



**REPORT TO
HEALTH INFRASTRUCTURE**

**ON
DETAILED SITE INVESTIGATION**

**FOR
EXPANSION PROJECT**

**AT
MT DRUITT HOSPITAL, 75 RAILWAY STREET,
MT DRUITT, NSW**

Date: 4 December 2025

Ref: E37664PTTrpt4-DSI

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Executive Summary

Health infrastructure ('the client') commissioned JK Environments (JKE) to undertake a Detailed Site Investigation (DSI) for the expansion project at Mt Druitt Hospital, 75 Railway Street, Mt Druitt, NSW ('the site'). The purpose of the investigation is to make an assessment of site contamination. The site location is shown on Figure 1 and the investigation was confined to the site boundaries as shown on Figure 2.

This report has been prepared to support the Review of Environmental Factors (REF), with regards to Chapter 4 of State Environmental Planning Policy (Resilience and Hazards) 2021 (formerly known as SEPP55).

A geotechnical investigation was undertaken in conjunction with this DSI by JK Geotechnics (JKG). JKG has also previously undertaken a desktop and (intrusive) geotechnical investigation. The results of the JKG investigations are presented in separate reports under Project Ref: 37665LF.

JKE has previously undertaken a Desktop Preliminary Site Investigation (Desktop) and a Preliminary Site Investigation (PSI) at the site, and Coffey Geotechnics has previously undertaken a Geotechnical Investigation and Preliminary Contamination Assessment report for the wider hospital property in 2011. A summary of relevant information from these investigations is included in Section 2 and throughout the report.

The client proposes to provide 30 additional beds at Mount Druitt Hospital at 75 Railway Street, Mount Druitt as part of their delivery of infrastructure solutions and services to support the healthcare needs of the NSW communities.

To facilitate the provision of the additional beds the following works are proposed:

- Extension of the existing main hospital building across two levels at its southern-most extent:
 - Level 1 – extension to existing building
 - Relocation and Expansion of Outpatient Department (OPD) accommodating 23 separate rooms or points of care as well as ancillary rooms and spaces of about 833m²;
 - New enclosed lobby of about 75m²;
 - Future expansion zone (assumed as cold shell for future clinical or non-clinical purposes) of about 235m².
 - Level 2 – extension to existing building
 - New 20 bed with ensembles in-patient unit (IPU) and support spaces of about 1,085m² in area with external fire / access stairs to Level 1 / ground;
 - The 20 beds are set out in a 10 x 1-bedroom; 3 x 2-bedroom; and 1 x 4-bedroom configuration.

The works will also involve the following ancillary or supplementary works:

- Selected tree removal to accommodate the proposed development and its ancillary works, as further set out below;
- Demolition of the existing decommissioned helipad and make-good works;
- Civil and flood mitigation works to manage overland flow paths in the vicinity of the proposed extension and car park;
- Extension of the existing at-grade car park P1;
- New oxygen compound adjacent to the existing oxygen compound;
- Augmentation of the existing fire hydrant ring main adjacent to the western edge of the main hospital building and relocation and partial upgrade of the existing hydrant booster; and
- Offset planting and new landscaping.

The primary aim of the DSI was to characterise the soil and groundwater contamination conditions in order to assess site risks in relation to contamination and establish whether remediation is required. A secondary aim of the investigation was to provide preliminary waste classification data for off-site disposal of soil waste which may be generated during the proposed development works.

The DSI objectives were to: assess the current site conditions and use(s) via a site walkover inspection; assess the soil and groundwater contamination conditions via implementation of a sampling and analysis program that considers the potential contamination sources/areas of environmental concern (AEC) and contaminants of potential concern (CoPC) identified in the PSI; document an iteration and review of the conceptual site model (CSM); assess the potential risks

posed by contamination to the receptors identified in the CSM (Tier 1 assessment); provide a preliminary waste classification for off-site disposal of soil; assess whether the site is suitable or can be made suitable for the activity (from a contamination viewpoint); and assess whether further intrusive investigation and/or remediation is required.

The scope of work included the following: review of existing site information including the PSI; preparation of a CSM; design and implementation of a Sampling, Analysis and Quality Plan (SAQP). The SAQP was prepared prior to the commencement of the DSI and is attached in Appendix G; interpretation of the analytical results against the adopted Site Assessment Criteria (SAC); Data Quality Assessment; and preparation of a report including a Tier 1 risk assessment.

The investigation included soil sampling from 12 locations (11 test pits and one surface sample), and groundwater sampling from two of three monitoring wells (it is noted one monitoring well did not make water). The test pits encountered fill materials to depths of approximately 0.3m below ground level (BGL) to 0.8mBGL, underlain by clayey residual soils. The fill typically comprised silty clay and silty sand with inclusions of ironstone, igneous and sandstone gravel, ash, and root fibres. Sporadic occurrences of tile and metal fragments occurred in fill to a lesser extent. No fibre cement fragment (FCF)/asbestos containing materials (ACM) was encountered on/in soil during fieldwork.

A selection of soil and groundwater samples were analysed for the CoPC identified in the CSM. Elevated concentrations of the CoPC were not encountered above the adopted SAC in fill/soil. Heavy metals (cadmium, copper, nickel and zinc) were reported above the ecological SAC in groundwater however, these results were generally considered to be a regional issue and/or risks were assessed to be low.

Based on the Tier 1 risk assessment, JKE is of the opinion that potential risks associated with the CoPC at the site are low. Further investigation and/or remediation is not considered to be required and the site is considered to be suitable for the activity outlined in Section 1.1, from a contamination viewpoint. We recommend that a robust Unexpected Finds Protocol (UFP) be prepared by a suitably qualified environmental consultant and that this protocol be implemented during the development/construction phase of the project.

Preliminary waste classifications are discussed in Section 8 of the report.

The conclusions and recommendations should be read in conjunction with the limitations presented in the body of this report.

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Abbreviations

Asbestos Fines/Fibrous Asbestos	AF/FA
Ambient Background Concentrations	ABC
Added Contaminant Limits	ACL
Asbestos Containing Material	ACM
Australian Drinking Water Guidelines	ADWG
Area of Environmental Concern	AEC
Australian Height Datum	AHD
Acid Sulfate Soil	ASS
Before You Dig Australia	BYDA
Below Ground Level	BGL
Benzo(a)pyrene Toxicity Equivalent Factor	BaP TEQ
Benzene, Toluene, Ethylbenzene, Xylene	BTEX
Cation Exchange Capacity	CEC
Contaminated Land Management	CLM
Contaminant(s) of Potential Concern	CoPC
Chain of Custody	COC
Conceptual Site Model	CSM
Central Sterile Services Department	CSSD
Data Quality Indicator	DQI
Data Quality Objective	DQO
Detailed Site Investigation	DSI
Ecological Investigation Level	EIL
Ecological Screening Level	ESL
Environment Protection Authority	EPA
Fibre Cement Fragment(s)	FCF
Finished Floor Level	FFL
Health Investigation Level	HIL
Health Screening Level	HSL
International Organisation of Standardisation	ISO
JK Environments	JKE
JK Geotechnics	JKG
Lab Control Spike	LCS
Light Non-Aqueous Phase Liquid	LNAPL
Map Grid of Australia	MGA
National Association of Testing Authorities	NATA
National Environmental Protection Measure	NEPM
Organochlorine Pesticides	OCP
Organophosphate Pesticides	OPP
Polycyclic Aromatic Hydrocarbons	PAH
Polychlorinated Biphenyls	PCB
Per- and Polyfluoroalkyl Substances	PFAS
Photo-ionisation Detector	PID
Protection of the Environment Operations	POEO
Practical Quantitation Limit	PQL
Quality Assurance	QA
Quality Control	QC
Relative Level	RL
Review of Environmental Factors	REF
Relative Percentage Difference	RPD
Site Assessment Criteria	SAC
Sampling, Analysis and Quality Plan	SAQP
State Environmental Planning Policy	SEPP
Source, Pathway, Receptor	SPR



Standing Water Level	SWL
Trip Blank	TB
Total Recoverable Hydrocarbons	TRH
Trip Spike	TS
Underground Storage Tank	UST
Virgin Excavated Natural Material	VENM
Volatile Organic Compounds	VOC
Western Sydney Local Health District	WSLHD
World Health Organisation	WHO

Units

Litres	L
Metres BGL	mBGL
Metres	m
Millivolts	mV
Millilitres	ml or mL
micro Siemens per Centimetre	$\mu\text{S}/\text{cm}$
Micrograms per Litre	$\mu\text{g}/\text{L}$
Milligrams per Kilogram	mg/kg
Milligrams per Litre	mg/L
Parts Per Million	ppm
Percentage	%
Percentage weight for weight	%w/w

1 INTRODUCTION

Health infrastructure ('the client') commissioned JK Environments (JKE) to undertake a Detailed Site Investigation (DSI) for the expansion project at Mt Druitt Hospital, 75 Railway Street, Mt Druitt, NSW ('the site'). The purpose of the investigation is to make an assessment of site contamination. The site location is shown on Figure 1 and the investigation was confined to the site boundaries as shown on Figure 2.

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1.1 Proposed Development Details

The client proposes to provide 30 additional beds at Mount Druitt Hospital at 75 Railway Street, Mount Druitt as part of their delivery of infrastructure solutions and services to support the healthcare needs of the NSW communities.

To facilitate the provision of the additional beds the following works are proposed:

- Extension of the existing main hospital building across two levels at its southern-most extent:
 - Level 1 – extension to existing building
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The works will also involve the following ancillary or supplementary works:

- Selected tree removal to accommodate the proposed development and its ancillary works, as further set out below;
- Demolition of the existing decommissioned helipad and make-good works;

¹ State Environmental Planning Policy (Resilience and Hazards) 2021 (NSW) (referred to as SEPP Resilience and Hazards 2021)

- Civil and flood mitigation works to manage overland flow paths in the vicinity of the proposed extension and car park;
- Extension of the existing at-grade car park P1;
- New oxygen compound adjacent to the existing oxygen compound;
- Augmentation of the existing fire hydrant ring main adjacent to the western edge of the main hospital building and relocation and partial upgrade of the existing hydrant booster; and
- Offset planting and new landscaping.

1.2 Aims and Objectives

The primary aim of the DSI was to characterise the soil and groundwater contamination conditions in order to assess site risks in relation to contamination and establish whether remediation is required. A secondary aim of the investigation was to provide preliminary waste classification data for off-site disposal of soil waste which may be generated during the proposed development works.

The DSI objectives were to:

- Assess the current site conditions and use(s) via a site walkover inspection;
- Assess the soil and groundwater contamination conditions via implementation of a sampling and analysis program that considers the potential contamination sources/areas of environmental concern (AEC) and contaminants of potential concern (CoPC) identified in the PSI;
- Document an iteration and review of the conceptual site model (CSM)
- Assess the potential risks posed by contamination to the receptors identified in the CSM (Tier 1 assessment);
- Provide a preliminary waste classification for off-site disposal of soil;
- Assess whether the site is suitable or can be made suitable for the activity (from a contamination viewpoint); and
- Assess whether further intrusive investigation and/or remediation is required.

1.3 Scope of Work

The investigation was undertaken generally in accordance with a JK proposal (Ref: P71358LT) of 21 March 2025, acceptance by signed contract HI24278 and a JKE variation proposal (EP71360PT2rev1) of 25 August 2025 and written acceptance of 10 September 2025. The scope of work included the following:

- Review of existing site information including the PSI;
- Preparation of a CSM;
- Design and implementation of a SAQP. The SAQP was prepared prior to the commencement of the DSI and is attached in Appendix G;
- Interpretation of the analytical results against the adopted Site Assessment Criteria (SAC);
- Data Quality Assessment; and
- Preparation of a report including a Tier 1 risk assessment.

The scope of work was undertaken with reference to the National Environmental Protection (Assessment of Site Contamination) Measure 1999 as amended (2013)², other guidelines made under or with regards to the

² National Environment Protection Council (NEPC), (2013). *National Environmental Protection (Assessment of Site Contamination) Measure 1999 (as amended 2013)*. (referred to as NEPM 2013)



Contaminated Land Management Act (1997)³ and SEPP Resilience and Hazards 2021. A list of reference documents/guidelines is included in the appendices.

³ Contaminated Land Management Act 1997 (NSW) (referred to as CLM Act 1997)

2 SITE INFORMATION

2.1 Previous Investigations

Several phases of previous investigation have been undertaken on the wider hospital property and/or the site. A high-level summary of relevant information from these investigations is tabulated below:

Report	High level summary
Geotechnical Investigation and Preliminary Contamination Assessment, Coffey Geotechnics Pty Ltd, 2011 ⁴ .	The site for the purpose of the report included areas of extension to the eastern and/or western portion of the main building, with a potential for a northern extension, and extension and expansion of the oral healthcare facility. The intrusive works included drilling of nine boreholes and excavation of three test pits. Of these borehole locations, only one was within the site footprint applicable to the site. The report identified the following AEC at the site and or wider hospital property: fill material; transformers and generator; and aboveground (diesel fuel) storage tank (AST) and a decommissioned underground storage tank (UST). It is noted that the locations of the AST and decommissioned UST were not identified within the report. We also note that the transformers and generator were reported to be to the north-west of the main building and are therefore not considered to be an AEC in the context of the site applicable to the JKE DSI. CoPC associated with these AEC were listed as: Heavy metals (arsenic, cadmium, chromium, copper, lead, mercury, nickel and zinc); petroleum hydrocarbons (referred to as total recoverable hydrocarbons – TRHs); benzene, toluene, ethylbenzene and xylene (BTEX); polycyclic aromatic hydrocarbons (PAHs); organochlorine pesticides (OCPs); organophosphate pesticides (OPPs); polychlorinated biphenyls (PCBs); and asbestos. The contamination portion of the report concluded that based on the results of the limited environmental assessment, there was no evidence to suggest contamination conditions that may present significant limitations to the proposed hospital development. Further to this, a preliminary classification of general solid waste was indicated to be applicable to the fill material tested.
Preliminary (Desktop) Site Investigation, JKE 2025 ⁵	The Desktop included a review of site information and site history information, a site inspection and preparation of a report. The site history review and site inspection identified the following potential contamination sources/AEC for the site: fill material; historical agricultural (grazing) land use; use of pesticides; and hazardous building materials. Based on these potential contamination sources/AEC identified, and the potential for contamination, further investigation of the contamination conditions was considered to be required. JKE was of the opinion that the historical land uses and potential sources of contamination identified would not preclude the proposed development. The following was recommended to better assess the risks associated with potential contamination at the site: ▪ An intrusive PSI should be undertaken as a first step to make an initial assessment of the soil contamination conditions and better inform the scope of a DSI; ▪ Following the PSI, a SAQP should be prepared for the DSI; ▪ A DSI should be undertaken to characterise the site contamination conditions and establish whether the site is suitable for the proposed development, or whether remediation is required; and

⁴ Coffey Geotechnics Pty Ltd, (2011). *Report to Health Infrastructure NSW on Geotechnical Investigation and Preliminary Contamination Assessment for Proposed Additions to Mount Druitt Hospital, Mount Druitt, NSW.* (Ref: GEOTLCOV24207AA-AD Rev1, dated 16 May 2011)

⁵ JK Environments, (2025). *Report to Health Infrastructure on Preliminary Desktop Site Investigation for Expansion Project at Mt Druitt Hospital, 75 Railway Street, Mt Druitt, NSW.* (Ref: E37664PTTrpt-Desktop, dated 25 July 2025) (referred to as Desktop)

Report	High level summary
	A hazardous building materials survey should be undertaken prior to disturbance of the original main hospital building (relevant to development works), if survey information does not already exist. It is noted that the site boundary was subsequently expanded, following release of the Desktop report.
Preliminary Site Investigation (PSI), JKE 2025 ⁶	The PSI included a review of existing site information, and soil sampling from one test pit and five boreholes. The PSI sample locations are shown on Figure 2 in Appendix A. It is noted that the project boundary at the time of the PSI was smaller and has since been expanded to form the site applicable to the JKE DSI. The sampling locations encountered fill to depths of approximately 0.3m below ground level (BGL) to 2.9mBGL, underlain by clayey residual soils. The fill typically comprised inclusions of ironstone and igneous gravel, slag, clay nodules, ash, roots and root fibres. No odours or staining were observed in the fill material during fieldwork. No fibre cement fragments (FCF)/asbestos containing material (ACM) was encountered in or on the fill material during fieldwork. A selection of soil samples was analysed for the CoPC identified in the CSM. Elevated concentrations of the CoPC were not encountered above the adopted SAC and asbestos was not detected in any of the soil samples analysed. There were no unacceptable risks identified that triggered the need for remediation. The report concluded that a DSI is required to characterise the fill and address the data gaps identified during the investigation. Following the Desktop and the PSI, the extent of the proposed development area changed and a new site boundary was established. This increased the site area and the changes to the site area are considered in the context of the DSI.

It is noted that the decommissioned UST mentioned in the Coffey report was identified to be located on the western side at the northern end of the main hospital building. Given the distance from the site, regional topography and inferred groundwater flow direction, the UST is not identified as an AEC for the purpose of the DSI.

2.2 Site Identification

Table 2-1: Site Identification

Current Site Owner (certificate of title):	Health Administration Corporation
Site Address:	75 Railway Street, Mt Druitt
Lot & Deposited Plan:	Part of Lot 11 in DP1268736
Current Land Use:	Hospital use

⁶ JKE Environments, (2025). *Report to Health Infrastructure on Preliminary Site Investigation for Expansion Project at Mt Druitt Hospital, 75 Railway Street, Mt Druitt, NSW*. (Ref: E37664PTcpt2-PSI DRAFT, dated 25 July 2025) (referred to as PSI)

Proposed Land Use:	Continued hospital use
Local Government Authority (LGA):	Blacktown City Council
Current Zoning:	SP1: Health Services Facilities
Site Area (m²) (approx.):	5,625
RL (AHD in m) (approx.):	64
Geographical Location (decimal degrees) (approx. centre of site):	Latitude: -33.766674 Longitude: 150.830229
Site Plans:	Appendix A

2.3 Site Description

The site is located within the wider Mt Druitt Hospital property in a special uses area (i.e. health services, educational, recreational, and emergency services) of Mt Druitt. The wider hospital property is bound by Railway Street to the north-east and Luxford Road to the north-west. The site is located approximately 1.12km to the south-west of Bells Creek.

The regional topography is generally characterised by a rise within undulating regional topography. The site itself is relatively level with a slight fall to the east overall and a short but steep rise in the western-most area. The north-eastern most area is relatively flat and level, associated with the hospital helipad. Parts of the site appear to have been cut/filled (i.e. levelled or raised) to accommodate the existing development to the north and north-west of the site.

The most recent walkover inspection was undertaken by JKE on 13 October 2025 as part of the DSI and was generally limited to the external areas of the site and the immediate surrounds. Key observations are summarised below:

- The area inspected generally comprised a grass covered landscaped area to the south of the main hospital building, a small section of the paved carpark in the south-west corner, a small section of the main hospital building in the central north of the site and the concrete paved helipad to the east of the main hospital building;
- The south-west corner of the existing main hospital building and concrete retaining wall forms the north of the area inspected. This section of the main hospital was constructed circa 2014 and appeared to be constructed with concrete, metal and glass. A 1m x 1m brick memorial plaque monolith was present in the grassed area, and a shade structure over a distribution board/electrical circuit board on the western boundary of the site;
- Concrete paved pathways generally border the north-west of site leading from the main hospital building entrance on level 1 to the car park area and also extending south-west from the ground floor of the main hospital building out through the site to the main vehicle access road and another paved pathway was present extending east from the main hospital building to the helipad;

- Some erosion, likely due to surface water movement, was visible where the batter sloped down from the retaining wall in the west of the area inspected. No other soil stability or erosion issues were observed during the site inspection;
- Evidence of filling was observed in the west of the area inspected where a steep batter slope extended from the concrete retaining wall and cut down into the site and to the north beneath the main building. The surficial fill material contained visible inclusions of igneous gravels, and some brick, concrete and plastic fragments. The remainder of area inspected was also observed to have been cut/filled to achieve the existing levels and install the observed footpaths and services;
- The area inspected was predominantly unpaved (i.e. was grass covered) and excess surface water would be expected to be adsorbed into the ground surface or flow in keeping with the site topography (to the east). A stormwater pit was also present in the southern portion of the site and it was assumed that this would discharge into the regional stormwater system; and
- There were medium to large trees present along the west boundary, in the central section of the site and the east boundary to the south of the main building, and some smaller shrubs and trees present in a garden bed along the southern frontage of the main hospital building. The vegetation appeared to be in reasonable condition based on a cursory inspection, with no obvious or extensive dieback observed. There were some bare patches on the steep batter slope due to surface water runoff and at the interface between grass areas and pavements.

2.4 Surrounding Land Use

The site is situated within the existing wider hospital property with the main hospital building located to the north/north-west, an asphaltic paved car park to the west, and grass covered landscaped areas to the east and south. The Mt Druitt Fire Station (opened in 2017), was located to the north-east of the site.

JKE did not observe any land uses in the immediate surrounds that were identified as potential contamination sources for the site.

3 SUMMARY OF REGIONAL GEOLOGY AND HYDROGEOLOGY

3.1 Regional Geology

Regional geological information reviewed for the previous investigations indicated that the site is underlain by Bringelly Shale of the Wianamatta Group, which typically consists of shale, carbonaceous claystone, claystone, laminite, fine to medium grained lithic sandstone, rare coal and tuff.

3.2 Salinity Hazard Mapping

Information presented in the Desktop and PSI reports indicated that the site is:

- Mapped in a region of moderate Salinity Potential of Western Sydney. The moderate classification is attributed to scattered areas of scalding and indicator vegetation, in areas where concentrations have not been mapped. Saline areas may occur in this zone, which have not been identified or may occur if risk factors change adversely; and
- Mapped on the boundary of an area of delineated risk but no high hazard or risk rating for 2000, 2020 or 2050 (southern portion of the site) and high hazard or risk defined for all years 2000, 2020 and 2050 under the Dryland Salinity National Assessment.

3.3 Acid Sulfate Soil (ASS) Risk and Planning

Information presented in the Desktop and PSI reports indicated:

- The site is not located in an ASS risk area according to the risk maps prepared by the Department of Land and Water Conservation;
- The site is not mapped within an ASS risk area as per the Blacktown City Council Local Environmental Plan 2015.

3.4 Hydrogeology

Hydrogeological information was reviewed for the previous investigations indicated that the regional aquifer on-site and in the areas immediately surrounding the site includes porous, extensive aquifers of low to moderate productivity. There was a total of three registered bores within the report buffer of 1,000m. In summary:

- The nearest registered bore was located approximately 440m from the site. This was utilised for monitoring purposes;
- All three bores were registered for monitoring purposes;
- There were no nearby bores (i.e. within 1,000m) registered for domestic, water supply or irrigation uses; and
- The drillers log information from the closest registered bores typically identified fill and/or clay soil to depths of 3.66-4.0m, underlain by shale bedrock. Standing water levels (SWLs) in the bores were not recorded.

The subsurface ground conditions encountered during the PSI are summarised below:

Table 3-1: Summary of PSI Subsurface Conditions

Profile	Description
Fill	Fill (i.e. historically imported/emplaced soil) was encountered at the surface in all locations and extended to depths of between approximately 0.3m to 2.9mBGL. The fill typically comprised silty clay and silty sand with inclusions of ironstone and igneous gravel, slag, clay nodules, ash, roots and root fibres. No odours or staining were recorded in the fill material during field work. FCF/ACM was not encountered in the fill material during fieldwork.
Natural Soil	Natural residual silty clay soils were encountered beneath the fill material in all locations to depths of approximately 2.9mBGL to 4.5mBGL. No odours or staining were recorded in the natural soil during fieldwork.
Bedrock	Siltstone bedrock was encountered beneath the natural soils in all boreholes. Neither odours nor staining were recorded in the bedrock during fieldwork.
Groundwater	Groundwater seepage was not encountered in the locations during drilling/excavation. A SWL of between 4.9m and 5.5mBGL was recorded in BH2, BH4 and BH5 within three hours of completion of drilling.

Considering the local topography and surrounding land features, JKE anticipate groundwater to flow towards the east to north-east overall.

3.5 Receiving Water Bodies

Surface water bodies were not identified in the immediate vicinity of the site. The closest surface water body is Bells Creek located approximately 1.12km to the north-east of the site. This waterway is considered to be a potential receptor, although it is acknowledged that it is a substantial distance from the site and wider hospital property. The creek is likely to support a freshwater environment.

4 CONCEPTUAL SITE MODEL

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 CSM for the site is presented in the following sub-sections and is based on the site information (including the site inspection information) and background/site history information. Reference should also be made to the figures attached in the appendices.

4.1 Potential Contamination Sources/AEC and CoPC

No additional information reviewed for the DSI alters the PSI CSM as it relates to the site area that has been expanded for the DSI. The potential contamination sources/ AEC and CoPC are presented in the following table:

Table 4-1: Potential (and/or known) Contamination Sources/AEC and Contaminants of Potential Concern

Source / AEC	CoPC
<u>Fill material</u> – The site appears to have been historically filled to achieve the existing levels. The fill may have been imported from various sources and could be contaminated. The PSI identified fill to depths of between 0.3mBGL to 2.7mBGL on the level grassed area in the west of the site, and fill of up to 2.9m in depth in the batter slope along the north-west boundary of the site.	Heavy metals (arsenic, cadmium, chromium, copper, lead, mercury, nickel and zinc), TRHs, BTEX, PAHs, OCPs, OPPs, PCBs and asbestos.
<u>Historical agricultural use</u> – Historical aerial photographs and title records indicated that the site was used for agricultural purposes (likely grazing). This could have resulted in contamination across the site via use of machinery, application of pesticides and building/ demolition of various structures. It is considered unlikely that poultry farming activities occurred on site.	Heavy metals, TRH, PAHs, OCPs, PCBs and asbestos. JKE note that OCPs only became commercially available in the 1940s. Prior to this time pesticides were predominantly heavy metal compounds.
<u>Use of pesticides</u> – Pesticides may have been used beneath the buildings and/or around the site.	Heavy metals and OCPs.
<u>Hazardous Building Material</u> – Hazardous building materials may be present as a result of former building and demolition activities in the vicinity of the site, or associated with soils used as fill on site. The review of historical aerial photos did not identify any historical on-site structures prior to the hospital development. These materials may also be present in the existing original section of the main hospital building on site and on the wider hospital property.	Asbestos, lead and PCBs.

It is noted that the groundwater was also screened for per- and polyfluoroalkyl substances (PFAS) due to the pre-defined scope of work, however, PFAS were not identified as CoPC.

4.2 Mechanism for Contamination, Affected Media, Receptors and Exposure Pathways

The mechanisms for contamination, affected media, receptors and exposure pathways relevant to the potential contamination sources/AEC are outlined in the following CSM table:

Table 4-2: CSM

Potential mechanism for contamination	The potential mechanisms for contamination are most likely to include 'top-down' impacts and spills. There is a potential for sub-surface releases to have occurred if deep fill or other buried industrial infrastructure such as a UST is present, although this is considered to be the least likely mechanism for contamination.
Potentially Affected media	The PSI identified soil as the potentially affected medium. For the purpose of the DSI, groundwater will also be investigated for screening purposes.
Receptor identification	Human receptors include site occupants/users (including adults and children), construction workers and intrusive maintenance workers. Off-site human receptors include adjacent land users adjacent land users and, although unlikely, recreational water users in down-gradient water bodies. Ecological receptors include terrestrial organisms and plants within unpaved areas (including any proposed landscaped areas), and although unlikely, freshwater ecology in Bells Creek.
Potential exposure pathways	Potential exposure pathways relevant to the human receptors include ingestion, dermal absorption and inhalation of dust (all contaminants) and vapours (volatile TRH, BTEX, and naphthalene [a PAH compound]). The potential for exposure would typically be associated with the construction and excavation works, and future use of the site. Potential exposure pathways for ecological receptors include primary contact and ingestion. Exposure during future site use could occur via direct contact with soil in unpaved areas such as gardens, inhalation of airborne asbestos fibres during soil disturbance, or inhalation of vapours within enclosed spaces such as buildings. Exposure to groundwater is unlikely to occur in the creek through direct migration due to its distance from the site. Groundwater could enter the creek via the stormwater system (which is expected to discharge into the creek) in a construction dewatering scenario. However, based on the current proposed development details, this is unlikely to eventuate.
Potential exposure mechanisms	The following have been identified as potential exposure mechanisms for site contamination: • Vapour intrusion into the proposed basement and/or building (either from soil contamination or volatilisation of contaminants from groundwater); • Contact (dermal, ingestion or inhalation) with exposed soils in landscaped areas and/or unpaved areas; and • Migration of groundwater off-site and into nearby water bodies, including aquatic ecosystems and those being used for recreation.
Presence of preferential pathways for contaminant movement	None.

5 SAMPLING, ANALYSIS AND QUALITY PLAN

JKE prepared a stand-alone SAQP for the DSI which is attached in Appendix G. The SAQP and the DSI works are summarised as follows:

- Data Quality Objectives (DQOs) were developed to define the type and quality of data required to achieve the project objectives outlined in Section 2.1;
- Soil samples were obtained from 11 test pit locations (TP103 to TP113) and one surface soil location (SS01), as shown in Figures 2 and 3 in Appendix A, generally positioned for site coverage;
- Soil samples were obtained using a combination of mechanical excavator fitted with a 300mm bucket attachment and hand tools between 14 and 15 October 2025;
- Three monitoring wells were installed during the PSI fieldwork (July 2025) in BH2 (MW2), BH4 (MW4), and BH5 (MW5), as shown in Figures 2 and 3 in Appendix A. The wells were generally positioned to provide site coverage at the time of the PSI;
- The monitoring well construction details are documented on the borehole logs for BH2, BH4 and BH5 attached in the appendices;
- MW2 and MW4 were developed on 13 October 2025. Both wells were developed (i.e. water was pumped out) using a submersible electrical pump until steady state was achieved;
- MW5 was dry on the day of development, 13 October 2025;
- The monitoring wells were allowed to recharge for 48 hours after development. Groundwater samples for the DSI were obtained on 15 October 2025 from MW2 and MW4 only;
- MW5 was dry on the day of sampling;
- The field monitoring records and calibration data are attached in the appendices; and
- The relative heights for all monitoring wells were previously surveyed using a GPS unit as part of the PSI. This information is documented on the borehole logs.

