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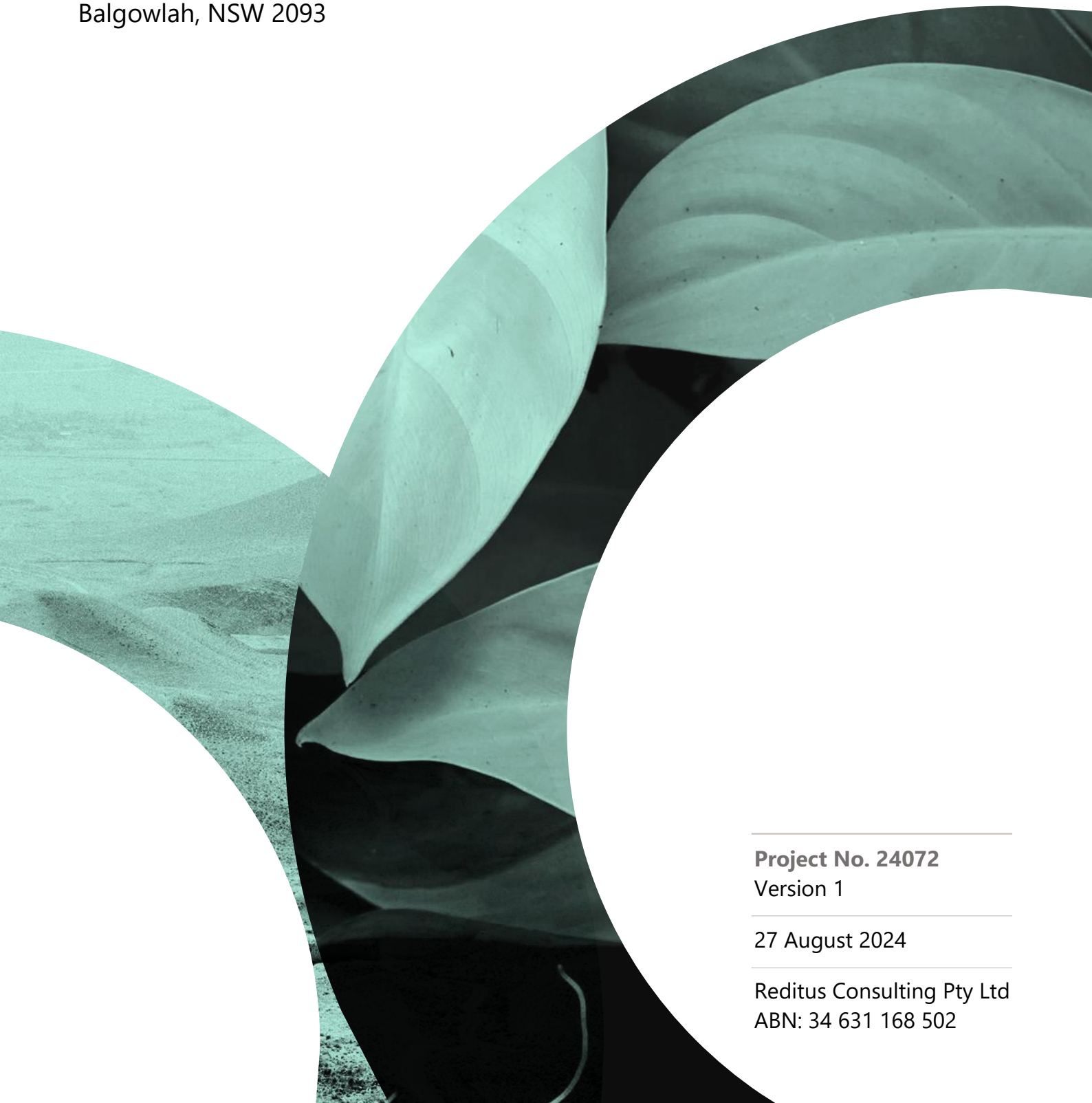
Detailed Site Investigation

37 Roseberry Street
Balgowlah, NSW 2093



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27 August 2024

Reditus Consulting Pty Ltd
ABN: 34 631 168 502

Detailed Site Investigation

37 Roseberry Street, Balgowlah NSW 2093

DOCUMENT CONTROL

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Table of Contents

List of Tables

Appendices

Abbreviations

TERM	DEFINITION
° C	Degrees Celsius
ACM	Asbestos Containing Material
AEC	Area of Environmental Concern
AF/FA	Asbestos Fines / Fibrous Asbestos
AFFF	Aqueous Film Forming Foam
AHD	Australian Height Datum
ASC	Assessment of Site Contamination
BGL	Below Ground Level
BTEX	Benzene Toluene Ethylbenzene Xylene
BTOC	Below Top of Casing
C&D	Construction and Demolition
CEC	Cation Exchange Capacity
COC	Chain of Custody
COPC	Contaminants of Potential Concern
CSM	Conceptual Site Model
DO	Dissolved Oxygen
DQO	Data Quality Objective
EI	Environmental Investigation
EIL	Ecological Investigation Level
EPA	Environment Protection Authority
ESG	Environmental Services Group
ESL	Ecological Screening Level
GDE	Groundwater Dependant Ecosystem
HIL	Health Investigation Level
HSL	Health Screening Level
IBC	Intermediate Bulk Container
LGA	Local Government Area
LIR	Land Insight and Resources
LOR	Limit-Of-Reporting
ML	Management Limits

TERM	DEFINITION
NATA	National Association of Testing Authorities
NEPC	National Environment Protection Council
NEPM	National Environment Protection Measure (2013)
NPI	National Pollutant Inventory
NSW	New South Wales
PAH	Polycyclic Aromatic Hydrocarbons
OC	Organic Carbon
OCP	Organochloride Pesticides
OPP	Organophosphorus Pesticides
PACM	Potentially Asbestos Containing Material
PCB	Polychlorinated Biphenyls
PD NSW	Property Development New South Wales
PFAS	Per- and polyfluoroalkyl Substances
PID	Photoionisation Detector
PPM	Parts Per Million
PQL	Practical Quantification Limit
QA/QC	Quality Assurance / Quality Control
RAP	Remedial Action Plan
RPD	Relative Percentage Difference
SAC	Soil Assessment Criteria
SD	Standard Deviation
SDS	Safety Data Sheet
SWL	Standing Water Level
TOC	Top-of-Casing
TPH	Total Petroleum hydrocarbons
TRH	Total Recoverable Hydrocarbons
UPSS	Underground Petroleum Storage Systems
USCS	Unified Soil Classification System
UST	Underground Storage Tank
VOC	Volatile Organic Compounds

Executive Summary

Reditus Consulting Pty Ltd (Reditus) was engaged by McDonald's Australia Limited (McDonald's) to prepare a Detailed Site Investigation (DSI) at 37 Roseberry Street, Balgowlah NSW 2093 (the site).

The site has an area of approximately 2,807 m^2 and is currently occupied by commercial coffee roaster and café. The site is zoned as E3 Productivity Support within the Northern Beaches Council Local Government Area. The site is proposed to be developed into a McDonald's restaurant with slab on grade construction, associated carparking, ancillary services and minor landscaping.

A Preliminary Site Investigation (PSI) was completed at the Site in August 2024 (Reditus; ref: 24072RP01). The following key items were identified at the site and surrounding area:

- The site history review recognised the site as being used for industrial processes including a painting, panel beaters and car wreckers prior to being used for coffee roasting since circa 2006.
- The adjacent properties at 33 Roseberry Street (south of site) and 210-212 Condamine Street (west of site) were formerly used for light industrial, manufacturing and printing purposes. Namely chemical manufacturers, lithographic printers, letterpress printers, and screen printers. Volatile organic compounds (VOCs), heavy metals, inorganic substances and Per- and poly-fluorinated substances (PFAS) containing chemicals are used in these processes. The potential exists for these chemicals to enter groundwater through neighbouring properties and mitigate beneath the Site.
- The site is within a **Class 4** acid sulfate soil area which implies acid sulfate soils are likely to be found beyond 2 metres below the natural ground surface. Acid sulfate soils pose a risk to the environment if disturbed (exposed to the atmosphere) and allowed to oxidise.

As such, the PSI recommended the preparation of a DSI to further characterise the contamination status of the site. This DSI report has been prepared to satisfy that recommendation, and to comply with Chapter 4 – Remediation of Land of the State Environmental Planning Policy (Resilience and Hazards) 2021 requirements.

The objectives of the DSI were to:

- Refine the Site's conceptual site model (CSM).
- Assess the nature and extent of potential contamination in the identified areas of environmental concern.
- Assess whether any identified contamination presents an unacceptable risk to identified receptors in the context of the proposed development and commercial/industrial land use scenario.
- Provide advice on whether the land is suitable for the proposed commercial/industrial light warehousing development.
- Provide recommendations for additional assessment, management and/or remediation (if required).

The objectives of this investigation were achieved by completing the following scope of work:

- A review of previous reports.
- An intrusive soil, groundwater and soil vapour assessment including the drilling of eight soil borings, installation of three groundwater monitoring wells and collection of soil, ground and soil vapour samples.

Based on a review of the site history, observations made during fieldwork, results of laboratory analysis and the proposed land use (commercial/industrial), Reditus concludes the following:

- Fill material was identified at thicknesses of between 2.25 m and 4.2 m during the intrusive investigation and was observed to be predominately gravelly sand, silty to gravelly sand, sand and silty sand. No anthropogenic inclusions were observed.
- Groundwater is inferred to flow in a southeast direction conforming with local topography towards the Pacific Ocean located approximately 1.8 km east of the site.
- Concentrations of contaminants of potential concern (CoPC) in soil were reported below the adopted assessment criteria in all samples submitted for analysis with the exception of one (1) minor exceedance of the ecological criteria for zinc within shallow soils at BH03, located within the centre of the site. The exceedance appears to be

isolated to the shallow fill material around BH03 and is not considered to affect the suitability of the site for the proposed development.

- Concentrations of CoPC in groundwater were reported below the adopted assessment criteria except for PFOS and zinc.
  - Concentrations of zinc exceeding the adopted groundwater assessment criteria were reported within all monitoring well locations. The reported concentrations of zinc were within one order of magnitude of the adopted assessment criteria and are considered to be indicative of groundwater in a regional commercial/industrial setting.
  - PFOS concentrations exceeded the adopted groundwater assessment criteria within all monitoring well locations. The reported concentrations are marginally above the laboratory LOR and given there are no onsite ecological receptors and no groundwater extraction is occurring onsite, the concentrations of PFOS are not considered to affect the suitability of the site for the proposed development. It is also noted that the reported concentrations of PFOS were identical across the site, indicating that the site is having no net contribution of PFAS to groundwater and the source is likely located upgradient and offsite. Based on the above, no further investigation is warranted.
- Concentrations of CoPC in soil vapour were reported below the adopted assessment criteria in all samples submitted for analysis.

Based on the above, Reditus considers that the site is suitable for the proposed commercial/industrial development.

Based on the conclusions of the report, Reditus makes the following recommendations for the site:

- Completion of a pre-demolition hazardous materials (HAZMAT) survey of buildings constructed prior to 2004 in accordance with Australian Standard AS2601-2001 Demolition of Structures. There is a high potential for hazardous building materials to be detected within the site structures. When hazardous materials are identified, they should be removed prior to demolition of structures in accordance with the NSW WHS Act, Chapter 8 of the WHS Regulation and SafeWork NSW Codes of Practice including the preparation of an Asbestos Management Plan to inform the removal of asbestos containing building materials in accordance with SafeWork NSW requirements including clearance certificates provided by a SafeWork NSW Licensed Asbestos Assessor or "Competent Person" as defined by the Code of Practice.
- An Acid Sulfate Soils Management Plan is required by Council for works in Class 4 Acid Sulfate Soils risk areas where a development is likely to lower the water table by more than 2m or for works (e.g. piling) extending more than 2m below the natural ground surface. If the proposed development is expected to disturb potential acid sulfate soils or if dewatering is proposed, an Acid Sulfate Soils Management plan (ASSMP) will be required.

This report should be read in its entirety and in conjunction with the limitations in **Section 14**.

1 Introduction

1.1 Background

Reditus Consulting Pty Ltd (Reditus) was engaged by McDonald's Australia Limited (McDonald's) to prepare a Detailed Site Investigation (DSI) for the site located at 37 Roseberry Street, Balgowlah NSW 2093 (the site). The location and layout of the site is presented in **Figure 1** and **Figure 2, Appendix A**, respectively.

The site has an area of approximately 2,807 m^2 and is currently occupied by commercial coffee roaster and café. The site is zoned as E3 Productivity Support within the Northern Beaches Council Local Government Area. The site is proposed to be developed into a McDonald's restaurant with slab on grade construction, associated carparking, ancillary services and minor landscaping.

A Preliminary Site Investigation (PSI) was completed at the Site in August 2024 (Reditus; ref: 24072RP01), identified the following:

- The site history review recognised the site as being used for industrial processes including a painting, panel beaters and car wreckers prior to being used for coffee roasting since circa 2006.
- The adjacent properties at 33 Roseberry Street (south of site) and 210-212 Condamine Street (west of site) were formerly used for light industrial, manufacturing and printing purposes. Namely chemical manufacturers, lithographic printers, letterpress printers, and screen printers. Volatile organic compounds (VOCs), heavy metals, inorganic substances and Per- and poly-fluorinated substances (PFAS) containing chemicals are used in these processes. The potential exists for these chemicals to enter groundwater through neighbouring properties and mitigate beneath the Site.
- The site is within a **Class 4** acid sulfate soil area which implies acid sulfate soils are likely to be found beyond 2 metres below the natural ground surface. Acid sulfate soils pose a risk to the environment if disturbed (exposed to the atmosphere) and allowed to oxidise.

As such, the PSI recommended the preparation of a DSI to further characterise the contamination status of the site. This DSI report has been prepared to satisfy that recommendation, and to comply with Chapter 4 – Remediation of Land of the State Environmental Planning Policy (Resilience and Hazards) 2021 requirements.

Reditus notes that this report, including its conclusions and recommendations, must be read in conjunction with the Statement of Limitations provided in **Section 14**.

1.2 Objectives

The primary objectives of the DSI were to:

- Refine the Site's conceptual site model (CSM).
- Assess the nature and extent of potential contamination in the identified areas of environmental concern.
- Assess whether any identified contamination presents an unacceptable risk to identified receptors in the context of the proposed development and commercial/industrial land use scenario.
- Provide advice on whether the land is suitable for the proposed commercial/industrial light warehousing development.
- Provide recommendations for additional assessment, management and/or remediation (if required).

1.3 Scope of Works

To meet the objectives stated in **Section 1.2**, Reditus completed the following scope of works:

- Preparation and review of project preliminaries, including Work, Health and Safety (WHS) documentation and a review of Before You Dig Australia searches.

- Completion of an underground service utility clearance using an accredited underground service locator contractor.
- Concrete coring and drilling of eight (8) boreholes to a minimum depth of 4 m below ground level (m bgl). Three (3) boreholes were extended to a depth of approximately 2 m past the initial water strike and converted into groundwater monitoring wells. Each well was finished with a trafficable flush-mount gatic cover.
- Soil samples from each borehole were collected from near surface (0.1-0.3m bgl), 0.5m bgl, 1.0m bgl and every metre thereafter or where, changes in geology or at zones of gross contamination were observed.
- Each soil sample location was logged in general accordance with the Unified Soil Classification System (USCS) and screened in the field using a Photo-ionisation Detector (PID) to detect the potential presence of VOCs.
- Soil samples were submitted to a National Association of Testing Authorities (NATA) accredited laboratory under a completed Chain of Custody (COC) for analysis of the following Contaminants of Potential Concern (CoPC):
  - Total recoverable hydrocarbons (TRH).
  - Benzene, toluene, ethylbenzene and xylenes (BTEX).
  - Polycyclic aromatic hydrocarbons (PAH).
  - VOCs.
  - Eight (8) priority heavy metals, including arsenic (As), cadmium (Cd), chromium (Cr), copper (Cu), lead (Pb), mercury (Hg), nickel (Ni) and zinc (Zn).
  - Free Cyanide - selected samples.
  - PFAS – selected near surface/fill samples.
  - Organochlorine pesticides (OCP) – selected near surface samples.
  - Organophosphate pesticides (OPP) – selected near surface samples.
  - Polychlorinated biphenyls (PCB) – selected near surface samples.
  - Asbestos identification (ID) - selected near surface/fill samples.
- Conversion of three (3) soil bores to groundwater monitoring wells. Each newly installed groundwater monitoring well was developed using a stainless-steel bailer to remove sediments and ensure a satisfactory connection between the well screen and aquifer was achieved.
- Each of the groundwater monitoring wells were gauged with an interface probe to determine the presence of light and dense non aqueous phase liquids (LNAPL & DNAPL).
- Following gauging, each groundwater monitoring well was purged and sampled using low-flow groundwater sampling techniques and high-density polyethylene (HDPE) tubing. Samples were submitted to a NATA-accredited laboratory for analysis of the following CoPC:
  - TRH.
  - BTEX.
  - PAH.
  - Total Cyanide.
  - Ammonia.
  - Eight (8) priority heavy metals – dissolved.
  - PFAS (28 analytes).
- Each groundwater monitoring well was surveyed using a high accuracy RTK GPS rover to obtain spatial coordinates and top of well casing elevations (mAHD). This will enable derivation of groundwater elevation and inferred flow direction.
- Installation of four (4) sub-slab waterloo membrane samples (WMS) within the footprint of the proposed McDonald's building. WMS were submitted to a NATA accredited laboratory for analysis of TRH and priority VOCs.

- QA/QC analysis consisted of 1:20 duplicates and triplicates for the above analytes for soil and groundwater. A rinsate, field blank, trip blank and trip spike sample were also utilised during the soil and groundwater field components.
- Soil, groundwater and soil vapour analytical results were screened against the relevant NEPC (2013) ASC NEPM guideline criteria applicable to the site.
- Preparation of a DSI report (this document) detailing the findings of the investigation in general accordance with the NEPC (2013) ASC NEPM and NSW EPA (2020) Guidelines for Consultants Reporting on Contaminated Sites.

2 Site Identification

2.1 Site Details

The site identification details have been prepared in general accordance with the NSW EPA (2020) Consultants Reporting on Contaminated Land guidelines and the ASC NEPM (2013) Field Checklist for 'site Information'. The site identification information has been summarised in **Table 1** below.

Table 1. Site Identification

ITEM	DETAIL
Address	37 Roseberry Street, Balgowlah NSW 2093
Title and Land Information	Lot 100 DP1199949
Site Area	2,807 m^2 (0.28 hectares)
Local Government Area	Northern Beaches Council
Site Coordinates to the approximate centre of the Site (GDA2020 MGA Zone 56)	Easting: 339596 Northing: 6260119
Zoning	E3 Productivity Support as per the *Manly Local Environmental Plan 2013*
Current Land Use	Light industrial / warehousing Occupied by Seven Miles Coffee Roasters
Future Land Use	McDonald's restaurant, carparking and drive through service.
Trigger for Assessment	To inform the clients due diligence process and support a development application for the proposed McDonald's restaurant.
Surrounding Land Uses	The land uses currently surrounding the site include: • **North:** Kenneth Street and residential. • **South:** Commercial land use including a furniture warehouse and Woolworths. • **East:** Rosebury Street and Firmenich. • **West:** Bing Lee and Pittwater Road.
Site Location	**Figure 1**, **Appendix A**
Site Layout	**Figure 2**, **Appendix A**

2.2 Site Condition

A site inspection was conducted by Reditus' Principal Environmental Engineer Toby Scrivener on 17 May 2024. The following site description was recorded during the site visit:

- At the time of the site visit the property was an operational commercial coffee roaster and a café.
- Infrastructure at the site comprised:
  - A large warehouse on the northern side including the roasting area, storage and distribution, administration facilities and the café which was set in the northeast corner.
  - A free-standing cottage located in the southeast corner which was used as a showroom.
  - Three Colourbond sheds located along the western boundary which were used for storage.
  - Vehicle access was from a driveway onto Rosebury Street. The driveway was asphalt sealed and opened into an asphalt sealed open area that was used by vehicles loading and unloading into the warehouse and sheds, and for carparking.
  - Minor landscaping was present along the eastern boundary adjacent to the café and around the cottage.
- The site surface comprised asphalt hardstand in the southern portion (the open areas) and concrete hardstand in the northern portion (i.e. in the buildings).
- The hardstand surface was in good condition with minor cracking observed.
- A retaining wall approximately 1.5m high was located between the open area and the warehouse. Site representatives could not confirm if the raised level was due to filling or a concrete slab.
- There were no obvious signs of point source contamination such as fuel storage infrastructure, chemical storage, or fire suppression systems.

Site representatives provided the following anecdotal information regarding the site use and history:

- The site has been used as a coffee roaster for a long period of time, although the original date this activity began was not known.
- The site layout has not changed significantly over time.
- Asbestos sheeting is known to be present in the building fabric in the cottage and in the bathrooms of the warehouse.

Photographs from the site inspection are provided in **Appendix B**.

3 Site Setting and Surrounding Environment

A summary of the site setting and surrounding environment is provided in Error! Reference source not found. below, adopted from the PSI (Reditus, 2024).

Table 2. Site Setting and Surrounding Environment

ITEM	DETAIL
Topography	The site has an elevation of approximately 8 to 10 m Australian Height Datum (AHD). Local topography gently slopes in an east-southeast direction.
Hydrology	Surface water and stormwater runoff is expected to conform to regional topography and flow east towards the Pacific Ocean. Surface water on the site is expected to drain with the site gradient into the stormwater drains, discharging to Burnt Bridge Creek located approximate 64 m south of site.
Regional Geology	The 1:100,000 Sydney Geological Map indicates the site is underlain by following geological units: • **Alluvium** • Holocene aged • Silt, very fine- to medium-grained lithic to quartz rich sand, clay. • **Hawkesbury Sandstone** • Anisian aged • Medium- to coarse-grained quartz sandstone displaying small to large-scale, high-angle crossbedding; minor shale and laminite lenses.
Site Specific Geology	**Fill** • Fill material was encountered at depths between 0.1 – 4.2 mbgl and was comprised predominantly of gravelly sand, silty to gravelly sand, sand and silty sand. No anthropogenic material was observed. **Natural** • Natural material was encountered between 2.5 - 4.2 mbgl and comprised of clay and silty to sandy clay.
Soil Classification	A review of the NSW DPE Soil Landscapes map indicates that the site is situated within the Warriewood (SWwa) soil landscape. This soil landscape is described as: Landscape-level to gently undulating swales, depressions and infilled lagoons on Quaternary sands. Local relief <10 m, slopes <3%. Watertable at <2 m. Mostly cleared of native vegetation. Soils-deep (>150 cm), well sorted, sandy Humus Podzols (Uc2.32) and dark, mottled Siliceous Sands (Uc1.21), overlying buried Acid Peats (O) in depressions; deep (>200 cm) Podzols (Uc2.12, Uc2.32) and pale Siliceous Sands (Uc1.2) on sandy rises. Limitations-localised flooding and run-on, high water tables, highly permeable soil.

ITEM	DETAIL
Acid Sulfate Soils	**CSIRO Atlas of Australian Acid Sulfate Soils (ASRIS)** ASRIS identifies the site as having both "low probability of occurrence" and "extremely low probability of occurrence" areas for acid sulfate soil classification. **Manly Local Environmental Plan 2013** A review of the Manly Council acid sulfate soil risk map indicated that the site is located within an area of Class 4 Acid Sulfate soils, which is described as follows: • Class 4: acid sulfate soils are likely to be found beyond 2 metres below the natural ground surface. An Acid Sulfate Soils Management Plan is required by Council for works in Class 4 Acid Sulfate Soils risk areas where a development is likely to lower the water table by more than 2m or for works extending more than 2m below the natural ground surface.**NSW DPE Acid Sulfate Soils Risk** The NSW DPE Acid Sulfate Soils Risk map accessed via eSpade identified the site as being within an L4 Low probability >3 m below ground surface ASS area. Assessment is only required if the proposed development is expected to disturb potential acid sulfate soils. Based on Reditus's understanding of the proposed development, it is unlikely that the water table will be lowered by more than 2 m and there will be no excavation works extending more than 2 m.
Registered Groundwater Bore Search	A review of Bureau of Meteorology's Australian Groundwater Explorer indicated the presence of seventy (70) registered bores within a 2 km radius of the site. The bores are summarised as follows: • The closest bores are situated approximately 95 to 100 m to the northwest of the site. The group of 10 bores were installed for monitoring purposes and installed to final depths between 2.1 to 6.2 mbgl, which indicates groundwater in the local area is likely to be relatively shallow (less than 4 mbgl). • The closest bores listed as having an authorised purpose of water supply, household, irrigation or recreational use which are down hydraulic gradient (east-southeast of site) included: – Three (3) bores within the Manly Golf Course located approximately 648 to 737 m east of site. – One (1) household bore located approximately 845 m east of site. The closest Standing Water Level (SWL) measurement is 2.4m below ground level (bgl), located 416.6 m to the southwest of the site.
Regional Hydrogeology	A review of the Hydrogeology Map of Australia (Geoscience Australia) indicated the site is underlain by porous extensive aquifers of low to moderate productivity.
Inferred Groundwater Flow Direction	Based on surveyed measurements and interpolated groundwater elevation contours, groundwater is inferred to flow in a southeast direction. Groundwater elevation contours are presented in **Figure 3**, **Appendix A**.
Depth to Water Table	Standing water level (SWL) between 2.435 and 2.61 m below top of casing (bTOC) during the groundwater monitoring event, corresponding to between 5.29 and 5.523 mAHD within wells installed as part of this DSI.
Yield and Inferred Groundwater Quality	The registered groundwater bores reported yields between 0.5 to 4.5 L/s. Salinity was listed as "good" for a selected number of registered bores with available salinity information.

ITEM	DETAIL
Groundwater Dependant Ecosystems	There are no Groundwater Dependent Ecosystems (GDEs) on the site. The closest GDEs to site included: <u>Aquatic (surface)</u> • Moderate potential, 885.6 m east of site. • High potential, 1,291 m east of site. <u>Terrestrial (subsurface)</u> • Moderate potential, 421.6 m west of site. • High potential, 430.3 m west of site. Noting the terrestrial (subsurface) GDEs are up-hydraulic gradient and extremely unlikely to receive groundwater migrating from the site.
Groundwater Embargoes	No groundwater embargoes or Groundwater Protection Areas were identified onsite.
Sensitive Environments	The nearest sensitive environments are summarised as follows: • Local stormwater network. • Residential premises, 20 m north of the site. • Manly West Park, 115.5m southeast of the site. • Burnt Bridge Creek, 64 m south of the site. • Manly Creek, 780 m northeast of the site. • Manly Lagoon, 886.6 m east of the site. • Pacific Ocean, 1.8 km to east of the site. • Residential premises, 20 m north of the site.

4 Site History

4.1 Historical Aerial Photographs

A historical aerial imagery of the Site and surrounding areas review was completed as part of the PSI (Reditus, 2024) prepared for the site. The review is summarised as follows:

- The site was mostly vacant undeveloped land except for the cottage in the southeast corner before being developed for industrial purposes by 1961. The hardstand area was complete by 1971 and Colourbond sheds added by 2018. The site has otherwise remained in a similar configuration since being developed until present day.

Refer to the PSI (Reditus, 2024) for further information.

4.2 Title Deed Searches

A title deed search and review was completed as part of the PSI (Reditus, 2024) prepared for the site, which is summarised as below:

- **1898 to 1951**: Daniel Harris (Engineer).
- **1951 to 1953**: National Brush Company (Aust.) Limited.
- **1853 to 1981**: Hedley Ward Alderson (Engineer).
- **1981 to 2007**: Joyce Douglass Alderson (unknown).
- **2007 to 2021**: Seven Miles Coffee Roasters Pty Ltd (formerly Belaroma Coffee Pty Ltd).

Refer to the PSI (Reditus, 2024) for further information.

4.3 Planning Certificate

A section 10.7 planning certification was obtained and reviewed as part of the PSI (Reditus, 2024) prepared for the site. This certificate did not indicate any environmental planning constraints which may affect the outcome of the investigation applying to the site. Refer to the PSI (Reditus, 2024) for further information.

4.4 Previous Environmental Investigations

A summary of relevant information relating to previous investigations at the site is provided in **Table 3** below.

Table 3. Previous Environmental Investigations

ITEM	DETAIL
PRELIMINARY SITE INVESTIGATION (REDITUS, 2024)	
Document Information	Preliminary Site Investigation, 37 Roseberry Street, Balgowlah NSW 2093 (24072RP01_v1) Dated 6 June 2024
Prepared by	Reditus Consulting Pty Ltd
Prepared for	McDonald's Australia Limited
Trigger for Assessment	To inform the clients due diligence process and support a development application for the proposed McDonald's restaurant.

ITEM	DETAIL
Scope of Works	To achieve the objectives outlined above, Reditus completed the following: • A desktop evaluation of planning documentation, government registers, surrounding land uses and environmental setting. • A review of historical aerial imagery to assess past site uses and site configurations. • A review of current titles and Section 10.7 Planning Certificate to assess potential restrictions relating to contaminated land. • A site walkover to characterise the property setting, including inspection of the site surface for obvious signs of potential contamination and/or contaminant sources. • Identification of areas of environmental concern (AEC) (if any). • Preparation of PSI report in general accordance with the NEPC (2013) NEPM, NSW EPA (2020), applicable NSW EPA endorsed guidelines and State Environment Protection Policy (Resilience and Hazards) 2021.
Conclusions	Based on the results of the investigation, Reditus concluded the following: • The historical aerial imagery review indicated that site was mostly vacant undeveloped land except for the cottage in the southeast corner before being developed for industrial purposes by 1961. The hardstand area was complete by 1971 and Colourbond sheds added by 2018. • The site history review recognised the site as being used for industrial processes including a painting, panel beaters and car wreckers prior to being used for coffee roasting since circa 2006. • The adjacent properties at 33 Roseberry Street (south of site) and 210-212 Condamine Street (west of site) were formerly used for light industrial, manufacturing and printing purposes. Namely chemical manufacturers, lithographic printers, letterpress printers, and screen printers. Volatile organic compounds, heavy metals, inorganic substances and PFAS containing chemicals are used in these processes. The potential exists for these chemicals to enter groundwater on the neighbouring property and migrate beneath the site. • The site is within a Class 4 acid sulfate soil area which implies acid sulfate soils are likely to be found beyond 2 metres below the natural ground surface. Acid sulfate soils pose a risk to the environment if disturbed (exposed to the atmosphere) and allowed to oxidise. • The site inspection confirmed the site conditions were consistent with the site history. A section of cladding (building material) presumed to contain asbestos was observed during the site inspection. • The historical use of the site and current site uses are considered to present a moderate risk for the potential of soil, groundwater, and soil vapour contamination to be present.
Recommendations	Based on the results of the PSI, Reditus recommended that a DSI be completed to assess for potential unacceptable risks associated with the current and former use of the site, including adjacent site that were formerly used for light industrial, manufacturing and printing purposes.

4.5 Regulatory Searches

Regulatory records held by NSW EPA and local council have been sourced from the Reditus (2024) PSI and are summarised in **Table 4** below.

Table 4. Regulatory Searches Summary

RECORD	DETAIL
NSW EPA Register of Contaminated Sites	**Onsite**: A search of the NSW EPA did not identify any held records of the subject site as a contaminated site under the Contaminated Land Management Act (CLM Act, 1997). **Offsite**: Four (4) properties within a 2km radius of the site were identified as a contaminated site under the CLM Act (1997), which included: • Caltex Service Station Manly Vale • Regulation under CLM Act not required • 162.2m north of site. • Part of Manly Council Maintenance Depot • Regulation under CLM Act not required • 202.7m south of site. • Former Landfill Addiscombe Road Depot • Contamination currently regulated under the CLM Act • 681.0m northeast of site.
NSW EPA Record of Licences	**Onsite**: A search of the NSW EPA Public Registers did not identify any licences that were issued to the site under the *Protection of the Environment (Operations) (POEO) Act 1997*. **Offsite**: One (1) property within a 2km radius of the site was identified as licensed under the POEO Act (1997), which included: • Firmenich Limited • License No. 11414 • Surrendered • 20.1m east of site.
NSW EPA Clean Up & Penalty Notices	**Onsite**: A search of the NSW EPA Public Registers did not identify any clean-up or penalty notices that have been issued to the Site under the *POEO Act 1997*. **Offsite**: A search of the NSW EPA Public Registers identified one (1) site with either clean-up or penalty notices that were issued under the *POEO Act 1997*. • Former Landfill Addiscombe Road Depot: 3 current and 2 former notices • 681m northeast of site.
Former Gasworks Sites	No former gasworks facilities were identified within the site boundary. One (1) former gasworks, Manly Gas Light and Coke Company, was identified 1073.3 m east of site.
PFAS Sites	Automotive industry including car wrecking and painting facilities are identified as a potential point source of PFAS.
Defence, Military Sites and UXO Areas Map	No records of defence, military or UXO areas within 2 km of the site were identified.

4.6 Potentially Contaminating Processes

Potentially contaminating processes at the Site are listed below in **Table 5**.

Table 5. Potentially Contaminating Processes

ITEM	IDENTIFIED	DETAIL
Past Industrial Processes	Yes	The site has historically been used for industrial processes including a painting, panel beaters, car wreckers and panel beaters prior to being used for coffee roasting since circa 2006.
Manufacturing Processes	No, onsite Yes, adjacent to site	The properties immediately west and south of the site have historically been used for printing, lithographic copying, photographic printing, scrap metal merchants and electric motor repairs.

ITEM	IDENTIFIED	DETAIL
Hazardous Materials	Yes	Potentially hazardous material in the form of potentially asbestos containing fibrous cement sheeting in site structures was observed during the site walkover. No other hazardous materials were observed on the site.
Storage Tanks	No	No evidence of underground petroleum storage systems (UPSS) were observed during the site walkover, within the Land Insight report or historical imagery. Reditus anecdotally understands there is no current or was not historical underground storage of fuel at the site. The NSW Dangerous Goods Licence search did not identify any hazardous substance storage licences.
Discharges to Land, Water and Air	No	Reditus has no records of discharged to land, water or air having historically occurred at the site.
Visible Signs of Contamination	No	No obvious or visible signs of contamination were observed on the site at the time of site walkover on 17 May 2024.
Presence of Drums and Wastes	No	No bulk storage of solid or liquid waste drums (>100 L) was observed on the site at the time of the site walkover on 17 May 2024.
Odours	No	Except for the odours typically observed as part of the coffee roasting operations there was no obvious or unexplained olfactory odours that could have been definitively attributed to sub-surface contamination at the time of site walkover on 17 May 2024.

4.7 PFAS Investigation Sites

Per- and poly-fluorinated substances (PFAS) have more recently been highlighted as a persistent and mobile contaminant, of significant toxicity. The potential risk posed by PFAS contamination has been evaluated by using available site history information with a preliminary assessment matrix. The potential risk presented by PFAS contamination is presented in

Table 6.

Table 6. Summary of PFAS Preliminary Risk Assessment, NEMP 2020

ITEM	PROBABILITY	DETAIL
Did fire training occur on-site?	Low	Historical aerial imagery, the site walkover and desktop searches deem it unlikely that fire training occurred at the site.
Is an airport or fire station up gradient of or adjacent to the site? [12]	Low	Reditus considers that the risk of fire suppression activities conducted at the site to be low. No airports are situated in the vicinity of the site.
Have "fuel" fires ever occurred on-site? e.g., ignition of fuel (solvent, petrol, diesel, kerosene) tanks?	Low	No fire suppression systems which might utilise PFAS-containing AFFF were observed on the site. Reditus is unaware of any fires having occurred on the site.
Have PFAS been used in manufacturing or stored on-site?	Low	There are no indications that PFAS has been used in manufacturing at the site, nor is there any indication that PFAS-containing products have been stored on the site.

ITEM	PROBABILITY	DETAIL
Have PFAS point source activities[3] been identified onsite.	Yes	Automotive industry including car wrecking and painting facilities are identified as a potential point source of PFAS.

Notes:

1. Runoff from fire training areas may impact surface water, sediment, and groundwater.
2. PFAS is used in a wide range of industrial processes and consumer products (https://www.industrialchemicals.gov.au/consumers-and-community/and-poly-fluorinated-substances-pfas
3. Point source activities as listed within Appendix B of the NEMP (2020).

5 Conceptual Site Model

Based on the information presented in **Sections 1-4** of this report, a Conceptual site Model (CSM) has been prepared for the site. The ASC NEPM 2013 defines a CSM as:

> ***"A representation of site-related information regarding contamination sources, receptors and exposure pathways between those sources and receptors"***

The essential elements of the CSM, as required by the ASC NEPM (NEPC, 2013), include an understanding of:

- Known and potential sources of contamination and contaminants of concern including the mechanism(s) of contamination (e.g., 'top down' spill or sub-surface release from corroded tank or pipe).
- Potentially affected media (soil, sediment, groundwater, surface water, indoor and ambient air) and human and ecological receptors.
- Potential and complete exposure pathways.

A tabular CSM provided in **Table 8** identifies the complete and potential pathways between the known or potential source(s) of contamination and receptor(s). This CSM was provided as part of the PSI (Reditus, 2024) and has been refined in **Section 12** based on the outcomes of this DSI Report.

5.1 Potential Sources of Contamination

The potential sources of contamination identified during this DSI are summarised in **Table 7**.

Table 7. Potential Sources of Contamination

SOURCE	LOCATION	ASSOCIATED CONTAMINATION	CONTAMINANTS OF POTENTIAL CONCERN
Former and current land use *The site has historically been used for industrial and manufacturing purposes including panel beating, towing and a smash repair workshop.* *Paint, paint thinners, degreasers and solvents would have been used during the operation of the car wreckers at the site.*	Onsite	Top down leaks and spills from the hydrocarbon based products, oil/grease, solvents, slag, cooling water discharge.	TRH, BTEX, PAH, metals, SVOC, PCBs, VOC, phenols and PFAS.
Offsite sources *The adjacent properties at 33 Roseberry Street (south of site) and 210- 212 Condamine Street (west of site) were formerly used for light industrial, manufacturing and printing purposes. Namely chemical manufacturers, lithographic printers, letterpress printers, and screen printers.* *Volatile organic compounds, heavy metals, inorganic substances and PFAS containing chemicals are used in these processes.*	Offsite *South & west*	Top down leaks and spills from the liquid products including dyes, solvents, and flux agents. Migration of groundwater from neighbouring site beneath subject site.	TRH, BTEX, metals, VOC, ammonia and PFAS

SOURCE	LOCATION	ASSOCIATED CONTAMINATION	CONTAMINANTS OF POTENTIAL CONCERN
Historical cut and fill activities *Whilst Reditus anecdotally understands that the site is relatively flat and historical cut-fill activities would have been minimal. The possibility remains for anthropogenic materials to have been incorporated into site soils during the time of the original development.*	Site-wide	Fill material of unknown quality beneath the concrete slab.	TRH, BTEX, PAH, heavy metals, phenols, PCB, OCP, OPPs and asbestos.
Hazardous building materials *The site structures were constructed during an era (pre 1943 & 1961) where asbestos containing materials and lead paint were commonly used in buildings throughout Australia.* *Building materials presumed to contain asbestos we observed during the site inspection on 17 March 2024.*	Warehouse and cottage	Weathering of building materials from current site buildings constructed prior to 1970.	Lead paint > 1% w/w Asbestos containing materials.

5.2 Potentially Affected Media

The potentially affected media at the site includes:

- Soil.
- Groundwater.
- Soil vapour.

5.3 Potential Receptors and Pathways

5.3.1 PROPOSED LAND USE SCENARIO AND POTENTIAL RECEPTORS

It is likely that the proposed development will feature some landscaped areas with limited access to soils. Based on the proposed land use, future potential onsite receptors include the following:

- Construction/maintenance/trench workers (on and off-site).
- Future site workers and visitors.
- Off-site ecological and human receptors.

5.3.1 HUMAN HEALTH – DIRECT CONTACT, INCIDENTAL INGESTION AND DUST INHALATION PATHWAY

It is considered appropriate to assess whether a direct contact source may be present onsite for future site occupants/site users and construction/maintenance/trench workers. Direct contact pathway health impacts should be taken into consideration where there are likely accessible soils.

5.3.2 HUMAN HEALTH VAPOUR INTRUSION – INHALATION PATHWAY

Several of the contaminants of potential concern identified based on the site investigation are considered volatile contaminants. As such if these contaminants are present in the subsurface there is potential for them to create a vapour inhalation route for future site occupants/site users and construction/maintenance/trench workers.

5.3.3 AESTHETICS

No visual evidence of widespread or significant staining was observed at the site at the time of inspection however an assessment of aesthetics can be made during further assessment.

5.3.4 ECOLOGICAL – TERRESTRIAL ECOSYSTEMS

The NEPC (2013) NEPM requires a pragmatic risk-based approach should be taken in applying ecological investigation and screening levels in commercial/industrial land use settings.

The EIL and ESL guidelines are considered by Reditus to only be applicable where there are likely accessible soils, such as deep soil garden beds and landscaped areas.

Given the proposed development is likely to include areas with accessible soils, it is considered that assessment of risk to terrestrial ecosystems is warranted within the proposed landscaped areas.

5.3.5 GROUNDWATER

There is potential for the contaminants of potential concern identified based on the site investigation to leach into the underlying groundwater. Although the proposed development is unlikely to intersect the underlying groundwater, they may pose a risk of migration to offsite (human/environmental) receptors of groundwater and/or pose an unacceptable vapour intrusion risk.

5.4 Potential Transport Mechanisms and Exposure Pathways

Potential transport mechanisms of contamination relevant to the site include:

- Soil disturbance works or in unsealed areas of the site.
- Wind-blown dust.

- Surface water run-off.
- Leaching from soil to groundwater.
- Groundwater migration offsite.
- Vapour intrusion into building airspace.

Potential exposure pathways and receptors relevant to the site may include:

- Direct contact with contaminated soils at the surface or subsurface by current or future site occupants/site users and construction/maintenance/trench workers.
- Direct contact, ingestion, or inhalation of disturbed soil as dust by site users or offsite receptors.
- Inhalation of vapours by site workers and visitors, and off-site human receptors.
- Ingestion and direct contact of abstracted groundwater by offsite receptors.
- Plant uptake of leached contaminants in groundwater by ecological receptors on and off-site.
- Surface water run-off discharging to the Pacific Ocean.

5.5 Source, Pathway and Receptor Linkages

A preliminary tabular CSM has been prepared for the site based on the outcomes of the PSI in **Table 8** below. The tabular CSM describes potential linkages and assesses each of the linkages as probably, possible, or unlikely based on the likelihood of occurrence and availability of data.

Table 8. Exposure Pathway Assessment

SOURCE	EXPOSURE PATHWAY	RECEPTOR	EXPOSURE
Former land use *Vehicle repairs*	• Direct contact with contaminated soil. • Inhalation of contaminated soil as dust. • Surface water run-off. • Vapour intrusion of volatile contaminants. • Leaching to groundwater • Root uptake, of leached contaminants in soil. • Extraction of contaminated groundwater.	• Site workers/visitors. • Construction/maintenance /Trench workers. • Off-site human receptors dust. • Human receptors using extracted groundwater. • On-site and off-site ecological receptors from surface water and groundwater use.	**Possible** Potential source-pathway-receptor linkages have been identified and as such assessment of these linkages is warranted.
Offsite sources *Adjacent industrial properties*	• Vapour intrusion. • Root uptake of contaminants in shallow groundwater. • Extraction of contaminated groundwater.	• Site workers/visitors. • Construction/maintenance /Trench workers. • Human receptors using extracted groundwater. • On-site and off-site ecological receptors from surface water and groundwater use.	**Possible** Potential source-pathway-receptor linkages have been identified and as such assessment of these linkages is warranted.

SOURCE	EXPOSURE PATHWAY	RECEPTOR	EXPOSURE
Historical cut and fill activities *Moderate potential for uncontrolled fill.*	• Direct contact and ingestion of impacted soil / groundwater. • Vapour inhalation. • Surface water run-off containing contaminant mass. • Leaching to groundwater.	• Site workers/visitors. • Construction/maintenance /Trench workers. • Off-site human receptors dust. • On-site and off-site ecological receptors from site soils.	**Possible** Potential source-pathway-receptor linkages have been identified and as such assessment of these linkages is warranted.
Hazardous building materials *Cottage and warehouse*	• Inhalation of dust / fibres.	• Construction Workers. • Site occupants. • Maintenance workers[1]	**Possible** Potential source-pathway-receptor linkages have been identified and as such assessment of these linkages is warranted.

Notes:

1. Intrusive ground workers attending the site. This may include works requiring excavation, trenching or any activities applicable to the sub-surface of the site and could occur with the site in the current state, during construction or post development.

6 Data Quality Objectives

The Data Quality Objective (DQO) process is a systematic planning tool based on the scientific method for establishing criteria for data quality and for developing data collection designs. The DQO defines the experimental process required to test a hypothesis. The DQO process has been developed to ensure that efforts relating to data collection are cost effective, by eliminating unnecessary, duplicative or overly precise data whilst at the same time, ensuring the data collected is of sufficient quality and quantity to support defensible decision making.

It is recognised that the most efficient way to accomplish these goals is to establish criteria for defensible decision making before data collection begins and develop a data collection design based on these criteria. By using the DQO process to plan the investigation effort, the relevant parties can improve the effectiveness, efficiency and defensibility of a decision in a resource and cost-effective manner.

The DQO process consists of seven steps, which are designed to clarify the study objectives, define the appropriate type of data and specify tolerable levels of potential decision errors. The seven-step DQO process adopted for this DSI can be summarised as:

- **Step 1: State the Problem** – concisely describe the problem to be studied. Review prior studies and existing information to gain a sufficient understanding to define the problem.
- **Step 2: Identify the Decision** – identify what questions the study will attempt to resolve, and what actions may result.
- **Step 3: Identify the Inputs to the Decision** – identify the information that needs to be obtained and the measurements that need to be taken to resolve the decision statement.
- **Step 4: Define the Study Boundaries** – specify the time periods and spatial area to which decisions will apply. Determine when and where data should be collected.
- **Step 5: Develop a Decision Rule** – define the statistical parameter of interest, specify the action level, and integrate the previous DQO outputs into a single statement that describes the logical basis for choosing among alternative actions.
- **Step 6: Specify Tolerable Limits on Decision Errors** – define the decision maker's tolerable decision error rates based on a consideration of the consequences of making an incorrect decision; and
- **Step 7: Optimise the Design** –evaluate information from the previous steps and generate alternative data collection designs. Choose the most resource-effective design that meets all DQOs.

The DQOs are provided in **Table 9** below and were derived in accordance with Australian Standard 4482.1-2005 'Guide to the investigation and sampling of sites with potentially contaminated soil. Part 1: Non-volatile and semi-volatile compounds' (AS 4482.1-1997).

Table 9. Data Quality Objectives

ITEM	DETAIL
Step 1: State the problem	The site is proposed for redevelopment into a commercial restaurant with a sealed carpark. The PSI (Reditus, 2024) identified potentially contaminating activities at the site. The PSI recommended the preparation of a DSI to investigate potentially contaminating activities to inform the proposed development application including the site suitability from a contamination perspective.
Step 2: Identify the decision of the study	The goal of the study was to determine the nature and extent of known and potential contamination on site and assess if it presents an unacceptable risk to human health or the environment with respect to the proposed development. The decision questions associated with this study goal are described below. • Have potentially contaminating activities occurred on the site and/or nearby the site that may have contaminated the site? If so, what level of site investigation is required to define the nature, extent and degree of contamination (if any)? • Are there any impacts identified that could be a result of the potentially contaminating activities? • What is the lateral and vertical extent of the impact? • Do any CoPC at the site occur at concentrations that pose or may pose an unacceptable risk to the environment and/or human health? Including within the context of the proposed development? • If so, what is the order of priority to minimise the risk and what additional actions are required to mitigate, remediate, or manage the risk? • Is the site suitable for the proposed land use, in the context of land contamination?
Step 3: Identify the information inputs	Key data required to resolve the project problem included concentrations of CoPC in the soil, groundwater and soil vapour collected in the study area, the structure and depth of the underlying site geology and layout of the topography as it relates to overland flow and subsurface utilities. The CoPC selected were based on the historical assessment and the current site condition observed during fieldworks. The tier 1 screening guidelines adopted by Reditus to assess the analytical results for respective media are presented below in **Section 7**.
Step 4: Define the boundaries of the study	The study boundary extents to the lateral boundaries of the site which is identified as Lot 100 DP1199949. The site boundary is provided in **Figure 1**, **Appendix A**. The vertical extent of the study extended to a maximum depth of 6.5m bgl. The temporal boundaries of the study were limited to the date that the investigations were completed as detailed in **Section 8.1**.
Step 5: Develop a decision rule	If the concentrations of CoPC in the soil, groundwater and soil vapour are reported to be less than the relevant adopted tier 1 assessment guidelines, then the relevant media will be deemed suitable, and no management/remediation options will be proposed for the proposed land use. If, however, the concentration of one or more CoPC are greater than the guidelines, then further investigation will be required to laterally and vertically delineate the extent of the impact and/or recommendations made for the remediation/management of contamination to render the site suitable for the proposed use of the site.

ITEM	DETAIL
Step 6: Specify tolerable limits on decision errors	The acceptable limits for samples are as follows: • % RPD for laboratory duplicates for TPH, BTEX and VOC analysis is less than 60%; and • Recovery of matrix spikes and surrogate spikes is as per the laboratory's Quality Assurance targets accepted under their National Association of Testing Authorities (NATA) accreditation. Precision is measured using the standard deviation 'SD' or Relative Percent Difference '%RPD'. Replicate data for field duplicates of organics is expected to be as follows: • RPD criteria of 50% or less, for concentrations > or = 10 times practical quantitation limits (PQL); • RPD criteria of 75% or less, for concentrations between 5 and 10 times the EQL; and • RPD criteria of 100% or less, for concentrations < 5 times PQL. Replicate data for field duplicates for inorganics, including metals is expected to be as follows: • RPD criteria of 30% or less, for concentrations > or = 10 times PQL; • RPD criteria of 75% or less, for concentrations between 5 and 10 times the EQL; and • RPD criteria of 100% or less, for concentrations < 5 times PQL. Where acceptable limits for field duplicates were not met, a discussion on low biased error will be provided. For this investigation, a decision error of 5% will be considered acceptable This error rate is in accordance with Appendix B of Schedule B(2) of the ASC NEPM. In order to achieve this level of confidence, the investigation has been designed as described in **Section 7.3**.
Step 7: Optimise the design	Sampling locations were restricted to areas where drill rig access was possible and targeted areas which were likely to have a higher potential for contamination. As such, sample locations were positioned in a systematic pattern, with additional locations positioned on a judgemental (targeted) basis around potential contaminant sources. Soil samples were collected at relevant intervals, changes in geology or in zones of gross contamination and locations selected for efficient and representative sampling. Groundwater monitoring wells were positioned across the site to facilitate the interpolation of groundwater elevation contours and to target groundwater downgradient of areas which were likely to have a higher potential for contamination. Soil vapour monitoring points were positioned within the footprint of the proposed McDonald's building. All media sampled was conducted in accordance with Reditus standard operating procedures (SOPs) and relevant industry guidelines and best practice.

7 Tier 1 Assessment Criteria

Tier 1 assessment involves the comparison of monitoring data to published guideline criteria (typically presented as screening levels). Relevant criteria are selected based on the identified viable exposure pathways and CoPCs and proposed land use.

In Australia, appropriate HILs (including interim HILs for vapour intrusion and, where applicable, HSLs for petroleum hydrocarbons and assessment criteria for asbestos) are used for Tier 1 screening to provide a rapid assessment of whether the site contamination may be of concern with respect to human health. Should contaminant concentrations at a site occur at levels that are below the Tier 1 levels, this implies that for the majority of the people in the population there is no significant health risk from contamination and that remedial action may not be required to protect human health.

Exceedances of the tier 1 HILs should be identified and considered. Tier 1 HIL exceedances do not imply that a risk is necessarily present, but that further assessment may be justified. Tier 1 HILs are not intended to indicate a clear demarcation between acceptable and unacceptable. Marginal exceedances may not require quantitative Tier 2 risk assessment to conclude that further assessment is not necessary. The magnitude of the exceedance should be considered in the context of the CSM (that is, whether the exposure pathways are plausible and whether exposure will result in harm).

