	Nov 18, 2024		Water	S24-No0047974	X						
Test Counts						10	25	1	19	1	2	18

Internal Quality Control Review and Glossary

General

1. Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples follow guidelines delineated in the National Environment Protection (Assessment of Site Contamination) Measure 1999, as amended May 2013. They are included in this QC report where applicable. Additional QC data may be available on request.
2. Unless otherwise stated, all soil/sediment/solid results are reported on a dry weight basis.
3. Unless otherwise stated, all biota/food results are reported on a wet weight basis on the edible portion.
4. For CEC results where the sample's origin is unknown or environmentally contaminated, the results should be used advisedly.
5. Actual LORs are matrix dependent. Quoted LORs may be raised where sample extracts are diluted due to interferences.
6. Results are uncorrected for matrix spikes or surrogate recoveries except for PFAS compounds where annotated.
7. SVOC analysis on waters is performed on homogenised, unfiltered samples unless noted otherwise.
8. Samples were analysed on an 'as received' basis.
9. Information identified in this report with **blue** colour indicates data provided by customers that may have an impact on the results.
10. This report replaces any interim results previously issued.

Holding Times

Please refer to the 'Sample Preservation and Container Guide' for holding times (QS3001).

For samples received on the last day of holding time, notification of testing requirements should have been received at least 6 hours before sample receipt deadlines as stated on the SRA.

If the Laboratory did not receive the information in the required timeframe, and despite any other integrity issues, suitably qualified results may still be reported.

Holding times apply from the sampling date; therefore, compliance with these may be outside the laboratory's control.

For VOCs containing vinyl chloride, styrene and 2-chloroethyl vinyl ether, the holding time is seven days; however, for all other VOCs, such as BTEX or C6-10 TRH, the holding time is 14 days.

Units

mg/kg: milligrams per kilogram	mg/L: milligrams per litre	ppm: parts per million
µg/L: micrograms per litre	ppb: parts per billion	%: Percentage
org/100 mL: Organisms per 100 millilitres	NTU: Nephelometric Turbidity Units	MPN/100 mL: Most Probable Number of organisms per 100 millilitres
CFU: Colony Forming Unit	Colour: Pt-Co Units (CU)	

Terms

APHA	American Public Health Association
CEC	Cation Exchange Capacity
COC	Chain of Custody
CP	Client Parent - QC was performed on samples pertaining to this report
CRM	Certified Reference Material (ISO17034) - reported as percent recovery.
Dry	Where moisture has been determined on a solid sample, the result is expressed on a dry weight basis.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
LOR	Limit of Reporting.
LCS	Laboratory Control Sample - reported as percent recovery.
Method Blank	In the case of solid samples, these are performed on laboratory-certified clean sands and in the case of water samples, these are performed on de-ionised water.
NCP	Non-Client Parent - QC performed on samples not pertaining to this report, QC represents the sequence or batch that client samples were analysed within.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
SRA	Sample Receipt Advice
Surr - Surrogate	The addition of a similar compound to the analyte target is reported as percentage recovery. See below for acceptance criteria.
TBTO	Tributyltin oxide (<i>bis</i> -tributyltin oxide) - individual tributyltin compounds cannot be identified separately in the environment; however, free tributyltin was measured, and its values were converted stoichiometrically into tributyltin oxide for comparison with regulatory limits.
TCLP	Toxicity Characteristic Leaching Procedure
TEQ	Toxic Equivalency Quotient or Total Equivalence
QSM	US Department of Defense Quality Systems Manual Version 6.0
US EPA	United States Environmental Protection Agency
WA DWER	Sum of PFBA, PFPeA, PFHxA, PFHpA, PFOA, PFBS, PFHxS, PFOS, 6:2 FTSA, 8:2 FTSA

QC - Acceptance Criteria

The acceptance criteria should only be used as a guide and may be different when site-specific Sampling Analysis and Quality Plan (SAQP) have been implemented.

RPD Duplicates: Global RPD Duplicates Acceptance Criteria is ≤30%; however, the following acceptance guidelines are equally applicable:

Results <10 times the LOR:	No Limit
Results between 10-20 times the LOR:	RPD must lie between 0-50%
Results >20 times the LOR:	RPD must lie between 0-30%

NOTE: pH duplicates are reported as a range, not as RPD

Surrogate Recoveries: Recoveries must lie between 20-130% for Speciated Phenols & 50-150% for PFAS. SVOCs recoveries 20 – 150%, VOC recoveries 50 – 150%

PFAS field samples containing surrogate recoveries above the QC limit designated in QSM 6.0, where no positive PFAS results have been reported or reviewed, and no data was affected.

QC Data General Comments

1. Where a result is reported as less than (<), higher than the nominated LOR, this is due to either matrix interference, extract dilution required due to interferences or contaminant levels within the sample, high moisture content or insufficient sample provided.
2. Duplicate data shown within this report that states the word "BATCH" is a Batch Duplicate from outside of your sample batch but within the laboratory sample batch at a 1:10 ratio. The Parent and Duplicate data shown are not data from your samples.
3. pH and Free Chlorine analysed in the laboratory - Analysis on this test must begin within 30 minutes of sampling. Therefore, laboratory analysis is unlikely to be completed within holding time. Analysis will begin as soon as possible after sample receipt.
4. Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of recovery, the term "INT" appears against that analyte.
5. For Matrix Spikes and LCS results, a dash "-" in the report means that the specific analyte was not added to the QC sample.
6. Duplicate RPDs are calculated from raw analytical data; thus, it is possible to have two sets of data.

Quality Control Results

Test				Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank										
BTEX										
Benzene				mg/kg	< 0.1			0.1	Pass	
Toluene				mg/kg	< 0.1			0.1	Pass	
Ethylbenzene				mg/kg	< 0.1			0.1	Pass	
m&p-Xylenes				mg/kg	< 0.2			0.2	Pass	
o-Xylene				mg/kg	< 0.1			0.1	Pass	
Xylenes - Total*				mg/kg	< 0.3			0.3	Pass	
Method Blank										
Total Recoverable Hydrocarbons - 2013 NEPM Fractions										
Naphthalene				mg/kg	< 0.5			0.5	Pass	
Method Blank										
Total Recoverable Hydrocarbons										
TRH C6-C9				mg/kg	< 20			20	Pass	
TRH C6-C10				mg/kg	< 20			20	Pass	
LCS - % Recovery										
BTEX										
Benzene				%	100			70-130	Pass	
Toluene				%	108			70-130	Pass	
Ethylbenzene				%	107			70-130	Pass	
m&p-Xylenes				%	106			70-130	Pass	
o-Xylene				%	106			70-130	Pass	
Xylenes - Total*				%	106			70-130	Pass	
LCS - % Recovery										
Total Recoverable Hydrocarbons - 2013 NEPM Fractions										
Naphthalene				%	102			70-130	Pass	
LCS - % Recovery										
Total Recoverable Hydrocarbons										
TRH C6-C9				%	109			70-130	Pass	
TRH C6-C10				%	106			70-130	Pass	
Test	Lab Sample ID	QA Source	Units	Result 1				Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery										
BTEX										
Benzene				Result 1						
Benzene				%	85			70-130	Pass	
Toluene				%	93			70-130	Pass	
Ethylbenzene				%	99			70-130	Pass	
m&p-Xylenes				%	96			70-130	Pass	
o-Xylene				%	97			70-130	Pass	
Xylenes - Total*				%	96			70-130	Pass	
Spike - % Recovery										
Total Recoverable Hydrocarbons - 2013 NEPM Fractions										
Naphthalene				Result 1						
Naphthalene				%	105			70-130	Pass	
Spike - % Recovery										
Total Recoverable Hydrocarbons										
TRH C6-C9				Result 1						
TRH C6-C9				%	83			70-130	Pass	
TRH C6-C10				%	90			70-130	Pass	
Spike - % Recovery										
Heavy Metals										
Arsenic				Result 1						
Arsenic				%	75			75-125	Pass	
Cadmium				%	84			75-125	Pass	
Chromium				%	79			75-125	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Copper	S24-No0047941	CP	%	87			75-125	Pass	
Lead	S24-No0047941	CP	%	100			75-125	Pass	
Mercury	S24-No0047941	CP	%	97			75-125	Pass	
Nickel	S24-No0047941	CP	%	90			75-125	Pass	
Zinc	S24-No0047941	CP	%	109			75-125	Pass	
Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic	S24-No0047929	CP	mg/kg	3.9	5.9	40	30%	Fail	Q15
Cadmium	S24-No0047929	CP	mg/kg	< 0.4	< 0.4	<1	30%	Pass	
Chromium	S24-No0047929	CP	mg/kg	8.1	9.2	13	30%	Pass	
Copper	S24-No0047929	CP	mg/kg	17	32	59	30%	Fail	Q15
Lead	S24-No0047929	CP	mg/kg	67	81	19	30%	Pass	
Mercury	S24-No0047929	CP	mg/kg	0.4	0.6	38	30%	Fail	Q15
Nickel	S24-No0047929	CP	mg/kg	< 5	< 5	<1	30%	Pass	
Zinc	S24-No0047929	CP	mg/kg	27	34	25	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons				Result 1	Result 2	RPD			
TRH C10-C14	S24-No0047931	CP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH C15-C28	S24-No0047931	CP	mg/kg	< 50	< 50	<1	30%	Pass	
TRH C29-C36	S24-No0047931	CP	mg/kg	< 50	< 50	<1	30%	Pass	
TRH >C10-C16	S24-No0047931	CP	mg/kg	< 50	< 50	<1	30%	Pass	
TRH >C16-C34	S24-No0047931	CP	mg/kg	< 100	< 100	<1	30%	Pass	
TRH >C34-C40	S24-No0047931	CP	mg/kg	< 100	< 100	<1	30%	Pass	
Duplicate									
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD			
Acenaphthene	S24-No0047931	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Acenaphthylene	S24-No0047931	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Anthracene	S24-No0047931	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benz(a)anthracene	S24-No0047931	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(a)pyrene	S24-No0047931	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(b&i)fluoranthene	S24-No0047931	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(g,h,i)perylene	S24-No0047931	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(k)fluoranthene	S24-No0047931	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Chrysene	S24-No0047931	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Dibenz(a,h)anthracene	S24-No0047931	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fluoranthene	S24-No0047931	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fluorene	S24-No0047931	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Indeno(1,2,3-cd)pyrene	S24-No0047931	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Naphthalene	S24-No0047931	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Phenanthrene	S24-No0047931	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Pyrene	S24-No0047931	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Duplicate									
Organochlorine Pesticides				Result 1	Result 2	RPD			
Chlordanes - Total	S24-No0047931	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
4,4'-DDD	S24-No0047931	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
4,4'-DDE	S24-No0047931	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
4,4'-DDT	S24-No0047931	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Aldrin	S24-No0047931	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
b-HCH	S24-No0047931	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
d-HCH	S24-No0047931	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Dieldrin	S24-No0047931	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan I	S24-No0047931	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan II	S24-No0047931	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	

Duplicate								
Organochlorine Pesticides				Result 1	Result 2	RPD		
Endosulfan sulphate	S24-No0047931	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Endrin	S24-No0047931	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Endrin aldehyde	S24-No0047931	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Endrin ketone	S24-No0047931	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Heptachlor	S24-No0047931	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Heptachlor epoxide	S24-No0047931	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Hexachlorobenzene	S24-No0047931	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Methoxychlor	S24-No0047931	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Toxaphene	S24-No0047931	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Duplicate								
Polychlorinated Biphenyls				Result 1	Result 2	RPD		
Aroclor-1016	S24-No0047931	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
Aroclor-1221	S24-No0047931	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
Aroclor-1232	S24-No0047931	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
Aroclor-1242	S24-No0047931	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
Aroclor-1248	S24-No0047931	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
Aroclor-1254	S24-No0047931	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
Aroclor-1260	S24-No0047931	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
Total PCB*	S24-No0047931	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
Duplicate								
Acid Sulfate Soils Field pH Test				Result 1	Result 2	RPD		
pH-F (Field pH test)*	S24-No0047931	CP	pH Units	5.0	5.0	pass	20%	Pass
pH-FOX (Field pH Peroxide test)*	S24-No0047931	CP	pH Units	4.1	4.1	pass	0%	Pass
Duplicate								
Heavy Metals				Result 1	Result 2	RPD		
Arsenic	S24-No0047938	CP	mg/kg	18	19	6.0	30%	Pass
Cadmium	S24-No0047938	CP	mg/kg	< 0.4	< 0.4	<1	30%	Pass
Chromium	S24-No0047938	CP	mg/kg	22	21	3.0	30%	Pass
Copper	S24-No0047938	CP	mg/kg	8.9	12	31	30%	Fail
Lead	S24-No0047938	CP	mg/kg	96	120	25	30%	Pass
Mercury	S24-No0047938	CP	mg/kg	0.2	0.2	30	30%	Pass
Nickel	S24-No0047938	CP	mg/kg	< 5	< 5	<1	30%	Pass
Zinc	S24-No0047938	CP	mg/kg	93	120	28	30%	Pass
Duplicate								
Heavy Metals				Result 1	Result 2	RPD		
Arsenic	S24-No0047940	CP	mg/kg	9.4	11	15	30%	Pass
Cadmium	S24-No0047940	CP	mg/kg	< 0.4	< 0.4	<1	30%	Pass
Chromium	S24-No0047940	CP	mg/kg	14	17	18	30%	Pass
Copper	S24-No0047940	CP	mg/kg	5.6	6.2	11	30%	Pass
Mercury	S24-No0047940	CP	mg/kg	0.3	0.3	13	30%	Pass
Nickel	S24-No0047940	CP	mg/kg	< 5	< 5	<1	30%	Pass
Zinc	S24-No0047940	CP	mg/kg	140	130	10	30%	Pass
Duplicate								
Sample Properties				Result 1	Result 2	RPD		
% Moisture	S24-No0047941	CP	%	14	14	1.0	30%	Pass
Duplicate								
Acid Sulfate Soils Field pH Test				Result 1	Result 2	RPD		
pH-F (Field pH test)*	S24-No0047946	CP	pH Units	6.6	6.6	pass	20%	Pass
pH-FOX (Field pH Peroxide test)*	S24-No0047946	CP	pH Units	3.4	3.4	pass	0%	Pass