5.1 Deviations to the SAQP

The following deviations to the SAQP are noted:

- The intent was to sample from only nine locations comprising eight test pits and one surface location, however due to expansion of the site boundary to the south and based on client instruction, samples were obtained from a total of 12 locations comprising 11 test pits and one surface location;
- The fill was not penetrated in TP105, due to subsurface limitations (underground services); and
- A groundwater sample could not be obtained from MW2 due to a lack of groundwater on the scheduled day of sampling, on 15 October 2025.

Please refer to the SAQP attached in the appendices for further information.

5.2 Laboratory Analysis

Samples were analysed by an appropriate, NATA Accredited laboratory using the analytical methods detailed in Schedule B(3) of NEPM 2013. Reference should be made to the laboratory reports attached in the appendices for further details.

Table 5-1: Laboratory Details

Samples	Laboratory	Report Reference
All primary samples and field QA/QC samples including (intra-laboratory duplicates, trip blanks, trip spikes and field rinsate samples)	Envirolab Services Pty Ltd NSW, NATA Accreditation Number – 2901 (ISO/IEC 17025 compliance)	393050, 393265 and 393265-A
Inter-laboratory duplicates	Envirolab Services Pty Ltd VIC, NATA Accreditation Number – 2901 (ISO/IEC 17025 compliance)	MGJ0285 and MGJ0334

6 SITE ASSESSMENT CRITERIA (SAC)

The SAC were derived from the NEPM 2013 and other guidelines as discussed in the following sub-sections. The guideline values for individual contaminants are presented in the attached report tables and further explanation of the various criteria adopted is provided in the appendices.

6.1 Soil

Soil data were compared to relevant Tier 1 screening criteria in accordance with NEPM (2013) as outlined below.

6.1.1 Human Health

- Health Investigation Levels (HILs) for a 'public open space; secondary schools; and footpaths' land use exposure scenario (HIL-C). We are of the opinion that use of the HIL-C criteria aligns with the philosophy of the NEPM (2013) as the less conservative 'commercial/industrial' criteria may not be suitably protective of the most sensitive receptors (e.g. children) who may infrequently visit the site, or be in outdoor areas for short a short duration;
- Health Screening Levels (HSLs) for a 'low-high density residential' exposure scenario (HSL-A & HSL-B). The NEPM (2013) indicates that HSL-C criteria are suitable for sites with no buildings or with small and infrequently utilised, amenities-type buildings. On this basis, the HSL-C criteria are not appropriate for the proposal land use and we have adopted the HSL-A & HSL-B criteria to provide a more conservative screening to assess vapour related risks. HSLs were calculated based on conservative assumptions including a 'sand' type and a depth interval of 0m to 1m;
- HSLs for direct contact presented in the CRC Care Technical Report No. 10 – Health screening levels for hydrocarbons in soil and groundwater Part 1: Technical development document (2011)⁷; and
- Asbestos was assessed on the basis of presence/absence and against the HSL-C criteria. A summary of the asbestos criteria is provided in the table below:

Table 6-1: Details for Asbestos SAC

Guideline	Applicability
Asbestos in Soil	The HSL-C criteria were adopted for the assessment of asbestos in soil. The SAC adopted for asbestos were derived from the NEPM 2013 and are based on the Guidelines for the Assessment, Remediation and Management of Asbestos-Contaminated Sites in Western Australia (2021)⁸. The SAC include the following: • No visible asbestos at the surface/in the top 10cm of soil; • <0.02% w/w bonded asbestos containing material (ACM) in soil; and • <0.001% w/w asbestos fines/fibrous asbestos (AF/FA) in soil. Concentrations for bonded ACM concentrations in soil are based on the following equation which is presented in Schedule B1 of NEPM (2013): $\% \text{ w/w asbestos in soil} = \frac{\% \text{ asbestos content} \times \text{bonded ACM (kg)}}{\text{Soil volume (L)} \times \text{soil density (kg/L)}}$

⁷ Cooperative Research Centre for Contamination Assessment and Remediation of the Environment (CRC Care), (2011). Technical Report No. 10 - Health screening levels for hydrocarbons in soil and groundwater Part 1: Technical development document

⁸ Western Australian (WA) Department of Health (DoH), (2021). Guidelines for the Assessment, Remediation and Management of Asbestos-Contaminated Sites in Western Australia. (referred to as WA DoH 2021)

Guideline	Applicability
	However, we are of the opinion that the actual soil volume in a 10L bucket varies considerably due to the presence of voids, particularly when assessing cohesive soils. Therefore, each bucket sample was weighed using electronic scales and the above equation was adjusted as follows (we note that the units have also converted to grams): $\% \text{ w/w asbestos in soil} = \frac{\% \text{ asbestos content} \times \text{bonded ACM (g)}}{\text{Soil weight (g)}}$

6.1.2 Environment (Ecological – terrestrial ecosystems)

- Ecological Investigation Levels (EILs) and Ecological Screening Levels (ESLs) for an 'urban residential and public open space' (URPOS) exposure scenario. These have only been applied to the top 2m of soil as outlined in NEPM (2013). The criterion for benzo(a)pyrene has been increased from the value presented in NEPM (2013) based on the Canadian Soil Quality Guidelines⁹;
- ESLs were adopted based on the soil type; and
- EILs for selected metals were calculated based on the most conservative added contaminant limit (ACL) values presented in Schedule B(1) of NEPM (2013) and published ambient background concentration (ABC) values presented in the document titled Trace Element Concentrations in Soils from Rural and Urban Areas of Australia (1995)¹⁰. This method is considered to be adequate for the Tier 1 screening.

6.1.3 Management Limits for Petroleum Hydrocarbons

Management limits for petroleum hydrocarbons (as presented in Schedule B1 of NEPM 2013) were considered.

6.1.4 Waste Classification

Data for the waste classification assessment were assessed in accordance with the Waste Classification Guidelines, Part 1: Classifying Waste (2014)¹¹ as outlined in the following table:

Table 6-2: Waste Categories

Category	Description
General Solid Waste (non-putrescible)	• If Specific Contaminant Concentration (SCC) ≤ Contaminant Threshold (CT1) then Toxicity Characteristics Leaching Procedure (TCLP) not needed to classify the soil as general solid waste; and • If TCLP ≤ TCLP1 and SCC ≤ SCC1 then treat as general solid waste.
Restricted Solid Waste (non-putrescible)	• If SCC ≤ CT2 then TCLP not needed to classify the soil as restricted solid waste; and • If TCLP ≤ TCLP2 and SCC ≤ SCC2 then treat as restricted solid waste.

⁹ Canadian Council of Ministers of the Environment, (1999). *Canadian soil quality guidelines for the protection of environmental and human health: Benzo(a)Pyrene (1997)* (referred to as the Canadian Soil Quality Guidelines)

¹⁰ Olszowy, H., Torr, P., and Imray, P., (1995), *Trace Element Concentrations in Soils from Rural and Urban Areas of Australia. Contaminated Sites Monograph Series No. 4*. Department of Human Services and Health, Environment Protection Agency, and South Australian Health Commission

¹¹ NSW EPA, (2014). *Waste Classification Guidelines, Part 1: Classifying Waste*. (referred to as Waste Classification Guidelines 2014)

Category	Description
Hazardous Waste	- If SCC > CT2 then TCLP must be undertaken to classify the soil as hazardous waste; and - If TCLP > TCLP2 and/or SCC > SCC2 then treat as hazardous waste.
Virgin Excavated Natural Material (VENM)	Natural material (such as clay, gravel, sand, soil or rock fines) that meet the following: - That has been excavated or quarried from areas that are not contaminated with manufactured chemicals, or with process residues, as a result of industrial, commercial mining or agricultural activities; - That does not contain sulfidic ores or other waste; and - Includes excavated natural material that meets such criteria for virgin excavated natural material as may be approved from time to time by a notice published in the NSW Government Gazette.

6.2 Groundwater

Groundwater data were compared to relevant Tier 1 screening criteria in accordance with NEPM (2013), following an assessment of environmental values in accordance with the Guidelines for the Assessment and Management of Groundwater Contamination (2007)¹². Environmental values for the DSI include aquatic ecosystems, human uses (incidental contact and recreational water use), and human-health risks in non-use scenarios (vapour intrusion).

6.2.1 Human Health

- HSLs for a 'low-high density residential' exposure scenario (HSL-A/HSL-B). HSLs were calculated based on the soil type and the observed depth to groundwater;
- The Australian Drinking Water Guidelines 2011 (updated 2021)¹³ were multiplied by a factor of 10 to assess potential risks associated with incidental/recreational-type exposure to groundwater (e.g. within down-gradient water bodies). These have been deemed as 'recreational' SAC; and
- The recreational water quality guideline value was adopted for PFAS assessment based on NEMP 2025¹⁴.

6.2.2 Environment (Ecological - aquatic ecosystems)

Groundwater Investigation Levels (GILs) for 95% protection of freshwater species were adopted based on the Default Guideline Values in the Australian and New Zealand Guidelines for Fresh and Marine Water Quality (2018)¹⁵. The 99% trigger values were adopted where required to account for bioaccumulation. Low and moderate reliability trigger values were also adopted for some contaminants where high-reliability trigger values don't exist.

¹² NSW Department of Environment and Conservation, (2007). *Guidelines for the Assessment and Management of Groundwater Contamination*.

¹³ National Health and Medical Research Council (NHMRC), (2021). *National Water Quality Management Strategy, Australian Drinking Water Guidelines 2011* (referred to as ADWG 2011)

¹⁴ Heads of EPAs Australia and New Zealand (HEPA). PFAS National Environmental Management Plan Version 3.0 - January 2025 (referred to as NEMP 2025)

¹⁵ Australian and New Zealand Governments (ANZG), (2018). *Australian and New Zealand Guidelines for Fresh and Marine Water Quality*. Australian and New Zealand Governments and Australian state and territory governments, Canberra ACT, Australia (referred to as ANZG 2018)



The ecological (interim freshwater) water quality guidelines were adopted for PFAS assessment based on NEMP 2025, based on 95% protection (slightly to moderately disturbed systems).

7 RESULTS

7.1 Summary of Data (QA/QC) Evaluation

The data evaluation is presented in the appendices. In summary, JKE is of the opinion that the data are adequately precise, accurate, representative, comparable and complete to serve as a basis for interpretation to achieve the investigation objectives.

7.2 Subsurface Conditions

A summary of the subsurface conditions encountered during the investigation is presented in the following table. Reference should be made to the test pit logs attached in the appendices for further details.

Table 7-1: Summary of Subsurface Conditions

Profile	Description
Fill	Fill was encountered at the surface in all locations and extended to depths of between approximately 0.3m to 0.8mBGL. The fill typically comprised silty clay and silty sand with inclusions of ironstone, igneous and sandstone gravel, tile and metal fragments, ash, and root fibres. No odours or staining were recorded in the fill material during field work. FCF/ACM was not encountered in the fill material during fieldwork.
Natural Soil	With the exception of TP103 and SS01, residual silty clay natural soil was encountered beneath the fill materials in all test pits and extended to the maximum depth of the investigation at 1.1mBGL. Neither odours nor staining were recorded in the natural soils during the fieldwork.
Groundwater	Groundwater seepage was not encountered in the test pits during excavation. All test pits remained dry on completion of excavation and a short time after.

7.3 Field Screening

A summary of the field screening results is presented in the following table:

Table 7-2: Summary of Field Screening

Aspect	Details
PID Screening of Soil Samples for VOCs	PID soil sample headspace readings are presented in attached report tables and the COC documents attached in the appendices. All results were 0ppm isobutylene equivalents which indicates a lack of PID detectable VOCs.
Bulk Screening for Asbestos	The bulk field screening results are summarised in the attached report Table S5. All results were below the SAC and no FCF/ACM was identified in any of the bulk samples during fieldwork.
Groundwater Depth & Flow	SWLs measured in the monitoring wells installed at the site ranged from 3.63mBGL to 3.7mBGL. Groundwater RLs calculated on these measurements ranged from 57.6mAHD to 57.7mAHD.
Groundwater Field Parameters	Field measurements recorded during sampling were as follows: pH ranged from 6.32 to 6.54;

Aspect	Details
	- EC ranged from 25,706µS/cm to 26,889µS/cm; - Eh in both wells was 101.5mV; and - DO ranged from 2.69mg/L to 3.49mg/L. The PID readings in the monitoring well headspace recorded during sampling ranged from 0ppm in MW4 to 0.2ppm in MW2.
LNAPLs petroleum hydrocarbons	Phase separated product (i.e. LNAPL) was not detected using the interphase probe during groundwater sampling.

7.4 Soil Laboratory Results

The soil laboratory results were assessed against the SAC presented in Section 6.1. Individual SAC are shown in the report tables attached in the appendices. A summary of the results is presented below:

7.4.1 Human Health and Environmental (Ecological) Assessment

Table 7-3: Summary of Soil Laboratory Results – Human Health and Environmental (Ecological)

Analyte	N	Max. (mg/kg)	N> Human Health SAC	N> Ecological SAC	Comments
Arsenic	22	9	0	0	-
Cadmium	22	<0.4	0	NSL	-
Chromium (total)	22	30	0	0	-
Copper	22	47	0	0	-
Lead	22	39	0	0	-
Mercury	22	<0.1	0	NSL	-
Nickel	22	12	0	0	-
Zinc	22	100	0	0	-
Total PAHs	22	5.9	0	NSL	-
Benzo(a)pyrene	22	<0.05	NSL	0	-
Carcinogenic PAHs (as BaP TEQ)	22	0.9	0	NSL	-
Naphthalene	22	<1	0	NSL	-
DDT+DDE+DDD	17	<0.1	0	NSL	-
DDT	17	<0.1	NSL	0	-

Analyte	N	Max. (mg/kg)	N> Human Health SAC	N> Ecological SAC	Comments
Aldrin and dieldrin	17	<0.1	0	NSL	-
Chlordane	17	<0.1	0	NSL	-
Heptachlor	17	<0.1	0	NSL	-
Chlorpyrifos (OPP)	17	<0.1	0	NSL	-
PCBs	17	<0.1	0	NSL	-
TRH F1	22	<25	0	0	-
TRH F2	22	<50	0	0	-
TRH F3	22	120	0	0	-
TRH F4	22	140	0	0	-
Benzene	22	<0.2	0	0	-
Toluene	22	<0.5	0	0	-
Ethylbenzene	22	<1	0	0	-
Xylenes	22	<1	0	0	-
Asbestos (in soil) (%w/w)	16	<0.01 ACM <0.001 AF/FA	0	NA	Asbestos was not reported in the soil samples analysed.

Notes:

N: Total number (primary samples)

NSL: No set limit

NL: Not limiting

7.4.2 Waste Classification Assessment

The laboratory results were assessed against the criteria presented in Section 6.1.4. The results are presented in the report tables attached in the appendices. A summary of the results is presented in the following table:

Table 7-4: Summary of Soil Laboratory Results Compared to CT and SCC Criteria

Analyte	N	N > CT Criteria	N > SCC Criteria	Comments
Arsenic	22	0	0	-
Cadmium	22	0	0	-

Analyte	N	N > CT Criteria	N > SCC Criteria	Comments
Chromium	22	0	0	-
Copper	22	NSL	NSL	-
Lead	22	0	0	-
Mercury	22	0	0	-
Nickel	22	0	0	-
Zinc	22	NSL	NSL	-
TRH (C ₆ -C ₉)	22	0	0	-
TRH (C ₁₀ -C ₃₆)	22	0	0	-
BTEX	22	0	0	-
Total PAHs	22	0	0	-
Benzo(a)pyrene	22	0	0	-
OCPs & OPPs	17	0	0	-
PCBs	17	0	0	-
Asbestos	16	-	-	Asbestos was not detected in the samples analysed.

N: Total number (primary samples)

NSL: No set limit

7.5 Groundwater Laboratory Results

The groundwater laboratory results were assessed against the SAC presented in Section 6.2. Individual SAC are shown in the report tables attached in the appendices. A summary of the results is presented below:

Table 7-5: Summary of Groundwater Laboratory Results – Human Health and Environmental (Ecological)

Analyte	N ^	Max. (µg/L)	N> Human Health SAC	N> Ecological SAC	Comments
Arsenic	2	<1	0	0	-
Cadmium	2	1	0	2	The cadmium concentrations of 0.5µg/L to 1µg/L reported in the primary groundwater samples and field duplicate WDUP1, marginally exceeded the freshwater SAC of 0.2µg/L.
Chromium (total)	2	<1	0		-

Analyte	N ^	Max. (µg/L)	N> Human Health SAC	N> Ecological SAC	Comments
Copper	2	270	0	2	The copper concentration of 2µg/L in MW4 and its field duplicate WDUP1 marginally exceeded the freshwater SAC of 1.4µg/L. The copper concentrations of 240µg/L and 270µg/L reported in MW2 and its field duplicate WDUP2 exceeded the freshwater SAC of 1.4µg/L.
Lead	2	<1	0	0	-
Mercury	2	<0.05	0	0	-
Nickel	2	16	0	2	The nickel concentrations of between 12µg/L to 16µg/L reported in the primary and field duplicate groundwater samples marginally exceeded the freshwater SAC of 11µg/L.
Zinc	2	36	0	2	The zinc concentrations of between 27µg/L to 36µg/L reported in the primary and field duplicate groundwater samples exceeded the freshwater SAC of 8µg/L.
PAHs	2	<0.1/<0.2	0	0	-
TRH F1	2	<10	0	NSL	-
TRH F2	2	<50	0	NSL	-
TRH F3	2	<100	NSL	NSL	-
TRH F4	2	<100	NSL	NSL	-
Benzene	2	<1	0	0	-
Toluene	2	<1	0	0	-
Ethylbenzene	2	<1	0	0	-
m+p-Xylene	2	<2	0	0	-
o-Xylene	2	<1	0	0	-
Total Xylenes	2	<2	0	NSL	-
PFOS	2	<0.1	NSL	0	-
PFOS + PFHxS	2	<0.1	0	NSL	-



Analyte	N ^	Max. (µg/L)	N> Human Health SAC	N> Ecological SAC	Comments
PFOA	2	<0.1	0	0	-
pH	2	6.8	0	0	-
EC	2	29,000	NSL	NSL	-

Notes:

^: Primary samples

N: Total number

NSL: No set limit

NL: Not limiting

8 WASTE CLASSIFICATION ASSESSMENT

8.1 Preliminary Waste Classification of Fill

Based on the results of the waste classification assessment, and at the time of reporting, the fill material at the site is assigned a preliminary classification of **General Solid Waste (non-putrescible)** for off-site disposal purposes. Additional testing should be undertaken during development works to confirm the waste classification, prior to any off-site disposal of waste. The waste disposal volume must be specified as part of this confirmatory waste classification process.

Waste fill should be disposed of to a facility that is appropriately licensed by the NSW EPA to receive the waste stream. The facility should be contacted to obtain the required approvals prior to commencement of excavation.

8.2 Classification of Natural Soils and Bedrock

Based on the scope of work undertaken for this assessment, and at the time of reporting, JKE is of the opinion that the natural soil and bedrock at the site meets the definition of **VENM** for off-site disposal or re-use purposes. VENM is considered suitable for re-use on-site (from a contamination viewpoint), or alternatively, the information included in this report may be used to assess whether the material is suitable for beneficial reuse at another site as fill material.

Confirmatory waste classification assessment should be undertaken during development works, prior to any off-site disposal of VENM. The waste disposal volume must be specified as part of this confirmatory waste classification process.

9 DISCUSSION

9.1 Tier 1 Risk Assessment and Review of CSM

For a contaminant to represent a risk to a receptor, the following three conditions must be present:

1. Source – The presence of a contaminant;
2. Pathway – A mechanism or action by which a receptor can become exposed to the contaminant; and
3. Receptor – The human or ecological entity which may be adversely impacted following exposure to contamination.

If one of the above components is missing, the potential for adverse risks is relatively low.

9.1.1 Soil

Elevated concentrations of the CoPC were not encountered above the adopted SAC in the soil samples analysed and therefore the CoPC not consider to pose a risk to the receptors as there are no complete SPR linkages.

Asbestos was not detected in any of the soil samples analysed and there were not extensive inclusions of building/demolition waste in the fill (which is often a pre-cursor to asbestos from building materials such as fibre cement). The occurrence of inclusions such as tile and metal fragments were very minor and was only noted at very few locations. Considering these lines of evidence, the potential for widespread asbestos impacts at the site, at concentrations that pose a risk in the context of the proposed land use, is considered to be low. Implementation of an unexpected finds protocol would be an appropriate mechanism to manage any localised issues should these be encountered during future works.

9.1.2 Groundwater

The groundwater samples encountered concentrations of cadmium, copper, nickel, and zinc in the groundwater above the ecological SAC (refer to Figure 3) and nickel above the adopted health based (recreational) SAC. The cadmium, nickel and zinc exceedances were generally consistent across the monitoring well network and the source of these heavy in groundwater considered likely to be a regional issue for the following reasons:

- Elevated heavy metal concentrations associated with leaking water infrastructure and surface water runoff are typically encountered in urban groundwater (particularly copper, nickel and zinc);
- The fill is above the water table, therefore leaching mechanisms are limited to rainfall events; and
- Significantly elevated heavy metals concentrations (i.e. above the SAC) were not encountered in the fill soil at the site for cadmium, copper, nickel, lead and zinc, therefore fill at the site is not considered to be a point source for groundwater contamination.

The copper concentrations reported in MW2 were an order of magnitude higher than MW4. It is possible that this is due to groundwater turbidity in the well. In our opinion, the copper does not pose an unacceptable risk to on-site receptors in the context of the proposed development scenario, and we are of the opinion that the risks posed to off-site receptors are likely to be low given that the nearest water bodies are not in close proximity.

Elevated concentrations of the other CoPC were not encountered above the adopted SAC in the groundwater samples analysed and therefore are not considered to pose a risk to the receptors at the concentrations reported to date.

9.2 Decision Statements

The decision statements are addressed below:

Are any results above the SAC?

Yes, refer to Section 9.1

Do potential risks associated with contamination exist, and if so, what are they?

There were no complete SPR linkages and no unacceptable contamination risks identified. The occurrence of copper in groundwater is not considered to be associated with on-site contamination.

Is remediation required?

The DSI did not identify a trigger for remediation. Further investigation is not considered to be required.

Is the site suitable for the proposed development, or can the site be made suitable subject to further characterisation and/or remediation?

JKE is of the opinion that the site is suitable for the proposed development as described in Section 1.1. We recommend that a robust Unexpected Finds Procedure (UFP) be developed prior to commencement of works and implemented during the construction.

9.3 Review of CSM and Assessment of Data Gaps

A review of the CSM and assessment of the identified data gaps is provided in the following table:

Table 9-1: CSM review and Assessment of Data Gaps

Data Gap	Assessment
Fill material	Fill ranging in depth between approximately 0.3mBGL and 0.8mBGL was encountered across the site. Contaminated fill was not identified. Based on the site history, field work observations and soil results reported to date at the time of reporting, risks associated with this AEC are considered to be low and do not require further assessment. Potential risks can be managed via the UFP implementation.
Historical Agricultural Land use	Based on the reported results to date, and at the time of reporting, risks associated with this AEC are considered to be low and do not require further assessment.
Use of pesticides	Based on the reported results to date, and at the time of reporting, risks associated with this AEC are considered to be low and do not require further assessment.



Data Gap	Assessment
Hazardous building materials	In regards to hazardous building materials impacting the fill soil at the site, based on the field work observations and soil results reported to date at the time of reporting, risks associated with this AEC are considered to be low. Potential risks can be managed via the UFP implementation.

10 CONCLUSIONS AND RECOMMENDATIONS

The DSI included a review of existing project information, a site inspection, soil sampling from 12 locations (11 test pits and one surface sample), and groundwater sampling from two of three monitoring wells (it is noted one monitoring well did not make water)

The test pits encountered fill materials to depths of approximately 0.3mBGL to 0.8mBGL, underlain by clayey residual soils. The fill typically comprised silty clay and silty sand with inclusions of ironstone, igneous and sandstone gravel, ash, and root fibres. Sporadic occurrences of tile and metal fragments occurred in fill to a lesser extent. No FCF/ACM was encountered on/in soil during fieldwork.

A selection of soil and groundwater samples were analysed for the CoPC identified in the CSM. Elevated concentrations of the CoPC were not encountered above the adopted SAC in fill/soil. Heavy metals (cadmium, copper, nickel and zinc) were reported above the ecological SAC in groundwater however, these results were generally considered to be a regional issue and/or risks were assessed to be low.

Based on the Tier 1 risk assessment, JKE is of the opinion that potential risks associated with the CoPC at the site are low. Further investigation and/or remediation is not considered to be required and the site is considered to be suitable for the activity outlined in Section 1.1, from a contamination viewpoint. We recommend that a robust UFP be prepared by a suitably qualified environmental consultant and that this protocol be implemented during the development/construction phase of the project.

Preliminary waste classifications are discussed in Section 8.

JKE consider that the report objectives outlined in Section 1.2 have been addressed.

11 LIMITATIONS

The report limitations are outlined below:

- JKE accepts no responsibility for any unidentified contamination issues at the site. Any unexpected problems/subsurface features that may be encountered during development works should be inspected by an environmental consultant as soon as possible;
- Previous use of this site may have involved excavation for the foundations of buildings, services, and similar facilities. In addition, unrecorded excavation and burial of material may have occurred on the site. Backfilling of excavations could have been undertaken with potentially contaminated material that may be discovered in discrete, isolated locations across the site during construction work;
- This report has been prepared based on site conditions which existed at the time of the investigation; scope of work and limitation outlined in the JKE proposal; and terms of contract between JKE and the client (as applicable);
- The conclusions presented in this report are based on investigation of conditions at specific locations, chosen to be as representative as possible under the given circumstances, visual observations of the site and immediate surrounds and documents reviewed as described in the report;
- Subsurface soil and rock conditions encountered between investigation locations may be found to be different from those expected. Groundwater conditions may also vary, especially after climatic changes;
- The investigation and preparation of this report have been undertaken in accordance with accepted practice for environmental consultants, with reference to applicable environmental regulatory authority and industry standards, guidelines and the assessment criteria outlined in the report;
- Where information has been provided by third parties, JKE has not undertaken any verification process, except where specifically stated in the report;
- JKE has not undertaken any assessment of off-site areas that may be potential contamination sources or may have been impacted by site contamination, except where specifically stated in the report;
- JKE accept no responsibility for potentially asbestos containing materials that may exist at the site. These materials may be associated with demolition of pre-1990 constructed buildings or fill material at the site;
- JKE have not and will not make any determination regarding finances associated with the site;
- Additional investigation work may be required in the event of changes to the proposed development or landuse. JKE should be contacted immediately in such circumstances;
- Material considered to be suitable from a geotechnical point of view may be unsatisfactory from a soil contamination viewpoint, and vice versa; and
- This report has been prepared for the particular project described and no responsibility is accepted for the use of any part of this report in any other context or for any other purpose.

Important Information About This Report

These notes have been prepared by JKE to assist with the assessment and interpretation of this report.

The Report is based on a Unique Set of Project Specific Factors

This report has been prepared in response to specific project requirements as stated in the JKE proposal document which may have been limited by instructions from the client. This report should be reviewed, and if necessary, revised if any of the following occur:

- The proposed land use is altered;
- The defined subject site is increased or sub-divided;
- The proposed development details including size, configuration, location, orientation of the structures or landscaped areas are modified;
- The proposed development levels are altered, eg addition of basement levels; or
- Ownership of the site changes.

JKE will not accept any responsibility whatsoever for situations where one or more of the above factors have changed since completion of the investigation. If the subject site is sold, ownership of the investigation report should be transferred by JKE to the new site owners who will be informed of the conditions and limitations under which the investigation was undertaken. No person should apply an investigation for any purpose other than that originally intended without first conferring with the consultant.

Changes in Subsurface Conditions

Subsurface conditions are influenced by natural geological and hydrogeological process and human activities. Groundwater conditions are likely to vary over time with changes in climatic conditions and human activities within the catchment (e.g. water extraction for irrigation or industrial uses, subsurface waste water disposal, construction related dewatering). Soil and groundwater contaminant concentrations may also vary over time through contaminant migration, natural attenuation of organic contaminants, ongoing contaminating activities and placement or removal of fill material. The conclusions of an investigation report may have been affected by the above factors if a significant period of time has elapsed prior to commencement of the proposed development.

This Report is based on Professional Interpretations of Factual Data

Site investigations identify actual subsurface conditions at the actual sampling locations at the time of the investigation. Data obtained from the sampling and subsequent laboratory analyses, available site history information and published regional information is interpreted by geologists, engineers or environmental scientists and opinions are drawn about the overall subsurface conditions, the nature and extent of contamination, the likely impact on the proposed development and appropriate remediation measures.

Actual conditions may differ from those inferred, because no professional, no matter how qualified, and no subsurface exploration program, no matter how comprehensive, can reveal what is hidden by earth, rock and time. The actual interface between materials may be far more gradual or abrupt than an investigation indicates. Actual conditions in areas not sampled may differ from predictions. Nothing can be done to prevent the unanticipated, but steps can be taken to help minimise the impact. For this reason, site owners should retain the services of their consultants throughout the development stage of the project, to identify variances, conduct additional tests which may be needed, and to recommend solutions to problems encountered on site.

Investigation Limitations

Although information provided by a site investigation can reduce exposure to the risk of the presence of contamination, no environmental site investigation can eliminate the risk. Even a rigorous professional investigation may not detect all contamination on a site. Contaminants may be present in areas that were not surveyed or sampled, or may migrate to areas which showed no signs of contamination when sampled. Contaminant analysis cannot possibly cover every type of contaminant which may occur; only the most likely contaminants are screened.

Misinterpretation of Site Investigations by Design Professionals

Costly problems can occur when other design professionals develop plans based on misinterpretation of an investigation report. To minimise problems associated with misinterpretations, the environmental consultant should be retained to work with appropriate professionals to explain relevant findings and to review the adequacy of plans and specifications relevant to contamination issues.