Tier 1 screening criteria (including HILs and HSLs) should only be used where there has been adequate characterisation of a site (that is, appropriate representative sampling has been carried out). For this combined DSI the maximum reported concentrations for each sample and analyte will be compared against the tier 1 criteria. Should any individual sample exceedance of the tier 1 criteria exist, the 95% Upper Confidence Limit (UCL) of the analyte for the site data set was calculated and compared to relevant Tier 1 screening criteria. However, the implications of localised elevated values should also be considered. In order to adopt the 95% UCL result, the analyte data set must also meet the following criteria:

- The standard deviation (SD) of the results should be less than 50% of the Tier 1 screening criteria.
- No single value exceeds 250% of the relevant Tier 1 screening criteria (characterised as a 'hot-spot').

Where site data exceeds the screening levels or suitable screening levels cannot be identified, further consideration (Tier 2 assessment) is required.

7.1 Soil Assessment Criteria

Tier 1 assessment involves the comparison of monitoring data to published guideline criteria (typically presented as screening levels). Relevant criteria are selected based on the identified viable exposure routes and the available data. Where site data exceed the screening levels or suitable screening levels cannot be identified, further consideration (Tier 2 assessment) is required.

The tier 1 assessment criteria were adopted from:

- National Environment Protection Council (NEPC) 1999, 'Schedule B(1) Guideline on Investigation Levels for Soil and Groundwater, National Environment Protection Measure (NEPM) Assessment of Site Contamination (ASC), as amended in 2013'.
- Heads of EPAs Australia and New Zealand (HEPA) 2020, PFAS National Environmental Management Plan Version 2.0.

The soil assessment criteria (SAC) adopted for this DSI were:

- NEPC (2013) ASC NEPM Table 1A(1) HIL-D criteria values have been adopted to assess concentrations of CoPC in soil for site suitability and human health in a commercial/industrial scenario.
- NEPC (2013) ASC NEPM Table 1A(3) HSL-D guidelines for vapour intrusion have been adopted to evaluate the risk posed from vapour intrusion in a commercial/industrial scenario. The soil HSLs are based on depth of impacts, overlying soil type and land use. The selection of HSL-D was based on the applicable ground floor land use (commercial), the potential receptor/s onsite and the exposure that may be experienced. After a review of subsurface conditions, the guidelines for clay were selected. The 0 to <4 m criteria values have been adopted after a review of finished borehole depths and applicable soil samples which were noted to be up to 4 m bgl.

- NEPC (2013) ASC NEPM Table 1B(7) Management Limits (ML) commercial/industrial guidelines have been adopted and are used to consider the potential formation of light non-aqueous phase liquids, fire and explosion risks and damage to buried infrastructure. A fine-grained soil type was selected after a review of subsurface conditions encountered during investigation works.
- NEPC (2013) ASC NEPM Table 1B(1-5) ESLs and Table 1B(6) generic EILs were both selected to determine the risk of potential contamination to identified ecological receptors on the site, in the context of commercial/industrial land use scenario. Both ESL and EIL criteria values are applicable for the first 2 m of the soil profile.
- EIL criteria values were derived using academic values and where appropriate, using the NEPM EIL Interactive Calculation Worksheet available at http://www.nepc.gov.au/nepms/assessment-site-contamination/toolbox. The output from the EIL calculation is available in **Appendix G**. The following input parameters were adopted from the NSW Government eSpade viewer to derive EILs, noting that where a range of values were given, the average of those two values was selected as an input:
  - **Cation exchange capacity (CEC)**: 7.5 $cmol_c/kg$
  - **Clay (%)**: 27.5 %
  - **pH**: 4.75
  - **Soil organic carbon (OC %)**: 2.5 %
- Concentrations of PFAS in soil have been compared against HEPA (2020) PFAS NEMP 2.0 Table 2 HILs for commercial/industrial land use.
- For ecological receptors, concentrations of PFAS in soil have been compared against HEPA (2020) PFAS NEMP 2.0 Table 3 Ecological direct exposure (EDE) and Ecological indirect exposure (EIE) criteria values.

SAC are tabulated below in **Table 10**.

Table 10. Soil Assessment Criteria (mg/kg)

GROUP	ANALYTE	PFAS NEMP 2.0 2020 HIL D COMM/IND	PFAS NEMP 2.0 2020 EIE	PFAS NEMP 2.0 2020 EDE	ASC NEPM 2013 HIL-D COMM/IND	ASC NEPM 2013 HSL-D - CLAY >=0m, <1m	>=1m, <2m	>=2m, <4m	>=4m	ASC NEPM 2013 EIL - COMM/IND	ASC NEPM 2013 ESL COMM/IND - FINE	ASC NEPM 2013 ML COMM/IND - FINE
BTEX	Naphthalene (BTEX)	-	-	-	-	NL	NL	NL	NL	370	-	-
	Benzene	-	-	-	-	4	6	9	20	-	95	-
	Toluene	-	-	-	-	NL	NL	NL	NL	-	135	-
	Ethylbenzene	-	-	-	-	NL	NL	NL	NL	-	185	-
	Xylene Total	-	-	-	-	NL	NL	NL	NL	-	95	-
TRH	C_6-C_{10} Fraction (F1)	-	-	-	-	-	-	-	-	-	-	800
	C_6-C_{10} (F1 minus BTEX)	-	-	-	-	310	480	NL	NL	-	215	-
	>C_{10}-C_{16} Fraction (F2)	-	-	-	-	-	-	-	-	-	170	1,000
	>C_{10}-C_{16} Fraction (F2 minus Naphthalene)	-	-	-	-	NL	NL	NL	NL	-	170	-
	>C_{16}-C_{34} Fraction (F3)	-	-	-	-	-	-	-	-	-	2,500	5,000
	>C_{34}-C_{40} Fraction (F4)	-	-	-	-	-	-	-	-	-	6,600	10,000
PAH	Benzo(a) pyrene	-	-	-	-	-	-	-	-	-	1.4	-
	Naphthalene	-	-	-	-	NL	NL	NL	NL	370	-	-
	Benzo(a)pyrene TEQ calc (Half)	-	-	-	40	-	-	-	-	-	-	-
	Benzo(a)pyrene TEQ (LOR)	-	-	-	40	-	-	-	-	-	-	-
	PAHs (Sum of total)	-	-	-	4,000	-	-	-	-	-	-	-
Metals	Arsenic	-	-	-	3,000	-	-	-	-	160	-	-
	Cadmium	-	-	-	900	-	-	-	-	-	-	-
	Chromium (III+VI)	-	-	-	3600	-	-	-	-	-	-	-
	Copper	-	-	-	240,000	-	-	-	-	-	-	-
	Lead	-	-	-	1,500	-	-	-	-	-	-	-

GROUP	ANALYTE	PFAS NEMP 2.0 2020 HIL D COMM/IND	PFAS NEMP 2.0 2020 EIE	PFAS NEMP 2.0 2020 EDE	ASC NEPM 2013 HIL-D COMM/IND	ASC NEPM 2013 HSL-D - CLAY >=0m, <1m	>=1m, <2m	>=2m, <4m	>=4m	ASC NEPM 2013 EIL - COMM/IND	ASC NEPM 2013 ESL COMM/IND - FINE	ASC NEPM 2013 ML COMM/IND - FINE
	Mercury	-	-	-	730	-	-	-	-	-	-	-
	Nickel	-	-	-	6,000	-	-	-	-	-	-	-
	Zinc	-	-	-	400,000	-	-	-	-	-	-	-
Inorganics	Cyanide	-	-	-	1,500	-	-	-	-	-	-	-
OCP	Aldrin + Dieldrin	-	-	-	45	-	-	-	-	-	-	-
	Chlordane	-	-	-	530	-	-	-	-	-	-	-
	DDT	-	-	-	-	-	-	-	-	640	-	-
	DDT+DDE+DDD	-	-	-	3,600	-	-	-	-	-	-	-
	Endosulfan	-	-	-	2,000	-	-	-	-	-	-	-
	Endrin	-	-	-	100	-	-	-	-	-	-	-
	Heptachlor	-	-	-	50	-	-	-	-	-	-	-
	Hexachlorobenzene	-	-	-	80	-	-	-	-	-	-	-
	Methoxychlor	-	-	-	2,500	-	-	-	-	-	-	-
	Mirex	-	-	-	100	-	-	-	-	-	-	-
OPP	Chlorpyrifos	-	-	-	2,000	-	-	-	-	-	-	-
PCB	PCBs (Sum of total)	-	-	-	7	-	-	-	-	-	-	-
PFAS	Perfluorohexane sulfonic acid (PFHxS)	20	-	-	-	-	-	-	-	-	-	-
	Perfluorooctane sulfonic acid (PFOS)	20	0.01	1	-	-	-	-	-	-	-	-
	Perfluorooctanoic acid (PFOA)	50	-	10	-	-	-	-	-	-	-	-
	Sum of PFHxS and PFOS	20	-	-	-	-	-	-	-	-	-	-

^ Chromium (III+VI) concentrations have been compared to Chromium (VI) HIL criteria for conservatism

7.2 Groundwater Assessment Criteria

Selection of the Groundwater Assessment Criteria (GAC) is based on the proposed continuation of the Site's commercial/industrial land use and proximity of the Site to identified receptors. The adopted criteria are tabulated in **Table 11**.

The tier 1 assessment criteria were adopted from:

- National Environment Protection Council (NEPC) 1999, 'Schedule B(1) Guideline on Investigation Levels for Soil and Groundwater, National Environment Protection Measure (NEPM) Assessment of Site Contamination (ASC), as amended in 2013'.
- Australian and New Zealand Governments Guidelines for Fresh and Marine Water Quality 2018.
- Heads of EPAs Australia and New Zealand (HEPA) 2020, PFAS National Environmental Management Plan Version 2.0.
- National Health and Medical Research Council (NHMRC) Australian Drinking Water Guidelines 6, 2011, Version 3.8 Updated September 2022.

The groundwater analytical data were compared against the following adopted Tier 1 screening criteria:

- ANZG (2018) 95% species protection default guideline values (DGVs) (supersedes the ASC NEPM (2013) Groundwater Investigation Levels (GIL)) for Marine Water.
  - The selection of marine water criteria is based on the proximity of the Site to Burnt Bridge Creek, which is likely to accept both surface water and potentially groundwater discharge from the Site.
  - Use of the 95% protection level (for the ANZECC 2000 Guidelines) assumes that the surrounding watercourses are moderately disturbed ecosystems. This is as defined in Section 3.1 of the guidelines as receiving road and storm water runoff from adjacent industry and residential properties, consistent with the setting and environment surrounding the Site.
  - The ANZG (2018) is a revision of the Australian and New Zealand Guidelines for Fresh and Marine Water Quality (ANZECC & ARMCANZ 2000) presented as an online platform, to improve usability and facilitate updates as new information becomes available.
  - Revisions to DGVs since the ANZECC & ARMCANZ (2000) guidelines have been provided for the 'aquatic ecosystem' community value. DGVs have been revised for physical and chemical (PC) stressors based on increased understanding, broader monitoring data collected since 2000.
  - The NEPM ASC (2013) GILs were derived using the ANZECC & ARMCANZ (2000), which were subsequently revised (superseded) in ANZG (2018). As such, the ANZG (2018) DGVs will be used as an initial screening in place of the NEPM ASC (2013) GIL criteria as they provide concentrations which once exceeded require further investigation into receptors and points of discharge.
- HEPA (2020) PFAS NEMP 2.0 Table 5, Marine Water 95% species protection - slightly to moderately disturbed systems exposure scenario guideline criteria have been adopted to assess concentrations of PFAS in groundwater which may discharge into Burnt Bridge Creek and be ingested by ecological aquatic receptors.
- NEPM ASC (2013) Groundwater HSL for vapour intrusion HSL-D (GW HSL-D) for commercial/industrial land use with groundwater depth 4-<8m within sand have been adopted to assess vapour intrusion in a commercial/industrial land use setting. The 'fine' soil texture has been selected following a review of predominant subsurface conditions.

Further discussion on the groundwater assessment criteria is provided in the sections below.

7.2.1 HUMAN HEALTH GROUNDWATER ASSESSMENT CRITERIA – VAPOUR INTRUSION

The groundwater concentrations have been assessed against the NEPC (2013) NEPM GW-HSL-D to evaluate the risk posed from vapour intrusion. The selection of HSL-D was based on the most sensitive intended ground-floor use (i.e. closest receptor) being a commercial restaurant for the potential receptor/s onsite and the exposure that may be experienced. This is consistent with the guidance provided within Table 1A(4) of the NEPM ASC (2013).

After a review of subsurface conditions, HSLs for sand were selected to characterise the soils at the Site.

7.2.2 HUMAN HEALTH GROUNDWATER ASSESSMENT CRITERIA – DRINKING WATER

The NSW DECC (2007) Guidelines for the Assessment and Management of Groundwater Contamination describes the process involved in identifying the likely environmental values which must be considered to be preserved in groundwater investigations at contaminated sites. Based on the NSW DECC (2007) Guidelines, determination of environmental values follows the steps below:

- Determine whether the aquifer beneath the Site is included in the NSW Department of Natural Resources (NSW DNR) list of major aquifers of drinking water quality.
- Determine the identified uses of groundwater from the aquifer.
- Assess groundwater indicators to determine whether the aquifer is suitable for use as a drinking water source. The NSW DECC has stated that "Groundwater with TDS concentrations below 2000 mg/L is suitable for potential drinking water supply, and hence should be afforded this level of protection from contamination unless other site-specific factors, such as low yield, render such use unlikely." (NSW DECC, 2007).

Reditus note the following site hydrogeological conditions:

- The Site is not situated within a known drinking water groundwater management unit (GMU) protected by the NSW DNR as an actual or potential drinking water supply (NSW DECC, 2007).
- The Site is located within a commercial/industrial precinct of Balgowlah and and is connected to the Sydney Water network, therefore, groundwater in the area is unlikely to be used for extraction for potable use or irrigation.
- Of the 70 groundwater bores within a 2km radius of the site, there was four (4) bores listed as having an authorised purpose of water supply, household, irrigation or recreational use. Three (3) of these were located within Manly Golf Course approximately 650m – 740m east, and one (1) was noted as a household bore located 845m east. Whilst these bores may be in use for water supply purposes, it is not considered likely that groundwater which has interacted with the Site may be in use by these bores as the groundwater flow direction has been observed to flow in a southeast direction.

As such, drinking water criteria has not been incorporated into the GAC.

7.2.3 ECOLOGICAL GROUNDWATER ASSESSMENT CRITERIA

Use of the 95% protection level (for the ANZG 2018 Guidelines and PFAS NEMP 2.0) assumed that the surrounding watercourses are moderately disturbed ecosystems (as defined in Section 3.1. of the ANZECC (2000) guidelines as receiving road and storm water runoff from adjacent industry and residential properties).

As a conservative measure, the 99% protection level (for the ANZG 2018 Guidelines and PFAS NEMP 2.0) has also been adopted. The PFAS NEMP 2.0 advises the 99% level protection be used for slightly to moderately disturbed systems as it accounts for chemicals that bioaccumulate and biomagnify in wildlife.

Table 11. Groundwater Assessment Criteria (µg/L)

GROUP	ANALYTE	ANZG 2018 MW 95%	ASC NEPM 2013 GW HSL-D COMM/IND, SAND >=4m, <8m	PFAS NEMP 2020 2.0 MW 95%	PFAS NEMP 2.0 2020 MW 99%
BTEX	Naphthalene (BTEX)	70	NL	-	-
	Benzene	700	5,000	-	-
	Toluene	180	NL	-	-
	Ethylbenzene	80	NL	-	-
	Xylene (o)	-	-	-	-
	Xylene Total	-	NL	-	-
TRH	C_6-C_{10} (F1 minus BTEX)	-	6,000	-	-
	>C_{10}-C_{16} Fraction (F2 minus Naphthalene)	-	NL	-	-
PAH	Anthracene	0.4	-	-	-
	Benzo(a) pyrene	0.2	-	-	-
	Fluoranthene	1.4	-	-	-
	Naphthalene	70	NL	-	-
	Phenanthrene	2	-	-	-
Inorganics	Ammonia as N	910	-	-	-
	Cyanide	4	-	-	-
Metals	Cadmium	5.5	-	-	-
	Copper	1.3	-	-	-
	Lead	4.4	-	-	-
	Mercury	0.4	-	-	-
	Nickel	70	-	-	-
	Zinc	8	-	-	-
VOC	1,1,1-trichloroethane	270	-	-	-
	1,1,2,2-tetrachloroethane	400	-	-	-

GROUP	ANALYTE	ANZG 2018 MW 95%	ASC NEPM 2013 GW HSL-D COMM/IND, SAND >=4m, <8m	PFAS NEMP 2020 2.0 MW 95%	PFAS NEMP 2.0 2020 MW 99%
	1,1,2-trichloroethane	1,900	-	-	-
	1,1-dichloroethene	700	-	-	-
	1,2,3-trichlorobenzene	80	-	-	-
	1,2,4-trichlorobenzene	80	-	-	-
	1,2-dichlorobenzene	-	-	-	-
	1,2-dichloroethane	1,900	-	-	-
	1,2-dichloropropane	900	-	-	-
	1,3-dichlorobenzene	-	-	-	-
	1,3-dichloropropane	1,100	-	-	-
	1,4-dichlorobenzene	-	-	-	-
	Pentachloroethane	80	-	-	-
	Carbon tetrachloride	240	-	-	-
	Chlorobenzene	55	-	-	-
	Chloroform	770	-	-	-
	Isopropylbenzene	30	-	-	-
	Styrene	-	-	-	-
	Trichloroethene	330	-	-	-
	Tetrachloroethene	70	-	-	-
	Vinyl chloride	100	-	-	-
PFAS	Perfluorohexane sulfonic acid (PFHxS)	-	-	-	-
	Perfluorooctane sulfonic acid (PFOS)	-	-	0.13	0.00023
	Perfluorooctanoic acid (PFOA)	-	-	220	19
	Sum of PFHxS and PFOS	-	-	-	-

7.3 Soil Vapour Assessment Criteria

Selection of the Soil Vapour assessment criteria is based on the proposed continuation of the Site's commercial/industrial land use and proximity of the Site to identified receptors. The adopted criteria is tabulated below in **table 11**.

The tier 1 assessment criteria were adopted from:

- National Environment Protection Council (NEPC) 1999, 'Schedule B(1) Guideline on Investigation Levels for Soil and Groundwater, National Environment Protection (Assessment of Site Contamination) Measure (NEPM), as amended in 2013'.

The soil vapour assessment criteria (SVAC) adopted for this assessment was based on the continuation of the specified commercial/industrial land use on the lot, the potential on-site receptors for its land use, and the exposure scenarios that may be experienced. The SVAC is detailed as follows:

- **On-site (Commercial/Industrial)**
  - NEPC (2013) NEPM Soil Vapour HSL-D Commercial/Industrial (SVHSL-D) has been adopted to evaluate the risk posed to identified receptors from BTEX/TRH vapour intrusion to identified receptors at the Site, which is considered to pose a commercial/industrial land use scenario. The 'Sand' soil texture was selected following a review of subsurface conditions, and the 0 to <1m criteria has been selected based on the potential exposure scenario.
  - Additionally, the Interim Soil Vapour Health Investigation Levels (ISVHIL) for volatile organic chlorinated compounds (VOCCs) for Commercial/Industrial (ISVHIL-D) have been adopted to determine the risk of VOCCs to identified receptors in a commercial/industrial land use scenario.

Soil vapour analytical results are tabulated in **Table 1**, **Appendix C**, and guideline criteria are presented below in **table 12.**

Table 12. Soil Vapour Assessment Criteria (µg/m^3)

		NEPM 2013 TABLE 1A(2) COMM IND D SOIL VAP VOCC HILS	NEPM 2013 TABLE 1A(5) COMM/IND D SOIL VAPOUR HSL FOR VAPOUR INTRUSION, SAND
GROUP	ANALYTE		>=0M, <1M
BTEX	Benzene	-	4,000
	Toluene	-	4,800,000
	Ethylbenzene	-	1,300,000
	Xylene (m&p)*	-	840,000
	Xylene (o)*	-	840,000
TRH	C_6-C_{10} (F1 minus BTEX)	-	680,000
	>C_{10}-C_{16} Fraction (F2 minus Naphthalene)	-	500,000
PAH	Naphthalene	-	3,000
VOC	1,1,1-trichloroethane	230,000	-
	cis-1,2-dichloroethene	300	-
	Trichloroethene	80	-
	Tetrachloroethene	8,000	-
	Vinyl chloride	100	-

8 Methodology

The methodologies used for the collection of data are presented in the following sections.

8.1 Schedule of Works

Fieldworks including borehole drilling, soil sampling, monitoring well installation and well development were completed on 27 and 28 July 2024 by Reditus' Graduate Environmental Scientist Hassan Elbatoory. Groundwater gauging, sampling and GPS surveying was completed on 9 and 13 August 2024 by Reditus' Graduate Environmental Scientist Tiarni Wiersma.

8.2 Sampling Analysis Plan and Sampling Rationale

The intention of the sampling plan was to attain the objectives stated in **Section 1.2**. To achieve this, a systematic sampling design program was adopted for this investigation. The sampling plan was based on a review of the Reditus (2024) PSI, the site history, the site walkover and NSW EPA (2022) Sampling Design Guidelines. This method aimed to target the location of any potentially contaminating sources onsite, infer the groundwater flow direction, and provide sufficient data to allow for definition, assessment and characterisation of soil and groundwater.

The sampling plan, rationale and analysis undertaken is summarised in **Table 13** and locations of soil and groundwater sample locations are presented in **Figure 2**, **Appendix A**.

Table 13. Sampling Analysis Plan and Rationale

SAMPLE LOCATIONS	MEDIA	RATIONALE	ANALYSIS
BH01	Soil	To assess soil on the periphery of the commercial building	**Soil** Selected Fill Samples: • TRH, BTEX, PAH, VOCs, 8 priority heavy metals (As, Cd, Cr, Cu, Hg, Ni, Pb, Zn), free cyanide, OCP/OPP, PCB, PFAS, asbestos ID Selected Natural Samples: • BTEX, TRH, PAH, 8 priority heavy metals
BH02 through to BH05	Soil	To assess soil beneath hardstand in the approximate middle of the Site	
MW01 and MW03	Soil, Groundwater	To assess soil and groundwater onsite. Monitoring wells placed in a triangular formation to gather groundwater flow direction data.	**Soil** Selected Fill Samples: • TRH, BTEX, PAH, VOCs, 8 priority heavy metals (As, Cd, Cr, Cu, Hg, Ni, Pb, Zn), free cyanide, OCP/OPP, PCB, PFAS, asbestos ID Selected Natural Samples: BTEX, TRH, PAH, 8 priority heavy metals **Groundwater** TRH, BTEX PAH, 8 priority heavy metals (dissolved), total cyanide, ammonia, PFAS.
MW02	Soil, Groundwater	To assess soil and groundwater downgradient of the site. Monitoring wells placed in a triangular formation to gather groundwater flow direction data.	
VP01 through to VP04	Soil Vapor	To assess the potential for a vapour intrusion risk to be present onsite.	**Soil Vapor** TRH and Low level VOCs

Reditus notes that the adopted sampling density of twelve (12) sample locations across the Site, which has an area of 0.28 ha, exceeds the NSW EPA (2022) Sampling Design Guidelines – Minimum Sampling Density required for site characterisation for a site that is 0.3 ha in area (9 sample locations).

8.3 Soil Sampling Methodology

Each soil borehole was advanced using a tracked drilling rig with air hammer and solid flight auger drilling techniques, or a hand auger where drill rig access was not possible. Soil samples were collected from the near-surface (0-0.1m), at changes in lithology or zones with any visual (staining or discolouration) or olfactory signs of contamination. Soil samples were collected using new clean nitrile gloves directly from the hand auger, push tube lining or centre of the solid flight auger. Efforts were made to minimise disturbance of the material being sampled to the extent practicable. Such techniques included removing the outside layer of material and collecting from the centre of the recovered drill cuttings, to prevent cross-contamination and minimise the potential for loss of VOC. Soil samples for PFAS were collected in alignment with the PFAS NEMP (2020) recommended procedures for sampling PFAS contaminated soils.

Part of each soil sample was placed into a snap lock plastic bag for screening with a photo-ionisation detector (PID), whilst another part of the sample was placed directly into a laboratory prepared 250 mL Teflon-sealed glass jar, and another part placed directly into a 125 mL HDPE container (for PFAS samples) with the details of the sample, including the sample name, the job number, the date of the sample and the sample depth. For fill samples, another part of the sample was placed into a laboratory-supplied asbestos ID bag.

Sample preservation was undertaken in accordance with NEPC (2013) NEPM, with samples immediately placed and stored in an ice filled cooler to keep them chilled, prior to being couriered to the laboratory under a signed chain of custody (COC) form filled out with the required analysis.

Each soil sample was described in general accordance with the Unified Soil Classification System (USCS) and details of any discolouration, staining, odours or other indicators of contamination were also noted.

Soil samples were selected for laboratory analysis based on the presence of odours, staining, changes in geology and the field PID screening results, and on the basis of proximity to potentially contaminating infrastructure.

In summary, soil samples were collected in accordance with Reditus standard operating procedures which are based on the NEPC (2013) NEPM, Australian Standard AS4482.1-2005 and AS4482.2-1999 and EPA requirements.

8.4 Well Development and Groundwater Sampling

Three (3) boreholes were extended to a depth of at least 2m below the recorded water strike and converted to groundwater monitoring wells. Groundwater monitoring wells were installed to a maximum depth of 6.50m bgl. Each well was screened from at least 1 m above the saturated zone to the bottom of the borehole. The groundwater monitoring wells were constructed using 50 mm internal diameter, Class 18 flush jointed uPVC with machine slots of 0.5 mm to 1.0 mm width. 1-2 mm washed graded gravel was then packed from the base of the well up to 0.5 m above the screen. A 1m thick bentonite seal was installed above the gravel pack, with cement grout finishing the well to the surface. Each well was finished with a trafficable gatic cover.

All monitoring wells were developed using a stainless-steel bailer after installation at least one week before groundwater sampling. The process was used to disturb the water column within the well annulus to remove any groundwater and well debris that may have been introduced since installation. Where practicable, a minimum quantity of three casing volumes of water was removed or until purged dry, whichever came first. The well was then left to stabilise for at least one week prior to purging and sampling.

During the groundwater monitoring event, each groundwater monitoring well was gauged for depth to water (water), depth to product (DTP; if any) and depth to base (DTB) from the top of casing (TOC) using an oil/water interface probe prior to purging and sampling. If product was identified during gauging, a clear plastic bailer was inserted into the well and the extent, appearance, apparent age and odour of the product was recorded.

Following gauging, each well as then purged using a low-flow peristaltic pump until groundwater quality parameters had stabilised to within the groundwater stabilisation criteria listed in **Table 14**. Physicochemical parameters were monitoring using a calibrated HANNA water quality meter placed within a flow cell. Once the parameters were within the stabilisation criteria, the sample was collected.

Table 14. Groundwater Physicochemical Stabilisation Criteria

PHYSICOCHEMICAL PARAMETER	PURGING STABILISATION CRITERIA
Dissolved Oxygen (DO) +/- 10%	Dissolved Oxygen (DO) +/- 10%
Electrical Conductivity (EC) +/- 3%	Electrical Conductivity (EC) +/- 3%
Oxidation-Reduction Potential (ORP) +/- 10%	Oxidation-Reduction Potential (ORP) +/- 10%
pH +/- 0.1	pH +/- 0.1
Temperature +/- 10%	Temperature +/- 10%

Groundwater samples were collected directly into appropriately preserved laboratory supplied sampling containers and labelled with the date, sample name, sampler name and project number. Samples for dissolved metals were field filtered using a 0.45-micron Millipore bell filter.

Fresh high-density polyethylene (HDPE) tubing was used at each monitoring well, and the interface probe was thoroughly decontaminated between gauging events with a phosphate free detergent and rinsed with deionised water followed by potable water.

Field forms from the groundwater monitoring event (GME) are provided in **Appendix C**.

8.5 Soil Vapour Methodology

All four (4) soil vapour monitoring points were drilled to a depth of 0.5m bgl. The low-uptake waterloo membrane samplers (LUWMS) were placed into cradles and emplaced at a depth of 0.5m bgl in attempt to ensure the sampling device remained dry, whilst positioned at the maximum practicable depth to minimise influence from atmosphere and prevent inundation of perched soil seepage from rainfall events.

The construction methodology included a laboratory-prepared Waterloo LUWMS placed in a steel cradle and suspended close to the bottom of the borehole using nylon string, which was pegged to the surface. Above the LUWMS, a foam plug encased in LDPE plastic was inserted into the hole to ensure that atmospheric air could not enter the void space in which the LUWMS was positioned. Bentonite was placed on top of the foam plug and hydrated. Another foam/bentonite plug was installed at the top of the borehole to ensure any surface water did not infiltrate the hole.

LUWMS were left to passively collect from 28th July 2024 to the 9th August 2024, which was the required number of days to ensure that the appropriate limit-of-reporting (LOR) values were achieved such that they would be lower than adopted criteria values for the identified CoPC. Once collected, the samples were placed into glass vials and sealed with a lid and Teflon tape. The vials were wrapped in foil and couriered to the analytical laboratory under chain-of-custody conditions.

All waterloo samples were retrieved on 9th August 2024 and submitted for laboratory analysis. No waterloo samples were saturated upon retrieval, and all were reported to be free of signs of moisture.

Each LUWMS borehole was backfilled with bentonite swelling clay and hydrated to ensure the borehole did not become a preferential pathway for surface water seepage or air.

8.6 RTK GPS Surveying

The TOC height relative to Australian Height Datum (AHD) was obtained for each well using an RTK GPS (Trimble) to allow for the interpolation of groundwater contours and approximation of groundwater flow direction. TOC measurements were collected in the GDA2020 MGA Zone 56 coordinate reference system. Where GPS signal was poor, laser level measurements were utilised.

8.7 Laboratory Analysis and Methods

Laboratory analytical methods and analyte PQLs are presented in the analytical laboratory certificates provided in **Appendix D** and were considered appropriate for the quantification of the CoPC identified in the CSM.

9 Quality Assurance and Quality Control (QA/QC)

9.1 Field Quality Assurance

9.1.1 DETAILS OF SAMPLING TEAM

Fieldworks including drilling, soil sampling, groundwater monitoring and RTK GPS surveying were completed by Reditus' Environmental Scientists Hassan Elbatoory and Tiarni Wiersma who are suitably qualified and experienced in the collection of environmental samples.

9.1.2 DECONTAMINATION PROCEDURES CARRIED OUT BETWEEN SAMPLING EVENTS

The solid flight auger rods on the drill rig were brushed clean between sampling events to remove any excess soil. This was considered a suitable level of decontamination for the purpose of this assessment. The stainless-steel bailer and interface probe were decontaminated between uses using a three-stage process consisting of a thorough cleanse using a combination of potable water and Liquinox (a phosphate and PFAS free detergent), a rinse with potable water and a final rinse using deionised water.

9.1.3 CHAIN OF CUSTODY DETAILS

Soil and groundwater samples were transported to the laboratory under a chain-of-custody (CoC). Information on the CoC included the sampler, sample identifier, sample matrix, collection date, analyses to be performed, sample preservation method, sample release date and sample received date. CoCs are provided in **Appendix D** along with the laboratory reports.

9.1.4 SAMPLING SPLITTING TECHNIQUES

Soil duplicates (intra-laboratory) and triplicates (inter-laboratory) were collected by taking representative samples of the soil at the same depth interval. Due to the potential loss of volatiles, samples were not mixed or homogenised during collection or splitting.

Groundwater duplicates and triplicates were collected by filling the required number of sample bottles concurrently with the primary samples to ensure that similar water was being collected in each sample container.

9.1.5 RINSATE SAMPLE

A rinsate sample was utilised during the groundwater monitoring event to assess the efficacy of the decontamination methods utilised. The sample was collected by running laboratory-supplied deionised water over a decontaminated piece of reusable sampling equipment, in this case the IP, into laboratory supplied sampling bottles. The rinsate sample was then submitted to the laboratory with the primary samples.

The results of the analysis were reported with all analytes below the laboratory limit-of-reporting (LOR), indicating that the decontamination process was effective.

9.1.6 TRIP BLANK

A trip blank was utilised during the field program and sent for analysis with the primary samples. Results of the trip blank were reported below laboratory limit-of-reporting (LOR), indicating that cross-contamination during sample storage is unlikely to have occurred.

9.1.7 TRIP SPIKE

A trip spike sample was utilised during the field program and sent for analysis with the primary samples. Trip spike recoveries were reported within acceptable ranges, indicating that sample storage conditions were sufficient to minimise the loss of volatile compounds within primary samples.

9.1.8 STATEMENT OF DUPLICATE FREQUENCY

Field intra-laboratory duplicates and interlaboratory duplicates were collected at a minimum rate of 1:12.5 for soil and 1:3 for groundwater samples. These rates are within the Australian Standard 4482.1-2005 'Guide to the investigation and sampling of sites with potentially contaminated soil. Part 1: Non-volatile and semi-volatile compounds and Reditus' QA frequency ranges.

The following QA/QC samples were collected and analysed:

- **Soil**
  - DUP02 and TRIP02 were respectively intra-laboratory and inter-laboratory duplicates of primary sample MW02_1.5.
  - DUP03 and TRIP03 were respectively intra-laboratory and inter-laboratory duplicates of primary sample MW03_0.5.
- **Groundwater**
  - DUP1 and TRIP1 were respectively intra-laboratory and inter-laboratory duplicates of primary sample MW03.

9.1.9 RELATIVE PERCENT DIFFERENCE

Refer to **Table 4** and **Table 5**, **Appendix E** for Relative Percent Difference (RPD) calculations for soil and groundwater, respectively. Reditus notes that RPDs were only calculated for groups of compounds with detections above the laboratories limit of reporting.

RPDs for soil were reported within acceptable ranges with the exception of the following:

- Arsenic
  - MW03_0.5 and DUP03 reported an RPD of 61%
  - MW03_0.5 and TRIP03 reported an RPD of 45%
- Chromium (III+VI)
  - MW02_1.5 and DUP02 reported an RPD of 33%
- Lead
  - MW02_1.5 and TRIP02 reported an RPD of 32%
- Zinc
  - MW02_1.5 and DUP02 reported an RPD of 66%

Reditus considers that the RPD exceedances are likely to have been caused by soil heterogeneity, noting that some of these samples were collected from within fill material and are close to the acceptance criteria. Reditus does not consider that the RPD exceedances are due to unsatisfactory sample techniques. Reditus considers that the RPD exceedances have not affected the integrity of the dataset, and that the dataset is reliable.

RPDs for groundwater were reported within acceptable ranges.

9.2 Laboratory QA/QC

9.2.1 SAMPLE HOLDING TIMES

All holding times were reported as being within specified ranges.

9.2.2 LABORATORY ACCREDITATION AND ANALYTICAL METHODS USED

The primary laboratory used for soil samples was Envirolab Services Pty Ltd (Envirolab). Envirolab is accredited by NATA with the accreditation number 2901. The secondary laboratory used was ALS which is also accredited by NATA with the accreditation number 825.

Analytical methods used by the laboratories is provided in the laboratory reports in **Appendix D**.

9.2.3 LABORATORY CONTROL AND DUPLICATE SAMPLES

All laboratory control and duplicate samples were reported within specified ranges with exception to the following:

- **Soil – Envirolab 357735**
  - PFAS
    - Some extracted internal standards are reported outside the 50-150% acceptance range. In such instances, the respective target analyte results are either unaffected or the PQL has been raised to accommodate the outlier(s).

- Metals
  - The laboratory RPD acceptance criteria has been exceeded for 357735-2 (BH01-0.5) for Pb. Therefore a triplicate result has been issued as laboratory sample number 357735-44.

Detailed laboratory QA/QC are found in the laboratory report in **Appendix D**.

9.3 Evaluation of the QA/QC Information Compared to the DQOs

Documentation completeness

- Field forms, chain-of-custody forms and calibration were complete and appropriate.

Data completeness

- All samples were received by the laboratories and analytical results reported including laboratory QA/QC.

Data comparability

- Reditus standard operating procedures, Australian Standards and industry best practice were followed during sampling.
- Consistent field conditions and similarly trained staff were used during sampling.
- The limits of reporting are appropriate and generally consistent from each laboratory.

Data representativeness

- Rinsate sample results indicate all analytes reported below the laboratory limit-of-reporting. Reditus is confident that cross contamination has not occurred, and primary samples are representative of actual conditions.
- The frequency of laboratory blanks was acceptable, and the results were within specified ranges.
- Trip blank results were reported below laboratory limit-of-reporting indicating that cross-contamination during sample storage and transport has not occurred.
- Trip spike results were reported within acceptable ranged indicating that storage conditions were sufficient and are unlikely to have contributed to a loss of VOC within samples.

Precision

- Intra-laboratory and inter-laboratory duplicates were collected at the following rates:
  - Soil and groundwater intra-laboratory and inter-laboratory duplicates were collected at frequencies of 1:12.5 and 1:3 respectively.
  - The QA/QC sample collection rate follows the guidance provided in the Australian Standard Field procedures (AS1482.1 1997).

Reditus consider the data reliable and suitable for the purposes of the DSI.

10 Results

10.1 Field Observations

10.1.1 SOIL

The site was predominately surfaced with concrete and bitumen hardstand which varied between 0.1 and 0.2 m in thickness. The sub-surface geology encountered during the DSI was generally described as follows:

- **Fill**
  - Extended to between 2.25 m below ground level (mbgl) and 4.2 mbgl.
  - The fill profile was variable but was predominantly gravelly sand, silty to gravelly sand, sand and silty sand.
  - No anthropogenic inclusions were observed.
- **Natural**
  - Encountered in each borehole with the exception of BH01.
  - Natural material was encountered between 2.25 and 4.2 mbgl.
  - Predominately clay and silty to sandy clay.
- Water strike, or signs of moisture increase, were observed at approximately 2.0 mbgl to 2.5 mbgl.

No olfactory indications of contamination (i.e., odour or chemical staining) were observed during the intrusive investigation. No potentially asbestos containing material (PACM) was observed in soil during the intrusive investigation. Photoionisation detector (PID) readings were reported between 0.0 ppm and 0.6 ppm, with all readings reported below 1 ppm which Reditus considers to be indicative of ambient conditions.

For a detailed summary of subsurface conditions, borehole logs are provided in **Appendix F**.

10.1.2 GROUNDWATER

A total of three (3) groundwater monitoring wells were installed and sampled as part of this investigation. Details of the geology and well construction are provided in **Table 15** below.

Table 15. Summary of Groundwater Monitoring Well Installation

WELL ID	WELL DEPTH (m BGL)	SCREENED INTERVAL (m BGL)
MW01	5.46	1.96 – 5.46
MW02	4.80	2.30 – 4.80
MW03	6.50	2.70 – 6.50

Results of groundwater gauging, including standing water level (SWL) and depth to LNAPL or hydrocarbon products (if any,) are presented in **Table 16** below. LNAPL was not observed during the groundwater monitoring event.

Table 16. Summary of Standing Water Levels and Relative Elevation

WELL ID	EASTING	NORTHING	STANDING WATER LEVEL (m bTOC)	DEPTH TO LNAPL (m bTOC)	TOC ELEVATION (m AHD)	STANDING WATER LEVEL ELEVATION (m AHD)
MW01	339571	6260100	2.520	ND	7.982	5.462
MW02	339592	6260097	2.435	ND	7.725	5.29

WELL ID	EASTING	NORTHING	STANDING WATER LEVEL (m bTOC)	DEPTH TO LNAPL (m bTOC)	TOC ELEVATION (m AHD)	STANDING WATER LEVEL ELEVATION (m AHD)
MW03	339588	6260121	2.610	ND	8.152	5.523

ND = Not detected
Easting and Northing are recorded in GDA2020 MGA Zone 56.

SWL measurements varied between 2.435 and 2.61 m bTOC during the groundwater monitoring event, corresponding to between 5.29 and 5.523 mAHD.

Groundwater elevation contours interpolated using SWL measurements relative to AHD indicated that the groundwater table is relatively flat, and flows in a southeast direction conforming with local topography towards the Pacific Ocean located approximately 1.8 km east of the site. A figure presenting groundwater elevation contours and flow direction is available in **Figure 3**, **Appendix A**.

Stabilised physicochemical parameters in each well following purging and prior to sampling are summarised in **Table 17** below.

Table 17. Groundwater physicochemical parameters

WELL ID	DATE SAMPLED	TEMPERATURE (°C)	pH	DISSOLVED OXYGEN (ppm)	ELECTRICAL CONDUCTIVITY (mS/cm)	ORP (mV)*
MW01	13/08/2024	19.50	5.22	0.33	0.322	236.5
MW02	13/08/2024	19.30	5.30	1.80	0.257	258.8
MW03[1]	13/08/2024	-	-	-	-	-

* Redox values have been adjusted for the Standard Hydrogen Electrode (SHE) by adding 199 mV to field ORP measurements.

[1] Field parameters were unable to be collected as the well was noted to be very silty and groundwater was unable to be purged using the peristaltic pump. A grab sample of MW03 was collected with a bailer.

Based on the physicochemical parameters recorded during the groundwater monitoring event, the following observations have been made:

- pH ranges between 5.22 and 5.30, indicating slightly acidic groundwater conditions .
- DO ranges between 0.33 and 1.88 ppm. This suggests there is low to moderate dissolved oxygen within groundwater.
- ORP ranges from 236.5 to 258.8 mV, indicating oxidising groundwater conditions.
- Conductivity ranges from 0.257 to 0.322 mS/cm, indicating freshwater conditions.

10.2 Soil Analytical Results

A summary of the soil analytical results is available in **Table 1**, **Appendix E**. The following sections outline the key findings of the comparison between laboratory results and the site assessment criteria. Soil sample locations are presented in **Figure 2**, **Appendix A**.

10.2.1 ASBESTOS

Asbestos was not detected above the laboratory limit of reporting (LOR) within any soil samples submitted for analysis.

10.2.2 CYANIDE

Free cyanide was not detected above the laboratory LOR and below the assessment criteria in each sample submitted for analysis.

10.2.3 BTEXN

BTEXN was not detected at concentrations above the laboratory LOR and below the assessment criteria in each sample submitted for analysis.

10.2.4 HEAVY METALS

Concentrations of heavy metals were reported above the laboratory LOR in each sample submitted for analysis however no exceedances of adopted assessment criteria were reported with the exception of BH02 (0.2 m) (170 mg/kg) which marginally exceeded the EIL criteria (130 mg/kg).

10.2.5 OCP/OPP

OCP/OPP were not detected at concentrations above the laboratory LOR and below assessment criteria in each sample submitted for analysis.

10.2.6 PAH

PAHs were reported above the laboratory LOR in boreholes BH05 and MW02 in shallow surface soils. No exceedances of the adopted assessment criteria were reported.

10.2.7 PFAS

PFAS compounds including PFOS and Sum of PFOS and PFHxS were reported above the laboratory LOR in borehole MW02 in shallow surface soils, however no exceedances of adopted assessment criteria were reported.

10.2.8 PCB

PCB were not detected at concentrations above the laboratory LOR and below assessment criteria in each sample submitted for analysis.

10.2.9 TRH

TRH was reported marginally above the laboratory LOR in the boreholes BH01 within shallow surface soils. No exceedances of adopted assessment criteria were reported for the dataset.

10.2.10 VOC

VOC were not detected at concentrations above the laboratory LOR and below assessment criteria in each sample submitted for analysis.

10.3 Statistical Analysis

With respect to Section 3.2.1 of Schedule B(1) of the NEPM, the 95% upper confidence limit (UCL) of the arithmetic mean contaminant concentration was compared to the EIL criteria. The results were compared against the following requirements for the calculation of the 95%UCL:

- The standard deviation of the results should be less than 50% of the relevant adopted criteria;
- No single value should exceed 250% of the relevant adopted criteria.
- 95% UCL should not exceed the relevant adopted criteria.

The maximum observed contaminant concentration generally provides a conservative assessment.

Using Pro UCL software (USEPA), a range of summary statistics including the 95% UCL for exceeding contaminants onsite were calculated.

Table 18. Pro UCL Statistical Analysis Results (mg/kg)

ANALYTE	MAXIMUM RESULT	ADOPTED CRITERIA	SD	250% OF ADOPTED CRITERIA	95% UCL
Cu	170	130	39.67	325	29.32

From Table 18 the following can be concluded:

- The standard deviation of the laboratory results of samples for copper concentrations is below 50% of the relevant adopted criteria.
- The maximum result is below 250% of the adopted criteria.
- The 95% UCL is below the relevant adopted criteria.
- It can therefore be concluded with at least 95% confidence that the mean concentration copper in soil onsite is less than adopted criteria.

10.4 Groundwater Analytical Results

A summary of the groundwater analytical results is available in **Table 2**, **Appendix E.** The following section outlines the key findings of the comparison between laboratory results and the site assessment criteria. Groundwater monitoring well locations are presented in **Figure 2**, **Appendix A.**

10.4.1 HEAVY METALS

Chromium, lead nickel and zinc concentrations were reported above the laboratory LOR. Zinc was detected at concentrations of between 0.009 mg/L and 0.015 mg/L, exceeding the adopted assessment criteria (0.008 mg/L) in all groundwater monitoring wells.

10.4.2 TRH

TRH were not detected at concentrations above the laboratory LOR and were therefore below assessment criteria in each sample submitted for analysis.

10.4.3 BTEXN

BTEXN were not detected at concentrations above the laboratory LOR and were therefore below assessment criteria in each sample submitted for analysis.

10.4.4 PAH

PAH were not detected at concentrations above the laboratory LOR and were therefore below assessment criteria in each sample submitted for analysis.

10.4.5 VOC

VOC were not detected at concentrations above the laboratory LOR and were therefore below assessment criteria in each sample submitted for analysis.

10.4.6 PFAS

PFAS was reported marginally above laboratory LOR in all groundwater monitoring wells (0.001 µg/L). Concentrations of PFOS in all groundwater monitoring wells 0exceeded the adopted criteria (0.0023 µg/L).

10.4.7 CYANIDE

Cyanide was not detected at concentrations above the laboratory LOR and were therefore below assessment criteria in each sample submitted for analysis.

10.4.8 AMMONIA

Ammonia was reported above the laboratory LOR in all groundwater monitoring wells; however, no exceedances of adopted criteria were reported.

10.5 Soil Vapour Analytical Results

A summary of the soil vapour analytical results is available in **Table 3**, **Appendix E.** The following section outlines the key findings of the comparison between laboratory results and the site assessment criteria. Soil vapour monitoring locations are presented in **Figure 2**, **Appendix A.**

10.5.1 BTEXN

BTEXN was reported below the adopted assessment criteria in all samples submitted for analysis.

10.5.2 TRH

TRH was reported below the adopted assessment criteria in all samples submitted for analysis.

10.5.3 VOCS

VOCs were reported below the adopted assessment criteria in all samples submitted for analysis.

11 Discussion

11.1 Soil

Whilst appreciable amounts of fill material are present across the site, with thicknesses varying between 2.25 and 4.5 mbgl, no human health criteria exceedances were reported within either the fill or natural material, indicating that it is suitable for reuse on the site for the proposed development from a contamination perspective.

One minor exceedance of the ecological criteria for copper was reported at BH03 (0.2 m) located within the centre of the site which appears to be isolated to the shallow fill material. Further 95% UCL analysis shows that with at least 95% confidence that the mean concentration copper in soil onsite is less than adopted criteria.

It is noted that the proposed development plans have not been reviewed during this DSI and there it is unknown if this location is within a proposed landscaped area. If the location is not within a landscaped area, the exceedance is considered to be invalid.

11.2 Groundwater

Exceedances of the adopted groundwater assessment criteria reported for zinc within all groundwater monitoring wells was within one order of magnitude of the adopted assessment criteria. Reditus considers that the concentrations of heavy metals in the groundwater are indicative of groundwater in a regional commercial/industrial setting and are not considered likely to be associated with operations on the site due to a lack of gross contamination observed during the intrusive works.

PFOS concentrations exceeded the PFAS NEMP (2020) 99% species protection guideline of 0.00023 µg/L in all groundwater monitoring wells. It is noted that the PFAS NEMP (2020) that the WQGs advise that the 99% level of protection is to be used for slightly to moderately disturbed systems. The concentrations of PFOS were reported marginally above the laboratory LOR and therefore the PFAS NEMP (2020) 99% species protection guideline. Given there are no ecological receptors onsite and no groundwater extraction occurring at the site, the concentrations of PFOS are not considered to affect the suitability of the site for the proposed development.

It is also noted that the reported concentrations of PFOS were identical across the site, indicating that the site is having no net contribution of PFAS to groundwater and the source is likely located upgradient and offsite. Based on the above, no further investigation is warranted.

11.3 Soil Vapour

No exceedances of the adopted soil vapour guidelines were reported in any of the samples submitted for analysis. Based on the laboratory results, Reditus considers there to be no vapour intrusion risk for the proposed development.

11.4 Extent of Uncertainties in the Results

The sampling methodologies used by Reditus during this investigation have been designed to limit uncertainty in the results. Reditus is confident that the results of this investigation give an accurate representation of the current status of the soils, groundwater and soil vapour investigated but note that in all subsurface investigations the potential remains for variability between sampling points and for conditions to be different on site from the conditions reported herein.

12 Refined Conceptual Site Model

Based on the results of the investigation and the preliminary CSM presented in **Section 5** has been refined to identify complete and potential pathways between the known or potential source(s) and the receptor(s).

Table 19. Refined Conceptual Site Model

SOURCE	EXPOSURE PATHWAY	RECEPTOR	EXPOSURE
Former land use *Vehicle repairs*	• Direct contact with contaminated soil. • Inhalation of contaminated soil as dust. • Surface water run-off. • Vapour intrusion of volatile contaminants. • Leaching to groundwater • Root uptake, of leached contaminants in soil. • Extraction of contaminated groundwater.	• Site workers/visitors. • Construction/maintenance /Trench workers. • Off-site human receptors dust. • Human receptors using extracted groundwater. • On-site and off-site ecological receptors from surface water and groundwater use.	**Unlikely** Soil, groundwater and soil vapour results indicate that a source of significant contamination is not present.
Offsite sources *Adjacent industrial properties*	• Migration of groundwater and discharge into downgradient surface water body Burnt Bridge Creek.	• Off-site ecological receptors from groundwater use.	**Likely Incomplete** The SPR linkage is likely incomplete given the dilution that any discharged groundwater is likely to experience.
Historical cut and fill activities *Moderate potential for uncontrolled fill.*	• Direct contact and ingestion of impacted soil / groundwater. • Vapour inhalation. • Surface water run-off containing contaminant mass. • Leaching to groundwater.	• Site workers/visitors. • Construction/maintenance /Trench workers. • Off-site human receptors dust. • On-site and off-site ecological receptors from site soils.	**Unlikely** Soil, groundwater and soil vapour results indicate that a source of significant contamination is not present.
Hazardous building materials *Cottage and warehouse*	• Inhalation of dust / fibres.	• Construction Workers. • Site occupants. • Maintenance workers[1]	**Unlikely** Soil results indicate that weathering of hazardous building materials does not appear to have occurred/impacted soils at the site.

Notes:

1. Maintenance workers attending the site, particularly if works require excavation, trenching or any activities applicable to the sub-surface of the site.

13 Conclusions and Recommendations

13.1 Conclusions

Based on a review of the site history, observations made during fieldwork, results of laboratory analysis and the proposed land use (commercial/industrial), Reditus concludes the following:

- Fill material was identified at thicknesses of between 2.25 m and 4.2 m during the intrusive investigation and was observed to be predominately gravelly sand, silty to gravelly sand, sand and silty sand. No anthropogenic inclusions were observed.
- Groundwater is inferred to flow in a southeast direction conforming with local topography towards the Pacific Ocean located approximately 1.8 km east of the site.
- Concentrations of CoPC in soil were reported below the adopted assessment criteria in all samples submitted for analysis with the exception of one (1) minor exceedance of the ecological criteria for zinc within shallow soils at BH03, located in the centre of the site. The exceedance appears to be isolated to the shallow fill material around BH03 and is not considered to affect the suitability of the site for the proposed development.
- Concentrations of CoPC in groundwater were reported below the adopted assessment criteria except for PFOS and zinc.
  - Concentrations of zinc exceeding the adopted groundwater assessment criteria were reported within all monitoring well locations. The reported concentrations of zinc were within one order of magnitude of the adopted assessment criteria and are considered to be indicative of groundwater in a regional commercial/industrial setting.
  - PFOS concentrations exceeded the adopted groundwater assessment criteria within all monitoring well locations. The reported concentrations are marginally above the laboratory LOR and given there are no onsite ecological receptors and no groundwater extraction is occurring onsite, the concentrations of PFOS are not considered to affect the suitability of the site for the proposed development. It is also noted that the reported concentrations of PFOS were identical across the site, indicating that the site is having no net contribution of PFAS to groundwater and the source is likely located upgradient and offsite. Based on the above, no further investigation is warranted.
- Concentrations of CoPC in soil vapour were reported below the adopted assessment criteria in all samples submitted for analysis.