Duplicate								
BTEX				Result 1	Result 2	RPD		
Benzene	S24-No0047952	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
Toluene	S24-No0047952	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
Ethylbenzene	S24-No0047952	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
m&p-Xylenes	S24-No0047952	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
o-Xylene	S24-No0047952	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
Xylenes - Total*	S24-No0047952	CP	mg/kg	< 0.3	< 0.3	<1	30%	Pass
Duplicate								
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD		
Naphthalene	S24-No0047952	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Duplicate								
Total Recoverable Hydrocarbons				Result 1	Result 2	RPD		
TRH C6-C9	S24-No0047952	CP	mg/kg	< 20	< 20	<1	30%	Pass
TRH C6-C10	S24-No0047952	CP	mg/kg	< 20	< 20	<1	30%	Pass
Duplicate								
BTEX				Result 1	Result 2	RPD		
Benzene	S24-No0047954	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
Toluene	S24-No0047954	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
Ethylbenzene	S24-No0047954	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
m&p-Xylenes	S24-No0047954	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
o-Xylene	S24-No0047954	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
Xylenes - Total*	S24-No0047954	CP	mg/kg	< 0.3	< 0.3	<1	30%	Pass
Duplicate								
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD		
Naphthalene	S24-No0047954	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Duplicate								
Total Recoverable Hydrocarbons				Result 1	Result 2	RPD		
TRH C6-C9	S24-No0047954	CP	mg/kg	< 20	< 20	<1	30%	Pass
TRH C6-C10	S24-No0047954	CP	mg/kg	< 20	< 20	<1	30%	Pass
Duplicate								
Total Recoverable Hydrocarbons				Result 1	Result 2	RPD		
TRH C10-C14	S24-No0047955	CP	mg/kg	< 20	< 20	<1	30%	Pass
TRH C15-C28	S24-No0047955	CP	mg/kg	< 50	< 50	<1	30%	Pass
TRH C29-C36	S24-No0047955	CP	mg/kg	< 50	< 50	<1	30%	Pass
TRH >C10-C16	S24-No0047955	CP	mg/kg	< 50	< 50	<1	30%	Pass
TRH >C16-C34	S24-No0047955	CP	mg/kg	< 100	< 100	<1	30%	Pass
TRH >C34-C40	S24-No0047955	CP	mg/kg	< 100	< 100	<1	30%	Pass
Duplicate								
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD		
Acenaphthene	S24-No0047955	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Acenaphthylene	S24-No0047955	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Anthracene	S24-No0047955	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Benz(a)anthracene	S24-No0047955	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Benzo(a)pyrene	S24-No0047955	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Benzo(b&j)fluoranthene	S24-No0047955	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Benzo(g,h,i)perylene	S24-No0047955	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Benzo(k)fluoranthene	S24-No0047955	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Chrysene	S24-No0047955	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Dibenz(a,h)anthracene	S24-No0047955	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Fluoranthene	S24-No0047955	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Fluorene	S24-No0047955	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Indeno(1,2,3-cd)pyrene	S24-No0047955	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Naphthalene	S24-No0047955	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Phenanthrene	S24-No0047955	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Pyrene	S24-No0047955	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass

Duplicate								
Organochlorine Pesticides				Result 1	Result 2	RPD		
Chlordanes - Total	S24-No0047955	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
4,4'-DDD	S24-No0047955	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
4,4'-DDE	S24-No0047955	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
4,4'-DDT	S24-No0047955	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Aldrin	S24-No0047955	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
b-HCH	S24-No0047955	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
d-HCH	S24-No0047955	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Dieldrin	S24-No0047955	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Endosulfan I	S24-No0047955	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Endosulfan II	S24-No0047955	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Endosulfan sulphate	S24-No0047955	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Endrin	S24-No0047955	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Endrin aldehyde	S24-No0047955	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Endrin ketone	S24-No0047955	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Heptachlor	S24-No0047955	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Heptachlor epoxide	S24-No0047955	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Hexachlorobenzene	S24-No0047955	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Methoxychlor	S24-No0047955	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Toxaphene	S24-No0047955	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Duplicate								
Polychlorinated Biphenyls				Result 1	Result 2	RPD		
Aroclor-1016	S24-No0047955	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
Aroclor-1221	S24-No0047955	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
Aroclor-1232	S24-No0047955	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
Aroclor-1242	S24-No0047955	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
Aroclor-1248	S24-No0047955	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
Aroclor-1254	S24-No0047955	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
Aroclor-1260	S24-No0047955	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
Total PCB*	S24-No0047955	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
Duplicate								
Acid Sulfate Soils Field pH Test				Result 1	Result 2	RPD		
pH-F (Field pH test)*	S24-No0047960	CP	pH Units	6.0	5.9	pass	20%	Pass
pH-FOX (Field pH Peroxide test)*	S24-No0047960	CP	pH Units	4.6	4.6	pass	0%	Pass
Duplicate								
Sample Properties				Result 1	Result 2	RPD		
% Moisture	S24-No0047961	CP	%	7.3	8.2	12	30%	Pass

Comments

Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	Yes
Sample correctly preserved	Yes
Appropriate sample containers have been used	Yes
Sample containers for volatile analysis received with minimal headspace	Yes
Samples received within HoldingTime	Yes
Some samples have been subcontracted	No

Qualifier Codes/Comments

Code	Description
G01	The LORs have been raised due to matrix interference
N01	F2 is determined by arithmetically subtracting the "naphthalene" value from the ">C10-C16" value. The naphthalene value used in this calculation is obtained from volatiles (Purge & Trap analysis).
N02	Where we have reported both volatile (P&T GCMS) and semivolatile (GCMS) naphthalene data, results may not be identical. Provided correct sample handling protocols have been followed, any observed differences in results are likely to be due to procedural differences within each methodology. Results determined by both techniques have passed all QAQC acceptance criteria, and are entirely technically valid.
N04	F1 is determined by arithmetically subtracting the "Total BTEX" value from the "C6-C10" value. The "Total BTEX" value is obtained by summing the concentrations of BTEX analytes. The "C6-C10" value is obtained by quantitating against a standard of mixed aromatic/aliphatic analytes.
N07	Please note:- These two PAH isomers closely co-elute using the most contemporary analytical methods and both the reported concentration (and the TEQ) apply specifically to the total of the two co-eluting PAHs
Q09	The Surrogate recovery is outside of the recommended acceptance criteria due to matrix interference. Acceptance criteria were met for all other QC
Q15	The RPD reported passes Eurofins Environment Testing's QC - Acceptance Criteria as defined in the Internal Quality Control Review and Glossary page of this report.
S05	Field Screen uses the following fizz rating to classify the rate the samples reacted to the peroxide: 1.0; No reaction to slight. 2.0; Moderate reaction. 3.0; Strong reaction with persistent froth. 4.0; Extreme reaction.

Authorised by:

Nileshni Goundar	Analytical Services Manager
Laxman Dias	Senior Analyst-Asbestos
Mickael Ros	Senior Analyst-Metal
Roopesh Rangarajan	Senior Analyst-Organic
Roopesh Rangarajan	Senior Analyst-Sample Properties
Roopesh Rangarajan	Senior Analyst-Volatile



Glenn Jackson
Managing Director

Final Report – this report replaces any previously issued Report

- Indicates Not Requested

* Indicates NATA accreditation does not cover the performance of this service

Measurement uncertainty of test data is available on request or please [click here](#).

Eurofins shall not be liable for loss, cost, damages or expenses incurred by the client, or any other person or company, resulting from the use of any information or interpretation given in this report. In no case shall Eurofins be liable for consequential damages including, but not limited to, lost profits, damages for failure to meet deadlines and lost production arising from this report. This document shall not be reproduced except in full and relates only to the items tested. Unless indicated otherwise, the tests were performed on the samples as received.

RE: Eurofins Test Results - Report 1161470 : Site CANTERBURY ICE SKATING RINK (18587)

From Daniel Hilton <daniel@allgeo.com.au>
Date Wed 27/11/2024 12:07 PM
To Andrew Black <andrewblack@eurofins.com>
Cc Jason Roesler <Jason@allgeo.com.au>

Unverified Sender: The sender of this email has not been verified. Review the content of the message carefully and verify the identity of the sender before acting on this email: replying, opening attachments or clicking links.

Thanks Andrew,

Can we please order the following TCLP's on a 24 hour TAT:

- Lead TCLP: BH01-0.3-0.4 & BH05-0.0-0.1
- Benzo(a)pyrene TCLP: BH01-0.3-0.4

Thank you!

Regards,
Daniel Hilton
Graduate Scientist
Email: daniel@allgeo.com.au



Office Phone: 1800 288 188
Admin Email: admin@allgeo.com.au
Website: allgeo.com.au
Head Office & Lab: 8-10 Welder Road, Seven Hills NSW 2147
Wollongong Office & Lab: 51 / 6 Bellambi Lane, Bellambi NSW 2518

Wishing everyone a safe and merry Christmas.

Our office will be closed from December 20th and will reopen on January 6th.

We can still service projects over this period, however, this must be prearranged in advance of the shutdown period.

This email and any attachments are confidential and intended solely for the use of the individual or entity to whom they are addressed. Unless we provide express written consent, no part of our reports should be reproduced, distributed or communicated to any third party. If you received this communication in error, please notify the sender immediately. Unauthorised use of this communication is prohibited.

From: AndrewBlack@eurofins.com <AndrewBlack@eurofins.com>
Sent: Wednesday, 27 November 2024 11:48 AM
To: Jason Roesler <jason@allgeo.com.au>
Cc: Daniel Hilton <daniel@allgeo.com.au>
Subject: Eurofins Test Results - Report 1161470 : Site CANTERBURY ICE SKATING RINK (18587)

Updated prelim thanks guys. Only asbestos remaining which is our bottleneck right now. Most likely tomorrow.

Kindest Regards,

Andrew Black
Analytical Services Manager

Eurofins | Environment Testing
Unit 1
2 Frost Drive
MAYFIELD WEST NSW 2304
AUSTRALIA
Phone: +61 299 008 490

Mobile: +61 410 220 750

Email: Andrew.Black@eurofinsanz.com

Website: [\[http://\]environment.eurofins.com.au](http://environment.eurofins.com.au)

[View our latest EnviroNotes](#)



Year-End Operating Schedule



Eurofins Environment Testing Australia Pty Ltd

ABN: 50 005 085 521

Melbourne	Geelong	Sydney	Canberra	Brisbane	Newcastle
6 Monterey Road Dandenong South VIC 3175 +61 3 8564 5000 NATA# 1261 Site# 1254	19/8 Lewalan Street Grovedale VIC 3216 +61 3 8564 5000 NATA# 1261 Site# 25403	179 Magowar Road Girraween NSW 2145 +61 2 9900 8400 NATA# 1261 Site# 18217	Unit 1,2 Dacre Street Mitchell ACT 2911 +61 2 6113 8091 NATA# 1261 Site# 25466	1/21 Smallwood Place Murarie QLD 4172 T: +61 7 3902 4600 NATA# 1261 Site# 20794 & 2780	1/2 Frost Drive Mayfield West NSW 2304 +61 2 4968 8448 NATA# 1261 Site# 25079

Eurofins ARL Pty Ltd

ABN: 91 05 0159 898

Perth
46-48 Banksia Road Welshpool WA 6106 +61 8 6253 4444 NATA# 2377 Site# 2370 & 2554

Eurofins Environment Testing NZ Ltd

NZBN: 9429046024954

Auckland	Auckland (Focus)	Christchurch	Tauranga
35 O'Rorke Road Penrose, Auckland 1061 +64 9 526 4551 IANZ# 1327	Unit C1/4 Pacific Rise, Mount Wellington, Auckland 1061 +64 9 525 0568 IANZ# 1308	43 Detroit Drive Rolleston, Christchurch 7675 +64 3 343 5201 IANZ# 1290	1277 Cameron Road, Gate Pa, Tauranga 3112 +64 9 525 0568 IANZ# 1402

Sample Receipt Advice

Company name: Alliance Geotechnical
Contact name: Jason Roesler
Project name: ADDITIONAL: CANTERBURY ICE SKATING RINK
Project ID: 18587
Turnaround time: 1 Day
Date/Time received: Nov 27, 2024 12:07 PM
Eurofins reference: 1164774

Sample Information

- ✓ A detailed list of analytes logged into our LIMS, is included in the attached summary table.
- ✓ All samples have been received as described on the above COC.
- ✓ COC has been completed correctly.
- ✓ Attempt to chill was evident.
- ✓ Appropriately preserved sample containers have been used.
- ✓ All samples were received in good condition.
- ✓ Samples have been provided with adequate time to commence analysis in accordance with the relevant holding times.
- ✓ Appropriate sample containers have been used.
- ✓ Sample containers for volatile analysis received with zero headspace.
- ✗ Split sample sent to requested external lab.
- ✗ Some samples have been subcontracted.
- N/A Custody Seals intact (if used).