Logs Should not be Separated from the Investigation Report

Borehole and test pit logs are prepared by environmental scientists, engineers or geologists based upon interpretation of field conditions and laboratory evaluation of field samples. Logs are normally provided in our reports and these should not be re-drawn for inclusion in site remediation or other design drawings, as subtle but significant drafting errors or omissions may occur in the transfer process. Photographic reproduction can eliminate this problem, however contractors can still misinterpret the logs during bid preparation if separated from the text of the investigation. If this occurs, delays, disputes and unanticipated costs may result. In all cases it is necessary to refer to the rest of the report to obtain a proper understanding of the investigation. Please note that logs with the 'Environmental Log' header are not suitable for geotechnical purposes as they have not been peer reviewed by a Senior Geotechnical Engineer.

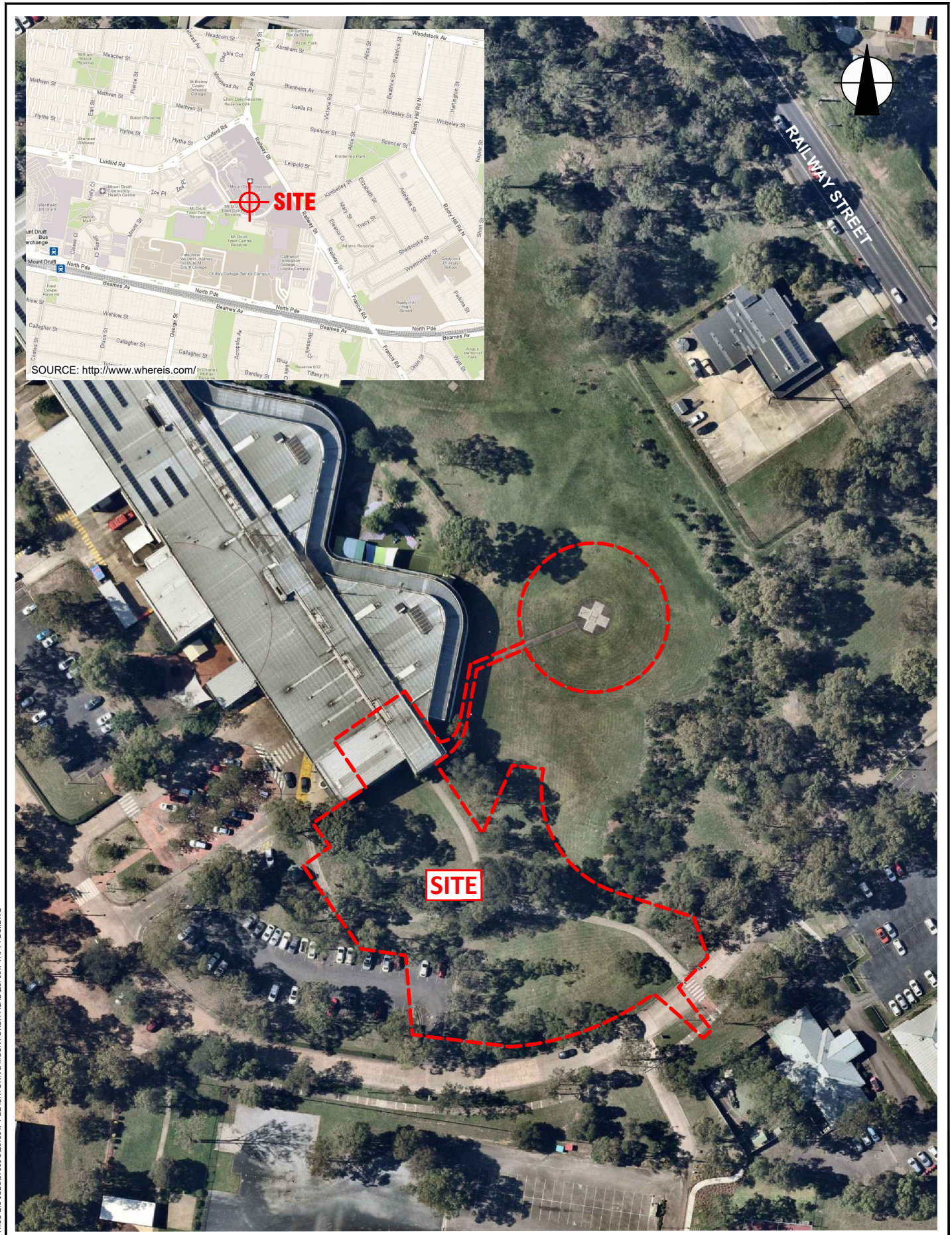
To reduce the likelihood of borehole and test pit log misinterpretation, the complete investigation should be available to persons or organisations involved in the project, such as contractors, for their use. Denial of such access and disclaiming responsibility for the accuracy of subsurface information does not insulate an owner from the attendant liability. It is critical that the site owner provides all available site information to persons and organisations such as contractors.

Read Responsibility Clauses Closely

Because an environmental site investigation is based extensively on judgement and opinion, it is necessarily less exact than other disciplines. This situation has resulted in wholly unwarranted claims being lodged against consultants. To help prevent this problem, model clauses have been developed for use in written transmittals. These are definitive clauses designed to indicate consultant responsibility. Their use helps all parties involved recognise individual responsibilities and formulate appropriate action. Some of these definitive clauses are likely to appear in the environmental site investigation, and you are encouraged to read them closely. Your consultant will be pleased to give full and frank answers to any questions.



Appendix A: Report Figures



SOURCE: <http://www.wheris.com/>

AERIAL IMAGE SOURCE: MAPS.AU.NEARMAP.COM

Title:		SITE LOCATION PLAN	
Location:		75 RAILWAY STREET, MOUNT DRUITT, NSW	
Project No:		E37664PTrpt4-DSI	Figure No: 1
JKEnvironments			



This plan should be read in conjunction with the Environmental report.

PLOT DATE: 13/11/2025 9:15:41 AM DWG FILE: K:\5C EIS JOBS\37000\SE\37664PT BLACKTOWN & MOUNT DRUITT\CAD\IE37664PTRPT4-DSI.DWG



LEGEND

- APPROXIMATE SITE BOUNDARY
- BH(Fill Depth) BOREHOLE LOCATION, NUMBER AND DEPTH OF FILL (m) (JKE/JKG, PSI 2025)
- BH/MW(Fill Depth) BOREHOLE AND GROUNDWATER MONITORING WELL LOCATION, NUMBER AND DEPTH OF FILL (m) (JKE/JKG, PSI 2025)
- TP(Fill Depth) TEST PIT LOCATION, NUMBER AND DEPTH OF FILL (m) (JKE/JKG, PSI 2025)
- BH101 JKG BOREHOLE LOCATION, NUMBER AND DEPTH OF FILL (m)
- TP103 JKE TEST PIT LOCATION, NUMBER AND DEPTH OF FILL (m)
- × SS01 JKE SURFACE SOIL LOCATION, NUMBER AND DEPTH OF FILL (m)

0 6 12 18 24 30
SCALE 1:600 @A3 METRES

This plan should be read in conjunction with the Environmental report.

Title:			SAMPLE LOCATION PLAN		
Location:			75 RAILWAY STREET, MOUNT DRUITT, NSW		
Project No:			E37664PTrpt4-DSI		Figure No: 2
JKEnvironments					





Appendix B: Laboratory Results Summary Tables

ABBREVIATIONS AND EXPLANATIONS

Abbreviations used in the Tables:

ABC:	Ambient Background Concentration	PCBs:	Polychlorinated Biphenyls
ACM:	Asbestos Containing Material	PCE:	Perchloroethylene (Tetrachloroethylene or Tetrachloroethene)
ADWG:	Australian Drinking Water Guidelines	pH_{KCL}:	pH of filtered 1:20, 1M KCL extract, shaken overnight
AF:	Asbestos Fines	pH_{ox}:	pH of filtered 1:20 1M KCL after peroxide digestion
ANZG:	Australian and New Zealand Guidelines	PQL:	Practical Quantitation Limit
B(a)P:	Benzo(a)pyrene	RS:	Rinsate Sample
CEC:	Cation Exchange Capacity	RSL:	Regional Screening Levels
CRC:	Cooperative Research Centre	RSW:	Restricted Solid Waste
CT:	Contaminant Threshold	SAC:	Site Assessment Criteria
EILs:	Ecological Investigation Levels	SCC:	Specific Contaminant Concentration
ESLs:	Ecological Screening Levels	S_{Cr}:	Chromium reducible sulfur
FA:	Fibrous Asbestos	S_{POS}:	Peroxide oxidisable Sulfur
GIL:	Groundwater Investigation Levels	SSA:	Site Specific Assessment
GSW:	General Solid Waste	SSHSs:	Site Specific Health Screening Levels
HILs:	Health Investigation Levels	TAA:	Total Actual Acidity in 1M KCL extract titrated to pH6.5
HSLs:	Health Screening Levels	TB:	Trip Blank
HSL-SSA:	Health Screening Level-Site Specific Assessment	TCA:	1,1,1 Trichloroethane (methyl chloroform)
kg/L	kilograms per litre	TCE:	Trichloroethylene (Trichloroethene)
NA:	Not Analysed	TCLP:	Toxicity Characteristics Leaching Procedure
NC:	Not Calculated	TPA:	Total Potential Acidity, 1M KCL peroxide digest
NEPM:	National Environmental Protection Measure	TS:	Trip Spike
NHMRC:	National Health and Medical Research Council	TRH:	Total Recoverable Hydrocarbons
NL:	Not Limiting	TSA:	Total Sulfide Acidity (TPA-TAA)
NSL:	No Set Limit	UCL:	Upper Level Confidence Limit on Mean Value
OCP:	Organochlorine Pesticides	USEPA:	United States Environmental Protection Agency
OPP:	Organophosphorus Pesticides	VOCC:	Volatile Organic Chlorinated Compounds
PAHs:	Polycyclic Aromatic Hydrocarbons	WHO:	World Health Organisation
%w/w:	weight per weight		
ppm:	Parts per million		

Table Specific Explanations:

HIL Tables:

- The chromium results are for Total Chromium which includes Chromium III and VI. For initial screening purposes, we have assumed that the samples contain only Chromium VI unless demonstrated otherwise by additional analysis.
- Carcinogenic PAHs is a toxicity weighted sum of analyte concentrations for a specific list of PAH compounds relative to B(a)P. It is also referred to as the B(a)P Toxic Equivalence Quotient (TEQ).
- Statistical calculations are undertaken using ProUCL (USEPA). Statistical calculation is usually undertaken using data from fill samples.

EIL/ESL Table:

- ABC Values for selected metals have been adopted from the published background concentrations presented in Olszowy et. al., (1995), Trace Element Concentrations in Soils from Rural and Urban New South Wales (the 25th percentile values for old suburbs with high traffic have been quoted).

Waste Classification and TCLP Table:

- Data assessed using the NSW EPA Waste Classification Guidelines, Part 1: Classifying Waste (2014).
- The assessment of Total Moderately Harmful pesticides includes: Dichlorovos, Dimethoate, Fenitrothion, Ethion, Malathion and Parathion-methyl, Fenthion, Methathion and Chlorpyrifos-methyl.
- Assessment of Total Scheduled pesticides include: HBC, alpha-BHC, gamma-BHC, beta-BHC, Heptachlor, Aldrin, Heptachlor Epoxide, gamma-Chlordane, alpha-chlordane, pp-DDE, Dieldrin, Endrin, pp-DDD, pp-DDT, Endrin Aldehyde.

QA/QC Table:

- Field blank, Inter and Intra laboratory duplicate results are reported in mg/kg.
- Trip spike results are reported as percentage recovery.
- Field rinsate results are reported in µg/L.

TABLE S1
SOIL LABORATORY RESULTS COMPARED TO NEPM 2013.
HIL-C: 'Public open space; secondary schools; and footpaths'

All data in mg/kg unless stated otherwise			HEAVY METALS								PAHs		ORGANOCHLORINE PESTICIDES (OCPs)							OP PESTICIDES (OPPs)	TOTAL PCBs	ASBESTOS FIBRES
			Arsenic	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Zinc	Total PAHs	Carcinogenic PAHs	HCB	Endosulfan	Methoxychlor	Aldrin & Dieldrin	Chlordane	DDT, DDD & DDE	Heptachlor	Chlorpyrifos		
PQL - Envirolab Services			4	0.4	1	1	1	0.1	1	1	-	0.5	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	100
Site Assessment Criteria (SAC)			300	90	300	17000	600	80	1200	30000	300	3	10	340	400	10	70	400	10	250	1	Detected/Not Detected
Sample Reference	Sample Depth	Sample Description																				
TP103	0-0.1	F: Silty Clay	6	<0.4	15	21	18	<0.1	7	51	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	Not Detected
TP103 - [LAB_DUP]	0-0.1	F: Silty Clay	5	<0.4	13	15	19	<0.1	6	53	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	NA
TP103	0.4-0.5	F: Silty Clay	5	<0.4	13	15	14	<0.1	4	17	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	Not Detected
TP104	0-0.1	F: Silty Clay	5	<0.4	16	13	19	<0.1	5	34	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	Not Detected
TP104	0.5-0.6	Silty clay	<4	<0.4	12	15	12	<0.1	3	18	<0.05	<0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TP105	0-0.1	F: Silty Clay	5	<0.4	14	17	17	<0.1	5	43	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	Not Detected
TP106	0-0.1	F: Silty Clay	5	<0.4	13	14	17	<0.1	4	35	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	Not Detected
TP106	0.4-0.5	F: Silty Clay	6	<0.4	17	17	21	<0.1	5	48	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	Not Detected
TP107	0-0.1	F: Silty Clay	7	<0.4	19	12	23	<0.1	4	19	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	Not Detected
TP108	0-0.1	F: Silty Clay	4	<0.4	12	17	19	<0.1	4	40	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	Not Detected
TP109	0-0.1	F: Silty Clay	4	<0.4	19	15	16	<0.1	11	56	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	Not Detected
TP109	0.2-0.3	F: Silty Clay	<4	<0.4	2	4	3	<0.1	<1	6	<0.05	<0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TP109	0.5-0.6	F: Silty Clay	5	<0.4	14	16	14	<0.1	5	28	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	Not Detected
TP109 - [LAB_DUP]	0.5-0.6	F: Silty Clay	7	<0.4	23	15	18	<0.1	5	28	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	NA
TP109 - [TRIPLICATE]	0.5-0.6	F: Silty Clay	6	<0.4	19	16	16	<0.1	5	29	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TP109	0.6-0.7	Silty clay	<4	<0.4	15	13	12	<0.1	2	20	<0.05	<0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TP110	0-0.1	F: Silty Sand	<4	<0.4	10	47	39	<0.1	8	48	5.9	0.9	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	Not Detected
TP110	0.5-0.6	Silty clay	5	<0.4	20	16	16	<0.1	4	23	<0.05	<0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TP111	0.1-0.2	F: Silty Clay	5	<0.4	16	15	18	<0.1	4	32	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	Not Detected
TP111	0.5-0.6	F: Silty Clay	6	<0.4	25	13	18	<0.1	5	25	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	Not Detected
TP112	0-0.1	F: Silty Clay	9	<0.4	30	20	23	<0.1	7	41	<0.05	<0.5	<0.1	<0.1	<0.1	0.2	<0.1	<0.1	<0.1	<0.1	<0.1	Not Detected
TP112	0.4-0.5	Silty clay	5	<0.4	17	16	14	<0.1	1	11	<0.05	<0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TP113	0-0.1	F: Silty Clay	5	<0.4	14	15	17	<0.1	4	27	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	Not Detected
TP113	0.3-0.4	F: Silty Clay	6	<0.4	17	16	20	<0.1	5	30	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	Not Detected
SS101	0-0.1	F: Silty Clay	<4	<0.4	17	24	36	<0.1	12	100	NA	NA	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	NA	NA
SDUP101	TP109 0-0.1m	F: Silty Clay	5	<0.4	17	12	16	<0.1	4	29	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	NA
SDUP102	TP103 0-0.1m	F: Silty Clay	5	<0.4	17	12	16	<0.1	4	29	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	NA
Total Number of Samples			27	27	27	27	27	27	27	27	25	25	21	21	21	21	21	21	21	20	20	16
Maximum Value			9	<PQL	30	47	39	<PQL	12	100	5.9	0.9	<PQL	<PQL	<PQL	0.2	<PQL	<PQL	<PQL	<PQL	<PQL	Not Detected

Concentration above the SAC
Concentration above the PQL
Asbestos Detected

VALUE

Bold

Detected

TABLE S2

SOIL LABORATORY RESULTS COMPARED TO HSLs

All data in mg/kg unless stated otherwise

					C ₆ -C ₁₀ (F1)	>C ₁₀ -C ₁₆ (F2)	Benzene	Toluene	Ethylbenzene	Xylenes	Naphthalene	Field PID Measurement
PQL - Envirolab Services					25	50	0.2	0.5	1	1	1	ppm
NEPM 2013 HSL Land Use Category					HSL-A/B: LOW/HIGH DENSITY RESIDENTIAL							
Sample Reference	Sample Depth	Sample Description	Depth Category	Soil Category								
TP103	0-0.1	F: Silty Clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	0
TP103 - [LAB_DUP]	0-0.1	F: Silty Clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	0
TP103	0.4-0.5	F: Silty Clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	0
TP104	0-0.1	F: Silty Clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	0
TP104	0.5-0.6	Silty clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	0
TP105	0-0.1	F: Silty Clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	0
TP106	0-0.1	F: Silty Clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	0
TP106	0.4-0.5	F: Silty Clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	0
TP107	0-0.1	F: Silty Clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	0
TP108	0-0.1	F: Silty Clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	0
TP109	0-0.1	F: Silty Clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	0
TP109	0.2-0.3	F: Silty Clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	0
TP109	0.5-0.6	F: Silty Clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	0
TP109 - [LAB_DUP]	0.5-0.6	F: Silty Clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	0
TP109	0.6-0.7	Silty clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	0
TP110	0-0.1	F: Silty Sand	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	0
TP110	0.5-0.6	Silty clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	0
TP111	0.1-0.2	F: Silty Clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	0
TP111	0.5-0.6	F: Silty Clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	0
TP112	0-0.1	F: Silty Clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	0
TP112	0.4-0.5	Silty clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	0
TP113	0-0.1	F: Silty Clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	0
TP113	0.3-0.4	F: Silty Clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	0
SDUP101	TP109 0-0.1m	F: Silty Clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	-
SDUP102	TP103 0-0.1m	F: Silty Clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	-
Total Number of Samples					25	25	25	25	25	25	25	23
Maximum Value					<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL

Concentration above the SAC

VALUE

Concentration above the PQL

Bold

>

The guideline corresponding to the concentration above the SAC is highlighted in grey in the Site Assessment Criteria Table below

HSL SOIL ASSESSMENT CRITERIA

Sample Reference	Sample Depth	Sample Description	Depth Category	Soil Category	C ₆ -C ₁₀ (F1)	>C ₁₀ -C ₁₆ (F2)	Benzene	Toluene	Ethylbenzene	Xylenes	Naphthalene
TP103	0-0.1	F: Silty Clay	0m to <1m	Sand	45	110	0.5	160	55	40	3
TP103 - [LAB_DUP]	0-0.1	F: Silty Clay	0m to <1m	Sand	45	110	0.5	160	55	40	3
TP103	0.4-0.5	F: Silty Clay	0m to <1m	Sand	45	110	0.5	160	55	40	3
TP104	0-0.1	F: Silty Clay	0m to <1m	Sand	45	110	0.5	160	55	40	3
TP104	0.5-0.6	Silty clay	0m to <1m	Sand	45	110	0.5	160	55	40	3
TP105	0-0.1	F: Silty Clay	0m to <1m	Sand	45	110	0.5	160	55	40	3
TP106	0-0.1	F: Silty Clay	0m to <1m	Sand	45	110	0.5	160	55	40	3
TP106	0.4-0.5	F: Silty Clay	0m to <1m	Sand	45	110	0.5	160	55	40	3
TP107	0-0.1	F: Silty Clay	0m to <1m	Sand	45	110	0.5	160	55	40	3
TP108	0-0.1	F: Silty Clay	0m to <1m	Sand	45	110	0.5	160	55	40	3
TP109	0-0.1	F: Silty Clay	0m to <1m	Sand	45	110	0.5	160	55	40	3
TP109	0.2-0.3	F: Silty Clay	0m to <1m	Sand	45	110	0.5	160	55	40	3
TP109	0.5-0.6	F: Silty Clay	0m to <1m	Sand	45	110	0.5	160	55	40	3
TP109 - [LAB_DUP]	0.5-0.6	F: Silty Clay	0m to <1m	Sand	45	110	0.5	160	55	40	3
TP109	0.6-0.7	Silty clay	0m to <1m	Sand	45	110	0.5	160	55	40	3
TP110	0-0.1	F: Silty Sand	0m to <1m	Sand	45	110	0.5	160	55	40	3
TP110	0.5-0.6	Silty clay	0m to <1m	Sand	45	110	0.5	160	55	40	3
TP111	0.1-0.2	F: Silty Clay	0m to <1m	Sand	45	110	0.5	160	55	40	3
TP111	0.5-0.6	F: Silty Clay	0m to <1m	Sand	45	110	0.5	160	55	40	3
TP112	0-0.1	F: Silty Clay	0m to <1m	Sand	45	110	0.5	160	55	40	3
TP112	0.4-0.5	Silty clay	0m to <1m	Sand	45	110	0.5	160	55	40	3
TP113	0-0.1	F: Silty Clay	0m to <1m	Sand	45	110	0.5	160	55	40	3
TP113	0.3-0.4	F: Silty Clay	0m to <1m	Sand	45	110	0.5	160	55	40	3
SDUP101	TP109 0-0.1m	F: Silty Clay	0m to <1m	Sand	45	110	0.5	160	55	40	3
SDUP102	TP103 0-0.1m	F: Silty Clay	0m to <1m	Sand	45	110	0.5	160	55	40	3

TABLE S3 SOIL LABORATORY RESULTS COMPARED TO MANAGEMENT LIMITS All data in mg/kg unless stated otherwise						
			C ₆ -C ₁₀ (F1) plus BTEX	>C ₁₀ -C ₁₆ (F2) plus naphthalene	>C ₁₆ -C ₃₄ (F3)	>C ₃₄ -C ₄₀ (F4)
PQL - Envirolab Services			25	50	100	100
NEPM 2013 Land Use Category			RESIDENTIAL, PARKLAND & PUBLIC OPEN SPACE			
Sample Reference	Sample Depth	Soil Texture				
TP103	0-0.1	Fine	<25	<50	<100	<100
TP103 - [LAB_DUP]	0-0.1	Fine	<25	<50	<100	<100
TP103	0.4-0.5	Fine	<25	<50	<100	<100
TP104	0-0.1	Fine	<25	<50	<100	140
TP104	0.5-0.6	Fine	<25	<50	<100	<100
TP105	0-0.1	Fine	<25	<50	<100	<100
TP106	0-0.1	Fine	<25	<50	<100	<100
TP106	0.4-0.5	Fine	<25	<50	<100	<100
TP107	0-0.1	Fine	<25	<50	<100	<100
TP108	0-0.1	Fine	<25	<50	<100	<100
TP109	0-0.1	Fine	<25	<50	<100	130
TP109	0.2-0.3	Fine	<25	<50	<100	<100
TP109	0.5-0.6	Fine	<25	<50	<100	<100
TP109 - [LAB_DUP]	0.5-0.6	Fine	<25	<50	<100	<100
TP109	0.6-0.7	Fine	<25	<50	<100	<100
TP110	0-0.1	Fine	<25	<50	<100	<100
TP110	0.5-0.6	Fine	<25	<50	<100	<100
TP111	0.1-0.2	Fine	<25	<50	<100	<100
TP111	0.5-0.6	Fine	<25	<50	<100	<100
TP112	0-0.1	Fine	<25	<50	<100	<100
TP112	0.4-0.5	Fine	<25	<50	<100	<100
TP113	0-0.1	Fine	<25	<50	<100	<100
TP113	0.3-0.4	Fine	<25	<50	<100	<100
SDUP101	TP109 0-0.1m	Fine	<25	<50	120	130
SDUP102	TP103 0-0.1m	Fine	<25	<50	120	130
Total Number of Samples			25	25	25	25
Maximum Value			<PQL	<PQL	120	140
Concentration above the SAC			VALUE			
Concentration above the PQL			Bold			

MANAGEMENT LIMIT ASSESSMENT CRITERIA

Sample Reference	Sample Depth	Soil Texture	C ₆ -C ₁₀ (F1) plus BTEX	>C ₁₀ -C ₁₆ (F2) plus naphthalene	>C ₁₆ -C ₃₄ (F3)	>C ₃₄ -C ₄₀ (F4)
TP103	0-0.1	Fine	800	1000	3500	10000
TP103 - [LAB_DUP]	0-0.1	Fine	800	1000	3500	10000
TP103	0.4-0.5	Fine	800	1000	3500	10000
TP104	0-0.1	Fine	800	1000	3500	10000
TP104	0.5-0.6	Fine	800	1000	3500	10000
TP105	0-0.1	Fine	800	1000	3500	10000
TP106	0-0.1	Fine	800	1000	3500	10000
TP106	0.4-0.5	Fine	800	1000	3500	10000
TP107	0-0.1	Fine	800	1000	3500	10000
TP108	0-0.1	Fine	800	1000	3500	10000
TP109	0-0.1	Fine	800	1000	3500	10000
TP109	0.2-0.3	Fine	800	1000	3500	10000
TP109	0.5-0.6	Fine	800	1000	3500	10000
TP109 - [LAB_DUP]	0.5-0.6	Fine	800	1000	3500	10000
TP109	0.6-0.7	Fine	800	1000	3500	10000
TP110	0-0.1	Fine	800	1000	3500	10000
TP110	0.5-0.6	Fine	800	1000	3500	10000
TP111	0.1-0.2	Fine	800	1000	3500	10000
TP111	0.5-0.6	Fine	800	1000	3500	10000
TP112	0-0.1	Fine	800	1000	3500	10000
TP112	0.4-0.5	Fine	800	1000	3500	10000
TP113	0-0.1	Fine	800	1000	3500	10000
TP113	0.3-0.4	Fine	800	1000	3500	10000
SDUP101	TP109 0-0.1m	Fine	800	1000	3500	10000
SDUP102	TP103 0-0.1m	Fine	800	1000	3500	10000

TABLE S4
SOIL LABORATORY RESULTS COMPARED TO DIRECT CONTACT CRITERIA
All data in mg/kg unless stated otherwise

Analyte		C ₆ -C ₁₀	>C ₁₀ -C ₁₆	>C ₁₆ -C ₃₄	>C ₃₄ -C ₄₀	Benzene	Toluene	Ethylbenzene	Xylenes	Naphthalene	PID
PQL - Envirolab Services		25	50	100	100	0.2	0.5	1	1	1	
CRC 2011 -Direct contact Criteria		82,000	62,000	85,000	120,000	1,100	120,000	85,000	130,000	29,000	
Site Use		Intrusive Maintenance Worker - DIRECT SOIL CONTACT									
Sample Reference	Sample Depth										
TP103	0-0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	0
TP103 - [LAB_DUP]	0-0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	0
TP103	0.4-0.5	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	0
TP104	0-0.1	<25	<50	<100	140	<0.2	<0.5	<1	<1	<1	0
TP104	0.5-0.6	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	0
TP105	0-0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	0
TP106	0-0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	0
TP106	0.4-0.5	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	0
TP107	0-0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	0
TP108	0-0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	0
TP109	0-0.1	<25	<50	<100	130	<0.2	<0.5	<1	<1	<1	0
TP109	0.2-0.3	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	0
TP109	0.5-0.6	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	0
TP109 - [LAB_DUP]	0.5-0.6	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	0
TP109	0.6-0.7	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	0
TP110	0-0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	0
TP110	0.5-0.6	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	0
TP111	0.1-0.2	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	0
TP111	0.5-0.6	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	0
TP112	0-0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	0
TP112	0.4-0.5	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	0
TP113	0-0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	0
TP113	0.3-0.4	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	0
SDUP101	TP109 0-0.1m	<25	<50	120	130	<0.2	<0.5	<1	<1	<1	-
SDUP102	TP103 0-0.1m	<25	<50	120	130	<0.2	<0.5	<1	<1	<1	-
Total Number of Samples		25	25	25	25	25	25	25	25	25	23
Maximum Value		<PQL	<PQL	120	140	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL
Concentration above the SAC		VALUE									
Concentration above the PQL		Bold									