13.2 Based on the above, Reditus considers that the site is suitable for the proposed commercial/industrial development Recommendations

Based on the conclusions of the report, Reditus makes the following recommendations for the site:

- Completion of a pre-demolition hazardous materials (HAZMAT) survey of buildings constructed prior to 2004 in accordance with Australian Standard AS2601-2001 Demolition of Structures. There is a high potential for hazardous building materials to be detected within the site structures. When hazardous materials are identified, they should be removed prior to demolition of structures in accordance with the NSW WHS Act, Chapter 8 of the WHS Regulation and SafeWork NSW Codes of Practice including the preparation of an Asbestos Management Plan to inform the removal of asbestos containing building materials in accordance with SafeWork NSW requirements including clearance certificates provided by a SafeWork NSW Licensed Asbestos Assessor or "Competent Person" as defined by the Code of Practice.
- An Acid Sulfate Soils Management Plan is required by Council for works in Class 4 Acid Sulfate Soils risk areas where a development is likely to lower the water table by more than 2m or for works (e.g. piling) extending more than 2m below the natural ground surface. If the proposed development is expected to disturb potential acid sulfate soils, an Acid Sulfate Soils Management plan (ASSMP) will be required.

14 Limitations

This report has been prepared in accordance with the scope of services described in the **Section 1.3**. The letter has been prepared for the sole use of the client and has been prepared in accordance with a scope of work agreed by the client.

The report or document does not purport to provide legal advice and any conclusions or recommendations made should not be relied upon as a substitute for such advice.

The report does not constitute a recommendation by Reditus for the client or any other party to engage in any commercial or financial transaction and any decision by the client or other party to engage in such activities is strictly a matter for the client.

The report relies upon data, surveys, measurements and results taken at or under the Site at particular times and conditions specified herein. Any findings, conclusions or recommendations only apply to the aforementioned circumstances and no greater reliance should be assumed or drawn by the client. Furthermore, the report has been prepared solely for use by the client and Reditus accepts no responsibility for its use by other parties. The client agrees that Reditus' report or associated correspondence will not be used or reproduced in full or in part for promotional purposes and cannot be used or relied upon by any other individual, party, group or company in any prospectus or offering. Any individual, party, group or company seeking to rely on this report cannot do so and should seek their own independent advice.

No warranties, express or implied, are made. Subject to the scope of work undertaken, Reditus assessment is limited strictly to identifying typical environmental conditions associated with the subject property based on the scope of work and testing undertaken and does not include and evaluation of the structural conditions of any buildings on the subject property or any other issues that relate to the operation of the Site and operational compliance of the Site with state or federal laws, guidelines, standards or other industry recommendations or best practice. Scope of work undertaken for assessments are agreed in advance with the client and may not necessarily comply with state or federal laws or industry guidelines for the type of assessment conducted.

Additionally, unless otherwise stated Reditus did not conduct soil, air or wastewater analyses including asbestos or perform contaminated sampling of any kind. Nor did Reditus investigate any waste material from the property that may have been disposed off-site or undertake and assessment or review of related site waste management practices.

The results of this assessment are based upon (if undertaken as part of the scope work) a site inspection conducted by Reditus personnel and/or information from interviews with people who have knowledge of site conditions and/or information provided by regulatory agencies. All conclusions and recommendations regarding the property are the professional opinions of the Reditus personnel involved with the project, subject to the qualifications made above.

While normal assessments of data reliability have been made, Reditus assumes no responsibility or liability for errors in any data obtained from regulatory agencies, statements from sources outside of Reditus, or developments resulting from situations outside the scope of this project/assessment.

Reditus is not engaged in environmental auditing and/or reporting of any kind for the purpose of advertising sales promoting, or endorsement of any client's interests, including raising investment capital, recommending investment decisions, or other publicity purposes. Reditus assumes no responsibility or liability for errors in any data obtained from regulatory agencies, statements from sources outside of Reditus, or developments resulting from situations outside the scope of this project.

In relation the conduct of asbestos inspections or the preparation of hazardous materials reports Reditus has conducted inspections and the identification of hazardous material within the constraints presented by the property. Whilst efforts are made to access areas not normally accessed during normal use of the Site to identify the presence of asbestos or other hazardous material, unless explicitly tested no guarantee can be provided that such material is or is not present.

Reditus' professional opinions are based upon its professional judgment, experience, and training. These opinions are also based upon data derived from the limited testing and analysis described in this report or reports reviewed. It is possible that additional testing and analysis might produce different results and/or different opinions or other opinions. Reditus has limited its investigation(s) to the scope agreed upon with its client. Reditus believes that its opinions are reasonably supported by the testing and analysis that has been undertaken (if any), and that those opinions have been developed according to the professional standard of care for the environmental consulting

profession in this area at this time. Other opinions and interpretations may be possible. That standard of care may change and new methods and practices of exploration, testing and analysis may develop in the future, which might produce different results.

15 References

Environmental Planning

NSW Environmental Planning and Assessment Act (the EP&A Act 1979).

NSW State Environmental Planning Policy Number (SEPP) Resilience and Hazards 2021. Superseding SEPP55 – Remediation of Land, 1998.

Site Contamination

Australian and New Zealand Governments Guidelines for Fresh and Marine Water Quality 2018.

Australian Standard AS4482.1-2005. Guide to the Investigation and Sampling of sites with Potentially Contaminated Soil. Part 1: Non-volatile and Semi-volatile Compounds, 2005.

Australian Standard AS4482.2-1999. Guide to the Investigation and Sampling of sites with Potentially Contaminated Soil. Part 2: Volatile Substances,1999.

National Environment Protection Council (1999, Revised 2013) National Environment Protection (Assessment of Site Contamination) Amendment Measure 2013 – Schedule B1 Guideline on Investigation levels for Soil and Groundwater (NEPC, 2013).

National Health and Medical Research Council (NHMRC) Australian Drinking Water Guidelines 6, 2011, Version 3.8 Updated September 2022.

NSW Contaminated Land Management Act (the CLM Act 1997).

NSW EPA statutory guidelines made or approved under section 105 of the CLM Act, including:

– *NSW EPA Guidelines for Assessment and Management of Hazardous Ground Gases, 2020.*

– *NSW EPA Guidelines for Consultants Reporting on Contaminated Land, 2020.*

– *NSW EPA Guidelines for the Assessment and Management of Groundwater Contamination, 2007.*

– *NSW EPA Guidelines for the NSW Site Auditor Scheme (3rd Edition), 2017.*

– *NSW EPA Sampling Design Guidelines, August 2022.*

PFAS National Environmental Management Plan version 2.0 (the PFAS NEMP 2.0), 2020.

Protection of the Environment Operations (Underground Petroleum Storage Systems) Regulation 2019

Acid Sulfate Soils

The Acid Sulfate Soil Management Advisory Committee (ASSMAC) Acid Sulfate Soils Assessment Guidelines 1998 (Also referred to as the "Acid Sulfate Soils Manual").

Waste

NSW Protection of the Environment Operations Act (POEO Act) 1997.

NSW Protection of the Environment Operations (Waste) Regulations 2014.

NSW EPA Resource Recovery Order, Excavated Natural Material Order under Part 9, Clause 93 of POEO Waste Regulation 2014 (the ENM Order 2014).

NSW EPA Waste Classification Guidelines, Part 1 Classifying Waste, 2014.

Asbestos

NSW EPA Managing Asbestos in or on Soil, 2014 (NSW EPA 2014).

NSW Work Health and Safety Act, 2011 (WHS Act 2011).

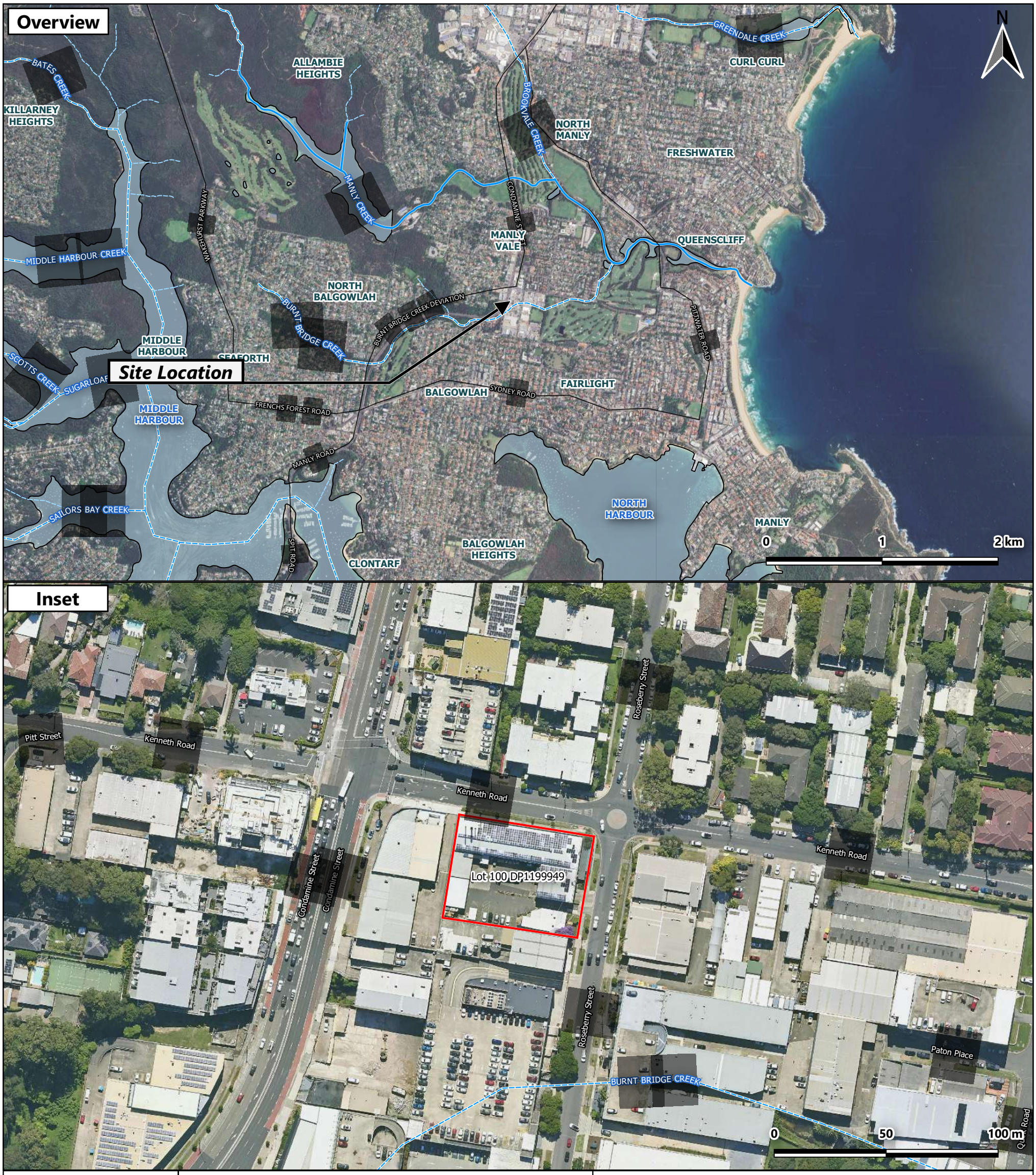
NSW Work Health and Safety Regulations, 2017 (WHS Reg 2017), Chapter 8 Asbestos, 2017 (NSW WHS Reg 2017).

Western Australia Department of Health Guidelines for the Assessment Remediation and Management of Asbestos Contaminated Sites in Western Australia 2009 (WA DoH, 2009) as referred to by NEPM 2013

A

Figures

REDITUS



Map	Date of Export	Author	Approver	Data Source
24072_rp02_f01_siteloc_v01	26/08/2024	TW	NP	Metromap, Google Maps, Open Street Map, NSW Government

Legend

- Site Boundary
- Major Roads
- Railways
- Surface Water

Watercourses

- Rivers
- Stream (Perennial)
- Stream (Non-Perennial)
- Unnamed Stream (Non-Perennial)
- Other Channels

Figure 1 - Site Location

37 Roseberry Street, Balgowlah NSW 2093

24072 - Detailed Site Investigation

McDonald's Australia Limited

REDITUS

Map	
24072_rp02_f02_sitelayout_v01	
Date of Export	**Map Scale (approx. at A3)**
26/08/2024	1:415
Author	**Approver**
TW	NP
Data Source	
Metromap, Google Maps, Open Street Map, Geoscience Australia	

Legend

Site Boundary

Sampling Locations

Borehole

Groundwater Monitoring Well

Vapour Point

Figure 2 - Sample Locations

37 Roseberry Street, Balgowlah NSW 2093

24072 - Detailed Site Investigation

McDonald's Australia Limited

REDITUS

Map	
24072_rp02_f03_GW Contours_v01	
Date of Export	**Map Scale (approx. at A3)**
26/08/2024	1:300
Author	**Approver**
TW	NP
Data Source	
Metromap, Google Maps, Open Street Map, Geoscience Australia	

Legend

- Site Boundary
- Groundwater Elevation Contours (mAHD)
- Inferred Groundwater Flow Direction

Sampling Locations

- Borehole
- Groundwater Monitoring Well
- Vapour Point

Figure 3 - Groundwater Elevation Contours

37 Roseberry Street, Balgowlah NSW 2093

24072 - Detailed Site Investigation

McDonald's Australia Limited

B

Photoboard

APPENDIX B SITE PHOTOGRAPHS		
Report Title Detailed Site Investigation		
Client Name McDonald's Australia Limited	Site Location 37 Roseberry Street, Balgowlah NSW 2093	Project Number 24072

Photo No.	Date
1	17 May 2024

Direction Facing

Southwest

Description

Cottage in southeast corner of the site.

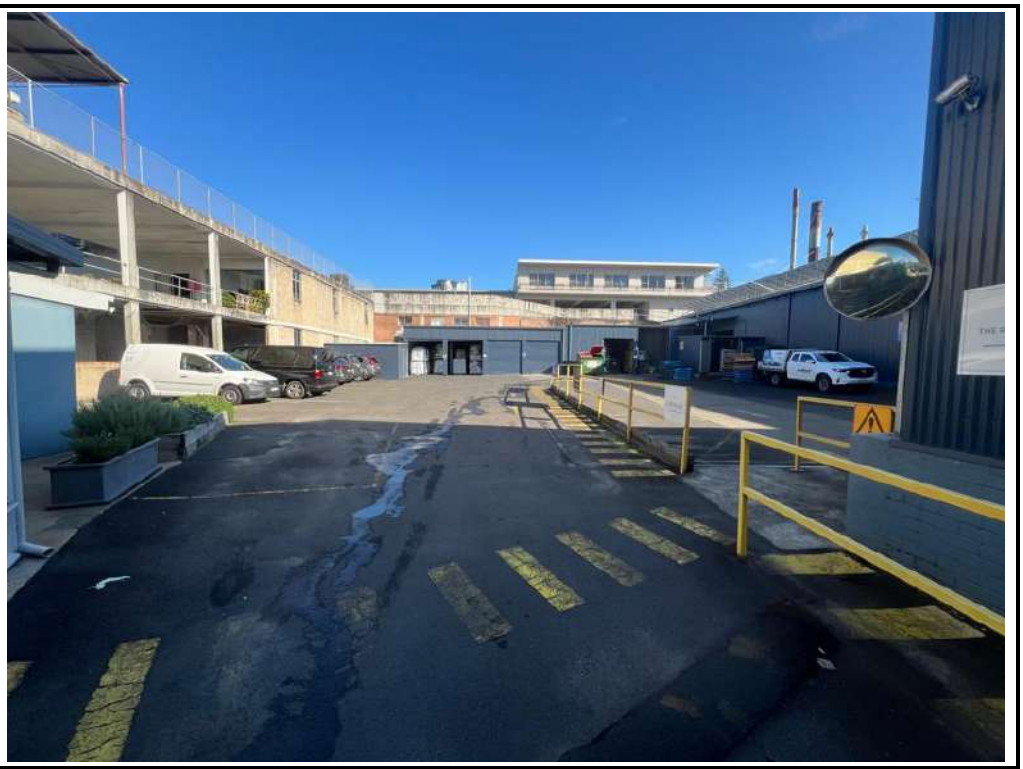
Photo No.	Date
2	17 May 2024

Direction Facing

West

Description

Driveway and carparking. Shed in centre of image on western boundary. Warehouse in right of image. Retaining wall (grey brick) in lower right of image behind the yellow railing.



APPENDIX B SITE PHOTOGRAPHS		
Report Title Detailed Site Investigation		
Client Name McDonald's Australia Limited	Site Location 37 Roseberry Street, Balgowlah NSW 2093	Project Number 24072

Photo No.	Date
3	17 May 2024

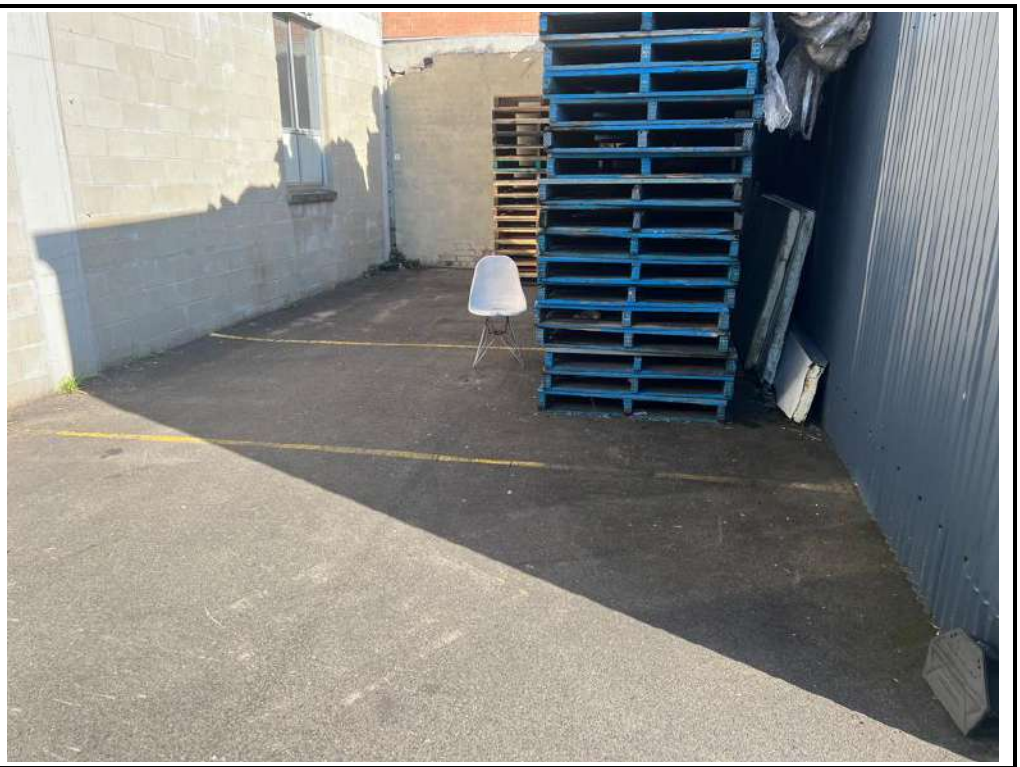
Direction Facing
Northwest

Description
Sheds on western boundary and warehouse with hardstand in foreground.

Photo No.	Date
4	17 May 2024

Direction Facing
Southwest

Description
Southwest corner of the site. Colourbond shed in right of image.



APPENDIX B SITE PHOTOGRAPHS		
Report Title Detailed Site Investigation		
Client Name McDonald's Australia Limited	Site Location 37 Roseberry Street, Balgowlah NSW 2093	Project Number 24072

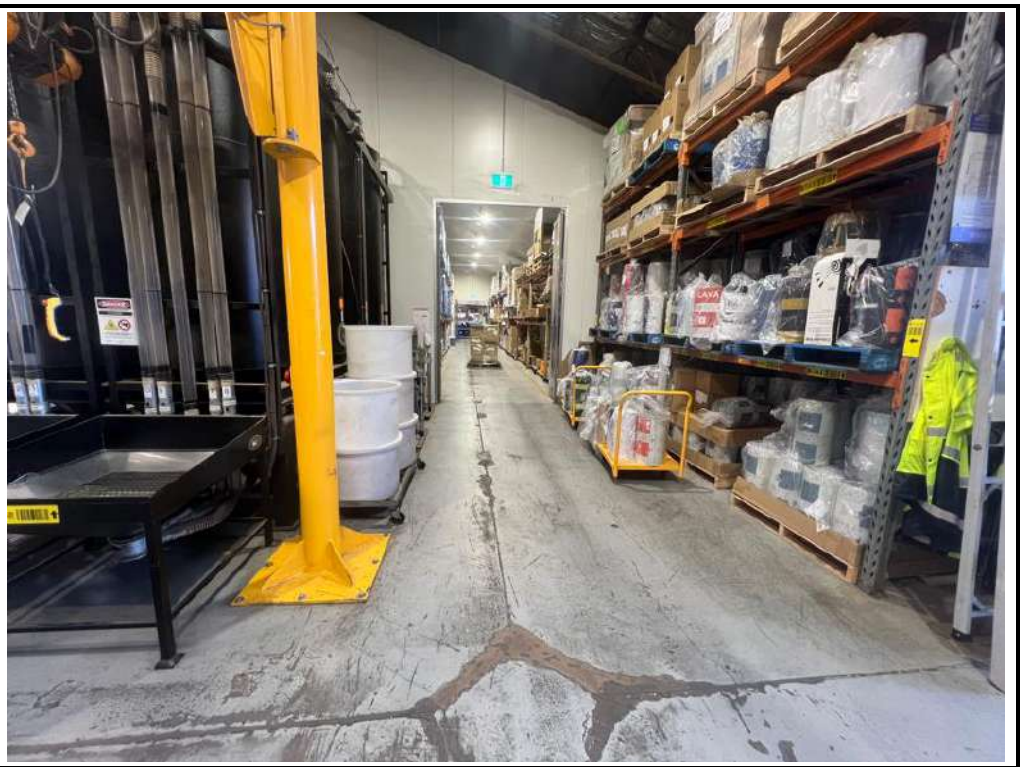
Photo No.	Date
5	17 May 2024
Direction Facing East-northeast	
Description Loading area right of image and warehouse in the left.	

Photo No.	Date
6	17 May 2024
Direction Facing West	
Description Inside warehouse. Asbestos cladding present in building materials in the righthand side of image.	

APPENDIX B SITE PHOTOGRAPHS		
Report Title Detailed Site Investigation		
Client Name McDonald's Australia Limited	Site Location 37 Roseberry Street, Balgowlah NSW 2093	Project Number 24072

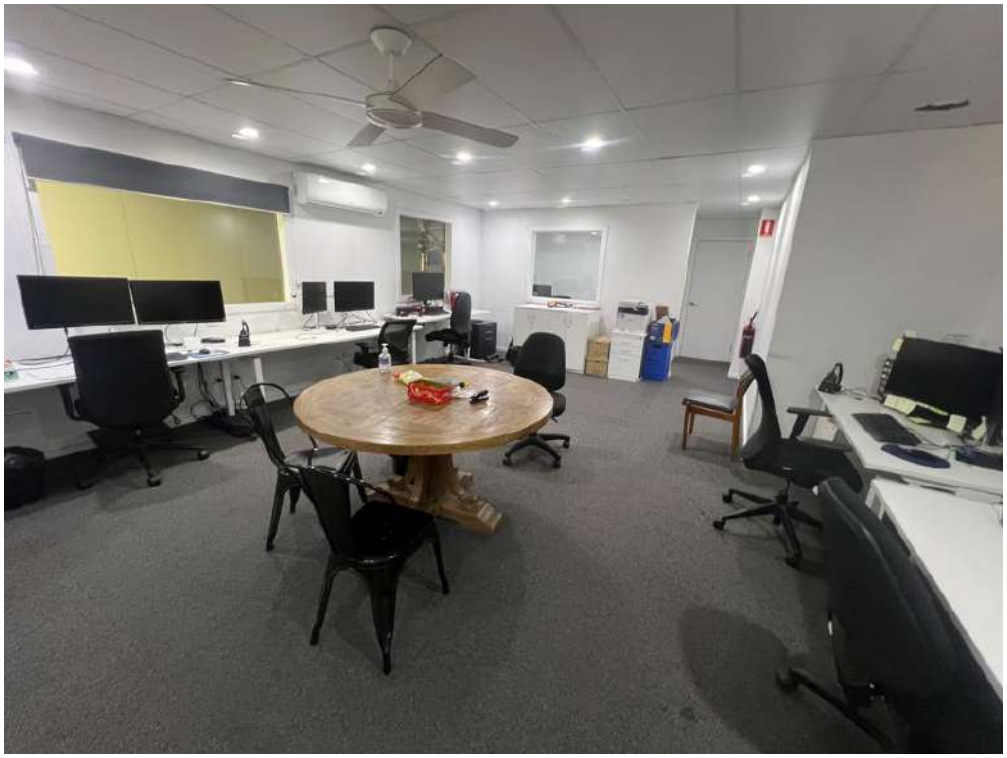
Photo No.	Date
7	17 May 2024
Direction Facing West	
Description Coffee roasting equipment.	

Photo No.	Date
8	17 May 2024
Direction Facing East	
Description Inside warehouse – racking used for storage of coffee related equipment and products.	



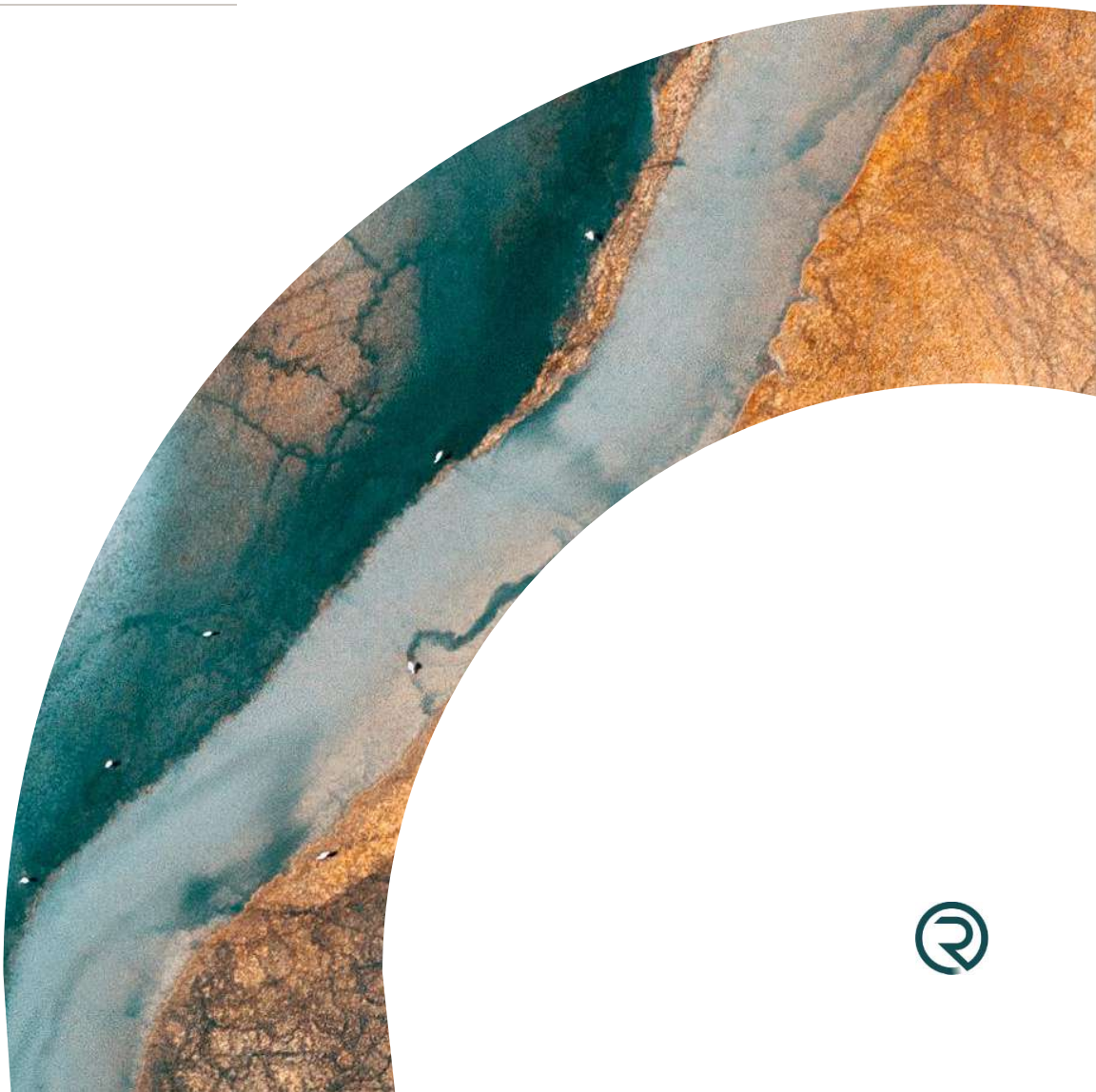
APPENDIX B SITE PHOTOGRAPHS		
Report Title Detailed Site Investigation		
Client Name McDonald's Australia Limited	Site Location 37 Roseberry Street, Balgowlah NSW 2093	Project Number 24072

Photo No.	Date
9	17 May 2024
Direction Facing -	
Description Office on first floor of warehouse.	



C

GME Field Sheets



REDITUS Groundwater Monitoring Field Sheet

Job Information	
Date: 9.08.24	Time: arrive depart
Project Name:	Project Number: 24072
Site Location: Balgowlah	Operator: TW
Well ID: MW01	Weather: Fine

Equipment						
Water quality equipment description: YSI Pro						
Interface probe number: Solinst 122						
Purging equipment: (please cirlce)	Bailer type:	**Plastic**	**Teflon**			
	Pump type:	**Peristaltic**	**Submersible**	**Micro-purge**	**Amazon**	**Other:**

Well Gauging and Purge Volume Calculations

Casing Diameter	25mm	50mm	100mm	125mm	150mm	200mm	250mm	300mm
Conversion Factor (volume in factor L/m)	0.98	1.96	7.85	31.4	49.1	70.7	125.7	196.3

Volume of water in well / V = Pr x r x h
V = volume in litres
P = 3.14159
r = radius in cm
h = height of water column in cm

Total Well Depth (-) Water level (=) Water Column
5.46 m (-) 2.52 m (=) _____ m

Water Column (x) Conversion Factor (=) Litres per 1 Well Volume
_____ m (x) _____ (=) _____ L

Water Quality Parameters

Beginning purge time: Ending purge time:

Litres	Time	pH	Temp C°	Cond mS/cm	DO ppm	Redox mV	Depth to water mbtoc	Comments
1	5:25	5.40	19.5	0.328	0.43	21.4	2.57	Slightly turbid, brown colour, no sheen
3	5:31	5.28	19.6	0.328	0.24	36.1	2.59	Becoming more clear
5	5:37	5.29	19.4	0.326	0.25	37.7		
7	5:43	5.24	19.4	0.323	0.30	37.8	2.62	
9	5:49	5.22	19.5	0.322	0.33	37.5		
								Sample
Stabilisation Criteria		**+/- 0.05**	**+/- 10%**	**+/- 3%**	**+/- 10%**	**+/- 10%**		**Example Comments:** clear / slightly cloudy / turbid / very turbid / no odour / slight odour / odour / strong odour

Total Well Volume
Actual amount of water prior to sampling

**pH, temp, cond readings not necessary if well is purged dry*

Did field parameters stabilise? Y N NA

Was the well dry purged? Y N NA

Field QC Checks

Was pre-cleaning sampling equipment used for these samples?	Y	N	NA	Sample containers: 9
Was pre-cleaning sampling equipment properly protected from contamination?	Y	N	NA	
Was documentation of equipment conducted?	Y	N	NA	
Were air bubbles present in vials at time of collection?	Y	N	NA	
Was sample for metals field filtered prior to preservations?	Y	N	NA	
Duplicate sample collected?	Y	N		Duplicate sample ID

REDITUS Groundwater Monitoring Field Sheet

Job Information

Date: 9.08.24	Time: arrive depart
Project Name:	Project Number: 24072
Site Location: Bakpwian	Operator: TW
Well ID: MW02	Weather: Fine/dark

Equipment

Water quality equipment description: 451 Pro

Interface probe number: Solinst 122

Purging equipment: (please cirlce)
Bailer type: **Plastic** **Teflon**
Pump type: **Peristaltic** **Submersible** **Micro-purge** **Amazon** **Other:**

Well Gauging and Purge Volume Calculations

Casing Diameter	25mm	50mm	100mm	125mm	150mm	200mm	250mm	300mm
Conversion Factor (volume in factor L/m)	0.98	1.96	7.85	31.4	49.1	70.7	125.7	196.3

Volume of water in well / V = Pr x r x h
V = volume in litres
P = 3.14159
r = radius in cm
h = height of water column in cm

Total Well Depth (-) Water level (=) Water Column
4.80 m (-) 2.435 m (=) 2.365 m

Water Column (x) Conversion Factor (=) Litres per 1 Well Volume
" m (x) 1.96 (=) 4.6 L

Water Quality Parameters

Beginning purge time: Ending purge time:

Litres	Time	pH	Temp C°	Cond mS/cm	DO ppm	Redox mV	Depth to water mbtoc	Comments
1	6:54	5.94	20.5	0.319	1.95	39.4	2.8	clear, no odour or sheen
3	7:02	5.92	20.5	0.359	1.72	38.8	3.0	
5	7:08	5.88	20.6	0.340	1.71	37.1		
7	7:14	5.81	19.9	0.317	1.88	37.5	3.5	(slow down)
9	7:22	5.56	19.8	0.282				
9	7:24	5.38	19.8	0.263	3.45	52.7		
10	7:32	5.30	19.3	0.257	4.88	59.8		
								Sample
								→ not completely stable but many well volumes means confident its GW
Stabilisation Criteria		**+/- 0.05**	**+/- 10%**	**+/- 3%**	**+/- 10%**	**+/- 10%**		**Example Comments:** clear / slightly cloudy / turbid / very turbid / no odour / slight odour / odour / strong odour

Total Well Volume
Actual amount of water prior to sampling

**pH, temp, cond readings not necessary if well is purged dry*

Did field parameters stabilise? Y (N) NA

Was the well dry purged? Y (N) NA

Field QC Checks

Was pre-cleaning sampling equipment used for these samples?	(Y)	N	NA	Sample containers: 9
Was pre-cleaning sampling equipment properly protected from contamination?	(Y)	N	NA	
Was documentation of equipment conducted?	(Y)	N	NA	
Were air bubbles present in vials at time of collection?	Y	(N)	NA	
Was sample for metals field filtered prior to preservations?	(Y)	N	NA	
Duplicate sample collected?	(Y)	N		Duplicate sample ID

no dup. + trip

REDITUS Groundwater Monitoring Field Sheet

Job Information

Date: 13.08.24	Time: arrive depart
Project Name:	Project Number: 24072
Site Location: Balgowlah	Operator: TW
Well ID: MW03	Weather: Fine

Equipment

Water quality equipment description: N/A

Interface probe number:

Purging equipment: (please cirlce)
Bailer type: **Plastic** Teflon
Pump type: Peristaltic Submersible Micro-purge Amazon Other:

Well Gauging and Purge Volume Calculations

Casing Diameter	25mm	50mm	100mm	125mm	150mm	200mm	250mm	300mm
Conversion Factor (volume in factor L/m)	0.98	1.96	7.85	31.4	49.1	70.7	125.7	196.3

Volume of water in well / V = Pr x r x h
V = volume in litres
P = 3.14159
r = radius in cm
h = height of water column in cm

Total Well Depth (-) Water level (=) Water Column
_____ m (-) 2.61 m (=) _____ m

Water Column (x) Conversion Factor (=) Litres per 1 Well Volume
_____ m (x) _____ (=) _____ L

Water Quality Parameters

Beginning purge time: Ending purge time:

Litres	Time	pH	Temp C°	Cond mS/cm	DO ppm	Redox mV	Depth to water mbtoc	Comments
								on 9.8.24 purging began - unable to pump (silted well) → try new tubing → insert only 0.3m into water - still too silty to purge w/ pump (pump struggle to get water up)
	unable to obtain field parameters							very fine silt.
								come back 13.8.24 → sample w/ bailer (fine silt) slight metal odour, very turbid, brown colour, no sheen
Stabilisation Criteria		**+/- 0.05**	**+/- 10%**	**+/- 3%**	**+/- 10%**	**+/- 10%**		**Example Comments:** clear / slightly cloudy / turbid / very turbid / no odour / slight odour / odour / strong odour

Total Well Volume
Actual amount of water prior to sampling

**pH, temp, cond readings not necessary if well is purged dry*

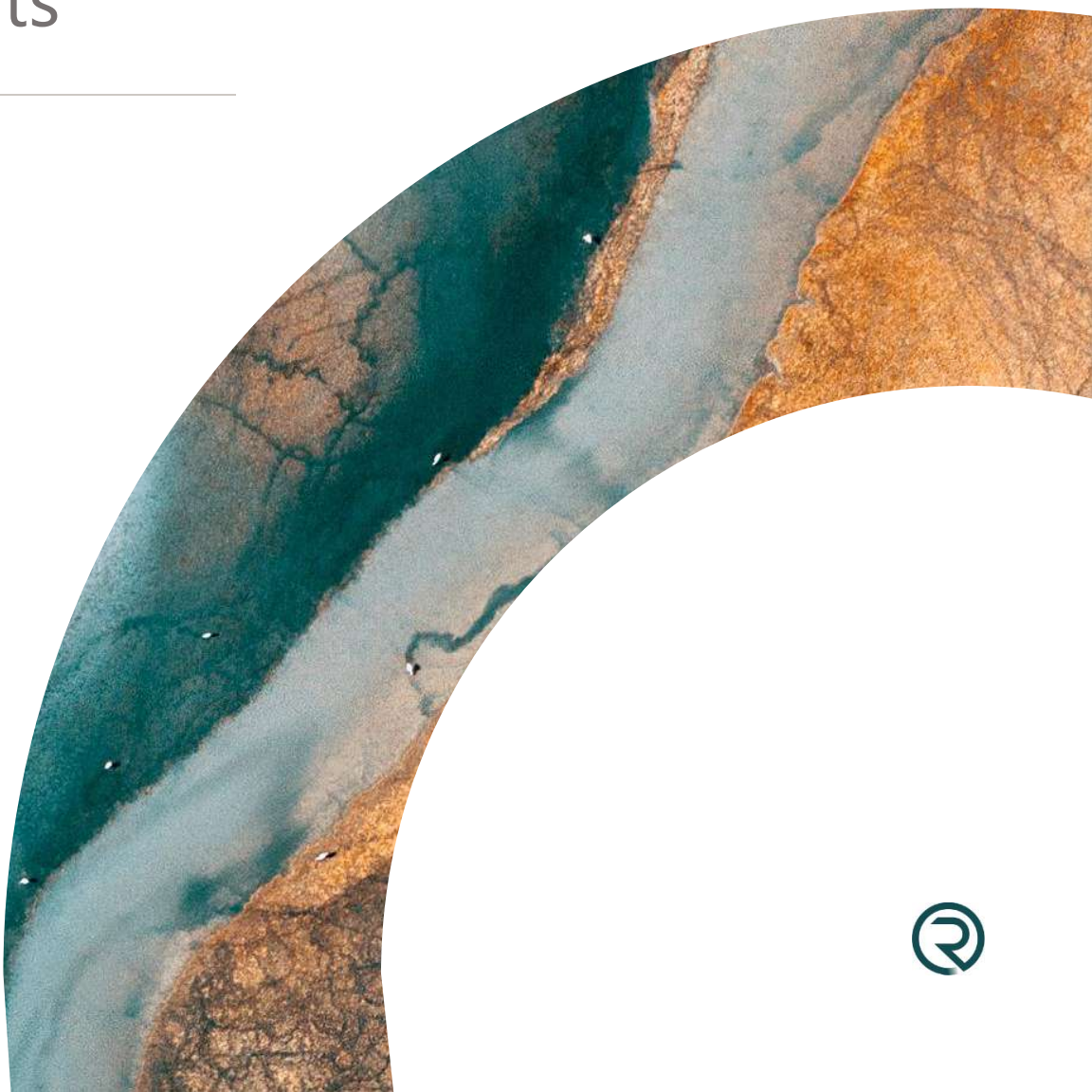
Did field parameters stabilise? Y N (NA) Was the well dry purged? Y N (NA)

Field QC Checks

Was pre-cleaning sampling equipment used for these samples?	(Y)	N	NA	Sample containers:
Was pre-cleaning sampling equipment properly protected from contamination?	(Y)	N	NA	
Was documentation of equipment conducted?	(Y)	N	NA	
Were air bubbles present in vials at time of collection?	Y	(N)	NA	
Was sample for metals field filtered prior to preservations?	(Y)	N	NA	
Duplicate sample collected?	(Y)	N		Duplicate sample ID DUP1 / TRIP1

D

NATA Laboratory Reports



COC:29/07/24 1126

CHAIN OF CUSTODY FORM - Client

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Client: Reditus Consulting	Client Project Name/Number/Site etc (ie report title): 24072
Contact Person: Hassan Elbatoory	
Project Mgr: Natasha Pasley	PO: 24072
Sampler: Hassan Elbatoory	Envirolab Quote No.:
Address: 1A / 29-33 Waratah Street Kirrawee NSW	Date results required: Standard
	Or choose: standard / same day / 1 day / 2 day / 3 day *Note: inform lab in advance if urgent turnaround is required - surcharges apply*
Phone: 02 9521 6567 Mob: 0490 237 157	Additional report format: esdat
Email Invoice To: accounts@reditusconsulting.com	Lab Comments:
Email Results To: natashapasley@reditsconsulting.com, hassanelbatoory@reditusconsulting.com,	

Sample Information					Tests Required														Comments
Envirolab Sample ID	Client Sample ID or Information	Depth	Date sampled	Type of sample	Hold	Combo 3a	Combo 3	Free Cyanide	VOC	OCP, OPP, PCBs	PFAS - Extended Suite								Provide as much information about the sample as you can
1	BH01_0.2	0.2	27/07/2024	Soil	X														
2	BH01_0.5	0.5	27/07/2024	Soil		X													
3	BH01_1.5	1.5	27/07/2024	Soil				X	X	X									
4	BH01_2.5	2.5	27/07/2024	Soil	X														
5	BH01_3.5	3.5	27/07/2024	Soil			X												
6	BH02_0.2	0.2	27/07/2024	Soil	X														
7	BH02_0.5	0.5	27/07/2024	Soil		X													
8	BH02_1.5	1.5	27/07/2024	Soil	X														
9	BH02_2.5	2.5	27/07/2024	Soil	X														
NA 10	BH02_3.5	3.5	27/07/2024	Soil			X	X	X										
10 11	BH03_0.2	0.2	27/07/2024	Soil		X													
11 12	BH03_0.5	0.5	27/07/2024	Soil						X									
12 13	BH03_1.5	1.5	27/07/2024	Soil	X														
13 14	BH03_2.5	2.5	27/07/2024	Soil				X	X										(43) EXTRA SAMPLE GR
14 15	BH03_3.5	3.5	27/07/2024	Soil			X												
15 16	BH04_0.2	0.2	27/07/2024	Soil		X													TB
16 17	BH04_0.5	0.5	27/07/2024	Soil	X														
17 18	BH04_1.5	1.5	27/07/2024	Soil	X														
18 19	BH04_2.5	2.5	27/07/2024	Soil				X	X										
19 20	BH04_3.5	3.5	27/07/2024	Soil			X												
20 21	BH05_0.2	0.2	27/07/2024	Soil		X					X								
21 22	BH05_0.5	0.5	27/07/2024	Soil	X														
22 23	BH05_1.5	1.5	27/07/2024	Soil						X									
23 24	BH05_2.5	2.5	27/07/2024	Soil				X	X										
24 25	BH05_3.5	3.5	27/07/2024	Soil			X												
25 26	MW01_0.2	0.2	28/07/2024	Soil	X														
26 27	MW01_0.5	0.5	28/07/2024	Soil		X													
27 28	MW01_1.5	1.5	28/07/2024	Soil				X	X										
28 29	MW01_2.5	2.5	28/07/2024	Soil	X														
29 30	MW01_3.5	3.5	28/07/2024	Soil			X												
30 31	MW02_0.2	0.2	27/07/2024	Soil		X					X								
31 32	MW02_0.5	0.5	27/07/2024	Soil						X									
32 33	MW02_1.5	1.5	27/07/2024	Soil		X		X	X										
33 34	MW02_2.5	2.5	27/07/2024	Soil	X														
34 35	MW02_4.0	4	27/07/2024	Soil	X														
35 36	MW03_0.2	0.2	28/07/2024	Soil	X														
36 37	MW03_0.5	0.5	28/07/2024	Soil		X					X								
37 38	MW03_1.5	1.5	28/07/2024	Soil				X	X	X									
38 39	MW03_2.5	2.5	28/07/2024	Soil	X														
39 40	MW03_3.5	3.5	28/07/2024	Soil			X												
40 41	DUP01		27/07/2024	Soil	X														
41 42	DUP02		27/07/2024	Soil			X												
42 43	DUP03		28/07/2024	Soil			X				X								
50 44	TRIP01		27/07/2024	Soil	X														Forward to ALS
51 45	TRIP02		27/07/2024	Soil			X												Forward to ALS
52 46	TRIP03		28/07/2024	Soil			X				X								Forward to ALS

Relinquished by (C *Please tick the box if observed settled sediment present in wa*	Received by (Company): ELS SYD	Lab Use Only	
Print Name: Hassan Elbatoory	Print Name: GR		Cooling: Ice / Ice pack / None
Date & Time: 4/7/24 11:00am	Date & Time: 29/7/24 1525		Security seal: Intact / Broken / None
Signature: H.Elbatoory	Signature:		

#357735

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CERTIFICATE OF ANALYSIS 357735

Client Details

Client	Reditus Consulting
Attention	Natasha Pasley
Address	Shop 1, 29-33 Waratah St, KIRRAWEE, NSW, 2232

Sample Details

Your Reference	**24072**
Number of Samples	43 Soil
Date samples received	29/07/2024
Date completed instructions received	30/07/2024

Analysis Details

Please refer to the following pages for results, methodology summary and quality control data.

Samples were analysed as received from the client. Results relate specifically to the samples as received.

Results are reported on a dry weight basis for solids and on an as received basis for other matrices.

Please refer to the last page of this report for any comments relating to the results.