Notes

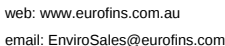
Contact

If you have any questions with respect to these samples, please contact your Analytical Services Manager:

Andrew Black on phone : (+61) 2 9900 8490 or by email: AndrewBlack@eurofins.com

Results will be delivered electronically via email to Jason Roesler - jason@allgeo.com.au.

Note: A copy of these results will also be delivered to the general Alliance Geotechnical email address.



ABN: 50 005 085 521

ABN: 91 05 0159 898

NZBN: 9429046024954

Melbourne	Geelong	Sydney	Canberra	Brisbane	Newcastle	Perth	Auckland	Auckland (Focus)	Christchurch	Tauranga
6 Monterey Road Dandenong South VIC 3175	19/8 Lewalan Street Grovevale VIC 3216	179 Magowar Road Girraween NSW 2145	Unit 1/2 Dacre Street Mitchell ACT 2911	1/21 Smallwood Place Murarrie QLD 4172	1/2 Frost Drive Mayfield West NSW 2304	46-48 Banksia Road Welshpool WA 6106	35 O'Rorke Road Penrose, Auckland 1061	Unit C1/4 Pacific Rise, Mount Wellington, Auckland 1061	43 Detroit Drive Rolleston, Christchurch 7675	1277 Cameron Road, Gate Pa, Tauranga 3112
+61 3 8564 5000	+61 3 8564 5000	+61 2 9900 8400	+61 2 6113 8091	T: +61 7 3902 4600	+61 2 4968 8448	+61 8 6253 4444	+64 9 526 4551	+64 9 525 0568	+64 3 343 5201	+64 9 525 0568
NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261	NATA# 2377	IANZ# 1327	IANZ# 1308	IANZ# 1290	IANZ# 1402
Site# 1254	Site# 25403	Site# 18217	Site# 25463	Site# 20794 & 2780	Site# 25079	Site# 2370 & 2554				

Company Name: Alliance Geotechnical
Address: 10 Welder Road
Seven Hills
NSW 2147

Order No.:
Report #: 1164774
Phone: 1800 288 188
Fax: 02 9675 1888

Received: Nov 27, 2024 12:07 PM
Due: Nov 28, 2024
Priority: 1 Day
Contact Name: Jason Roesler

Project Name: ADDITIONAL: CANTERBURY ICE SKATING RINK
Project ID: 18587

Eurofins Analytical Services Manager : Andrew Black

Sample Detail						Benzo(a)pyrene	Lead	USA Leaching Procedure
Sydney Laboratory - NATA # 1261 Site # 18217						X	X	X
External Laboratory								
No	Sample ID	Sample Date	Sampling Time	Matrix	LAB ID			
1	BH01-0.3-0.4	Nov 18, 2024		US Leachate	S24-No0075235	X	X	X
2	BH05-0.0-0.1	Nov 18, 2024		US Leachate	S24-No0075236		X	X
Test Counts						1	2	2

Alliance Geotechnical
10 Welder Road
Seven Hills
NSW 2147



NATA Accredited
Accreditation Number 1261
Site Number 18217

Accredited for compliance with ISO/IEC 17025 – Testing
 NATA is a signatory to the ILAC Mutual Recognition
 Arrangement for the mutual recognition of the
 equivalence of testing, medical testing, calibration,
 inspection, proficiency testing scheme providers and
 reference materials producers reports and certificates.

Attention: **Jason Roesler**

Report **1164774-L**
Project name **ADDITIONAL: CANTERBURY ICE SKATING RINK**
Project ID **18587**
Received Date **Nov 27, 2024**

Client Sample ID			BH01-0.3-0.4	BH05-0.0-0.1
Sample Matrix			US Leachate	US Leachate
Eurofins Sample No.			S24- No0075235	S24- No0075236
Date Sampled			Nov 18, 2024	Nov 18, 2024
Test/Reference	LOR	Unit		
Polycyclic Aromatic Hydrocarbons				
Benzo(a)pyrene	0.001	mg/L	< 0.001	-
Heavy Metals				
Lead	0.01	mg/L	0.03	0.48
USA Leaching Procedure				
Leachate Fluid* ^{C01}		comment	1.0	1.0
pH (initial)	0.1	pH Units	8.7	9.0
pH (off)*	0.1	pH Units	5.1	5.0
pH (USA HCl addition)*	0.1	pH Units	1.9	1.8

Sample History

Where samples are submitted/analysed over several days, the last date of extraction is reported.

If the date and time of sampling are not provided, the Laboratory will not be responsible for compromised results should testing be performed outside the recommended holding time.

Description	Testing Site	Extracted	Holding Time
Polycyclic Aromatic Hydrocarbons - Method: LTM-ORG-2130 PAH and Phenols in Soil and Water	Sydney	Nov 27, 2024	7 Days
Heavy Metals - Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS	Sydney	Nov 27, 2024	28 Days
USA Leaching Procedure - Method: LTM-GEN-7010 Leaching Procedure for Soils & Solid Wastes	Sydney	Nov 27, 2024	14 Days



web: www.eurofins.com.au
email: EnviroSales@eurofins.com

ABN: 50 005 085 521

Melbourne 6 Monterey Road Dandenong South VIC 3175 +61 3 8564 5000 NATA# 1261 Site# 1254	Geelong 19/8 Lewalan Street Grovedale VIC 3216 +61 3 8564 5000 NATA# 1261 Site# 25403	Sydney 179 Magowar Road Girraween NSW 2145 +61 2 9900 8400 NATA# 1261 Site# 18217	Canberra Unit 1,2 Dacre Street Mitchell ACT 2911 +61 2 6113 8091 NATA# 1261 Site# 25466	Brisbane 1/21 Smallwood Place Murarrie QLD 4172 T: +61 7 3902 4600 NATA# 1261 Site# 20794 & 2780	Newcastle 1/2 Frost Drive Mayfield West NSW 2304 +61 2 4968 8448 NATA# 1261 Site# 25079
---	--	--	--	---	--

ABN: 91 05 0159 898

Perth 46-48 Banksia Road Welshpool WA 6106 +61 8 6253 4444 NATA# 2377 Site# 2370 & 2554
--

NZBN: 9429046024954

Auckland 35 O'Rorke Road Penrose, Auckland 1061 +64 9 526 4551 IANZ# 1327	Auckland (Focus) Unit C1/4 Pacific Rise, Mount Wellington, Auckland 1061 +64 9 525 0568 IANZ# 1308	Christchurch 43 Detroit Drive Rolleston, Christchurch 7675 +64 3 343 5201 IANZ# 1290	Tauranga 1277 Cameron Road, Gate Pa, Tauranga 3112 +64 9 525 0568 IANZ# 1402
---	--	--	--

Company Name:

Address:

Project Name:

Project ID:

Alliance Geotechnical

10 Welder Road

Seven Hills

NSW 2147

ADDITIONAL: CANTERBURY ICE SKATING RINK

18587

Order No.:

Report #:

Phone:

Fax:

1164774

1800 288 188

02 9675 1888

Received:

Due:

Priority:

Contact Name:

Nov 27, 2024 12:07 PM

Nov 28, 2024

1 Day

Jason Roesler

Eurofins Analytical Services Manager : Andrew Black

Sample Detail						Benzo(a)pyrene	Lead	USA Leaching Procedure
Sydney Laboratory - NATA # 1261 Site # 18217						X	X	X
External Laboratory								
No	Sample ID	Sample Date	Sampling Time	Matrix	LAB ID			
1	BH01-0.3-0.4	Nov 18, 2024		US Leachate	S24-No0075235	X	X	X
2	BH05-0.0-0.1	Nov 18, 2024		US Leachate	S24-No0075236		X	X
Test Counts						1	2	2

Eurofins Environment Testing 179 Magowar Road, Girraween NSW, Australia, 2145

ABN : 50 005 085 521 Telephone: +61 2 9900 8400

Page 3 of 6

Date Reported:Nov 28, 2024

Internal Quality Control Review and Glossary

General

1. Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples follow guidelines delineated in the National Environment Protection (Assessment of Site Contamination) Measure 1999, as amended May 2013. They are included in this QC report where applicable. Additional QC data may be available on request.
2. Unless otherwise stated, all soil/sediment/solid results are reported on a dry weight basis.
3. Unless otherwise stated, all biota/food results are reported on a wet weight basis on the edible portion.
4. For CEC results where the sample's origin is unknown or environmentally contaminated, the results should be used advisedly.
5. Actual LORs are matrix dependent. Quoted LORs may be raised where sample extracts are diluted due to interferences.
6. Results are uncorrected for matrix spikes or surrogate recoveries except for PFAS compounds where annotated.
7. SVOC analysis on waters is performed on homogenised, unfiltered samples unless noted otherwise.
8. Samples were analysed on an 'as received' basis.
9. Information identified in this report with **blue** colour indicates data provided by customers that may have an impact on the results.
10. This report replaces any interim results previously issued.

Holding Times

Please refer to the 'Sample Preservation and Container Guide' for holding times (QS3001).

For samples received on the last day of holding time, notification of testing requirements should have been received at least 6 hours before sample receipt deadlines as stated on the SRA.

If the Laboratory did not receive the information in the required timeframe, and despite any other integrity issues, suitably qualified results may still be reported.

Holding times apply from the sampling date; therefore, compliance with these may be outside the laboratory's control.

For VOCs containing vinyl chloride, styrene and 2-chloroethyl vinyl ether, the holding time is seven days; however, for all other VOCs, such as BTEX or C6-10 TRH, the holding time is 14 days.

Units

mg/kg: milligrams per kilogram	mg/L: milligrams per litre	ppm: parts per million
µg/L: micrograms per litre	ppb: parts per billion	%: Percentage
org/100 mL: Organisms per 100 millilitres	NTU: Nephelometric Turbidity Units	MPN/100 mL: Most Probable Number of organisms per 100 millilitres
CFU: Colony Forming Unit	Colour: Pt-Co Units (CU)	

Terms

APHA	American Public Health Association
CEC	Cation Exchange Capacity
COC	Chain of Custody
CP	Client Parent - QC was performed on samples pertaining to this report
CRM	Certified Reference Material (ISO17034) - reported as percent recovery.
Dry	Where moisture has been determined on a solid sample, the result is expressed on a dry weight basis.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
LOR	Limit of Reporting.
LCS	Laboratory Control Sample - reported as percent recovery.
Method Blank	In the case of solid samples, these are performed on laboratory-certified clean sands and in the case of water samples, these are performed on de-ionised water.
NCP	Non-Client Parent - QC performed on samples not pertaining to this report, QC represents the sequence or batch that client samples were analysed within.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
SRA	Sample Receipt Advice
Surr - Surrogate	The addition of a similar compound to the analyte target is reported as percentage recovery. See below for acceptance criteria.
TBTO	Tributyltin oxide (<i>bis</i> -tributyltin oxide) - individual tributyltin compounds cannot be identified separately in the environment; however, free tributyltin was measured, and its values were converted stoichiometrically into tributyltin oxide for comparison with regulatory limits.
TCLP	Toxicity Characteristic Leaching Procedure
TEQ	Toxic Equivalency Quotient or Total Equivalence
QSM	US Department of Defense Quality Systems Manual Version 6.0
US EPA	United States Environmental Protection Agency
WA DWER	Sum of PFBA, PFPeA, PFHxA, PFHpA, PFOA, PFBS, PFHxS, PFOS, 6:2 FTSA, 8:2 FTSA

QC - Acceptance Criteria

The acceptance criteria should only be used as a guide and may be different when site-specific Sampling Analysis and Quality Plan (SAQP) have been implemented.

RPD Duplicates: Global RPD Duplicates Acceptance Criteria is ≤30%; however, the following acceptance guidelines are equally applicable:

Results <10 times the LOR:	No Limit
Results between 10-20 times the LOR:	RPD must lie between 0-50%
Results >20 times the LOR:	RPD must lie between 0-30%

NOTE: pH duplicates are reported as a range, not as RPD

Surrogate Recoveries: Recoveries must lie between 20-130% for Speciated Phenols & 50-150% for PFAS. SVOCs recoveries 20 – 150%, VOC recoveries 50 – 150%

PFAS field samples containing surrogate recoveries above the QC limit designated in QSM 6.0, where no positive PFAS results have been reported or reviewed, and no data was affected.