TABLE S5 ASBESTOS QUANTIFICATION - FIELD OBSERVATIONS AND LABORATORY RESULTS HSL-C:Public open space; secondary schools; and footpaths																													
FIELD DATA															LABORATORY DATA														
Date Sampled	Sample reference	Sample Depth	Visible ACM in top 100mm	Approx. Volume of Soil (L)	Soil Mass (g)	Mass ACM (g)	Mass Asbestos in ACM (g)	[Asbestos from ACM in soil] (%w/w)	Mass ACM <7mm (g)	Mass Asbestos in ACM <7mm (g)	[Asbestos from ACM <7mm in soil] (%w/w)	Mass FA (g)	Mass Asbestos in FA (g)	[Asbestos from FA in soil] (%w/w)	Lab Report Number	Sample reference	Sample Depth	Sample Mass (g)	Asbestos ID in soil (AS4964) >0.1g/kg				Trace Analysis	Total Asbestos (g/kg)	Asbestos ID in soil <0.1g/kg	ACM >7mm Estimation (g)	FA and AF Estimation (g)	ACM >7mm Estimation % (w/w)	FA and AF Estimation % (w/w)
SAC			No				0.02		0.001		0.001				0.02											0.001			
15/10/2025	TP103	0-0.3	No	10	10,500	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	393265	TP103	0-0.1	771.21	No asbestos detected at reporting limit of 0.1g/kg: Organic fibres detected				No asbestos detected	<0.1	No visible asbestos detected	--	--	<0.01	<0.001
15/10/2025	TP103	0.3-0.5	NA	10	10,400	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	393265	TP103	0.4-0.5	609.86	No asbestos detected at reporting limit of 0.1g/kg: Organic fibres detected				No asbestos detected	<0.1	No visible asbestos detected	--	--	<0.01	<0.001
15/10/2025	TP104	0-0.1	No	10	11,400	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	393265	TP104	0-0.1	719.82	No asbestos detected at reporting limit of 0.1g/kg: Organic fibres detected				No asbestos detected	<0.1	No visible asbestos detected	--	--	<0.01	<0.001
15/10/2025	TP105	0-0.5	No	10	11,250	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	393265	TP105	0-0.1	610.75	No asbestos detected at reporting limit of 0.1g/kg: Organic fibres detected				No asbestos detected	<0.1	No visible asbestos detected	--	--	<0.01	<0.001
15/10/2025	TP106	0-0.3	No	10	12,050	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	393265	TP106	0-0.1	735.42	No asbestos detected at reporting limit of 0.1g/kg: Organic fibres detected				No asbestos detected	<0.1	No visible asbestos detected	--	--	<0.01	<0.001
15/10/2025	TP106	0.3-0.5	NA	<10	9,900	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	393265	TP106	0.4-0.5	754.04	No asbestos detected at reporting limit of 0.1g/kg: Organic fibres detected				No asbestos detected	<0.1	No visible asbestos detected	--	--	<0.01	<0.001
15/10/2025	TP107	0-0.4	No	10	12,150	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	393265	TP107	0-0.1	668.78	No asbestos detected at reporting limit of 0.1g/kg: Organic fibres detected				No asbestos detected	<0.1	No visible asbestos detected	--	--	<0.01	<0.001
15/10/2025	TP108	0-0.4	No	10	10,100	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	393265	TP108	0-0.1	731.64	No asbestos detected at reporting limit of 0.1g/kg: Organic fibres detected				No asbestos detected	<0.1	No visible asbestos detected	--	--	<0.01	<0.001
15/10/2025	TP109	0-0.2	No	10	11,250	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	393265	TP109	0-0.1	781.19	No asbestos detected at reporting limit of 0.1g/kg: Organic fibres detected				No asbestos detected	<0.1	No visible asbestos detected	--	--	<0.01	<0.001
15/10/2025	TP109	0.2-0.4	NA	<10	9,050	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	--	--	--	--	--				--	--	--	--	--	--	--
15/10/2025	TP109	0.4-0.6	NA	10	10,700	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	393265	TP109	0.5-0.6	726.33	No asbestos detected at reporting limit of 0.1g/kg: Organic fibres detected				No asbestos detected	<0.1	No visible asbestos detected	--	--	<0.01	<0.001
15/10/2025	TP110	0-0.3	No	10	11,600	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	393265	TP110	0-0.1	1010.74	No asbestos detected at reporting limit of 0.1g/kg: Organic fibres detected				No asbestos detected	<0.1	No visible asbestos detected	--	--	<0.01	<0.001
15/10/2025	TP111	0-0.2	NA	10	10,200	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	393265	TP111	0.1-0.2	665.67	No asbestos detected at reporting limit of 0.1g/kg: Organic fibres detected				No asbestos detected	<0.1	No visible asbestos detected	--	--	<0.01	<0.001
15/10/2025	TP111	0.2-0.8	NA	10	10,800	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	393265	TP111	0.5-0.6	628.42	No asbestos detected at reporting limit of 0.1g/kg: Organic fibres detected				No asbestos detected	<0.1	No visible asbestos detected	--	--	<0.01	<0.001
15/10/2025	TP112	0-0.4	No	10	10,800	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	393265	TP112	0-0.1	656.86	No asbestos detected at reporting limit of 0.1g/kg: Organic fibres detected				No asbestos detected	<0.1	No visible asbestos detected	--	--	<0.01	<0.001
15/10/2025	TP113	0-0.3	No	10	10,650	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	393265	TP113	0-0.1	736.67	No asbestos detected at reporting limit of 0.1g/kg: Organic fibres detected				No asbestos detected	<0.1	No visible asbestos detected	--	--	<0.01	<0.001
15/10/2025	TP113	0.3-0.6	NA	<10	9,900	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	393265	TP113	0.3-0.4	679.95	No asbestos detected at reporting limit of 0.1g/kg: Organic fibres detected				No asbestos detected	<0.1	No visible asbestos detected	--	--	<0.01	<0.001
Concentration above the SAC			VALUE																										

TABLE S6
SOIL LABORATORY RESULTS COMPARED TO NEPM 2013 EILs AND ESLs
All data in mg/kg unless stated otherwise

Land Use Category				URBAN RESIDENTIAL AND PUBLIC OPEN SPACE																			
				pH	CEC (cmolc/kg)	Clay Content (% clay)	AGED HEAVY METALS-EILs					EILs		ESLs									
							Arsenic	Chromium	Copper	Lead	Nickel	Zinc	Naphthalene	DDT	C ₆ -C ₁₀ (F1)	>C ₁₀ -C ₁₆ (F2)	>C ₁₆ -C ₃₄ (F3)	>C ₃₄ -C ₄₀ (F4)	Benzene	Toluene	Ethylbenzene	Total Xylenes	B(a)P
PQL - Envirolab Services				-	1	-	4	1	1	1	1	1	1	0.1	25	50	100	100	0.2	0.5	1	1	0.05
Ambient Background Concentration (ABC)				-	-	-	NSL	13	28	163	5	122	NSL	NSL	NSL	NSL	NSL	NSL	NSL	NSL	NSL	NSL	NSL
Sample Reference	Sample Depth	Sample Description	Soil Texture																				
TP103	0-0.1	F: Silty Clay	Fine	NA	NA	NA	6	15	21	18	7	51	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.05
TP103 - [LAB_DUP]	0-0.1	F: Silty Clay	Fine	NA	NA	NA	5	13	15	19	6	53	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.05
TP103	0.4-0.5	F: Silty Clay	Fine	NA	NA	NA	5	13	15	14	4	17	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.05
TP104	0-0.1	F: Silty Clay	Fine	NA	NA	NA	5	16	13	19	5	34	<1	<0.1	<25	<50	<100	140	<0.2	<0.5	<1	<1	<0.05
TP104	0.5-0.6	Silty clay	Fine	NA	NA	NA	<4	12	15	12	3	18	<1	NA	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.05
TP105	0-0.1	F: Silty Clay	Fine	NA	NA	NA	5	14	17	17	5	43	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.05
TP106	0-0.1	F: Silty Clay	Fine	NA	NA	NA	5	13	14	17	4	35	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.05
TP106	0.4-0.5	F: Silty Clay	Fine	NA	NA	NA	6	17	17	21	5	48	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.05
TP107	0-0.1	F: Silty Clay	Fine	NA	NA	NA	7	19	12	23	4	19	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.05
TP108	0-0.1	F: Silty Clay	Fine	NA	NA	NA	4	12	17	19	4	40	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.05
TP109	0-0.1	F: Silty Clay	Fine	NA	NA	NA	4	19	15	16	11	56	<1	<0.1	<25	<50	<100	130	<0.2	<0.5	<1	<1	<0.05
TP109	0.2-0.3	F: Silty Clay	Fine	NA	NA	NA	<4	2	4	3	<1	6	<1	NA	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.05
TP109	0.5-0.6	F: Silty Clay	Fine	NA	NA	NA	5	14	16	14	5	28	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.05
TP109 - [LAB_DUP]	0.5-0.6	F: Silty Clay	Fine	NA	NA	NA	7	23	15	18	5	28	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.05
TP109 - [TRIPLICATE]	0.5-0.6	F: Silty Clay	Fine	NA	NA	NA	6	19	16	16	5	29	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TP109	0.6-0.7	Silty clay	Fine	NA	NA	NA	<4	15	13	12	2	20	<1	NA	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.05
TP110	0-0.1	F: Silty Sand	Fine	NA	NA	NA	<4	10	47	39	8	48	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	0.57
TP110	0.5-0.6	Silty clay	Fine	NA	NA	NA	5	20	16	16	4	23	<1	NA	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.05
TP111	0.1-0.2	F: Silty Clay	Fine	NA	NA	NA	5	16	15	18	4	32	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.05
TP111	0.5-0.6	F: Silty Clay	Fine	NA	NA	NA	6	25	13	18	5	25	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.05
TP112	0-0.1	F: Silty Clay	Fine	NA	NA	NA	9	30	20	23	7	41	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.05
TP112	0.4-0.5	Silty clay	Fine	NA	NA	NA	5	17	16	14	1	11	<1	NA	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.05
TP113	0-0.1	F: Silty Clay	Fine	NA	NA	NA	5	14	15	17	4	27	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.05
TP113	0.3-0.4	F: Silty Clay	Fine	NA	NA	NA	6	17	16	20	5	30	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.05
SS101	0-0.1	F: Silty Clay	Fine	NA	NA	NA	<4	17	24	36	12	100	NA	<0.1	NA	NA	NA	NA	NA	NA	NA	NA	NA
SDUP101	TP109 0-0.1m	F: Silty Clay	Fine	NA	NA	NA	5	17	12	16	4	29	<1	<0.1	<25	<50	120	130	<0.2	<0.5	<1	<1	<0.05
SDUP102	TP103 0-0.1m	F: Silty Clay	Fine	NA	NA	NA	5	17	12	16	4	29	<1	<0.1	<25	<50	120	130	<0.2	<0.5	<1	<1	<0.05
Total Number of Samples				0	0	0	27	27	27	27	27	27	25	21	25	25	25	25	25	25	25	25	25
Maximum Value				NA	NA	NA	9	30	47	39	12	100	<PQL	<PQL	<PQL	<PQL	120	140	<PQL	<PQL	<PQL	<PQL	0.57

Concentration above the SAC
Concentration above the PQL
The guideline corresponding to the elevated value is highlighted in grey in the EIL and ESL Assessment Criteria Table below

EIL AND ESL ASSESSMENT CRITERIA

Sample Reference	Sample Depth	Sample Description	Soil Texture	pH	CEC (cmolc/kg)	Clay Content (% clay)	Arsenic	Chromium	Copper	Lead	Nickel	Zinc	Napthalene	DDT	C ₆ -C ₁₀ (F1)	>C ₁₀ -C ₁₆ (F2)	>C ₁₆ -C ₃₄ (F3)	>C ₃₄ -C ₄₀ (F4)	Benzene	Toluene	Ethylbenzene	Total Xylenes	B(a)P
TP103	0-0.1	F: Silty Clay	Fine	NA	NA	NA	100	200	90	1300	35	190	170	180	180	120	1300	5600	65	105	125	45	20
TP103 - [LAB_DUP]	0-0.1	F: Silty Clay	Fine	NA	NA	NA	100	200	90	1300	35	190	170	180	180	120	1300	5600	65	105	125	45	20
TP103	0.4-0.5	F: Silty Clay	Fine	NA	NA	NA	100	200	90	1300	35	190	170	180	180	120	1300	5600	65	105	125	45	20
TP104	0-0.1	F: Silty Clay	Fine	NA	NA	NA	100	200	90	1300	35	190	170	180	180	120	1300	5600	65	105	125	45	20
TP104	0.5-0.6	Silty clay	Fine	NA	NA	NA	100	200	90	1300	35	190	170	--	180	120	1300	5600	65	105	125	45	20
TP105	0-0.1	F: Silty Clay	Fine	NA	NA	NA	100	200	90	1300	35	190	170	180	180	120	1300	5600	65	105	125	45	20
TP106	0-0.1	F: Silty Clay	Fine	NA	NA	NA	100	200	90	1300	35	190	170	180	180	120	1300	5600	65	105	125	45	20
TP106	0.4-0.5	F: Silty Clay	Fine	NA	NA	NA	100	200	90	1300	35	190	170	180	180	120	1300	5600	65	105	125	45	20
TP107	0-0.1	F: Silty Clay	Fine	NA	NA	NA	100	200	90	1300	35	190	170	180	180	120	1300	5600	65	105	125	45	20
TP108	0-0.1	F: Silty Clay	Fine	NA	NA	NA	100	200	90	1300	35	190	170	180	180	120	1300	5600	65	105	125	45	20
TP109	0-0.1	F: Silty Clay	Fine	NA	NA	NA	100	200	90	1300	35	190	170	180	180	120	1300	5600	65	105	125	45	20
TP109	0.2-0.3	F: Silty Clay	Fine	NA	NA	NA	100	200	90	1300	35	190	170	--	180	120	1300	5600	65	105	125	45	20
TP109	0.5-0.6	F: Silty Clay	Fine	NA	NA	NA	100	200	90	1300	35	190	170	180	180	120	1300	5600	65	105	125	45	20
TP109 - [LAB_DUP]	0.5-0.6	F: Silty Clay	Fine	NA	NA	NA	100	200	90	1300	35	190	170	180	180	120	1300	5600	65	105	125	45	20
TP109 - [TRIPLICATE]	0.5-0.6	F: Silty Clay	Fine	NA	NA	NA	100	200	90	1300	35	190	--	--	--	--	--	--	--	--	--	--	--
TP109	0.6-0.7	Silty clay	Fine	NA	NA	NA	100	200	90	1300	35	190	170	--	180	120	1300	5600	65	105	125	45	20
TP110	0-0.1	F: Silty Sand	Fine	NA	NA	NA	100	200	90	1300	35	190	170	180	180	120	1300	5600	65	105	125	45	20
TP110	0.5-0.6	Silty clay	Fine	NA	NA	NA	100	200	90	1300	35	190	170	--	180	120	1300	5600	65	105	125	45	20
TP111	0.1-0.2	F: Silty Clay	Fine	NA	NA	NA	100	200	90	1300	35	190	170	180	180	120	1300	5600	65	105	125	45	20
TP111	0.5-0.6	F: Silty Clay	Fine	NA	NA	NA	100	200	90	1300	35	190	170	180	180	120	1300	5600	65	105	125	45	20
TP112	0-0.1	F: Silty Clay	Fine	NA	NA	NA	100	200	90	1300	35	190	170	180	180	120	1300	5600	65	105	125	45	20
TP112	0.4-0.5	Silty clay	Fine	NA	NA	NA	100	200	90	1300	35	190	170	--	180	120	1300	5600	65	105	125	45	20
TP113	0-0.1	F: Silty Clay	Fine	NA	NA	NA	100	200	90	1300	35	190	170	180	180	120	1300	5600	65	105	125	45	20
TP113	0.3-0.4	F: Silty Clay	Fine	NA	NA	NA	100	200	90	1300	35	190	170	180	180	120	1300	5600	65	105	125	45	20
SS101	0-0.1	F: Silty Clay	Fine	NA	NA	NA	100	200	90	1300	35	190	--	180	--	--	--	--	--	--	--	--	--
SDUP101	TP109 0-0.1m	F: Silty Clay	Fine	NA	NA	NA	100	200	90	1300	35	190	170	180	180	120	1300	5600	65	105	125	45	20
SDUP102	TP103 0-0.1m	F: Silty Clay	Fine	NA	NA	NA	100	200	90	1300	35	190	170	180	180	120	1300	5600	65	105	125	45	20

TABLE S7
SOIL LABORATORY RESULTS COMPARED TO WASTE CLASSIFICATION GUIDELINES
All data in mg/kg unless stated otherwise

			HEAVY METALS							PAHs		OC/OP PESTICIDES				Total PCBs	TRH					BTEX COMPOUNDS				ASBESTOS FIBRES	
			Arsenic	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Zinc	Total PAHs	B(a)P	Total Endosulfans	Chloropyrifos	Total Moderately Harmful		Total Scheduled	C ₆ -C ₉	C ₁₀ -C ₁₄	C ₁₅ -C ₂₈	C ₂₉ -C ₃₆	Total C ₁₀ -C ₃₆	Benzene	Toluene	Ethyl benzene		Total Xylenes
PQL - Envirolab Services			4	0.4	1	1	1	0.1	1	1	-	0.05	0.1	0.1	0.1	0.1	25	50	100	100	50	0.2	0.5	1	1	100	
General Solid Waste CT1			100	20	100	NSL	100	4	40	NSL	200	0.8	60	4	250	50	650	NSL			10,000	10	288	600	1,000	-	
General Solid Waste SCC1			500	100	1900	NSL	1500	50	1050	NSL	200	10	108	7.5	250	50	650	NSL			10,000	18	518	1,080	1,800	-	
Restricted Solid Waste CT2			400	80	400	NSL	400	16	160	NSL	800	3.2	240	16	1000	50	50	2600	NSL			40,000	40	1,152	2,400	4,000	-
Restricted Solid Waste SCC2			2000	400	7600	NSL	6000	200	4200	NSL	800	23	432	30	1000	50	50	2600	NSL			40,000	72	2,073	4,320	7,200	-
Sample Reference	Sample Depth	Sample Description																									
TP103	0-0.1	F: Silty Clay	6	<0.4	15	21	18	<0.1	7	51	<0.05	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<1	Not Detected
TP103 - [LAB_DUP]	0-0.1	F: Silty Clay	5	<0.4	13	15	19	<0.1	6	53	<0.05	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<1	NA
TP103	0.4-0.5	F: Silty Clay	5	<0.4	13	15	14	<0.1	4	17	<0.05	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<1	Not Detected
TP104	0-0.1	F: Silty Clay	5	<0.4	16	13	19	<0.1	5	34	<0.05	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<25	<50	<100	120	120	<0.2	<0.5	<1	<1	Not Detected
TP104	0.5-0.6	Silty clay	<4	<0.4	12	15	12	<0.1	3	18	<0.05	<0.05	NA	NA	NA	NA	NA	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<1	NA
TP105	0-0.1	F: Silty Clay	5	<0.4	14	17	17	<0.1	5	43	<0.05	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<1	Not Detected
TP106	0-0.1	F: Silty Clay	5	<0.4	13	14	17	<0.1	4	35	<0.05	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<1	Not Detected
TP106	0.4-0.5	F: Silty Clay	6	<0.4	17	17	21	<0.1	5	48	<0.05	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<1	Not Detected
TP107	0-0.1	F: Silty Clay	7	<0.4	19	12	23	<0.1	4	19	<0.05	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<1	Not Detected
TP108	0-0.1	F: Silty Clay	4	<0.4	12	17	19	<0.1	4	40	<0.05	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<1	Not Detected
TP109	0-0.1	F: Silty Clay	4	<0.4	19	15	16	<0.1	11	56	<0.05	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<25	<50	<100	120	120	<0.2	<0.5	<1	<1	Not Detected
TP109	0.2-0.3	F: Silty Clay	<4	<0.4	2	4	3	<0.1	<1	6	<0.05	<0.05	NA	NA	NA	NA	NA	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<1	NA
TP109	0.5-0.6	F: Silty Clay	5	<0.4	14	16	14	<0.1	5	28	<0.05	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<1	Not Detected
TP109 - [LAB_DUP]	0.5-0.6	F: Silty Clay	7	<0.4	23	15	18	<0.1	5	28	<0.05	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<1	NA
TP109 - [TRIPLICATE]	0.5-0.6	F: Silty Clay	6	<0.4	19	16	16	<0.1	5	29	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TP109	0.6-0.7	Silty clay	<4	<0.4	15	13	12	<0.1	2	20	<0.05	<0.05	NA	NA	NA	NA	NA	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<1	NA
TP110	0-0.1	F: Silty Sand	<4	<0.4	10	47	39	<0.1	8	48	5.9	0.57	<0.1	<0.1	<0.1	<0.1	<0.1	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<1	Not Detected
TP110	0.5-0.6	Silty clay	5	<0.4	20	16	16	<0.1	4	23	<0.05	<0.05	NA	NA	NA	NA	NA	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<1	NA
TP111	0.1-0.2	F: Silty Clay	5	<0.4	16	15	18	<0.1	4	32	<0.05	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<1	Not Detected
TP111	0.5-0.6	F: Silty Clay	6	<0.4	25	13	18	<0.1	5	25	<0.05	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<1	Not Detected
TP112	0-0.1	F: Silty Clay	9	<0.4	30	20	23	<0.1	7	41	<0.05	<0.05	<0.1	<0.1	<0.1	0.2	<0.1	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<1	Not Detected
TP112	0.4-0.5	Silty clay	5	<0.4	17	16	14	<0.1	1	11	<0.05	<0.05	NA	NA	NA	NA	NA	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<1	NA
TP113	0-0.1	F: Silty Clay	5	<0.4	14	15	17	<0.1	4	27	<0.05	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<1	Not Detected
TP113	0.3-0.4	F: Silty Clay	6	<0.4	17	16	20	<0.1	5	30	<0.05	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<1	Not Detected
SS101	0-0.1	F: Silty Clay	<4	<0.4	17	24	36	<0.1	12	100	NA	NA	<0.1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SDUP101	TP109 0-0.1m	F: Silty Clay	5	<0.4	17	12	16	<0.1	4	29	<0.05	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<25	<50	100	130	230	<0.2	<0.5	<1	<1	NA
SDUP102	TP103 0-0.1m	F: Silty Clay	5	<0.4	17	12	16	<0.1	4	29	<0.05	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<25	<50	100	130	230	<0.2	<0.5	<1	<1	NA
Total Number of Samples			27	27	27	27	27	27	27	27	25	25	21	20	20	20	20	25	25	25	25	25	25	25	25	25	16
Maximum Value			9	<PQL	30	47	39	<PQL	12	100	5.9	0.57	<PQL	<PQL	<PQL	0.2	<PQL	<PQL	<PQL	100	130	230	<PQL	<PQL	<PQL	<PQL	Not Detected

Concentration above the CT1
Concentration above SCC1
Concentration above the SCC2
Concentration above PQL
Asbestos Detected > Special Waste (asbestos)

VALUE
VALUE
VALUE
Bold
Detected

TABLE Q1
SOIL QA/QC SUMMARY

[illegible]

ABBREVIATIONS AND EXPLANATIONS

Abbreviations used in the Tables:

ADWG:	Australian Drinking Water Guidelines	PFAS	Per- and polyfluoroalkyl substances
ANZG	Australian and New Zealand Guidelines	PFHxS	Perfluorohexanesulfonic acid
B(a)P:	Benzo(a)pyrene	PFOA	Perfluorooctanoic acid
CRC:	Cooperative Research Centre	PFOS	Perfluorooctanesulfonic acid
ESLs:	Ecological Screening Levels	PCBs:	Polychlorinated Biphenyls
FTS:	Fluorotelomer sulfonic acid	PCE:	Perchloroethylene (Tetrachloroethylene or Tetrachloroethene)
GIL:	Groundwater Investigation Levels	PQL:	Practical Quantitation Limit
HILs:	Health Investigation Levels	RS:	Rinsate Sample
HSLs:	Health Screening Levels	RSL:	Regional Screening Levels
HSL-SSA:	Health Screening Level-Site Specific Assessment	SAC:	Site Assessment Criteria
NA:	Not Analysed	SSA:	Site Specific Assessment
NC:	Not Calculated	SSHSLs:	Site Specific Health Screening Levels
NEPM:	National Environmental Protection Measure	TB:	Trip Blank
NEMP	National Environmental Management Plan	TCA:	1,1,1 Trichloroethane (methyl chloroform)
NHMRC:	National Health and Medical Research Council	TCE:	Trichloroethylene (Trichloroethene)
NL:	Not Limiting	TS:	Trip Spike
NSL:	No Set Limit	TRH:	Total Recoverable Hydrocarbons
OCP:	Organochlorine Pesticides	UCL:	Upper Level Confidence Limit on Mean Value
OPP:	Organophosphorus Pesticides	USEPA	United States Environmental Protection Agency
PAHs:	Polycyclic Aromatic Hydrocarbons	VOCC:	Volatile Organic Chlorinated Compounds
ppm:	Parts per million	WHO:	World Health Organisation

Table Specific Explanations:

Groundwater Ecology Tables:

- 95% refers to a concentration that has been derived to protect 95% of aquatic species

TABLE G1
SUMMARY OF GROUNDWATER LABORATORY RESULTS COMPARED TO ECOLOGICAL GILs SAC
All results in µg/L unless stated otherwise.

	PQL Envirolab Services	ANZG 2018 Fresh Waters	SAMPLES					
			MW2	MW2 - LAB DUP	MW4	WDUP1	WDUP2	WDUP2 - LAB DUP
Inorganic Compounds and Parameters								
pH		6.5 - 8.5	6.8	NA	6.8	NA	NA	NA
Electrical Conductivity (µS/cm)	1	NSL	29000	NA	29000	NA	NA	NA
Metals and Metalloids								
Arsenic (As III)	1	24	<1	NA	<1	<1	<2	NA
Cadmium	0.1	0.2	1	NA	0.5	0.5	<1	NA
Chromium (SAC for Cr III adopted)	1	3.3	<1	NA	<1	<1	<2	NA
Copper	1	1.4	270	NA	2	2	240	NA
Lead	1	3.4	<1	NA	<1	<1	<2	NA
Total Mercury (inorganic)	0.05	0.06	<0.05	NA	<0.05	<0.05	<0.050	NA
Nickel	1	11	13	NA	15	16	12	NA
Zinc	1	8	36	NA	27	27	33	NA
Monocyclic Aromatic Hydrocarbons (BTEX Compounds)								
Benzene	1	950	<1	NA	<1	<1	<1.0	NA
Toluene	1	180	<1	NA	<1	<1	<1.0	NA
Ethylbenzene	1	80	<1	NA	<1	<1	<1.0	NA
m+p-xylene	2	75	<2	NA	<2	<2	<2.0	NA
o-xylene	1	350	<1	NA	<1	<1	<1.0	NA
Total xylenes	2	NSL	<2	NA	<2	<2	<2	NA
Polycyclic Aromatic Hydrocarbons (PAHs)								
Naphthalene	0.2	16	<0.1	NA	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	0.1	NSL	<0.1	NA	<0.1	<0.1	<0.1	<0.1
Acenaphthene	0.1	NSL	<0.1	NA	<0.1	<0.1	<0.1	<0.1
Fluorene	0.1	NSL	<0.1	NA	<0.1	<0.1	<0.1	<0.1
Phenanthrene	0.1	0.6	<0.1	NA	<0.1	<0.1	<0.1	<0.1
Anthracene	0.1	0.01	<0.1	NA	<0.1	<0.1	<0.1	<0.1
Fluoranthene	0.1	1	<0.1	NA	<0.1	<0.1	<0.1	<0.1
Pyrene	0.1	NSL	<0.1	NA	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	0.1	NSL	<0.1	NA	<0.1	<0.1	<0.1	<0.1
Chrysene	0.1	NSL	<0.1	NA	<0.1	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	0.2	NSL	<0.2	NA	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	0.1	0.1	<0.1	NA	<0.1	<0.1	<0.1	<0.1
Indeno(1,2,3-c,d)pyrene	0.1	NSL	<0.1	NA	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	0.1	NSL	<0.1	NA	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	0.1	NSL	<0.1	NA	<0.1	<0.1	<0.1	<0.1
Concentration above the SAC		VALUE						
Concentration above the PQL		Bold						
GIL >PQL		Red						

TABLE G2								
SUMMARY OF GROUNDWATER LABORATORY RESULTS COMPARED TO HUMAN CONTACT GILs								
All results in µg/L unless stated otherwise.								
	PQL Envirolab Services	Recreational (10 x NHMRC ADWG)	SAMPLES					
			MW2	MW2 - LAB DUP	MW4	WDUP1	WDUP2	WDUP2 - LAB DUP
Inorganic Compounds and Parameters								
pH		6.5 - 8.5	6.8	NA	6.8	NA	NA	NA
Electrical Conductivity (µS/cm)	1	NSL	29000	NA	29000	NA	NA	NA
Metals and Metalloids								
Arsenic (As III)	1	100	<1	NA	<1	<1	<2	NA
Cadmium	0.1	20	1	NA	0.5	0.5	<1	NA
Chromium (total)	1	500	<1	NA	<1	<1	<2	NA
Copper	1	20000	270	NA	2	2	240	NA
Lead	1	100	<1	NA	<1	<1	<2	NA
Total Mercury (inorganic)	0.05	10	<0.05	NA	<0.05	<0.05	<0.050	NA
Nickel	1	200	13	NA	15	16	12	NA
Zinc	1	30000	36	NA	27	27	33	NA
Monocyclic Aromatic Hydrocarbons (BTEX Compounds)								
Benzene	1	10	<1	NA	<1	<1	<1.0	NA
Toluene	1	8000	<1	NA	<1	<1	<1.0	NA
Ethylbenzene	1	3000	<1	NA	<1	<1	<1.0	NA
m+p-xylene	2	NSL	<2	NA	<2	<2	<2.0	NA
o-xylene	1	NSL	<1	NA	<1	<1	<1.0	NA
Total xylenes	2	6000	<2	NA	<2	<2	<2	NA
Polycyclic Aromatic Hydrocarbons (PAHs)								
Naphthalene	0.2	NSL	<0.1	NA	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	0.1	NSL	<0.1	NA	<0.1	<0.1	<0.1	<0.1
Acenaphthene	0.1	NSL	<0.1	NA	<0.1	<0.1	<0.1	<0.1
Fluorene	0.1	NSL	<0.1	NA	<0.1	<0.1	<0.1	<0.1
Phenanthrene	0.1	NSL	<0.1	NA	<0.1	<0.1	<0.1	<0.1
Anthracene	0.1	NSL	<0.1	NA	<0.1	<0.1	<0.1	<0.1
Fluoranthene	0.1	NSL	<0.1	NA	<0.1	<0.1	<0.1	<0.1
Pyrene	0.1	NSL	<0.1	NA	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	0.1	NSL	<0.1	NA	<0.1	<0.1	<0.1	<0.1
Chrysene	0.1	NSL	<0.1	NA	<0.1	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	0.2	NSL	<0.2	NA	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	0.1	0.1	<0.1	NA	<0.1	<0.1	<0.1	<0.1
Indeno(1,2,3-c,d)pyrene	0.1	NSL	<0.1	NA	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	0.1	NSL	<0.1	NA	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	0.1	NSL	<0.1	NA	<0.1	<0.1	<0.1	<0.1
Concentration above the SAC								
Concentration above the PQL								
GIL >PQL								
			VALUE					
			Bold					
			Red					



TABLE G3 GROUNDWATER LABORATORY RESULTS COMPARED TO HSLs All data in µg/L unless stated otherwise											
				C ₆ -C ₁₀ (F1)	>C ₁₀ -C ₁₆ (F2)	Benzene	Toluene	Ethylbenzene	Xylenes	Napthalene	PID
PQL - Envirolab Services				10	50	1	1	1	2	1	
NEPM 2013 - Land Use Category				HSL A/B: LOW/HIGH DENSITY RESIDENTIAL							
Sample Reference	Water Depth	Depth Category	Soil Category								
MW2	3.7	2m to <4m	Sand	<10	<50	<1	<1	<1	<2	<1	0.2
MW2	3.7	2m to <4m	sand	NA	NA	NA	NA	NA	NA	NA	0.2
MW4	3.63	2m to <4m	sand	<10	<50	<1	<1	<1	<2	<1	0
WDUP1	MW2	2m to <4m	Sand	<10	<50	<1	<1	<1	<2	<1	-
WDUP2	MW4	2m to <4m	Sand	<10	<50	<1.0	<1.0	<1.0	<2	<1.0	-
Total Number of Samples				4	4	4	4	4	4	4	3
Maximum Value				<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	0.2
Concentration above the SAC				VALUE							
Site specific assesment (SSA) required				VALUE							
Concentration above the PQL				Bold							
The guideline corresponding to the elevated value is highlighted in grey in the Groundwater Assessment Criteria Table below											

HSL GROUNDWATER ASSESSMENT CRITERIA

Sample Reference	Water Depth	Depth Category	Soil Category	C ₆ -C ₁₀ (F1)	>C ₁₀ -C ₁₆ (F2)	Benzene	Toluene	Ethylbenzene	Xylenes	Naphthalene
MW2	3.7	2m to <4m	Sand	1000	1000	800	NL	NL	NL	NL
MW2	3.7	2m to <4m	sand	NA	NA	NA	NA	NA	NA	NA
MW4	3.63	2m to <4m	sand	6000	NL	5000	NL	NL	NL	NL
WDUP1	MW2	2m to <4m	Sand	1000	1000	800	NL	NL	NL	NL
WDUP2	MW4	2m to <4m	Sand	1000	1000	800	NL	NL	NL	NL

TABLE G4
SUMMARY OF PFAS CONCENTRATIONS IN GROUNDWATER - ECOLOGY
All results in µg/L unless stated otherwise.