Report Details

Date results requested by	05/08/2024
Date of Issue	05/08/2024

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Asbestos Approved By
Analysed by Asbestos Approved Analyst: Sneha Shakya
Authorised by Asbestos Approved Signatory: Lucy Zhu

Results Approved By
Diego Bigolin, Inorganics Supervisor
Dragana Tomas, Senior Chemist
Giovanni Agosti, Group Technical Manager
Jack Wallis, Chemist (FAS)
Lucy Zhu, Asbestos Supervisor
Sean McAlary, Senior Chemist
Timothy Toll, Senior Chemist

Authorised By
Nancy Zhang, Laboratory Manager

VOCs in soil						
Our Reference		357735-3	357735-9	357735-13	357735-18	357735-23
Your Reference	UNITS	BH01_1.5	BH02_2.5	BH03_2.5	BH04_2.5	BH05_2.5
Depth		1.5	2.5	2.5	2.5	2.5
Date Sampled		27/07/2024	27/07/2024	27/07/2024	27/07/2024	27/07/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date Extracted	-	31/07/2024	31/07/2024	31/07/2024	31/07/2024	31/07/2024
Date Analysed	-	04/08/2024	04/08/2024	04/08/2024	04/08/2024	04/08/2024
Dichlorodifluoromethane	mg/kg	<1	<1	<1	<1	<1
Chloromethane	mg/kg	<1	<1	<1	<1	<1
Vinyl Chloride	mg/kg	<1	<1	<1	<1	<1
Bromomethane	mg/kg	<1	<1	<1	<1	<1
Chloroethane	mg/kg	<1	<1	<1	<1	<1
Trichlorofluoromethane	mg/kg	<1	<1	<1	<1	<1
1,1-Dichloroethene	mg/kg	<1	<1	<1	<1	<1
trans-1,2-Dichloroethene	mg/kg	<1	<1	<1	<1	<1
1,1-Dichloroethane	mg/kg	<1	<1	<1	<1	<1
cis-1,2-Dichloroethene	mg/kg	<1	<1	<1	<1	<1
Bromochloromethane	mg/kg	<1	<1	<1	<1	<1
Chloroform	mg/kg	<1	<1	<1	<1	<1
2,2-Dichloropropane	mg/kg	<1	<1	<1	<1	<1
1,2-Dichloroethane	mg/kg	<1	<1	<1	<1	<1
1,1,1-Trichloroethane	mg/kg	<1	<1	<1	<1	<1
1,1-Dichloropropene	mg/kg	<1	<1	<1	<1	<1
Cyclohexane	mg/kg	<1	<1	<1	<1	<1
Carbon Tetrachloride	mg/kg	<1	<1	<1	<1	<1
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Dibromomethane	mg/kg	<1	<1	<1	<1	<1
1,2-Dichloropropane	mg/kg	<1	<1	<1	<1	<1
Trichloroethene	mg/kg	<1	<1	<1	<1	<1
Bromodichloromethane	mg/kg	<1	<1	<1	<1	<1
trans-1,3-Dichloropropene	mg/kg	<1	<1	<1	<1	<1
cis-1,3-Dichloropropene	mg/kg	<1	<1	<1	<1	<1
1,1,2-Trichloroethane	mg/kg	<1	<1	<1	<1	<1
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
1,3-Dichloropropane	mg/kg	<1	<1	<1	<1	<1
Dibromochloromethane	mg/kg	<1	<1	<1	<1	<1
1,2-Dibromoethane	mg/kg	<1	<1	<1	<1	<1
Tetrachloroethene	mg/kg	<1	<1	<1	<1	<1
1,1,1,2-Tetrachloroethane	mg/kg	<1	<1	<1	<1	<1
Chlorobenzene	mg/kg	<1	<1	<1	<1	<1

VOCs in soil						
Our Reference		357735-3	357735-9	357735-13	357735-18	357735-23
Your Reference	UNITS	BH01_1.5	BH02_2.5	BH03_2.5	BH04_2.5	BH05_2.5
Depth		1.5	2.5	2.5	2.5	2.5
Date Sampled		27/07/2024	27/07/2024	27/07/2024	27/07/2024	27/07/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
Bromoform	mg/kg	<1	<1	<1	<1	<1
m+p-Xylene	mg/kg	<2	<2	<2	<2	<2
Styrene	mg/kg	<1	<1	<1	<1	<1
1,1,2,2-Tetrachloroethane	mg/kg	<1	<1	<1	<1	<1
o-Xylene	mg/kg	<1	<1	<1	<1	<1
1,2,3-Trichloropropane	mg/kg	<1	<1	<1	<1	<1
Isopropylbenzene	mg/kg	<1	<1	<1	<1	<1
Bromobenzene	mg/kg	<1	<1	<1	<1	<1
n-Propylbenzene	mg/kg	<1	<1	<1	<1	<1
2-Chlorotoluene	mg/kg	<1	<1	<1	<1	<1
4-Chlorotoluene	mg/kg	<1	<1	<1	<1	<1
1,3,5-Trimethylbenzene	mg/kg	<1	<1	<1	<1	<1
tert-Butylbenzene	mg/kg	<1	<1	<1	<1	<1
1,2,4-Trimethylbenzene	mg/kg	<1	<1	<1	<1	<1
1,3-Dichlorobenzene	mg/kg	<1	<1	<1	<1	<1
sec-Butylbenzene	mg/kg	<1	<1	<1	<1	<1
1,4-Dichlorobenzene	mg/kg	<1	<1	<1	<1	<1
4-Isopropyltoluene	mg/kg	<1	<1	<1	<1	<1
1,2-Dichlorobenzene	mg/kg	<1	<1	<1	<1	<1
n-Butylbenzene	mg/kg	<1	<1	<1	<1	<1
1,2-Dibromo-3-chloropropane	mg/kg	<1	<1	<1	<1	<1
1,2,4-Trichlorobenzene	mg/kg	<1	<1	<1	<1	<1
Hexachlorobutadiene	mg/kg	<1	<1	<1	<1	<1
1,2,3-Trichlorobenzene	mg/kg	<1	<1	<1	<1	<1
Surrogate Dibromofluoromethane	%	109	109	109	108	107
Surrogate aaa-Trifluorotoluene	%	113	96	98	93	115
Surrogate Toluene-d_8	%	110	111	112	111	110
Surrogate 4-Bromofluorobenzene	%	96	96	96	96	96

VOCs in soil				
Our Reference		357735-27	357735-32	357735-37
Your Reference	UNITS	MW01_1.5	MW02_1.5	MW03_1.5
Depth		1.5	1.5	1.5
Date Sampled		28/07/2024	27/07/2024	28/07/2024
Type of sample		Soil	Soil	Soil
Date Extracted	-	31/07/2024	31/07/2024	31/07/2024
Date Analysed	-	04/08/2024	04/08/2024	04/08/2024
Dichlorodifluoromethane	mg/kg	<1	<1	<1
Chloromethane	mg/kg	<1	<1	<1
Vinyl Chloride	mg/kg	<1	<1	<1
Bromomethane	mg/kg	<1	<1	<1
Chloroethane	mg/kg	<1	<1	<1
Trichlorofluoromethane	mg/kg	<1	<1	<1
1,1-Dichloroethene	mg/kg	<1	<1	<1
trans-1,2-Dichloroethene	mg/kg	<1	<1	<1
1,1-Dichloroethane	mg/kg	<1	<1	<1
cis-1,2-Dichloroethene	mg/kg	<1	<1	<1
Bromochloromethane	mg/kg	<1	<1	<1
Chloroform	mg/kg	<1	<1	<1
2,2-Dichloropropane	mg/kg	<1	<1	<1
1,2-Dichloroethane	mg/kg	<1	<1	<1
1,1,1-Trichloroethane	mg/kg	<1	<1	<1
1,1-Dichloropropene	mg/kg	<1	<1	<1
Cyclohexane	mg/kg	<1	<1	<1
Carbon Tetrachloride	mg/kg	<1	<1	<1
Benzene	mg/kg	<0.2	<0.2	<0.2
Dibromomethane	mg/kg	<1	<1	<1
1,2-Dichloropropane	mg/kg	<1	<1	<1
Trichloroethene	mg/kg	<1	<1	<1
Bromodichloromethane	mg/kg	<1	<1	<1
trans-1,3-Dichloropropene	mg/kg	<1	<1	<1
cis-1,3-Dichloropropene	mg/kg	<1	<1	<1
1,1,2-Trichloroethane	mg/kg	<1	<1	<1
Toluene	mg/kg	<0.5	<0.5	<0.5
1,3-Dichloropropane	mg/kg	<1	<1	<1
Dibromochloromethane	mg/kg	<1	<1	<1
1,2-Dibromoethane	mg/kg	<1	<1	<1
Tetrachloroethene	mg/kg	<1	<1	<1
1,1,1,2-Tetrachloroethane	mg/kg	<1	<1	<1
Chlorobenzene	mg/kg	<1	<1	<1

VOCs in soil				
Our Reference		357735-27	357735-32	357735-37
Your Reference	UNITS	MW01_1.5	MW02_1.5	MW03_1.5
Depth		1.5	1.5	1.5
Date Sampled		28/07/2024	27/07/2024	28/07/2024
Type of sample		Soil	Soil	Soil
Ethylbenzene	mg/kg	<1	<1	<1
Bromoform	mg/kg	<1	<1	<1
m+p-Xylene	mg/kg	<2	<2	<2
Styrene	mg/kg	<1	<1	<1
1,1,2,2-Tetrachloroethane	mg/kg	<1	<1	<1
o-Xylene	mg/kg	<1	<1	<1
1,2,3-Trichloropropane	mg/kg	<1	<1	<1
Isopropylbenzene	mg/kg	<1	<1	<1
Bromobenzene	mg/kg	<1	<1	<1
n-Propylbenzene	mg/kg	<1	<1	<1
2-Chlorotoluene	mg/kg	<1	<1	<1
4-Chlorotoluene	mg/kg	<1	<1	<1
1,3,5-Trimethylbenzene	mg/kg	<1	<1	<1
tert-Butylbenzene	mg/kg	<1	<1	<1
1,2,4-Trimethylbenzene	mg/kg	<1	<1	<1
1,3-Dichlorobenzene	mg/kg	<1	<1	<1
sec-Butylbenzene	mg/kg	<1	<1	<1
1,4-Dichlorobenzene	mg/kg	<1	<1	<1
4-Isopropyltoluene	mg/kg	<1	<1	<1
1,2-Dichlorobenzene	mg/kg	<1	<1	<1
n-Butylbenzene	mg/kg	<1	<1	<1
1,2-Dibromo-3-chloropropane	mg/kg	<1	<1	<1
1,2,4-Trichlorobenzene	mg/kg	<1	<1	<1
Hexachlorobutadiene	mg/kg	<1	<1	<1
1,2,3-Trichlorobenzene	mg/kg	<1	<1	<1
Surrogate Dibromofluoromethane	%	110	108	109
Surrogate aaa-Trifluorotoluene	%	103	82	92
Surrogate Toluene-d_8	%	112	111	112
Surrogate 4-Bromofluorobenzene	%	96	95	95

vTRH(C6-C10)/BTEXN in Soil						
Our Reference		357735-2	357735-5	357735-7	357735-9	357735-10
Your Reference	UNITS	BH01_0.5	BH01_3.5	BH02_0.5	BH02_2.5	BH03_0.2
Depth		0.5	3.5	0.5	2.5	0.2
Date Sampled		27/07/2024	27/07/2024	27/07/2024	27/07/2024	27/07/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	31/07/2024	31/07/2024	31/07/2024	31/07/2024	31/07/2024
Date analysed	-	01/08/2024	04/08/2024	04/08/2024	04/08/2024	04/08/2024
TRH C_6 - C_9	mg/kg	<25	<25	<25	<25	<25
TRH C_6 - C_{10}	mg/kg	<25	<25	<25	<25	<25
vTRH C_6 - C_{10} less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
Naphthalene	mg/kg	<1	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	104	87	91	96	111

vTRH(C6-C10)/BTEXN in Soil						
Our Reference		357735-14	357735-15	357735-19	357735-20	357735-24
Your Reference	UNITS	BH03_3.5	BH04_0.2	BH04_3.5	BH05_0.2	BH05_3.5
Depth		3.5	0.2	3.5	0.2	3.5
Date Sampled		27/07/2024	27/07/2024	27/07/2024	27/07/2024	27/07/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	31/07/2024	31/07/2024	31/07/2024	31/07/2024	31/07/2024
Date analysed	-	04/08/2024	04/08/2024	04/08/2024	04/08/2024	04/08/2024
TRH C_6 - C_9	mg/kg	<25	<25	<25	<25	<25
TRH C_6 - C_{10}	mg/kg	<25	<25	<25	<25	<25
vTRH C_6 - C_{10} less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
Naphthalene	mg/kg	<1	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	95	117	115	92	98

vTRH(C6-C10)/BTEXN in Soil						
Our Reference		357735-26	357735-29	357735-30	357735-32	357735-36
Your Reference	UNITS	MW01_0.5	MW01_3.5	MW02_0.2	MW02_1.5	MW03_0.5
Depth		0.5	3.5	0.2	1.5	0.5
Date Sampled		28/07/2024	28/07/2024	27/07/2024	27/07/2024	28/07/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	31/07/2024	31/07/2024	31/07/2024	31/07/2024	31/07/2024
Date analysed	-	04/08/2024	04/08/2024	04/08/2024	04/08/2024	04/08/2024
TRH C_6 - C_9	mg/kg	<25	<25	<25	<25	<25
TRH C_6 - C_{10}	mg/kg	<25	<25	<25	<25	<25
vTRH C_6 - C_{10} less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
Naphthalene	mg/kg	<1	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	98	95	100	82	109

vTRH(C6-C10)/BTEXN in Soil					
Our Reference		357735-39	357735-41	357735-42	357735-43
Your Reference	UNITS	MW03_3.5	DUP02	DUP03	TB
Depth		3.5	-	-	-
Date Sampled		28/07/2024	27/07/2024	28/07/2024	27/07/2024
Type of sample		Soil	Soil	Soil	Soil
Date extracted	-	31/07/2024	31/07/2024	31/07/2024	31/07/2024
Date analysed	-	04/08/2024	04/08/2024	04/08/2024	04/08/2024
TRH C_6 - C_9	mg/kg	<25	<25	<25	<25
TRH C_6 - C_{10}	mg/kg	<25	<25	<25	<25
vTRH C_6 - C_{10} less BTEX (F1)	mg/kg	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1
Naphthalene	mg/kg	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	95	91	105	102

svTRH (C10-C40) in Soil						
Our Reference		357735-2	357735-5	357735-7	357735-9	357735-10
Your Reference	UNITS	BH01_0.5	BH01_3.5	BH02_0.5	BH02_2.5	BH03_0.2
Depth		0.5	3.5	0.5	2.5	0.2
Date Sampled		27/07/2024	27/07/2024	27/07/2024	27/07/2024	27/07/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	31/07/2024	31/07/2024	31/07/2024	31/07/2024	31/07/2024
Date analysed	-	31/07/2024	31/07/2024	31/07/2024	31/07/2024	01/08/2024
TRH C_{10} - C_{14}	mg/kg	<50	<50	<50	<50	<50
TRH C_{15} - C_{28}	mg/kg	<100	<100	<100	<100	<100
TRH C_{29} - C_{36}	mg/kg	<100	140	<100	<100	<100
Total +ve TRH (C10-C36)	mg/kg	<50	140	<50	<50	<50
TRH >C_{10} -C_{16}	mg/kg	<50	<50	<50	<50	<50
TRH >C_{10} -C_{16} less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH >C_{16} -C_{34}	mg/kg	<100	120	<100	<100	<100
TRH >C_{34} -C_{40}	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	120	<50	<50	<50
Surrogate o-Terphenyl	%	86	97	95	95	87

svTRH (C10-C40) in Soil						
Our Reference		357735-14	357735-15	357735-19	357735-20	357735-24
Your Reference	UNITS	BH03_3.5	BH04_0.2	BH04_3.5	BH05_0.2	BH05_3.5
Depth		3.5	0.2	3.5	0.2	3.5
Date Sampled		27/07/2024	27/07/2024	27/07/2024	27/07/2024	27/07/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	31/07/2024	31/07/2024	31/07/2024	31/07/2024	31/07/2024
Date analysed	-	31/07/2024	31/07/2024	31/07/2024	31/07/2024	31/07/2024
TRH C_{10} - C_{14}	mg/kg	<50	<50	<50	<50	<50
TRH C_{15} - C_{28}	mg/kg	<100	<100	<100	<100	<100
TRH C_{29} - C_{36}	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (C10-C36)	mg/kg	<50	<50	<50	<50	<50
TRH >C_{10} -C_{16}	mg/kg	<50	<50	<50	<50	<50
TRH >C_{10} -C_{16} less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH >C_{16} -C_{34}	mg/kg	<100	<100	<100	<100	<100
TRH >C_{34} -C_{40}	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	<50	<50	<50
Surrogate o-Terphenyl	%	95	88	85	92	87

svTRH (C10-C40) in Soil						
Our Reference		357735-26	357735-29	357735-30	357735-32	357735-36
Your Reference	UNITS	MW01_0.5	MW01_3.5	MW02_0.2	MW02_1.5	MW03_0.5
Depth		0.5	3.5	0.2	1.5	0.5
Date Sampled		28/07/2024	28/07/2024	27/07/2024	27/07/2024	28/07/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	31/07/2024	31/07/2024	31/07/2024	31/07/2024	31/07/2024
Date analysed	-	31/07/2024	31/07/2024	31/07/2024	31/07/2024	31/07/2024
TRH C_{10} - C_{14}	mg/kg	<50	<50	<50	<50	<50
TRH C_{15} - C_{28}	mg/kg	<100	<100	<100	<100	<100
TRH C_{29} - C_{36}	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (C10-C36)	mg/kg	<50	<50	<50	<50	<50
TRH >C_{10} -C_{16}	mg/kg	<50	<50	<50	<50	<50
TRH >C_{10} -C_{16} less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH >C_{16} -C_{34}	mg/kg	<100	<100	<100	<100	<100
TRH >C_{34} -C_{40}	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	<50	<50	<50
Surrogate o-Terphenyl	%	88	95	85	97	87

svTRH (C10-C40) in Soil				
Our Reference		357735-39	357735-41	357735-42
Your Reference	UNITS	MW03_3.5	DUP02	DUP03
Depth		3.5	-	-
Date Sampled		28/07/2024	27/07/2024	28/07/2024
Type of sample		Soil	Soil	Soil
Date extracted	-	31/07/2024	31/07/2024	31/07/2024
Date analysed	-	31/07/2024	31/07/2024	01/08/2024
TRH C_{10} - C_{14}	mg/kg	<50	<50	<50
TRH C_{15} - C_{28}	mg/kg	<100	<100	<100
TRH C_{29} - C_{36}	mg/kg	<100	<100	<100
Total +ve TRH (C10-C36)	mg/kg	<50	<50	<50
TRH >C_{10} -C_{16}	mg/kg	<50	<50	<50
TRH >C_{10} -C_{16} less Naphthalene (F2)	mg/kg	<50	<50	<50
TRH >C_{16} -C_{34}	mg/kg	<100	<100	<100
TRH >C_{34} -C_{40}	mg/kg	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	<50
Surrogate o-Terphenyl	%	91	90	89

PAHs in Soil						
Our Reference		357735-2	357735-5	357735-7	357735-9	357735-10
Your Reference	UNITS	BH01_0.5	BH01_3.5	BH02_0.5	BH02_2.5	BH03_0.2
Depth		0.5	3.5	0.5	2.5	0.2
Date Sampled		27/07/2024	27/07/2024	27/07/2024	27/07/2024	27/07/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	31/07/2024	31/07/2024	31/07/2024	31/07/2024	31/07/2024
Date analysed	-	02/08/2024	02/08/2024	02/08/2024	02/08/2024	02/08/2024
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PAH's	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Surrogate p-Terphenyl-d14	%	109	119	111	111	104

PAHs in Soil						
Our Reference		357735-14	357735-15	357735-19	357735-20	357735-24
Your Reference	UNITS	BH03_3.5	BH04_0.2	BH04_3.5	BH05_0.2	BH05_3.5
Depth		3.5	0.2	3.5	0.2	3.5
Date Sampled		27/07/2024	27/07/2024	27/07/2024	27/07/2024	27/07/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	31/07/2024	31/07/2024	31/07/2024	31/07/2024	31/07/2024
Date analysed	-	02/08/2024	02/08/2024	02/08/2024	02/08/2024	02/08/2024
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	<0.1	0.1	<0.1
Pyrene	mg/kg	<0.1	<0.1	<0.1	0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05	<0.05	0.06	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PAH's	mg/kg	<0.05	<0.05	<0.05	0.3	<0.05
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Surrogate p-Terphenyl-d14	%	114	115	115	116	120

PAHs in Soil						
Our Reference		357735-26	357735-29	357735-30	357735-32	357735-36
Your Reference	UNITS	MW01_0.5	MW01_3.5	MW02_0.2	MW02_1.5	MW03_0.5
Depth		0.5	3.5	0.2	1.5	0.5
Date Sampled		28/07/2024	28/07/2024	27/07/2024	27/07/2024	28/07/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	31/07/2024	31/07/2024	31/07/2024	31/07/2024	31/07/2024
Date analysed	-	02/08/2024	02/08/2024	02/08/2024	02/08/2024	02/08/2024
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	0.1	<0.1	<0.1
Pyrene	mg/kg	<0.1	<0.1	0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05	0.06	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PAH's	mg/kg	<0.05	<0.05	0.3	<0.05	<0.05
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Surrogate p-Terphenyl-d14	%	115	113	108	118	116

PAHs in Soil				
Our Reference		357735-39	357735-41	357735-42
Your Reference	UNITS	MW03_3.5	DUP02	DUP03
Depth		3.5	-	-
Date Sampled		28/07/2024	27/07/2024	28/07/2024
Type of sample		Soil	Soil	Soil
Date extracted	-	31/07/2024	31/07/2024	31/07/2024
Date analysed	-	02/08/2024	02/08/2024	02/08/2024
Naphthalene	mg/kg	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	<0.1
Pyrene	mg/kg	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1
Total +ve PAH's	mg/kg	<0.05	<0.05	<0.05
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5
Surrogate p-Terphenyl-d14	%	116	124	116

Organochlorine Pesticides in soil						
Our Reference		357735-3	357735-11	357735-22	357735-31	357735-37
Your Reference	UNITS	BH01_1.5	BH03_0.5	BH05_1.5	MW02_0.5	MW03_1.5
Depth		1.5	0.5	1.5	0.5	1.5
Date Sampled		27/07/2024	27/07/2024	27/07/2024	27/07/2024	28/07/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	31/07/2024	31/07/2024	31/07/2024	31/07/2024	31/07/2024
Date analysed	-	01/08/2024	01/08/2024	01/08/2024	01/08/2024	01/08/2024
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
HCB	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Mirex	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve DDT+DDD+DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate 4-Chloro-3-NBTF	%	83	91	85	82	86
Total Positive Aldrin+Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1

Organophosphorus Pesticides in Soil						
Our Reference		357735-3	357735-11	357735-22	357735-31	357735-37
Your Reference	UNITS	BH01_1.5	BH03_0.5	BH05_1.5	MW02_0.5	MW03_1.5
Depth		1.5	0.5	1.5	0.5	1.5
Date Sampled		27/07/2024	27/07/2024	27/07/2024	27/07/2024	28/07/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	31/07/2024	31/07/2024	31/07/2024	31/07/2024	31/07/2024
Date analysed	-	01/08/2024	01/08/2024	01/08/2024	01/08/2024	01/08/2024
Dichlorvos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Mevinphos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phorate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dimethoate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Diazinon	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Disulfoton	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyrifos-methyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Parathion-Methyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ronnel	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fenitrothion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Malathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyriphos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fenthion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Parathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methidathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fenamiphos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ethion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phosalone	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Azinphos-methyl (Guthion)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Coumaphos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate 4-Chloro-3-NBTF	%	83	91	85	82	86

PCBs in Soil						
Our Reference		357735-3	357735-11	357735-22	357735-31	357735-37
Your Reference	UNITS	BH01_1.5	BH03_0.5	BH05_1.5	MW02_0.5	MW03_1.5
Depth		1.5	0.5	1.5	0.5	1.5
Date Sampled		27/07/2024	27/07/2024	27/07/2024	27/07/2024	28/07/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	31/07/2024	31/07/2024	31/07/2024	31/07/2024	31/07/2024
Date analysed	-	01/08/2024	01/08/2024	01/08/2024	01/08/2024	01/08/2024
Aroclor 1016	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1221	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1232	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1242	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1248	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1254	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1260	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PCBs (1016-1260)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate 2-Fluorobiphenyl	%	99	101	100	103	97

Misc Soil - Inorg						
Our Reference		357735-3	357735-9	357735-13	357735-18	357735-23
Your Reference	UNITS	BH01_1.5	BH02_2.5	BH03_2.5	BH04_2.5	BH05_2.5
Depth		1.5	2.5	2.5	2.5	2.5
Date Sampled		27/07/2024	27/07/2024	27/07/2024	27/07/2024	27/07/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	31/07/2024	31/07/2024	31/07/2024	31/07/2024	31/07/2024
Date analysed	-	31/07/2024	31/07/2024	31/07/2024	31/07/2024	31/07/2024
Free Cyanide in soil	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5

Misc Soil - Inorg				
Our Reference		357735-27	357735-32	357735-37
Your Reference	UNITS	MW01_1.5	MW02_1.5	MW03_1.5
Depth		1.5	1.5	1.5
Date Sampled		28/07/2024	27/07/2024	28/07/2024
Type of sample		Soil	Soil	Soil
Date prepared	-	31/07/2024	31/07/2024	31/07/2024
Date analysed	-	31/07/2024	31/07/2024	31/07/2024
Free Cyanide in soil	mg/kg	<0.5	<0.5	<0.5

Acid Extractable metals in soil						
Our Reference		357735-2	357735-5	357735-7	357735-9	357735-10
Your Reference	UNITS	BH01_0.5	BH01_3.5	BH02_0.5	BH02_2.5	BH03_0.2
Depth		0.5	3.5	0.5	2.5	0.2
Date Sampled		27/07/2024	27/07/2024	27/07/2024	27/07/2024	27/07/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	31/07/2024	31/07/2024	31/07/2024	31/07/2024	31/07/2024
Date analysed	-	31/07/2024	31/07/2024	31/07/2024	31/07/2024	31/07/2024
Arsenic	mg/kg	4	<4	<4	<4	18
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	2
Chromium	mg/kg	6	6	1	18	25
Copper	mg/kg	2	2	<1	<1	170
Lead	mg/kg	19	35	1	15	140
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	0.1
Nickel	mg/kg	1	2	<1	4	47
Zinc	mg/kg	9	2	5	14	200

Acid Extractable metals in soil						
Our Reference		357735-14	357735-15	357735-19	357735-20	357735-24
Your Reference	UNITS	BH03_3.5	BH04_0.2	BH04_3.5	BH05_0.2	BH05_3.5
Depth		3.5	0.2	3.5	0.2	3.5
Date Sampled		27/07/2024	27/07/2024	27/07/2024	27/07/2024	27/07/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	31/07/2024	31/07/2024	31/07/2024	31/07/2024	31/07/2024
Date analysed	-	31/07/2024	31/07/2024	31/07/2024	31/07/2024	31/07/2024
Arsenic	mg/kg	<4	4	<4	110	8
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	19	1	9	10	24
Copper	mg/kg	<1	17	<1	24	1
Lead	mg/kg	11	5	4	80	19
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	3	<1	1	3	4
Zinc	mg/kg	3	9	1	75	6

Acid Extractable metals in soil						
Our Reference		357735-26	357735-29	357735-30	357735-32	357735-36
Your Reference	UNITS	MW01_0.5	MW01_3.5	MW02_0.2	MW02_1.5	MW03_0.5
Depth		0.5	3.5	0.2	1.5	0.5
Date Sampled		28/07/2024	28/07/2024	27/07/2024	27/07/2024	28/07/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	31/07/2024	31/07/2024	31/07/2024	31/07/2024	31/07/2024
Date analysed	-	31/07/2024	31/07/2024	31/07/2024	31/07/2024	31/07/2024
Arsenic	mg/kg	<4	<4	<4	<4	64
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	1	25	5	20	2
Copper	mg/kg	<1	<1	6	2	<1
Lead	mg/kg	2	16	39	22	3
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	<1	2	2	7	<1
Zinc	mg/kg	8	3	48	49	2

Acid Extractable metals in soil					
Our Reference		357735-39	357735-41	357735-42	357735-44
Your Reference	UNITS	MW03_3.5	DUP02	DUP03	BH01_0.5 - [TRIPLICATE]
Depth		3.5	-	-	0.5
Date Sampled		28/07/2024	27/07/2024	28/07/2024	27/07/2024
Type of sample		Soil	Soil	Soil	Soil
Date prepared	-	31/07/2024	31/07/2024	31/07/2024	31/07/2024
Date analysed	-	31/07/2024	31/07/2024	31/07/2024	31/07/2024
Arsenic	mg/kg	6	<4	120	<4
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	16	28	5	6
Copper	mg/kg	<1	2	<1	1
Lead	mg/kg	18	25	3	14
Mercury	mg/kg	0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	3	9	2	1
Zinc	mg/kg	2	97	3	7

Moisture						
Our Reference		357735-2	357735-3	357735-5	357735-7	357735-9
Your Reference	UNITS	BH01_0.5	BH01_1.5	BH01_3.5	BH02_0.5	BH02_2.5
Depth		0.5	1.5	3.5	0.5	2.5
Date Sampled		27/07/2024	27/07/2024	27/07/2024	27/07/2024	27/07/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	31/07/2024	31/07/2024	31/07/2024	31/07/2024	31/07/2024
Date analysed	-	01/08/2024	01/08/2024	01/08/2024	01/08/2024	01/08/2024
Moisture	%	19	13	53	4.9	21

Moisture						
Our Reference		357735-10	357735-11	357735-13	357735-14	357735-15
Your Reference	UNITS	BH03_0.2	BH03_0.5	BH03_2.5	BH03_3.5	BH04_0.2
Depth		0.2	0.5	2.5	3.5	0.2
Date Sampled		27/07/2024	27/07/2024	27/07/2024	27/07/2024	27/07/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	31/07/2024	31/07/2024	31/07/2024	31/07/2024	31/07/2024
Date analysed	-	01/08/2024	01/08/2024	01/08/2024	01/08/2024	01/08/2024
Moisture	%	13	19	13	20	10

Moisture						
Our Reference		357735-18	357735-19	357735-20	357735-22	357735-23
Your Reference	UNITS	BH04_2.5	BH04_3.5	BH05_0.2	BH05_1.5	BH05_2.5
Depth		2.5	3.5	0.2	1.5	2.5
Date Sampled		27/07/2024	27/07/2024	27/07/2024	27/07/2024	27/07/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	31/07/2024	31/07/2024	31/07/2024	31/07/2024	31/07/2024
Date analysed	-	01/08/2024	01/08/2024	01/08/2024	01/08/2024	01/08/2024
Moisture	%	13	12	11	2.0	12

Moisture						
Our Reference		357735-24	357735-26	357735-27	357735-29	357735-30
Your Reference	UNITS	BH05_3.5	MW01_0.5	MW01_1.5	MW01_3.5	MW02_0.2
Depth		3.5	0.5	1.5	3.5	0.2
Date Sampled		27/07/2024	28/07/2024	28/07/2024	28/07/2024	27/07/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	31/07/2024	31/07/2024	31/07/2024	31/07/2024	31/07/2024
Date analysed	-	01/08/2024	01/08/2024	01/08/2024	01/08/2024	01/08/2024
Moisture	%	26	5.1	12	15	9.7

Moisture						
Our Reference		357735-31	357735-32	357735-36	357735-37	357735-39
Your Reference	UNITS	MW02_0.5	MW02_1.5	MW03_0.5	MW03_1.5	MW03_3.5
Depth		0.5	1.5	0.5	1.5	3.5
Date Sampled		27/07/2024	27/07/2024	28/07/2024	28/07/2024	28/07/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	31/07/2024	31/07/2024	31/07/2024	31/07/2024	31/07/2024
Date analysed	-	01/08/2024	01/08/2024	01/08/2024	01/08/2024	01/08/2024
Moisture	%	5.8	31	11	9.7	21

Moisture			
Our Reference		357735-41	357735-42
Your Reference	UNITS	DUP02	DUP03
Depth		-	-
Date Sampled		27/07/2024	28/07/2024
Type of sample		Soil	Soil
Date prepared	-	31/07/2024	31/07/2024
Date analysed	-	01/08/2024	01/08/2024
Moisture	%	33	9.7

Asbestos ID - soils						
Our Reference		357735-2	357735-7	357735-10	357735-15	357735-20
Your Reference	UNITS	BH01_0.5	BH02_0.5	BH03_0.2	BH04_0.2	BH05_0.2
Depth		0.5	0.5	0.2	0.2	0.2
Date Sampled		27/07/2024	27/07/2024	27/07/2024	27/07/2024	27/07/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date analysed	-	02/08/2024	02/08/2024	02/08/2024	02/08/2024	02/08/2024
Sample mass tested	g	Approx. 85g	Approx. 130g	Approx. 60g	Approx. 210g	Approx. 135g
Sample Description	-	Brown coarse-grained soil & rocks	Brown coarse-grained soil & rocks	Brown coarse-grained soil & rocks	Grey fine-grained soil & rocks	Brown coarse-grained soil & rocks
Asbestos ID in soil	-	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected
Asbestos comments	-	Nil	Nil	Nil	Nil	Nil
Trace Analysis	-	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected

Asbestos ID - soils					
Our Reference		357735-26	357735-30	357735-32	357735-36
Your Reference	UNITS	MW01_0.5	MW02_0.2	MW02_1.5	MW03_0.5
Depth		0.5	0.2	1.5	0.5
Date Sampled		28/07/2024	27/07/2024	27/07/2024	28/07/2024
Type of sample		Soil	Soil	Soil	Soil
Date analysed	-	02/08/2024	02/08/2024	02/08/2024	02/08/2024
Sample mass tested	g	Approx. 175g	Approx. 85g	Approx. 85g	Approx. 80g
Sample Description	-	Grey fine-grained soil & rocks	Brown coarse-grained soil & rocks	Grey fine-grained soil & rocks	Grey fine-grained soil & rocks
Asbestos ID in soil	-	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected
Asbestos comments	-	Nil	Nil	Nil	Nil
Trace Analysis	-	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected

PFAS in Soils Extended					
Our Reference		357735-20	357735-30	357735-36	357735-42
Your Reference	UNITS	BH05_0.2	MW02_0.2	MW03_0.5	DUP03
Depth		0.2	0.2	0.5	-
Date Sampled		27/07/2024	27/07/2024	28/07/2024	28/07/2024
Type of sample		Soil	Soil	Soil	Soil
Date prepared	-	31/07/2024	31/07/2024	31/07/2024	31/07/2024
Date analysed	-	31/07/2024	31/07/2024	31/07/2024	31/07/2024
Perfluorobutanesulfonic acid	µg/kg	<0.1	<0.1	<0.1	<0.1
Perfluoropentanesulfonic acid	µg/kg	<0.1	<0.1	<0.1	<0.1
Perfluorohexanesulfonic acid - PFHxS	µg/kg	<0.1	<0.1	<0.1	<0.1
Perfluoroheptanesulfonic acid	µg/kg	<0.1	<0.1	<0.1	<0.1
Perfluorooctanesulfonic acid PFOS	µg/kg	<0.1	0.2	<0.1	<0.1
Perfluorodecanesulfonic acid	µg/kg	<0.2	<0.2	<0.2	<0.2
Perfluorobutanoic acid	µg/kg	<0.2	<0.2	<0.2	<0.2
Perfluoropentanoic acid	µg/kg	<0.2	<0.2	<0.2	<0.2
Perfluorohexanoic acid	µg/kg	<0.1	<0.1	<0.1	<0.1
Perfluoroheptanoic acid	µg/kg	<0.1	<0.1	<0.1	<0.1
Perfluorooctanoic acid PFOA	µg/kg	<0.1	<0.1	<0.1	<0.1
Perfluorononanoic acid	µg/kg	<0.1	<0.1	<0.1	<0.1
Perfluorodecanoic acid	µg/kg	<0.5	<0.5	<0.5	<0.5
Perfluoroundecanoic acid	µg/kg	<0.5	<0.5	<0.5	<0.5
Perfluorododecanoic acid	µg/kg	<0.5	<0.5	<0.5	<0.5
Perfluorotridecanoic acid	µg/kg	<0.5	<0.5	<0.5	<0.5
Perfluorotetradecanoic acid	µg/kg	<5	<5	<5	<5
4:2 FTS	µg/kg	<0.1	<0.1	<0.1	<0.1
6:2 FTS	µg/kg	<0.1	<0.1	<0.1	<0.1
8:2 FTS	µg/kg	<0.2	<0.2	<0.2	<0.2
10:2 FTS	µg/kg	<0.2	<0.2	<0.2	<0.2
Perfluorooctane sulfonamide	µg/kg	<1	<1	<1	<1
N-Methyl perfluorooctane sulfonamide	µg/kg	<1	<1	<1	<1
N-Ethyl perfluorooctanesulfon amide	µg/kg	<1	<1	<1	<1
N-Me perfluorooctanesulfonamid oethanol	µg/kg	<1	<1	<1	<1
N-Et perfluorooctanesulfonamid oethanol	µg/kg	<5	<5	<5	<5
MePerfluorooctanesulf- amid oacetic acid	µg/kg	<0.2	<0.2	<0.2	<0.2
EtPerfluorooctanesulf amid oacetic acid	µg/kg	<0.2	<0.2	<0.2	<0.2
Surrogate $^{13}C_8$ *PFOS*	%	101	102	106	102
Surrogate $^{13}C_2$ *PFOA*	%	100	98	103	97
Extracted ISTD $^{13}C_3$ *PFBS*	%	95	102	104	102
Extracted ISTD $^{18}O_2$ *PFHxS*	%	104	107	94	107
Extracted ISTD $^{13}C_4$ *PFOS*	%	106	119	103	118

PFAS in Soils Extended					
Our Reference		357735-20	357735-30	357735-36	357735-42
Your Reference	UNITS	BH05_0.2	MW02_0.2	MW03_0.5	DUP03
Depth		0.2	0.2	0.5	-
Date Sampled		27/07/2024	27/07/2024	28/07/2024	28/07/2024
Type of sample		Soil	Soil	Soil	Soil
Extracted ISTD $^{13}C_4$ *PFBA*	%	83	105	101	100
Extracted ISTD $^{13}C_3$ *PFPeA*	%	86	101	103	96
Extracted ISTD $^{13}C_2$ *PFHxA*	%	95	105	110	104
Extracted ISTD $^{13}C_4$ *PFHpA*	%	104	113	109	112
Extracted ISTD $^{13}C_4$ *PFOA*	%	99	117	108	114
Extracted ISTD $^{13}C_5$ *PFNA*	%	103	118	116	115
Extracted ISTD $^{13}C_2$ *PFDA*	%	109	124	112	122
Extracted ISTD $^{13}C_2$ *PFUnDA*	%	102	118	132	127
Extracted ISTD $^{13}C_2$ *PFDoDA*	%	109	121	116	123
Extracted ISTD $^{13}C_2$ *PFTeDA*	%	115	142	142	150
Extracted ISTD $^{13}C_2$ *4:2FTS*	%	75	110	103	100
Extracted ISTD $^{13}C_2$ *6:2FTS*	%	89	112	105	104
Extracted ISTD $^{13}C_2$ *8:2FTS*	%	97	122	119	120
Extracted ISTD $^{13}C_8$ *FOSA*	%	110	118	116	122
Extracted ISTD d_3 *N MeFOSA*	%	102	115	111	115
Extracted ISTD d_5 *N EtFOSA*	%	101	112	107	112
Extracted ISTD d_7 *N MeFOSE*	%	88	106	83	89
Extracted ISTD d_9 *N EtFOSE*	%	96	102	111	108
Extracted ISTD d_3 *N MeFOSAA*	%	103	121	94	102
Extracted ISTD d_5 *N EtFOSAA*	%	126	121	98	98
Total Positive PFHxS & PFOS	µg/kg	<0.1	0.2	<0.1	<0.1
Total Positive PFOS & PFOA	µg/kg	<0.1	0.2	<0.1	<0.1
Total Positive PFAS	µg/kg	<0.1	0.2	<0.1	<0.1

Method ID	Methodology Summary
ASB-001	Asbestos ID - Qualitative identification of asbestos in bulk samples using Polarised Light Microscopy and Dispersion Staining Techniques including Synthetic Mineral Fibre and Organic Fibre as per Australian Standard 4964-2004.
Inorg-008	Moisture content determined by heating at 105+/-5 °C for a minimum of 12 hours.
Inorg-014	Cyanide - free, total, weak acid dissociable by segmented flow analyser (in line dialysis with colourimetric finish). Solids/Filters and sorbents are extracted in a caustic media prior to analysis. Impingers are pH adjusted as required prior to analysis. Cyanides amenable to Chlorination - samples are analysed untreated and treated with hypochlorite to assess the potential for chlorination of cyanide forms. Based on APHA latest edition, 4500-CN_G,H.
Metals-020	Determination of various metals by ICP-AES.
Metals-021	Determination of Mercury by Cold Vapour AAS.
Org-020	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis.
Org-020	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis. Note, the Total +ve TRH PQL is reflective of the lowest individual PQL and is therefore "Total +ve TRH" is simply a sum of the positive individual TRH fractions (>C10-C40).
Org-021/022/025	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-ECD and/or GC-MS/GC-MSMS. Note, the Total +ve PCBs PQL is reflective of the lowest individual PQL and is therefore" Total +ve PCBs" is simply a sum of the positive individual PCBs.
Org-022/025	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS/GC-MSMS.
Org-022/025	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-MS/GC-MSMS. Note, the Total +ve reported DDD+DDE+DDT PQL is reflective of the lowest individual PQL and is therefore simply a sum of the positive individually report DDD+DDE+DDT.

Method ID	Methodology Summary
Org-022/025	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS and/or GC-MS/MS. Benzo(a)pyrene TEQ as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater - 2013. For soil results:- 1. 'EQ PQL'values are assuming all contributing PAHs reported as <PQL are actually at the PQL. This is the most conservative approach and can give false positive TEQs given that PAHs that contribute to the TEQ calculation may not be present. 2. 'EQ zero'values are assuming all contributing PAHs reported as <PQL are zero. This is the least conservative approach and is more susceptible to false negative TEQs when PAHs that contribute to the TEQ calculation are present but below PQL. 3. 'EQ half PQL'values are assuming all contributing PAHs reported as <PQL are half the stipulated PQL. Hence a mid-point between the most and least conservative approaches above. Note, the Total +ve PAHs PQL is reflective of the lowest individual PQL and is therefore "Total +ve PAHs" is simply a sum of the positive individual PAHs.
Org-023	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS.
Org-023	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater.
Org-023	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater. Note, the Total +ve Xylene PQL is reflective of the lowest individual PQL and is therefore "Total +ve Xylenes" is simply a sum of the positive individual Xylenes.
Org-029	Soil samples are extracted with basified Methanol. Waters and soil extracts are directly injected and/or concentrated/extracted using SPE. TCLPs/ASLP leachates are centrifuged, the supernatant is then analysed (including amendment with solvent) - as per the option in AS4439.3. Analysis is undertaken with LC-MS/MS. PFAS results include the sum of branched and linear isomers where applicable. Please note that PFAS results are corrected for Extracted Internal Standards (QSM 5.4 Table B-15 terminology), which are mass labelled analytes added prior to sample preparation to assess matrix effects and verify processing of the sample. PFAS analytes without a commercially available mass labelled analogue are corrected vs a closely eluting mass labelled PFAS compound. Surrogates are also reported, in this context they are mass labelled PFAS compounds added prior to extraction but are used as monitoring compounds only (not used for result correction). Envicarb (or similar) is used discretionally to remove interfering matrix components. Please contact the laboratory if estimates of Measurement Uncertainty are required as per WA DER.

QUALITY CONTROL: VOCs in soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-3	357735-9
Date Extracted	-			31/07/2024	3	31/07/2024	31/07/2024		31/07/2024	31/07/2024
Date Analysed	-			04/08/2024	3	04/08/2024	04/08/2024		01/08/2024	04/08/2024
Dichlorodifluoromethane	mg/kg	1	Org-023	<1	3	<1	<1	0	[NT]	[NT]
Chloromethane	mg/kg	1	Org-023	<1	3	<1	<1	0	[NT]	[NT]
Vinyl Chloride	mg/kg	1	Org-023	<1	3	<1	<1	0	[NT]	[NT]
Bromomethane	mg/kg	1	Org-023	<1	3	<1	<1	0	[NT]	[NT]
Chloroethane	mg/kg	1	Org-023	<1	3	<1	<1	0	[NT]	[NT]
Trichlorofluoromethane	mg/kg	1	Org-023	<1	3	<1	<1	0	[NT]	[NT]
1,1-Dichloroethene	mg/kg	1	Org-023	<1	3	<1	<1	0	[NT]	[NT]
trans-1,2-Dichloroethene	mg/kg	1	Org-023	<1	3	<1	<1	0	[NT]	[NT]
1,1-Dichloroethane	mg/kg	1	Org-023	<1	3	<1	<1	0	94	84
cis-1,2-Dichloroethene	mg/kg	1	Org-023	<1	3	<1	<1	0	[NT]	[NT]
Bromochloromethane	mg/kg	1	Org-023	<1	3	<1	<1	0	[NT]	[NT]
Chloroform	mg/kg	1	Org-023	<1	3	<1	<1	0	95	85
2,2-Dichloropropane	mg/kg	1	Org-023	<1	3	<1	<1	0	[NT]	[NT]
1,2-Dichloroethane	mg/kg	1	Org-023	<1	3	<1	<1	0	87	75
1,1,1-Trichloroethane	mg/kg	1	Org-023	<1	3	<1	<1	0	80	70
1,1-Dichloropropene	mg/kg	1	Org-023	<1	3	<1	<1	0	[NT]	[NT]
Cyclohexane	mg/kg	1	Org-023	<1	3	<1	<1	0	[NT]	[NT]
Carbon Tetrachloride	mg/kg	1	Org-023	<1	3	<1	<1	0	[NT]	[NT]
Benzene	mg/kg	0.2	Org-023	<0.2	3	<0.2	<0.2	0	79	70
Dibromomethane	mg/kg	1	Org-023	<1	3	<1	<1	0	[NT]	[NT]
1,2-Dichloropropane	mg/kg	1	Org-023	<1	3	<1	<1	0	[NT]	[NT]
Trichloroethene	mg/kg	1	Org-023	<1	3	<1	<1	0	74	63
Bromodichloromethane	mg/kg	1	Org-023	<1	3	<1	<1	0	80	71
trans-1,3-Dichloropropene	mg/kg	1	Org-023	<1	3	<1	<1	0	[NT]	[NT]
cis-1,3-Dichloropropene	mg/kg	1	Org-023	<1	3	<1	<1	0	[NT]	[NT]
1,1,2-Trichloroethane	mg/kg	1	Org-023	<1	3	<1	<1	0	[NT]	[NT]
Toluene	mg/kg	0.5	Org-023	<0.5	3	<0.5	<0.5	0	94	83
1,3-Dichloropropane	mg/kg	1	Org-023	<1	3	<1	<1	0	[NT]	[NT]
Dibromochloromethane	mg/kg	1	Org-023	<1	3	<1	<1	0	74	65
1,2-Dibromoethane	mg/kg	1	Org-023	<1	3	<1	<1	0	[NT]	[NT]
Tetrachloroethene	mg/kg	1	Org-023	<1	3	<1	<1	0	82	74
1,1,1,2-Tetrachloroethane	mg/kg	1	Org-023	<1	3	<1	<1	0	[NT]	[NT]
Chlorobenzene	mg/kg	1	Org-023	<1	3	<1	<1	0	[NT]	[NT]
Ethylbenzene	mg/kg	1	Org-023	<1	3	<1	<1	0	81	69
Bromoform	mg/kg	1	Org-023	<1	3	<1	<1	0	[NT]	[NT]
m+p-Xylene	mg/kg	2	Org-023	<2	3	<2	<2	0	83	70
Styrene	mg/kg	1	Org-023	<1	3	<1	<1	0	[NT]	[NT]
1,1,2,2-Tetrachloroethane	mg/kg	1	Org-023	<1	3	<1	<1	0	[NT]	[NT]

QUALITY CONTROL: VOCs in soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-3	357735-9
o-Xylene	mg/kg	1	Org-023	<1	3	<1	<1	0	82	70
1,2,3-Trichloropropane	mg/kg	1	Org-023	<1	3	<1	<1	0	[NT]	[NT]
Isopropylbenzene	mg/kg	1	Org-023	<1	3	<1	<1	0	[NT]	[NT]
Bromobenzene	mg/kg	1	Org-023	<1	3	<1	<1	0	[NT]	[NT]
n-Propylbenzene	mg/kg	1	Org-023	<1	3	<1	<1	0	[NT]	[NT]
2-Chlorotoluene	mg/kg	1	Org-023	<1	3	<1	<1	0	[NT]	[NT]
4-Chlorotoluene	mg/kg	1	Org-023	<1	3	<1	<1	0	[NT]	[NT]
1,3,5-Trimethylbenzene	mg/kg	1	Org-023	<1	3	<1	<1	0	[NT]	[NT]
tert-Butylbenzene	mg/kg	1	Org-023	<1	3	<1	<1	0	[NT]	[NT]
1,2,4-Trimethylbenzene	mg/kg	1	Org-023	<1	3	<1	<1	0	[NT]	[NT]
1,3-Dichlorobenzene	mg/kg	1	Org-023	<1	3	<1	<1	0	[NT]	[NT]
sec-Butylbenzene	mg/kg	1	Org-023	<1	3	<1	<1	0	[NT]	[NT]
1,4-Dichlorobenzene	mg/kg	1	Org-023	<1	3	<1	<1	0	[NT]	[NT]
4-Isopropyltoluene	mg/kg	1	Org-023	<1	3	<1	<1	0	[NT]	[NT]
1,2-Dichlorobenzene	mg/kg	1	Org-023	<1	3	<1	<1	0	[NT]	[NT]
n-Butylbenzene	mg/kg	1	Org-023	<1	3	<1	<1	0	[NT]	[NT]
1,2-Dibromo-3-chloropropane	mg/kg	1	Org-023	<1	3	<1	<1	0	[NT]	[NT]
1,2,4-Trichlorobenzene	mg/kg	1	Org-023	<1	3	<1	<1	0	[NT]	[NT]
Hexachlorobutadiene	mg/kg	1	Org-023	<1	3	<1	<1	0	[NT]	[NT]
1,2,3-Trichlorobenzene	mg/kg	1	Org-023	<1	3	<1	<1	0	[NT]	[NT]
Surrogate Dibromofluoromethane	%		Org-023	108	3	109	107	2	102	103
Surrogate aaa-Trifluorotoluene	%		Org-023	131	3	113	120	6	97	86
Surrogate Toluene-d_8	%		Org-023	110	3	110	111	1	101	104
Surrogate 4-Bromofluorobenzene	%		Org-023	95	3	96	95	1	100	99

QUALITY CONTROL: VOCs in soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-4	[NT]
Date Extracted	-			[NT]	32	31/07/2024	31/07/2024		31/07/2024	[NT]
Date Analysed	-			[NT]	32	04/08/2024	04/08/2024		04/08/2024	[NT]
Dichlorodifluoromethane	mg/kg	1	Org-023	[NT]	32	<1	<1	0	[NT]	[NT]
Chloromethane	mg/kg	1	Org-023	[NT]	32	<1	<1	0	[NT]	[NT]
Vinyl Chloride	mg/kg	1	Org-023	[NT]	32	<1	<1	0	[NT]	[NT]
Bromomethane	mg/kg	1	Org-023	[NT]	32	<1	<1	0	[NT]	[NT]
Chloroethane	mg/kg	1	Org-023	[NT]	32	<1	<1	0	[NT]	[NT]
Trichlorofluoromethane	mg/kg	1	Org-023	[NT]	32	<1	<1	0	[NT]	[NT]
1,1-Dichloroethene	mg/kg	1	Org-023	[NT]	32	<1	<1	0	[NT]	[NT]
trans-1,2-Dichloroethene	mg/kg	1	Org-023	[NT]	32	<1	<1	0	[NT]	[NT]
1,1-Dichloroethane	mg/kg	1	Org-023	[NT]	32	<1	<1	0	102	[NT]
cis-1,2-Dichloroethene	mg/kg	1	Org-023	[NT]	32	<1	<1	0	[NT]	[NT]
Bromochloromethane	mg/kg	1	Org-023	[NT]	32	<1	<1	0	[NT]	[NT]
Chloroform	mg/kg	1	Org-023	[NT]	32	<1	<1	0	107	[NT]
2,2-Dichloropropane	mg/kg	1	Org-023	[NT]	32	<1	<1	0	[NT]	[NT]
1,2-Dichloroethane	mg/kg	1	Org-023	[NT]	32	<1	<1	0	99	[NT]
1,1,1-Trichloroethane	mg/kg	1	Org-023	[NT]	32	<1	<1	0	93	[NT]
1,1-Dichloropropene	mg/kg	1	Org-023	[NT]	32	<1	<1	0	[NT]	[NT]
Cyclohexane	mg/kg	1	Org-023	[NT]	32	<1	<1	0	[NT]	[NT]
Carbon Tetrachloride	mg/kg	1	Org-023	[NT]	32	<1	<1	0	[NT]	[NT]
Benzene	mg/kg	0.2	Org-023	[NT]	32	<0.2	<0.2	0	91	[NT]
Dibromomethane	mg/kg	1	Org-023	[NT]	32	<1	<1	0	[NT]	[NT]
1,2-Dichloropropane	mg/kg	1	Org-023	[NT]	32	<1	<1	0	[NT]	[NT]
Trichloroethene	mg/kg	1	Org-023	[NT]	32	<1	<1	0	84	[NT]
Bromodichloromethane	mg/kg	1	Org-023	[NT]	32	<1	<1	0	95	[NT]
trans-1,3-Dichloropropene	mg/kg	1	Org-023	[NT]	32	<1	<1	0	[NT]	[NT]
cis-1,3-Dichloropropene	mg/kg	1	Org-023	[NT]	32	<1	<1	0	[NT]	[NT]
1,1,2-Trichloroethane	mg/kg	1	Org-023	[NT]	32	<1	<1	0	[NT]	[NT]
Toluene	mg/kg	0.5	Org-023	[NT]	32	<0.5	<0.5	0	107	[NT]
1,3-Dichloropropane	mg/kg	1	Org-023	[NT]	32	<1	<1	0	[NT]	[NT]
Dibromochloromethane	mg/kg	1	Org-023	[NT]	32	<1	<1	0	89	[NT]
1,2-Dibromoethane	mg/kg	1	Org-023	[NT]	32	<1	<1	0	[NT]	[NT]
Tetrachloroethene	mg/kg	1	Org-023	[NT]	32	<1	<1	0	96	[NT]
1,1,1,2-Tetrachloroethane	mg/kg	1	Org-023	[NT]	32	<1	<1	0	[NT]	[NT]
Chlorobenzene	mg/kg	1	Org-023	[NT]	32	<1	<1	0	[NT]	[NT]
Ethylbenzene	mg/kg	1	Org-023	[NT]	32	<1	<1	0	92	[NT]
Bromoform	mg/kg	1	Org-023	[NT]	32	<1	<1	0	[NT]	[NT]
m+p-Xylene	mg/kg	2	Org-023	[NT]	32	<2	<2	0	94	[NT]
Styrene	mg/kg	1	Org-023	[NT]	32	<1	<1	0	[NT]	[NT]
1,1,2,2-Tetrachloroethane	mg/kg	1	Org-023	[NT]	32	<1	<1	0	[NT]	[NT]

QUALITY CONTROL: VOCs in soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-4	[NT]
o-Xylene	mg/kg	1	Org-023	[NT]	32	<1	<1	0	93	[NT]
1,2,3-Trichloropropane	mg/kg	1	Org-023	[NT]	32	<1	<1	0	[NT]	[NT]
Isopropylbenzene	mg/kg	1	Org-023	[NT]	32	<1	<1	0	[NT]	[NT]
Bromobenzene	mg/kg	1	Org-023	[NT]	32	<1	<1	0	[NT]	[NT]
n-Propylbenzene	mg/kg	1	Org-023	[NT]	32	<1	<1	0	[NT]	[NT]
2-Chlorotoluene	mg/kg	1	Org-023	[NT]	32	<1	<1	0	[NT]	[NT]
4-Chlorotoluene	mg/kg	1	Org-023	[NT]	32	<1	<1	0	[NT]	[NT]
1,3,5-Trimethylbenzene	mg/kg	1	Org-023	[NT]	32	<1	<1	0	[NT]	[NT]
tert-Butylbenzene	mg/kg	1	Org-023	[NT]	32	<1	<1	0	[NT]	[NT]
1,2,4-Trimethylbenzene	mg/kg	1	Org-023	[NT]	32	<1	<1	0	[NT]	[NT]
1,3-Dichlorobenzene	mg/kg	1	Org-023	[NT]	32	<1	<1	0	[NT]	[NT]
sec-Butylbenzene	mg/kg	1	Org-023	[NT]	32	<1	<1	0	[NT]	[NT]
1,4-Dichlorobenzene	mg/kg	1	Org-023	[NT]	32	<1	<1	0	[NT]	[NT]
4-Isopropyltoluene	mg/kg	1	Org-023	[NT]	32	<1	<1	0	[NT]	[NT]
1,2-Dichlorobenzene	mg/kg	1	Org-023	[NT]	32	<1	<1	0	[NT]	[NT]
n-Butylbenzene	mg/kg	1	Org-023	[NT]	32	<1	<1	0	[NT]	[NT]
1,2-Dibromo-3-chloropropane	mg/kg	1	Org-023	[NT]	32	<1	<1	0	[NT]	[NT]
1,2,4-Trichlorobenzene	mg/kg	1	Org-023	[NT]	32	<1	<1	0	[NT]	[NT]
Hexachlorobutadiene	mg/kg	1	Org-023	[NT]	32	<1	<1	0	[NT]	[NT]
1,2,3-Trichlorobenzene	mg/kg	1	Org-023	[NT]	32	<1	<1	0	[NT]	[NT]
Surrogate Dibromofluoromethane	%		Org-023	[NT]	32	108	109	1	101	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-023	[NT]	32	82	117	35	109	[NT]
Surrogate Toluene-d_8	%		Org-023	[NT]	32	111	111	0	100	[NT]
Surrogate 4-Bromofluorobenzene	%		Org-023	[NT]	32	95	96	1	99	[NT]