QC Data General Comments

1. Where a result is reported as less than (<), higher than the nominated LOR, this is due to either matrix interference, extract dilution required due to interferences or contaminant levels within the sample, high moisture content or insufficient sample provided.
2. Duplicate data shown within this report that states the word "BATCH" is a Batch Duplicate from outside of your sample batch but within the laboratory sample batch at a 1:10 ratio. The Parent and Duplicate data shown are not data from your samples.
3. pH and Free Chlorine analysed in the laboratory - Analysis on this test must begin within 30 minutes of sampling. Therefore, laboratory analysis is unlikely to be completed within holding time. Analysis will begin as soon as possible after sample receipt.
4. Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of recovery, the term "INT" appears against that analyte.
5. For Matrix Spikes and LCS results, a dash "-" in the report means that the specific analyte was not added to the QC sample.
6. Duplicate RPDs are calculated from raw analytical data; thus, it is possible to have two sets of data.

Quality Control Results

Test				Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank										
Polycyclic Aromatic Hydrocarbons										
Benzo(a)pyrene				mg/L	< 0.001			0.001	Pass	
Method Blank										
Heavy Metals										
Lead				mg/L	< 0.01			0.01	Pass	
LCS - % Recovery										
Polycyclic Aromatic Hydrocarbons										
Benzo(a)pyrene				%	129			70-130	Pass	
LCS - % Recovery										
Heavy Metals										
Lead				%	104			80-120	Pass	
Test	Lab Sample ID	QA Source	Units	Result 1				Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery										
Polycyclic Aromatic Hydrocarbons					Result 1					
Benzo(a)pyrene	S24-No0071147	NCP	%	126				70-130	Pass	
Spike - % Recovery										
Heavy Metals					Result 1					
Lead	S24-No0070927	NCP	%	105				75-125	Pass	
Test	Lab Sample ID	QA Source	Units	Result 1				Acceptance Limits	Pass Limits	Qualifying Code
Duplicate										
Polycyclic Aromatic Hydrocarbons					Result 1	Result 2	RPD			
Benzo(a)pyrene	S24-No0071148	NCP	mg/L	< 0.001	< 0.001	<1		30%	Pass	
Duplicate										
Heavy Metals					Result 1	Result 2	RPD			
Lead	S24-No0075235	CP	mg/L	0.03	0.03	2.0		30%	Pass	

Comments
Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	Yes
Sample correctly preserved	Yes
Appropriate sample containers have been used	Yes
Sample containers for volatile analysis received with minimal headspace	Yes
Samples received within HoldingTime	Yes
Some samples have been subcontracted	No

Qualifier Codes/Comments

Code	Description
C01	Leachate Fluid Key: 1 - pH 5.0; 2 - pH 2.9; 3 - pH 9.2; 4 - Reagent (DI) water; 5 - Client sample, 6 - other

Authorised by:

Nileshni Goundar	Analytical Services Manager
Mickael Ros	Senior Analyst-Metal
Roopesh Rangarajan	Senior Analyst-Organic
Roopesh Rangarajan	Senior Analyst-Sample Properties



Glenn Jackson
Managing Director

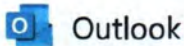
Final Report – this report replaces any previously issued Report

- Indicates Not Requested

* Indicates NATA accreditation does not cover the performance of this service

Measurement uncertainty of test data is available on request or please [click here](#).

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Additional Analysis - RE: Eurofins Test Results - Report 1161470 : Site CANTERBURY ICE SKATING RINK (18587)

From Jason Roesler <Jason@allgeo.com.au>
Date Wed 20/11/2024 11:33 AM
To Andrew Black <andrewblack@eurofins.com>
Cc Daniel Hilton <daniel@allgeo.com.au>

Unverified Sender: The sender of this email has not been verified. Review the content of the message carefully and verify the identity of the sender before acting on this email: replying, opening attachments or clicking links.

Good morning Andrew,

Could we please arrange **additional TCLP** analysis for **CRS** on a **3 day TaT** for the following sample.

- **CRS**
 - BH02-0.0-0.1
 - BH02-2.5-2.6
 - BH02-3.0-3.1
 - BH02-3.3-3.4
 - BH04-1.7-1.8
 - BH05-0.0-0.1
 - BH05-0.5-0.6
 - BH05-1.9-2.0

1162162

Regards,

Jason Roesler

Project Scientist

Mobile: 0404 043 610 | **Email:** Jason@allgeo.com.au



Office Phone: 1800 288 188
Admin Email: admin@allgeo.com.au
Website: allgeo.com.au
Head Office & Lab: 8-10 Welder Road, Seven Hills NSW 2147
Wollongong Office & Lab: 51 / 6 Bellambi Lane, Bellambi NSW 2518

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From: AndrewBlack@eurofins.com <AndrewBlack@eurofins.com>
Sent: Tuesday, 19 November 2024 10:11 PM
To: Jason Roesler <jason@allgeo.com.au>
Cc: Daniel Hilton <daniel@allgeo.com.au>
Subject: Eurofins Test Results - Report 1161470 : Site CANTERBURY ICE SKATING RINK (18587)

pH field fox results.

Kindest Regards,

Andrew Black

Eurofins Environment Testing Australia Pty Ltd

ABN: 50 005 085 521

Melbourne	Geelong	Sydney	Canberra	Brisbane	Newcastle
6 Monterey Road Dandenong South VIC 3175 +61 3 8564 5000 NATA# 1261 Site# 1254	19/8 Lewalan Street Grovedale VIC 3216 +61 3 8564 5000 NATA# 1261 Site# 25403	179 Magowar Road Girraween NSW 2145 +61 2 9900 8400 NATA# 1261 Site# 18217	Unit 1,2 Dacre Street Mitchell ACT 2911 +61 2 6113 8091 NATA# 1261 Site# 25466	1/21 Smallwood Place Murarie QLD 4172 T: +61 7 3902 4600 NATA# 1261 Site# 20794 & 2780	1/2 Frost Drive Mayfield West NSW 2304 +61 2 4968 8448 NATA# 1261 Site# 25079

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ABN: 91 05 0159 898

Perth
46-48 Banksia Road Welshpool WA 6106 +61 8 6253 4444 NATA# 2377 Site# 2370 & 2554

Eurofins Environment Testing NZ Ltd

NZBN: 9429046024954

Auckland	Auckland (Focus)	Christchurch	Tauranga
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Sample Receipt Advice

Company name:	Alliance Geotechnical
Contact name:	Jason Roesler
Project name:	CANTERBURY ICE SKATING RINK
Project ID:	18587
Turnaround time:	3 Day
Date/Time received	Nov 20, 2024 11:33 AM
Eurofins reference	1162162

Sample Information

- ✓ A detailed list of analytes logged into our LIMS, is included in the attached summary table.
- ✓ All samples have been received as described on the above COC.
- ✓ COC has been completed correctly.
- ✓ Attempt to chill was evident.
- ✓ Appropriately preserved sample containers have been used.
- ✓ All samples were received in good condition.
- ✓ Samples have been provided with adequate time to commence analysis in accordance with the relevant holding times.
- ✓ Appropriate sample containers have been used.
- ✓ Sample containers for volatile analysis received with zero headspace.
- ✗ Split sample sent to requested external lab.
- ✗ Some samples have been subcontracted.
- N/A Custody Seals intact (if used).

Notes

Contact

If you have any questions with respect to these samples, please contact your Analytical Services Manager:

Andrew Black on phone : (+61) 2 9900 8490 or by email: AndrewBlack@eurofins.com

Results will be delivered electronically via email to Jason Roesler - jason@allgeo.com.au.

Note: A copy of these results will also be delivered to the general Alliance Geotechnical email address.



Melbourne 6 Monterey Road Dandenong South VIC 3175 +61 3 8564 5000 NATA# 1261 Site# 1254	Geelong 19/8 Lewalan Street Grovedale VIC 3216 +61 3 8564 5000 NATA# 1261 Site# 25403	Sydney 179 Magowar Road Girraween NSW 2145 +61 2 9900 8400 NATA# 1261 Site# 18217	Canberra Unit 1,2 Dacre Street Mitchell ACT 2911 +61 2 6113 8091 NATA# 1261 Site# 25466	Brisbane 1/21 Smallwood Place Murarrie QLD 4172 T: +61 7 3902 4600 NATA# 1261 Site# 20794 & 2780	Newcastle 1/2 Frost Drive Mayfield West NSW 2304 +61 2 4968 8448 NATA# 1261 Site# 25079
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Perth 46-48 Banksia Road Welshpool WA 6106 +61 8 6253 4444 NATA# 2377 Site# 2370 & 2554
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Auckland 35 O'Rorke Road Penrose, Auckland 1061 +64 9 526 4551 IANZ# 1327	Auckland (Focus) Unit C1/4 Pacific Rise, Mount Wellington, Auckland 1061 +64 9 525 0568 IANZ# 1308	Christchurch 43 Detroit Drive Rolleston, Christchurch 7675 +64 3 343 5201 IANZ# 1290	Tauranga 1277 Cameron Road, Gate Pa, Tauranga 3112 +64 9 525 0568 IANZ# 1402
---	--	--	--

Company Name:

Address:

Project Name:

Project ID:

Alliance Geotechnical

10 Welder Road

Seven Hills

NSW 2147

CANTERBURY ICE SKATING RINK

18587

Order No.:

Report #:

Phone:

Fax:

1162162

1800 288 188

02 9675 1888

Received:

Due:

Priority:

Contact Name:

Nov 20, 2024 11:33 AM

Nov 25, 2024

3 Day

Jason Roesler

Eurofins Analytical Services Manager : Andrew Black

Sample Detail						Moisture Set	Chromium Suite - NASSG (Excluding ANC)
Sydney Laboratory - NATA # 1261 Site # 18217						X	
Brisbane Laboratory - NATA # 1261 Site # 20794 & 2780							X
External Laboratory							
No	Sample ID	Sample Date	Sampling Time	Matrix	LAB ID		
1	BH02-0.0-0.1	Nov 18, 2024		Soil	B24-No0054043	X	X
2	BH02-2.5-2.6	Nov 18, 2024		Soil	B24-No0054044	X	X
3	BH02-3.0-3.1	Nov 18, 2024		Soil	B24-No0054045	X	X
4	BH02-3.3-3.4	Nov 18, 2024		Soil	B24-No0054046	X	X
5	BH04-1.7-1.8	Nov 18, 2024		Soil	B24-No0054047	X	X
6	BH05-0.0-0.1	Nov 18, 2024		Soil	B24-No0054048	X	X
7	BH05-0.5-0.6	Nov 18, 2024		Soil	B24-No0054049	X	X
8	BH05-1.9-2.0	Nov 18, 2024		Soil	B24-No0054050	X	X
Test Counts						8	8

Alliance Geotechnical
10 Welder Road
Seven Hills
NSW 2147



NATA Accredited
Accreditation Number 1261
Site Number 20794 & 2780

Accredited for compliance with ISO/IEC 17025 – Testing
 NATA is a signatory to the ILAC Mutual Recognition
 Arrangement for the mutual recognition of the
 equivalence of testing, medical testing, calibration,
 inspection, proficiency testing scheme providers and
 reference materials producers reports and certificates.

Attention: **Jason Roesler**

Report **1162162-S**
 Project name **CANTERBURY ICE SKATING RINK**
 Project ID **18587**
 Received Date **Nov 20, 2024**

Client Sample ID			BH02-0.0-0.1	BH02-2.5-2.6	BH02-3.0-3.1	BH02-3.3-3.4
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			B24- No0054043	B24- No0054044	B24- No0054045	B24- No0054046
Date Sampled			Nov 18, 2024	Nov 18, 2024	Nov 18, 2024	Nov 18, 2024
Test/Reference	LOR	Unit				
Extraneous Material						
<2mm Fraction	0.005	g	31	33	29	30
>2mm Fraction	0.005	g	5.8	< 0.005	< 0.005	< 0.005
Analysed Material	0.1	%	84	100	100	100
Extraneous Material	0.1	%	16	< 0.1	< 0.1	< 0.1
Net Acidity (Excluding ANC)						
s-CRS Suite - Net Acidity - NASSG (Excluding ANC)	0.02	% S	0.06	0.03	0.02	< 0.02
CRS Suite - Net Acidity - NASSG (Excluding ANC)	10	mol H+/t	37	17	13	< 10
CRS Suite - Liming Rate - NASSG (Excluding ANC)	1	kg CaCO3/t	2.8	1.3	1.0	< 1
Actual Acidity (NLM-3.2)						
pH-KCL (NLM-3.1)	0.1	pH Units	4.9	5.2	5.1	5.3
Titratable Actual Acidity (NLM-3.2)	2	mol H+/t	37	10	13	7.0
Titratable Actual Acidity (NLM-3.2)	0.003	% pyrite S	0.060	0.020	0.020	0.010
Potential Acidity - Chromium Reducible Sulfur						
Chromium Reducible Sulfur (s-SCr) (NLM-2.1) ^{S04}	0.005	% S	< 0.005	0.012	< 0.005	< 0.005
Chromium Reducible Sulfur (a-SCr) (NLM-2.1)	3	mol H+/t	< 3	7.7	< 3	< 3
Extractable Sulfur						
Sulfur - KCl Extractable	0.005	% S	N/A	N/A	N/A	N/A
HCl Extractable Sulfur	0.005	% S	N/A	N/A	N/A	N/A
Retained Acidity (S-NAS)						
Net Acid soluble sulfur (SNAS) NLM-4.1	0.005	% S	N/A	N/A	N/A	N/A
Net Acid soluble sulfur (s-SNAS) NLM-4.1 ^{S02}	0.005	% S	N/A	N/A	N/A	N/A
Net Acid soluble sulfur (a-SNAS) NLM-4.1	2	mol H+/t	N/A	N/A	N/A	N/A
HCl Extractable Sulfur Correction Factor	1	factor	2.0	2.0	2.0	2.0
Acid Neutralising Capacity (ANCbt)						
Acid Neutralising Capacity - (ANCbt) (NLM-5.2)	0.01	% CaCO3	N/A	N/A	N/A	N/A
Acid Neutralising Capacity - (s-ANCbt) (NLM-5.2) ^{S03}	0.02	% S	N/A	N/A	N/A	N/A
Acid Neutralising Capacity - (a-ANCbt) (NLM-5.2)	2	mol H+/t	N/A	N/A	N/A	N/A
ANC Fineness Factor		factor	1.5	1.5	1.5	1.5
Net Acidity (Including ANC)						
s-CRS Suite - Net Acidity - NASSG (including ANC)	0.02	% S	0.06	0.03	0.02	< 0.02
CRS Suite - Net Acidity - NASSG (Including ANC)	10	mol H+/t	37	17	13	< 10
CRS Suite - Liming Rate - NASSG (Including ANC) ^{S01}	1	kg CaCO3/t	2.8	1.3	1.0	< 1
Sample Properties						
% Moisture	1	%	11	7.0	10	8.3