	PQL	NEMP 2025	SAMPLES				
	Envirolab	95%	MW2	MW2 - LAB	MW4	WDUP1	WDUP2
	Services	Freshwater		DUP			
PFAS Compound							
Perfluorobutanesulfonic acid	0.1	NSL	<0.1	<0.1	<0.1	<0.1	<0.1
Perfluoropentanesulfonic acid	0.1	NSL	<0.1	<0.1	<0.1	<0.1	[NT]
Perfluorohexanesulfonic acid - PFHxS	0.1	NSL	<0.1	<0.1	<0.1	<0.1	<0.1
Perfluoroheptanesulfonic acid	0.1	NSL	<0.1	<0.1	<0.1	<0.1	[NT]
Perfluorooctanesulfonic acid PFOS	0.1	0.00023	<0.1	<0.1	<0.1	<0.1	<0.1
Perfluorodecanesulfonic acid	0.2	NSL	<0.2	<0.2	<0.2	<0.2	[NT]
Perfluorobutanoic acid	0.2	NSL	<0.2	<0.2	<0.2	<0.2	[NT]
Perfluoropentanoic acid	0.2	NSL	<0.2	<0.2	<0.2	<0.2	[NT]
Perfluorohexanoic acid	0.1	NSL	<0.1	<0.1	<0.1	<0.1	[NT]
Perfluoroheptanoic acid	0.1	NSL	<0.1	<0.1	<0.1	<0.1	[NT]
Perfluorooctanoic acid PFOA	0.1	220	<0.1	<0.1	<0.1	<0.1	<0.1
Perfluorononanoic acid	0.1	NSL	<0.1	<0.1	<0.1	<0.1	[NT]
Perfluorodecanoic acid	0.5	NSL	<0.2	<0.2	<0.2	<0.2	[NT]
Perfluoroundecanoic acid	0.5	NSL	<0.2	<0.2	<0.2	<0.2	[NT]
Perfluorododecanoic acid	0.5	NSL	<0.5	<0.5	<0.5	<0.5	[NT]
Perfluorotridecanoic acid	0.5	NSL	<1	<1	<1	<1	[NT]
Perfluorotetradecanoic acid	5	NSL	<5	<5	<5	<5	[NT]
4:2 FTS	0.1	NSL	<0.1	<0.1	<0.1	<0.1	[NT]
6:2 FTS	0.1	NSL	<0.1	<0.1	<0.1	<0.1	<0.1
8:2 FTS	0.1	NSL	<0.2	<0.2	<0.2	<0.2	<0.1
10:2 FTS	0.1	NSL	<0.2	<0.2	<0.2	<0.2	[NT]
Perfluorooctane sulfonamide	1	NSL	<1	<1	<1	<1	[NT]
N-Methyl perfluorooctane sulfonamide	1	NSL	<0.5	<0.5	<0.5	<0.5	[NT]
N-Ethyl perfluorooctanesulfonamide	1	NSL	<1	<1	<1	<1	[NT]
N-Me perfluorooctanesulfonamid oethanol	1	NSL	<0.5	<0.5	<0.5	<0.5	[NT]
N-Et perfluorooctanesulfonamid oethanol	5	NSL	<5	<5	<5	<5	[NT]
MePerfluorooctanesulf-amid oacetic acid	0.2	NSL	<0.2	<0.2	<0.2	<0.2	[NT]
EtPerfluorooctanesulf-amid oacetic acid	0.2	NSL	<0.2	<0.2	<0.2	<0.2	[NT]
Total Positive PFHxS & PFOS	0.1	NSL	<0.1	<0.1	<0.1	<0.1	<0.01
Total Positive PFOS & PFOA	0.1	NSL	<0.1	<0.1	<0.1	<0.1	<0.01
Total Positive PFAS	0.1	NSL	<0.1	<0.1	<0.1	<0.1	<0.01
Positive PFAS result PFAS result above the SAC							
Bold							
Bold							

TABLE G5
SUMMARY OF PFAS CONCENTRATIONS IN GROUNDWATER - HUMAN HEALTH
All results in µg/L unless stated otherwise.

	PQL Envirolab Services	NEMP 2025 Recreational	SAMPLES				
			MW2	MW2 - LAB DUP	MW4	WDUP1	WDUP2
PFAS Compound							
Perfluorobutanesulfonic acid - PFBS	0.1	NSL	<0.1	<0.1	<0.1	<0.1	<0.1
Perfluoropentanesulfonic acid	0.1	NSL	<0.1	<0.1	<0.1	<0.1	[NT]
Perfluorohexanesulfonic acid - PFHxS	0.1	NSL	<0.1	<0.1	<0.1	<0.1	<0.1
Perfluoroheptanesulfonic acid	0.1	NSL	<0.1	<0.1	<0.1	<0.1	[NT]
Perfluorooctanesulfonic acid - PFOS	0.1	NSL	<0.1	<0.1	<0.1	<0.1	<0.1
Perfluorodecanesulfonic acid	0.2	NSL	<0.2	<0.2	<0.2	<0.2	[NT]
Perfluorobutanoic acid	0.2	NSL	<0.2	<0.2	<0.2	<0.2	[NT]
Perfluoropentanoic acid	0.2	NSL	<0.2	<0.2	<0.2	<0.2	[NT]
Perfluorohexanoic acid	0.1	NSL	<0.1	<0.1	<0.1	<0.1	[NT]
Perfluoroheptanoic acid	0.1	NSL	<0.1	<0.1	<0.1	<0.1	[NT]
Perfluorooctanoic acid - PFOA	0.1	10	<0.1	<0.1	<0.1	<0.1	<0.1
Perfluorononanoic acid	0.1	NSL	<0.1	<0.1	<0.1	<0.1	[NT]
Perfluorodecanoic acid	0.5	NSL	<0.2	<0.2	<0.2	<0.2	[NT]
Perfluoroundecanoic acid	0.5	NSL	<0.2	<0.2	<0.2	<0.2	[NT]
Perfluorododecanoic acid	0.5	NSL	<0.5	<0.5	<0.5	<0.5	[NT]
Perfluorotridecanoic acid	0.5	NSL	<1	<1	<1	<1	[NT]
Perfluorotetradecanoic acid	5	NSL	<5	<5	<5	<5	[NT]
4:2 FTS	0.1	NSL	<0.1	<0.1	<0.1	<0.1	[NT]
6:2 FTS	0.1	NSL	<0.1	<0.1	<0.1	<0.1	<0.1
8:2 FTS	0.1	NSL	<0.2	<0.2	<0.2	<0.2	<0.1
10:2 FTS	0.1	NSL	<0.2	<0.2	<0.2	<0.2	[NT]
Perfluorooctane sulfonamide	1	NSL	<1	<1	<1	<1	[NT]
N-Methyl perfluorooctane sulfonamide	1	NSL	<0.5	<0.5	<0.5	<0.5	[NT]
N-Ethyl perfluorooctanesulfonamide	1	NSL	<1	<1	<1	<1	[NT]
N-Me perfluorooctanesulfonamid oethanol	1	NSL	<0.5	<0.5	<0.5	<0.5	[NT]
N-Et perfluorooctanesulfonamid oethanol	5	NSL	<5	<5	<5	<5	[NT]
MePerfluorooctanesulf-amid oacetic acid	0.2	NSL	<0.2	<0.2	<0.2	<0.2	[NT]
EtPerfluorooctanesulf-amid oacetic acid	0.2	NSL	<0.2	<0.2	<0.2	<0.2	[NT]
Total Positive PFHxS & PFOS	0.1	2	<0.1	<0.1	<0.1	<0.1	<0.01
Total Positive PFOS & PFOA	0.1	NSL	<0.1	<0.1	<0.1	<0.1	<0.01
Total Positive PFAS	0.1	NSL	<0.1	<0.1	<0.1	<0.1	<0.01
Positive PFAS result PFAS result above the SAC Bold Bold							

TABLE Q2
GROUNDWATER QA/QC SUMMARY

		TRH C6 - C10	TRH >C10-C16	TRH >C16-C34	TRH >C34-C40	Benzene	Toluene	Ethylbenzene	m+p-xylene	o-Xylene	Naphthalene	Acenaphthylene	Acenaphthene	Fluorene	Phenanthrene	Anthracene	Fluoranthene	Pyrene	Benzo(a)anthracene	Chrysene	Benzo(b,j+k)fluoranthene	Benzo(e)pyrene	Indeno(1,2,3-c,d)pyrene	Dibenzo(a,h)anthra-cene	Benzo(g,h,i)perylene	Arsenic	Cadmium	Chromium VI	Copper	Lead	Mercury	Nickel	Zinc	
PQL Envirolab SYD		10	50	100	100	1	1	1	2	1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	1	0.1	1	1	1	0.05	1	1	
PQL Envirolab VIC		10	50	100	100	1	1	1	2	1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	1	0.1	1	1	1	0.05	1	1	
Intra laboratory duplicate	MW2	<10	<50	<100	<100	<1	<1	<1	<2	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.1	<0.1	<0.1	<0.1	<1	1	<1	270	<1	<0.05	13	36	
	WDUP1	<10	<50	<100	<100	<1	<1	<1	<2	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.1	<0.1	<0.1	<0.1	<1	0.5	<1	2	<1	<0.05	16	27	
	MEAN	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	0.75	nc	136	nc	nc	14.5	31.5	
	RPD %	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	67%	nc	197%	nc	nc	21%	29%	
Inter laboratory duplicate	MW4	<10	<50	<100	<100	<1	<1	<1	<2	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.1	<0.1	<0.1	<0.1	<1	0.5	<1	2	<1	<0.05	15	27	
	WDUP2	<10	<50	<100	<100	<1	<1.0	<1.0	<2.0	<1.0	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.1	<0.1	<0.1	<0.1	<1	<2	<1	<2	240	<2	<0.050	12	33
	MEAN	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	0.275	nc	121	nc	nc	13.5	30
	RPD %	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	164%	nc	197%	nc	nc	22%	20%
Field Blank	TB-1 15/10/2025	<10	<50	<100	<100	<1	<1	<1	<2	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.1	<0.1	<0.1	<0.1	<1	<0.1	<1	<1	<1	<0.05	<1	<1	
Trip Spike	TS-1 15/10/2025	-	-	-	-	118%	114%	115%	115%	117%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Result outside of QA/QC acceptance criteria						Value																												



Appendix C: Test pit Logs

JKGeotechnics

BOREHOLE LOG



Borehole No.
2

1/1

Client: HEALTH INFRASTRUCTURE												
Project: GEOTECHNICAL AND CONTAMINATION ASSESSMENT SERVICES												
Location: MOUNT DRUITT HOSPITAL, MOUNT DRUITT, NSW												
Job No.: 37665LF			Method: HAND AUGER / SPIRAL AUGER				R.L. Surface: 61.30m					
Date: 14/7/25							Datum: AHD					
Plant Type: JK500			Logged/Checked by: A.M./O.F.									
Groundwater Record	SAMPLES			Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
	ES	U50	DB									
DRY ON COMPLETION					0			FILL: Silty clay, low to medium plasticity, brown, with fine to medium grained sand, trace of fine grained ironstone gravel, and root fibres.	w<PL			GRASS COVER
				N = 6 2,3,3			CH	Silty CLAY: high plasticity, red brown and grey, trace of fine to medium grained ironstone gravel.	w>PL	VSt	250 320 320	SCREEN: 10.25kg 0-0.1m, NO FCF
					1							HAND AUGER TO 0.5m
				N = 13 3,6,7				as above, but light grey and red brown.		Hd		RESIDUAL
					2						300 350 400	GROUNDWATER MONITORING WELL INSTALLED TO 5.7m. CLASS 18 MACHINE SLOTTED 50mm DIA. PVC STANDPIPE 3.0m TO 5.7m. CASING 0m TO 3.0m. 2mm SAND FILTER PACK 3.0m TO 5.7m. BENTONITE SEAL 2.5m TO 3.0m. BACKFILLED WITH SAND TO THE SURFACE. COMPLETED WITH A CONCRETED GATIC COVER.
			N = SPT 11/100mm REFUSAL		3		-	Extremely Weathered siltstone: silty CLAY, low to medium plasticity, red brown and grey, with very low strength siltstone bands.	XW	Hd		BRINGELLY SHALE
					4			SILTSTONE: grey brown, with occasional extremely weathered bands.	DW	VL-L		LOW 'TC' BIT RESISTANCE
					5							LOW TO MODERATE RESISTANCE
					6							LOW RESISTANCE
					6			END OF BOREHOLE AT 6.0m				
					7							

JKGeotechnics

BOREHOLE LOG



Borehole No.
4

1/1

SDUP1: 0-0.1m

Client: HEALTH INFRASTRUCTURE										
Project: GEOTECHNICAL AND CONTAMINATION ASSESSMENT SERVICES										
Location: MOUNT DRUITT HOSPITAL, MOUNT DRUITT, NSW										
Job No.: 37665LF										
Method: HAND AUGER / SPIRAL AUGER										
R.L. Surface: 61.20m										
Date: 14/7/25										
Datum: AHD										
Plant Type: JK500										
Logged/Checked by: A.M./O.F.										

Groundwater Record	SAMPLES			Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
	ES	U50	DB									
DRY ON COMPLETION					0			FILL: Silty sand, fine to medium grained, dark brown, trace of clay nodules and root fibres.	M			GRASS COVER SCREEN: 11.85kg 0-0.1m, NO FCF HAND AUGER TO 0.5m SCREEN: 6.65kg (<10L) 0.1-0.5m, NO FCF RESIDUAL
				N = 6 2,2,4		CH	FILL: Silty clay, high plasticity, dark brown and brown, trace of fine grained ironstone gravel, slag and root fibres) Silty CLAY: high plasticity, red brown and grey, trace of fine to medium grained ironstone gravel, and root fibres.	w>PL	VSt	210 220 230		
				N = 8 2,3,5			as above, but light grey and red brown, without root fibres.			300 280 280		
				N = 33 6,14,19						>600 >600 >600		
					4		-	SILTSTONE: grey brown, with occasional extremely weathered bands and iron indurated bands.	DW	VL-L		BRINGELLY SHALE LOW 'TC' BIT RESISTANCE WITH VERY LOW AND MODERATE BANDS
					5							GROUNDWATER MONITORING WELL INSTALLED TO 6.0m. CLASS 18 MACHINE SLOTTED 50mm DIA. PVC STANDPIPE 3.0m TO 6.0m. CASING 0m TO 3.0m. 2mm SAND FILTER PACK 2.8m TO 6.0m. BENTONITE SEAL
					6			END OF BOREHOLE AT 6.0m				2.3m TO 2.8m. BACKFILLED WITH CUTTINGS TO THE SURFACE. COMPLETED WITH A CONCRETED GATIC COVER.
					7							

▼
AFTER
3 HRS

BOREHOLE LOG



Borehole No.

5

1/1

SDUP2: 0-0.1m

Client: HEALTH INFRASTRUCTURE

Project: GEOTECHNICAL AND CONTAMINATION ASSESSMENT SERVICES

Location: MOUNT DRUITT HOSPITAL, MOUNT DRUITT, NSW

Job No.: 37665LF

Method: HAND AUGER /
SPIRAL AUGER

R.L. Surface: 64.35m

Date: 14/7/25

Datum: AHD

Plant Type: JK500

Logged/Checked by: A.M./O.F.

Groundwater Record	SAMPLES			Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
	ES	U50	DB									
DRY ON COMPLETION					0			FILL: Silty clay, high plasticity, brown, with fine to medium grained igneous gravel, trace of fine to medium grained sand.	w<PL			GRASS COVER SCREEN: 9.20kg (<10L) 0-0.2m, NO FCF APPEARS WELL COMPACTED HAND AUGER TO 0.5m (0.2m) INSUFFICIENT RETURN FOR BULK SCREEN
				N = 10 2,4,6				FILL: Silty clay, high plasticity, grey and brown, with fine to medium grained ironstone gravel, trace of ash.	w≈PL			
				N = 14 4,6,8								
								as above, but red brown and brown.	w<PL			
				N = 16 6,10,6	3		CH	Silty CLAY: high plasticity, red brown and grey, trace of fine to medium grained ironstone gravel.	w<PL	Hd	>600 >600 >600	RESIDUAL
					4							
				N = 39 8,20,19	5		-	Extremely Weathered siltstone: silty CLAY, high plasticity, light grey and red brown, with iron indurated bands.	XW	Hd	>600 >600 >600	BRINGELLY SHALE GROUNDWATER MONITORING WELL INSTALLED TO 6.0m. CLASS 18 MACHINE SLOTTED 50mm DIA. PVC STANDPIPE 3.0m TO 6.0m. CASING 0m TO 3.0m. 2mm SAND FILTER PACK 2.8m TO 6.0m. BENTONITE SEAL
					6							
					7			END OF BOREHOLE AT 6.0m				2.3m TO 2.8m. BACKFILLED WITH CUTTINGS TO THE SURFACE. COMPLETED WITH A CONCRETED GATIC COVER.

▼
AFTER
3 HRS

Client: HEALTH INFRASTRUCTURE															
Project: EXPANSION PROJECT															
Location: MOUNT DRUITT HOSPITAL, 75 RAILWAY STREET, MOUNT DRUITT, NSW															
Job No.: E37644PT															
Method: TEST PIT															
R.L. Surface: N/A															
Date: 15/10/25															
Datum: -															
Plant Type: EXCAVATOR															
Logged/Checked by: V.R./T.H.															
Groundwater Record	ES	ASS	SAMPLES	ASS	SAL	DB	Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
DRY ON COMPLETION								0			FILL: Silty clay, high plasticity, brown, with ironstone gravel and root fibres.	w<PL			GRASS COVER
											as above, but medium to high plasticity.	w≈PL			SCREEN: 10.50kg 0-0.3m, NO FCF
								0.5		CH	Silty CLAY: high plasticity, brown and red brown.	w≈PL			SCREEN: 10.40kg 0.3-0.5m, NO FCF
															RESIDUAL
											END OF TEST PIT AT 0.8m				
								1							
								1.5							
								2							
								2.5							
								3							
								3.5							

JKEnvironments

ENVIRONMENTAL LOG

Environmental logs are not to be used for geotechnical purposes

Client:HEALTH INFRASTRUCTURE

Project:EXPANSION PROJECT

Location:MOUNT DRUITT HOSPITAL, 75 RAILWAY STREET, MOUNT DRUITT, NSW

Job No.: E37644PT

Method: TEST PIT

R.L. Surface: N/A

Date: 15/10/25

Datum: -

Plant Type: EXCAVATOR

Logged/Checked by: V.R./T.H.

Groundwater Record	SAMPLES					Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/Weathering	Strength/Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
	ES	ASS	ASB	SAL	DB									
DRY ON COMPLETION							0			FILL: Silty clay, high plasticity, brown, with ironstone gravel and root fibres, trace of sandstone gravel.	w<PL			GRASS COVER SCREEN: 11.40kg 0-0.5m, NO FCF
							0.5		CI-CH	Silty CLAY: medium to high plasticity, red brown and light grey, trace of ironstone gravel. END OF TEST PIT AT 0.6m	w≈PL			RESIDUAL
							1							
							1.5							
							2							
							2.5							
							3							
							3.5							

Environmental logs are not to be used for geotechnical purposes

Client: HEALTH INFRASTRUCTURE Project: EXPANSION PROJECT Location: MOUNT DRUITT HOSPITAL, 75 RAILWAY STREET, MOUNT DRUITT, NSW													
Job No.: E37644PT Method: TEST PIT R.L. Surface: N/A Date: 15/10/25 Datum: - Plant Type: EXCAVATOR Logged/Checked by: V.R./T.H.													
Groundwater Record	SAMPLES				Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
	ES	ASS	ASB	SAL									
DRY ON COMPLETION						0			FILL: Silty clay, medium to high plasticity, brown, with ironstone gravel and root fibres.	w<PL			GRASS COVER SCREEN: 11.25kg 0-0.5m, NO FCF
						0.5			END OF TEST PIT AT 0.5m				TEST PIT TERMINATED DUE TO SUSPECTED COPPER PIPE AT 0.5m.
						1							
						1.5							
						2							
						2.5							
						3							
						3.5							

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ENVIRONMENTAL LOG

Environmental logs are not to be used for geotechnical purposes

Client: HEALTH INFRASTRUCTURE Project: EXPANSION PROJECT Location: MOUNT DRUITT HOSPITAL, 75 RAILWAY STREET, MOUNT DRUITT, NSW													
Job No.: E37644PT Method: TEST PIT R.L. Surface: N/A Date: 15/10/25 Datum: - Plant Type: EXCAVATOR Logged/Checked by: V.R./T.H.													
Groundwater Record	SAMPLES				Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
	ES	ASS	ASB	SAL									
DRY ON COMPLE TION						0			FILL: Silty clay, high plasticity, brown, with ironstone gravel and root fibres.	w<PL			GRASS COVER
						0.5			as above, but medium plasticity, dark brown.	w≈PL			SCREEN: 12.05kg 0-0.3m, NO FCF
							CI	Silty CLAY: medium plasticity, red brown, trace of ironstone gravel and root fibres.	w≈PL			SCREEN: 9.90kg (<10L) 0.3-0.5m, NO FCF RESIDUAL	
						1			END OF TEST PIT AT 0.8m				
						1.5							
						2							
						2.5							
						3							
						3.5							

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ENVIRONMENTAL LOG

Environmental logs are not to be used for geotechnical purposes

Client: HEALTH INFRASTRUCTURE Project: EXPANSION PROJECT Location: MOUNT DRUITT HOSPITAL, 75 RAILWAY STREET, MOUNT DRUITT, NSW													
Job No.: E37644PT Method: TEST PIT R.L. Surface: N/A Date: 14/10/25 Datum: - Plant Type: EXCAVATOR Logged/Checked by: V.R./T.H.													
Groundwater Record	SAMPLES				Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
	ES	ASS	ASB	SAL									
DRY ON COMPLETION						0			FILL: Silty clay, high plasticity, brown, with ironstone and igneous gravel, trace of root fibres.	w<PL			GRASS COVER SCREEN: 12.15kg 0-0.4m, NO FCF
						0.5	CH	Silty CLAY: high plasticity, orange brown, with ironstone gravel, trace of root fibres.	w<PL			RESIDUAL	
									END OF TEST PIT AT 0.6m				
						1							
						1.5							
						2							
						2.5							
						3							
						3.5							

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ENVIRONMENTAL LOG

Environmental logs are not to be used for geotechnical purposes

Client: HEALTH INFRASTRUCTURE Project: EXPANSION PROJECT Location: MOUNT DRUITT HOSPITAL, 75 RAILWAY STREET, MOUNT DRUITT, NSW													
Job No.: E37644PT Method: TEST PIT R.L. Surface: N/A													
Date: 14/10/25 Datum: -													
Plant Type: EXCAVATOR Logged/Checked by: V.R./T.H.													
Groundwater Record	SAMPLES				Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
	ES	ASS	ASB	SAL									
DRY ON COMPLETION						0			FILL: Silty clay, high plasticity, brown, with ironstone and igneous gravel, trace of root fibres.	w<PL			GRASS COVER SCREEN: 10.10kg 0-0.4m, NO FCF
						0.5		CH	Silty CLAY: high plasticity, orange brown, with ironstone gravel. END OF TEST PIT AT 0.5m	w<PL			RESIDUAL
						1							
						1.5							
						2							
						2.5							
						3							
						3.5							

JKEnvironments

ENVIRONMENTAL LOG



Log No.
TP109
1/1

SDUP101: 0-0.1m

Environmental logs are not to be used for geotechnical purposes

Client:HEALTH INFRASTRUCTURE

Project:EXPANSION PROJECT

Location:MOUNT DRUITT HOSPITAL, 75 RAILWAY STREET, MOUNT DRUITT, NSW

Job No.:E37644PT

Method:TEST PIT

R.L. Surface:N/A

Date:14/10/25

Datum:-

Plant Type:EXCAVATOR

Logged/Checked by:V.R./T.H.

Groundwater Record	SAMPLES				Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/Weathering	Strength/Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
	ES	ASS	ASB	SAL									
DRY ON COMPLETION						0			FILL: Silty clay, high plasticity, light brown, with ironstone and igneous gravel and root fibres.	w<PL			GRASS COVER
									FILL: Silty clay, high plasticity, light grey and red brown, trace of root fibres.	w<PL			SCREEN: 11.25kg 0-0.2m, NO FCF
						0.5			FILL: Silty clay, medium plasticity, dark brown, with ironstone and igneous gravel, trace of ash and root fibres.	w<PL			SCREEN: 9.05kg (<10L) 0.2-0.4m, NO FCF
								CH	FILL: Silty clay, medium plasticity, dark brown, with ironstone and igneous gravel, trace of ash and root fibres.	w<PL			SCREEN: 10.70kg 0.4-0.6m, NO FCF
									Silty CLAY: high plasticity, orange brown, with ironstone gravel, trace of root fibres.				RESIDUAL
						1			END OF TEST PIT AT 0.7m				
						1.5							
						2							
						2.5							
						3							
						3.5							

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ENVIRONMENTAL LOG

Environmental logs are not to be used for geotechnical purposes

Client:HEALTH INFRASTRUCTURE

Project:EXPANSION PROJECT

Location:MOUNT DRUITT HOSPITAL, 75 RAILWAY STREET, MOUNT DRUITT, NSW

Job No.:E37644PT

Method:TEST PIT

R.L. Surface:N/A

Date:15/10/25

Datum:-

Plant Type:EXCAVATOR

Logged/Checked by:V.R./T.H.

Groundwater Record	SAMPLES					Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/Weathering	Strength/Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
	ES	ASS	ASB	SAL	DB									
DRY ON COMPLETION							0			FILL: Silty sand, fine to medium grained, brown, with sandstone and igneous gravel, trace of tile fragments and root fibres.	D			GRASS COVER SCREEN: 11.60kg 0-0.3m, NO FCF
							0.5		CI-CH	Silty CLAY: medium to high plasticity, red brown, with ironstone gravel, trace of root fibres.	w<PL			RESIDUAL
										END OF TEST PIT AT 0.6m				
							1							
							1.5							
							2							
							2.5							
							3							
							3.5							

JKEnvironments

ENVIRONMENTAL LOG

Environmental logs are not to be used for geotechnical purposes

Client: HEALTH INFRASTRUCTURE Project: EXPANSION PROJECT Location: MOUNT DRUITT HOSPITAL, 75 RAILWAY STREET, MOUNT DRUITT, NSW													
Job No.: E37644PT Method: TEST PIT R.L. Surface: N/A Date: 14/10/25 Datum: - Plant Type: EXCAVATOR Logged/Checked by: V.R./T.H.													
Groundwater Record	SAMPLES				Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
	ES	ASS	ASB	SAL									
DRY ON COMPLETION						0			FILL: Silty clay, high plasticity, brown, with ironstone and igneous gravel, trace of metal fragments and root fibres.	w<PL			GRASS COVER
						0.5			as above, but medium plasticity, dark brown.	w<PL			SCREEN: 10.20kg 0-0.2m, NO FCF SCREEN: 10.80kg 0.2-0.8m, NO FCF
						1	CH	Silty CLAY: high plasticity, orange brown and light grey, trace of ash and root fibres.	w<PL			RESIDUAL	
						1.5			END OF TEST PIT AT 1.1m				
						2							
						2.5							
						3							
						3.5							

JKEnvironments

ENVIRONMENTAL LOG

Environmental logs are not to be used for geotechnical purposes

Client: HEALTH INFRASTRUCTURE Project: EXPANSION PROJECT Location: MOUNT DRUITT HOSPITAL, 75 RAILWAY STREET, MOUNT DRUITT, NSW													
Job No.: E37644PT Method: TEST PIT R.L. Surface: N/A Date: 14/10/25 Datum: - Plant Type: EXCAVATOR Logged/Checked by: V.R./T.H.													
Groundwater Record	SAMPLES				Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
	ES	ASS	ASB	SAL									
DRY ON COMPLETION						0			FILL: Silty clay, high plasticity, brown, with ironstone gravel and root fibres.	w<PL			GRASS COVER SCREEN: 10.80kg 0-0.4m, NO FCF
						0.5		CH	Silty CLAY: high plasticity, red brown, with ironstone gravel, trace of sand. END OF TEST PIT AT 0.5m	w<PL			RESIDUAL
						1							
						1.5							
						2							
						2.5							
						3							
						3.5							

JKEnvironments

ENVIRONMENTAL LOG

Environmental logs are not to be used for geotechnical purposes

Client: HEALTH INFRASTRUCTURE Project: EXPANSION PROJECT Location: MOUNT DRUITT HOSPITAL, 75 RAILWAY STREET, MOUNT DRUITT, NSW													
Job No.: E37644PT Method: TEST PIT R.L. Surface: N/A													
Date: 14/10/25 Datum: -													
Plant Type: EXCAVATOR Logged/Checked by: V.R./T.H.													
Groundwater Record	SAMPLES				Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
	ES	ASS	ASB	SAL									
DRY ON COMPLETION						0			FILL: Silty clay, high plasticity, brown, with ironstone and igneous gravel, trace of root fibres.	w<PL			GRASS COVER
						0.5							SCREEN: 10.65kg 0-0.3m, NO FCF
								CI-CH	Silty CLAY: medium to high plasticity, orange brown, trace of ash and root fibres.	w<PL			SCREEN: 9.90kg (<10L) 0.3-0.6m, NO FCF
									END OF TEST PIT AT 0.9m				RESIDUAL
						1							
						1.5							
						2							
						2.5							
						3							
						3.5							

JKEnvironments

ENVIRONMENTAL LOG

Environmental logs are not to be used for geotechnical purposes

Client: HEALTH INFRASTRUCTURE Project: EXPANSION PROJECT Location: MOUNT DRUITT HOSPITAL, 75 RAILWAY STREET, MOUNT DRUITT, NSW													
Job No.: E37644PT				Method: HAND TOOLS				R.L. Surface: N/A					
Date: 14/10/25				Datum: -									
Plant Type: -				Logged/Checked by: V.R./T.H.									
Groundwater Record	SAMPLES				Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
	ES	ASS	ASB	SAL									
						0			FILL: Silty clay, high plasticity, light brown, with root fibres. END OF SURFACE SAMPLE				
						0.5							
						1							
						1.5							
						2							
						2.5							
						3							
						3.5							



ENVIRONMENTAL LOGS EXPLANATION NOTES

INTRODUCTION

These notes have been provided to amplify the environmental report in regard to classification methods, field procedures and certain matters relating to the logging of soil and rock. Not all notes are necessarily relevant to all reports.