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-3	357735-5
Date extracted	-			31/07/2024	2	31/07/2024	31/07/2024		31/07/2024	31/07/2024
Date analysed	-			04/08/2024	2	01/08/2024	01/08/2024		04/08/2024	04/08/2024
TRH C_6 - C_9	mg/kg	25	Org-023	<25	2	<25	<25	0	84	76
TRH C_6 - C_{10}	mg/kg	25	Org-023	<25	2	<25	<25	0	84	76
Benzene	mg/kg	0.2	Org-023	<0.2	2	<0.2	<0.2	0	79	76
Toluene	mg/kg	0.5	Org-023	<0.5	2	<0.5	<0.5	0	94	77
Ethylbenzene	mg/kg	1	Org-023	<1	2	<1	<1	0	81	77
m+p-xylene	mg/kg	2	Org-023	<2	2	<2	<2	0	83	74
o-Xylene	mg/kg	1	Org-023	<1	2	<1	<1	0	82	76
Naphthalene	mg/kg	1	Org-023	<1	2	<1	<1	0	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-023	131	2	104	95	9	97	81

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-4	357735-9
Date extracted	-			[NT]	32	31/07/2024	31/07/2024		31/07/2024	31/07/2024
Date analysed	-			[NT]	32	04/08/2024	04/08/2024		04/08/2024	04/08/2024
TRH C_6 - C_9	mg/kg	25	Org-023	[NT]	32	<25	<25	0	96	72
TRH C_6 - C_{10}	mg/kg	25	Org-023	[NT]	32	<25	<25	0	96	72
Benzene	mg/kg	0.2	Org-023	[NT]	32	<0.2	<0.2	0	91	70
Toluene	mg/kg	0.5	Org-023	[NT]	32	<0.5	<0.5	0	107	83
Ethylbenzene	mg/kg	1	Org-023	[NT]	32	<1	<1	0	92	69
m+p-xylene	mg/kg	2	Org-023	[NT]	32	<2	<2	0	94	70
o-Xylene	mg/kg	1	Org-023	[NT]	32	<1	<1	0	93	70
Naphthalene	mg/kg	1	Org-023	[NT]	32	<1	<1	0	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-023	[NT]	32	82	117	35	109	86

QUALITY CONTROL: svTRH (C10-C40) in Soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-3	357735-5
Date extracted	-			31/07/2024	2	31/07/2024	31/07/2024		31/07/2024	31/07/2024
Date analysed	-			31/07/2024	2	31/07/2024	31/07/2024		31/07/2024	31/07/2024
TRH C_{10} - C_{14}	mg/kg	50	Org-020	<50	2	<50	<50	0	102	110
TRH C_{15} - C_{28}	mg/kg	100	Org-020	<100	2	<100	<100	0	100	106
TRH C_{29} - C_{36}	mg/kg	100	Org-020	<100	2	<100	<100	0	129	78
TRH >C_{10} -C_{16}	mg/kg	50	Org-020	<50	2	<50	<50	0	102	110
TRH >C_{16} -C_{34}	mg/kg	100	Org-020	<100	2	<100	<100	0	100	106
TRH >C_{34} -C_{40}	mg/kg	100	Org-020	<100	2	<100	<100	0	129	78
Surrogate o-Terphenyl	%		Org-020	97	2	86	97	12	90	93

QUALITY CONTROL: svTRH (C10-C40) in Soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	32	31/07/2024	31/07/2024		[NT]	[NT]
Date analysed	-			[NT]	32	31/07/2024	31/07/2024		[NT]	[NT]
TRH C_{10} - C_{14}	mg/kg	50	Org-020	[NT]	32	<50	<50	0	[NT]	[NT]
TRH C_{15} - C_{28}	mg/kg	100	Org-020	[NT]	32	<100	<100	0	[NT]	[NT]
TRH C_{29} - C_{36}	mg/kg	100	Org-020	[NT]	32	<100	<100	0	[NT]	[NT]
TRH >C_{10} -C_{16}	mg/kg	50	Org-020	[NT]	32	<50	<50	0	[NT]	[NT]
TRH >C_{16} -C_{34}	mg/kg	100	Org-020	[NT]	32	<100	<100	0	[NT]	[NT]
TRH >C_{34} -C_{40}	mg/kg	100	Org-020	[NT]	32	<100	<100	0	[NT]	[NT]
Surrogate o-Terphenyl	%		Org-020	[NT]	32	97	91	6	[NT]	[NT]

QUALITY CONTROL: PAHs in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-3	357735-5
Date extracted	-			31/07/2024	2	31/07/2024	31/07/2024		31/07/2024	31/07/2024
Date analysed	-			02/08/2024	2	02/08/2024	02/08/2024		02/08/2024	02/08/2024
Naphthalene	mg/kg	0.1	Org-022/025	<0.1	2	<0.1	<0.1	0	90	104
Acenaphthylene	mg/kg	0.1	Org-022/025	<0.1	2	<0.1	<0.1	0	[NT]	[NT]
Acenaphthene	mg/kg	0.1	Org-022/025	<0.1	2	<0.1	<0.1	0	94	112
Fluorene	mg/kg	0.1	Org-022/025	<0.1	2	<0.1	<0.1	0	100	110
Phenanthrene	mg/kg	0.1	Org-022/025	<0.1	2	<0.1	<0.1	0	94	104
Anthracene	mg/kg	0.1	Org-022/025	<0.1	2	<0.1	<0.1	0	[NT]	[NT]
Fluoranthene	mg/kg	0.1	Org-022/025	<0.1	2	<0.1	<0.1	0	86	94
Pyrene	mg/kg	0.1	Org-022/025	<0.1	2	<0.1	<0.1	0	92	100
Benzo(a)anthracene	mg/kg	0.1	Org-022/025	<0.1	2	<0.1	<0.1	0	[NT]	[NT]
Chrysene	mg/kg	0.1	Org-022/025	<0.1	2	<0.1	<0.1	0	90	96
Benzo(b,j+k)fluoranthene	mg/kg	0.2	Org-022/025	<0.2	2	<0.2	<0.2	0	[NT]	[NT]
Benzo(a)pyrene	mg/kg	0.05	Org-022/025	<0.05	2	<0.05	<0.05	0	66	82
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-022/025	<0.1	2	<0.1	<0.1	0	[NT]	[NT]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-022/025	<0.1	2	<0.1	<0.1	0	[NT]	[NT]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-022/025	<0.1	2	<0.1	<0.1	0	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-022/025	116	2	109	103	6	115	116

QUALITY CONTROL: PAHs in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	32	31/07/2024	31/07/2024		[NT]	[NT]
Date analysed	-			[NT]	32	02/08/2024	02/08/2024		[NT]	[NT]
Naphthalene	mg/kg	0.1	Org-022/025	[NT]	32	<0.1	<0.1	0	[NT]	[NT]
Acenaphthylene	mg/kg	0.1	Org-022/025	[NT]	32	<0.1	<0.1	0	[NT]	[NT]
Acenaphthene	mg/kg	0.1	Org-022/025	[NT]	32	<0.1	<0.1	0	[NT]	[NT]
Fluorene	mg/kg	0.1	Org-022/025	[NT]	32	<0.1	<0.1	0	[NT]	[NT]
Phenanthrene	mg/kg	0.1	Org-022/025	[NT]	32	<0.1	<0.1	0	[NT]	[NT]
Anthracene	mg/kg	0.1	Org-022/025	[NT]	32	<0.1	<0.1	0	[NT]	[NT]
Fluoranthene	mg/kg	0.1	Org-022/025	[NT]	32	<0.1	<0.1	0	[NT]	[NT]
Pyrene	mg/kg	0.1	Org-022/025	[NT]	32	<0.1	<0.1	0	[NT]	[NT]
Benzo(a)anthracene	mg/kg	0.1	Org-022/025	[NT]	32	<0.1	<0.1	0	[NT]	[NT]
Chrysene	mg/kg	0.1	Org-022/025	[NT]	32	<0.1	<0.1	0	[NT]	[NT]
Benzo(b,j+k)fluoranthene	mg/kg	0.2	Org-022/025	[NT]	32	<0.2	<0.2	0	[NT]	[NT]
Benzo(a)pyrene	mg/kg	0.05	Org-022/025	[NT]	32	<0.05	<0.05	0	[NT]	[NT]
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-022/025	[NT]	32	<0.1	<0.1	0	[NT]	[NT]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-022/025	[NT]	32	<0.1	<0.1	0	[NT]	[NT]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-022/025	[NT]	32	<0.1	<0.1	0	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-022/025	[NT]	32	118	121	3	[NT]	[NT]

QUALITY CONTROL: Organochlorine Pesticides in soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-3	[NT]
Date extracted	-			31/07/2024	[NT]	[NT]	[NT]	[NT]	31/07/2024	[NT]
Date analysed	-			01/08/2024	[NT]	[NT]	[NT]	[NT]	01/08/2024	[NT]
alpha-BHC	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	82	[NT]
HCB	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
beta-BHC	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	82	[NT]
gamma-BHC	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Heptachlor	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	84	[NT]
delta-BHC	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aldrin	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	90	[NT]
Heptachlor Epoxide	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	92	[NT]
gamma-Chlordane	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
alpha-chlordane	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Endosulfan I	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
pp-DDE	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	80	[NT]
Dieldrin	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	90	[NT]
Endrin	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	88	[NT]
Endosulfan II	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
pp-DDD	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	90	[NT]
Endrin Aldehyde	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
pp-DDT	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Endosulfan Sulphate	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	88	[NT]
Methoxychlor	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Mirex	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate 4-Chloro-3-NBTF	%		Org-022/025	78	[NT]	[NT]	[NT]	[NT]	80	[NT]

QUALITY CONTROL: Organophosphorus Pesticides in Soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-3	[NT]
Date extracted	-			31/07/2024	[NT]	[NT]	[NT]	[NT]	31/07/2024	[NT]
Date analysed	-			01/08/2024	[NT]	[NT]	[NT]	[NT]	01/08/2024	[NT]
Dichlorvos	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	90	[NT]
Mevinphos	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Phorate	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Dimethoate	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Diazinon	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Disulfoton	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Chlorpyrifos-methyl	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Parathion-Methyl	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Ronnel	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	76	[NT]
Fenitrothion	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	78	[NT]
Malathion	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	80	[NT]
Chlorpyriphos	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	80	[NT]
Fenthion	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Parathion	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	70	[NT]
Bromophos-ethyl	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Methidathion	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Fenamiphos	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Ethion	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	72	[NT]
Phosalone	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Azinphos-methyl (Guthion)	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Coumaphos	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate 4-Chloro-3-NBTF	%		Org-022/025	78	[NT]	[NT]	[NT]	[NT]	80	[NT]

QUALITY CONTROL: PCBs in Soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-3	[NT]
Date extracted	-			31/07/2024	[NT]	[NT]	[NT]	[NT]	31/07/2024	[NT]
Date analysed	-			01/08/2024	[NT]	[NT]	[NT]	[NT]	01/08/2024	[NT]
Aroclor 1016	mg/kg	0.1	Org-021/022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aroclor 1221	mg/kg	0.1	Org-021/022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aroclor 1232	mg/kg	0.1	Org-021/022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aroclor 1242	mg/kg	0.1	Org-021/022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aroclor 1248	mg/kg	0.1	Org-021/022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aroclor 1254	mg/kg	0.1	Org-021/022/025	<0.1	[NT]	[NT]	[NT]	[NT]	94	[NT]
Aroclor 1260	mg/kg	0.1	Org-021/022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate 2-Fluorobiphenyl	%		Org-021/022/025	99	[NT]	[NT]	[NT]	[NT]	93	[NT]

QUALITY CONTROL: Misc Soil - Inorg						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-3	357735-3
Date prepared	-			31/07/2024	3	31/07/2024	31/07/2024		31/07/2024	31/07/2024
Date analysed	-			31/07/2024	3	31/07/2024	31/07/2024		31/07/2024	31/07/2024
Free Cyanide in soil	mg/kg	0.5	Inorg-014	<0.5	3	<0.5	<0.5	0	97	90

QUALITY CONTROL: Acid Extractable metals in soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-3	357735-5
Date prepared	-			31/07/2024	2	31/07/2024	31/07/2024		31/07/2024	31/07/2024
Date analysed	-			31/07/2024	2	31/07/2024	31/07/2024		31/07/2024	31/07/2024
Arsenic	mg/kg	4	Metals-020	<4	2	4	<4	0	113	107
Cadmium	mg/kg	0.4	Metals-020	<0.4	2	<0.4	<0.4	0	103	94
Chromium	mg/kg	1	Metals-020	<1	2	6	6	0	102	100
Copper	mg/kg	1	Metals-020	<1	2	2	1	67	99	97
Lead	mg/kg	1	Metals-020	<1	2	19	11	53	105	88
Mercury	mg/kg	0.1	Metals-021	<0.1	2	<0.1	<0.1	0	97	92
Nickel	mg/kg	1	Metals-020	<1	2	1	1	0	108	102
Zinc	mg/kg	1	Metals-020	<1	2	9	7	25	102	94

QUALITY CONTROL: Acid Extractable metals in soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date prepared	-			[NT]	32	31/07/2024	31/07/2024		[NT]	[NT]
Date analysed	-			[NT]	32	31/07/2024	31/07/2024		[NT]	[NT]
Arsenic	mg/kg	4	Metals-020	[NT]	32	<4	<4	0	[NT]	[NT]
Cadmium	mg/kg	0.4	Metals-020	[NT]	32	<0.4	<0.4	0	[NT]	[NT]
Chromium	mg/kg	1	Metals-020	[NT]	32	20	22	10	[NT]	[NT]
Copper	mg/kg	1	Metals-020	[NT]	32	2	2	0	[NT]	[NT]
Lead	mg/kg	1	Metals-020	[NT]	32	22	24	9	[NT]	[NT]
Mercury	mg/kg	0.1	Metals-021	[NT]	32	<0.1	<0.1	0	[NT]	[NT]
Nickel	mg/kg	1	Metals-020	[NT]	32	7	7	0	[NT]	[NT]
Zinc	mg/kg	1	Metals-020	[NT]	32	49	49	0	[NT]	[NT]

QUALITY CONTROL: PFAS in Soils Extended						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-3	357735-30
Date prepared	-			31/07/2024	20	31/07/2024	31/07/2024		31/07/2024	31/07/2024
Date analysed	-			31/07/2024	20	31/07/2024	31/07/2024		31/07/2024	31/07/2024
Perfluorobutanesulfonic acid	µg/kg	0.1	Org-029	<0.1	20	<0.1	<0.1	0	99	96
Perfluoropentanesulfonic acid	µg/kg	0.1	Org-029	<0.1	20	<0.1	<0.1	0	102	95
Perfluorohexanesulfonic acid - PFHxS	µg/kg	0.1	Org-029	<0.1	20	<0.1	<0.1	0	105	101
Perfluoroheptanesulfonic acid	µg/kg	0.1	Org-029	<0.1	20	<0.1	<0.1	0	116	109
Perfluorooctanesulfonic acid PFOS	µg/kg	0.1	Org-029	<0.1	20	<0.1	<0.1	0	105	105
Perfluorodecanesulfonic acid	µg/kg	0.2	Org-029	<0.2	20	<0.2	<0.2	0	86	79
Perfluorobutanoic acid	µg/kg	0.2	Org-029	<0.2	20	<0.2	<0.2	0	96	93
Perfluoropentanoic acid	µg/kg	0.2	Org-029	<0.2	20	<0.2	<0.2	0	99	96
Perfluorohexanoic acid	µg/kg	0.1	Org-029	<0.1	20	<0.1	<0.1	0	104	110
Perfluoroheptanoic acid	µg/kg	0.1	Org-029	<0.1	20	<0.1	<0.1	0	104	105
Perfluorooctanoic acid PFOA	µg/kg	0.1	Org-029	<0.1	20	<0.1	<0.1	0	97	95
Perfluorononanoic acid	µg/kg	0.1	Org-029	<0.1	20	<0.1	<0.1	0	94	85
Perfluorodecanoic acid	µg/kg	0.5	Org-029	<0.5	20	<0.5	<0.5	0	84	82
Perfluoroundecanoic acid	µg/kg	0.5	Org-029	<0.5	20	<0.5	<0.5	0	96	96
Perfluorododecanoic acid	µg/kg	0.5	Org-029	<0.5	20	<0.5	<0.5	0	107	107
Perfluorotridecanoic acid	µg/kg	0.5	Org-029	<0.5	20	<0.5	<0.5	0	112	123
Perfluorotetradecanoic acid	µg/kg	5	Org-029	<5	20	<5	<5	0	97	92
4:2 FTS	µg/kg	0.1	Org-029	<0.1	20	<0.1	<0.1	0	102	102
6:2 FTS	µg/kg	0.1	Org-029	<0.1	20	<0.1	<0.1	0	104	103
8:2 FTS	µg/kg	0.2	Org-029	<0.2	20	<0.2	<0.2	0	100	101
10:2 FTS	µg/kg	0.2	Org-029	<0.2	20	<0.2	<0.2	0	110	109
Perfluorooctane sulfonamide	µg/kg	1	Org-029	<1	20	<1	<1	0	97	96
N-Methyl perfluorooctane sulfonamide	µg/kg	1	Org-029	<1	20	<1	<1	0	100	97
N-Ethyl perfluorooctanesulfon amide	µg/kg	1	Org-029	<1	20	<1	<1	0	101	100
N-Me perfluorooctanesulfonamid oethanol	µg/kg	1	Org-029	<1	20	<1	<1	0	115	103
N-Et perfluorooctanesulfonamid oethanol	µg/kg	5	Org-029	<5	20	<5	<5	0	135	124
MePerfluorooctanesulf- amid oacetic acid	µg/kg	0.2	Org-029	<0.2	20	<0.2	<0.2	0	106	103
EtPerfluorooctanesulf amid oacetic acid	µg/kg	0.2	Org-029	<0.2	20	<0.2	<0.2	0	102	111
Surrogate $^{13}C_8$ *PFOS*	%		Org-029	99	20	101	105	4	94	102
Surrogate $^{13}C_2$ *PFOA*	%		Org-029	96	20	100	100	0	97	95

QUALITY CONTROL: PFAS in Soils Extended						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-3	357735-30
Extracted ISTD $^{13}C_3$ *PFBS*	%		Org-029	106	20	95	94	1	109	103
Extracted ISTD $^{18}O_2$ *PFHxS*	%		Org-029	114	20	104	95	9	105	105
Extracted ISTD $^{13}C_4$ *PFOS*	%		Org-029	115	20	106	103	3	119	116
Extracted ISTD $^{13}C_4$ *PFBA*	%		Org-029	113	20	83	95	13	108	102
Extracted ISTD $^{13}C_3$ *PFPeA*	%		Org-029	104	20	86	94	9	106	99
Extracted ISTD $^{13}C_2$ *PFHxA*	%		Org-029	111	20	95	96	1	116	103
Extracted ISTD $^{13}C_4$ *PFHpA*	%		Org-029	117	20	104	104	0	116	113
Extracted ISTD $^{13}C_4$ *PFOA*	%		Org-029	118	20	99	104	5	119	118
Extracted ISTD $^{13}C_5$ *PFNA*	%		Org-029	118	20	103	105	2	118	115
Extracted ISTD $^{13}C_2$ *PFDA*	%		Org-029	122	20	109	118	8	127	127
Extracted ISTD $^{13}C_2$ *PFUnDA*	%		Org-029	122	20	102	104	2	113	116
Extracted ISTD $^{13}C_2$ *PFDoDA*	%		Org-029	125	20	109	108	1	116	114
Extracted ISTD $^{13}C_2$ *PFTeDA*	%		Org-029	144	20	115	127	10	138	132
Extracted ISTD $^{13}C_2$ *4:2FTS*	%		Org-029	117	20	75	88	16	113	104
Extracted ISTD $^{13}C_2$ *6:2FTS*	%		Org-029	111	20	89	99	11	116	107
Extracted ISTD $^{13}C_2$ *8:2FTS*	%		Org-029	121	20	97	113	15	118	117
Extracted ISTD $^{13}C_8$ *FOSA*	%		Org-029	126	20	110	110	0	121	114
Extracted ISTD d_3 *N MeFOSA*	%		Org-029	116	20	102	105	3	117	110
Extracted ISTD d_5 *N EtFOSA*	%		Org-029	117	20	101	100	1	116	109
Extracted ISTD d_7 *N MeFOSE*	%		Org-029	97	20	88	96	9	104	108

QUALITY CONTROL: PFAS in Soils Extended						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-3	357735-30
Extracted ISTD d_9 *N EtFOSE*	%		Org-029	114	20	96	92	4	111	101
Extracted ISTD d_3 *N MeFOSAA*	%		Org-029	122	20	103	114	10	117	116
Extracted ISTD d_5 *N EtFOSAA*	%		Org-029	116	20	126	109	14	119	118

Result Definitions

NT	Not tested
NA	Test not required
INS	Insufficient sample for this test
PQL	Practical Quantitation Limit
<	Less than
>	Greater than
RPD	Relative Percent Difference
LCS	Laboratory Control Sample
NS	Not specified
NEPM	National Environmental Protection Measure
NR	Not Reported

Quality Control Definitions

Blank	This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.
Duplicate	This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.
Matrix Spike	A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.
LCS (Laboratory Control Sample)	This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.
Surrogate Spike	Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.

Australian Drinking Water Guidelines recommend that Thermotolerant Coliform, Faecal Enterococci, & E.Coli levels are less than 1cfu/100mL. The recommended maximums are taken from "Australian Drinking Water Guidelines", published by NHMRC & ARMC 2011.

The recommended maximums for analytes in urine are taken from “2018 TLVs and BEIs”, as published by ACGIH (where available). Limit provided for Nickel is a precautionary guideline as per Position Paper prepared by AIOH Exposure Standards Committee, 2016.

Guideline limits for Rinse Water Quality reported as per analytical requirements and specifications of AS 4187, Amdt 2 2019, Table 7.2

Laboratory Acceptance Criteria

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria.

Filters, swabs, wipes, tubes and badges will not have duplicate data as the whole sample is generally extracted during sample extraction.

Spikes for Physical and Aggregate Tests are not applicable.

For VOCs in water samples, three vials are required for duplicate or spike analysis.

Duplicates: >10xPQL - RPD acceptance criteria will vary depending on the analytes and the analytical techniques but is typically in the range 20%-50% – see ELN-P05 QA/QC tables for details; <10xPQL - RPD are higher as the results approach PQL and the estimated measurement uncertainty will statistically increase.

Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals (not SPOCAS); 60-140% for organics/SPOCAS (+/-50% surrogates) and 10-140% for labile SVOCs (including labile surrogates), ultra trace organics and speciated phenols is acceptable.

In circumstances where no duplicate and/or sample spike has been reported at 1 in 10 and/or 1 in 20 samples respectively, the sample volume submitted was insufficient in order to satisfy laboratory QA/QC protocols.

When samples are received where certain analytes are outside of recommended technical holding times (THTs), the analysis has proceeded. Where analytes are on the verge of breaching THTs, every effort will be made to analyse within the THT or as soon as practicable.

Where sampling dates are not provided, Envirolab are not in a position to comment on the validity of the analysis where recommended technical holding times may have been breached.

Where matrix spike recoveries fall below the lower limit of the acceptance criteria (e.g. for non-labile or standard Organics <60%), positive result(s) in the parent sample will subsequently have a higher than typical estimated uncertainty (MU estimates supplied on request) and in these circumstances the sample result is likely biased significantly low.

Measurement Uncertainty estimates are available for most tests upon request.

Analysis of aqueous samples typically involves the extraction/digestion and/or analysis of the liquid phase only (i.e. NOT any settled sediment phase but inclusive of suspended particles if present), unless stipulated on the Envirolab COC and/or by correspondence. Notable exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, total recoverable metals and PFAS where solids are included by default.

Samples for Microbiological analysis (not Amoeba forms) received outside of the 2-8°C temperature range do not meet the ideal cooling conditions as stated in AS2031-2012.

Report Comments

Acid Extractable Metals in Soil: The laboratory RPD acceptance criteria has been exceeded for 357735-2 for Pb. Therefore a triplicate result has been issued as laboratory sample number 357735-44.

For PFAS Extracted Internal Standards denoted with # or outside the 50-150% acceptance range, the respective target analyte results may be unaffected, in other circumstances the PQL has been raised to accommodate the outlier(s).

COC 13/8/24, 1144

CHAIN OF CUSTODY FORM - Client

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Client: Reditus Consulting	Client Project Name/Number/Site etc (ie report title): 24072
Contact Person: Natasha Pasley	
Project Mgr: Natasha Pasley	PO No.:
Sampler:	Envirolab Quote No.:
Address: Unit 1A, Level 1, 29-33 Waratah Street Kirrawee NSW	Date results required: Or choose: standard *Note: Inform lab in advance if urgent turnaround is required - surcharges apply*
Phone: 02 9521 6567 Mob: 0487 340 857	Additional report format: esdat
Email Invoice To: accounts@reditusconsulting.com	Lab Comments:
Email Results To: natashapasley@reditus.com.au	

Sample information					Tests Required														Comments
Envirolab Sample ID	Client Sample ID or Information	Depth	Date sampled	Type of sample	Combo 3 (TRH, BTEX, PAH, Metals)	VOCs	PFAS - extended Suite	Total Cyanide	Ammonia										Provide as much information about the sample as you can
1	MW01		9.08.24	Water	x	x	x	x	x										
2	MW02		9.08.24	Water	x	x	x	x	x										
3	MW03		13.08.24	Water	x	x	x	x	x										
4	DUP1		13.08.24	Water	x	x	x	x	x										
S10	TRIP1				x	x	x	x	x										Minimal sample able to obtain
5	TB																		Please forward to ALS
6	TS.																		
				Sample Count	5	5	5	5	5	0	0	0	0	0	0	0	0	0	

☐ *Please tick the box if observed settled sediment present in water samples is to be included in the extraction and/or analysis*

Relinquished by (Company): Reditus	Received by (Company): ELS SYD	Lab Use Only
Print Name: Tiarni Wiersma	Print Name: O. WILLIAMS	Job number: 359078 / Cooling: Ice / Ice pack / None
Date & Time: 13.08.24	Date & Time: 13/8/24 1615	Temperature: 2 / Security seal: Intact / Broken / None
Signature: t.wiersma	Signature:	TAT Req - SAME day / 1 / 2 / 3 / 4 / STD

COC - Samples to be delivered - 24072

Tiarni Wiersma <tiarniwiersma@reditus.com.au>

Tue 13/08/2024 11:44 AM

To:Samplereceipt <Samplereceipt@envirolab.com.au>;SydneyMailbox <Sydney@envirolab.com.au>

#359078
13/8/24
~~1615~~
0.W

1 attachments (37 KB)

COC - 9.08.24 - 24072.xlsx;

Hey Team,

Please see the attached COC for samples being delivered.

The samples MW03, DUP1 and TRIP1 will be delivered this evening in a separate batch. I will advise if there are any changes to the COC for these ones and update it accordingly 😊

Thanks!

Tiarni Wiersma
Graduate Environmental Scientist

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CERTIFICATE OF ANALYSIS 359078

Client Details

Client	Reditus Consulting
Attention	Natasha Pasley
Address	Shop 1, 29-33 Waratah St, KIRRAWEE, NSW, 2232

Sample Details

Your Reference	**24072**
Number of Samples	7 Water, 4 Filter
Date samples received	13/08/2024
Date completed instructions received	13/08/2024

Analysis Details

Please refer to the following pages for results, methodology summary and quality control data.

Samples were analysed as received from the client. Results relate specifically to the samples as received.

Results are reported on a dry weight basis for solids and on an as received basis for other matrices.

Please refer to the last page of this report for any comments relating to the results.

Report Details

Date results requested by	20/08/2024
Date of Issue	20/08/2024

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Accredited for compliance with ISO/IEC 17025 - Testing. **Tests not covered by NATA are denoted with ***

Results Approved By
Amanda Chui, LC/Air Toxics Supervisor
Diego Bigolin, Inorganics Supervisor
Giovanni Agosti, Group Technical Manager
Jack Wallis, Chemist (FAS)
Liam Timmins, Organics Supervisor
Nancy Zhang, Laboratory Manager, Sydney
Timothy Toll, Senior Chemist

Authorised By
Nancy Zhang, Laboratory Manager

VOCs in water						
Our Reference		359078-1	359078-2	359078-3	359078-4	359078-7
Your Reference	UNITS	MW01	MW02	MW03	DUP1	R1
Date Sampled		09/08/2024	09/08/2024	13/08/2024	13/08/2024	13/08/2024
Type of sample		Water	Water	Water	Water	Water
Date Extracted	-	14/08/2024	14/08/2024	14/08/2024	14/08/2024	14/08/2024
Date Analysed	-	15/08/2024	15/08/2024	15/08/2024	15/08/2024	15/08/2024
Dichlorodifluoromethane	µg/L	<10	<10	<10	<10	<10
Chloromethane	µg/L	<10	<10	<10	<10	<10
Vinyl Chloride	µg/L	<10	<10	<10	<10	<10
Bromomethane	µg/L	<10	<10	<10	<10	<10
Chloroethane	µg/L	<10	<10	<10	<10	<10
Trichlorofluoromethane	µg/L	<10	<10	<10	<10	<10
1,1-Dichloroethene	µg/L	<1	<1	<1	<1	<1
Trans-1,2-dichloroethene	µg/L	<1	<1	<1	<1	<1
1,1-dichloroethane	µg/L	<1	<1	<1	<1	<1
Cis-1,2-dichloroethene	µg/L	<1	<1	<1	<1	<1
Bromochloromethane	µg/L	<1	<1	<1	<1	<1
Chloroform	µg/L	<1	<1	<1	<1	<1
2,2-dichloropropane	µg/L	<1	<1	<1	<1	<1
1,2-dichloroethane	µg/L	<1	<1	<1	<1	<1
1,1,1-trichloroethane	µg/L	<1	<1	<1	<1	<1
1,1-dichloropropene	µg/L	<1	<1	<1	<1	<1
Cyclohexane	µg/L	<1	<1	<1	<1	<1
Carbon tetrachloride	µg/L	<1	<1	<1	<1	<1
Benzene	µg/L	<1	<1	<1	<1	<1
Dibromomethane	µg/L	<1	<1	<1	<1	<1
1,2-dichloropropane	µg/L	<1	<1	<1	<1	<1
Trichloroethene	µg/L	<1	<1	<1	<1	<1
Bromodichloromethane	µg/L	<1	<1	<1	<1	<1
trans-1,3-dichloropropene	µg/L	<1	<1	<1	<1	<1
cis-1,3-dichloropropene	µg/L	<1	<1	<1	<1	<1
1,1,2-trichloroethane	µg/L	<1	<1	<1	<1	<1
Toluene	µg/L	<1	<1	<1	<1	<1
1,3-dichloropropane	µg/L	<1	<1	<1	<1	<1
Dibromochloromethane	µg/L	<1	<1	<1	<1	<1
1,2-dibromoethane	µg/L	<1	<1	<1	<1	<1
Tetrachloroethene	µg/L	<1	<1	<1	<1	<1
1,1,1,2-tetrachloroethane	µg/L	<1	<1	<1	<1	<1
Chlorobenzene	µg/L	<1	<1	<1	<1	<1
Ethylbenzene	µg/L	<1	<1	<1	<1	<1

VOCs in water						
Our Reference		359078-1	359078-2	359078-3	359078-4	359078-7
Your Reference	UNITS	MW01	MW02	MW03	DUP1	R1
Date Sampled		09/08/2024	09/08/2024	13/08/2024	13/08/2024	13/08/2024
Type of sample		Water	Water	Water	Water	Water
Bromoform	µg/L	<1	<1	<1	<1	<1
m+p-xylene	µg/L	<2	<2	<2	<2	<2
Styrene	µg/L	<1	<1	<1	<1	<1
1,1,2,2-tetrachloroethane	µg/L	<1	<1	<1	<1	<1
o-xylene	µg/L	<1	<1	<1	<1	<1
1,2,3-trichloropropane	µg/L	<1	<1	<1	<1	<1
Isopropylbenzene	µg/L	<1	<1	<1	<1	<1
Bromobenzene	µg/L	<1	<1	<1	<1	<1
n-propyl benzene	µg/L	<1	<1	<1	<1	<1
2-chlorotoluene	µg/L	<1	<1	<1	<1	<1
4-chlorotoluene	µg/L	<1	<1	<1	<1	<1
1,3,5-trimethyl benzene	µg/L	<1	<1	<1	<1	<1
Tert-butyl benzene	µg/L	<1	<1	<1	<1	<1
1,2,4-trimethyl benzene	µg/L	<1	<1	<1	<1	<1
1,3-dichlorobenzene	µg/L	<1	<1	<1	<1	<1
Sec-butyl benzene	µg/L	<1	<1	<1	<1	<1
1,4-dichlorobenzene	µg/L	<1	<1	<1	<1	<1
4-isopropyl toluene	µg/L	<1	<1	<1	<1	<1
1,2-dichlorobenzene	µg/L	<1	<1	<1	<1	<1
n-butyl benzene	µg/L	<1	<1	<1	<1	<1
1,2-dibromo-3-chloropropane	µg/L	<1	<1	<1	<1	<1
1,2,4-trichlorobenzene	µg/L	<1	<1	<1	<1	<1
Hexachlorobutadiene	µg/L	<1	<1	<1	<1	<1
1,2,3-trichlorobenzene	µg/L	<1	<1	<1	<1	<1
Surrogate Dibromofluoromethane	%	98	92	101	101	101
Surrogate Toluene-d8	%	97	90	98	96	103
Surrogate 4-Bromofluorobenzene	%	99	94	94	94	95

vTRH(C6-C10)/BTEXN in Water						
Our Reference		359078-1	359078-2	359078-3	359078-4	359078-5
Your Reference	UNITS	MW01	MW02	MW03	DUP1	TB
Date Sampled		09/08/2024	09/08/2024	13/08/2024	13/08/2024	13/08/2024
Type of sample		Water	Water	Water	Water	Water
Date extracted	-	14/08/2024	14/08/2024	14/08/2024	14/08/2024	15/08/2024
Date analysed	-	15/08/2024	15/08/2024	15/08/2024	15/08/2024	16/08/2024
TRH C_6 - C_9	µg/L	<10	<10	<10	<10	<10
TRH C_6 - C_{10}	µg/L	<10	<10	<10	<10	<10
TRH C_6 - C_{10} less BTEX (F1)	µg/L	<10	<10	<10	<10	<10
Benzene	µg/L	<1	<1	<1	<1	<1
Toluene	µg/L	<1	<1	<1	<1	<1
Ethylbenzene	µg/L	<1	<1	<1	<1	<1
m+p-xylene	µg/L	<2	<2	<2	<2	<2
o-xylene	µg/L	<1	<1	<1	<1	<1
Naphthalene	µg/L	<1	<1	<1	<1	<1
Surrogate Dibromofluoromethane	%	98	92	101	101	94
Surrogate Toluene-d8	%	97	90	98	96	100
Surrogate 4-Bromofluorobenzene	%	99	94	94	94	92

vTRH(C6-C10)/BTEXN in Water			
Our Reference		359078-6	359078-7
Your Reference	UNITS	TS	R1
Date Sampled		13/08/2024	13/08/2024
Type of sample		Water	Water
Date extracted	-	15/08/2024	14/08/2024
Date analysed	-	16/08/2024	15/08/2024
TRH C_6 - C_9	µg/L	[NA]	<10
TRH C_6 - C_{10}	µg/L	[NA]	<10
TRH C_6 - C_{10} less BTEX (F1)	µg/L	[NA]	<10
Benzene	µg/L	109%	<1
Toluene	µg/L	114%	<1
Ethylbenzene	µg/L	114%	<1
m+p-xylene	µg/L	112%	<2
o-xylene	µg/L	112%	<1
Naphthalene	µg/L	[NA]	<1
Surrogate Dibromofluoromethane	%	93	101
Surrogate Toluene-d8	%	98	103
Surrogate 4-Bromofluorobenzene	%	97	95

svTRH (C10-C40) in Water						
Our Reference	UNITS	359078-1	359078-2	359078-3	359078-4	359078-7
Your Reference		MW01	MW02	MW03	DUP1	R1
Date Sampled		09/08/2024	09/08/2024	13/08/2024	13/08/2024	13/08/2024
Type of sample		Water	Water	Water	Water	Water
Date extracted	-	15/08/2024	15/08/2024	15/08/2024	15/08/2024	15/08/2024
Date analysed	-	15/08/2024	16/08/2024	16/08/2024	16/08/2024	16/08/2024
TRH C_{10} - C_{14}	µg/L	<50	<50	<50	<50	<50
TRH C_{15} - C_{28}	µg/L	<100	<100	<100	<100	<100
TRH C_{29} - C_{36}	µg/L	<100	<100	<100	<100	<100
Total +ve TRH (C10-C36)	µg/L	<50	<50	<50	<50	<50
TRH >C_{10} - C_{16}	µg/L	<50	<50	<50	<50	<50
TRH >C_{10} - C_{16} less Naphthalene (F2)	µg/L	<50	<50	<50	<50	<50
TRH >C_{16} - C_{34}	µg/L	<100	<100	<100	<100	<100
TRH >C_{34} - C_{40}	µg/L	<100	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	µg/L	<50	<50	<50	<50	<50
Surrogate o-Terphenyl	%	93	101	122	108	94

PAHs in Water						
Our Reference		359078-1	359078-2	359078-3	359078-4	359078-7
Your Reference	UNITS	MW01	MW02	MW03	DUP1	R1
Date Sampled		09/08/2024	09/08/2024	13/08/2024	13/08/2024	13/08/2024
Type of sample		Water	Water	Water	Water	Water
Date extracted	-	15/08/2024	15/08/2024	15/08/2024	15/08/2024	15/08/2024
Date analysed	-	15/08/2024	15/08/2024	15/08/2024	15/08/2024	20/08/2024
Naphthalene	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Indeno(1,2,3-c,d)pyrene	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)pyrene TEQ	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
Total +ve PAH's	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate p-Terphenyl-d14	%	71	77	86	82	109

HM in water - dissolved						
Our Reference		359078-1	359078-2	359078-3	359078-4	359078-7
Your Reference	UNITS	MW01	MW02	MW03	DUP1	R1
Date Sampled		09/08/2024	09/08/2024	13/08/2024	13/08/2024	13/08/2024
Type of sample		Water	Water	Water	Water	Water
Date prepared	-	15/08/2024	15/08/2024	15/08/2024	15/08/2024	15/08/2024
Date analysed	-	15/08/2024	15/08/2024	15/08/2024	15/08/2024	15/08/2024
Arsenic-Dissolved	µg/L	<1	<1	<1	<1	<1
Cadmium-Dissolved	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Chromium-Dissolved	µg/L	<1	1	<1	<1	<1
Copper-Dissolved	µg/L	<1	<1	<1	<1	<1
Lead-Dissolved	µg/L	<1	1	<1	<1	<1
Mercury-Dissolved	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05
Nickel-Dissolved	µg/L	2	<1	2	2	<1
Zinc-Dissolved	µg/L	15	9	14	14	<1

Miscellaneous Inorganics						
Our Reference		359078-1	359078-2	359078-3	359078-4	359078-7
Your Reference	UNITS	MW01	MW02	MW03	DUP1	R1
Date Sampled		09/08/2024	09/08/2024	13/08/2024	13/08/2024	13/08/2024
Type of sample		Water	Water	Water	Water	Water
Date prepared	-	13/08/2024	13/08/2024	13/08/2024	13/08/2024	13/08/2024
Date analysed	-	13/08/2024	13/08/2024	13/08/2024	13/08/2024	13/08/2024
Total Cyanide	mg/L	<0.004	<0.004	<0.004	<0.004	<0.004
Ammonia as N in water	mg/L	0.096	0.014	0.17	0.16	<0.005

HM in water - total		
Our Reference		359078-7
Your Reference	UNITS	R1
Date Sampled		13/08/2024
Type of sample		Water
Date prepared	-	20/08/2024
Date analysed	-	20/08/2024
Arsenic-Total	µg/L	<1
Cadmium-Total	µg/L	<0.1
Chromium-Total	µg/L	<1
Copper-Total	µg/L	<1
Lead-Total	µg/L	<1
Mercury-Total	µg/L	<0.05
Nickel-Total	µg/L	<1
Zinc-Total	µg/L	<1

PFAS in Waters Extended						
Our Reference		359078-1	359078-2	359078-3	359078-4	359078-7
Your Reference	UNITS	MW01	MW02	MW03	DUP1	R1
Date Sampled		09/08/2024	09/08/2024	13/08/2024	13/08/2024	13/08/2024
Type of sample		Water	Water	Water	Water	Water
Date prepared	-	14/08/2024	14/08/2024	14/08/2024	14/08/2024	14/08/2024
Date analysed	-	14/08/2024	14/08/2024	14/08/2024	14/08/2024	14/08/2024
Perfluorobutanesulfonic acid	µg/L	<0.01	<0.01	0.01	0.01	<0.01
Perfluoropentanesulfonic acid	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01
Perfluorohexanesulfonic acid - PFHxS	µg/L	0.02	0.03	<0.01	0.01	<0.01
Perfluoroheptanesulfonic acid	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01
Perfluorooctanesulfonic acid PFOS	µg/L	0.01	0.01	0.01	<0.01	<0.01
Perfluorodecanesulfonic acid	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorobutanoic acid	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluoropentanoic acid	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorohexanoic acid	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01
Perfluoroheptanoic acid	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01
Perfluorooctanoic acid PFOA	µg/L	<0.01	<0.01	<0.01	0.01	<0.01
Perfluorononanoic acid	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01
Perfluorodecanoic acid	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluoroundecanoic acid	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorododecanoic acid	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05
Perfluorotridecanoic acid	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Perfluorotetradecanoic acid	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
4:2 FTS	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01
6:2 FTS	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01
8:2 FTS	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02
10:2 FTS	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorooctane sulfonamide	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
N-Methyl perfluorooctane sulfonamide	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05
N-Ethyl perfluorooctanesulfon amide	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
N-Me perfluorooctanesulfonamid oethanol	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05
N-Et perfluorooctanesulfonamid oethanol	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
MePerfluorooctanesulf- amid oacetic acid	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02
EtPerfluorooctanesulf- amid oacetic acid	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02
Surrogate $^{13}C_8$ *PFOS*	%	99	103	98	99	99
Surrogate $^{13}C_2$ *PFOA*	%	102	100	100	102	102
Extracted ISTD $^{13}C_3$ *PFBS*	%	97	97	100	94	92
Extracted ISTD $^{18}O_2$ *PFHxS*	%	94	99	98	98	95
Extracted ISTD $^{13}C_4$ *PFOS*	%	94	93	95	98	97
Extracted ISTD $^{13}C_4$ *PFBA*	%	101	104	105	103	105

PFAS in Waters Extended						
Our Reference		359078-1	359078-2	359078-3	359078-4	359078-7
Your Reference	UNITS	MW01	MW02	MW03	DUP1	R1
Date Sampled		09/08/2024	09/08/2024	13/08/2024	13/08/2024	13/08/2024
Type of sample		Water	Water	Water	Water	Water
Extracted ISTD $^{13}C_3$ *PFPeA*	%	101	102	103	101	102
Extracted ISTD $^{13}C_2$ *PFHxA*	%	106	106	104	105	103
Extracted ISTD $^{13}C_4$ *PFHpA*	%	103	105	103	103	103
Extracted ISTD $^{13}C_4$ *PFOA*	%	100	102	100	100	99
Extracted ISTD $^{13}C_5$ *PFNA*	%	100	101	102	104	102
Extracted ISTD $^{13}C_2$ *PFDA*	%	109	108	103	104	103
Extracted ISTD $^{13}C_2$ *PFUnDA*	%	109	106	106	105	103
Extracted ISTD $^{13}C_2$ *PFDoDA*	%	101	99	98	98	97
Extracted ISTD $^{13}C_2$ *PFTeDA*	%	71	72	72	72	69
Extracted ISTD $^{13}C_2$ *4:2FTS*	%	107	111	108	104	105
Extracted ISTD $^{13}C_2$ *6:2FTS*	%	109	110	117	110	113
Extracted ISTD $^{13}C_2$ *8:2FTS*	%	128	131	129	121	125
Extracted ISTD $^{13}C_8$ *FOSA*	%	104	107	110	109	108
Extracted ISTD d_3 *N MeFOSA*	%	93	96	94	97	92
Extracted ISTD d_5 *N EtFOSA*	%	90	94	96	96	99
Extracted ISTD d_7 *N MeFOSE*	%	104	99	100	100	99
Extracted ISTD d_9 *N EtFOSE*	%	95	95	93	94	93
Extracted ISTD d_3 *N MeFOSAA*	%	109	104	100	108	107
Extracted ISTD d_5 *N EtFOSAA*	%	117	105	113	116	110
Total Positive PFHxS & PFOS	µg/L	0.03	0.04	0.01	0.01	<0.01
Total Positive PFOA & PFOS	µg/L	0.01	0.01	0.01	0.01	<0.01
Total Positive PFAS	µg/L	0.03	0.04	0.02	0.03	<0.01

VOC in Carbon tubes & Badges					
Our Reference		359078-8	359078-9	359078-10	359078-11
Your Reference	UNITS	SV01	SV02	SV03	SV04
Date Sampled		09/08/2024	09/08/2024	09/08/2024	09/08/2024
Type of sample		Filter	Filter	Filter	Filter
Date Extracted	-	16/08/2024	16/08/2024	16/08/2024	16/08/2024
Date Analysed	-	17/08/2024	17/08/2024	17/08/2024	17/08/2024

Method ID	Methodology Summary
Inorg-014	Cyanide - free, total, weak acid dissociable by segmented flow analyser (in line dialysis with colourimetric finish). Solids/Filters and sorbents are extracted in a caustic media prior to analysis. Impingers are pH adjusted as required prior to analysis. Cyanides amenable to Chlorination - samples are analysed untreated and treated with hypochlorite to assess the potential for chlorination of cyanide forms. Based on APHA latest edition, 4500-CN_G,H.
Inorg-057	Ammonia - determined colourimetrically, based on APHA latest edition 4500-NH3 F. Waters samples are filtered on receipt prior to analysis. Soils are analysed following a KCl extraction.
Metals-021	Determination of Mercury by Cold Vapour AAS.
Metals-022	Determination of various metals by ICP-MS. Please note for Bromine and Iodine, any forms of these elements that are present are included together in the one result reported for each of these two elements. Salt forms (e.g. FeO, PbO, ZnO) are determined stoichiometrically from the base metal concentration.
Org-020	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis.
Org-022/025	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS/GC-MSMS. Benzo(a)pyrene TEQ as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater - 2013.
Org-023	Water samples are analysed directly by purge and trap GC-MS.
Org-023	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater.

Method ID	Methodology Summary
Org-029	Soil samples are extracted with basified Methanol. Waters and soil extracts are directly injected and/or concentrated/extracted using SPE. TCLPs/ASLP leachates are centrifuged, the supernatant is then analysed (including amendment with solvent) - as per the option in AS4439.3. Analysis is undertaken with LC-MS/MS. PFAS results include the sum of branched and linear isomers where applicable. Please note that PFAS results are corrected for Extracted Internal Standards (QSM 5.4 Table B-15 terminology), which are mass labelled analytes added prior to sample preparation to assess matrix effects and verify processing of the sample. PFAS analytes without a commercially available mass labelled analogue are corrected vs a closely eluting mass labelled PFAS compound. Surrogates are also reported, in this context they are mass labelled PFAS compounds added prior to extraction but are used as monitoring compounds only (not used for result correction). Envicarb (or similar) is used discretionally to remove interfering matrix components. Please contact the laboratory if estimates of Measurement Uncertainty are required as per WA DER.