Client Sample ID			BH04-1.7-1.8	BH05-0.0-0.1	BH05-0.5-0.6	BH05-1.9-2.0
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			B24-No0054047	B24-No0054048	B24-No0054049	B24-No0054050
Date Sampled			Nov 18, 2024	Nov 18, 2024	Nov 18, 2024	Nov 18, 2024
Test/Reference	LOR	Unit				
Extraneous Material						
<2mm Fraction	0.005	g	33	29	29	30
>2mm Fraction	0.005	g	0.57	1.8	1.6	< 0.005
Analysed Material	0.1	%	98	94	95	100
Extraneous Material	0.1	%	1.7	5.9	5.2	< 0.1
Net Acidity (Excluding ANC)						
s-CRS Suite - Net Acidity - NASSG (Excluding ANC)	0.02	% S	0.02	< 0.02	< 0.02	0.03
CRS Suite - Net Acidity - NASSG (Excluding ANC)	10	mol H+/t	13	< 10	< 10	19
CRS Suite - Liming Rate - NASSG (Excluding ANC)	1	kg CaCO3/t	< 1	< 1	< 1	1.4
Actual Acidity (NLM-3.2)						
pH-KCL (NLM-3.1)	0.1	pH Units	5.0	6.2	6.1	4.8
Titratable Actual Acidity (NLM-3.2)	2	mol H+/t	13	6.0	5.0	19
Titratable Actual Acidity (NLM-3.2)	0.003	% pyrite S	0.020	0.010	0.010	0.030
Potential Acidity - Chromium Reducible Sulfur						
Chromium Reducible Sulfur (s-SCr) (NLM-2.1) ^{S04}	0.005	% S	< 0.005	< 0.005	< 0.005	< 0.005
Chromium Reducible Sulfur (a-SCr) (NLM-2.1)	3	mol H+/t	< 3	< 3	< 3	< 3
Extractable Sulfur						
Sulfur - KCl Extractable	0.005	% S	N/A	N/A	N/A	N/A
HCl Extractable Sulfur	0.005	% S	N/A	N/A	N/A	N/A
Retained Acidity (S-NAS)						
Net Acid soluble sulfur (SNAS) NLM-4.1	0.005	% S	N/A	N/A	N/A	N/A
Net Acid soluble sulfur (s-SNAS) NLM-4.1 ^{S02}	0.005	% S	N/A	N/A	N/A	N/A
Net Acid soluble sulfur (a-SNAS) NLM-4.1	2	mol H+/t	N/A	N/A	N/A	N/A
HCl Extractable Sulfur Correction Factor	1	factor	2.0	2.0	2.0	2.0
Acid Neutralising Capacity (ANCbt)						
Acid Neutralising Capacity - (ANCbt) (NLM-5.2)	0.01	% CaCO3	N/A	N/A	N/A	N/A
Acid Neutralising Capacity - (s-ANCbt) (NLM-5.2) ^{S03}	0.02	% S	N/A	N/A	N/A	N/A
Acid Neutralising Capacity - (a-ANCbt) (NLM-5.2)	2	mol H+/t	N/A	N/A	N/A	N/A
ANC Fineness Factor		factor	1.5	1.5	1.5	1.5
Net Acidity (Including ANC)						
s-CRS Suite - Net Acidity - NASSG (including ANC)	0.02	% S	0.02	< 0.02	< 0.02	0.03
CRS Suite - Net Acidity - NASSG (Including ANC)	10	mol H+/t	13	< 10	< 10	19
CRS Suite - Liming Rate - NASSG (Including ANC) ^{S01}	1	kg CaCO3/t	< 1	< 1	< 1	1.4
Sample Properties						
% Moisture	1	%	9.6	8.6	10	9.0

Sample History

Where samples are submitted/analysed over several days, the last date of extraction is reported.

If the date and time of sampling are not provided, the Laboratory will not be responsible for compromised results should testing be performed outside the recommended holding time.

Description	Testing Site	Extracted	Holding Time
Extraneous Material - Method: LTM-GEN-7050/7070	Brisbane	Nov 20, 2024	6 Week
Chromium Suite - NASSG (Excluding ANC) - Method: LTM-GEN-7070 Chromium Reducible Sulfur Suite	Brisbane	Nov 20, 2024	6 Week
% Moisture - Method: LTM-GEN-7080 Moisture	Sydney	Nov 20, 2024	14 Days



web: www.eurofins.com.au
email: EnviroSales@eurofins.com

Melbourne 6 Monterey Road Dandenong South VIC 3175 +61 3 8564 5000 NATA# 1261 Site# 1254	Geelong 19/8 Lewalan Street Grovedale VIC 3216 +61 3 8564 5000 NATA# 1261 Site# 25403	Sydney 179 Magowar Road Girraween NSW 2145 +61 2 9900 8400 NATA# 1261 Site# 18217	Canberra Unit 1,2 Dacre Street Mitchell ACT 2911 +61 2 6113 8091 NATA# 1261 Site# 25466	Brisbane 1/21 Smallwood Place Murarrie QLD 4172 T: +61 7 3902 4600 NATA# 1261 Site# 20794 & 2780	Newcastle 1/2 Frost Drive Mayfield West NSW 2304 +61 2 4968 8448 NATA# 1261 Site# 25079	Perth 46-48 Banksia Road Welshpool WA 6106 +61 8 6253 4444 NATA# 2377 Site# 2370 & 2554	Auckland 35 O'Rorke Road Penrose, Auckland 1061 +64 9 526 4551 IANZ# 1327	Auckland (Focus) Unit C1/4 Pacific Rise, Mount Wellington, Auckland 1061 +64 9 525 0568 IANZ# 1308	Christchurch 43 Detroit Drive Rolleston, Christchurch 7675 +64 3 343 5201 IANZ# 1290	Tauranga 1277 Cameron Road, Gate Pa, Tauranga 3112 +64 9 525 0568 IANZ# 1402
---	--	--	--	---	--	--	---	--	--	--

Company Name:

Address:

Project Name:

Project ID:

Alliance Geotechnical

10 Welder Road

Seven Hills

NSW 2147

CANTERBURY ICE SKATING RINK

18587

Order No.:

Report #:

Phone:

Fax:

1162162

1800 288 188

02 9675 1888

Received:

Due:

Priority:

Contact Name:

Nov 20, 2024 11:33 AM

Nov 25, 2024

3 Day

Jason Roesler

Eurofins Analytical Services Manager : Andrew Black

Sample Detail						Moisture Set	Chromium Suite - NASSG (Excluding ANC)
Sydney Laboratory - NATA # 1261 Site # 18217						X	
Brisbane Laboratory - NATA # 1261 Site # 20794 & 2780							X
External Laboratory							
No	Sample ID	Sample Date	Sampling Time	Matrix	LAB ID		
1	BH02-0.0-0.1	Nov 18, 2024		Soil	B24-No0054043	X	X
2	BH02-2.5-2.6	Nov 18, 2024		Soil	B24-No0054044	X	X
3	BH02-3.0-3.1	Nov 18, 2024		Soil	B24-No0054045	X	X
4	BH02-3.3-3.4	Nov 18, 2024		Soil	B24-No0054046	X	X
5	BH04-1.7-1.8	Nov 18, 2024		Soil	B24-No0054047	X	X
6	BH05-0.0-0.1	Nov 18, 2024		Soil	B24-No0054048	X	X
7	BH05-0.5-0.6	Nov 18, 2024		Soil	B24-No0054049	X	X
8	BH05-1.9-2.0	Nov 18, 2024		Soil	B24-No0054050	X	X
Test Counts						8	8

Internal Quality Control Review and Glossary

General

1. Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples follow guidelines delineated in the National Environment Protection (Assessment of Site Contamination) Measure 1999, as amended May 2013. They are included in this QC report where applicable. Additional QC data may be available on request.
2. Unless otherwise stated, all soil/sediment/solid results are reported on a dry weight basis.
3. Unless otherwise stated, all biota/food results are reported on a wet weight basis on the edible portion.
4. For CEC results where the sample's origin is unknown or environmentally contaminated, the results should be used advisedly.
5. Actual LORs are matrix dependent. Quoted LORs may be raised where sample extracts are diluted due to interferences.
6. Results are uncorrected for matrix spikes or surrogate recoveries except for PFAS compounds where annotated.
7. SVOC analysis on waters is performed on homogenised, unfiltered samples unless noted otherwise.
8. Samples were analysed on an 'as received' basis.
9. Information identified in this report with **blue** colour indicates data provided by customers that may have an impact on the results.
10. This report replaces any interim results previously issued.

Holding Times

Please refer to the 'Sample Preservation and Container Guide' for holding times (QS3001).

For samples received on the last day of holding time, notification of testing requirements should have been received at least 6 hours before sample receipt deadlines as stated on the SRA.

If the Laboratory did not receive the information in the required timeframe, and despite any other integrity issues, suitably qualified results may still be reported.

Holding times apply from the sampling date; therefore, compliance with these may be outside the laboratory's control.

For VOCs containing vinyl chloride, styrene and 2-chloroethyl vinyl ether, the holding time is seven days; however, for all other VOCs, such as BTEX or C6-10 TRH, the holding time is 14 days.

Units

mg/kg: milligrams per kilogram	mg/L: milligrams per litre	ppm: parts per million
µg/L: micrograms per litre	ppb: parts per billion	%: Percentage
org/100 mL: Organisms per 100 millilitres	NTU: Nephelometric Turbidity Units	MPN/100 mL: Most Probable Number of organisms per 100 millilitres
CFU: Colony Forming Unit	Colour: Pt-Co Units (CU)	

Terms

APHA	American Public Health Association
CEC	Cation Exchange Capacity
COC	Chain of Custody
CP	Client Parent - QC was performed on samples pertaining to this report
CRM	Certified Reference Material (ISO17034) - reported as percent recovery.
Dry	Where moisture has been determined on a solid sample, the result is expressed on a dry weight basis.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
LOR	Limit of Reporting.
LCS	Laboratory Control Sample - reported as percent recovery.
Method Blank	In the case of solid samples, these are performed on laboratory-certified clean sands and in the case of water samples, these are performed on de-ionised water.
NCP	Non-Client Parent - QC performed on samples not pertaining to this report, QC represents the sequence or batch that client samples were analysed within.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
SRA	Sample Receipt Advice
Surr - Surrogate	The addition of a similar compound to the analyte target is reported as percentage recovery. See below for acceptance criteria.
TBTO	Tributyltin oxide (<i>bis</i> -tributyltin oxide) - individual tributyltin compounds cannot be identified separately in the environment; however, free tributyltin was measured, and its values were converted stoichiometrically into tributyltin oxide for comparison with regulatory limits.
TCLP	Toxicity Characteristic Leaching Procedure
TEQ	Toxic Equivalency Quotient or Total Equivalence
QSM	US Department of Defense Quality Systems Manual Version 6.0
US EPA	United States Environmental Protection Agency
WA DWER	Sum of PFBA, PFPeA, PFHxA, PFHpA, PFOA, PFBS, PFHxS, PFOS, 6:2 FTSA, 8:2 FTSA

QC - Acceptance Criteria

The acceptance criteria should only be used as a guide and may be different when site-specific Sampling Analysis and Quality Plan (SAQP) have been implemented.