Where geotechnical borehole logs are utilised for environmental purpose, reference should also be made to the explanatory notes included in the geotechnical report. Environmental logs are not suitable for geotechnical purposes.

The ground is a product of continuing natural and man-made processes and therefore exhibits a variety of characteristics and properties which vary from place to place and can change with time. Environmental studies include gathering and assimilating limited facts about these characteristics and properties in order to understand or predict the behaviour of the ground on a particular site under certain conditions. This report may contain such facts obtained by inspection, excavation, probing, sampling, testing or other means of investigation. If so, they are directly relevant only to the ground at the place where and time when the investigation was carried out.

DESCRIPTION AND CLASSIFICATION METHODS

The methods of description and classification of soils and rocks used in this report are based on Australian Standard 1726:2017 'Geotechnical Site Investigations'. In general, descriptions cover the following properties – soil or rock type, colour, structure, strength or density, and inclusions. Identification and classification of soil and rock involves judgement and the Company infers accuracy only to the extent that is common in current geoenvironmental practice.

Soil types are described according to the predominating particle size and behaviour as set out in the attached soil classification table qualified by the grading of other particles present (eg. sandy clay) as set out below:

Soil Classification	Particle Size
Clay	< 0.002mm
Silt	0.002 to 0.075mm
Sand	0.075 to 2.36mm
Gravel	2.36 to 63mm
Cobbles	63 to 200mm
Boulders	> 200mm

Non-cohesive soils are classified on the basis of relative density, generally from the results of Standard Penetration Test (SPT) as below:

Relative Density	SPT 'N' Value (blows/300mm)
Very loose (VL)	< 4
Loose (L)	4 to 10
Medium dense (MD)	10 to 30
Dense (D)	30 to 50
Very Dense (VD)	> 50

Cohesive soils are classified on the basis of strength (consistency) either by use of a hand penetrometer, vane shear, laboratory testing and/or tactile engineering examination. The strength terms are defined as follows.

Classification	Unconfined Compressive Strength (kPa)	Indicative Undrained Shear Strength (kPa)
Very Soft (VS)	≤ 25	≤ 12
Soft (S)	> 25 and ≤ 50	> 12 and ≤ 25
Firm (F)	> 50 and ≤ 100	> 25 and ≤ 50
Stiff (St)	> 100 and ≤ 200	> 50 and ≤ 100
Very Stiff (VSt)	> 200 and ≤ 400	> 100 and ≤ 200
Hard (Hd)	> 400	> 200
Friable (Fr)	Strength not attainable – soil crumbles	

Rock types are classified by their geological names, together with descriptive terms regarding weathering, strength, defects, etc. Where relevant, further information regarding rock classification is given in the text of the report. In the Sydney Basin, 'shale' is used to describe fissile mudstone, with a weakness parallel to bedding. Rocks with alternating inter-laminations of different grain size (eg. siltstone/claystone and siltstone/fine grained sandstone) are referred to as 'laminite'.

INVESTIGATION METHODS

The following is a brief summary of investigation methods currently adopted by the Company and some comments on their use and application. All methods except test pits, hand auger drilling and portable Dynamic Cone Penetrometers require the use of a mechanical rig which is commonly mounted on a truck chassis or track base.

Test Pits: These are normally excavated with a backhoe or a tracked excavator, allowing close examination of the insitu soils and 'weaker' bedrock if it is safe to descend into the pit. The depth of penetration is limited to about 3m for a backhoe and up to 6m for a large excavator. Limitations of test pits are the problems associated with disturbance and difficulty of reinstatement and the consequent effects on close-by structures. Care must be taken if construction is to be carried out near test pit locations to either properly recompact the backfill during construction or to design and construct the

structure so as not to be adversely affected by poorly compacted backfill at the test pit location.

Hand Auger Drilling: A borehole of 50mm to 100mm diameter is advanced by manually operated equipment. Refusal of the hand auger can occur on a variety of materials such as obstructions within any fill, tree roots, hard clay, gravel or ironstone, cobbles and boulders, and does not necessarily indicate rock level.

Continuous Spiral Flight Augers: The borehole is advanced using 75mm to 115mm diameter continuous spiral flight augers, which are withdrawn at intervals to allow sampling and insitu testing. This is a relatively economical means of drilling in clays and in sands above the water table. Samples are returned to the surface by the flights or may be collected after withdrawal of the auger flights, but they can be very disturbed and layers may become mixed. Information from the auger sampling (as distinct from specific sampling by SPTs or undisturbed samples) is of limited reliability due to mixing or softening of samples by groundwater, or uncertainties as to the original depth of the samples. Augering below the groundwater table is of even lesser reliability than augering above the water table.

Rock Augering: Use can be made of a Tungsten Carbide (TC) bit for auger drilling into rock to indicate rock quality and continuity by variation in drilling resistance and from examination of recovered rock cuttings. This method of investigation is quick and relatively inexpensive but provides only an indication of the likely rock strength and predicted values may be in error by a strength order. Where rock strengths may have a significant impact on construction feasibility or costs, then further investigation by means of cored boreholes may be warranted.

Wash Boring: The borehole is usually advanced by a rotary bit, with water being pumped down the drill rods and returned up the annulus, carrying the drill cuttings. Only major changes in stratification can be assessed from the cuttings, together with some information from “feel” and rate of penetration.

Mud Stabilised Drilling: Either Wash Boring or Continuous Core Drilling can use drilling mud as a circulating fluid to stabilise the borehole. The term ‘mud’ encompasses a range of products ranging from bentonite to polymers. The mud tends to mask the cuttings and reliable identification is only possible from intermittent intact sampling (eg. from SPT and U50 samples) or from rock coring, etc.

Continuous Core Drilling: A continuous core sample is obtained using a diamond tipped core barrel. Provided full core recovery is achieved (which is not always possible in very low strength rocks and granular soils), this technique provides a very reliable (but relatively expensive) method of investigation. In rocks, NMLC or HQ triple tube core barrels, which give a core of about 50mm and 61mm diameter, respectively, is usually used with water flush. The length of core recovered is compared to the length drilled and any length not recovered is shown as NO CORE. The location of NO CORE recovery is determined on site by the supervising engineer; where the location is uncertain, the loss is placed at the bottom of the drill run.

Standard Penetration Tests: Standard Penetration Tests (SPT) are used mainly in non-cohesive soils, but can also be used in cohesive soils, as a means of indicating density or strength and also of obtaining a relatively undisturbed sample. The test procedure is

described in Australian Standard 1289.6.3.1–2004 (R2016) ‘*Methods of Testing Soils for Engineering Purposes, Soil Strength and Consolidation Tests – Determination of the Penetration Resistance of a Soil – Standard Penetration Test (SPT)*’.

The test is carried out in a borehole by driving a 50mm diameter split sample tube with a tapered shoe, under the impact of a 63.5kg hammer with a free fall of 760mm. It is normal for the tube to be driven in three successive 150mm increments and the ‘N’ value is taken as the number of blows for the last 300mm. In dense sands, very hard clays or weak rock, the full 450mm penetration may not be practicable and the test is discontinued.

The test results are reported in the following form:

- In the case where full penetration is obtained with successive blow counts for each 150mm of, say, 4, 6 and 7 blows, as

N = 13
4, 6, 7

- In a case where the test is discontinued short of full penetration, say after 15 blows for the first 150mm and 30 blows for the next 40mm, as

N > 30
15, 30/40mm

The results of the test can be related empirically to the engineering properties of the soil.

A modification to the SPT is where the same driving system is used with a solid 60° tipped steel cone of the same diameter as the SPT hollow sampler. The solid cone can be continuously driven for some distance in soft clays or loose sands, or may be used where damage would otherwise occur to the SPT. The results of this Solid Cone Penetration Test (SCPT) are shown as ‘N_c’ on the borehole logs, together with the number of blows per 150mm penetration.

LOGS

The borehole or test pit logs presented herein are an interpretation of the subsurface conditions, and their reliability will depend to some extent on the frequency of sampling and the method of drilling or excavation. Ideally, continuous undisturbed sampling or core drilling will enable the most reliable assessment, but is not always practicable or possible to justify on economic grounds. In any case, the boreholes or test pits represent only a very small sample of the total subsurface conditions.

The terms and symbols used in preparation of the logs are defined in the following pages.

Interpretation of the information shown on the logs, and its application to design and construction, should therefore take into account the spacing of boreholes or test pits, the method of drilling or excavation, the frequency of sampling and testing and the possibility of other than ‘straight line’ variations between the boreholes or test pits. Subsurface conditions between boreholes or test pits may vary significantly from conditions encountered at the borehole or test pit locations.

GROUNDWATER

Where groundwater levels are measured in boreholes, there are several potential problems:

- Although groundwater may be present, in low permeability soils it may enter the hole slowly or perhaps not at all during the time it is left open.
- A localised perched water table may lead to an erroneous indication of the true water table.
- Water table levels will vary from time to time with seasons or recent weather changes and may not be the same at the time of construction.
- The use of water or mud as a drilling fluid will mask any groundwater inflow. Water has to be blown out of the hole and drilling mud must be washed out of the hole or 'reverted' chemically if reliable water observations are to be made.

More reliable measurements can be made by installing standpipes which are read after the groundwater level has stabilised at intervals ranging from several days to perhaps weeks for low permeability soils. Piezometers, sealed in a particular stratum, may be advisable in low permeability soils or where there may be interference from perched water tables or surface water.

FILL

The presence of fill materials can often be determined only by the inclusion of foreign objects (eg. bricks, steel, etc) or by distinctly unusual colour, texture or fabric. Identification of the extent of fill materials will also depend on investigation methods and frequency. Where natural soils similar to those at the site are used for fill, it may be difficult with limited testing and sampling to reliably assess the extent of the fill.

The presence of fill materials is usually regarded with caution as the possible variation in density and material type is much greater than with natural soil deposits. Consequently, there is an increased risk of adverse environmental characteristics or behaviour. If the volume and nature of fill is of importance to a project, then frequent test pit excavations are preferable to boreholes.

LABORATORY TESTING

Laboratory testing has not been undertaken to confirm the soil classification and rock strengths indicated on the environmental logs unless noted in the report.

SYMBOL LEGENDS

SOIL



FILL



TOPSOIL



CLAY (CL, CI, CH)



SILT (ML, MH)



SAND (SP, SW)



GRAVEL (GP, GW)



SANDY CLAY (CL, CI, CH)



SILTY CLAY (CL, CI, CH)



CLAYEY SAND (SC)



SILTY SAND (SM)



GRAVELLY CLAY (CL, CI, CH)



CLAYEY GRAVEL (GC)



SANDY SILT (ML, MH)



PEAT AND HIGHLY ORGANIC SOILS (Pt)

ROCK



CONGLOMERATE



SANDSTONE



SHALE/MUDSTONE



SILTSTONE



CLAYSTONE



COAL



LAMINITE



LIMESTONE



PHYLLITE, SCHIST



TUFF



GRANITE, GABBRO



DOLERITE, DIORITE



BASALT, ANDESITE



QUARTZITE

OTHER MATERIALS



BRICKS OR PAVERS



CONCRETE



ASPHALTIC CONCRETE

CLASSIFICATION OF COARSE AND FINE GRAINED SOILS

Major Divisions		Group Symbol	Typical Names	Field Classification of Sand and Gravel	Laboratory Classification	
Coarse grained soil (more than 60% of soil excluding oversize fraction is greater than 0.075mm)	GRAVEL (more than half of coarse fraction is larger than 2.36mm)	GW	Gravel and gravel-sand mixtures, little or no fines	Wide range in grain size and substantial amounts of all intermediate sizes, not enough fines to bind coarse grains, no dry strength	≤ 5% fines	$C_u > 4$ $1 < C_c < 3$
		GP	Gravel and gravel-sand mixtures, little or no fines, uniform gravels	Predominantly one size or range of sizes with some intermediate sizes missing, not enough fines to bind coarse grains, no dry strength	≤ 5% fines	Fails to comply with above
		GM	Gravel-silt mixtures and gravel-sand-silt mixtures	‘Dirty’ materials with excess of non-plastic fines, zero to medium dry strength	≥ 12% fines, fines are silty	Fines behave as silt
		GC	Gravel-clay mixtures and gravel-sand-clay mixtures	‘Dirty’ materials with excess of plastic fines, medium to high dry strength	≥ 12% fines, fines are clayey	Fines behave as clay
	SAND (more than half of coarse fraction is smaller than 2.36mm)	SW	Sand and gravel-sand mixtures, little or no fines	Wide range in grain size and substantial amounts of all intermediate sizes, not enough fines to bind coarse grains, no dry strength	≤ 5% fines	$C_u > 6$ $1 < C_c < 3$
		SP	Sand and gravel-sand mixtures, little or no fines	Predominantly one size or range of sizes with some intermediate sizes missing, not enough fines to bind coarse grains, no dry strength	≤ 5% fines	Fails to comply with above
		SM	Sand-silt mixtures	‘Dirty’ materials with excess of non-plastic fines, zero to medium dry strength	≥ 12% fines, fines are silty	N/A
		SC	Sand-clay mixtures	‘Dirty’ materials with excess of plastic fines, medium to high dry strength	≥ 12% fines, fines are clayey	

Laboratory Classification Criteria

A well graded coarse grained soil is one for which the coefficient of uniformity $C_u > 4$ and the coefficient of curvature $1 < C_c < 3$. Otherwise, the soil is poorly graded. These coefficients are given by:

$$C_u = \frac{D_{60}}{D_{10}} \quad \text{and} \quad C_c = \frac{(D_{30})^2}{D_{10} D_{60}}$$

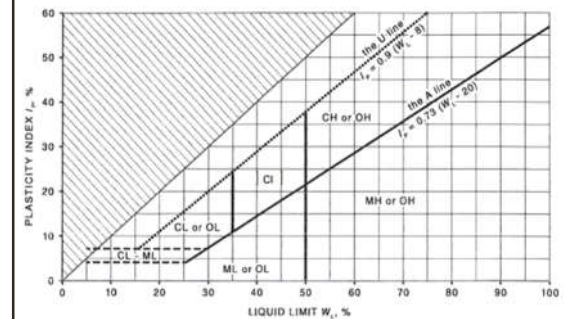
Where D_{10} , D_{30} and D_{60} are those grain sizes for which 10%, 30% and 60% of the soil grains, respectively, are smaller.

NOTES:

- For a coarse grained soil with a fines content between 5% and 12%, the soil is given a dual classification comprising the two group symbols separated by a dash; for example, for a poorly graded gravel with between 5% and 12% silt fines, the classification is GP-GM.
- Where the grading is determined from laboratory tests, it is defined by coefficients of curvature (C_c) and uniformity (C_u) derived from the particle size distribution curve.
- Clay soils with liquid limits $> 35\%$ and $\leq 50\%$ may be classified as being of medium plasticity.
- The U line on the Modified Casagrande Chart is an approximate upper bound for most natural soils.

Major Divisions		Group Symbol	Typical Names	Field Classification of Silt and Clay			Laboratory Classification
				Dry Strength	Dilatancy	Toughness	% < 0.075mm
fine grained soils (more than 35% of soil excluding oversize fraction is less than 0.075mm)	SILT and CLAY (low to medium plasticity)	ML	Inorganic silt and very fine sand, rock flour, silty or clayey fine sand or silt with low plasticity	None to low	Slow to rapid	Low	Below A line
		CL, CI	Inorganic clay of low to medium plasticity, gravelly clay, sandy clay	Medium to high	None to slow	Medium	Above A line
		OL	Organic silt	Low to medium	Slow	Low	Below A line
	SILT and CLAY (high plasticity)	MH	Inorganic silt	Low to medium	None to slow	Low to medium	Below A line
		CH	Inorganic clay of high plasticity	High to very high	None	High	Above A line
		OH	Organic clay of medium to high plasticity, organic silt	Medium to high	None to very slow	Low to medium	Below A line
	Highly organic soil	Pt	Peat, highly organic soil	—	—	—	—

Modified Casagrande Chart for Classifying Silts and Clays according to their Behaviour



LOG SYMBOLS

Log Column	Symbol	Definition																		
Groundwater Record	▼	Standing water level. Time delay following completion of drilling/excavation may be shown.																		
	C	Extent of borehole/test pit collapse shortly after drilling/excavation.																		
	▶	Groundwater seepage into borehole or test pit noted during drilling or excavation.																		
Samples	ES	Sample taken over depth indicated, for environmental analysis.																		
	U50	Undisturbed 50mm diameter tube sample taken over depth indicated.																		
	DB	Bulk disturbed sample taken over depth indicated.																		
	DS	Small disturbed bag sample taken over depth indicated.																		
	ASB	Soil sample taken over depth indicated, for asbestos analysis.																		
	ASS	Soil sample taken over depth indicated, for acid sulfate soil analysis.																		
	SAL	Soil sample taken over depth indicated, for salinity analysis.																		
	PFAS	Soil sample taken over depth indicated, for analysis of Per- and Polyfluoroalkyl Substances.																		
Field Tests	N = 17 4, 7, 10	Standard Penetration Test (SPT) performed between depths indicated by lines. Individual figures show blows per 150mm penetration. 'Refusal' refers to apparent hammer refusal within the corresponding 150mm depth increment.																		
	N _c = 5 7 3R	Solid Cone Penetration Test (SCPT) performed between depths indicated by lines. Individual figures show blows per 150mm penetration for 60° solid cone driven by SPT hammer. 'R' refers to apparent hammer refusal within the corresponding 150mm depth increment.																		
	VNS = 25 PID = 100	Vane shear reading in kPa of undrained shear strength. Photoionisation detector reading in ppm (soil sample headspace test).																		
Moisture Condition (Fine Grained Soils) (Coarse Grained Soils)	w > PL	Moisture content estimated to be greater than plastic limit.																		
	w ≈ PL	Moisture content estimated to be approximately equal to plastic limit.																		
	w < PL	Moisture content estimated to be less than plastic limit.																		
	w ≈ LL	Moisture content estimated to be near liquid limit.																		
	w > LL	Moisture content estimated to be wet of liquid limit.																		
	D	DRY – runs freely through fingers.																		
	M	MOIST – does not run freely but no free water visible on soil surface.																		
	W	WET – free water visible on soil surface.																		
Strength (Consistency) Cohesive Soils	VS	VERY SOFT – unconfined compressive strength ≤ 25kPa.																		
	S	SOFT – unconfined compressive strength > 25kPa and ≤ 50kPa.																		
	F	FIRM – unconfined compressive strength > 50kPa and ≤ 100kPa.																		
	St	STIFF – unconfined compressive strength > 100kPa and ≤ 200kPa.																		
	VSt	VERY STIFF – unconfined compressive strength > 200kPa and ≤ 400kPa.																		
	Hd	HARD – unconfined compressive strength > 400kPa.																		
	Fr	FRIABLE – strength not attainable, soil crumbles.																		
	()	Bracketed symbol indicates estimated consistency based on tactile examination or other assessment.																		
Density Index/ Relative Density (Cohesionless Soils)	VL	VERY LOOSE																		
	L	LOOSE																		
	MD	MEDIUM DENSE																		
	D	DENSE																		
	VD	VERY DENSE																		
	()	Bracketed symbol indicates estimated density based on ease of drilling or other assessment.																		
		<table> <thead> <tr> <th></th><th>Density Index (I_D) Range (%)</th><th>SPT 'N' Value Range (Blows/300mm)</th></tr> </thead> <tbody> <tr> <td>VL</td><td>≤ 15</td><td>0 – 4</td></tr> <tr> <td>L</td><td>> 15 and ≤ 35</td><td>4 – 10</td></tr> <tr> <td>MD</td><td>> 35 and ≤ 65</td><td>10 – 30</td></tr> <tr> <td>D</td><td>> 65 and ≤ 85</td><td>30 – 50</td></tr> <tr> <td>VD</td><td>> 85</td><td>> 50</td></tr> </tbody> </table>		Density Index (I _D) Range (%)	SPT 'N' Value Range (Blows/300mm)	VL	≤ 15	0 – 4	L	> 15 and ≤ 35	4 – 10	MD	> 35 and ≤ 65	10 – 30	D	> 65 and ≤ 85	30 – 50	VD	> 85	> 50
	Density Index (I _D) Range (%)	SPT 'N' Value Range (Blows/300mm)																		
VL	≤ 15	0 – 4																		
L	> 15 and ≤ 35	4 – 10																		
MD	> 35 and ≤ 65	10 – 30																		
D	> 65 and ≤ 85	30 – 50																		
VD	> 85	> 50																		



Log Column	Symbol	Definition
Hand Penetrometer Readings	300 250	Measures reading in kPa of unconfined compressive strength. Numbers indicate individual test results on representative undisturbed material unless noted otherwise.
Remarks	'V' bit 'TC' bit T_{60} Soil Origin	Hardened steel 'V' shaped bit. Twin pronged tungsten carbide bit. Penetration of auger string in mm under static load of rig applied by drill head hydraulics without rotation of augers. The geological origin of the soil can generally be described as: RESIDUAL – soil formed directly from insitu weathering of the underlying rock. No visible structure or fabric of the parent rock. EXTREMELY WEATHERED – soil formed directly from insitu weathering of the underlying rock. Material is of soil strength but retains the structure and/or fabric of the parent rock. ALLUVIAL – soil deposited by creeks and rivers. ESTUARINE – soil deposited in coastal estuaries, including sediments caused by inflowing creeks and rivers, and tidal currents. MARINE – soil deposited in a marine environment. AEOLIAN – soil carried and deposited by wind. COLLUVIAL – soil and rock debris transported downslope by gravity, with or without the assistance of flowing water. Colluvium is usually a thick deposit formed from a landslide. The description 'slopewash' is used for thinner surficial deposits. LITTORAL – beach deposited soil.

Classification of Material Weathering

Term		Abbreviation		Definition
Residual Soil		RS		Material is weathered to such an extent that it has soil properties. Mass structure and material texture and fabric of original rock are no longer visible, but the soil has not been significantly transported.
Extremely Weathered		XW		Material is weathered to such an extent that it has soil properties. Mass structure and material texture and fabric of original rock are still visible.
Highly Weathered	Distinctly Weathered (Note 1)	HW	DW	The whole of the rock material is discoloured, usually by iron staining or bleaching to the extent that the colour of the original rock is not recognisable. Rock strength is significantly changed by weathering. Some primary minerals have weathered to clay minerals. Porosity may be increased by leaching, or may be decreased due to deposition of weathering products in pores.
Moderately Weathered		MW		The whole of the rock material is discoloured, usually by iron staining or bleaching to the extent that the colour of the original rock is not recognisable, but shows little or no change of strength from fresh rock.
Slightly Weathered		SW		Rock is partially discoloured with staining or bleaching along joints but shows little or no change of strength from fresh rock.
Fresh		FR		Rock shows no sign of decomposition of individual minerals or colour changes.

NOTE 1: The term 'Distinctly Weathered' is used where it is not practicable to distinguish between 'Highly Weathered' and 'Moderately Weathered' rock. 'Distinctly Weathered' is defined as follows: 'Rock strength usually changed by weathering. The rock may be highly discoloured, usually by iron staining. Porosity may be increased by leaching, or may be decreased due to deposition of weathering products in pores'. There is some change in rock strength.

Rock Material Strength Classification

Term	Abbreviation	Uniaxial Compressive Strength (MPa)	Guide to Strength	
			Point Load Strength Index $Is_{(50)}$ (MPa)	Field Assessment
Very Low Strength	VL	0.6 to 2	0.03 to 0.1	Material crumbles under firm blows with sharp end of pick; can be peeled with knife; too hard to cut a triaxial sample by hand. Pieces up to 30mm thick can be broken by finger pressure.
Low Strength	L	2 to 6	0.1 to 0.3	Easily scored with a knife; indentations 1mm to 3mm show in the specimen with firm blows of the pick point; has dull sound under hammer. A piece of core 150mm long by 50mm diameter may be broken by hand. Sharp edges of core may be friable and break during handling.
Medium Strength	M	6 to 20	0.3 to 1	Scored with a knife; a piece of core 150mm long by 50mm diameter can be broken by hand with difficulty.
High Strength	H	20 to 60	1 to 3	A piece of core 150mm long by 50mm diameter cannot be broken by hand but can be broken by a pick with a single firm blow; rock rings under hammer.
Very High Strength	VH	60 to 200	3 to 10	Hand specimen breaks with pick after more than one blow; rock rings under hammer.
Extremely High Strength	EH	> 200	> 10	Specimen requires many blows with geological pick to break through intact material; rock rings under hammer.