QUALITY CONTROL: VOCs in water						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W3	[NT]
Date Extracted	-			14/08/2024	1	14/08/2024	15/08/2024		14/08/2024	[NT]
Date Analysed	-			15/08/2024	1	15/08/2024	16/08/2024		15/08/2024	[NT]
Dichlorodifluoromethane	µg/L	10	Org-023	<10	1	<10	<10	0	[NT]	[NT]
Chloromethane	µg/L	10	Org-023	<10	1	<10	<10	0	[NT]	[NT]
Vinyl Chloride	µg/L	10	Org-023	<10	1	<10	<10	0	[NT]	[NT]
Bromomethane	µg/L	10	Org-023	<10	1	<10	<10	0	[NT]	[NT]
Chloroethane	µg/L	10	Org-023	<10	1	<10	<10	0	[NT]	[NT]
Trichlorofluoromethane	µg/L	10	Org-023	<10	1	<10	<10	0	[NT]	[NT]
1,1-Dichloroethene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Trans-1,2-dichloroethene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
1,1-dichloroethane	µg/L	1	Org-023	<1	1	<1	<1	0	100	[NT]
Cis-1,2-dichloroethene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Bromochloromethane	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Chloroform	µg/L	1	Org-023	<1	1	<1	<1	0	96	[NT]
2,2-dichloropropane	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
1,2-dichloroethane	µg/L	1	Org-023	<1	1	<1	<1	0	97	[NT]
1,1,1-trichloroethane	µg/L	1	Org-023	<1	1	<1	<1	0	93	[NT]
1,1-dichloropropene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Cyclohexane	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Carbon tetrachloride	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Benzene	µg/L	1	Org-023	<1	1	<1	<1	0	102	[NT]
Dibromomethane	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
1,2-dichloropropane	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Trichloroethene	µg/L	1	Org-023	<1	1	<1	<1	0	118	[NT]
Bromodichloromethane	µg/L	1	Org-023	<1	1	<1	<1	0	90	[NT]
trans-1,3-dichloropropene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
cis-1,3-dichloropropene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
1,1,2-trichloroethane	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Toluene	µg/L	1	Org-023	<1	1	<1	<1	0	96	[NT]
1,3-dichloropropane	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Dibromochloromethane	µg/L	1	Org-023	<1	1	<1	<1	0	100	[NT]
1,2-dibromoethane	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Tetrachloroethene	µg/L	1	Org-023	<1	1	<1	<1	0	98	[NT]
1,1,1,2-tetrachloroethane	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Chlorobenzene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Ethylbenzene	µg/L	1	Org-023	<1	1	<1	<1	0	100	[NT]
Bromoform	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
m+p-xylene	µg/L	2	Org-023	<2	1	<2	<2	0	102	[NT]
Styrene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
1,1,2,2-tetrachloroethane	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]

QUALITY CONTROL: VOCs in water						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W3	[NT]
o-xylene	µg/L	1	Org-023	<1	1	<1	<1	0	102	[NT]
1,2,3-trichloropropane	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Isopropylbenzene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Bromobenzene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
n-propyl benzene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
2-chlorotoluene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
4-chlorotoluene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
1,3,5-trimethyl benzene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Tert-butyl benzene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
1,2,4-trimethyl benzene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
1,3-dichlorobenzene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Sec-butyl benzene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
1,4-dichlorobenzene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
4-isopropyl toluene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
1,2-dichlorobenzene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
n-butyl benzene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
1,2-dibromo-3-chloropropane	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
1,2,4-trichlorobenzene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Hexachlorobutadiene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
1,2,3-trichlorobenzene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Surrogate Dibromofluoromethane	%		Org-023	99	1	98	99	1	95	[NT]
Surrogate Toluene-d8	%		Org-023	97	1	97	98	1	95	[NT]
Surrogate 4-Bromofluorobenzene	%		Org-023	98	1	99	94	5	100	[NT]

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Water						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W3	[NT]
Date extracted	-			14/08/2024	1	14/08/2024	15/08/2024		14/08/2024	[NT]
Date analysed	-			15/08/2024	1	15/08/2024	16/08/2024		15/08/2024	[NT]
TRH C_6 - C_9	µg/L	10	Org-023	<10	1	<10	<10	0	100	[NT]
TRH C_6 - C_{10}	µg/L	10	Org-023	<10	1	<10	<10	0	100	[NT]
Benzene	µg/L	1	Org-023	<1	1	<1	<1	0	102	[NT]
Toluene	µg/L	1	Org-023	<1	1	<1	<1	0	96	[NT]
Ethylbenzene	µg/L	1	Org-023	<1	1	<1	<1	0	100	[NT]
m+p-xylene	µg/L	2	Org-023	<2	1	<2	<2	0	102	[NT]
o-xylene	µg/L	1	Org-023	<1	1	<1	<1	0	102	[NT]
Naphthalene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Surrogate Dibromofluoromethane	%		Org-023	99	1	98	99	1	95	[NT]
Surrogate Toluene-d8	%		Org-023	97	1	97	98	1	95	[NT]
Surrogate 4-Bromofluorobenzene	%		Org-023	98	1	99	94	5	100	[NT]

QUALITY CONTROL: svTRH (C10-C40) in Water						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	359078-2
Date extracted	-			15/08/2024	1	15/08/2024	15/08/2024		15/08/2024	15/08/2024
Date analysed	-			15/08/2024	1	15/08/2024	16/08/2024		15/08/2024	16/08/2024
TRH C_{10} - C_{14}	µg/L	50	Org-020	<50	1	<50	<50	0	101	115
TRH C_{15} - C_{28}	µg/L	100	Org-020	<100	1	<100	<100	0	100	119
TRH C_{29} - C_{36}	µg/L	100	Org-020	<100	1	<100	<100	0	86	104
TRH >C_{10} - C_{16}	µg/L	50	Org-020	<50	1	<50	<50	0	101	115
TRH >C_{16} - C_{34}	µg/L	100	Org-020	<100	1	<100	<100	0	100	119
TRH >C_{34} - C_{40}	µg/L	100	Org-020	<100	1	<100	<100	0	86	104
Surrogate o-Terphenyl	%		Org-020	96	1	93	90	3	105	101

QUALITY CONTROL: PAHs in Water						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W2	359078-2
Date extracted	-			15/08/2024	1	15/08/2024	15/08/2024		15/08/2024	15/08/2024
Date analysed	-			15/08/2024	1	15/08/2024	15/08/2024		15/08/2024	15/08/2024
Naphthalene	µg/L	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	82	78
Acenaphthylene	µg/L	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Acenaphthene	µg/L	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	84	91
Fluorene	µg/L	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	88	95
Phenanthrene	µg/L	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	74	77
Anthracene	µg/L	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Fluoranthene	µg/L	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	76	81
Pyrene	µg/L	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	77	82
Benzo(a)anthracene	µg/L	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Chrysene	µg/L	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	75	75
Benzo(b,j+k)fluoranthene	µg/L	0.2	Org-022/025	<0.2	1	<0.2	<0.2	0	[NT]	[NT]
Benzo(a)pyrene	µg/L	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	73	76
Indeno(1,2,3-c,d)pyrene	µg/L	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Dibenzo(a,h)anthracene	µg/L	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Benzo(g,h,i)perylene	µg/L	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-022/025	78	1	71	95	29	79	86

QUALITY CONTROL: HM in water - dissolved						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	359078-3
Date prepared	-			20/08/2024	1	15/08/2024	15/08/2024		20/08/2024	15/08/2024
Date analysed	-			20/08/2024	1	15/08/2024	15/08/2024		20/08/2024	15/08/2024
Arsenic-Dissolved	µg/L	1	Metals-022	<1	1	<1	[NT]		94	91
Cadmium-Dissolved	µg/L	0.1	Metals-022	<0.1	1	<0.1	[NT]		102	96
Chromium-Dissolved	µg/L	1	Metals-022	<1	1	<1	[NT]		102	95
Copper-Dissolved	µg/L	1	Metals-022	<1	1	<1	[NT]		99	93
Lead-Dissolved	µg/L	1	Metals-022	<1	1	<1	[NT]		98	91
Mercury-Dissolved	µg/L	0.05	Metals-021	<0.05	1	<0.05	<0.05	0	112	[NT]
Nickel-Dissolved	µg/L	1	Metals-022	<1	1	2	[NT]		101	95
Zinc-Dissolved	µg/L	1	Metals-022	<1	1	15	[NT]		101	97

QUALITY CONTROL: Miscellaneous Inorganics						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date prepared	-			13/08/2024	1	13/08/2024	13/08/2024		13/08/2024	[NT]
Date analysed	-			13/08/2024	1	13/08/2024	13/08/2024		13/08/2024	[NT]
Total Cyanide	mg/L	0.004	Inorg-014	<0.004	1	<0.004	<0.004	0	100	[NT]
Ammonia as N in water	mg/L	0.005	Inorg-057	<0.005	1	0.096	0.083	15	108	[NT]

QUALITY CONTROL: HM in water - total						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date prepared	-			20/08/2024	[NT]	[NT]	[NT]	[NT]	20/08/2024	[NT]
Date analysed	-			20/08/2024	[NT]	[NT]	[NT]	[NT]	20/08/2024	[NT]
Arsenic-Total	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	102	[NT]
Cadmium-Total	µg/L	0.1	Metals-022	<0.1	[NT]	[NT]	[NT]	[NT]	103	[NT]
Chromium-Total	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	104	[NT]
Copper-Total	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	108	[NT]
Lead-Total	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	105	[NT]
Mercury-Total	µg/L	0.05	Metals-021	<0.05	[NT]	[NT]	[NT]	[NT]	114	[NT]
Nickel-Total	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	102	[NT]
Zinc-Total	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	107	[NT]

QUALITY CONTROL: PFAS in Waters Extended					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date prepared	-			14/08/2024	[NT]	[NT]	[NT]	[NT]	14/08/2024	[NT]
Date analysed	-			14/08/2024	[NT]	[NT]	[NT]	[NT]	14/08/2024	[NT]
Perfluorobutanesulfonic acid	µg/L	0.01	Org-029	<0.01	[NT]	[NT]	[NT]	[NT]	99	[NT]
Perfluoropentanesulfonic acid	µg/L	0.01	Org-029	<0.01	[NT]	[NT]	[NT]	[NT]	103	[NT]
Perfluorohexanesulfonic acid - PFHxS	µg/L	0.01	Org-029	<0.01	[NT]	[NT]	[NT]	[NT]	102	[NT]
Perfluoroheptanesulfonic acid	µg/L	0.01	Org-029	<0.01	[NT]	[NT]	[NT]	[NT]	104	[NT]
Perfluorooctanesulfonic acid PFOS	µg/L	0.01	Org-029	<0.01	[NT]	[NT]	[NT]	[NT]	103	[NT]
Perfluorodecanesulfonic acid	µg/L	0.02	Org-029	<0.02	[NT]	[NT]	[NT]	[NT]	108	[NT]
Perfluorobutanoic acid	µg/L	0.02	Org-029	<0.02	[NT]	[NT]	[NT]	[NT]	100	[NT]
Perfluoropentanoic acid	µg/L	0.02	Org-029	<0.02	[NT]	[NT]	[NT]	[NT]	100	[NT]
Perfluorohexanoic acid	µg/L	0.01	Org-029	<0.01	[NT]	[NT]	[NT]	[NT]	96	[NT]
Perfluoroheptanoic acid	µg/L	0.01	Org-029	<0.01	[NT]	[NT]	[NT]	[NT]	99	[NT]
Perfluorooctanoic acid PFOA	µg/L	0.01	Org-029	<0.01	[NT]	[NT]	[NT]	[NT]	101	[NT]
Perfluorononanoic acid	µg/L	0.01	Org-029	<0.01	[NT]	[NT]	[NT]	[NT]	100	[NT]
Perfluorodecanoic acid	µg/L	0.02	Org-029	<0.02	[NT]	[NT]	[NT]	[NT]	93	[NT]
Perfluoroundecanoic acid	µg/L	0.02	Org-029	<0.02	[NT]	[NT]	[NT]	[NT]	95	[NT]
Perfluorododecanoic acid	µg/L	0.05	Org-029	<0.05	[NT]	[NT]	[NT]	[NT]	103	[NT]
Perfluorotridecanoic acid	µg/L	0.1	Org-029	<0.1	[NT]	[NT]	[NT]	[NT]	124	[NT]
Perfluorotetradecanoic acid	µg/L	0.5	Org-029	<0.5	[NT]	[NT]	[NT]	[NT]	98	[NT]
4:2 FTS	µg/L	0.01	Org-029	<0.01	[NT]	[NT]	[NT]	[NT]	100	[NT]
6:2 FTS	µg/L	0.01	Org-029	<0.01	[NT]	[NT]	[NT]	[NT]	106	[NT]
8:2 FTS	µg/L	0.02	Org-029	<0.02	[NT]	[NT]	[NT]	[NT]	112	[NT]
10:2 FTS	µg/L	0.02	Org-029	<0.02	[NT]	[NT]	[NT]	[NT]	117	[NT]
Perfluorooctane sulfonamide	µg/L	0.1	Org-029	<0.1	[NT]	[NT]	[NT]	[NT]	99	[NT]
N-Methyl perfluorooctane sulfonamide	µg/L	0.05	Org-029	<0.05	[NT]	[NT]	[NT]	[NT]	104	[NT]
N-Ethyl perfluorooctanesulfon amide	µg/L	0.1	Org-029	<0.1	[NT]	[NT]	[NT]	[NT]	97	[NT]
N-Me perfluorooctanesulfonamid oethanol	µg/L	0.05	Org-029	<0.05	[NT]	[NT]	[NT]	[NT]	109	[NT]
N-Et perfluorooctanesulfonamid oethanol	µg/L	0.5	Org-029	<0.5	[NT]	[NT]	[NT]	[NT]	104	[NT]
MePerfluorooctanesulf- amid oacetic acid	µg/L	0.02	Org-029	<0.02	[NT]	[NT]	[NT]	[NT]	109	[NT]
EtPerfluorooctanesulf- amid oacetic acid	µg/L	0.02	Org-029	<0.02	[NT]	[NT]	[NT]	[NT]	103	[NT]
Surrogate $^{13}C_8$ *PFOS*	%		Org-029	95	[NT]	[NT]	[NT]	[NT]	101	[NT]
Surrogate $^{13}C_2$ *PFOA*	%		Org-029	100	[NT]	[NT]	[NT]	[NT]	102	[NT]

QUALITY CONTROL: PFAS in Waters Extended					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Extracted ISTD $^{13}C_3$ *PFBS*	%		Org-029	98	[NT]	[NT]	[NT]	[NT]	103	[NT]
Extracted ISTD $^{18}O_2$ *PFHxS*	%		Org-029	103	[NT]	[NT]	[NT]	[NT]	98	[NT]
Extracted ISTD $^{13}C_4$ *PFOS*	%		Org-029	102	[NT]	[NT]	[NT]	[NT]	94	[NT]
Extracted ISTD $^{13}C_4$ *PFBA*	%		Org-029	108	[NT]	[NT]	[NT]	[NT]	106	[NT]
Extracted ISTD $^{13}C_3$ *PFPeA*	%		Org-029	105	[NT]	[NT]	[NT]	[NT]	99	[NT]
Extracted ISTD $^{13}C_2$ *PFHxA*	%		Org-029	108	[NT]	[NT]	[NT]	[NT]	105	[NT]
Extracted ISTD $^{13}C_4$ *PFHpA*	%		Org-029	110	[NT]	[NT]	[NT]	[NT]	103	[NT]
Extracted ISTD $^{13}C_4$ *PFOA*	%		Org-029	107	[NT]	[NT]	[NT]	[NT]	101	[NT]
Extracted ISTD $^{13}C_5$ *PFNA*	%		Org-029	106	[NT]	[NT]	[NT]	[NT]	103	[NT]
Extracted ISTD $^{13}C_2$ *PFDA*	%		Org-029	125	[NT]	[NT]	[NT]	[NT]	122	[NT]
Extracted ISTD $^{13}C_2$ *PFUnDA*	%		Org-029	128	[NT]	[NT]	[NT]	[NT]	120	[NT]
Extracted ISTD $^{13}C_2$ *PFDoDA*	%		Org-029	109	[NT]	[NT]	[NT]	[NT]	102	[NT]
Extracted ISTD $^{13}C_2$ *PFTeDA*	%		Org-029	87	[NT]	[NT]	[NT]	[NT]	83	[NT]
Extracted ISTD $^{13}C_2$ *4:2FTS*	%		Org-029	119	[NT]	[NT]	[NT]	[NT]	107	[NT]
Extracted ISTD $^{13}C_2$ *6:2FTS*	%		Org-029	111	[NT]	[NT]	[NT]	[NT]	108	[NT]
Extracted ISTD $^{13}C_2$ *8:2FTS*	%		Org-029	133	[NT]	[NT]	[NT]	[NT]	115	[NT]
Extracted ISTD $^{13}C_8$ *FOSA*	%		Org-029	111	[NT]	[NT]	[NT]	[NT]	101	[NT]
Extracted ISTD d_3 *N MeFOSA*	%		Org-029	108	[NT]	[NT]	[NT]	[NT]	100	[NT]
Extracted ISTD d_5 *N EtFOSA*	%		Org-029	107	[NT]	[NT]	[NT]	[NT]	101	[NT]
Extracted ISTD d_7 *N MeFOSE*	%		Org-029	109	[NT]	[NT]	[NT]	[NT]	105	[NT]

QUALITY CONTROL: PFAS in Waters Extended					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Extracted ISTD d_9 *N EtFOSE*	%		Org-029	103	[NT]	[NT]	[NT]	[NT]	100	[NT]
Extracted ISTD d_3 *N MeFOSAA*	%		Org-029	109	[NT]	[NT]	[NT]	[NT]	110	[NT]
Extracted ISTD d_5 *N EtFOSAA*	%		Org-029	118	[NT]	[NT]	[NT]	[NT]	117	[NT]

Result Definitions

NT	Not tested
NA	Test not required
INS	Insufficient sample for this test
PQL	Practical Quantitation Limit
<	Less than
>	Greater than
RPD	Relative Percent Difference
LCS	Laboratory Control Sample
NS	Not specified
NEPM	National Environmental Protection Measure
NR	Not Reported

Quality Control Definitions

Blank	This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.
Duplicate	This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.
Matrix Spike	A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.
LCS (Laboratory Control Sample)	This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.
Surrogate Spike	Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.

Australian Drinking Water Guidelines recommend that Thermotolerant Coliform, Faecal Enterococci, & E.Coli levels are less than 1cfu/100mL. The recommended maximums are taken from "Australian Drinking Water Guidelines", published by NHMRC & ARMC 2011.

The recommended maximums for analytes in urine are taken from “2018 TLVs and BEIs”, as published by ACGIH (where available). Limit provided for Nickel is a precautionary guideline as per Position Paper prepared by AIOH Exposure Standards Committee, 2016.

Guideline limits for Rinse Water Quality reported as per analytical requirements and specifications of AS 4187, Amdt 2 2019, Table 7.2

Laboratory Acceptance Criteria

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria.

Filters, swabs, wipes, tubes and badges will not have duplicate data as the whole sample is generally extracted during sample extraction.

Spikes for Physical and Aggregate Tests are not applicable.

For VOCs in water samples, three vials are required for duplicate or spike analysis.

Duplicates: >10xPQL - RPD acceptance criteria will vary depending on the analytes and the analytical techniques but is typically in the range 20%-50% – see ELN-P05 QA/QC tables for details; <10xPQL - RPD are higher as the results approach PQL and the estimated measurement uncertainty will statistically increase.

Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals (not SPOCAS); 60-140% for organics/SPOCAS (+/-50% surrogates) and 10-140% for labile SVOCs (including labile surrogates), ultra trace organics and speciated phenols is acceptable.

In circumstances where no duplicate and/or sample spike has been reported at 1 in 10 and/or 1 in 20 samples respectively, the sample volume submitted was insufficient in order to satisfy laboratory QA/QC protocols.

When samples are received where certain analytes are outside of recommended technical holding times (THTs), the analysis has proceeded. Where analytes are on the verge of breaching THTs, every effort will be made to analyse within the THT or as soon as practicable.

Where sampling dates are not provided, Envirolab are not in a position to comment on the validity of the analysis where recommended technical holding times may have been breached.

Where matrix spike recoveries fall below the lower limit of the acceptance criteria (e.g. for non-labile or standard Organics <60%), positive result(s) in the parent sample will subsequently have a higher than typical estimated uncertainty (MU estimates supplied on request) and in these circumstances the sample result is likely biased significantly low.

Measurement Uncertainty estimates are available for most tests upon request.

Analysis of aqueous samples typically involves the extraction/digestion and/or analysis of the liquid phase only (i.e. NOT any settled sediment phase but inclusive of suspended particles if present), unless stipulated on the Envirolab COC and/or by correspondence. Notable exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, total recoverable metals and PFAS where solids are included by default.

Samples for Microbiological analysis (not Amoeba forms) received outside of the 2-8°C temperature range do not meet the ideal cooling conditions as stated in AS2031-2012.

Report Comments

VOC in tubes analysed by MPL, report no PFH101, report attached.

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Certificate of Analysis PFH1010

Client Details

Client	Envirolab (Sydney)
Contact	Results Receivable
Address	12 Ashley St, Chatswood, NSW, 2067

Sample Details

Your Reference	359078
Number of Samples	4 WMS LU Air
Date Samples Received	16/08/2024
Date Instructions Received	16/08/2024

Analysis Details

Please refer to the following pages for results, methodology summary and quality control data.
Samples were analysed as received from the client. Results relate specifically to the samples as received.
Results are reported on a dry weight basis for soils and on an as received basis for other matrices.

Report Details

Date Results Requested by	20/08/2024
Date of Reissue	20/08/2024 - This report supercedes previous report, see amendment history for details

Accredited for compliance with ISO/IEC 17025. Tests not covered by NATA are denoted with *.

Authorisation Details

Results Approved By	Travis Carey, Organics Supervisor
Laboratory Manager	Michael Kubiak

Report Amendment History

Revision	Reason for Amendment
R-01	Included sampling interval and concentration in air results.

Certificate of Analysis PFH1010

Samples in this Report

Envirolab ID	Sample ID	Description	Matrix	Date Sampled	Date Received
PFH1010-01	359078-8	SV01	WMS LU Air	09/08/2024	16/08/2024
PFH1010-02	359078-9	SV02	WMS LU Air	09/08/2024	16/08/2024
PFH1010-03	359078-10	SV03	WMS LU Air	09/08/2024	16/08/2024
PFH1010-04	359078-11	SV04	WMS LU Air	09/08/2024	16/08/2024

Sample Information

Sample ID	Filter ID	Flow Rate (L/min)	Time Sampled (min)	Air Volume (m3)
359078-8	[NA]	[NA]	19150	[NA]
359078-9	[NA]	[NA]	19830	[NA]
359078-10	[NA]	[NA]	19325	[NA]
359078-11	[NA]	[NA]	19890	[NA]

Organic Vapours - VOC (WMS LU Air)

Envirolab ID	Units	PQL	PFH1010-01	PFH1010-02	PFH1010-03	PFH1010-04
Your Reference			359078-8 SV01	359078-9 SV02	359078-10 SV03	359078-11 SV04
Date Sampled			09/08/2024	09/08/2024	09/08/2024	09/08/2024
Vinyl chloride*	µg/m3		<64	<61	<63	<61
1,1-Dichloroethene	µg/m3		<5.7	<5.5	<5.6	<5.5
Methyl tert butyl ether (MTBE)	µg/m3		<990	<950	<980	<950
trans-1,2-Dichloroethene	µg/m3		<4.8	<4.7	<4.8	<4.7
Hexane	µg/m3		<2100	<2000	<2100	<2000
1,1-Dichloroethane	µg/m3		<5.0	<4.8	<5.0	<4.8
Methyl Ethyl Ketone (MEK)	µg/m3		<530	<510	<530	<510
cis-1,2-Dichloroethene	µg/m3		<4.1	<3.9	<4.0	<3.9
Chloroform	µg/m3		<4.0	<3.9	<4.0	<3.9
1,1,1-Trichloroethane	µg/m3		<5.2	<5.0	<5.2	<5.0
1,2-Dichloroethane	µg/m3		<3.5	<3.4	<3.4	<3.4
Benzene	µg/m3		<3.6	4.5	<3.5	<3.4
Carbon Tetrachloride	µg/m3		<4.4	<4.3	<4.4	<4.3
Cyclohexane	µg/m3		<4.0	23	<3.9	<3.8
Heptane	µg/m3		<370	<360	<370	<360
Trichloroethene	µg/m3		<3.0	<2.9	<2.9	<2.9
Methyl isobutyl ketone (MIBK)	µg/m3		<310	<300	<310	<300
Toluene	µg/m3		<2.6	10	2.9	<2.5
1,1,2-Trichloroethane	µg/m3		<3.0	<2.9	<3.0	<2.9
Tetrachloroethene	µg/m3		<2.0	<1.9	<2.0	<1.9
Chlorobenzene	µg/m3		<2.2	<2.1	<2.2	<2.1
Ethylbenzene	µg/m3		<1.9	2.1	<1.8	<1.8
meta+para Xylene	µg/m3		<3.7	8.0	<3.7	<3.6
Styrene	µg/m3		<1.7	<1.7	<1.7	<1.7
ortho-Xylene	µg/m3		<1.7	3.7	<1.7	<1.7
1,1,2,2-Tetrachloroethane	µg/m3		<1.7	<1.7	<1.7	<1.7
n-Propylbenzene	µg/m3		<1.4	<1.3	<1.4	<1.3
1,3,5-Trimethylbenzene	µg/m3		<1.2	<1.2	<1.2	<1.2
1,2,4-Trimethylbenzene	µg/m3		<1.1	1.4	<1.1	<1.1
1,3-Dichlorobenzene	µg/m3		<1.1	<1.1	<1.1	<1.0
1,4-Dichlorobenzene	µg/m3		<1.0	<1.0	<1.0	<1.0
1,2-Dichlorobenzene	µg/m3		<0.97	<0.93	<0.96	<0.93
Naphthalene	µg/m3		<350	<340	<340	<340
Surrogate Toluene-D8	%		*100*	*93.5*	*89.9*	*95.9*

Certificate of Analysis PFH1010

Organic Vapours - TRH (WMS LU Air)

Envirolab ID	Units	PQL	PFH1010-01	PFH1010-02	PFH1010-03	PFH1010-04
Your Reference			359078-8 SV01	359078-9 SV02	359078-10 SV03	359078-11 SV04
Date Sampled			09/08/2024	09/08/2024	09/08/2024	09/08/2024
TRH C6-C10 as C7*	µg/m3	50	<2600	<2500	<2600	<2500
TRH >C10-12 as C10*	µg/m3	50	<2600	<2500	<2600	<2500
TRH >C10-C16 as C10*	µg/m3	50	<2600	<2500	<2600	<2500
*Surrogate Toluene-D8**	%		*95.4*	*98.7*	*98.5*	*97.8*

Method Summary

Method ID	Methodology Summary
ORG-020_VAP	Organic Vapours using GC-FID analysis in accordance with NIOSH methodology where applicable (otherwise in house methods used).
ORG-022_WL	Organic Vapours using GC-MS analysis in accordance with NIOSH methodology where applicable (otherwise in house methods used).

Result Definitions

Identifier	Description
NR	Not reported
NEPM	National Environment Protection Measure
NS	Not specified
LCS	Laboratory Control Sample
RPD	Relative Percent Difference
>	Greater than
<	Less than
PQL	Practical Quantitation Limit
INS	Insufficient sample for this test
NA	Test not required
NT	Not tested
DOL	Samples rejected due to particulate overload (air filters only)
RFD	Samples rejected due to filter damage (air filters only)
RUD	Samples rejected due to uneven deposition (air filters only)
##	Indicates a laboratory acceptance criteria outlier, for further details, see Result Comments and/or QC Comments

Quality Control Definitions

Blank

This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, and is determined by processing solvents and reagents in exactly the same manner as for samples.

Surrogate Spike

Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.

LCS (Laboratory Control Sample)

This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.

Matrix Spike

A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.

Duplicate

This is the complete duplicate analysis of a sample from the process batch. The sample selected should be one where the analyte concentration is easily measurable.

Laboratory Acceptance Criteria

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria. Filters, swabs, wipes, tubes and badges will not have duplicate data as the whole sample is generally extracted during sample extraction. Spikes for Physical and Aggregate Tests are not applicable. For VOCs in water samples, three vials are required for duplicate or spike analysis.

General Acceptance Criteria (GAC) - Analyte specific criteria applies for some analytes and is reflected in QC recovery tables.

Duplicates: >10xPQL - RPD acceptance criteria will vary depending on the analytes and the analytical techniques but is typically in the range 20%-50% - see ELN-P05 QAQC tables for details (available on request); <10xPQL - RPD are higher as the results approach PQL and the estimated measurement uncertainty will statistically increase. Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals; 60-140% for organics (+/-50% surrogates) and 10-140% for labile SVOCs (including labile surrogates), ultra trace organics and speciated phenols is acceptable.

In circumstances where no duplicate and/or sample spike has been reported at 1 in 10 and/or 1 in 20 samples respectively, the sample volume submitted was typically insufficient in order to satisfy laboratory QA/QC protocols.

Miscellaneous Information

When samples are received where certain analytes are outside of recommended technical holding times (THTs), the analysis has proceeded. Where analytes are on the verge of breaching THTs, every effort will be made to analyse within the THT or as soon as practicable.

Where sampling dates are not provided, Envirolab are not in a position to comment on the validity of the analysis where recommended technical holding times may have been breached. We have taken the sampling date as being the date received at the laboratory.

Two significant figures are reported for the majority of tests and with a high degree of confidence, for results <10*PQL, the second significant figure may be in doubt i.e. has a relatively high degree of uncertainty and is provided for information only.

Measurement Uncertainty estimates are available for most tests upon request.

Analysis of aqueous samples typically involves the extraction/digestion and/or analysis of the liquid phase only (i.e. NOT any settled sediment phase but inclusive of suspended particles if present), unless stipulated on the Envirolab COC or by correspondence. Notable exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, Total Recoverable metals and PFAS where sediment/solids are included by default.

Urine Analysis - The BEI values listed are taken from the 2022 edition of *TLVs and BEIs Threshold Limits by ACGIH*.

Air volume measurements are not covered by Envirolab's NATA accreditation.

Data Quality Assessment Summary PFH1010

Client Details

Client	Envirolab (Sydney)
Your Reference	359078
Date Issued	20/08/2024

Recommended Holding Time Compliance

No recommended holding time exceedances

Quality Control and QC Frequency

QC Type	Compliant	Details
Blank	Yes	No Outliers
LCS	Yes	No Outliers
Duplicates	Yes	No Outliers
Matrix Spike	Yes	No Outliers
Surrogates / Extracted Internal Standards	Yes	No Outliers
QC Frequency	Yes	No Outliers

Surrogates/Extracted Internal Standards, Duplicates and/or Matrix Spikes are not always relevant/applicable to certain analyses and matrices. Therefore, said QC measures are deemed compliant in these situations by default. See Laboratory Acceptance Criteria for more information

Data Quality Assessment Summary PFH1010

Recommended Holding Time Compliance

Analysis	Sample Number(s)	Date Sampled	Date Extracted	Date Analysed	Compliant
VOC WMS (LL) | WMS LU Air	1-4	09/08/2024	16/08/2024	17/08/2024	Yes
TRH in Vapours | WMS LU Air	1-4	09/08/2024	16/08/2024	16/08/2024	Yes

Quality Control PFH1010

ORG-022_WL|Organic Vapours - VOC (WMS LU Air) | Batch BFH2900

Analyte	Units	PQL	Blank	LCS %
Vinyl chloride	µg/m3		<30	[NA]
1,1-Dichloroethene	µg/m3		<2.7	[NA]
Methyl tert butyl ether (MTBE)	µg/m3		<470	[NA]
trans-1,2-Dichloroethene	µg/m3		<2.3	[NA]
Hexane	µg/m3		<990	[NA]
1,1-Dichloroethane	µg/m3		<2.4	97.5
Methyl Ethyl Ketone (MEK)	µg/m3		<250	[NA]
cis-1,2-Dichloroethene	µg/m3		<1.9	[NA]
Chloroform	µg/m3		<1.9	101
1,1,1-Trichloroethane	µg/m3		<2.5	[NA]
1,2-Dichloroethane	µg/m3		<1.7	[NA]
Benzene	µg/m3		<1.7	97.2
Carbon Tetrachloride	µg/m3		<2.1	100
Cyclohexane	µg/m3		<1.9	[NA]
Heptane	µg/m3		<180	[NA]
Trichloroethene	µg/m3		<1.4	98.9
Methyl isobutyl ketone (MIBK)	µg/m3		<150	[NA]
Toluene	µg/m3		<1.2	100
1,1,2-Trichloroethane	µg/m3		<1.4	[NA]
Tetrachloroethene	µg/m3		<0.95	101
Chlorobenzene	µg/m3		<1.0	[NA]
Ethylbenzene	µg/m3		<0.89	99.4
meta+para Xylene	µg/m3		<1.8	96.2
Styrene	µg/m3		<0.83	[NA]
ortho-Xylene	µg/m3		<0.83	99.2
1,1,2,2-Tetrachloroethane	µg/m3		<0.83	[NA]
n-Propylbenzene	µg/m3		<0.65	[NA]
1,3,5-Trimethylbenzene	µg/m3		<0.59	[NA]
1,2,4-Trimethylbenzene	µg/m3		<0.54	[NA]
1,3-Dichlorobenzene	µg/m3		<0.52	[NA]
1,4-Dichlorobenzene	µg/m3		<0.50	97.8
1,2-Dichlorobenzene	µg/m3		<0.46	[NA]
Naphthalene	µg/m3		<170	[NA]
Surrogate Toluene-D8	*%*		*98.2*	*90.4*

ORG-020_VAP|Organic Vapours - TRH (WMS LU Air) | Batch BFH2901

Analyte	Units	PQL	Blank	LCS %
TRH C6-C10 as C7	µg/m3	50	<50000000	117
TRH >C10-12 as C10	µg/m3	50	<50000000	[NA]
TRH >C10-C16 as C10	µg/m3	50	<50000000	[NA]
Surrogate Toluene-D8	*%*		*98.9*	*95.6*

E

Summary Results Table

Table 1
Soil Analytical Results Summary

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	Asbestos	Inorganics	BTEX							TRH							TPH				
	Asbestos fibres	Cyanide (Free)	Naphthalene (BTEX)	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)
	Detect	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		0.5	1	0.2	0.5	1	2	1	1	25	25	50	50	100	100	50	25	50	100	100	50
PFAS NEMP 2020 Industrial/ commercial (HIL D)																					
PFAS NEMP 2020 Ecological indirect exposure																					
PFAS NEMP 2020 Ecological direct exposure																					
NEPM 2013 Table 1A(1) HILs Comm/Ind D Soil		1,500																			
NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Sand																					
>=0m, <1m			NL	3	NL	NL			230		260		NL								
>=1m, <2m			NL	3	NL	NL			NL		370		NL								
>=2m, <4m			NL	3	NL	NL			NL		630		NL								
>=4m			NL	3	NL	NL			NL		NL		NL								
NEPM 2013 Table 1B(5) Generic EIL - Comm/Ind			370																		
NEPM 2013 Table 1B(6) ESLs for Comm/Ind, Fine Soil																					
>=0m, <2m				95	135	185			95		215	170	170	2,500	6,600						
NEPM 2013 Table 1B(7) Management Limits Comm / Ind, Fine Soil										800		1,000		5,000	10,000						

Field ID	Depth	Date	Lab Report																			
BH01_0.5	**0.5**	**27 Jul 2024**	**357735**	**ND**	-	<1	<0.2	<0.5	<1	<2	<1	<1	<25	<25	<50	<50	<100	<100	<50	<25	<50	<100	<100	<50
BH01_1.5	**1.5**	**27 Jul 2024**	**357735**	-	<0.5	-	<0.2	<0.5	<1	<2	<1	-	-	-	-	-	-	-	-	-	-	-	-	-
BH01_3.5	**3.5**	**27 Jul 2024**	**357735**	-	-	<1	<0.2	<0.5	<1	<2	<1	<1	<25	<25	<50	<50	**120**	<100	**120**	<25	<50	<100	**140**	**140**
BH02_0.5	**0.5**	**27 Jul 2024**	**357735**	**ND**	-	<1	<0.2	<0.5	<1	<2	<1	<1	<25	<25	<50	<50	<100	<100	<50	<25	<50	<100	<100	<50
BH02_2.5	**2.5**	**27 Jul 2024**	**357735**	-	<0.5	<1	<0.2	<0.5	<1	<2	<1	<1	<25	<25	<50	<50	<100	<100	<50	<25	<50	<100	<100	<50
BH03_0.2	**0.2**	**27 Jul 2024**	**357735**	**ND**	-	<1	<0.2	<0.5	<1	<2	<1	<1	<25	<25	<50	<50	<100	<100	<50	<25	<50	<100	<100	<50
BH03_0.5	**0.5**	**27 Jul 2024**	**357735**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH03_2.5	**2.5**	**27 Jul 2024**	**357735**	-	<0.5	-	<0.2	<0.5	<1	<2	<1	-	-	-	-	-	-	-	-	-	-	-	-	-
BH03_3.5	**3.5**	**27 Jul 2024**	**357735**	-	-	<1	<0.2	<0.5	<1	<2	<1	<1	<25	<25	<50	<50	<100	<100	<50	<25	<50	<100	<100	<50
BH04_0.2	**0.2**	**27 Jul 2024**	**357735**	**ND**	-	<1	<0.2	<0.5	<1	<2	<1	<1	<25	<25	<50	<50	<100	<100	<50	<25	<50	<100	<100	<50
BH04_2.5	**2.5**	**27 Jul 2024**	**357735**	-	<0.5	-	<0.2	<0.5	<1	<2	<1	-	-	-	-	-	-	-	-	-	-	-	-	-
BH04_3.5	**3.5**	**27 Jul 2024**	**357735**	-	-	<1	<0.2	<0.5	<1	<2	<1	<1	<25	<25	<50	<50	<100	<100	<50	<25	<50	<100	<100	<50
BH05_0.2	**0.2**	**27 Jul 2024**	**357735**	**ND**	-	<1	<0.2	<0.5	<1	<2	<1	<1	<25	<25	<50	<50	<100	<100	<50	<25	<50	<100	<100	<50
BH05_1.5	**1.5**	**27 Jul 2024**	**357735**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH05_2.5	**2.5**	**27 Jul 2024**	**357735**	-	<0.5	-	<0.2	<0.5	<1	<2	<1	-	-	-	-	-	-	-	-	-	-	-	-	-
BH05_3.5	**3.5**	**27 Jul 2024**	**357735**	-	-	<1	<0.2	<0.5	<1	<2	<1	<1	<25	<25	<50	<50	<100	<100	<50	<25	<50	<100	<100	<50
MW01_0.5	**0.5**	**28 Jul 2024**	**357735**	**ND**	-	<1	<0.2	<0.5	<1	<2	<1	<1	<25	<25	<50	<50	<100	<100	<50	<25	<50	<100	<100	<50
MW01_1.5	**1.5**	**28 Jul 2024**	**357735**	-	<0.5	-	<0.2	<0.5	<1	<2	<1	-	-	-	-	-	-	-	-	-	-	-	-	-
MW01_3.5	**3.5**	**28 Jul 2024**	**357735**	-	-	<1	<0.2	<0.5	<1	<2	<1	<1	<25	<25	<50	<50	<100	<100	<50	<25	<50	<100	<100	<50
MW02_0.2	**0.2**	**27 Jul 2024**	**357735**	**ND**	-	<1	<0.2	<0.5	<1	<2	<1	<1	<25	<25	<50	<50	<100	<100	<50	<25	<50	<100	<100	<50
MW02_0.5	**0.5**	**27 Jul 2024**	**357735**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW02_1.5	**1.5**	**27 Jul 2024**	**357735**	**ND**	<0.5	<1	<0.2	<0.5	<1	<2	<1	<1	<25	<25	<50	<50	<100	<100	<50	<25	<50	<100	<100	<50
MW03_0.5	**0.5**	**28 Jul 2024**	**357735**	**ND**	-	<1	<0.2	<0.5	<1	<2	<1	<1	<25	<25	<50	<50	<100	<100	<50	<25	<50	<100	<100	<50
MW03_1.5	**1.5**	**28 Jul 2024**	**357735**	-	<0.5	-	<0.2	<0.5	<1	<2	<1	-	-	-	-	-	-	-	-	-	-	-	-	-
MW03_3.5	**3.5**	**28 Jul 2024**	**357735**	-	-	<1	<0.2	<0.5	<1	<2	<1	<1	<25	<25	<50	<50	<100	<100	<50	<25	<50	<100	<100	<50
DUP02		**27 Jul 2024**	**357735**	-	-	<1	<0.2	<0.5	<1	<2	<1	<1	<25	<25	<50	<50	<100	<100	<50	<25	<50	<100	<100	<50
DUP03		**28 Jul 2024**	**357735**	-	-	<1	<0.2	<0.5	<1	<2	<1	<1	<25	<25	<50	<50	<100	<100	<50	<25	<50	<100	<100	<50

D = Detect
ND = Non Detect

Environmental Standards
2013, NEPM 2013 Table 1A(1) HILs Comm/Ind D Soil
2013, NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Sand
2013, NEPM 2013 Table 1B(6) ESLs for Comm/Ind, Fine Soil
NEPM, NEPM 2013 Table 1B(7) Management Limits Comm / Ind, Fine Soil
HEPA, January 2020, PFAS NEMP 2020 Industrial/ commercial (HIL D)

Table 1
Soil Analytical Results Summary

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				PAH																	Metals							
				Benzo(b+j+k)fluoranthene	Acenaphthene	Acenaphthylene	Anthracene	Benz(a)anthracene	Benzo(a) pyrene	Benzo(g,h,i)perylene	Chrysene	Dibenz(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-c,d)pyrene	Naphthalene	Phenanthrene	Pyrene	Benzo(a)pyrene TEQ calc (Half)	Benzo(a)pyrene TEQ (LOR)	PAHs (Sum of positives)	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	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				0.2	0.1	0.1	0.1	0.1	0.05	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.5	0.5	0.05	4	0.4	1	1	1	0.1	1	1
PFAS NEMP 2020 Industrial/ commercial (HIL D)																													
PFAS NEMP 2020 Ecological indirect exposure																													
PFAS NEMP 2020 Ecological direct exposure																													
NEPM 2013 Table 1A(1) HILs Comm/Ind D Soil																			40	40		3,000	900	3,600	240,000	1,500	730	6,000	400,000
NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion																													
>=0m, <1m																NL													
>=1m, <2m																NL													
>=2m, <4m																NL													
>=4m																NL													
NEPM 2013 Table 1B(5) Generic EIL - Comm/Ind																370						160		940	130	1,800		150	360
NEPM 2013 Table 1B(6) ESLs for Comm/Ind, Fine Soil																													
>=0m, <2m									1.4																				
NEPM 2013 Table 1B(7) Management Limits Comm / Ind, Fine Soil																													
Field ID	**Depth**	**Date**	**Lab Report**																										
BH01_0.5	**0.5**	**27 Jul 2024**	**357735**	<0.2	<0.1	<0.1	<0.1	<0.1	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.5	<0.5	<0.05	**4**	<0.4	**6**	**2**	**19**	<0.1	**1**	**9**
BH01_1.5	**1.5**	**27 Jul 2024**	**357735**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH01_3.5	**3.5**	**27 Jul 2024**	**357735**	<0.2	<0.1	<0.1	<0.1	<0.1	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.5	<0.5	<0.05	<4	<0.4	**6**	**2**	**35**	<0.1	**2**	**2**
BH02_0.5	**0.5**	**27 Jul 2024**	**357735**	<0.2	<0.1	<0.1	<0.1	<0.1	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.5	<0.5	<0.05	<4	<0.4	**1**	<1	**1**	<0.1	<1	**5**
BH02_2.5	**2.5**	**27 Jul 2024**	**357735**	<0.2	<0.1	<0.1	<0.1	<0.1	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.5	<0.5	<0.05	<4	<0.4	**18**	<1	**15**	<0.1	**4**	**14**
BH03_0.2	**0.2**	**27 Jul 2024**	**357735**	<0.2	<0.1	<0.1	<0.1	<0.1	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.5	<0.5	<0.05	**18**	**2**	**25**	170	**140**	**0.1**	**47**	**200**
BH03_0.5	**0.5**	**27 Jul 2024**	**357735**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH03_2.5	**2.5**	**27 Jul 2024**	**357735**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH03_3.5	**3.5**	**27 Jul 2024**	**357735**	<0.2	<0.1	<0.1	<0.1	<0.1	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.5	<0.5	<0.05	<4	<0.4	**19**	<1	**11**	<0.1	**3**	**3**
BH04_0.2	**0.2**	**27 Jul 2024**	**357735**	<0.2	<0.1	<0.1	<0.1	<0.1	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.5	<0.5	<0.05	**4**	<0.4	**1**	**17**	**5**	<0.1	<1	**9**
BH04_2.5	**2.5**	**27 Jul 2024**	**357735**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH04_3.5	**3.5**	**27 Jul 2024**	**357735**	<0.2	<0.1	<0.1	<0.1	<0.1	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.5	<0.5	<0.05	<4	<0.4	**9**	<1	**4**	<0.1	**1**	**1**
BH05_0.2	**0.2**	**27 Jul 2024**	**357735**	<0.2	<0.1	<0.1	<0.1	<0.1	**0.06**	<0.1	<0.1	<0.1	**0.1**	<0.1	<0.1	<0.1	<0.1	**0.1**	<0.5	<0.5	**0.3**	**110**	<0.4	**10**	**24**	**80**	<0.1	**3**	**75**
BH05_1.5	**1.5**	**27 Jul 2024**	**357735**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH05_2.5	**2.5**	**27 Jul 2024**	**357735**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH05_3.5	**3.5**	**27 Jul 2024**	**357735**	<0.2	<0.1	<0.1	<0.1	<0.1	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.5	<0.5	<0.05	**8**	<0.4	**24**	**1**	**19**	<0.1	**4**	**6**
MW01_0.5	**0.5**	**28 Jul 2024**	**357735**	<0.2	<0.1	<0.1	<0.1	<0.1	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.5	<0.5	<0.05	<4	<0.4	**1**	<1	**2**	<0.1	<1	**8**
MW01_1.5	**1.5**	**28 Jul 2024**	**357735**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW01_3.5	**3.5**	**28 Jul 2024**	**357735**	<0.2	<0.1	<0.1	<0.1	<0.1	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.5	<0.5	<0.05	<4	<0.4	**25**	<1	**16**	<0.1	**2**	**3**
MW02_0.2	**0.2**	**27 Jul 2024**	**357735**	<0.2	<0.1	<0.1	<0.1	<0.1	**0.06**	<0.1	<0.1	<0.1	**0.1**	<0.1	<0.1	<0.1	<0.1	**0.1**	<0.5	<0.5	**0.3**	<4	<0.4	**5**	**6**	**39**	<0.1	**2**	**48**
MW02_0.5	**0.5**	**27 Jul 2024**	**357735**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW02_1.5	**1.5**	**27 Jul 2024**	**357735**	<0.2	<0.1	<0.1	<0.1	<0.1	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.5	<0.5	<0.05	<4	<0.4	**20**	**2**	**22**	<0.1	**7**	**49**
MW03_0.5	**0.5**	**28 Jul 2024**	**357735**	<0.2	<0.1	<0.1	<0.1	<0.1	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.5	<0.5	<0.05	**64**	<0.4	**2**	<1	**3**	<0.1	<1	**2**
MW03_1.5	**1.5**	**28 Jul 2024**	**357735**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW03_3.5	**3.5**	**28 Jul 2024**	**357735**	<0.2	<0.1	<0.1	<0.1	<0.1	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.5	<0.5	<0.05	**6**	<0.4	**16**	<1	**18**	**0.1**	**3**	**2**
DUP02		**27 Jul 2024**	**357735**	<0.2	<0.1	<0.1	<0.1	<0.1	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.5	<0.5	<0.05	<4	<0.4	**28**	**2**	**25**	<0.1	**9**	**97**
DUP03		**28 Jul 2024**	**357735**	<0.2	<0.1	<0.1	<0.1	<0.1	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.5	<0.5	<0.05	**120**	<0.4	**5**	<1	**3**	<0.1	**2**	**3**

D = Detect
ND = Non Detect

Environmental Standards
2013, NEPM 2013 Table 1A(1) HILs Comm/Ind D Soil
2013, NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Int
2013, NEPM 2013 Table 1B(6) ESLs for Comm/Ind, Fine Soil
NEPM, NEPM 2013 Table 1B(7) Management Limits Comm / Ind, F
HEPA, January 2020, PFAS NEMP 2020 Industrial/ commercial (HIL

Table 1
Soil Analytical Results Summary

REDITUS

				VOCs																									
				1,1,1,2-tetrachloroethane	1,1,1-trichloroethane	1,1,2,2-tetrachloroethane	1,1,2-trichloroethane	1,1-dichloroethane	1,1-dichloroethene	1,1-dichloropropene	1,2,3-trichlorobenzene	1,2,3-trichloropropane	1,2,4-trichlorobenzene	1,2,4-trimethylbenzene	1,2-dibromo-3-chloropropane	1,2-dibromoethane	1,2-dichlorobenzene	1,2-dichloroethane	1,2-dichloropropane	1,3,5-trimethylbenzene	1,3-dichlorobenzene	1,3-dichloropropane	1,4-dichlorobenzene	2,2-dichloropropane	2-chlorotoluene	4-chlorotoluene	Bromobenzene	Bromochloromethane	Bromodichloromethane	Bromoform
				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	mg/kg	mg/kg	mg/kg	mg/kg
EQL				1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
PFAS NEMP 2020 Industrial/ commercial (HIL D)																															
PFAS NEMP 2020 Ecological indirect exposure																															
PFAS NEMP 2020 Ecological direct exposure																															
NEPM 2013 Table 1A(1) HILs Comm/Ind D Soil																															
NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion																															
>=0m, <1m																															
>=1m, <2m																															
>=2m, <4m																															
>=4m																															
NEPM 2013 Table 1B(5) Generic EIL - Comm/Ind																															
NEPM 2013 Table 1B(6) ESLs for Comm/Ind, Fine Soil																															
>=0m, <2m																															
NEPM 2013 Table 1B(7) Management Limits Comm / Ind, Fine Soil																															
Field ID	**Depth**	**Date**	**Lab Report**																												
BH01_0.5	**0.5**	**27 Jul 2024**	**357735**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH01_1.5	**1.5**	**27 Jul 2024**	**357735**	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
BH01_3.5	**3.5**	**27 Jul 2024**	**357735**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH02_0.5	**0.5**	**27 Jul 2024**	**357735**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH02_2.5	**2.5**	**27 Jul 2024**	**357735**	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
BH03_0.2	**0.2**	**27 Jul 2024**	**357735**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH03_0.5	**0.5**	**27 Jul 2024**	**357735**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH03_2.5	**2.5**	**27 Jul 2024**	**357735**	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
BH03_3.5	**3.5**	**27 Jul 2024**	**357735**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH04_0.2	**0.2**	**27 Jul 2024**	**357735**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH04_2.5	**2.5**	**27 Jul 2024**	**357735**	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
BH04_3.5	**3.5**	**27 Jul 2024**	**357735**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH05_0.2	**0.2**	**27 Jul 2024**	**357735**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH05_1.5	**1.5**	**27 Jul 2024**	**357735**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH05_2.5	**2.5**	**27 Jul 2024**	**357735**	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
BH05_3.5	**3.5**	**27 Jul 2024**	**357735**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW01_0.5	**0.5**	**28 Jul 2024**	**357735**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW01_1.5	**1.5**	**28 Jul 2024**	**357735**	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
MW01_3.5	**3.5**	**28 Jul 2024**	**357735**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW02_0.2	**0.2**	**27 Jul 2024**	**357735**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW02_0.5	**0.5**	**27 Jul 2024**	**357735**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW02_1.5	**1.5**	**27 Jul 2024**	**357735**	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
MW03_0.5	**0.5**	**28 Jul 2024**	**357735**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW03_1.5	**1.5**	**28 Jul 2024**	**357735**	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
MW03_3.5	**3.5**	**28 Jul 2024**	**357735**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DUP02		**27 Jul 2024**	**357735**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DUP03		**28 Jul 2024**	**357735**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

D = Detect
ND = Non Detect

Environmental Standards
2013, NEPM 2013 Table 1A(1) HILs Comm/Ind D Soil
2013, NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Int
2013, NEPM 2013 Table 1B(6) ESLs for Comm/Ind, Fine Soil
NEPM, NEPM 2013 Table 1B(7) Management Limits Comm / Ind, F
HEPA, January 2020, PFAS NEMP 2020 Industrial/ commercial (HIL

Table 1
Soil Analytical Results Summary

REDITUS

				VOCs Continued																									
				Bromomethane	Carbon tetrachloride	Chlorobenzene	Chlorodibromomethane	Chloroethane	Chloroform	Chloromethane	cis-1,2-dichloroethene	cis-1,3-dichloropropene	Cyclohexane	Dibromomethane	Dichlorodifluoromethane	Hexachlorobutadiene	Isopropylbenzene	n-butylbenzene	n-propylbenzene	p-isopropyltoluene	sec-butylbenzene	Styrene	Trichloroethene	tert-butylbenzene	Tetrachloroethene	trans-1,2-dichloroethene	trans-1,3-dichloropropene	Trichlorofluoromethane	Vinyl chloride
				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	mg/kg	mg/kg
EQL				1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
PFAS NEMP 2020 Industrial/ commercial (HIL D)																													
PFAS NEMP 2020 Ecological indirect exposure																													
PFAS NEMP 2020 Ecological direct exposure																													
NEPM 2013 Table 1A(1) HILs Comm/Ind D Soil																													
NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion																													
>=0m, <1m																													
>=1m, <2m																													
>=2m, <4m																													
>=4m																													
NEPM 2013 Table 1B(5) Generic EIL - Comm/Ind																													
NEPM 2013 Table 1B(6) ESLs for Comm/Ind, Fine Soil																													
>=0m, <2m																													
NEPM 2013 Table 1B(7) Management Limits Comm / Ind, Fine Soil																													
Field ID	**Depth**	**Date**	**Lab Report**																										
BH01_0.5	**0.5**	**27 Jul 2024**	**357735**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH01_1.5	**1.5**	**27 Jul 2024**	**357735**	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
BH01_3.5	**3.5**	**27 Jul 2024**	**357735**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH02_0.5	**0.5**	**27 Jul 2024**	**357735**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH02_2.5	**2.5**	**27 Jul 2024**	**357735**	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
BH03_0.2	**0.2**	**27 Jul 2024**	**357735**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH03_0.5	**0.5**	**27 Jul 2024**	**357735**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH03_2.5	**2.5**	**27 Jul 2024**	**357735**	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
BH03_3.5	**3.5**	**27 Jul 2024**	**357735**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH04_0.2	**0.2**	**27 Jul 2024**	**357735**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH04_2.5	**2.5**	**27 Jul 2024**	**357735**	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
BH04_3.5	**3.5**	**27 Jul 2024**	**357735**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH05_0.2	**0.2**	**27 Jul 2024**	**357735**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH05_1.5	**1.5**	**27 Jul 2024**	**357735**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH05_2.5	**2.5**	**27 Jul 2024**	**357735**	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
BH05_3.5	**3.5**	**27 Jul 2024**	**357735**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW01_0.5	**0.5**	**28 Jul 2024**	**357735**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW01_1.5	**1.5**	**28 Jul 2024**	**357735**	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
MW01_3.5	**3.5**	**28 Jul 2024**	**357735**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW02_0.2	**0.2**	**27 Jul 2024**	**357735**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW02_0.5	**0.5**	**27 Jul 2024**	**357735**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW02_1.5	**1.5**	**27 Jul 2024**	**357735**	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
MW03_0.5	**0.5**	**28 Jul 2024**	**357735**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW03_1.5	**1.5**	**28 Jul 2024**	**357735**	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
MW03_3.5	**3.5**	**28 Jul 2024**	**357735**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DUP02		**27 Jul 2024**	**357735**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DUP03		**28 Jul 2024**	**357735**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

D = Detect
ND = Non Detect

Environmental Standards
2013, NEPM 2013 Table 1A(1) HILs Comm/Ind D Soil
2013, NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Int
2013, NEPM 2013 Table 1B(6) ESLs for Comm/Ind, Fine Soil
NEPM, NEPM 2013 Table 1B(7) Management Limits Comm / Ind, F
HEPA, January 2020, PFAS NEMP 2020 Industrial/ commercial (HIL