RPD Duplicates: Global RPD Duplicates Acceptance Criteria is ≤30%; however, the following acceptance guidelines are equally applicable:

Results <10 times the LOR:	No Limit
Results between 10-20 times the LOR:	RPD must lie between 0-50%
Results >20 times the LOR:	RPD must lie between 0-30%

NOTE: pH duplicates are reported as a range, not as RPD

Surrogate Recoveries: Recoveries must lie between 20-130% for Speciated Phenols & 50-150% for PFAS. SVOCs recoveries 20 – 150%, VOC recoveries 50 – 150%

PFAS field samples containing surrogate recoveries above the QC limit designated in QSM 6.0, where no positive PFAS results have been reported or reviewed, and no data was affected.

QC Data General Comments

1. Where a result is reported as less than (<), higher than the nominated LOR, this is due to either matrix interference, extract dilution required due to interferences or contaminant levels within the sample, high moisture content or insufficient sample provided.
2. Duplicate data shown within this report that states the word "BATCH" is a Batch Duplicate from outside of your sample batch but within the laboratory sample batch at a 1:10 ratio. The Parent and Duplicate data shown are not data from your samples.
3. pH and Free Chlorine analysed in the laboratory - Analysis on this test must begin within 30 minutes of sampling. Therefore, laboratory analysis is unlikely to be completed within holding time. Analysis will begin as soon as possible after sample receipt.
4. Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of recovery, the term "INT" appears against that analyte.
5. For Matrix Spikes and LCS results, a dash "-" in the report means that the specific analyte was not added to the QC sample.
6. Duplicate RPDs are calculated from raw analytical data; thus, it is possible to have two sets of data.

Quality Control Results

Test				Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
LCS - % Recovery										
Actual Acidity (NLM-3.2)										
pH-KCL (NLM-3.1)				%	98			80-120	Pass	
Titratable Actual Acidity (NLM-3.2)				%	95			80-120	Pass	
LCS - % Recovery										
Potential Acidity - Chromium Reducible Sulfur										
Chromium Reducible Sulfur (s-SCr) (NLM-2.1)				%	92			80-120	Pass	
LCS - % Recovery										
Extractable Sulfur										
HCl Extractable Sulfur				%	96			80-120	Pass	
Test	Lab Sample ID	QA Source		Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Duplicate										
Sample Properties					Result 1	Result 2	RPD			
% Moisture	W24-No0054027	NCP		%	15	19	29	30%	Pass	
Duplicate										
Net Acidity (Excluding ANC)					Result 1	Result 2	RPD			
s-CRS Suite - Net Acidity - NASSG (Excluding ANC)	B24-No0054048	CP		% S	< 0.02	< 0.02	<1	30%	Pass	
CRS Suite - Net Acidity - NASSG (Excluding ANC)	B24-No0054048	CP		mol H+/t	< 10	< 10	<1	20%	Pass	
CRS Suite - Liming Rate - NASSG (Excluding ANC)	B24-No0054048	CP		kg CaCO3/t	< 1	< 1	<1	30%	Pass	
Duplicate										
Actual Acidity (NLM-3.2)					Result 1	Result 2	RPD			
pH-KCL (NLM-3.1)	B24-No0054048	CP		pH Units	6.2	6.2	<1	20%	Pass	
Titratable Actual Acidity (NLM-3.2)	B24-No0054048	CP		mol H+/t	6.0	5.0	14	20%	Pass	
Titratable Actual Acidity (NLM-3.2)	B24-No0054048	CP		% pyrite S	0.010	0.010	14	30%	Pass	
Duplicate										
Potential Acidity - Chromium Reducible Sulfur					Result 1	Result 2	RPD			
Chromium Reducible Sulfur (s-SCr) (NLM-2.1)	B24-No0054048	CP		% S	< 0.005	< 0.005	<1	20%	Pass	
Chromium Reducible Sulfur (a-SCr) (NLM-2.1)	B24-No0054048	CP		mol H+/t	< 3	< 3	<1	30%	Pass	
Duplicate										
Extractable Sulfur					Result 1	Result 2	RPD			
Sulfur - KCl Extractable	B24-No0054048	CP		% S	N/A	N/A	N/A	30%	Pass	
HCl Extractable Sulfur	B24-No0054048	CP		% S	N/A	N/A	N/A	20%	Pass	
Duplicate										
Retained Acidity (S-NAS)					Result 1	Result 2	RPD			
Net Acid soluble sulfur (SNAS) NLM-4.1	B24-No0054048	CP		% S	N/A	N/A	N/A	30%	Pass	
Net Acid soluble sulfur (s-SNAS) NLM-4.1	B24-No0054048	CP		% S	N/A	N/A	N/A	30%	Pass	
Net Acid soluble sulfur (a-SNAS) NLM-4.1	B24-No0054048	CP		mol H+/t	N/A	N/A	N/A	30%	Pass	
Duplicate										
Acid Neutralising Capacity (ANCbt)					Result 1	Result 2	RPD			
Acid Neutralising Capacity - (ANCbt) (NLM-5.2)	B24-No0054048	CP		% CaCO3	N/A	N/A	N/A	20%	Pass	
Acid Neutralising Capacity - (s-ANCbt) (NLM-5.2)	B24-No0054048	CP		% S	N/A	N/A	N/A	30%	Pass	
ANC Fineness Factor	B24-No0054048	CP		factor	1.5	1.5	<1	30%	Pass	

Duplicate								
Net Acidity (Including ANC)				Result 1	Result 2	RPD		
s-CRS Suite - Net Acidity - NASSG (including ANC)	B24-No0054048	CP	% S	< 0.02	< 0.02	<1	30%	Pass
CRS Suite - Net Acidity - NASSG (Including ANC)	B24-No0054048	CP	mol H+/t	< 10	< 10	<1	30%	Pass
CRS Suite - Liming Rate - NASSG (Including ANC)	B24-No0054048	CP	kg CaCO ₃ /t	< 1	< 1	<1	30%	Pass

Comments
Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	Yes
Sample correctly preserved	Yes
Appropriate sample containers have been used	Yes
Sample containers for volatile analysis received with minimal headspace	Yes
Samples received within HoldingTime	Yes
Some samples have been subcontracted	No

Qualifier Codes/Comments

Code	Description
S01	Liming rate is calculated and reported on a dry weight basis assuming use of fine agricultural lime (CaCO ₃) and using a safety factor of 1.5 to allow for non-homogeneous mixing and poor reactivity of lime. For conversion of Liming Rate from 'kg/t dry weight' to 'kg/m ³ in-situ soil' multiply 'reported results' x 'wet bulk density of soil in t/m ³ '
S02	Retained Acidity is Reported when the pHKCl is less than pH 4.5
S03	Acid Neutralising Capacity is only required if the pHKCl is greater than or equal to pH 6.5
S04	Acid Sulfate Soil Samples have a 24 hour holding time unless frozen or dried within that period

Authorised by:

Andrew Black	Analytical Services Manager
Jonathon Angell	Senior Analyst-SPOCAS
Roopesh Rangarajan	Senior Analyst-Sample Properties



Glenn Jackson
Managing Director

Final Report – this report replaces any previously issued Report

- Indicates Not Requested

* Indicates NATA accreditation does not cover the performance of this service

Measurement uncertainty of test data is available on request or please [click here](#).

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CERTIFICATE OF ANALYSIS

Work Order	: ES2437683	Page	: 1 of 2
Client	: ALLIANCE GEOTECHNICAL	Laboratory	: Environmental Division Sydney
Contact	: Jason Roesler	Contact	: Customer Services ES
Address	: 8/10 Welder Road, Seven Hills 2147	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: ----	Telephone	: +61-2-8784 8555
Project	: 18587 Canterbury Ice Skating Rink	Date Samples Received	: 19-Nov-2024 14:15
Order number	: ----	Date Analysis Commenced	: 21-Nov-2024
C-O-C number	: ----	Issue Date	: 25-Nov-2024 11:41
Sampler	: D. Hilton		
Site	: ----		
Quote number	: EN/222		
No. of samples received	: 1		
No. of samples analysed	: 1		



This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	Position	Accreditation Category
Ankit Joshi	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW



General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contract for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
 LOR = Limit of reporting
 ^ = This result is computed from individual analyte detections at or above the level of reporting
 ø = ALS is not NATA accredited for these tests.
 ~ = Indicates an estimated value.

Analytical Results

Sub-Matrix: SOIL
 (Matrix: SOIL)

Sample ID

				Trip01	----	----	----	----
Sampling date / time				18-Nov-2024 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit	ES2437683-001	-----	-----	-----	-----
Result				Result	----	----	----	----
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	9.2	----	----	----	----
EG005(ED093)T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	9	----	----	----	----
Cadmium	7440-43-9	1	mg/kg	<1	----	----	----	----
Chromium	7440-47-3	2	mg/kg	19	----	----	----	----
Copper	7440-50-8	5	mg/kg	8	----	----	----	----
Lead	7439-92-1	5	mg/kg	92	----	----	----	----
Nickel	7440-02-0	2	mg/kg	2	----	----	----	----
Zinc	7440-66-6	5	mg/kg	83	----	----	----	----
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	0.1	----	----	----	----



QUALITY CONTROL REPORT

Work Order : **ES2437683**

Page : 1 of 3

Client : **ALLIANCE GEOTECHNICAL**

Laboratory : Environmental Division Sydney

Contact : Jason Roesler

Contact : Customer Services ES

Address : 8/10 Welder Road,
Seven Hills 2147

Address : 277-289 Woodpark Road Smithfield NSW Australia 2164

Telephone : ----

Telephone : +61-2-8784 8555

Project : 18587 Canterbury Ice Skating Rink

Date Samples Received : 19-Nov-2024

Order number : ----

Date Analysis Commenced : 21-Nov-2024

C-O-C number : ----

Issue Date : 25-Nov-2024

Sampler : D. Hilton

Site : ----

Quote number : EN/222

No. of samples received : 1

No. of samples analysed : 1



This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories

Position

Accreditation Category

Ankit Joshi

Senior Chemist - Inorganics

Sydney Inorganics, Smithfield, NSW



General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot

CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

LOR = Limit of reporting

RPD = Relative Percentage Difference

= Indicates failed QC

* = The final LOR has been raised due to dilution or other sample specific cause; adjusted LOR is shown in brackets. The duplicate ranges for Acceptable RPD% are applied to the final LOR where applicable.

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **SOIL**

Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EG005(ED093)T: Total Metals by ICP-AES (QC Lot: 6203014)									
ES2437681-001	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	8	8	0.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	6	6	0.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	22	21	0.0	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	44	44	0.0	No Limit
ES2437734-006	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	10	11	0.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	105	99	6.6	0% - 20%
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	5	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	45	43	4.5	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	29	26	9.6	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	263	246	6.8	0% - 20%
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 6203023)									
ES2437659-005	Anonymous	EA055: Moisture Content	----	0.1 (1.0)*	%	2.9	3.0	0.0	No Limit
ES2437734-004	Anonymous	EA055: Moisture Content	----	0.1 (1.0)*	%	8.3	8.6	2.7	No Limit
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 6203015)									
ES2437681-001	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit



Method Blank (MB) and Laboratory Control Sample (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **SOIL**

Sub-Matrix: SOIL				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike Concentration	Spike Recovery (%) LCS	Acceptable Limits (%) Low High	
Method: Compound	CAS Number	LOR	Unit	Result				
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 6203014)								
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	121.1 mg/kg	111	88.0	113
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	0.74 mg/kg	101	70.0	130
EG005T: Chromium	7440-47-3	2	mg/kg	<2	19.6 mg/kg	107	68.0	132
EG005T: Copper	7440-50-8	5	mg/kg	<5	52.9 mg/kg	101	89.0	111
EG005T: Lead	7439-92-1	5	mg/kg	<5	60.8 mg/kg	95.6	82.0	119
EG005T: Nickel	7440-02-0	2	mg/kg	<2	15.3 mg/kg	94.6	80.0	120
EG005T: Zinc	7440-66-6	5	mg/kg	<5	139.3 mg/kg	88.4	66.0	133
EG035T: Total Recoverable Mercury by FIMS (QCLot: 6203015)								
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	0.087 mg/kg	80.4	70.0	125

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **SOIL**

Sub-Matrix: SOIL				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 6203014)							
ES2437681-001	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	96.7	70.0	130
		EG005T: Cadmium	7440-43-9	50 mg/kg	105	70.0	130
		EG005T: Chromium	7440-47-3	50 mg/kg	99.3	68.0	132
		EG005T: Copper	7440-50-8	250 mg/kg	98.4	70.0	130
		EG005T: Lead	7439-92-1	250 mg/kg	101	70.0	130
		EG005T: Nickel	7440-02-0	50 mg/kg	97.0	70.0	130
		EG005T: Zinc	7440-66-6	250 mg/kg	97.0	66.0	133
EG035T: Total Recoverable Mercury by FIMS (QCLot: 6203015)							
ES2437681-001	Anonymous	EG035T: Mercury	7439-97-6	5 mg/kg	84.5	70.0	130



QA/QC Compliance Assessment to assist with Quality Review

Work Order	: ES2437683	Page	: 1 of 4
Client	: ALLIANCE GEOTECHNICAL	Laboratory	: Environmental Division Sydney
Contact	: Jason Roesler	Telephone	: +61-2-8784 8555
Project	: 18587 Canterbury Ice Skating Rink	Date Samples Received	: 19-Nov-2024
Site	: ----	Issue Date	: 25-Nov-2024
Sampler	: D. Hilton	No. of samples received	: 1
Order number	: ----	No. of samples analysed	: 1

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO** Method Blank value outliers occur.
- **NO** Duplicate outliers occur.
- **NO** Laboratory Control outliers occur.
- **NO** Matrix Spike outliers occur.
- For all regular sample matrices, where applicable to the methodology, **NO** surrogate recovery outliers occur.