Appendix D: Laboratory Reports & COC Documents

CERTIFICATE OF ANALYSIS 393050

Client Details

Client	JK Environments
Attention	Katrina Taylor
Address	PO Box 976, North Ryde BC, NSW, 1670

Sample Details

Your Reference	<u>E37664PT Mount Druitt</u>
Number of Samples	5 Water
Date samples received	15/10/2025
Date completed instructions received	15/10/2025

Analysis Details

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

Samples were analysed as received from the client unless as indicated below in the method summaries. 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	22/10/2025
Date of Issue	22/10/2025

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

Results Approved By

Dragana Tomas, Senior Chemist
 Priya Samarawickrama, Senior Chemist
 Sean McAlary, Senior Chemist
 Tabitha Roberts, Senior Chemist
 Timothy Toll, Senior Chemist

Authorised By

Nancy Zhang, Laboratory Manager

vTRH(C6-C10)/BTEXN in Water						
Our Reference		393050-1	393050-2	393050-3	393050-4	393050-5
Your Reference	UNITS	MW2	MW4	WDUP1	TB-1	TS-1
Date Sampled		15/10/2025	15/10/2025	15/10/2025	15/10/2025	15/10/2025
Type of sample		Water	Water	Water	Water	Water
Date extracted	-	17/10/2025	17/10/2025	17/10/2025	17/10/2025	17/10/2025
Date analysed	-	20/10/2025	20/10/2025	20/10/2025	20/10/2025	20/10/2025
TRH C ₆ - C ₉	µg/L	<10	<10	<10	<10	[NA]
TRH C ₆ - C ₁₀	µg/L	<10	<10	<10	<10	[NA]
TRH C ₆ - C ₁₀ less BTEX (F1)	µg/L	<10	<10	<10	<10	[NA]
Benzene	µg/L	<1	<1	<1	<1	118%
Toluene	µg/L	<1	<1	<1	<1	114%
Ethylbenzene	µg/L	<1	<1	<1	<1	115%
m+p-xylene	µg/L	<2	<2	<2	<2	115%
o-xylene	µg/L	<1	<1	<1	<1	117%
Naphthalene	µg/L	<1	<1	<1	<1	[NA]
Surrogate Dibromofluoromethane	%	103	107	107	108	102
Surrogate Toluene-d8	%	101	105	106	106	100
Surrogate 4-Bromofluorobenzene	%	100	100	101	100	99

svTRH (C10-C40) in Water					
Our Reference		393050-1	393050-2	393050-3	393050-4
Your Reference	UNITS	MW2	MW4	WDUP1	TB-1
Date Sampled		15/10/2025	15/10/2025	15/10/2025	15/10/2025
Type of sample		Water	Water	Water	Water
Date extracted	-	22/10/2025	22/10/2025	22/10/2025	22/10/2025
Date analysed	-	22/10/2025	22/10/2025	22/10/2025	22/10/2025
TRH C ₁₀ - C ₁₄	µg/L	<50	<50	<50	<50
TRH C ₁₅ - C ₂₈	µg/L	<100	<100	<100	<100
TRH C ₂₉ - C ₃₆	µg/L	<100	<100	<100	<100
Total +ve TRH (C10-C36)	µg/L	<50	<50	<50	<50
TRH >C ₁₀ - C ₁₆	µg/L	<50	<50	<50	<50
TRH >C ₁₀ - C ₁₆ less Naphthalene (F2)	µg/L	<50	<50	<50	<50
TRH >C ₁₆ - C ₃₄	µg/L	<100	<100	<100	<100
TRH >C ₃₄ - C ₄₀	µg/L	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	µg/L	<50	<50	<50	<50
Surrogate o-Terphenyl	%	91	107	83	100

PAHs in Water					
Our Reference		393050-1	393050-2	393050-3	393050-4
Your Reference	UNITS	MW2	MW4	WDUP1	TB-1
Date Sampled		15/10/2025	15/10/2025	15/10/2025	15/10/2025
Type of sample		Water	Water	Water	Water
Date extracted	-	22/10/2025	22/10/2025	22/10/2025	22/10/2025
Date analysed	-	22/10/2025	22/10/2025	22/10/2025	22/10/2025
Naphthalene	µg/L	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	µg/L	<0.1	<0.1	<0.1	<0.1
Acenaphthene	µg/L	<0.1	<0.1	<0.1	<0.1
Fluorene	µg/L	<0.1	<0.1	<0.1	<0.1
Phenanthrene	µg/L	<0.1	<0.1	<0.1	<0.1
Anthracene	µg/L	<0.1	<0.1	<0.1	<0.1
Fluoranthene	µg/L	<0.1	<0.1	<0.1	<0.1
Pyrene	µg/L	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	µg/L	<0.1	<0.1	<0.1	<0.1
Chrysene	µg/L	<0.1	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	µg/L	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	µg/L	<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
Dibenzo(a,h)anthracene	µg/L	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	µg/L	<0.1	<0.1	<0.1	<0.1
Benzo(a)pyrene TEQ	µg/L	<0.5	<0.5	<0.5	<0.5
Total +ve PAH's	µg/L	<0.1	<0.1	<0.1	<0.1
Surrogate <i>p</i> -Terphenyl-d14	%	76	78	73	80

HM in water - dissolved					
Our Reference		393050-1	393050-2	393050-3	393050-4
Your Reference	UNITS	MW2	MW4	WDUP1	TB-1
Date Sampled		15/10/2025	15/10/2025	15/10/2025	15/10/2025
Type of sample		Water	Water	Water	Water
Date prepared	-	17/10/2025	17/10/2025	17/10/2025	17/10/2025
Date analysed	-	17/10/2025	17/10/2025	17/10/2025	17/10/2025
Arsenic-Dissolved	µg/L	<1	<1	<1	<1
Cadmium-Dissolved	µg/L	1.0	0.5	0.5	<0.1
Chromium-Dissolved	µg/L	<1	<1	<1	<1
Copper-Dissolved	µg/L	270	2	2	<1
Lead-Dissolved	µg/L	<1	<1	<1	<1
Mercury-Dissolved	µg/L	<0.05	<0.05	<0.05	<0.05
Nickel-Dissolved	µg/L	13	15	16	<1
Zinc-Dissolved	µg/L	36	27	27	<1

Miscellaneous Inorganics			
Our Reference		393050-1	393050-2
Your Reference	UNITS	MW2	MW4
Date Sampled		15/10/2025	15/10/2025
Type of sample		Water	Water
Date prepared	-	16/10/2025	16/10/2025
Date analysed	-	16/10/2025	16/10/2025
pH	pH Units	6.8	6.8
Electrical Conductivity	µS/cm	29,000	29,000

PFAS in Waters Extended				
Our Reference		393050-1	393050-2	393050-3
Your Reference	UNITS	MW2	MW4	WDUP1
Date Sampled		15/10/2025	15/10/2025	15/10/2025
Type of sample		Water	Water	Water
Date prepared	-	16/10/2025	16/10/2025	16/10/2025
Date analysed	-	17/10/2025	17/10/2025	17/10/2025
Perfluorobutanesulfonic acid	µg/L	<0.1	<0.1	<0.1
Perfluoropentanesulfonic acid	µg/L	<0.1	<0.1	<0.1
Perfluorohexanesulfonic acid - PFHxS	µg/L	<0.1	<0.1	<0.1
Perfluoroheptanesulfonic acid	µg/L	<0.1	<0.1	<0.1
Perfluorooctanesulfonic acid PFOS	µg/L	<0.1	<0.1	<0.1
Perfluorodecanesulfonic acid	µg/L	<0.2	<0.2	<0.2
Perfluorobutanoic acid	µg/L	<0.2	<0.2	<0.2
Perfluoropentanoic acid	µg/L	<0.2	<0.2	<0.2
Perfluorohexanoic acid	µg/L	<0.1	<0.1	<0.1
Perfluoroheptanoic acid	µg/L	<0.1	<0.1	<0.1
Perfluorooctanoic acid PFOA	µg/L	<0.1	<0.1	<0.1
Perfluorononanoic acid	µg/L	<0.1	<0.1	<0.1
Perfluorodecanoic acid	µg/L	<0.2	<0.2	<0.2
Perfluoroundecanoic acid	µg/L	<0.2	<0.2	<0.2
Perfluorododecanoic acid	µg/L	<0.5	<0.5	<0.5
Perfluorotridecanoic acid	µg/L	<1	<1	<1
Perfluorotetradecanoic acid	µg/L	<5	<5	<5
4:2 FTS	µg/L	<0.1	<0.1	<0.1
6:2 FTS	µg/L	<0.1	<0.1	<0.1
8:2 FTS	µg/L	<0.2	<0.2	<0.2
10:2 FTS	µg/L	<0.2	<0.2	<0.2
Perfluorooctane sulfonamide	µg/L	<1	<1	<1
N-Methyl perfluorooctane sulfonamide	µg/L	<0.5	<0.5	<0.5
N-Ethyl perfluorooctanesulfonamide	µg/L	<1	<1	<1
N-Me perfluorooctanesulfonamid oethanol	µg/L	<0.5	<0.5	<0.5
N-Et perfluorooctanesulfonamid oethanol	µg/L	<5	<5	<5
MePerfluorooctanesulf- amid oacetic acid	µg/L	<0.2	<0.2	<0.2
EtPerfluorooctanesulf- amid oacetic acid	µg/L	<0.2	<0.2	<0.2
Surrogate ¹³ C ₈ PFOS	%	104	107	102
Surrogate ¹³ C ₂ PFOA	%	105	103	104
Extracted ISTD ¹³ C ₃ PFBS	%	105	108	104
Extracted ISTD ¹⁸ O ₂ PFHxS	%	101	103	100
Extracted ISTD ¹³ C ₄ PFOS	%	99	101	102
Extracted ISTD ¹³ C ₄ PFBA	%	89	92	88

PFAS in Waters Extended				
Our Reference		393050-1	393050-2	393050-3
Your Reference	UNITS	MW2	MW4	WDUP1
Date Sampled		15/10/2025	15/10/2025	15/10/2025
Type of sample		Water	Water	Water
Extracted ISTD ¹³ C ₃ PFPeA	%	93	93	91
Extracted ISTD ¹³ C ₂ PFHxA	%	96	97	95
Extracted ISTD ¹³ C ₄ PFHpA	%	97	98	98
Extracted ISTD ¹³ C ₄ PFOA	%	96	98	95
Extracted ISTD ¹³ C ₅ PFNA	%	94	95	99
Extracted ISTD ¹³ C ₂ PFDA	%	96	104	99
Extracted ISTD ¹³ C ₂ PFUnDA	%	108	109	108
Extracted ISTD ¹³ C ₂ PFDoDA	%	114	115	113
Extracted ISTD ¹³ C ₂ PFTeDA	%	127	137	144
Extracted ISTD ¹³ C ₂ 4:2FTS	%	85	82	82
Extracted ISTD ¹³ C ₂ 6:2FTS	%	83	82	80
Extracted ISTD ¹³ C ₂ 8:2FTS	%	91	88	95
Extracted ISTD ¹³ C ₈ FOSA	%	107	110	109
Extracted ISTD d ₃ N MeFOSA	%	98	98	93
Extracted ISTD d ₅ N EtFOSA	%	103	105	100
Extracted ISTD d ₇ N MeFOSE	%	103	99	102
Extracted ISTD d ₉ N EtFOSE	%	102	102	100
Extracted ISTD d ₃ N MeFOSAA	%	102	104	105
Extracted ISTD d ₅ N EtFOSAA	%	93	99	93
Total Positive PFHxS & PFOS	µg/L	<0.1	<0.1	<0.1
Total Positive PFOA & PFOS	µg/L	<0.1	<0.1	<0.1
Total Positive PFAS	µg/L	<0.1	<0.1	<0.1

Method ID	Methodology Summary
Inorg-001	pH - Measured using pH meter and electrode. Please note that the results for water analyses are indicative only, as analysis outside of the APHA storage times.
Inorg-002	Conductivity and Salinity - measured using a conductivity cell.
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. Where salts (oxides, chlorides etc.) are calculated from the element concentration stoichiometrically there is no guarantee that the salt form is completely soluble in the acids used in the preparation.
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.
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.

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 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: vTRH(C6-C10)/BTEXN in Water					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W2	[NT]
Date extracted	-			17/10/2025	[NT]	[NT]	[NT]	[NT]	17/10/2025	[NT]
Date analysed	-			20/10/2025	[NT]	[NT]	[NT]	[NT]	20/10/2025	[NT]
TRH C ₆ - C ₉	µg/L	10	Org-023	<10	[NT]	[NT]	[NT]	[NT]	105	[NT]
TRH C ₆ - C ₁₀	µg/L	10	Org-023	<10	[NT]	[NT]	[NT]	[NT]	105	[NT]
Benzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	104	[NT]
Toluene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	105	[NT]
Ethylbenzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	105	[NT]
m+p-xylene	µg/L	2	Org-023	<2	[NT]	[NT]	[NT]	[NT]	106	[NT]
o-xylene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	106	[NT]
Naphthalene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate Dibromofluoromethane	%		Org-023	104	[NT]	[NT]	[NT]	[NT]	102	[NT]
Surrogate Toluene-d8	%		Org-023	104	[NT]	[NT]	[NT]	[NT]	100	[NT]
Surrogate 4-Bromofluorobenzene	%		Org-023	101	[NT]	[NT]	[NT]	[NT]	99	[NT]

QUALITY CONTROL: svTRH (C10-C40) in Water					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date extracted	-			22/10/2025	[NT]	[NT]	[NT]	[NT]	22/10/2025	[NT]
Date analysed	-			22/10/2025	[NT]	[NT]	[NT]	[NT]	22/10/2025	[NT]
TRH C ₁₀ - C ₁₄	µg/L	50	Org-020	<50	[NT]	[NT]	[NT]	[NT]	87	[NT]
TRH C ₁₅ - C ₂₈	µg/L	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	103	[NT]
TRH C ₂₉ - C ₃₆	µg/L	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	100	[NT]
TRH >C ₁₀ - C ₁₆	µg/L	50	Org-020	<50	[NT]	[NT]	[NT]	[NT]	87	[NT]
TRH >C ₁₆ - C ₃₄	µg/L	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	103	[NT]
TRH >C ₃₄ - C ₄₀	µg/L	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	100	[NT]
Surrogate o-Terphenyl	%		Org-020	78	[NT]	[NT]	[NT]	[NT]	94	[NT]

QUALITY CONTROL: PAHs in Water					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date extracted	-			22/10/2025	[NT]	[NT]	[NT]	[NT]	22/10/2025	[NT]
Date analysed	-			22/10/2025	[NT]	[NT]	[NT]	[NT]	22/10/2025	[NT]
Naphthalene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	85	[NT]
Acenaphthylene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Acenaphthene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	96	[NT]
Fluorene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	97	[NT]
Phenanthrene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	95	[NT]
Anthracene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Fluoranthene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	109	[NT]
Pyrene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	97	[NT]
Benzo(a)anthracene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Chrysene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	88	[NT]
Benzo(b,j+k)fluoranthene	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Benzo(a)pyrene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	93	[NT]
Indeno(1,2,3-c,d)pyrene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Dibenzo(a,h)anthracene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Benzo(g,h,i)perylene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-022/025	139	[NT]	[NT]	[NT]	[NT]	82	[NT]

Client Reference: E37664PT Mount Druitt

QUALITY CONTROL: HM in water - dissolved					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W2	[NT]
Date prepared	-			17/10/2025	[NT]	[NT]	[NT]	[NT]	17/10/2025	[NT]
Date analysed	-			17/10/2025	[NT]	[NT]	[NT]	[NT]	17/10/2025	[NT]
Arsenic-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	107	[NT]
Cadmium-Dissolved	µg/L	0.1	Metals-022	<0.1	[NT]	[NT]	[NT]	[NT]	108	[NT]
Chromium-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	102	[NT]
Copper-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	105	[NT]
Lead-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	112	[NT]
Mercury-Dissolved	µg/L	0.05	Metals-021	<0.05	[NT]	[NT]	[NT]	[NT]	89	[NT]
Nickel-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	103	[NT]
Zinc-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	103	[NT]

QUALITY CONTROL: Miscellaneous Inorganics					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date prepared	-			16/10/2025	[NT]	[NT]	[NT]	[NT]	16/10/2025	[NT]
Date analysed	-			16/10/2025	[NT]	[NT]	[NT]	[NT]	16/10/2025	[NT]
pH	pH Units		Inorg-001	[NT]	[NT]	[NT]	[NT]	[NT]	100	[NT]
Electrical Conductivity	µS/cm	1	Inorg-002	<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-W2	[NT]
Date prepared	-			16/10/2025	1	16/10/2025	16/10/2025		16/10/2025	[NT]
Date analysed	-			17/10/2025	1	17/10/2025	17/10/2025		17/10/2025	[NT]
Perfluorobutanesulfonic acid	µg/L	0.01	Org-029	<0.01	1	<0.1	<0.1	0	102	[NT]
Perfluoropentanesulfonic acid	µg/L	0.01	Org-029	<0.01	1	<0.1	<0.1	0	105	[NT]
Perfluorohexanesulfonic acid - PFHxS	µg/L	0.01	Org-029	<0.01	1	<0.1	<0.1	0	102	[NT]
Perfluoroheptanesulfonic acid	µg/L	0.01	Org-029	<0.01	1	<0.1	<0.1	0	104	[NT]
Perfluorooctanesulfonic acid PFOS	µg/L	0.01	Org-029	<0.01	1	<0.1	<0.1	0	100	[NT]
Perfluorodecanesulfonic acid	µg/L	0.02	Org-029	<0.02	1	<0.2	<0.2	0	106	[NT]
Perfluorobutanoic acid	µg/L	0.02	Org-029	<0.02	1	<0.2	<0.2	0	101	[NT]
Perfluoropentanoic acid	µg/L	0.02	Org-029	<0.02	1	<0.2	<0.2	0	103	[NT]
Perfluorohexanoic acid	µg/L	0.01	Org-029	<0.01	1	<0.1	<0.1	0	105	[NT]
Perfluoroheptanoic acid	µg/L	0.01	Org-029	<0.01	1	<0.1	<0.1	0	99	[NT]
Perfluorooctanoic acid PFOA	µg/L	0.01	Org-029	<0.01	1	<0.1	<0.1	0	102	[NT]
Perfluorononanoic acid	µg/L	0.01	Org-029	<0.01	1	<0.1	<0.1	0	100	[NT]
Perfluorodecanoic acid	µg/L	0.02	Org-029	<0.02	1	<0.2	<0.2	0	110	[NT]
Perfluoroundecanoic acid	µg/L	0.02	Org-029	<0.02	1	<0.2	<0.2	0	101	[NT]
Perfluorododecanoic acid	µg/L	0.05	Org-029	<0.05	1	<0.5	<0.5	0	95	[NT]
Perfluorotridecanoic acid	µg/L	0.1	Org-029	<0.1	1	<1	<1	0	92	[NT]
Perfluorotetradecanoic acid	µg/L	0.5	Org-029	<0.5	1	<5	<5	0	76	[NT]
4:2 FTS	µg/L	0.01	Org-029	<0.01	1	<0.1	<0.1	0	107	[NT]
6:2 FTS	µg/L	0.01	Org-029	<0.01	1	<0.1	<0.1	0	103	[NT]
8:2 FTS	µg/L	0.02	Org-029	<0.02	1	<0.2	<0.2	0	111	[NT]
10:2 FTS	µg/L	0.02	Org-029	<0.02	1	<0.2	<0.2	0	119	[NT]
Perfluorooctane sulfonamide	µg/L	0.1	Org-029	<0.1	1	<1	<1	0	99	[NT]
N-Methyl perfluorooctane sulfonamide	µg/L	0.05	Org-029	<0.05	1	<0.5	<0.5	0	102	[NT]
N-Ethyl perfluorooctanesulfonamide	µg/L	0.1	Org-029	<0.1	1	<1	<1	0	94	[NT]
N-Me perfluorooctanesulfonamid oethanol	µg/L	0.05	Org-029	<0.05	1	<0.5	<0.5	0	101	[NT]
N-Et perfluorooctanesulfonamid oethanol	µg/L	0.5	Org-029	<0.5	1	<5	<5	0	102	[NT]
MePerfluorooctanesulf- amid oacetic acid	µg/L	0.02	Org-029	<0.02	1	<0.2	<0.2	0	106	[NT]
EtPerfluorooctanesulf- amid oacetic acid	µg/L	0.02	Org-029	<0.02	1	<0.2	<0.2	0	107	[NT]
Surrogate ¹³ C ₈ PFOS	%		Org-029	107	1	104	100	4	105	[NT]
Surrogate ¹³ C ₂ PFOA	%		Org-029	99	1	105	104	1	100	[NT]

QUALITY CONTROL: PFAS in Waters Extended					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W2	[NT]
Extracted ISTD ¹³ C ₃ PFBS	%		Org-029	103	1	105	104	1	105	[NT]
Extracted ISTD ¹⁸ O ₂ PFHxS	%		Org-029	99	1	101	97	4	103	[NT]
Extracted ISTD ¹³ C ₄ PFOS	%		Org-029	94	1	99	97	2	103	[NT]
Extracted ISTD ¹³ C ₄ PFBA	%		Org-029	99	1	89	86	3	100	[NT]
Extracted ISTD ¹³ C ₃ PFPeA	%		Org-029	97	1	93	88	6	98	[NT]
Extracted ISTD ¹³ C ₂ PFHxA	%		Org-029	102	1	96	92	4	102	[NT]
Extracted ISTD ¹³ C ₄ PFHpA	%		Org-029	101	1	97	93	4	104	[NT]
Extracted ISTD ¹³ C ₄ PFOA	%		Org-029	106	1	96	91	5	106	[NT]
Extracted ISTD ¹³ C ₅ PFNA	%		Org-029	105	1	94	90	4	105	[NT]
Extracted ISTD ¹³ C ₂ PFDA	%		Org-029	94	1	96	92	4	105	[NT]
Extracted ISTD ¹³ C ₂ PFUnDA	%		Org-029	109	1	108	105	3	111	[NT]
Extracted ISTD ¹³ C ₂ PFDoDA	%		Org-029	99	1	114	106	7	113	[NT]
Extracted ISTD ¹³ C ₂ PFTeDA	%		Org-029	104	1	127	130	2	117	[NT]
Extracted ISTD ¹³ C ₂ 4:2FTS	%		Org-029	106	1	85	79	7	111	[NT]
Extracted ISTD ¹³ C ₂ 6:2FTS	%		Org-029	115	1	83	76	9	117	[NT]
Extracted ISTD ¹³ C ₂ 8:2FTS	%		Org-029	115	1	91	83	9	112	[NT]
Extracted ISTD ¹³ C ₈ FOSA	%		Org-029	109	1	107	105	2	107	[NT]
Extracted ISTD d ₃ N MeFOSA	%		Org-029	97	1	98	95	3	103	[NT]
Extracted ISTD d ₅ N EtFOSA	%		Org-029	95	1	103	99	4	106	[NT]
Extracted ISTD d ₇ N MeFOSE	%		Org-029	94	1	103	92	11	110	[NT]

QUALITY CONTROL: PFAS in Waters Extended					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W2	[NT]
Extracted ISTD d ₉ N EtFOSE	%		Org-029	96	1	102	97	5	107	[NT]
Extracted ISTD d ₃ N MeFOSAA	%		Org-029	117	1	102	96	6	111	[NT]
Extracted ISTD d ₅ N EtFOSAA	%		Org-029	109	1	93	88	6	109	[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.

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.

Air volumes are typically provided by customers (often as flow rate(s) and sampling time(s) and/or simply volumes) sampled or exposure times (determines 'volume' passive badges are exposed to)). Hence in such circumstances the volume measurement is inevitably not covered by Envirolab's NATA accreditation. An exception may occur where Envirolab Newcastle does the sampling where accreditation exists for certain types of sampling and hence volume determination(s). Note air volumes are often used to determine concentrations for dust and/or analyses on filters, sorbents and in impingers. For canister sampling, the air volume is covered by Envirolab's NATA accreditation.

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.

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.

For Dust Deposit Gauge (DDG) analysis the sampling, sampling period and funnel exposure area do not fall under Envirolab's NATA accreditation (unless the Newcastle laboratory where responsible for the sampling), hence the annotation on the DDG units of reporting.

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

Report Comments

PFAS in Waters Extended - The PQL for 393050-1,2,3 has been raised due to the sample matrix thereby requiring a dilution.

Dissolved Metals: no filtered, preserved sample was received for #4, therefore the unpreserved sample was filtered through 0.45µm filter at the lab.

Note: there is a possibility some elements may be underestimated.

SAMPLE RECEIPT ADVICE

Client Details

Client	JK Environments
Attention	Katrina Taylor

Sample Login Details

Your reference	E37664PT Mount Druitt
Envirolab Reference	393050
Date Sample Received	15/10/2025
Date Instructions Received	15/10/2025
Date Results Expected to be Reported	22/10/2025

Sample Condition

Samples received in appropriate condition for analysis	Yes
No. of Samples Provided	5 Water
Turnaround Time Requested	Standard
Temperature on Receipt (°C)	4
Cooling Method	Ice
Sampling Date Provided	YES

Comments

Nil

Please direct any queries to:

Aileen Hie

Phone: 02 9910 6200
Fax: 02 9910 6201
Email: ahie@envirolab.com.au

Jacinta Hurst

Phone: 02 9910 6200
Fax: 02 9910 6201
Email: jhurst@envirolab.com.au

Analysis Underway, details on the following page:



Sample ID	vTRH(C6-C10)/BTEXN in Water	svTRH (C10-C40) in Water	PAHs in Water	HM in water - dissolved	pH	Electrical Conductivity	PFAS in Waters Extended
MW2	✓	✓	✓	✓	✓	✓	✓
MW4	✓	✓	✓	✓	✓	✓	✓
WDUP1	✓	✓	✓	✓			✓
TB-1	✓	✓	✓	✓			
TS-1	✓						

The '✓' indicates the testing you have requested. **THIS IS NOT A REPORT OF THE RESULTS.**

Additional Info

Sample storage - Waters are routinely disposed of approximately 1 month and soils approximately 2 months from receipt.

Requests for longer term sample storage must be received in writing.

Please contact the laboratory immediately if observed settled sediment present in water samples is to be included in the extraction and/or analysis (exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, Total Recoverable metals and PFAS analysis where solids are included by default.

TAT for Micro is dependent on incubation. This varies from 3 to 6 days.

We acknowledge receipt of your samples and Purchase Order (PO) (if provided). If a PO includes your terms & conditions, Envirolab hereby expressly rejects and will not be bound by any external or third-party terms and conditions, including those referenced or attached to a PO.

All services to be performed by Envirolab will be governed exclusively by Envirolab's General Terms and Conditions attached to this acknowledgement ([Envirolab Terms](#)) via hyperlink or found on our websites.

If you do not object in writing within two (2) business days of the date of this acknowledgement, you will be deemed to have accepted the Envirolab Terms. In addition, your provision of further instructions, additional samples, payment of any invoice, or acceptance of services or results from Envirolab will constitute acceptance of the Envirolab Terms. For clarity, Envirolab's commencement or continuation of work following receipt of the PO is performed solely under the Envirolab Terms and does not constitute acceptance of any external terms. All rights are expressly reserved.

CERTIFICATE OF ANALYSIS 393265

Client Details

Client	JK Environments
Attention	Katrina Taylor
Address	PO Box 976, North Ryde BC, NSW, 1670

Sample Details

Your Reference	<u>E37664PT Mount Druitt</u>
Number of Samples	31 Soil, 1 Water
Date samples received	17/10/2025
Date completed instructions received	17/10/2025

Analysis Details

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

Samples were analysed as received from the client unless as indicated below in the method summaries. 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	24/10/2025
Date of Issue	24/10/2025

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

Asbestos Approved By

Analysed by Asbestos Approved Analyst: Nyovan Moonean

Authorised by Asbestos Approved Signatory: Lucy Zhu

Results Approved By

Dragana Tomas, Senior Chemist

Jack Wallis, Senior Chemist

Liam Timmins, Organics Supervisor

Lucy Zhu, Asbestos Supervisor

Tabitha Roberts, Senior Chemist

Timothy Toll, Senior Chemist

Authorised By

Nancy Zhang, Laboratory Manager

vTRH(C6-C10)/BTEXN in Soil

Our Reference		393265-1	393265-2	393265-4	393265-6	393265-7
Your Reference	UNITS	TP103	TP103	TP104	TP105	TP106
Depth		0-0.1	0.4-0.5	0-0.1	0-0.1	0-0.1
Date Sampled		15/10/2025	15/10/2025	15/10/2025	15/10/2025	15/10/2025
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	20/10/2025	20/10/2025	20/10/2025	20/10/2025	20/10/2025
Date analysed	-	21/10/2025	21/10/2025	21/10/2025	21/10/2025	21/10/2025
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	%	89	78	79	78	94

vTRH(C6-C10)/BTEXN in Soil

Our Reference		393265-8	393265-10	393265-12	393265-14	393265-15
Your Reference	UNITS	TP106	TP107	TP108	TP109	TP109
Depth		0.4-0.5	0-0.1	0-0.1	0-0.1	0.2-0.3
Date Sampled		15/10/2025	14/10/2025	14/10/2025	14/10/2025	14/10/2025
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	20/10/2025	20/10/2025	20/10/2025	20/10/2025	20/10/2025
Date analysed	-	21/10/2025	21/10/2025	21/10/2025	21/10/2025	21/10/2025
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	%	84	88	85	93	84

vTRH(C6-C10)/BTEXN in Soil

Our Reference		393265-16	393265-18	393265-20	393265-21	393265-23
Your Reference	UNITS	TP109	TP110	TP111	TP111	TP112
Depth		0.5-0.6	0-0.1	0.1-0.2	0.5-0.6	0-0.1
Date Sampled		14/10/2025	15/10/2025	14/10/2025	14/10/2025	14/10/2025
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	20/10/2025	20/10/2025	20/10/2025	20/10/2025	20/10/2025
Date analysed	-	21/10/2025	21/10/2025	21/10/2025	21/10/2025	21/10/2025
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	%	89	86	79	78	88

vTRH(C6-C10)/BTEXN in Soil

Our Reference		393265-25	393265-26	393265-29	393265-30	393265-31
Your Reference	UNITS	TP113	TP113	SDUP101	TB-101	TS-101
Depth		0-0.1	0.3-0.4	-	-	-
Date Sampled		14/10/2025	14/10/2025	14/10/2025	14/10/2025	14/10/2025
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	20/10/2025	20/10/2025	20/10/2025	20/10/2025	20/10/2025
Date analysed	-	21/10/2025	21/10/2025	21/10/2025	21/10/2025	21/10/2025
TRH C ₆ - C ₉	mg/kg	<25	<25	<25	<25	[NA]
TRH C ₆ - C ₁₀	mg/kg	<25	<25	<25	<25	[NA]
vTRH C ₆ - C ₁₀ less BTEX (F1)	mg/kg	<25	<25	<25	<25	[NA]
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	103%
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	102%
Ethylbenzene	mg/kg	<1	<1	<1	<1	103%
m+p-xylene	mg/kg	<2	<2	<2	<2	102%
o-Xylene	mg/kg	<1	<1	<1	<1	118%
Naphthalene	mg/kg	<1	<1	<1	<1	[NA]
Total +ve Xylenes	mg/kg	<1	<1	<1	<1	[NA]
Surrogate aaa-Trifluorotoluene	%	84	88	89	91	63

svTRH (C10-C40) in Soil

Our Reference		393265-1	393265-2	393265-4	393265-6	393265-7
Your Reference	UNITS	TP103	TP103	TP104	TP105	TP106
Depth		0-0.1	0.4-0.5	0-0.1	0-0.1	0-0.1
Date Sampled		15/10/2025	15/10/2025	15/10/2025	15/10/2025	15/10/2025
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	20/10/2025	20/10/2025	20/10/2025	20/10/2025	20/10/2025
Date analysed	-	21/10/2025	21/10/2025	21/10/2025	21/10/2025	21/10/2025
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	120	<100	<100
Total +ve TRH (C10-C36)	mg/kg	<50	<50	120	<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	140	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	140	<50	<50
Surrogate o-Terphenyl	%	84	96	83	80	86

svTRH (C10-C40) in Soil

Our Reference		393265-8	393265-10	393265-12	393265-14	393265-15
Your Reference	UNITS	TP106	TP107	TP108	TP109	TP109
Depth		0.4-0.5	0-0.1	0-0.1	0-0.1	0.2-0.3
Date Sampled		15/10/2025	14/10/2025	14/10/2025	14/10/2025	14/10/2025
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	20/10/2025	20/10/2025	20/10/2025	20/10/2025	20/10/2025
Date analysed	-	21/10/2025	21/10/2025	21/10/2025	21/10/2025	21/10/2025
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	120	<100
Total +ve TRH (C10-C36)	mg/kg	<50	<50	<50	120	<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	130	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	<50	130	<50
Surrogate o-Terphenyl	%	79	93	90	78	85

svTRH (C10-C40) in Soil

Our Reference		393265-16	393265-18	393265-20	393265-21	393265-23
Your Reference	UNITS	TP109	TP110	TP111	TP111	TP112
Depth		0.5-0.6	0-0.1	0.1-0.2	0.5-0.6	0-0.1
Date Sampled		14/10/2025	15/10/2025	14/10/2025	14/10/2025	14/10/2025
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	20/10/2025	20/10/2025	20/10/2025	20/10/2025	20/10/2025
Date analysed	-	21/10/2025	21/10/2025	21/10/2025	21/10/2025	21/10/2025
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	%	76	88	77	82	84

svTRH (C10-C40) in Soil

Our Reference		393265-25	393265-26	393265-29	393265-30
Your Reference	UNITS	TP113	TP113	SDUP101	TB-101
Depth		0-0.1	0.3-0.4	-	-
Date Sampled		14/10/2025	14/10/2025	14/10/2025	14/10/2025
Type of sample		Soil	Soil	Soil	Soil
Date extracted	-	20/10/2025	20/10/2025	20/10/2025	20/10/2025
Date analysed	-	21/10/2025	21/10/2025	21/10/2025	21/10/2025
TRH C ₁₀ - C ₁₄	mg/kg	<50	<50	<50	<50
TRH C ₁₅ - C ₂₈	mg/kg	<100	<100	100	<100
TRH C ₂₉ - C ₃₆	mg/kg	<100	<100	130	<100
Total +ve TRH (C10-C36)	mg/kg	<50	<50	230	<50
TRH >C ₁₀ -C ₁₆	mg/kg	<50	<50	<50	<50
TRH >C ₁₀ -C ₁₆ less Naphthalene (F2)	mg/kg	<50	<50	<50	<50
TRH >C ₁₆ -C ₃₄	mg/kg	<100	<100	120	<100
TRH >C ₃₄ -C ₄₀	mg/kg	<100	<100	130	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	250	<50
Surrogate o-Terphenyl	%	79	87	94	80