Table 1
Soil Analytical Results Summary

REDITUS

	SVOCs		Pesticides	Organochlorine Pesticides																						
	Fenamiphos	Phosalone	Mirex	4,4-DDE	a-BHC	Aldrin	Dieldrin	Aldrin + Dieldrin	b-BHC	Chlordane (cis)	Chlordane (trans)	d-BHC	DDD	DDT	DDT+DDE+DDD	Endosulfan I	Endosulfan II	Endosulfan sulphate	Endrin	Endrin aldehyde	g-BHC (Lindane)	Heptachlor	Heptachlor epoxide	Hexachlorobenzene	Methoxychlor
	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	mg/kg	mg/kg
EQL	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
PFAS NEMP 2020 Industrial/ commercial (HIL D)																										
PFAS NEMP 2020 Ecological indirect exposure																										
PFAS NEMP 2020 Ecological direct exposure																										
NEPM 2013 Table 1A(1) HILs Comm/Ind D Soil			100					45							3,600				100			50		80	2,500
NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion																										
>=0m, <1m																										
>=1m, <2m																										
>=2m, <4m																										
>=4m																										
NEPM 2013 Table 1B(5) Generic EIL - Comm/Ind														640												
NEPM 2013 Table 1B(6) ESLs for Comm/Ind, Fine Soil																										
>=0m, <2m																										
NEPM 2013 Table 1B(7) Management Limits Comm / Ind, Fine Soil																										

Field ID	Depth	Date	Lab Report																								
BH01_0.5	0.5	27 Jul 2024	357735	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH01_1.5	1.5	27 Jul 2024	357735	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
BH01_3.5	3.5	27 Jul 2024	357735	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH02_0.5	0.5	27 Jul 2024	357735	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH02_2.5	2.5	27 Jul 2024	357735	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH03_0.2	0.2	27 Jul 2024	357735	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH03_0.5	0.5	27 Jul 2024	357735	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
BH03_2.5	2.5	27 Jul 2024	357735	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH03_3.5	3.5	27 Jul 2024	357735	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH04_0.2	0.2	27 Jul 2024	357735	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH04_2.5	2.5	27 Jul 2024	357735	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH04_3.5	3.5	27 Jul 2024	357735	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH05_0.2	0.2	27 Jul 2024	357735	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH05_1.5	1.5	27 Jul 2024	357735	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
BH05_2.5	2.5	27 Jul 2024	357735	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH05_3.5	3.5	27 Jul 2024	357735	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW01_0.5	0.5	28 Jul 2024	357735	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW01_1.5	1.5	28 Jul 2024	357735	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW01_3.5	3.5	28 Jul 2024	357735	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW02_0.2	0.2	27 Jul 2024	357735	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW02_0.5	0.5	27 Jul 2024	357735	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
MW02_1.5	1.5	27 Jul 2024	357735	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW03_0.5	0.5	28 Jul 2024	357735	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW03_1.5	1.5	28 Jul 2024	357735	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
MW03_3.5	3.5	28 Jul 2024	357735	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DUP02		27 Jul 2024	357735	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DUP03		28 Jul 2024	357735	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

D = Detect
ND = Non Detect

Environmental Standards
2013, NEPM 2013 Table 1A(1) HILs Comm/Ind D Soil
2013, NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Int
2013, NEPM 2013 Table 1B(6) ESLs for Comm/Ind, Fine Soil
NEPM, NEPM 2013 Table 1B(7) Management Limits Comm / Ind, F
HEPA, January 2020, PFAS NEMP 2020 Industrial/ commercial (HIL

Table 1
Soil Analytical Results Summary

REDITUS

				Organophosphorous Pesticides																			PCBs							
				Azinophos methyl	Bromophos-ethyl	Chlorpyrifos	Chlorpyrifos-methyl	Coumaphos	Diazinon	Dichlorvos	Dimethoate	Disulfoton	Ethion	Fenitrothion	Fenthion	Malathion	Methidathion	Methyl parathion	Mevinphos (Phosdrin)	Parathion	Phorate	Ronnel	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	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	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
PFAS NEMP 2020 Industrial/ commercial (HIL D)																														
PFAS NEMP 2020 Ecological indirect exposure																														
PFAS NEMP 2020 Ecological direct exposure																														
NEPM 2013 Table 1A(1) HILs Comm/Ind D Soil						2,000																								7
NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion																														
>=0m, <1m																														
>=1m, <2m																														
>=2m, <4m																														
>=4m																														
NEPM 2013 Table 1B(5) Generic EIL - Comm/Ind																														
NEPM 2013 Table 1B(6) ESLs for Comm/Ind, Fine Soil																														
>=0m, <2m																														
NEPM 2013 Table 1B(7) Management Limits Comm / Ind, Fine Soil																														
Field ID	**Depth**	**Date**	**Lab Report**																											
BH01_0.5	**0.5**	**27 Jul 2024**	**357735**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH01_1.5	**1.5**	**27 Jul 2024**	**357735**	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
BH01_3.5	**3.5**	**27 Jul 2024**	**357735**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH02_0.5	**0.5**	**27 Jul 2024**	**357735**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH02_2.5	**2.5**	**27 Jul 2024**	**357735**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH03_0.2	**0.2**	**27 Jul 2024**	**357735**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH03_0.5	**0.5**	**27 Jul 2024**	**357735**	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
BH03_2.5	**2.5**	**27 Jul 2024**	**357735**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH03_3.5	**3.5**	**27 Jul 2024**	**357735**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH04_0.2	**0.2**	**27 Jul 2024**	**357735**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH04_2.5	**2.5**	**27 Jul 2024**	**357735**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH04_3.5	**3.5**	**27 Jul 2024**	**357735**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH05_0.2	**0.2**	**27 Jul 2024**	**357735**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH05_1.5	**1.5**	**27 Jul 2024**	**357735**	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
BH05_2.5	**2.5**	**27 Jul 2024**	**357735**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH05_3.5	**3.5**	**27 Jul 2024**	**357735**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW01_0.5	**0.5**	**28 Jul 2024**	**357735**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW01_1.5	**1.5**	**28 Jul 2024**	**357735**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW01_3.5	**3.5**	**28 Jul 2024**	**357735**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW02_0.2	**0.2**	**27 Jul 2024**	**357735**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW02_0.5	**0.5**	**27 Jul 2024**	**357735**	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
MW02_1.5	**1.5**	**27 Jul 2024**	**357735**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW03_0.5	**0.5**	**28 Jul 2024**	**357735**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW03_1.5	**1.5**	**28 Jul 2024**	**357735**	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
MW03_3.5	**3.5**	**28 Jul 2024**	**357735**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DUP02		**27 Jul 2024**	**357735**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DUP03		**28 Jul 2024**	**357735**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

D = Detect
ND = Non Detect

Environmental Standards
2013, NEPM 2013 Table 1A(1) HILs Comm/Ind D Soil
2013, NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Int
2013, NEPM 2013 Table 1B(6) ESLs for Comm/Ind, Fine Soil
NEPM, NEPM 2013 Table 1B(7) Management Limits Comm / Ind, F
HEPA, January 2020, PFAS NEMP 2020 Industrial/ commercial (HIL

Table 1
Soil Analytical Results Summary

REDITUS

				PFAS																																		
				Perfluorobutane sulfonic acid (PFBS)	Perfluoropentane sulfonic acid (PFPeS)	Perfluorohexane sulfonic acid (PFHxS)	Perfluoroheptane sulfonic acid (PFHpS)	Perfluorooctane sulfonic acid (PFOS)	Perfluorodecane sulfonic acid (PFDS)	Perfluorobutanoic acid (PFBA)	Perfluorohexanoic acid (PFHxA)	Perfluoropentanoic acid (PFPeA)	Perfluoroheptanoic acid (PFHpA)	Perfluorooctanoic acid (PFOA)	Perfluorodecanoic acid (PFDA)	Perfluorododecanoic acid (PFDoDA)	Perfluorononanoic acid (PFNA)	Perfluorotetradecanoic acid (PFTeDA)	Perfluorotridecanoic acid (PFTrDA)	Perfluoroundecanoic acid (PFUnDA)	4:2 Fluorotelomer sulfonic acid (4:2 FTS)	6:2 Fluorotelomer sulfonic acid (6:2 FTS)	8:2 Fluorotelomer sulfonic acid (8:2 FTS)	10:2 Fluorotelomer sulfonic acid (10:2 FTS)	Perfluorooctane sulfonamide (FOSA)	N-Methyl perfluorooctane sulfonamide (MeFOSA)	N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	N-methyl perfluorooctane sulfonamidoethanol (MeFOSE)	N-Ethyl perfluorooctane sulfonamide (EtFOSA)	N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	Sum of PFHxS and PFOS	Sum of PFAS	Sum of PFAS (PFOS + PFOA)
				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	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL				0.0001	0.0001	0.0001	0.0001	0.0001	0.0002	0.0002	0.0001	0.0002	0.0001	0.0001	0.0005	0.0005	0.0001	0.005	0.0005	0.0005	0.0001	0.0001	0.0002	0.0002	0.001	0.001	0.0002	0.001	0.001	0.0002	0.005	0.0001	0.0001	0.0001
PFAS NEMP 2020 Industrial/ commercial (HIL D)						20		20						50																				20				
PFAS NEMP 2020 Ecological indirect exposure								0.01																														
PFAS NEMP 2020 Ecological direct exposure								1						10																								
NEPM 2013 Table 1A(1) HILs Comm/Ind D Soil																																						
NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion																																						
>=0m, <1m																																						
>=1m, <2m																																						
>=2m, <4m																																						
>=4m																																						
NEPM 2013 Table 1B(5) Generic EIL - Comm/Ind																																						
NEPM 2013 Table 1B(6) ESLs for Comm/Ind, Fine Soil																																						
>=0m, <2m																																						
NEPM 2013 Table 1B(7) Management Limits Comm / Ind, Fine Soil																																						
Field ID	**Depth**	**Date**	**Lab Report**																																			
BH01_0.5	**0.5**	**27 Jul 2024**	**357735**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH01_1.5	**1.5**	**27 Jul 2024**	**357735**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH01_3.5	**3.5**	**27 Jul 2024**	**357735**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH02_0.5	**0.5**	**27 Jul 2024**	**357735**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH02_2.5	**2.5**	**27 Jul 2024**	**357735**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH03_0.2	**0.2**	**27 Jul 2024**	**357735**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH03_0.5	**0.5**	**27 Jul 2024**	**357735**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH03_2.5	**2.5**	**27 Jul 2024**	**357735**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH03_3.5	**3.5**	**27 Jul 2024**	**357735**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH04_0.2	**0.2**	**27 Jul 2024**	**357735**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH04_2.5	**2.5**	**27 Jul 2024**	**357735**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH04_3.5	**3.5**	**27 Jul 2024**	**357735**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH05_0.2	**0.2**	**27 Jul 2024**	**357735**	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.0002	<0.0001	<0.0002	<0.0001	<0.0001	<0.0005	<0.0005	<0.0001	<0.005	<0.0005	<0.0005	<0.0001	<0.0001	<0.0002	<0.0002	<0.001	<0.001	<0.0002	<0.001	<0.001	<0.0002	<0.005	<0.0001	<0.0001	<0.0001
BH05_1.5	**1.5**	**27 Jul 2024**	**357735**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH05_2.5	**2.5**	**27 Jul 2024**	**357735**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH05_3.5	**3.5**	**27 Jul 2024**	**357735**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW01_0.5	**0.5**	**28 Jul 2024**	**357735**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW01_1.5	**1.5**	**28 Jul 2024**	**357735**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW01_3.5	**3.5**	**28 Jul 2024**	**357735**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW02_0.2	**0.2**	**27 Jul 2024**	**357735**	<0.0001	<0.0001	<0.0001	<0.0001	**0.0002**	<0.0002	<0.0002	<0.0001	<0.0002	<0.0001	<0.0001	<0.0005	<0.0005	<0.0001	<0.005	<0.0005	<0.0005	<0.0001	<0.0001	<0.0002	<0.0002	<0.001	<0.001	<0.0002	<0.001	<0.001	<0.0002	<0.005	**0.0002**	**0.0002**	**0.0002**
MW02_0.5	**0.5**	**27 Jul 2024**	**357735**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW02_1.5	**1.5**	**27 Jul 2024**	**357735**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW03_0.5	**0.5**	**28 Jul 2024**	**357735**	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.0002	<0.0001	<0.0002	<0.0001	<0.0001	<0.0005	<0.0005	<0.0001	<0.005	<0.0005	<0.0005	<0.0001	<0.0001	<0.0002	<0.0002	<0.001	<0.001	<0.0002	<0.001	<0.001	<0.0002	<0.005	<0.0001	<0.0001	<0.0001
MW03_1.5	**1.5**	**28 Jul 2024**	**357735**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW03_3.5	**3.5**	**28 Jul 2024**	**357735**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DUP02		**27 Jul 2024**	**357735**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DUP03		**28 Jul 2024**	**357735**	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.0002	<0.0001	<0.0002	<0.0001	<0.0001	<0.0005	<0.0005	<0.0001	<0.005	<0.0005	<0.0005	<0.0001	<0.0001	<0.0002	<0.0002	<0.001	<0.001	<0.0002	<0.001	<0.001	<0.0002	<0.005	<0.0001	<0.0001	<0.0001

D = Detect
ND = Non Detect

Environmental Standards
2013, NEPM 2013 Table 1A(1) HILs Comm/Ind D Soil
2013, NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Int
2013, NEPM 2013 Table 1B(6) ESLs for Comm/Ind, Fine Soil
NEPM, NEPM 2013 Table 1B(7) Management Limits Comm / Ind, F
HEPA, January 2020, PFAS NEMP 2020 Industrial/ commercial (HIL

Table 2
Groundwater Analytical Results Summary

	BTEX						TRH							TPH					Inorganics	
	Naphthalene (BTEX)	Benzene	Toluene	Ethylbenzene	Xylene (m & p)	Xylene (o)	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)	Ammonia as N (filtered)	Cyanide Total
	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
EQL	0.001	0.001	0.001	0.001	0.002	0.001	0.01	0.01	0.05	0.05	0.1	0.1	0.05	0.01	0.05	0.1	0.1	0.05	0.005	0.004
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)	0.07	0.7	0.18	0.08															0.91	
NEPM 2013 Table 1A(4) Comm/Ind HSL D GW for Vapour Intrusion, Sand																				
>=2m, <4m	NL	5	NL	NL				6		NL										
>=4m, <8m	NL	5	NL	NL				6		NL										
>=8m	NL	5	NL	NL				7		NL										
PFAS NEMP 2020 Interim Marine 95%																				
PFAS NEMP 2020 Interim Marine 99%																				
Field ID	**Date**	**Lab Report**																		
MW01	**09 Aug 2024**	**359078**	<0.001	<0.001	<0.001	<0.001	<0.002	<0.001	<0.01	<0.01	<0.05	<0.05	<0.1	<0.1	<0.05	<0.01	<0.05	<0.1	<0.1	<0.05	**0.096**	<0.004
MW02	**09 Aug 2024**	**359078**	<0.001	<0.001	<0.001	<0.001	<0.002	<0.001	<0.01	<0.01	<0.05	<0.05	<0.1	<0.1	<0.05	<0.01	<0.05	<0.1	<0.1	<0.05	**0.014**	<0.004
MW03	**13 Aug 2024**	**359078**	<0.001	<0.001	<0.001	<0.001	<0.002	<0.001	<0.01	<0.01	<0.05	<0.05	<0.1	<0.1	<0.05	<0.01	<0.05	<0.1	<0.1	<0.05	**0.17**	<0.004
DUP1	**13 Aug 2024**	**359078**	<0.001	<0.001	<0.001	<0.001	<0.002	<0.001	<0.01	<0.01	<0.05	<0.05	<0.1	<0.1	<0.05	<0.01	<0.05	<0.1	<0.1	<0.05	**0.16**	<0.004

Environmental Standards
ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
2013, NEPM 2013 Table 1A(4) Comm/Ind HSL D GW for Vapour Intrusion, Sand
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%

Table 2
Groundwater Analytical Results Summary

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	PAH																	Metals							
	Benzo(b+j+k)fluoranthene	Acenaphthene	Acenaphthylene	Anthracene	Benz(a)anthracene	Benzo(a) pyrene	Benzo(g,h,i)perylene	Chrysene	Dibenz(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-c,d)pyrene	Naphthalene	Phenanthrene	Pyrene	Benzo(a)pyrene TEQ	PAHs (Sum of positives)	Arsenic (filtered)	Cadmium (filtered)	Chromium (III+VI) (filtered)	Copper (filtered)	Lead (filtered)	Mercury (filtered)	Nickel (filtered)	Zinc (filtered)
	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
EQL	0.0002	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0005	0.0001	0.001	0.0001	0.001	0.001	0.001	0.00005	0.001	0.001
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)				0.0004		0.0002				0.0014			0.07	0.002					0.0055		0.0013	0.0044	0.0004	0.07	0.008
NEPM 2013 Table 1A(4) Comm/Ind HSL D GW for Vapour Int																									
>=2m, <4m													NL												
>=4m, <8m													NL												
>=8m													NL												
PFAS NEMP 2020 Interim Marine 95%																									
PFAS NEMP 2020 Interim Marine 99%																									
Field ID	**Date**	**Lab Report**																							
MW01	**09 Aug 2024**	**359078**	<0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0005	<0.0001	<0.001	<0.0001	<0.001	<0.001	<0.001	<0.00005	**0.002**	**0.015**
MW02	**09 Aug 2024**	**359078**	<0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0005	<0.0001	<0.001	<0.0001	**0.001**	<0.001	**0.001**	<0.00005	<0.001	**0.009**
MW03	**13 Aug 2024**	**359078**	<0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0005	<0.0001	<0.001	<0.0001	<0.001	<0.001	<0.001	<0.00005	**0.002**	**0.014**
DUP1	**13 Aug 2024**	**359078**	<0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0005	<0.0001	<0.001	<0.0001	<0.001	<0.001	<0.001	<0.00005	**0.002**	**0.014**

Environmental Standards
ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 9
2013, NEPM 2013 Table 1A(4) Comm/Ind HSL D GW for Vapo
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%

Table 2
Groundwater Analytical Results Summary

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	VOCs																										
	1,1,1,2-tetrachloroethane	1,1,1-trichloroethane	1,1,2,2-tetrachloroethane	1,1,2-trichloroethane	1,1-dichloroethane	1,1-dichloroethene	1,1-dichloropropene	1,2,3-trichlorobenzene	1,2,3-trichloropropane	1,2,4-trichlorobenzene	1,2,4-trimethylbenzene	1,2-dibromo-3-chloropropane	1,2-dibromoethane	1,2-dichlorobenzene	1,2-dichloroethane	1,2-dichloropropane	1,3,5-trimethylbenzene	1,3-dichlorobenzene	1,3-dichloropropane	1,4-dichlorobenzene	2,2-dichloropropane	2-chlorotoluene	4-chlorotoluene	Bromobenzene	Bromochloromethane	Bromodichloromethane	Bromoform
	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
EQL	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)		0.27	0.4	1.9		0.7				0.08					1.9	0.9			1.1								
NEPM 2013 Table 1A(4) Comm/Ind HSL D GW for Vapour Int																											
>=2m, <4m																											
>=4m, <8m																											
>=8m																											
PFAS NEMP 2020 Interim Marine 95%																											
PFAS NEMP 2020 Interim Marine 99%																											
Field ID	**Date**	**Lab Report**																									
MW01	**09 Aug 2024**	**359078**	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
MW02	**09 Aug 2024**	**359078**	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
MW03	**13 Aug 2024**	**359078**	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
DUP1	**13 Aug 2024**	**359078**	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001

Environmental Standards
ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 9
2013, NEPM 2013 Table 1A(4) Comm/Ind HSL D GW for Vap
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%

Table 2
Groundwater Analytical Results Summary

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	VOCs Continued																									
	Bromomethane	Carbon tetrachloride	Chlorobenzene	Chlorodibromomethane	Chloroethane	Chloroform	Chloromethane	cis-1,2-dichloroethene	cis-1,3-dichloropropene	Cyclohexane	Dibromomethane	Dichlorodifluoromethane	Hexachlorobutadiene	Isopropylbenzene	n-butylbenzene	n-propylbenzene	p-isopropyltoluene	sec-butylbenzene	Styrene	Trichloroethene	tert-butylbenzene	Tetrachloroethene	trans-1,2-dichloroethene	trans-1,3-dichloropropene	Trichlorofluoromethane	Vinyl chloride
	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
EQL	0.01	0.001	0.001	0.001	0.01	0.001	0.01	0.001	0.001	0.001	0.001	0.01	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.01	0.01
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)		0.24	0.055			0.77								0.03						0.33		0.07				0.1
NEPM 2013 Table 1A(4) Comm/Ind HSL D GW for Vapour Int																										
>=2m, <4m																										
>=4m, <8m																										
>=8m																										
PFAS NEMP 2020 Interim Marine 95%																										
PFAS NEMP 2020 Interim Marine 99%																										
Field ID	**Date**	**Lab Report**																								
MW01	**09 Aug 2024**	**359078**	<0.01	<0.001	<0.001	<0.001	<0.01	<0.001	<0.01	<0.001	<0.001	<0.001	<0.001	<0.01	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.01	<0.01
MW02	**09 Aug 2024**	**359078**	<0.01	<0.001	<0.001	<0.001	<0.01	<0.001	<0.01	<0.001	<0.001	<0.001	<0.001	<0.01	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.01	<0.01
MW03	**13 Aug 2024**	**359078**	<0.01	<0.001	<0.001	<0.001	<0.01	<0.001	<0.01	<0.001	<0.001	<0.001	<0.001	<0.01	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.01	<0.01
DUP1	**13 Aug 2024**	**359078**	<0.01	<0.001	<0.001	<0.001	<0.01	<0.001	<0.01	<0.001	<0.001	<0.001	<0.001	<0.01	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.01	<0.01

Environmental Standards
ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 9
2013, NEPM 2013 Table 1A(4) Comm/Ind HSL D GW for Vapo
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%

Table 2
Groundwater Analytical Results Summary

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	PFAS																													
	Perfluorobutane sulfonic acid (PFBS)	Perfluoropentane sulfonic acid (PFPeS)	Perfluorohexane sulfonic acid (PFHxS)	Perfluoroheptane sulfonic acid (PFHpS)	Perfluorooctane sulfonic acid (PFOS)	Perfluorodecane sulfonic acid (PFDS)	Perfluorobutanoic acid (PFBA)	Perfluorohexanoic acid (PFHxA)	Perfluoropentanoic acid (PFPeA)	Perfluoroheptanoic acid (PFHpA)	Perfluorooctanoic acid (PFOA)	Perfluorodecanoic acid (PFDA)	Perfluorododecanoic acid (PFDoDA)	Perfluorononanoic acid (PFNA)	Perfluorotetradecanoic acid (PFTeDA)	Perfluorotridecanoic acid (PFTrDA)	Perfluoroundecanoic acid (PFUnDA)	4:2 Fluorotelomer sulfonic acid (4:2 FTS)	6:2 Fluorotelomer sulfonic acid (6:2 FTS)	8:2 Fluorotelomer sulfonic acid (8:2 FTS)	10:2 Fluorotelomer sulfonic acid (10:2 FTS)	Perfluorooctane sulfonamide (FOSA)	N-Methyl perfluorooctane sulfonamide (MeFOSA)	N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	N-methyl perfluorooctane sulfonamidoethanol (MeFOSE)	N-Ethyl perfluorooctane sulfonamide (EtFOSA)	N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	Sum of PFHxS and PFOS	Sum of PFAS	Sum of PFAS (PFOS + PFOA)
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.02	0.01	0.01	0.02	0.05	0.01	0.5	0.1	0.02	0.01	0.01	0.02	0.02	0.1	0.05	0.02	0.05	0.1	0.02	0.5	0.01	0.01	0.01
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)																															
NEPM 2013 Table 1A(4) Comm/Ind HSL D GW for Vapour Int																															
>=2m, <4m																															
>=4m, <8m																															
>=8m																															
PFAS NEMP 2020 Interim Marine 95%					0.13						220																				
PFAS NEMP 2020 Interim Marine 99%					0.00023						19																				
Field ID	**Date**	**Lab Report**																													
MW01	**09 Aug 2024**	**359078**	<0.01	<0.01	**0.02**	<0.01	**0.01**	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.05	<0.01	<0.5	<0.1	<0.02	<0.01	<0.01	<0.02	<0.02	<0.1	<0.05	<0.02	<0.05	<0.1	<0.02	<0.5	**0.03**	**0.03**	**0.01**
MW02	**09 Aug 2024**	**359078**	<0.01	<0.01	**0.03**	<0.01	**0.01**	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.05	<0.01	<0.5	<0.1	<0.02	<0.01	<0.01	<0.02	<0.02	<0.1	<0.05	<0.02	<0.05	<0.1	<0.02	<0.5	**0.04**	**0.04**	**0.01**
MW03	**13 Aug 2024**	**359078**	**0.01**	<0.01	<0.01	<0.01	**0.01**	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.05	<0.01	<0.5	<0.1	<0.02	<0.01	<0.01	<0.02	<0.02	<0.1	<0.05	<0.02	<0.05	<0.1	<0.02	<0.5	**0.01**	**0.02**	**0.01**
DUP1	**13 Aug 2024**	**359078**	**0.01**	<0.01	**0.01**	<0.01	<0.01	<0.02	<0.02	<0.01	<0.02	<0.01	**0.01**	<0.02	<0.05	<0.01	<0.5	<0.1	<0.02	<0.01	<0.01	<0.02	<0.02	<0.1	<0.05	<0.02	<0.05	<0.1	<0.02	<0.5	**0.01**	**0.03**	**0.01**

Environmental Standards
ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 9
2013, NEPM 2013 Table 1A(4) Comm/Ind HSL D GW for Vapo
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%

Detailed Site Investigation
37 Roseberry Street
Balgowlah, NSW 2093
24072RP02

Table 3 - Soil Vapour Analytical Summary

			BTEX					TRH		TPH	PAH	Solvents					
			Benzene	Toluene	Ethylbenzene	Xylene (m & p)	Xylene (o)	C6-C10 Fraction (F1)	>C10-C16 Fraction (F2)	C10-C12 Fraction	Naphthalene	Methyl Ethyl Ketone	4-Methyl-2-pentanone	Heptane	Hexane	MTBE
			µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	mg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3
EQL			0.05	0.05	0.05	0.1	0.05	0.05	50	50	10	5	5	5	20	10
NEPM 2013 Table 1A(2) Comm/Ind D Soil Vap VOCC HILs																
NEPM 2013 Table 1A(5) Comm/Ind D Soil Vapour HSL for Vapour Intrusion, Sand >=0m, <1m			4,000	4,800,000	1,300,000						3,000					
Field ID	**Location Code**	**Date**														
359078-8	**SV01**	**09 Aug 2024**	<3.6	<2.6	<1.9	<3.7	<1.7	<2.6	<2,600	<2,600	<350	<530	<310	<370	<2,100	<990
359078-9	**SV02**	**09 Aug 2024**	4.5	10	2.1	8.0	3.7	<2.5	<2,500	<2,500	<340	<510	<300	<360	<2,000	<950
359078-10	**SV03**	**09 Aug 2024**	<3.5	2.9	<1.8	<3.7	<1.7	<2.6	<2,600	<2,600	<340	<530	<310	<370	<2,100	<980
359078-11	**SV04**	**09 Aug 2024**	<3.4	<2.5	<1.8	<3.6	<1.7	<2.5	<2,500	<2,500	<340	<510	<300	<360	<2,000	<950

Detailed Site Investigation
37 Roseberry Street
Balgowlah, NSW 2093
24072RP02

Table 3 - Soil Vapour Analytical Summary

			VOCs																				
			1,1,1-trichloroethane	1,1,2,2-tetrachloroethane	1,1,2-trichloroethane	1,1-dichloroethane	1,1-dichloroethene	1,2,4-trimethylbenzene	1,2-dichlorobenzene	1,2-dichloroethane	1,3,5-trimethylbenzene	1,3-dichlorobenzene	1,4-dichlorobenzene	Carbon tetrachloride	Chlorobenzene	Chloroform	cis-1,2-dichloroethene	Cyclohexane	n-propylbenzene	Styrene	Trichloroethene	Tetrachloroethene	trans-1,2-dichloroethene	Vinyl chloride
			µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3
EQL			0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.5
NEPM 2013 Table 1A(2) Comm/Ind D Soil Vap VOCC HILs			230,000														300				80	8,000		100
NEPM 2013 Table 1A(5) Comm/Ind D Soil Vapour HSL for Vapour Intrusion, Sand >=0m, <1m																								
Field ID	**Location Code**	**Date**																						
359078-8	**SV01**	**09 Aug 2024**	<5.2	<1.7	<3.0	<5.0	<5.7	<1.1	<0.97	<3.5	<1.2	<1.1	<1.0	<4.4	<2.2	<4.0	<4.1	<4.0	<1.4	<1.7	<3.0	<2.0	<4.8	<64
359078-9	**SV02**	**09 Aug 2024**	<5.0	<1.7	<2.9	<4.8	<5.5	1.4	<0.93	<3.4	<1.2	<1.1	<1.0	<4.3	<2.1	<3.9	<3.9	23	<1.3	<1.7	<2.9	<1.9	<4.7	<61
359078-10	**SV03**	**09 Aug 2024**	<5.2	<1.7	<3.0	<5.0	<5.6	<1.1	<0.96	<3.4	<1.2	<1.1	<1.0	<4.4	<2.2	<4.0	<4.0	<3.9	<1.4	<1.7	<2.9	<2.0	<4.8	<63
359078-11	**SV04**	**09 Aug 2024**	<5.0	<1.7	<2.9	<4.8	<5.5	<1.1	<0.93	<3.4	<1.2	<1.0	<1.0	<4.3	<2.1	<3.9	<3.9	<3.8	<1.3	<1.7	<2.9	<1.9	<4.7	<61

Table 4
Soil RPD Results Summary

REDITUS

		Asbestos	BTEX								TRH							TPH				
		Asbestos fibres	Naphthalene (BTEX)	Benzene	Toluene	Ethylbenzene	Xylene (m & p)	Xylene (o)	Xylene Total	Total BTEX	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)
		Detect	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			1	0.2	0.5	0.5	0.5	0.5	0.5	0.2	10	10	50	50	100	100	50	10	50	100	100	50
MW02_1.5	27 Jul 2024	357735	Soil	0	<1	<0.2	<0.5	<1	<2	<1	<1	-	<25	<25	<50	<50	<100	<100	<50	<25	<50	<100	<100	<50
DUP02	27 Jul 2024	357735	Soil	-	<1	<0.2	<0.5	<1	<2	<1	<1	-	<25	<25	<50	<50	<100	<100	<50	<25	<50	<100	<100	<50
RPD					-	0	0	0	0	0	0	0	0	-	0	0	0	0	0	0	0	0	0	0	0
MW02_1.5	27 Jul 2024	357735	Soil	0	<1	<0.2	<0.5	<1	<2	<1	<1	-	<25	<25	<50	<50	<100	<100	<50	<25	<50	<100	<100	<50
TRIP02	27 Jul 2024	ES2424863	Soil	-	<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2	<10	<10	<50	<50	<100	<100	<50	<10	<50	<100	<100	<50
RPD					-	0	0	0	0	0	0	0	0	-	0	0	0	0	0	0	0	0	0	0	0
MW03_0.5	28 Jul 2024	357735	Soil	0	<1	<0.2	<0.5	<1	<2	<1	<1	-	<25	<25	<50	<50	<100	<100	<50	<25	<50	<100	<100	<50
DUP03	28 Jul 2024	357735	Soil	-	<1	<0.2	<0.5	<1	<2	<1	<1	-	<25	<25	<50	<50	<100	<100	<50	<25	<50	<100	<100	<50
RPD					-	0	0	0	0	0	0	0	0	-	0	0	0	0	0	0	0	0	0	0	0
MW03_0.5	28 Jul 2024	357735	Soil	0	<1	<0.2	<0.5	<1	<2	<1	<1	-	<25	<25	<50	<50	<100	<100	<50	<25	<50	<100	<100	<50
TRIP03	28 Jul 2024	ES2424863	Soil	-	<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2	<10	<10	<50	<50	<100	<100	<50	<10	<50	<100	<100	<50
RPD					-	0	0	0	0	0	0	0	0	-	0	0	0	0	0	0	0	0	0	0	0

***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: 100 (0 - 5 x EQL); 75 (5 - 10 x EQL); 30 (> 10 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**

Table 4
Soil RPD Results Summary

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				PAH																				Inorganics
				Benzo(b+j+k)fluoranthene	Acenaphthene	Acenaphthylene	Anthracene	Benz(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 (Half)	Benzo(a)pyrene TEQ (LOR)	PAHs (Sum of total)	PAHs (Sum of positives)	Cyanide (Free)
				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				0.2	0.1	0.1	0.1	0.1	0.05	0.5	0.1	0.5	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.5	0.5	0.5	0.05	0.5
Field ID	**Date**	**Lab Report**	**Matrix Type**																					
MW02_1.5	**27 Jul 2024**	**357735**	**Soil**	<0.2	<0.1	<0.1	<0.1	<0.1	<0.05	-	<0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.5	<0.5	-	<0.05	<0.5
DUP02	**27 Jul 2024**	**357735**	**Soil**	<0.2	<0.1	<0.1	<0.1	<0.1	<0.05	-	<0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.5	<0.5	-	<0.05	-
RPD				0	0	0	0	0	0	-	0	-	0	0	0	0	0	0	0	0	0	0	-	0	-
MW02_1.5	**27 Jul 2024**	**357735**	**Soil**	<0.2	<0.1	<0.1	<0.1	<0.1	<0.05	-	<0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.5	<0.5	-	<0.05	<0.5
TRIP02	**27 Jul 2024**	**ES2424863**	**Soil**	-	<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	**0.6**	**1.2**	<0.5	-	-
RPD				-	0	0	0	0	0	-	0	-	0	0	0	0	0	0	0	0	18	82	-	-	-
MW03_0.5	**28 Jul 2024**	**357735**	**Soil**	<0.2	<0.1	<0.1	<0.1	<0.1	<0.05	-	<0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.5	<0.5	-	<0.05	-
DUP03	**28 Jul 2024**	**357735**	**Soil**	<0.2	<0.1	<0.1	<0.1	<0.1	<0.05	-	<0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.5	<0.5	-	<0.05	-
RPD				0	0	0	0	0	0	-	0	-	0	0	0	0	0	0	0	0	0	0	-	0	-
MW03_0.5	**28 Jul 2024**	**357735**	**Soil**	<0.2	<0.1	<0.1	<0.1	<0.1	<0.05	-	<0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.5	<0.5	-	<0.05	-
TRIP03	**28 Jul 2024**	**ES2424863**	**Soil**	-	<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	**0.6**	**1.2**	<0.5	-	-
RPD				-	0	0	0	0	0	-	0	-	0	0	0	0	0	0	0	0	18	82	-	-	-

***RPDs have only been considered where a concentration is gre**
****Elevated RPDs are highlighted as per QAQC Profile settings (**
*****Interlab Duplicates are matched on a per compound basis a**

Table 4
Soil RPD Results Summary

REDITUS

				Metals								PFAS												
				Arsenic	Cadmium	Chromium (III+VI)	Copper	Lead	Mercury	Nickel	Zinc	Perfluorononanesulfonic acid (PFNS)	Perfluoropropanesulfonic acid (PFPrS)	Perfluorobutane sulfonic acid (PFBS)	Perfluoropentane sulfonic acid (PFPeS)	Perfluorohexane sulfonic acid (PFHxS)	Perfluoroheptane sulfonic acid (PFHpS)	Perfluorooctane sulfonic acid (PFOS)	Perfluorodecane sulfonic acid (PFDS)	Perfluorobutanoic acid (PFBA)	Perfluorohexanoic acid (PFHxA)	Perfluoropentanoic acid (PFPeA)	Perfluoroheptanoic acid (PFHpA)	Perfluorooctanoic acid (PFOA)
				mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	µg/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				4	0.4	1	1	1	0.1	1	1	0.2	0.0005	0.0001	0.0001	0.0001	0.0001	0.0001	0.0002	0.0002	0.0001	0.0002	0.0001	0.0001
Field ID	**Date**	**Lab Report**	**Matrix Type**																					
MW02_1.5	**27 Jul 2024**	**357735**	**Soil**	<4	<0.4	**20**	**2**	**22**	<0.1	**7**	**49**	-	-	-	-	-	-	-	-	-	-	-	-	-
DUP02	**27 Jul 2024**	**357735**	**Soil**	<4	<0.4	**28**	**2**	**25**	<0.1	**9**	**97**	-	-	-	-	-	-	-	-	-	-	-	-	-
RPD				0	0	33	0	13	0	25	66	-	-	-	-	-	-	-	-	-	-	-	-	-
MW02_1.5	**27 Jul 2024**	**357735**	**Soil**	<4	<0.4	**20**	**2**	**22**	<0.1	**7**	**49**	-	-	-	-	-	-	-	-	-	-	-	-	-
TRIP02	**27 Jul 2024**	**ES2424863**	**Soil**	<5	<1	**15**	<5	**16**	<0.1	**5**	**45**	-	-	-	-	-	-	-	-	-	-	-	-	-
RPD				0	0	29	0	32	0	33	9	-	-	-	-	-	-	-	-	-	-	-	-	-
MW03_0.5	**28 Jul 2024**	**357735**	**Soil**	**64**	<0.4	**2**	<1	**3**	<0.1	<1	**2**	-	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.0002	<0.0001	<0.0002	<0.0001	<0.0001
DUP03	**28 Jul 2024**	**357735**	**Soil**	**120**	<0.4	**5**	<1	**3**	<0.1	**2**	**3**	-	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.0002	<0.0001	<0.0002	<0.0001	<0.0001
RPD				61	0	86	0	0	0	67	40	-	-	0	0	0	0	0	0	0	0	0	0	0
MW03_0.5	**28 Jul 2024**	**357735**	**Soil**	**64**	<0.4	**2**	<1	**3**	<0.1	<1	**2**	-	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.0002	<0.0001	<0.0002	<0.0001	<0.0001
TRIP03	**28 Jul 2024**	**ES2424863**	**Soil**	**101**	<1	**4**	<5	<5	<0.1	<2	<5	<0.2	<0.0005	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002
RPD				45	0	67	0	0	0	0	0	-	-	0	0	0	0	0	0	0	0	0	0	0

***RPDs have only been considered where a concentration is gre**
****Elevated RPDs are highlighted as per QAQC Profile settings (**
*****Interlab Duplicates are matched on a per compound basis a**

Table 4
Soil RPD Results Summary

REDITUS

				PFAS Continued																			
				Perfluorodecanoic acid (PFDA)	Perfluorododecanoic acid (PFDoDA)	Perfluorononanoic acid (PFNA)	Perfluorotetradecanoic acid (PFTeDA)	Perfluorotridecanoic acid (PFTrDA)	Perfluoroundecanoic acid (PFUnDA)	4:2 Fluorotelomer sulfonic acid (4:2 FTS)	6:2 Fluorotelomer sulfonic acid (6:2 FTS)	8:2 Fluorotelomer sulfonic acid (8:2 FTS)	10:2 Fluorotelomer sulfonic acid (10:2 FTS)	Perfluorooctane sulfonamide (FOSA)	N-Methyl perfluorooctane sulfonamide (MeFOSA)	N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	N-methyl perfluorooctane sulfonamidoethanol (MeFOSE)	N-Ethyl perfluorooctane sulfonamide (EtFOSA)	N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	Sum of PFHxS and PFOS	Sum of PFAS	Sum of PFAS (WA DER List)	Sum of PFAS (PFOS + PFOA)
				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				0.0002	0.0002	0.0001	0.0005	0.0002	0.0002	0.0001	0.0001	0.0002	0.0002	0.0002	0.0005	0.0002	0.0005	0.0005	0.0002	0.0005	0.0001	0.0001	0.0002	0.0001
Field ID	**Date**	**Lab Report**	**Matrix Type**																				
MW02_1.5	27 Jul 2024	357735	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DUP02	27 Jul 2024	357735	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RPD				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW02_1.5	27 Jul 2024	357735	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TRIP02	27 Jul 2024	ES2424863	Soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RPD				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW03_0.5	28 Jul 2024	357735	Soil	<0.0005	<0.0005	<0.0001	<0.005	<0.0005	<0.0005	<0.0001	<0.0001	<0.0002	<0.0002	<0.001	<0.001	<0.0002	<0.001	<0.001	<0.0002	<0.005	<0.0001	<0.0001	-	<0.0001
DUP03	28 Jul 2024	357735	Soil	<0.0005	<0.0005	<0.0001	<0.005	<0.0005	<0.0005	<0.0001	<0.0001	<0.0002	<0.0002	<0.001	<0.001	<0.0002	<0.001	<0.001	<0.0002	<0.005	<0.0001	<0.0001	-	<0.0001
RPD				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	0
MW03_0.5	28 Jul 2024	357735	Soil	<0.0005	<0.0005	<0.0001	<0.005	<0.0005	<0.0005	<0.0001	<0.0001	<0.0002	<0.0002	<0.001	<0.001	<0.0002	<0.001	<0.001	<0.0002	<0.005	<0.0001	<0.0001	-	<0.0001
TRIP03	28 Jul 2024	ES2424863	Soil	<0.0002	<0.0002	<0.0002	<0.0005	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002	<0.0002	-
RPD				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	-

***RPDs have only been considered where a concentration is gre**
****Elevated RPDs are highlighted as per QAQC Profile settings (**
*****Interlab Duplicates are matched on a per compound basis a**

Table 5
Groundwater RPD Results Summary

REDITUS

				BTEX								TRH							TPH					Inorganics		
				Naphthalene (BTEX)	Benzene	Toluene	Ethylbenzene	Xylene (m & p)	Xylene (o)	Xylene Total	Total BTEX	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)	Ammonia as N	Ammonia as N (filtered)	Cyanide Total
				mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
EQL				0.001	0.001	0.001	0.001	0.002	0.001	0.002	0.001	0.01	0.01	0.05	0.05	0.1	0.1	0.05	0.01	0.05	0.1	0.05	0.05	0.005	0.005	0.004
Field ID	**Date**	**Lab Report**	**Matrix Type**																							
MW03	**13 Aug 2024**	**359078**	**Water**	<0.001	<0.001	<0.001	<0.001	<0.002	<0.001	-	-	<0.01	<0.01	<0.05	<0.05	<0.1	<0.1	<0.05	<0.01	<0.05	<0.1	<0.1	<0.05	-	**0.17**	<0.004
DUP1	**13 Aug 2024**	**359078**	**Water**	<0.001	<0.001	<0.001	<0.001	<0.002	<0.001	-	-	<0.01	<0.01	<0.05	<0.05	<0.1	<0.1	<0.05	<0.01	<0.05	<0.1	<0.1	<0.05	-	**0.16**	<0.004
RPD				0	0	0	0	0	0	-	-	0	0	0	0	0	0	0	0	0	0	0	0	-	6	0
MW03	**13 Aug 2024**	**359078**	**Water**	<0.001	<0.001	<0.001	<0.001	<0.002	<0.001	-	-	<0.01	<0.01	<0.05	<0.05	<0.1	<0.1	<0.05	<0.01	<0.05	<0.1	<0.1	<0.05	-	**0.17**	<0.004
TRIP1	**13 Aug 2024**	**ES2426838**	**Water**	<0.005	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.02	<0.02	<0.1	<0.1	<0.1	<0.1	<0.1	<0.02	<0.05	<0.1	<0.05	<0.05	**0.22**	-	<0.004
RPD				0	0	0	0	0	0	-	-	0	0	0	0	0	0	0	0	0	0	0	0	-	-	0

***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: 100 (0 - 5 x EQL); 75 (5 - 10 x EQL); 30 (> 10 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**

Table 5
Groundwater RPD Results Summary

REDITUS

				PAH																			Metals							
				Benzo(b+j+k)fluoranthene	Acenaphthene	Acenaphthylene	Anthracene	Benz(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	PAHs (Sum of total)	PAHs (Sum of positives)	Arsenic (filtered)	Cadmium (filtered)	Chromium (III+VI) (filtered)	Copper (filtered)	Lead (filtered)	Mercury (filtered)	Nickel (filtered)	Zinc (filtered)
				mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
EQL				0.0002	0.0001	0.0001	0.0001	0.0001	0.0001	0.001	0.0001	0.001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0005	0.0005	0.0001	0.001	0.0001	0.001	0.001	0.001	0.00005	0.001	0.001
Field ID	**Date**	**Lab Report**	**Matrix Type**																												
MW03	**13 Aug 2024**	**359078**	**Water**	<0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	-	<0.0001	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0005	-	<0.0001	<0.001	<0.0001	<0.001	<0.001	<0.001	<0.00005	**0.002**	**0.014**
DUP1	**13 Aug 2024**	**359078**	**Water**	<0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	-	<0.0001	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0005	-	<0.0001	<0.001	<0.0001	<0.001	<0.001	<0.001	<0.00005	**0.002**	**0.014**
RPD				0	0	0	0	0	0	-	0	-	0	0	0	0	0	0	0	0	0	-	0	0	0	0	0	0	0	0	0
MW03	**13 Aug 2024**	**359078**	**Water**	<0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	-	<0.0001	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0005	-	<0.0001	<0.001	<0.0001	<0.001	<0.001	<0.001	<0.00005	**0.002**	**0.014**
TRIP1	**13 Aug 2024**	**ES2426838**	**Water**	-	<0.0010	<0.0010	<0.0010	<0.0010	<0.0005	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	-	<0.0005	-	<0.001	<0.0001	<0.001	<0.001	<0.001	<0.0001	**0.002**	**0.014**
RPD				-	0	0	0	0	0	-	0	-	0	0	0	0	0	0	0	0	0	-	-	-	0	0	0	0	0	0	0	0

***RPDs have only been considered where a concentration is g**
****Elevated RPDs are highlighted as per QAQC Profile setting**
*****Interlab Duplicates are matched on a per compound basi**

Table 5
Groundwater RPD Results Summary

REDITUS

				VOCs																								
				1,1,1,2-tetrachloroethane	1,1,1-trichloroethane	1,1,2,2-tetrachloroethane	1,1,2-trichloroethane	1,1-dichloroethane	1,1-dichloroethene	1,1-dichloropropene	1,2,3-trichlorobenzene	1,2,3-trichloropropane	1,2,4-trichlorobenzene	1,2,4-trimethylbenzene	1,2-dibromo-3-chloropropane	1,2-dibromoethane	1,2-dichlorobenzene	1,2-dichloroethane	1,2-dichloropropane	1,3,5-trimethylbenzene	1,3-dichlorobenzene	1,3-dichloropropane	1,4-dichlorobenzene	2,2-dichloropropane	2-chlorotoluene	4-chlorotoluene	Bromobenzene	Bromochloromethane	Bromodichloromethane
				mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
EQL				0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Field ID	**Date**	**Lab Report**	**Matrix Type**																									
MW03	**13 Aug 2024**	**359078**	**Water**	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
DUP1	**13 Aug 2024**	**359078**	**Water**	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RPD				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MW03	**13 Aug 2024**	**359078**	**Water**	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
TRIP1	**13 Aug 2024**	**ES2426838**	**Water**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RPD				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

***RPDs have only been considered where a concentration is g**
****Elevated RPDs are highlighted as per QAQC Profile setting**
*****Interlab Duplicates are matched on a per compound basi**

Table 5
Groundwater RPD Results Summary

REDITUS

				VOCs Continued																											
				Bromoform	Bromomethane	Carbon tetrachloride	Chlorobenzene	Chlorodibromomethane	Chloroethane	Chloroform	Chloromethane	cis-1,2-dichloroethene	cis-1,3-dichloropropene	Cyclohexane	Dibromomethane	Dichlorodifluoromethane	Hexachlorobutadiene	Isopropylbenzene	n-butylbenzene	n-propylbenzene	p-isopropyltoluene	sec-butylbenzene	Styrene	Trichloroethene	tert-butylbenzene	Tetrachloroethene	trans-1,2-dichloroethene	trans-1,3-dichloropropene	Trichlorofluoromethane	Vinyl chloride
				mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
EQL				0.001	0.01	0.001	0.001	0.001	0.01	0.001	0.01	0.001	0.001	0.001	0.001	0.01	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.01	0.01
Field ID	**Date**	**Lab Report**	**Matrix Type**																												
MW03	**13 Aug 2024**	**359078**	**Water**	<0.001	<0.01	<0.001	<0.001	<0.001	<0.01	<0.001	<0.01	<0.001	<0.001	<0.001	<0.001	<0.01	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.01	<0.01
DUP1	**13 Aug 2024**	**359078**	**Water**	<0.001	<0.01	<0.001	<0.001	<0.001	<0.01	<0.001	<0.01	<0.001	<0.001	<0.001	<0.001	<0.01	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.01	<0.01
RPD				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MW03	**13 Aug 2024**	**359078**	**Water**	<0.001	<0.01	<0.001	<0.001	<0.001	<0.01	<0.001	<0.01	<0.001	<0.001	<0.001	<0.001	<0.01	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.01	<0.01
TRIP1	**13 Aug 2024**	**ES2426838**	**Water**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RPD				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

***RPDs have only been considered where a concentration is g**
****Elevated RPDs are highlighted as per QAQC Profile setting**
*****Interlab Duplicates are matched on a per compound basi**

Table 5
Groundwater RPD Results Summary

REDITUS

				PFAS																
				Perfluorononanesulfonic acid (PFNS)	Perfluoropropanesulfonic acid (PFPrS)	Perfluorobutane sulfonic acid (PFBS)	Perfluoropentane sulfonic acid (PFPeS)	Perfluorohexane sulfonic acid (PFHxS)	Perfluoroheptane sulfonic acid (PFHpS)	Perfluorooctane sulfonic acid (PFOS)	Perfluorodecane sulfonic acid (PFDS)	Perfluorobutanoic acid (PFBA)	Perfluorohexanoic acid (PFHxA)	Perfluoropentanoic acid (PFPeA)	Perfluoroheptanoic acid (PFHpA)	Perfluorooctanoic acid (PFOA)	Perfluorodecanoic acid (PFDA)	Perfluorododecanoic acid (PFDoDA)	Perfluorononanoic acid (PFNA)	Perfluorotetradecanoic acid (PFTeDA)
				mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
EQL				0.00002	0.00002	0.00001	0.00001	0.00001	0.00001	0.00001	0.00002	0.00002	0.00001	0.00002	0.00001	0.00001	0.00002	0.00002	0.00001	0.00005
Field ID	**Date**	**Lab Report**	**Matrix Type**																	
MW03	**13 Aug 2024**	**359078**	**Water**	-	-	**0.00001**	<0.00001	<0.00001	<0.00001	**0.00001**	<0.00002	<0.00002	<0.00001	<0.00002	<0.00001	<0.00001	<0.00002	<0.00005	<0.00001	<0.0005
DUP1	**13 Aug 2024**	**359078**	**Water**	-	-	**0.00001**	<0.00001	**0.00001**	<0.00001	<0.00001	<0.00002	<0.00002	<0.00001	<0.00002	<0.00001	**0.00001**	<0.00002	<0.00005	<0.00001	<0.0005
RPD				-	-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MW03	**13 Aug 2024**	**359078**	**Water**	-	-	**0.00001**	<0.00001	<0.00001	<0.00001	**0.00001**	<0.00002	<0.00002	<0.00001	<0.00002	<0.00001	<0.00001	<0.00002	<0.00005	<0.00001	<0.0005
TRIP1	**13 Aug 2024**	**ES2426838**	**Water**	<0.00002	<0.00002	<0.00002	<0.00002	**0.00001**	<0.00002	**0.00001**	<0.00002	<0.0001	<0.00002	<0.00002	<0.00002	**0.00001**	<0.00002	<0.00002	<0.00002	<0.00005
RPD				-	-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

***RPDs have only been considered where a concentration is g**
****Elevated RPDs are highlighted as per QAQC Profile setting**
*****Interlab Duplicates are matched on a per compound basi**