Outliers : Analysis Holding Time Compliance

- **NO** Analysis Holding Time Outliers exist.

Outliers : Frequency of Quality Control Samples

- **NO** Quality Control Sample Frequency Outliers exist.



Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for VOC in soils vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **SOIL**

Evaluation: ✖ = Holding time breach ; ✔ = Within holding time.

Method	Sample Date	Extraction / Preparation			Analysis		
Container / Client Sample ID(s)		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA055: Moisture Content (Dried @ 105-110°C)							
Soil Glass Jar - Unpreserved (EA055) Trip01	18-Nov-2024	----	----	----	21-Nov-2024	02-Dec-2024	✔
EG005(ED093)T: Total Metals by ICP-AES							
Soil Glass Jar - Unpreserved (EG005T) Trip01	18-Nov-2024	21-Nov-2024	17-May-2025	✔	22-Nov-2024	17-May-2025	✔
EG035T: Total Recoverable Mercury by FIMS							
Soil Glass Jar - Unpreserved (EG035T) Trip01	18-Nov-2024	21-Nov-2024	16-Dec-2024	✔	23-Nov-2024	16-Dec-2024	✔



Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL**

Evaluation: ✖ = Quality Control frequency not within specification ; ✔ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	Method	QC	Regular	Actual	Expected	Evaluation	
Laboratory Duplicates (DUP)							
Moisture Content	EA055	2	11	18.18	10.00	✔	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	10	10.00	10.00	✔	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	2	11	18.18	10.00	✔	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Total Mercury by FIMS	EG035T	1	10	10.00	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	11	9.09	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Total Mercury by FIMS	EG035T	1	10	10.00	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	11	9.09	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Total Mercury by FIMS	EG035T	1	10	10.00	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	11	9.09	5.00	✔	NEPM 2013 B3 & ALS QC Standard



Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Moisture Content	EA055	SOIL	In house: A gravimetric procedure based on weight loss over a 12 hour drying period at 105-110 degrees C. This method is compliant with NEPM Schedule B(3).
Total Metals by ICP-AES	EG005T	SOIL	In house: Referenced to APHA 3120; USEPA SW 846 - 6010. Metals are determined following an appropriate acid digestion of the soil. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM Schedule B(3)
Total Mercury by FIMS	EG035T	SOIL	In house: Referenced to APHA 3112 Hg - B (Flow-injection (SnCl ₂) (Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. Mercury in solids are determined following an appropriate acid digestion. Ionic mercury is reduced online to atomic mercury vapour by SnCl ₂ which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM Schedule B(3)
Preparation Methods	Method	Matrix	Method Descriptions
Hot Block Digest for metals in soils sediments and sludges	EN69	SOIL	In house: Referenced to USEPA 200.2. Hot Block Acid Digestion 1.0g of sample is heated with Nitric and Hydrochloric acids, then cooled. Peroxide is added and samples heated and cooled again before being filtered and bulked to volume for analysis. Digest is appropriate for determination of selected metals in sludge, sediments, and soils. This method is compliant with NEPM Schedule B(3).



Unit F3 Bld F, 16 Mars Rd, Lane Cove West, NSW 2008
02 9900 8400 EnviroSampleNSW@eolins.com

Unit 1, 21 Smallwood Pl., Murarie, QLD 4172
07 3902 4600 EnviroSampleQLD@chemofix.com

2 Kingston Town Close, Oakleigh, VIC 3166
03 8564 5000 EnviroSampleVic@neurofins.com

**Please
analyse pHF /
pHFOX Field
Screens on a
24 hr TAT**

ES2437683



Telephone : + 61-2-8784 8555

Recs ~~the~~
1911/12
1915

1161470



CHAIN OF CUSTODY

AS 156 955 025 521

☒ Sydney Laboratory

Unit F3 BM F, 19 Mars Rd, Lane Cove West, NSW 2066
02 9900 6400 EnviroSampleNSW@eurofins.com

☐ Brisbane Laboratory

Unit 1, 21 Serrillwood Pl, Mirame, QLD 4172
07 3592 4600 EnviroSampleQLD@eurofins.com

☐

☐ Melbourne Laboratory

2 Kingston Town Close, Oakleigh, VIC 3166
03 8564 5000 EnviroSampleVic@eurofins.com

Company	ALLIANCE GEOTECHNICAL		Project No	18587		Project Manager	J. Roesler		Sample(s)	D. Hilton								
Address	10 WELDER ROAD, SEVEN HILLS NSW		Project Name	Canterbury Ice Skating Rink		EDD Format (Esdat, EQUIS, Custom)	Esdat		Handed over by	D. Hilton								
Contact Name	Jason		Analyses	WAC Suite 2	pH / pHFOX Field Screen	Metals (8)	BTEXNTRH C6-C10	HOLD	Email for Invoice	jason@allgeo.com.au								
Phone No	404043610								Email for Results	jason@allgeo.com.au daniel@allgeo.com.au								
Special Directions									Containers	Turnaround Time (TAT) Requirements (indicate in 3 day increments)								
Purchase Order									200mL Plastic (200mL HDPE)	☐ Overnight (9am)* ☐ 1 Day* ☐ 2 Day* ☐ 3 Day* ☐ 5 Day* ☐ Other ()								
Quote ID No			200mL Amber Glass	200mL Amber Glass		200mL Amber Glass		200mL Amber Glass		200mL Amber Glass								
No	Client Sample ID	Sampled Date/Time (dd/mm/yy hh:mm)	Matrix (Solid (S) Water (W))							Sample Comments / Dangerous Goods Hazard Warning								
1	BH06-0.5-0.6	18/11/24	S	X						X	X							
2	BH06-0.8-0.9	18/11/24	S				X			X	X							
3	BH07-0.0-0.1	18/11/24	S	X						X	X							
4	BH07-0.5-0.6	18/11/24	S	X						X	X							
5	BH07-0.8-0.9	18/11/24	S				X			X	X							
6	BH08-0.0-0.1	18/11/24	S	X	X					X	X							
7	BH08-0.5-0.6	18/11/24	S	X	X					X	X							
8	BH08-0.8-0.9	18/11/24	S				X			X	X							
9	BH08-1.0-1.1	18/11/24	S		X					X								
10	BH08-1.5-1.6	18/11/24	S		X					X								
11	BH08-1.9-2.0	18/11/24	S		X					X								
12	Dup01	18/11/24	S		X					X								
13	Trip01	18/11/24	S	Please forward Trip01 to ALS for Metals (8) analysis								X						
14	Dup02	18/11/24	S				X			X								
15	Trip02	18/11/24	S				X			X								
16	rinsate-01	18/11/24	S				X											
17	trip spike / blank	18/11/24	S			X				X								
18																		
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26																		
27																		
28																		
29																		
30																		
Total Counts			6	5	1	1	6			1	1	5	12	8				
Method of Shipment	☒ Courier (fr)) ☐ Hand Delivered		☐ Postal		Name		D Hilton		DH		Date		18/11/2024		Time			
Eurofins mgt	Received By		SYD BNE MEL PER ADE NTL DRW		Signature		Date		Time		Temperature							
Laboratory Use	Only		Received By		SYD BNE MEL PER ADE NTL DRW		Signature		Date		Time		Recovery					

Submission of samples to the laboratory will be deemed as acceptance of Eurofins | mgt Standard Terms and Conditions unless agreed otherwise. A copy of Eurofins | mgt Standard Terms and Conditions is available on request.
Eurofins Environment Testing Australia Pty Ltd trading as Eurofins | mgt

Rec: [Signature]
19/11/24
1415.



CHAIN OF CUSTODY RECORD

ASET JOB NO: ASET123671/1268SI/1-12					Contact Name: Samuel Willis		Asbestos in Material	Asbestos in Soil (+/-)	Asbestos WA/ NEPM 500ml	Asbestos Fibre Count	Asbestos in Water	Asbestos in Dust	HOLD
Company Address: Alliance Geotechnical					Job No: 18587								
3 Welder Road					Project Name: Phillips Avenue								
Seven Hills NSW 2147					Purchase Order: 18587								
Contact Ph: Sam Jones 0430214402					Email Results to: enviro@allgeo.com.au, samuelwillis@allgeo.com.au, & samjones@allgeo.com.au								
	Sample ID	Date	Type	Container	Sample Location								
1	TP01 0.0-1.0	6/01/25	Soil	500ml bag				X					
2	TP02 0.0-0.6	6/01/25	Soil	500ml bag				X					
3	TP03 0.0-0.2	6/01/25	Soil	500ml bag				X					
4	TP03 0.2-0.6	6/01/25	Soil	500ml bag				X					
5	TP04 0.0-0.2	6/01/25	Soil	500ml bag				X					
6	TP04 0.2-0.6	6/01/25	Soil	500ml bag				X					
7	TP05 0.0-0.5	6/01/25	Soil	500ml bag				X					
8	TP05 0.5-1.0	6/01/25	Soil	500ml bag				X					
9	TP06 0.0-0.5	6/01/25	Soil	500ml bag				X					
10	TP06 0.5-1.0	6/01/25	Soil	500ml bag				X					X
11	TP07 0.0-0.1	6/01/25	Soil	500ml bag				X					
12	TP07 0.1-0.7	6/01/25	Soil	500ml bag				X					
13	TP08 0.0-0.1	6/01/25	Soil	500ml bag				X					
14	TP08 0.1-0.7	6/01/25	Soil	500ml bag				X					
15													
16													
17													
18													
19													
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21													
22													
23													
24													
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28													
29													
30													
31													
Relinquished By: Samuel Willis					Received By: SP		Turn around time				Shipment Method		
7/01/2025					Date & Time: 2:26 PM 07/01/24		Same Day	24 hrs	48 hrs	3 Days	5 days	Courier	
Signature:					Signature: [Signature]		X						

URGENT

RECEIVED
07 JAN 2025
BY: SP



AUSTRALIAN SAFER ENVIRONMENT & TECHNOLOGY PTY LTD

ABN 36 088 095 112

Our ref : ASET123671 / 126851 / 1 - 12
Your ref : 18587 – Phillips Avenue
NATA Accreditation No: 14484

08 January 2025

Alliance Geotechnical
10 Welder Road
Seven Hills NSW 2147



Accredited for compliance with ISO/IEC 17025 - Testing.

Attn: Mr Samuel Willis

Dear Samuel

Asbestos Identification

This report presents the results of twelve samples, forwarded by Alliance Geotechnical on 07 January 2025, for analysis for asbestos.

1.Introduction:Twelve samples forwarded were examined and analysed for the presence of asbestos on 08 January 2025.

2. Methods : The samples were examined under a Stereo Microscope and selected fibres were analysed by Polarized Light Microscopy in conjunction with Dispersion Staining method **(Australian Standard AS 4964 - 2004 and Safer Environment Method 1 as the supplementary work instruction) (Qualitative Analysis only).**

The report also provides approximate weights and percentages, categories of asbestos forms appearing in the sample, such as **AF**(Asbestos Fines), **FA**(Friable Asbestos) and **ACM** (Asbestos Containing Material), also satisfying the requirements of the NEPM Guidelines).

3. Results : **Sample No. 1. ASET123671 / 126851 / 1. TP01 0.0 - 1.0.**
Approx dimensions 10.0 cm x 10.0 cm x 7.4 cm
Approximate total dry weight of soil = 822.0g.
The sample consisted of a mixture of sandy soil, stone, sandstone, fragments of soft plaster material, glass pieces, plant matter, animal matter and organic fibres.
No asbestos detected.

Sample No. 2. ASET123671 / 126851 / 2. TP02 0.0 - 0.6.
Approx dimensions 10.0 cm x 10.0 cm x 7.7 cm
Approximate total dry weight of soil = 848.0g.
The sample consisted of a mixture of sandy soil, stone, sandstone, plant matter and organic fibres.
No asbestos detected.

Sample No. 3. ASET123671 / 126851 / 3. TP03 0.0 - 0.2.
Approx dimensions 10.0 cm x 10.0 cm x 8.9 cm
The sample consisted of a mixture of sandy soil, stone, sandstone, glass pieces, a piece of rubber-like material, a fragment of fibre cement# (AF), plant matter and organic fibres.
Chrysotile# asbestos (Approximate estimated weight = 0.025g) detected.
Approximate total dry weight of soil = 976.0g.
Approximate estimated weight of asbestos in soil in the form of AF = 0.025g.
Approximate w/w percentage of asbestos in soil in the form of AF = 0.003%.

SUITE 710 / 90 GEORGE STREET, HORNSBY NSW 2077 – P.O. BOX 1644 HORNSBY WESTFIELD NSW 1635
PHONE: (02) 99872183 FAX: (02)99872151 EMAIL: info@ausset.com.au WEBSITE: www.Ausset.com.au

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Sample No. 4. ASET123671 / 126851 / 4. TP03 0.2 - 0.6.

Approx dimensions 10.0 cm x 10.0 cm x 8.1 cm

Approximate total dry weight of soil = 901.0g.

The sample consisted of a mixture of sandy soil, stone, sandstone, metal, plant matter and organic fibres.

No asbestos detected.

Sample No. 5. ASET123671 / 126851 / 5. TP04 0.0 - 0.2.

Approx dimensions 10.0 cm x 10.0 cm x 6.9 cm

Approximate total dry weight of soil = 757.0g.

The sample consisted of a mixture of sandy soil, stone, sandstone, plant matter and organic fibres.

No asbestos detected.

Sample No. 6. ASET123671 / 126851 / 6. TP04 0.2 - 0.6.

Approx dimensions 10.0 cm x 10.0 cm x 8.4 cm

Approximate total dry weight of soil = 927.0g.

The sample consisted of a mixture of sandy soil, stone, sandstone, plant matter and organic fibres.

No asbestos detected.

Sample No. 7. ASET123671 / 126851 / 7. TP05 0.0 - 0.5.

Approx dimensions 10.0 cm x 10.0 cm x 8.2 cm

Approximate total dry weight of soil = 908.0g.

The sample consisted of a mixture of sandy soil, stone, sandstone, plant matter, animal matter and organic fibres.

No asbestos detected.

Sample No. 8. ASET123671 / 126851 / 8. TP06 0.0 - 0.5.

Approx dimensions 10.0 cm x 10.0 cm x 6.7 cm

Approximate total dry weight of soil = 742.0g.

The sample consisted of a mixture of sandy soil, stone, sandstone, plant matter and organic fibres.

No asbestos detected.

Sample No. 9. ASET123671 / 126851 / 9. TP07 0.0 - 0.1.

Approx dimensions 10.0 cm x 10.0 cm x 6.8 cm

Approximate total dry weight of soil = 748.0g.

The sample consisted of a mixture of sandy soil, stone, sandstone, glass pieces, plant matter and organic fibres.

No asbestos detected.

Sample No. 10. ASET123671 / 126851 / 10. TP07 0.1 - 0.7.

Approx dimensions 10.0 cm x 10.0 cm x 8.1 cm

Approximate total dry weight of soil = 901.0g.

The sample consisted of a mixture of sandy soil, stone, sandstone, plant matter and organic fibres.

No asbestos detected.



Sample No. 11. ASET123671 / 126851 / 11. TP08 0.0 - 0.1.

Approx dimensions 10.0 cm x 10.0 cm x 8.4 cm

Approximate total dry weight of soil = 932.0g.

The sample consisted of a mixture of sandy soil, stone, sandstone, plant matter, animal matter and organic fibres.

No asbestos detected.

Sample No. 12. ASET123671 / 126851 / 12. TP08 0.1 - 0.7.

Approx dimensions 10.0 cm x 10.0 cm x 7.2 cm

Approximate total dry weight of soil = 802.0g.

The sample consisted of a mixture of sandy soil, stone, sandstone, plant matter and organic fibres.

No asbestos detected.

Reported by,

A handwritten signature in black ink, appearing to read "Mahen De Silva", is written over a large, stylized, looped signature that also appears to be "Mahen De Silva".

Mahen De Silva. BSc, MSc, Grad Dip (Occ Hyg)
Occupational Hygienist / Approved Identifier.
Approved Signatory



Accredited for compliance with ISO/IEC 17025 - Testing.

This report is consistent with the analytical procedures and reporting recommendations in the Western Australia Guidelines for the Assessment Remediation and Management of Asbestos contaminated sites in Western Australia and it also satisfies the requirements of the current NEPM Guidelines. NATA Accreditation does not cover the performance of this service.

Disclaimers;

The approx; weights given above can be used only as a guide. They do not represent absolute weights of each kind of asbestos, as it is impossible to extract all loose fibres from soil and other asbestos containing building material samples using this method. However above figures may be used as closest approximations to the exact values in each case. Estimation and/ or reporting of asbestos fibre weights in asbestos containing materials and soil is out of the Scope of the NATA Accreditation. NATA Accreditation only covers the qualitative part of the results reported. This weight disclaimer also covers weight / weight percentages if given.

ACM - Asbestos Containing Material - Products or materials that contain asbestos in an inert bound matrix such as cement or resin. Here taken to be sound material, even as fragments and not fitting through a 7mm X 7 mm sieve.

AF -Includes asbestos free fibres, small fibre bundles and also ACM fragments that pass through a 7mm X 7 mm sieve.



FA -Friable asbestos material such as severely weathered ACM, and asbestos in the form of loose fibrous material such as insulation products.

^ denotes loose fibres of relevant asbestos types detected in soil/dust.

*** denotes asbestos detected in ACM in bonded form.**

denotes friable asbestos as soft fibro plaster, fragments of ACM smaller than 7mm which are considered as friable and / or highly weathered ACM that will easily crumble.

λ denotes samples that have been analysed only in accordance to AS 4964 – 2004.

Ω Sample volume criteria of 500mL have not been satisfied.

The results contained in this report relate only to the sample/s submitted for testing. Australian Safer Environment & Technology accepts no responsibility for whether or not the submitted sample/s is/are representative. Results indicating "No asbestos detected" indicates a reporting limit specified in AS4964 -2004 which is 0.1g/ Kg (0.01%). Any amounts detected at assumed lower level than that would be reported, however those assumed lower levels may be treated as "No asbestos detected" as specified and recommended by AS4964-2004. Trace / respirable level asbestos will be reported only when detected and trace analysis have been performed on each sample as required by AS4964-2004. When loose asbestos fibres/ fibre bundles are detected and reported that means they are larger handpicked fibres/ fibre bundles, and they do not represent respirable fibres. Dust/soil samples are always subjected to trace analysis except where the amounts involved are extremely minute and trace analysis is not possible to be carried out. When trace analysis is not performed on dust samples it will be indicated in the report that trace analysis has not been carried out due to the volume of the sample being extremely minute.

Estimation of asbestos weights involves the use of following assumptions;

Volume of each kind of Asbestos present in broken edges have been visually estimated and its been assumed that volumes remain similar throughout the binding matrix and those volumes are only approximate and not exact. Material densities have been assumed to be similar to commonly found similar materials and may not be exact.

All samples indicating "No asbestos detected" are assumed to be less than 0.001% for friable AF and FA portions detected and 0.01 % for ACM detected unless the approximate weight is given.

APPENDIX G – Data Quality Indicator (DQI) Assessment

Completeness DQI			
<i>Field Considerations</i>	<i>Target Criterion</i>	<i>Result</i>	<i>Pass / Fail / Comment</i>
Experienced sampling team used	Yes	Yes	Pass
Sampling devices and equipment set out in sampling plan were used (refer Section 6.7).	Yes	No	Comment – push tub refusal occurred at borehole locations BH02, BH04 and BH08, at which point drilling was advanced with a solid flight auger to the depth of investigation. Push Tube equipment and Solid flight augers were decontaminated between drilling locations and sampling was undertaken using industry accepted procedures with each sample collected using a fresh pair of nitrile gloves. Risk of cross contamination is considered low to negligible. Performance against this DQI is considered adequate.
Critical locations in sampling plan, sampled (refer Section 6.7).	Yes	No	Comment – the target depth for BH01 (Lift well) was not achieved due to refusal at 1mbgl. The ASS sampling was relocated to BH02 immediately adjacent to BH01. The lithology observed was consistent across these areas, and therefore considered representative. Performance against this DQI is considered adequate.
Critical samples in sampling plan, collected (refer Section 6.7).	Yes	Yes	Pass

Completed field and calibration logs attached	Yes	No	Comment – A PID was not used during Alliance (2024b) fieldwork. On the basis of the following: - Concentrations of BTEX being below the LOR; - Chlorinated hydrocarbons and other solvent based contaminants of potential concern not being identified for the site; and - No visual or olfactory evidence of hydrocarbon contamination being observed; It is considered that the potential for ionisable volatile organic compounds (VOC) to be present in the samples would be generally low by adopting a lines of evidence weighted approach. Performance against this DQI is considered adequate.
Completed chain of custody attached	Yes	Yes	Pass
<i>Laboratory</i>	<i>Target Criterion</i>	<i>Result</i>	<i>Pass / Fail / Comment</i>
Complete sample receipt advice and chain of custody attached	Yes	Yes	Pass
Critical samples identified in sampling plan, analysed	Yes	Yes	Pass
Analysis undertaken addresses COPC in sampling plan (refer Section 6.7)	Yes	Yes	Pass
Analytical methods reported in laboratory documentation and appropriate limit of reporting used	Yes	No	Comment – the analytical laboratory advised that the limit of reporting (LOR) for Organochlorine Pesticides and Polychlorinated Biphenyls in multiple soil samples was raised due to matrix interference. However, the raised LOR was less than the screening criteria adopted for Organochlorine Pesticides and Polychlorinated Biphenyls in soils. Performance against this DQI is considered adequate.
Sample holding times met (refer Section 6.7)	Yes	Yes	Pass

Comparability			
<i>Field Considerations</i>	<i>Target Criterion</i>	<i>Result</i>	<i>Pass / Fail / Comment</i>
Same sampling team used for all work.	Yes	No	Comment – Consultants who carried out each phase of fieldwork are suitably experienced. Performance against this DQI is considered adequate
Weather conditions suitable for sampling.	Yes	Yes	Pass
Same sample types collected and preserved in same way (refer Section 6.7).	Yes	Yes	Pass
Relevant samples stored in insulated containers and chilled (refer Section 6.7).	Yes	Yes	Pass
<i>Laboratory Considerations</i>	<i>Target Criterion</i>	<i>Result</i>	<i>Pass / Fail / Comment</i>
Same laboratory used for all analysis (refer Section 6.7).	Yes	No	Comment – Different laboratory used for asbestos analysis. Laboratory is NATA accredited. Performance against this DQI is considered adequate.
Comparable methods if different laboratories used Refer Section 6.7).	Yes	Yes	Pass
Comparable limits of reporting if different laboratories used.	Yes	Yes	Pass
Comparable units of measure if different laboratories have been used (refer Section 6.7).	Yes	Yes	Pass
Representativeness			
<i>Field Considerations</i>	<i>Target Criterion</i>	<i>Result</i>	<i>Pass / Fail / Comment</i>
Media identified in sampling plan, sampled (refer Section 6.7).	Yes	Yes	Pass
Samples required by sampling plan, collected (refer Section 6.7).	Yes	Yes	Pass
<i>Laboratory Considerations</i>	<i>Target Criterion</i>	<i>Result</i>	<i>Pass / Fail / Comment</i>
Samples identified in sampling plan, analysed.	Yes	Yes	Pass

Precision			
<i>Field Considerations</i>	<i>Target Criterion</i>	<i>Result</i>	<i>Pass / Fail / Comment</i>
Minimum 5% duplicates and triplicates collected and analysed (refer Section 6.5).	Yes	Yes	Pass
RPD unlimited where detected concentrations are <10 times the limit of reporting.	Yes	Yes	Pass
RPD within 50% where detected concentrations are 10-20 times the limit of reporting.	Yes	Yes	Pass
RPD within 30% where detected concentrations are >20 times the limit of reporting.	Yes	Yes	Pass
<i>Laboratory Considerations</i>	<i>Target Criterion</i>	<i>Result</i>	<i>Pass / Fail / Comment</i>
All laboratory duplicate RPDs within laboratory acceptance criteria (refer Section 6.5).	Yes	No	Comment – Four (4) sample analytes (arsenic, copper (x2), and mercury) recorded exceedances above the laboratories RPD acceptance criteria. The RPD reported passes Eurofins Environment Testing's QC – Acceptance Criteria. Performance against this DQI is considered adequate.
Bias (Accuracy)			
<i>Field Considerations</i>	<i>Target Criterion</i>	<i>Result</i>	<i>Pass / Fail / Comment</i>
Trip blank analyte results less than limit of reporting (refer Section 6.5).	Yes	Yes	Pass
Trip spike analyte results less between 60% and 140% (refer Section 6.5).	Yes	Yes	Pass
Rinsate blank analyte results less than limit of reporting (refer Section 6.5).	Yes	No	Comment – A rinsate blank was collected and placed on hold with the analytical laboratory. Hand augers, push tube equipment and solid flight augers were decontaminated between sampling locations, and samples collected using a fresh pair of nitrile gloves for each sample from soils not in contact with stem or flights, and after scraping away smear soils on outside of extracted materials. Risk of cross contamination during sampling is considered to be negligible. Performance against this DQI is considered adequate.

<i>Laboratory Considerations</i>	<i>Target Criterion</i>	<i>Result</i>	<i>Pass / Fail / Comment</i>
Laboratory method blank results within laboratory acceptance limits (refer Section 6.5).	Yes	Yes	Pass
Laboratory control sample results within laboratory acceptance limits (refer Section 6.5).	Yes	Yes	Pass
Laboratory spike sample results within laboratory acceptance limits.	Yes	Yes	Pass