Table 5
Groundwater RPD Results Summary

REDITUS

				PFAS Continued																
				Perfluorotridecanoic acid (PFTrDA)	Perfluoroundecanoic acid (PFUnDA)	4:2 Fluorotelomer sulfonic acid (4:2 FTS)	6:2 Fluorotelomer sulfonic acid (6:2 FTS)	8:2 Fluorotelomer sulfonic acid (8:2 FTS)	10:2 Fluorotelomer sulfonic acid (10:2 FTS)	Perfluorooctane sulfonamide (FOSA)	N-Methyl perfluorooctane sulfonamide (MeFOSA)	N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	N-methyl perfluorooctane sulfonamidoethanol (MeFOSE)	N-Ethyl perfluorooctane sulfonamide (EtFOSA)	N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	Perfluolohexadecanoic acid (PFHxDA)	Sum of PFHxS and PFOS	Sum of PFAS	Sum of PFAS (WA DER List)	Sum of PFAS (PFOS + PFOA)
				mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
EQL				0.00002	0.00002	0.00001	0.00001	0.00002	0.00002	0.00002	0.00005	0.00002	0.00005	0.00005	0.00002	0.00005	0.00005	0.00001	0.00001	0.00001	0.00001
Field ID	**Date**	**Lab Report**	**Matrix Type**																	
MW03	**13 Aug 2024**	**359078**	**Water**	<0.0001	<0.00002	<0.00001	<0.00001	<0.00002	<0.00002	<0.0001	<0.00005	<0.00002	<0.00005	<0.0001	<0.00002	<0.0005	-	**0.00001**	**0.00002**	-	**0.00001**
DUP1	**13 Aug 2024**	**359078**	**Water**	<0.0001	<0.00002	<0.00001	<0.00001	<0.00002	<0.00002	<0.0001	<0.00005	<0.00002	<0.00005	<0.0001	<0.00002	<0.0005	-	**0.00001**	**0.00003**	-	**0.00001**
RPD				0	0	0	0	0	0	0	0	0	0	0	0	0	-	0	40	-	0
MW03	**13 Aug 2024**	**359078**	**Water**	<0.0001	<0.00002	<0.00001	<0.00001	<0.00002	<0.00002	<0.0001	<0.00005	<0.00002	<0.00005	<0.0001	<0.00002	<0.0005	-	**0.00001**	**0.00002**	-	**0.00001**
TRIP1	**13 Aug 2024**	**ES2426838**	**Water**	<0.00002	<0.00002	<0.00005	<0.00005	<0.00005	<0.00005	<0.00002	<0.00005	<0.00002	<0.00005	<0.00005	<0.00002	<0.00005	<0.00005	**0.00002**	**0.00003**	**0.00003**	-
RPD				0	0	0	0	0	0	0	0	0	0	0	0	0	-	67	40	-	-

***RPDs have only been considered where a concentration is g**
****Elevated RPDs are highlighted as per QAQC Profile setting**
*****Interlab Duplicates are matched on a per compound basi**

Table 6
Rinsate Results Summary

	BTEX						TRH							TPH				
	Naphthalene (BTEX)	Benzene	Toluene	Ethylbenzene	Xylene (m & p)	Xylene (o)	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)
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL	1	1	1	1	2	1	10	10	50	50	100	100	50	10	50	100	100	50
Field ID **Date** **Lab Report** **Matrix Type**																		
R1 **13 Aug 2024** **359078** **Water**	<1	<1	<1	<1	<2	<1	<10	<10	<50	<50	<100	<100	<50	<10	<50	<100	<100	<50

Table 6
Rinsate Results Summary

	PAH																
	Benzo(b+j+k)fluoranthene	Acenaphthene	Acenaphthylene	Anthracene	Benz(a)anthracene	Benzo(a) pyrene	Benzo(g,h,i)perylene	Chrysene	Dibenz(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-c,d)pyrene	Naphthalene	Phenanthrene	Pyrene	Benzo(a)pyrene TEQ	PAHs (Sum of positives)
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.5	0.1
Field ID **Date** **Lab Report** **Matrix Type**																	
R1 **13 Aug 2024** **359078** **Water**	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.5	<0.1

Table 6
Rinsate Results Summary

	Inorganics		Metals															
	Ammonia as N (filtered)	Cyanide Total	Arsenic	Arsenic (filtered)	Cadmium	Cadmium (filtered)	Chromium (III+VI)	Chromium (III+VI) (filtered)	Copper	Copper (filtered)	Lead	Lead (filtered)	Mercury	Mercury (filtered)	Nickel	Nickel (filtered)	Zinc	Zinc (filtered)
	µg/L	ug/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL	5	4	1	1	0.1	0.1	1	1	1	1	1	1	0.05	0.05	1	1	1	1
Field ID **Date** **Lab Report** **Matrix Type**																		
R1 **13 Aug 2024** **359078** **Water**	<5	<4	<1	<1	<0.1	<0.1	<1	<1	<1	<1	<1	<1	<0.05	<0.05	<1	<1	<1	<1

Table 6
Rinsate Results Summary

REDITUS

				VOCs																												
				1,1,1,2-tetrachloroethane	1,1,1-trichloroethane	1,1,2,2-tetrachloroethane	1,1,2-trichloroethane	1,1-dichloroethane	1,1-dichloroethene	1,1-dichloropropene	1,2,3-trichlorobenzene	1,2,3-trichloropropane	1,2,4-trichlorobenzene	1,2,4-trimethylbenzene	1,2-dibromo-3-chloropropane	1,2-dibromoethane	1,2-dichlorobenzene	1,2-dichloroethane	1,2-dichloropropane	1,3,5-trimethylbenzene	1,3-dichlorobenzene	1,3-dichloropropane	1,4-dichlorobenzene	2,2-dichloropropane	2-chlorotoluene	4-chlorotoluene	Bromobenzene	Bromochloromethane	Bromodichloromethane	Bromoform
				µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL				1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Field ID	**Date**	**Lab Report**	**Matrix Type**																													
R1	**13 Aug 2024**	**359078**	**Water**	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1

Table 6
Rinsate Results Summary

	VOCs Continued																											
	Bromomethane	Carbon tetrachloride	Chlorobenzene	Chlorodibromomethane	Chloroethane	Chloroform	Chloromethane	cis-1,2-dichloroethene	cis-1,3-dichloropropene	Cyclohexane	Dibromomethane	Dichlorodifluoromethane	Hexachlorobutadiene	Isopropylbenzene	n-butylbenzene	n-propylbenzene	p-isopropyltoluene	sec-butylbenzene	Styrene	Trichloroethene	tert-butylbenzene	Tetrachloroethene	trans-1,2-dichloroethene	trans-1,3-dichloropropene	Trichlorofluoromethane	Vinyl chloride
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL	10	1	1	1	10	1	10	1	1	1	1	10	1	1	1	1	1	1	1	1	1	1	1	1	1	10	10
Field ID **Date** **Lab Report** **Matrix Type**																											
R1 **13 Aug 2024** **359078** **Water**	<10	<1	<1	<1	<10	<1	<10	<1	<1	<1	<1	<10	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<10	<10

Table 6
Rinsate Results Summary

	PFAS															
	Perfluorobutane sulfonic acid (PFBS)	Perfluoropentane sulfonic acid (PFPeS)	Perfluorohexane sulfonic acid (PFHxS)	Perfluoroheptane sulfonic acid (PFHpS)	Perfluorooctane sulfonic acid (PFOS)	Perfluorodecane sulfonic acid (PFDS)	Perfluorobutanoic acid (PFBA)	Perfluorohexanoic acid (PFHxA)	Perfluoropentanoic acid (PFPeA)	Perfluoroheptanoic acid (PFHpA)	Perfluorooctanoic acid (PFOA)	Perfluorodecanoic acid (PFDA)	Perfluorododecanoic acid (PFDoDA)	Perfluorononanoic acid (PFNA)	Perfluorotetradecanoic acid (PFTeDA)	Perfluorotridecanoic acid (PFTrDA)
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL	0.01	0.01	0.01	0.01	0.01	0.02	0.02	0.01	0.02	0.01	0.01	0.02	0.05	0.01	0.5	0.1
Field ID **Date** **Lab Report** **Matrix Type**																
R1 **13 Aug 2024** **359078** **Water**	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	<0.01	<0.02	<0.01	<0.01	<0.02	<0.05	<0.01	<0.5	<0.1

Table 6
Rinsate Results Summary

	PFAS Continued															
	Perfluoroundecanoic acid (PFUnDA)	4:2 Fluorotelomer sulfonic acid (4:2 FTS)	6:2 Fluorotelomer sulfonic acid (6:2 FTS)	8:2 Fluorotelomer sulfonic acid (8:2 FTS)	10:2 Fluorotelomer sulfonic acid (10:2 FTS)	Perfluorooctane sulfonamide (FOSA)	N-Methyl perfluorooctane sulfonamide (MeFOSA)	N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	N-methyl perfluorooctane sulfonamidoethanol (MeFOSE)	N-Ethyl perfluorooctane sulfonamide (EtFOSA)	N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	Sum of PFHxS and PFOS	Sum of PFAS	Sum of PFAS (PFOS + PFOA)
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL	0.02	0.01	0.01	0.02	0.02	0.1	0.05	0.02	0.05	0.1	0.02	0.5	0.01	0.01	0.01
Field ID **Date** **Lab Report** **Matrix Type**															
R1 **13 Aug 2024** **359078** **Water**	<0.02	<0.01	<0.01	<0.02	<0.02	<0.1	<0.05	<0.02	<0.05	<0.1	<0.02	<0.5	<0.01	<0.01	<0.01

Table 7
Soil and Groundwater Trip Blank Results Summary

REDITUS

	BTEX													TRH				TPH	
	Naphthalene (BTEX)		Benzene		Toluene		Ethylbenzene		Xylene (m & p)		Xylene (o)		Xylene Total	C6-C10 Fraction (F1)		C6-C10 (F1 minus BTEX)	C6-C10 (F1 minus BTEX)	C6-C9 Fraction	C6-C9 Fraction
	mg/kg	µg/L	mg/kg	µg/L	mg/kg	µg/L	mg/kg	µg/L	mg/kg	µg/L	mg/kg	µg/L	mg/kg	mg/kg	µg/L	mg/kg	µg/L	mg/kg	µg/L
EQL	1	1	0.2	1	0.5	1	1	1	2	2	1	1	1	25	10	25	10	25	10
Field ID **Date** **Lab Report** **Matrix Type**																			
TB **27 Jul 2024** **357735** **Soil**	<1	-	<0.2	-	<0.5	-	<1	-	<2	-	<1	-	<1	<25	-	<25	-	<25	-
TB **13 Aug 2024** **359078** **Water**	-	<1	-	<1	-	<1	-	<1	-	<2	-	<1	-	-	<10	-	<10	-	<10

Table 8
Trip Spike Results Summary

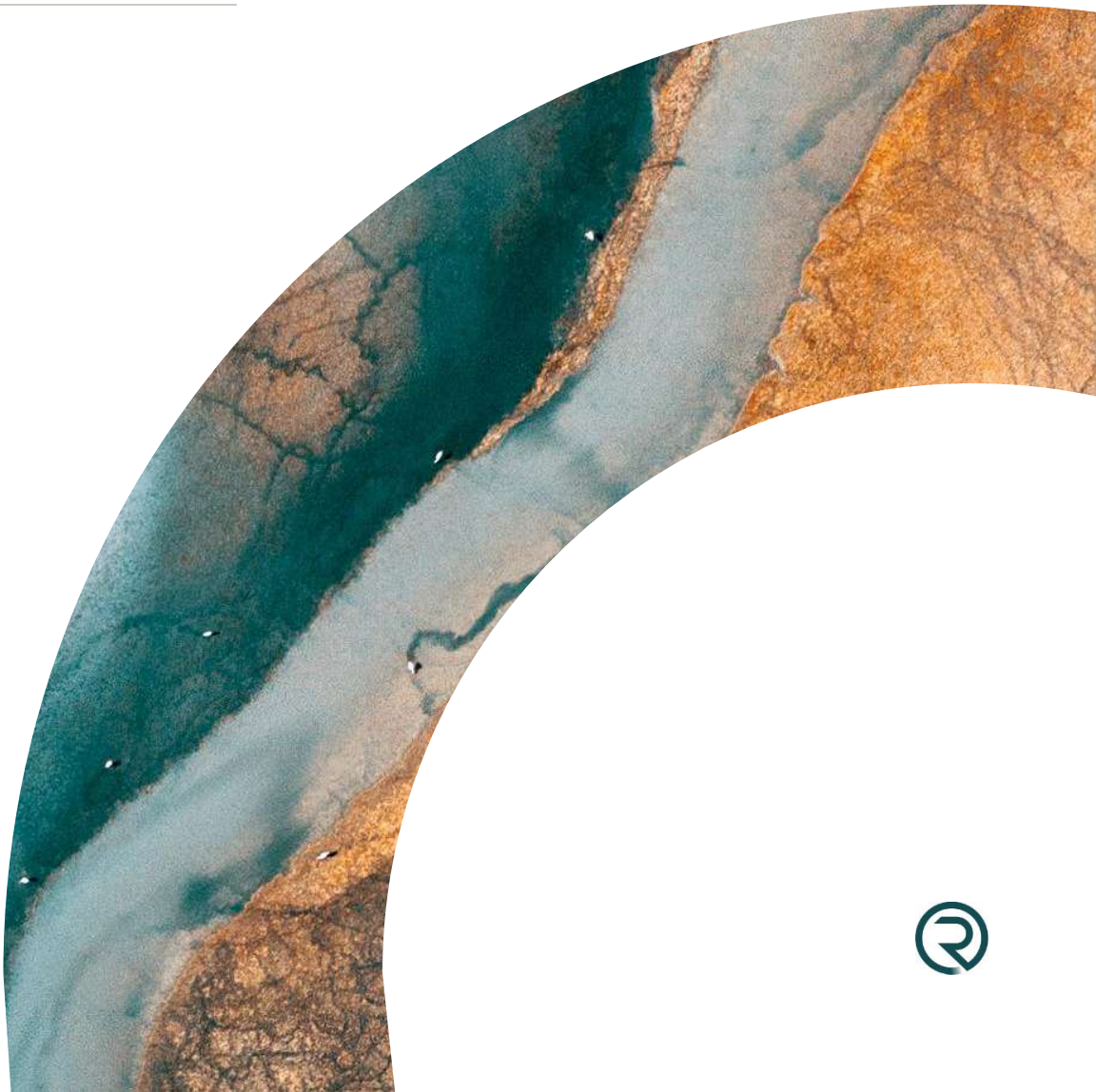
Trip Spikes

Lab Report	Matrix Type	Field ID	Sampled Date/Time	Chem Name	Trip Spike Result	Trip Spike Contro	Result Units	Spike Recovery %	Method Name	Lab Sample ID
359078	Water	TS	13/08/2024	Ethylbenzene	NA	NA	NA	114	Org-023 - BTEX and C6-C10 alkanes in soil & water	359078-6
359078	Water	TS	13/08/2024	Xylene (m & p)	NA	NA	NA	112	Org-023 - BTEX and C6-C10 alkanes in soil & water	359078-6
359078	Water	TS	13/08/2024	Toluene	NA	NA	NA	114	Org-023 - BTEX and C6-C10 alkanes in soil & water	359078-6
359078	Water	TS	13/08/2024	Benzene	NA	NA	NA	109	Org-023 - BTEX and C6-C10 alkanes in soil & water	359078-6
359078	Water	TS	13/08/2024	Xylene (o)	NA	NA	NA	112	Org-023 - BTEX and C6-C10 alkanes in soil & water	359078-6

Trip Spike Recoveries. Where no lab LCL and UCL is available, user defined limits between 70% and 130% have been adopted for non-compliance.

F

Borehole Logs



Reditus Consulting Pty Ltd

Lvl 1, Suite 1/29-33 Waratah St, Kirrawee NSW 2232, Australia

Phone: (02) 9521 6567

Boring No.: BH01

Easting	**: 339,624.61**	**Drill Supplier**	**: Terratest Pty Ltd**	**Job Number**	**: 24072**	**Sheet**	**: 1 OF 1**
Northing	**: 6,260,109.47**	**Driller Company**	**: Terratest Pty Ltd**	**Client**	**: McDonald's Australia Limited**		
Elevation	**: Not Surveyed**	**Logged By**	**: Hassan Elbatoory**	**Project**	**: Detailed Site Investigation**		
Total Depth	**: 4.2 m**	**Date**	**: 27/07/2024**	**Location**	**: 37 Roseberry Street, Balgowlah NSW**		

Drilling Method	Depth (m)	Samples: Discrete	PID (ppm): PID (ppm)	Soil Origin	Graphic Log	Moisture	Material Description	Comments	Water
Solid Flight Auger				Non-Soil			Concrete		
		BH01_0.2	0.3	Fill		W-M	Fill. Gravelly SAND. SW: loose, brown, medium to coarse grained, medium to coarse sized gravel, wet to moist.		
		BH01_0.5	0.2						
	1					D	Fill. Silty to gravelly SAND. SM: loose, dark grey, fine to medium grained, fine to medium sized gravel, dry.		
		BH01_1.5	0.4						
	2					W	Fill. Silty to sandy CLAY. ML: non-plastic, loose, soft, black, fine grained sand, wet.		
		BH01_2.5	0.6						
	3								
		BH01_3.5	0.5						
	4								
							BH01 Terminated at 4.2m (Target Depth)		

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Phone: (02) 9521 6567

Boring No.: BH02

Easting	**: 339,578.96**	**Drill Supplier**	**: Terratest Pty Ltd**	**Job Number**	**: 24072**	**Sheet**	**: 1 OF 1**
Northing	**: 6,260,113.52**	**Driller Company**	**: Terratest Pty Ltd**	**Client**	**: McDonald's Australia Limited**		
Elevation	**: Not Surveyed**	**Logged By**	**: Hassan Elbatoory**	**Project**	**: Detailed Site Investigation**		
Total Depth	**: 4.2 m**	**Date**	**: 27/07/2024**	**Location**	**: 37 Roseberry Street, Balgowlah NSW**		

Drilling Method	Depth (m)	Samples: Discrete	PID (ppm): PID (ppm)	Soil Origin	Graphic Log	Moisture	Material Description	Comments	Water
Solid Flight Auger				Non-Soil			Bitumen		
		BH02_0.2	0.1	Fill		W-M	Fill. Gravelly SAND. SW: loose, brown, medium to coarse grained, medium to coarse sized gravel, wet to moist.		
		BH02_0.5	0.0						
	1					D	Fill. Silty to gravelly SAND. SM: loose, dark grey, fine to medium grained, fine to medium sized gravel, dry.		
							Fill. SAND. SW: loose, pale grey, fine to medium grained, dry.		
		BH02_1.5	0.0						
	2								
				Natural			Natural. CLAY. CL: firm, low plasticity, pale grey mottled orange, dry.		
		BH02_2.5	0.1						
	3								
		BH02_3.5	0.0						
	4								
							BH02 Terminated at 4.2m		

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Boring No.: BH03

Easting	**: 339,596.62**	**Drill Supplier**	**: Terratest Pty Ltd**	**Job Number**	**: 24072**	**Sheet**	**: 1 OF 1**
Northing	**: 6,260,112.09**	**Driller Company**	**: Terratest Pty Ltd**	**Client**	**: McDonald's Australia Limited**		
Elevation	**: Not Surveyed**	**Logged By**	**: Hassan Elbatoory**	**Project**	**: Detailed Site Investigation**		
Total Depth	**: 4.2 m**	**Date**	**: 27/07/2024**	**Location**	**: 37 Roseberry Street, Balgowlah NSW**		

Drilling Method	Depth (m)	Samples: Discrete	PID (ppm): PID (ppm)	Soil Origin	Graphic Log	Moisture	Material Description	Comments	Water
Solid Flight Auger				Non-Soil			Bitumen		
		BH03_0.2	0.1	Fill		W-M	Fill. Gravelly SAND. SW: loose, brown, medium to coarse grained, medium to coarse sized gravel, wet to moist.		
		BH03_0.5	0.0						
	1					D	Fill. Silty to gravelly SAND. SM: loose, dark grey, fine to medium grained, fine to medium sized gravel, dry.		
							Fill. SAND. SW: loose, pale grey, fine to medium grained, dry.		
		BH03_1.5	0.0						
	2								
							Fill. Sandy CLAY. ML: non-plastic, firm, pale yellow, fine to medium grained sand, wet to moist.		
		BH03_2.5	0.1			W-M			
	3								
				Natural		D	Natural. CLAY. CL: firm to stiff, low plasticity, pale grey mottled orange, dry.		
		BH03_3.5	0.0						
	4								
							BH03 Terminated at 4.2m		

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Boring No.: BH04

Easting	**: 339,577.82**	**Drill Supplier**	**: Terratest Pty Ltd**	**Job Number**	**: 24072**	**Sheet**	**: 1 OF 1**
Northing	**: 6,260,136.99**	**Driller Company**	**: Terratest Pty Ltd**	**Client**	**: McDonald's Australia Limited**		
Elevation	**: Not Surveyed**	**Logged By**	**: Hassan Elbatoory**	**Project**	**: Detailed Site Investigation**		
Total Depth	**: 4.2 m**	**Date**	**: 27/07/2024**	**Location**	**: 37 Roseberry Street, Balgowlah NSW**		

Drilling Method	Depth (m)	Samples: Discrete	PID (ppm): PID (ppm)	Soil Origin	Graphic Log	Moisture	Material Description	Comments	Water
Solid Flight Auger				Non-Soil			Concrete		
		BH04_0.2, DUP01, TRIP01	0.2	Fill		W-M	Fill. Gravelly SAND. SW: loose, brown, medium to coarse grained, medium to coarse sized gravel, wet to moist.		
		BH04_0.5	0.1			D	Fill. Gravelly SAND. SP: medium dense, orangey brown, medium grained, medium sized gravel, dry.		
	1						Fill. Silty to gravelly SAND. SM: loose, dark grey, fine to medium grained, fine to medium sized gravel, dry.		
							Fill. SAND. SW: loose, pale grey, fine to medium grained, dry.		
		BH04_1.5	0.0						
	2					M-D	Fill. Silty SAND. SM: dense, dark grey, fine to medium grained, moist to dry.		
		BH04_2.5	0.0						
	3					W-M	Fill. Sandy CLAY. ML: non-plastic, firm, pale yellow, fine to medium grained sand, wet to moist.		
				Natural		D	Natural. CLAY. CL: firm to stiff, low plasticity, pale grey mottled orange, dry.		
		BH04_3.5	0.0						
	4								
							BH04 Terminated at 4.2m		

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Phone: (02) 9521 6567

Boring No.: BH05

Easting	: 339,602.00	**Drill Supplier**	: Terratest Pty Ltd	**Job Number**	: 24072	**Sheet**	: 1 OF 1
Northing	: 6,260,131.96	**Driller Company**	: Terratest Pty Ltd	**Client**	: McDonald's Australia Limited		
Elevation	: Not Surveyed	**Logged By**	: Hassan Elbatoory	**Project**	: Detailed Site Investigation		
Total Depth	: 4.2 m	**Date**	: 27/07/2024	**Location**	: 37 Roseberry Street, Balgowlah NSW		

Drilling Method	Depth (m)	Samples: Discrete	PID (ppm): PID (ppm)	Soil Origin	Graphic Log	Moisture	Material Description	Comments	Water
Solid Flight Auger				Non-Soil			Concrete		
		BH05_0.2	0.3	Fill		W-M	Fill. Gravelly SAND. SW: loose, brown, medium to coarse grained, medium to coarse sized gravel, wet to moist.		
		BH05_0.5	0.2			D	Fill. Gravelly SAND. SP: medium dense, orangey brown, medium grained, medium sized gravel, dry.		
	1						Fill. Silty to gravelly SAND. SM: loose, dark grey, fine to medium grained, fine to medium sized gravel, dry.		
							Fill. SAND. SW: loose, pale grey, fine to medium grained, dry.		
		BH05_1.5	0.1						
	2					M-D	Fill. Silty SAND. SM: dense, dark grey, fine to medium grained, moist to dry.		
		BH05_2.5	0.1						
	3					W-M	Fill. Sandy CLAY. ML: non-plastic, firm, pale yellow, fine to medium grained sand, wet to moist.		
				Natural		D	Natural. CLAY. CL: firm to stiff, low plasticity, pale grey mottled orange, dry.		
		BH05_3.5	0.0						
	4								
							BH05 Terminated at 4.2m		

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Phone: (02) 9521 6567

Boring No.: MW02

Easting	: 339,594.99	**Drill Supplier**	: Terratest Pty Ltd	**Job Number**	: 24072	**Sheet**	: 1 OF 1
Northing	: 6,260,098.21	**Driller Company**	: Terratest Pty Ltd	**Client**	: McDonald's Australia Limited		
Elevation	: Not Surveyed	**Logged By**	: Hassan Elbatoory	**Project**	: Detailed Site Investigation		
Total Depth	: 4.8 m	**Date**	: 27/07/2024	**Location**	: 37 Roseberry Street, Balgowlah NSW		

Drilling Method	Depth (m)	Samples: Discrete	PID (ppm)	Soil Origin	Graphic Log	Moisture	Material Description	Well Diagram	Water
Air Hammer				Non-Soil			Bitumen		
		MW02_0.2	0.2	Fill		W-M	Fill. Gravelly SAND. SW: loose, brown, medium to coarse grained, medium to coarse sized gravel, wet to moist.		
		MW02_0.5	0.3					Washed 1-2mm graded sand	
							Fill. Silty to gravelly SAND. SM: loose, dark grey, fine to medium grained, fine to medium sized gravel, dry.	50mm PVC Solid	
		MW02_1.5, DUP02, TRIP02	0.2			D		Bentonite	
		MW02_2.5	0,1	Natural		W	Natural. Silty to sandy CLAY. ML: very soft, non-plastic, mottled grey dark brown black, fine to medium grained sand, wet.	Washed 1-2mm graded sand	
								50mm PVC Slotted	
		MW02_4.0	0.1						
							MW02 Terminated at 4.8m		

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Boring No.: MW01

Easting	: 339,570.72	**Drill Supplier**	: Terratest Pty Ltd	**Job Number**	: 24072	**Sheet**	: 1 OF 1
Northing	: 6,260,101.45	**Driller Company**	: Terratest Pty Ltd	**Client**	: McDonald's Australia Limited		
Elevation	: Not Surveyed	**Logged By**	: Hassan Elbatoory	**Project**	: Detailed Site Investigation		
Total Depth	: 5.46 m	**Date**	: 28/07/2024	**Location**	: 37 Roseberry Street, Balgowlah NSW		

Drilling Method	Depth (m)	Samples: Discrete	PID (ppm)	Soil Origin	Graphic Log	Moisture	Material Description	Well Diagram	Water
Air Hammer				Non-Soil			Bitumen		
		MW01_0.2	0.2	Fill		W-M	Fill. Gravelly SAND. SW: loose, brown, medium to coarse grained, medium to coarse sized gravel, wet to moist.		
		MW01_0.5	0.3			D	Fill. Silty SAND. SM: dense, pale grey, fine grained, dry.	Washed 1-2mm graded sand; 50mm PVC Solid; Bentonite	
		MW01_1.5	0.2						
		MW01_2.5	0.0			M	Fill. CLAY. ML: non-plastic, soft to firm, orange, moist.		
		MW01_3.5	0.1	Natural		W	Natural. Silty to sandy CLAY. ML: very soft, non-plastic, mottled grey dark brown black, fine to medium grained sand, wet.	Washed 1-2mm graded sand; 50mm PVC Slotted	
							MW01 Terminated at 5.46m (Target Depth)		

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Phone: (02) 9521 6567

Boring No.: MW03

Easting	: 339,588.72	**Drill Supplier**	: Terratest Pty Ltd	**Job Number**	: 24072	**Sheet**	: 1 OF 1
Northing	: 6,260,121.97	**Driller Company**	: Terratest Pty Ltd	**Client**	: McDonald's Australia Limited		
Elevation	: Not Surveyed	**Logged By**	: Hassan Elbatoory	**Project**	: Detailed Site Investigation		
Total Depth	: 6.5 m	**Date**	: 28/07/2024	**Location**	: 37 Roseberry Street, Balgowlah NSW		

Drilling Method	Depth (m)	Samples: Discrete	PID (ppm)	Soil Origin	Graphic Log	Moisture	Material Description	Well Diagram	Water
Air Hammer				Non-Soil			Bitumen		
		MW03_0.2	0.5	Fill		W-M	Fill. Gravelly SAND. SW: loose, brown, medium to coarse grained, medium to coarse sized gravel, wet to moist.	Washed 1-2mm graded sand	
		MW03_0.5, DUP03, TRIP03	0.3			D	Fill. Silty to gravelly SAND. SM: loose, dark grey, fine to medium grained, fine to medium sized gravel, dry.	50mm PVC Solid	
		MW03_1.5	0.1				Fill. SAND. SW: loose, pale grey, fine to medium grained, dry.	Bentonite	
		MW03_2.5	0.0			W-M	Fill. Sandy CLAY. ML: non-plastic, firm, pale yellow, fine to medium grained sand, wet to moist.		
		MW03_3.5	0.0	Natural		D	Natural. CLAY. CL: firm to stiff, low plasticity, pale grey mottled orange, dry.	Washed 1-2mm graded sand / 50mm PVC Slotted	
							MW03 Terminated at 6.5m		

G

EIL Calculation Spreadsheet

EIL calculations for Arsenic

Inputs
Select contaminant from list below
As
Below needed to calculate fresh and aged ACLs
Below needed to calculate fresh and aged ABCs
or for fresh ABCs only
or for aged ABCs only

Outputs		
Land use	Arsenic generic EILs (mg contaminant/kg dry soil)	
	Fresh	Aged
National parks and areas of high conservation value	20	40
Urban residential and open public spaces	50	100
Commercial and industrial	80	160

EIL calculations for dichloro-diphenyl-trichloroethane (DDT)

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Inputs
Select contaminant from list below
DDT
Below needed to calculate fresh and aged ACLs
Below needed to calculate fresh and aged ABCs
or for fresh ABCs only
or for aged ABCs only

Outputs		
Land use	DDT generic EILs (mg contaminant/kg dry soil)	
	Fresh	Aged
National parks and areas of high conservation value	3	3
Urban residential and open public spaces	180	180
Commercial and industrial	640	640

EIL calculations for Naphthalene

Inputs
Select contaminant from list below
Naphthalene
Below needed to calculate fresh and aged ACLs
Below needed to calculate fresh and aged ABCs
or for fresh ABCs only
or for aged ABCs only

Outputs		
Land use	Naphthalene generic EILs (mg contaminant/kg dry soil)	
	Fresh	Aged
National parks and areas of high conservation value	10	10
Urban residential and open public spaces	170	170
Commercial and industrial	370	370

EIL calculations for Lead

Inputs
Select contaminant from list below
Pb
Below needed to calculate fresh and aged ACLs
Below needed to calculate fresh and aged ABCs
or for fresh ABCs only
or for aged ABCs only

Outputs		
Land use	Lead generic EILs (mg contaminant/kg dry soil)	
	Fresh	Aged
National parks and areas of high conservation value	110	470
Urban residential and open public spaces	270	1100
Commercial and industrial	440	1800

EIL calculations for Copper

Inputs
Select contaminant from list below
Cu
Below needed to calculate fresh and aged ACLs
Enter cation exchange capacity (silver thiourea method) (values from 0 to 100 cmolc/kg dwt)
7.5
Enter soil pH (calcium chloride method) (values from 1 to 14)
4.75
Enter organic carbon content (%OC) (values from 0 to 50%)
2.5
Below needed to calculate fresh and aged ABCs
Measured background concentration (mg/kg). Leave blank if no measured value
or for fresh ABCs only
Enter iron content (aqua regia method) (values from 0 to 50%) to obtain estimate of background concentration
7
or for aged ABCs only
Enter State (or closest State)
NSW
Enter traffic volume (high or low)
high

Outputs		
Land use	Cu soil-specific EILs (mg contaminant/kg dry soil)	
	Fresh	Aged
National parks and areas of high conservation value	40	50
Urban residential and open public spaces	60	100
Commercial and industrial	75	130

EIL calculations for Nickel

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Inputs
Select contaminant from list below
Ni
Below needed to calculate fresh and aged ACLs
Enter cation exchange capacity (silver thiourea method) (values from 0 to 100 cmolc/kg dwt)
7.5
Below needed to calculate fresh and aged ABCs
Measured background concentration (mg/kg). Leave blank if no measured value
or for fresh ABCs only
Enter iron content (aqua regia method) (values from 0 to 50%) to obtain estimate of background concentration
7
or for aged ABCs only
Enter State (or closest State)
NSW
Enter traffic volume (high or low)
high

Outputs		
Land use	Ni soil-specific EILs (mg contaminant/kg dry soil)	
	Fresh	Aged
National parks and areas of high conservation value	30	20
Urban residential and open public spaces	55	90
Commercial and industrial	80	150

EIL calculations for Chromium (III)

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Inputs
Select contaminant from list below
Cr_III
Below needed to calculate fresh and aged ACLs
Enter % clay (values from 0 to 100%)
27.5
Below needed to calculate fresh and aged ABCs
Measured background concentration (mg/kg). Leave blank if no measured value
or for fresh ABCs only
Enter iron content (aqua regia method) (values from 0 to 50%) to obtain estimate of background concentration
7
or for aged ABCs only
Enter State (or closest State)
NSW
Enter traffic volume (high or low)
high

Outputs		
Land use	Cr III soil-specific EILs (mg contaminant/kg dry soil)	
	Fresh	Aged
National parks and areas of high conservation value	150	190
Urban residential and open public spaces	300	570
Commercial and industrial	450	940

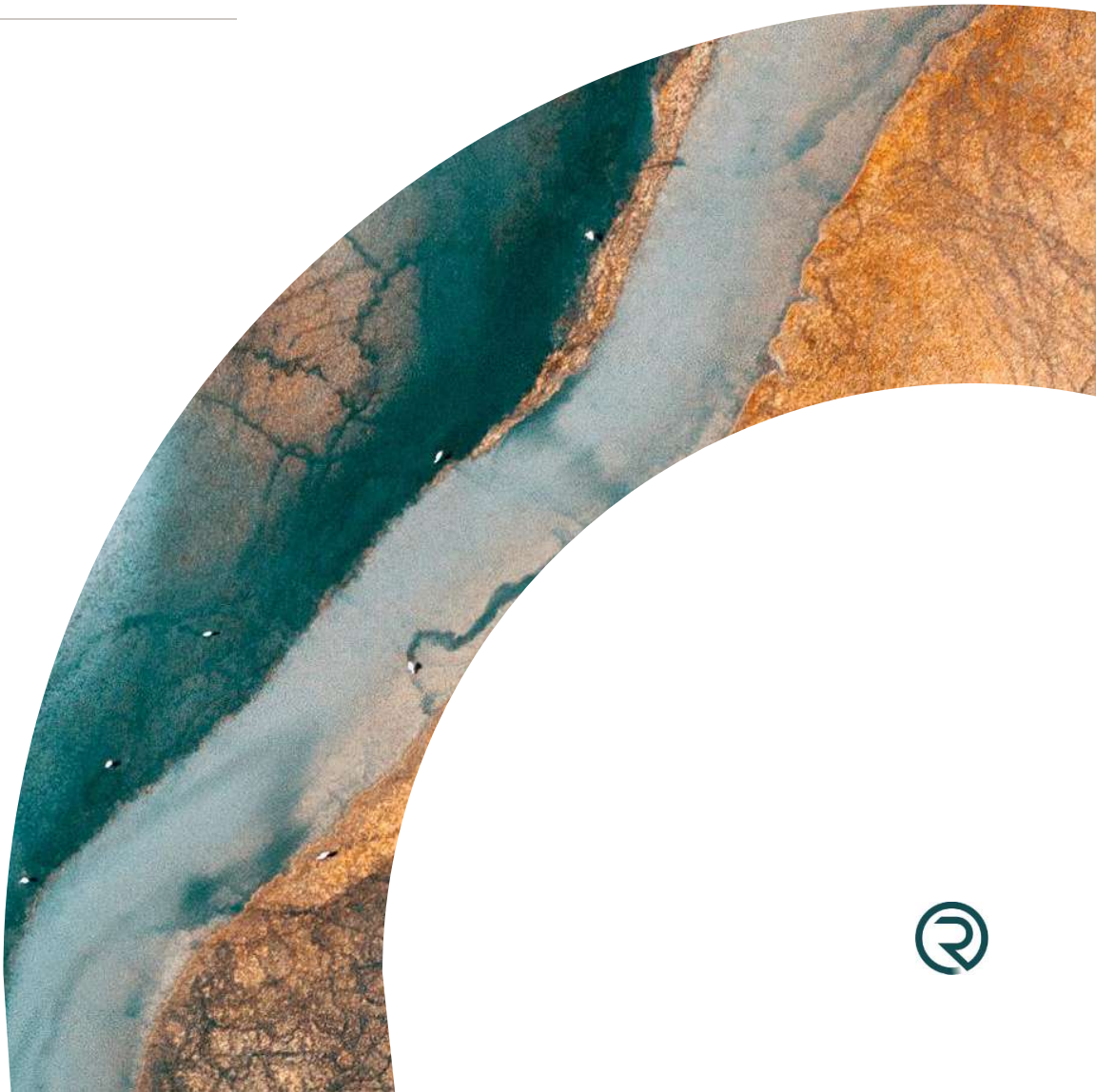
EIL calculations for Zinc

Inputs
Select contaminant from list below
Zn
Below needed to calculate fresh and aged ACLs
Enter cation exchange capacity (silver thiourea method) (values from 0 to 100 cmolc/kg dwt)
7.5
Enter soil pH (calcium chloride method) (values from 1 to 14)
4.75
Below needed to calculate fresh and aged ABCs
Measured background concentration (mg/kg). Leave blank if no measured value
or for fresh ABCs only
Enter iron content (aqua regia method) (values from 0 to 50%) to obtain estimate of background concentration
7
or for aged ABCs only
Enter State (or closest State)
NSW
Enter traffic volume (high or low)
high

Outputs		
Land use	Zn soil-specific EILs (mg contaminant/kg dry soil)	
	Fresh	Aged
National parks and areas of high conservation value	50	150
Urban residential and open public spaces	90	270
Commercial and industrial	130	360

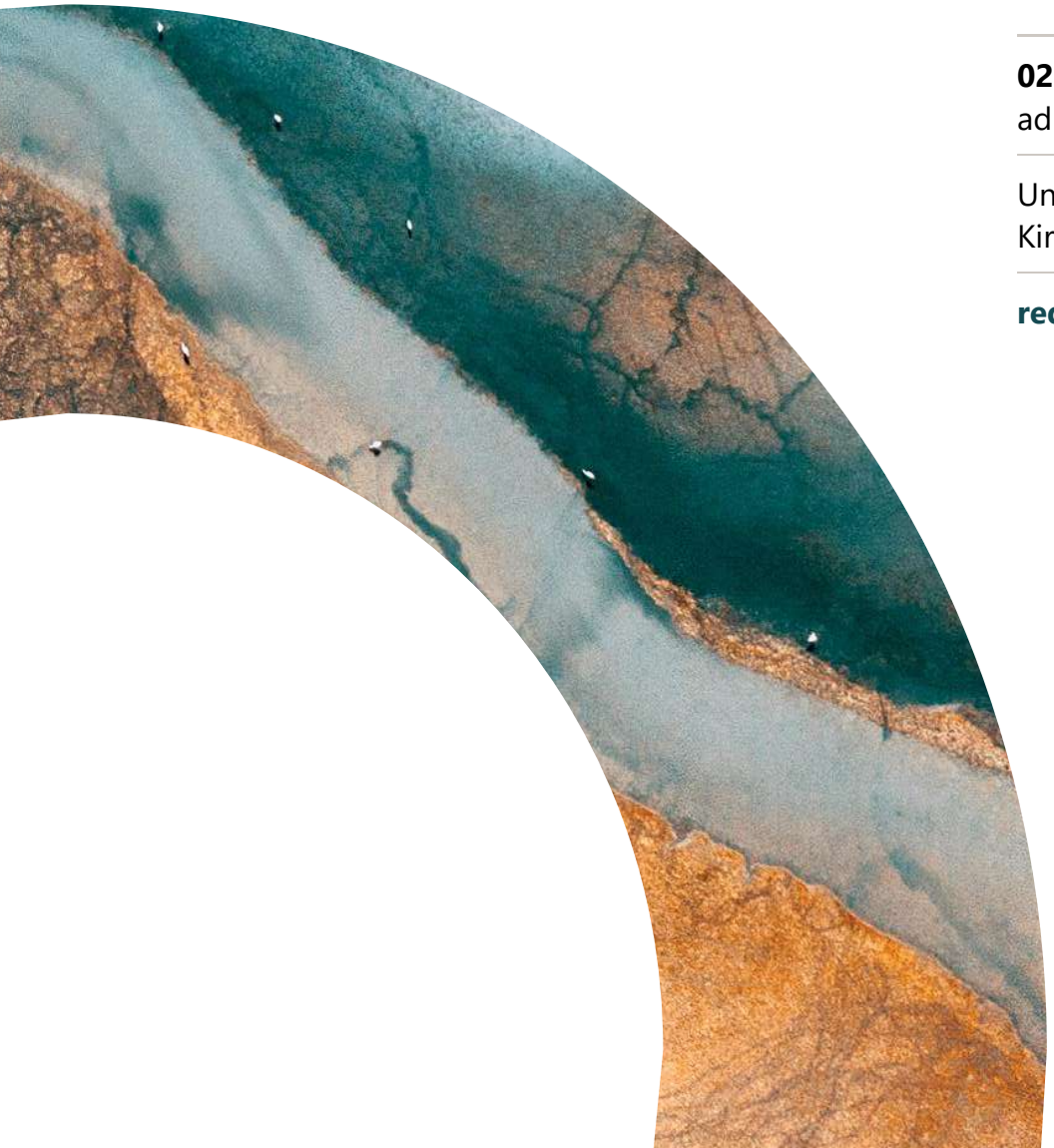
H

Pro UCL Output



	A	B	C	D	E	F	G	H	I	J	K	L
1	UCL Statistics for Uncensored Full Data Sets											
2												
3	User Selected Options											
4	Date/Time of Computation	ProUCL 5.2 27/08/2024 3:06:09 PM										
5	From File	WorkSheet.xls										
6	Full Precision	OFF										
7	Confidence Coefficient	95%										
8	Number of Bootstrap Operations	2000										
9												
10												
11	C0											
12												
13	General Statistics											
14	Total Number of Observations	18					Number of Distinct Observations	6				
15							Number of Missing Observations	0				
16	Minimum	1					Mean	13.06				
17	Maximum	170					Median	1				
18	SD	39.67					Std. Error of Mean	9.351				
19	Coefficient of Variation	3.039					Skewness	4.073				
20												
21	Normal GOF Test											
22	Shapiro Wilk Test Statistic	0.341					Shapiro Wilk GOF Test					
23	1% Shapiro Wilk Critical Value	0.858					Data Not Normal at 1% Significance Level					
24	Lilliefors Test Statistic	0.404					Lilliefors GOF Test					
25	1% Lilliefors Critical Value	0.235					Data Not Normal at 1% Significance Level					
26	Data Not Normal at 1% Significance Level											
27												
28	Assuming Normal Distribution											
29	95% Normal UCL						95% UCLs (Adjusted for Skewness)					
30	95% Student's-t UCL	29.32					95% Adjusted-CLT UCL (Chen-1995)	38.03				
31							95% Modified-t UCL (Johnson-1978)	30.82				
32												
33	Gamma GOF Test											
34	A-D Test Statistic	3.54					Anderson-Darling Gamma GOF Test					
35	5% A-D Critical Value	0.823					Data Not Gamma Distributed at 5% Significance Level					
36	K-S Test Statistic	0.408					Kolmogorov-Smirnov Gamma GOF Test					
37	5% K-S Critical Value	0.218					Data Not Gamma Distributed at 5% Significance Level					
38	Data Not Gamma Distributed at 5% Significance Level											
39												
40	Gamma Statistics											
41	k hat (MLE)	0.39					k star (bias corrected MLE)	0.362				
42	Theta hat (MLE)	33.51					Theta star (bias corrected MLE)	36.1				
43	nu hat (MLE)	14.02					nu star (bias corrected)	13.02				
44	MLE Mean (bias corrected)	13.06					MLE Sd (bias corrected)	21.71				
45							Approximate Chi Square Value (0.05)	5.906				
46	Adjusted Level of Significance	0.0357					Adjusted Chi Square Value	5.452				
47												
48	Assuming Gamma Distribution											
49	95% Approximate Gamma UCL	28.78					95% Adjusted Gamma UCL	31.18				
50												
51	Lognormal GOF Test											
52	Shapiro Wilk Test Statistic	0.673					Shapiro Wilk Lognormal GOF Test					
53	10% Shapiro Wilk Critical Value	0.914					Data Not Lognormal at 10% Significance Level					
54	Lilliefors Test Statistic	0.327					Lilliefors Lognormal GOF Test					
55	10% Lilliefors Critical Value	0.185					Data Not Lognormal at 10% Significance Level					
56	Data Not Lognormal at 10% Significance Level											
57												

58	Lognormal Statistics										
59					Minimum of Logged Data	0			Mean of logged Data		0.873
60					Maximum of Logged Data	5.136			SD of logged Data		1.454
61											
62	Assuming Lognormal Distribution										
63					95% H-UCL	22.47			90% Chebyshev (MVUE) UCL		13.66
64					95% Chebyshev (MVUE) UCL	17.04			97.5% Chebyshev (MVUE) UCL		21.73
65					99% Chebyshev (MVUE) UCL	30.94					
66											
67	Nonparametric Distribution Free UCL Statistics										
68	Data do not follow a Discernible Distribution										
69											
70	Nonparametric Distribution Free UCLs										
71					95% CLT UCL	28.44			95% BCA Bootstrap UCL		41.44
72					95% Standard Bootstrap UCL	27.91			95% Bootstrap-t UCL		128.4
73					95% Hall's Bootstrap UCL	128.9			95% Percentile Bootstrap UCL		31.06
74					90% Chebyshev(Mean, Sd) UCL	41.11			95% Chebyshev(Mean, Sd) UCL		53.82
75					97.5% Chebyshev(Mean, Sd) UCL	71.45			99% Chebyshev(Mean, Sd) UCL		106.1
76											
77	Suggested UCL to Use										
78					95% Student's-t UCL	29.32					
79											
80	The calculated UCLs are based on assumptions that the data were collected in a random and unbiased manner.										
81	Please verify the data were collected from random locations.										
82	If the data were collected using judgmental or other non-random methods,										
83	then contact a statistician to correctly calculate UCLs.										
84											
85	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.										
86	Recommendations are based upon data size, data distribution, and skewness using results from simulation studies.										
87	However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.										
88											



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McDonalds Australia Limited
C/- Shane Cottle
Soil Surveys Engineering
87 Schneider Road
Eagle Farm 4009

Our Reference: J002167
Date: 7 November 2024

REVIEW OF DSI REPORT FOR 37 ROSEBERRY STREET, BALGOWLAH

Dear Shane,

This letter has been prepared to summarise a review of the following contamination assessment report relating to the site identified as 37 Roseberry Street, Balgowlah, NSW and formally as Lot 100 in DP1199949 (the Site).

- Detailed Site Investigation, 37 Roseberry Street, Balgowlah, NSW 2093 V2 (07/11/2024) (Reditus, 2024) (Report No. 24072RP02)[1].

It is understood that an independent review of the report was requested by the site purchaser (McDonalds Australia Limited). The review was completed by Lucas Talbot (CEnvP) and Dane Egelton (CEnvPSc).

Background

The site has an area of approximately 2,807 m^2 and is currently occupied by commercial coffee roaster and café which was established at the site in 2006. The site is zoned as E3 Productivity Support within the Northern Beaches Council Local Government Area. The site is proposed to be developed into a McDonald's restaurant with slab on grade construction, associated carparking, ancillary services and minor landscaping.

A preliminary site investigation (PSI) was conducted by Reditus Consulting in August 2024. Previous uses of the site included some industrial activities (automotive paint and panel workshop and wrecking). Nearby land uses included chemical manufacturing and printing. A range of contaminants are used in these processes and therefore the PSI recommended that a detailed site investigation (DSI) be conducted to assess the site for potential impact from historic and adjoining land uses and comply with State Environmental Planning Policy (Resilience and Hazards) 2021. The DSI included the assessment of soil, groundwater and soil vapour from across the site.

[1] After clarification was sort from Reditus regarding the location of BH04 and BH05, a V2 report was issued on 7 November 2024.

Report Review Comments

1. The report was prepared in general accordance with NEPC (2013), NSW EPA Consultants Reporting on Contaminated Land (2020) and State Environment Protection policy (Resilience and Hazards 2021).
2. Section 8.2 provided a rationale for the environmental sampling program completed for the DSI. However, it did not explicitly link the executed sampling program to Areas of Environmental Concern (AEC) we have assumed were identified in the earlier PSI completed by Reditus. Furthermore, Figure 2 – Sample Locations at Appendix A did not show the AEC in relation to the selected sample locations. As the PSI was referred to in the rationale for the DSI sampling program, we have assumed that the sample locations used in the DSI were appropriate for assessing the contamination risk at AEC from onsite and offsite sources.
3. The number of soil sample locations (9 locations - BH01-BH05 and MW01-MW03) met the NSW EPA guidelines for consultants reporting on contaminated land (9 locations for a property of 0.3 ha in area). The spatial distribution of sample locations seemed adequate for a reasonable spread across the site (noting the earlier assumption we made at Comment 2 regarding the location of sample points in relation to AEC).
4. The data collected, and methods used in the assessment, were considered generally adequate for the purpose of the investigation and usable. The following comments however are provided for consideration:
    a. Asbestos can commonly occur in fill in urban areas. Fill was present at the site to 4.2 m. Boreholes were used for the soil investigation, but the diameter of the auger was not supplied (typical solid auger diameter is 100 mm). A 150 mm auger diameter is the minimum size for assessing the potential occurrence of asbestos. The bore logs at Appendix F and field observations at Section 10.1.1 did not indicate any evidence of Asbestos Containing Materials (ACM) or associated C&D wastes in fill. It is noted that test pits are the preferred method for investigation of ACM. Regardless of the investigation method, ACM can be difficult to locate due to the inherent irregular distribution of solid waste materials in soil. It is possible that physical wastes including asbestos may occur within the fill profile of the site but could not be identified by this investigation. Reditus do acknowledge potential uncertainties that may occur in site conditions at Section 11.4.
    b. The standing water level in MW03 was above the screen. This can affect the accuracy of assessing potential presence of LNAPL, but this issue commonly occurs during well installation. This is not likely to limit the groundwater data collected given the lack of LNAPL and detectable hydrocarbons (TRH, BTEXN, PAH, VOC) reported in groundwater for all three wells and absence of soil vapour impacts.
5. There were no exceedances of the commercial/industrial soil assessment criteria for the compounds tested.
6. Groundwater exceedances for zinc and PFAS are not considered to limit the proposed development and likely reflect ambient levels of the urban area under commercial and industrial land uses.
7. The assessment of soil vapour onsite did not detect volatile organic compounds above the health screening levels and non-detection was reported for most compounds.
8. The reviewers agree with the concluding comments and recommendations in the Reditus report. The data presented by Reditus indicates that the site is suitable for its intended use.

Reviewer Recommendations

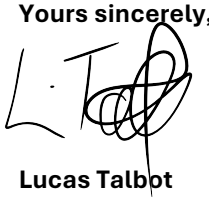
As noted in our review comments, ACM is commonly occurring in fill in urban areas, but can be difficult to identify during site investigations (regardless of the investigation method used). Reditus utilised boreholes which is not a preferred investigation method for ACM, but they did not identify any evidence of ACM or co-associated wastes in the fill profile at the site. Notwithstanding, it is possible the fill layer could contain asbestos wastes. As such, if unexpected finds of contamination or wastes are encountered during the demolition and construction phase of work, an appropriate course of action will need to be taken. An unexpected finds protocol is provided below for reference.

The following actions are recommended to be taken if offensive or noxious odours and/or evidence of contamination or wastes is observed during any site earthworks or excavation. The actions are recommended to be taken to immediately abate the potential for harm to human health and the environment:

- Stop work immediately.
- Report signs/evidence of contamination to the Site Manager and engage a contaminated land consultant.
- Contain any potentially contaminated material, if safe to do so. This may include the installation of temporary erosion and sediment controls surrounding the potentially contaminated area and covering with a sheet of 200 µm plastic sheeting (i.e., heavy duty concrete underlay or similar).
- Isolate the area with a physical barrier such as temporary fencing, hazard fencing, etc.
- Assume the area is contaminated until an assessment by a contaminated land has been undertaken.

Please do not hesitate to contact me 0428918007 if you have any queries regarding this matter.

Yours sincerely,



Lucas Talbot
Director
Range Environmental Consultants