PAHs in Soil						
Our Reference		393265-1	393265-2	393265-4	393265-6	393265-7
Your Reference	UNITS	TP103	TP103	TP104	TP105	TP106
Depth		0-0.1	0.4-0.5	0-0.1	0-0.1	0-0.1
Date Sampled		15/10/2025	15/10/2025	15/10/2025	15/10/2025	15/10/2025
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	20/10/2025	20/10/2025	20/10/2025	20/10/2025	20/10/2025
Date analysed	-	21/10/2025	21/10/2025	21/10/2025	21/10/2025	21/10/2025
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 <i>p</i> -Terphenyl-d14	%	92	91	93	93	92

PAHs in Soil						
Our Reference		393265-8	393265-10	393265-12	393265-14	393265-15
Your Reference	UNITS	TP106	TP107	TP108	TP109	TP109
Depth		0.4-0.5	0-0.1	0-0.1	0-0.1	0.2-0.3
Date Sampled		15/10/2025	14/10/2025	14/10/2025	14/10/2025	14/10/2025
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	20/10/2025	20/10/2025	20/10/2025	20/10/2025	20/10/2025
Date analysed	-	21/10/2025	21/10/2025	21/10/2025	21/10/2025	21/10/2025
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	%	92	89	89	94	95

PAHs in Soil						
Our Reference		393265-16	393265-18	393265-20	393265-21	393265-23
Your Reference	UNITS	TP109	TP110	TP111	TP111	TP112
Depth		0.5-0.6	0-0.1	0.1-0.2	0.5-0.6	0-0.1
Date Sampled		14/10/2025	15/10/2025	14/10/2025	14/10/2025	14/10/2025
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	20/10/2025	20/10/2025	20/10/2025	20/10/2025	20/10/2025
Date analysed	-	21/10/2025	21/10/2025	21/10/2025	21/10/2025	21/10/2025
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	0.4	<0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	1.0	<0.1	<0.1	<0.1
Pyrene	mg/kg	<0.1	1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	0.5	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	0.5	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	0.9	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	0.57	<0.05	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	0.4	<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	0.4	<0.1	<0.1	<0.1
Total +ve PAH's	mg/kg	<0.05	5.9	<0.05	<0.05	<0.05
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	0.8	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	0.8	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	0.9	<0.5	<0.5	<0.5
Surrogate p-Terphenyl-d14	%	96	93	92	91	91

PAHs in Soil					
Our Reference		393265-25	393265-26	393265-29	393265-30
Your Reference	UNITS	TP113	TP113	SDUP101	TB-101
Depth		0-0.1	0.3-0.4	-	-
Date Sampled		14/10/2025	14/10/2025	14/10/2025	14/10/2025
Type of sample		Soil	Soil	Soil	Soil
Date extracted	-	20/10/2025	20/10/2025	20/10/2025	20/10/2025
Date analysed	-	22/10/2025	22/10/2025	22/10/2025	22/10/2025
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<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
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1
Total +ve PAH's	mg/kg	<0.05	<0.05	<0.05	<0.05
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5	<0.5
Surrogate <i>p</i> -Terphenyl-d14	%	95	92	91	91

Organochlorine Pesticides in soil						
Our Reference		393265-1	393265-2	393265-4	393265-6	393265-7
Your Reference	UNITS	TP103	TP103	TP104	TP105	TP106
Depth		0-0.1	0.4-0.5	0-0.1	0-0.1	0-0.1
Date Sampled		15/10/2025	15/10/2025	15/10/2025	15/10/2025	15/10/2025
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	20/10/2025	20/10/2025	20/10/2025	20/10/2025	20/10/2025
Date analysed	-	21/10/2025	21/10/2025	21/10/2025	21/10/2025	21/10/2025
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
Total Positive Aldrin+Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate 4-Chloro-3-NBTF	%	89	91	90	93	94

Organochlorine Pesticides in soil						
Our Reference		393265-8	393265-10	393265-12	393265-14	393265-16
Your Reference	UNITS	TP106	TP107	TP108	TP109	TP109
Depth		0.4-0.5	0-0.1	0-0.1	0-0.1	0.5-0.6
Date Sampled		15/10/2025	14/10/2025	14/10/2025	14/10/2025	14/10/2025
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	20/10/2025	20/10/2025	20/10/2025	20/10/2025	20/10/2025
Date analysed	-	21/10/2025	21/10/2025	21/10/2025	21/10/2025	21/10/2025
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
Total Positive Aldrin+Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate 4-Chloro-3-NBTF	%	93	92	93	96	91

Organochlorine Pesticides in soil

Our Reference		393265-18	393265-20	393265-21	393265-23	393265-25
Your Reference	UNITS	TP110	TP111	TP111	TP112	TP113
Depth		0-0.1	0.1-0.2	0.5-0.6	0-0.1	0-0.1
Date Sampled		15/10/2025	14/10/2025	14/10/2025	14/10/2025	14/10/2025
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	20/10/2025	20/10/2025	20/10/2025	20/10/2025	20/10/2025
Date analysed	-	21/10/2025	21/10/2025	21/10/2025	21/10/2025	22/10/2025
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	0.2	<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
Total Positive Aldrin+Dieldrin	mg/kg	<0.1	<0.1	<0.1	0.2	<0.1
Surrogate 4-Chloro-3-NBTF	%	95	92	91	92	92

Organochlorine Pesticides in soil				
Our Reference		393265-26	393265-28	393265-29
Your Reference	UNITS	TP113	SS101	SDUP101
Depth		0.3-0.4	0-0.1	-
Date Sampled		14/10/2025	14/10/2025	14/10/2025
Type of sample		Soil	Soil	Soil
Date extracted	-	20/10/2025	20/10/2025	20/10/2025
Date analysed	-	22/10/2025	22/10/2025	22/10/2025
alpha-BHC	mg/kg	<0.1	<0.1	<0.1
HCB	mg/kg	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1
Mirex	mg/kg	<0.1	<0.1	<0.1
Total +ve DDT+DDD+DDE	mg/kg	<0.1	<0.1	<0.1
Total Positive Aldrin+Dieldrin	mg/kg	<0.1	<0.1	<0.1
Surrogate 4-Chloro-3-NBTF	%	89	91	92

Organophosphorus Pesticides in Soil						
Our Reference		393265-1	393265-2	393265-4	393265-6	393265-7
Your Reference	UNITS	TP103	TP103	TP104	TP105	TP106
Depth		0-0.1	0.4-0.5	0-0.1	0-0.1	0-0.1
Date Sampled		15/10/2025	15/10/2025	15/10/2025	15/10/2025	15/10/2025
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	20/10/2025	20/10/2025	20/10/2025	20/10/2025	20/10/2025
Date analysed	-	21/10/2025	21/10/2025	21/10/2025	21/10/2025	21/10/2025
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
Chlorpyrifos	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	%	89	91	90	93	94

Organophosphorus Pesticides in Soil

Our Reference		393265-8	393265-10	393265-12	393265-14	393265-16
Your Reference	UNITS	TP106	TP107	TP108	TP109	TP109
Depth		0.4-0.5	0-0.1	0-0.1	0-0.1	0.5-0.6
Date Sampled		15/10/2025	14/10/2025	14/10/2025	14/10/2025	14/10/2025
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	20/10/2025	20/10/2025	20/10/2025	20/10/2025	20/10/2025
Date analysed	-	21/10/2025	21/10/2025	21/10/2025	21/10/2025	21/10/2025
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
Chlorpyrifos	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	%	93	92	93	96	91

Organophosphorus Pesticides in Soil						
Our Reference		393265-18	393265-20	393265-21	393265-23	393265-25
Your Reference	UNITS	TP110	TP111	TP111	TP112	TP113
Depth		0-0.1	0.1-0.2	0.5-0.6	0-0.1	0-0.1
Date Sampled		15/10/2025	14/10/2025	14/10/2025	14/10/2025	14/10/2025
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	20/10/2025	20/10/2025	20/10/2025	20/10/2025	20/10/2025
Date analysed	-	21/10/2025	21/10/2025	21/10/2025	21/10/2025	22/10/2025
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
Chlorpyrifos	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	%	95	92	91	92	92

Organophosphorus Pesticides in Soil			
Our Reference		393265-26	393265-29
Your Reference	UNITS	TP113	SDUP101
Depth		0.3-0.4	-
Date Sampled		14/10/2025	14/10/2025
Type of sample		Soil	Soil
Date extracted	-	20/10/2025	20/10/2025
Date analysed	-	22/10/2025	22/10/2025
Dichlorvos	mg/kg	<0.1	<0.1
Mevinphos	mg/kg	<0.1	<0.1
Phorate	mg/kg	<0.1	<0.1
Dimethoate	mg/kg	<0.1	<0.1
Diazinon	mg/kg	<0.1	<0.1
Disulfoton	mg/kg	<0.1	<0.1
Chlorpyrifos-methyl	mg/kg	<0.1	<0.1
Parathion-Methyl	mg/kg	<0.1	<0.1
Ronnel	mg/kg	<0.1	<0.1
Fenitrothion	mg/kg	<0.1	<0.1
Malathion	mg/kg	<0.1	<0.1
Chlorpyrifos	mg/kg	<0.1	<0.1
Fenthion	mg/kg	<0.1	<0.1
Parathion	mg/kg	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1
Methidathion	mg/kg	<0.1	<0.1
Fenamiphos	mg/kg	<0.1	<0.1
Ethion	mg/kg	<0.1	<0.1
Phosalone	mg/kg	<0.1	<0.1
Azinphos-methyl (Guthion)	mg/kg	<0.1	<0.1
Coumaphos	mg/kg	<0.1	<0.1
Surrogate 4-Chloro-3-NBTF	%	89	92

PCBs in Soil						
Our Reference	UNITS	393265-1	393265-2	393265-4	393265-6	393265-7
Your Reference		TP103	TP103	TP104	TP105	TP106
Depth		0-0.1	0.4-0.5	0-0.1	0-0.1	0-0.1
Date Sampled		15/10/2025	15/10/2025	15/10/2025	15/10/2025	15/10/2025
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	20/10/2025	20/10/2025	20/10/2025	20/10/2025	20/10/2025
Date analysed	-	21/10/2025	21/10/2025	21/10/2025	21/10/2025	21/10/2025
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	%	89	90	90	90	94

PCBs in Soil						
Our Reference	UNITS	393265-8	393265-10	393265-12	393265-14	393265-16
Your Reference		TP106	TP107	TP108	TP109	TP109
Depth		0.4-0.5	0-0.1	0-0.1	0-0.1	0.5-0.6
Date Sampled		15/10/2025	14/10/2025	14/10/2025	14/10/2025	14/10/2025
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	20/10/2025	20/10/2025	20/10/2025	20/10/2025	20/10/2025
Date analysed	-	21/10/2025	21/10/2025	21/10/2025	21/10/2025	21/10/2025
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	%	92	88	91	92	90

PCBs in Soil						
Our Reference		393265-18	393265-20	393265-21	393265-23	393265-25
Your Reference	UNITS	TP110	TP111	TP111	TP112	TP113
Depth		0-0.1	0.1-0.2	0.5-0.6	0-0.1	0-0.1
Date Sampled		15/10/2025	14/10/2025	14/10/2025	14/10/2025	14/10/2025
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	20/10/2025	20/10/2025	20/10/2025	20/10/2025	20/10/2025
Date analysed	-	21/10/2025	21/10/2025	21/10/2025	21/10/2025	22/10/2025
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	%	91	91	90	91	93

PCBs in Soil			
Our Reference		393265-26	393265-29
Your Reference	UNITS	TP113	SDUP101
Depth		0.3-0.4	-
Date Sampled		14/10/2025	14/10/2025
Type of sample		Soil	Soil
Date extracted	-	20/10/2025	20/10/2025
Date analysed	-	22/10/2025	22/10/2025
Aroclor 1016	mg/kg	<0.1	<0.1
Aroclor 1221	mg/kg	<0.1	<0.1
Aroclor 1232	mg/kg	<0.1	<0.1
Aroclor 1242	mg/kg	<0.1	<0.1
Aroclor 1248	mg/kg	<0.1	<0.1
Aroclor 1254	mg/kg	<0.1	<0.1
Aroclor 1260	mg/kg	<0.1	<0.1
Total +ve PCBs (1016-1260)	mg/kg	<0.1	<0.1
Surrogate 2-Fluorobiphenyl	%	89	90

Acid Extractable metals in soil

Our Reference		393265-1	393265-2	393265-4	393265-6	393265-7
Your Reference	UNITS	TP103	TP103	TP104	TP105	TP106
Depth		0-0.1	0.4-0.5	0-0.1	0-0.1	0-0.1
Date Sampled		15/10/2025	15/10/2025	15/10/2025	15/10/2025	15/10/2025
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	20/10/2025	20/10/2025	20/10/2025	20/10/2025	20/10/2025
Date analysed	-	21/10/2025	21/10/2025	21/10/2025	21/10/2025	21/10/2025
Arsenic	mg/kg	6	5	5	5	5
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	15	13	16	14	13
Copper	mg/kg	21	15	13	17	14
Lead	mg/kg	18	14	19	17	17
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	7	4	5	5	4
Zinc	mg/kg	51	17	34	43	35

Acid Extractable metals in soil

Our Reference		393265-8	393265-10	393265-12	393265-14	393265-15
Your Reference	UNITS	TP106	TP107	TP108	TP109	TP109
Depth		0.4-0.5	0-0.1	0-0.1	0-0.1	0.2-0.3
Date Sampled		15/10/2025	14/10/2025	14/10/2025	14/10/2025	14/10/2025
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	20/10/2025	20/10/2025	20/10/2025	20/10/2025	20/10/2025
Date analysed	-	21/10/2025	21/10/2025	21/10/2025	21/10/2025	21/10/2025
Arsenic	mg/kg	6	7	4	4	<4
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	17	19	12	19	2
Copper	mg/kg	17	12	17	15	4
Lead	mg/kg	21	23	19	16	3
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	5	4	4	11	<1
Zinc	mg/kg	48	19	40	56	6

Acid Extractable metals in soil

Our Reference		393265-16	393265-18	393265-20	393265-21	393265-23
Your Reference	UNITS	TP109	TP110	TP111	TP111	TP112
Depth		0.5-0.6	0-0.1	0.1-0.2	0.5-0.6	0-0.1
Date Sampled		14/10/2025	15/10/2025	14/10/2025	14/10/2025	14/10/2025
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	20/10/2025	20/10/2025	20/10/2025	20/10/2025	20/10/2025
Date analysed	-	21/10/2025	21/10/2025	21/10/2025	21/10/2025	21/10/2025
Arsenic	mg/kg	5	<4	5	6	9
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	14	10	16	25	30
Copper	mg/kg	16	47	15	13	20
Lead	mg/kg	14	39	18	18	23
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	5	8	4	5	7
Zinc	mg/kg	28	48	32	25	41

Acid Extractable metals in soil

Our Reference		393265-25	393265-26	393265-28	393265-29	393265-30
Your Reference	UNITS	TP113	TP113	SS101	SDUP101	TB-101
Depth		0-0.1	0.3-0.4	0-0.1	-	-
Date Sampled		14/10/2025	14/10/2025	14/10/2025	14/10/2025	14/10/2025
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	20/10/2025	20/10/2025	20/10/2025	20/10/2025	20/10/2025
Date analysed	-	21/10/2025	21/10/2025	21/10/2025	21/10/2025	21/10/2025
Arsenic	mg/kg	5	6	<4	5	<4
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	14	17	17	17	3
Copper	mg/kg	15	16	24	12	<1
Lead	mg/kg	17	20	36	16	3
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	4	5	12	4	<1
Zinc	mg/kg	27	30	100	29	3

Acid Extractable metals in soil		
Our Reference		393265-33
Your Reference	UNITS	TP109 - [TRIPLICATE]
Depth		0.5-0.6
Date Sampled		14/10/2025
Type of sample		Soil
Date prepared	-	20/10/2025
Date analysed	-	21/10/2025
Arsenic	mg/kg	6
Cadmium	mg/kg	<0.4
Chromium	mg/kg	19
Copper	mg/kg	16
Lead	mg/kg	16
Mercury	mg/kg	<0.1
Nickel	mg/kg	5
Zinc	mg/kg	29

Moisture						
Our Reference	UNITS	393265-1	393265-2	393265-4	393265-6	393265-7
Your Reference		TP103	TP103	TP104	TP105	TP106
Depth		0-0.1	0.4-0.5	0-0.1	0-0.1	0-0.1
Date Sampled		15/10/2025	15/10/2025	15/10/2025	15/10/2025	15/10/2025
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	20/10/2025	20/10/2025	20/10/2025	20/10/2025	20/10/2025
Date analysed	-	21/10/2025	21/10/2025	21/10/2025	21/10/2025	21/10/2025
Moisture	%	14	15	12	13	12

Moisture						
Our Reference	UNITS	393265-8	393265-10	393265-12	393265-14	393265-15
Your Reference		TP106	TP107	TP108	TP109	TP109
Depth		0.4-0.5	0-0.1	0-0.1	0-0.1	0.2-0.3
Date Sampled		15/10/2025	14/10/2025	14/10/2025	14/10/2025	14/10/2025
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	20/10/2025	20/10/2025	20/10/2025	20/10/2025	20/10/2025
Date analysed	-	21/10/2025	21/10/2025	21/10/2025	21/10/2025	21/10/2025
Moisture	%	16	9.7	11	11	17

Moisture						
Our Reference	UNITS	393265-16	393265-18	393265-20	393265-21	393265-23
Your Reference		TP109	TP110	TP111	TP111	TP112
Depth		0.5-0.6	0-0.1	0.1-0.2	0.5-0.6	0-0.1
Date Sampled		14/10/2025	15/10/2025	14/10/2025	14/10/2025	14/10/2025
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	20/10/2025	20/10/2025	20/10/2025	20/10/2025	20/10/2025
Date analysed	-	21/10/2025	21/10/2025	21/10/2025	21/10/2025	21/10/2025
Moisture	%	13	4.6	12	14	8.8

Moisture						
Our Reference	UNITS	393265-25	393265-26	393265-28	393265-29	393265-30
Your Reference		TP113	TP113	SS101	SDUP101	TB-101
Depth		0-0.1	0.3-0.4	0-0.1	-	-
Date Sampled		14/10/2025	14/10/2025	14/10/2025	14/10/2025	14/10/2025
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	20/10/2025	20/10/2025	20/10/2025	20/10/2025	20/10/2025
Date analysed	-	21/10/2025	21/10/2025	21/10/2025	21/10/2025	21/10/2025
Moisture	%	12	12	4.0	10	<0.1

Asbestos ID - soils NEPM - ASB-001

Our Reference		393265-1	393265-2	393265-4	393265-6	393265-7
Your Reference	UNITS	TP103	TP103	TP104	TP105	TP106
Depth		0-0.1	0.4-0.5	0-0.1	0-0.1	0-0.1
Date Sampled		15/10/2025	15/10/2025	15/10/2025	15/10/2025	15/10/2025
Type of sample		Soil	Soil	Soil	Soil	Soil
Date analysed	-	24/10/2025	24/10/2025	24/10/2025	24/10/2025	24/10/2025
Sample mass tested	g	771.21	609.86	719.82	610.75	735.42
Sample Description	-	Brown coarse-grained soil & rocks	Brown coarse-grained soil & rocks	Brown coarse-grained soil & rocks	Brown coarse-grained soil & rocks	Brown coarse-grained soil & rocks
Asbestos ID in soil (AS4964) >0.1g/kg	-	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
Trace Analysis	-	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected
Total Asbestos ^{#1}	g/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Asbestos ID in soil <0.1g/kg*	-	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected
ACM >7mm Estimation*	g	—	—	—	—	—
FA and AF Estimation*	g	—	—	—	—	—
ACM >7mm Estimation*	%(w/w)	<0.01	<0.01	<0.01	<0.01	<0.01
FA and AF Estimation*#2	%(w/w)	<0.001	<0.001	<0.001	<0.001	<0.001
Asbestos comments	-	Nil	Nil	Nil	Nil	Nil

Asbestos ID - soils NEPM - ASB-001

Our Reference		393265-8	393265-10	393265-12	393265-14	393265-16
Your Reference	UNITS	TP106	TP107	TP108	TP109	TP109
Depth		0.4-0.5	0-0.1	0-0.1	0-0.1	0.5-0.6
Date Sampled		15/10/2025	14/10/2025	14/10/2025	14/10/2025	14/10/2025
Type of sample		Soil	Soil	Soil	Soil	Soil
Date analysed	-	24/10/2025	24/10/2025	24/10/2025	24/10/2025	24/10/2025
Sample mass tested	g	754.04	668.78	731.64	781.19	726.33
Sample Description	-	Brown coarse-grained soil & rocks	Brown coarse-grained soil & rocks	Brown coarse-grained soil & rocks	Brown coarse-grained soil & rocks	Brown coarse-grained soil & rocks
Asbestos ID in soil (AS4964) >0.1g/kg	-	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
Trace Analysis	-	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected
Total Asbestos ^{#1}	g/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Asbestos ID in soil <0.1g/kg*	-	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected
ACM >7mm Estimation*	g	—	—	—	—	—
FA and AF Estimation*	g	—	—	—	—	—
ACM >7mm Estimation*	%(w/w)	<0.01	<0.01	<0.01	<0.01	<0.01
FA and AF Estimation*#2	%(w/w)	<0.001	<0.001	<0.001	<0.001	<0.001
Asbestos comments	-	Nil	Nil	Nil	Nil	Nil

Asbestos ID - soils NEPM - ASB-001

Our Reference		393265-18	393265-20	393265-21	393265-23	393265-25
Your Reference	UNITS	TP110	TP111	TP111	TP112	TP113
Depth		0-0.1	0.1-0.2	0.5-0.6	0-0.1	0-0.1
Date Sampled		15/10/2025	14/10/2025	14/10/2025	14/10/2025	14/10/2025
Type of sample		Soil	Soil	Soil	Soil	Soil
Date analysed	-	24/10/2025	24/10/2025	24/10/2025	24/10/2025	24/10/2025
Sample mass tested	g	1,010.74	665.67	628.42	656.86	736.67
Sample Description	-	Brown coarse-grained soil & rocks	Brown coarse-grained soil & rocks	Brown coarse-grained soil & rocks	Brown coarse-grained soil & rocks	Brown coarse-grained soil & rocks
Asbestos ID in soil (AS4964) >0.1g/kg	-	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
Trace Analysis	-	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected
Total Asbestos ^{#1}	g/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Asbestos ID in soil <0.1g/kg*	-	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected
ACM >7mm Estimation*	g	—	—	—	—	—
FA and AF Estimation*	g	—	—	—	—	—
ACM >7mm Estimation*	%(w/w)	<0.01	<0.01	<0.01	<0.01	<0.01
FA and AF Estimation*#2	%(w/w)	<0.001	<0.001	<0.001	<0.001	<0.001
Asbestos comments	-	Nil	Nil	Nil	Nil	Nil

Asbestos ID - soils NEPM - ASB-001		
Our Reference		393265-26
Your Reference	UNITS	TP113
Depth		0.3-0.4
Date Sampled		14/10/2025
Type of sample		Soil
Date analysed	-	24/10/2025
Sample mass tested	g	679.95
Sample Description	-	Brown coarse-grained soil & rocks
Asbestos ID in soil (AS4964) >0.1g/kg	-	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected
Trace Analysis	-	No asbestos detected
Total Asbestos ^{#1}	g/kg	<0.1
Asbestos ID in soil <0.1g/kg*	-	No visible asbestos detected
ACM >7mm Estimation*	g	—
FA and AF Estimation*	g	—
ACM >7mm Estimation*	%(w/w)	<0.01
FA and AF Estimation* ^{#2}	%(w/w)	<0.001
Asbestos comments	-	Nil

vTRH(C6-C10)/BTEXN in Water		
Our Reference		393265-32
Your Reference	UNITS	FR-Shovel-101
Depth		-
Date Sampled		15/10/2025
Type of sample		Water
Date extracted	-	20/10/2025
Date analysed	-	21/10/2025
TRH C ₆ - C ₉	µg/L	54
TRH C ₆ - C ₁₀	µg/L	57
TRH C ₆ - C ₁₀ less BTEX (F1)	µg/L	57
Benzene	µg/L	<1
Toluene	µg/L	<1
Ethylbenzene	µg/L	<1
m+p-xylene	µg/L	<2
o-xylene	µg/L	<1
Naphthalene	µg/L	<1
Surrogate Dibromofluoromethane	%	101
Surrogate Toluene-d8	%	104
Surrogate 4-Bromofluorobenzene	%	100

svTRH (C10-C40) in Water		
Our Reference		393265-32
Your Reference	UNITS	FR-Shovel-101
Depth		-
Date Sampled		15/10/2025
Type of sample		Water
Date extracted	-	20/10/2025
Date analysed	-	21/10/2025
TRH C ₁₀ - C ₁₄	µg/L	<50
TRH C ₁₅ - C ₂₈	µg/L	140
TRH C ₂₉ - C ₃₆	µg/L	260
Total +ve TRH (C10-C36)	µg/L	400
TRH >C ₁₀ - C ₁₆	µg/L	<50
TRH >C ₁₀ - C ₁₆ less Naphthalene (F2)	µg/L	<50
TRH >C ₁₆ - C ₃₄	µg/L	320
TRH >C ₃₄ - C ₄₀	µg/L	150
Total +ve TRH (>C10-C40)	µg/L	470
Surrogate o-Terphenyl	%	118

PAHs in Water		
Our Reference		393265-32
Your Reference	UNITS	FR-Shovel-101
Depth		-
Date Sampled		15/10/2025
Type of sample		Water
Date extracted	-	20/10/2025
Date analysed	-	22/10/2025
Naphthalene	µg/L	<0.1
Acenaphthylene	µg/L	<0.1
Acenaphthene	µg/L	<0.1
Fluorene	µg/L	<0.1
Phenanthrene	µg/L	<0.1
Anthracene	µg/L	<0.1
Fluoranthene	µg/L	<0.1
Pyrene	µg/L	<0.1
Benzo(a)anthracene	µg/L	<0.1
Chrysene	µg/L	<0.1
Benzo(b,j+k)fluoranthene	µg/L	<0.2
Benzo(a)pyrene	µg/L	<0.1
Indeno(1,2,3-c,d)pyrene	µg/L	<0.1
Dibenzo(a,h)anthracene	µg/L	<0.1
Benzo(g,h,i)perylene	µg/L	<0.1
Benzo(a)pyrene TEQ	µg/L	<0.5
Total +ve PAH's	µg/L	<0.1
Surrogate <i>p</i> -Terphenyl-d14	%	89

Metals in Waters - Acid extractable		
Our Reference		393265-32
Your Reference	UNITS	FR-Shovel-101
Depth		-
Date Sampled		15/10/2025
Type of sample		Water
Date prepared	-	20/10/2025
Date analysed	-	21/10/2025
Arsenic - Total	mg/L	<0.05
Cadmium - Total	mg/L	<0.01
Chromium - Total	mg/L	<0.01
Copper - Total	mg/L	0.2
Lead - Total	mg/L	<0.03
Mercury - Total	mg/L	<0.0005
Nickel - Total	mg/L	<0.02
Zinc - Total	mg/L	0.02

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.
ASB-001	Asbestos ID - Identification of asbestos in soil samples using Polarised Light Microscopy and Dispersion Staining Techniques. Minimum 500mL soil sample was analysed as recommended by "National Environment Protection (Assessment of site contamination) Measure, Schedule B1 and "The Guidelines from the Assessment, Remediation and Management of Asbestos-Contaminated Sites in Western Australia - May 2009" with a reporting limit of 0.1g/kg (0.01% w/w) as per Australian Standard AS4964-2004. Results reported denoted with * are outside our scope of NATA accreditation. NOTE#1 Total Asbestos g/kg was analysed and reported as per Australian Standard AS4964 (This is the sum of ACM >7mm, <7mm and FA/AF relative to the sample mass tested) NOTE#2 The screening level of 0.001% w/w asbestos in soil for FA and AF only applies where the FA and AF are able to be quantified by gravimetric procedures. This screening level is not applicable to free fibres. Estimation = Estimated asbestos weight Results reported with "--" is equivalent to no visible asbestos identified using Polarised Light microscopy and Dispersion Staining Techniques.
Inorg-008	Moisture content determined by heating at 105+/-5 °C for a minimum of 12 hours.

Method ID	Methodology Summary
Metals-020	Determination of various metals/elements by ICP-AES. Total Phosphate determined stoichiometrically from Phosphorus (assumed to be present as Phosphate). Where salts (oxides, chlorides etc.) are calculated from the element concentration stoichiometrically there is no guarantee that the salt form is completely soluble in the acids used in the preparation. Submission of low masses of sample e.g. for dust samples, may result in raised PQLs. Where molecular anion forms are calculated from an element (e.g. SO₄ from S or PO₄ from P stoichiometrically), the assumption is that the element is only present in that molecular anion form.
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.
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.

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	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.
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)-BTX 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)-BTX 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.

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QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-2	393265-2
Date extracted	-			20/10/2025	1	20/10/2025	20/10/2025		20/10/2025	20/10/2025
Date analysed	-			21/10/2025	1	21/10/2025	21/10/2025		21/10/2025	21/10/2025
TRH C ₆ - C ₉	mg/kg	25	Org-023	<25	1	<25	<25	0	104	107
TRH C ₆ - C ₁₀	mg/kg	25	Org-023	<25	1	<25	<25	0	104	107
Benzene	mg/kg	0.2	Org-023	<0.2	1	<0.2	<0.2	0	107	108
Toluene	mg/kg	0.5	Org-023	<0.5	1	<0.5	<0.5	0	102	104
Ethylbenzene	mg/kg	1	Org-023	<1	1	<1	<1	0	107	112
m+p-xylene	mg/kg	2	Org-023	<2	1	<2	<2	0	102	105
o-Xylene	mg/kg	1	Org-023	<1	1	<1	<1	0	104	107
Naphthalene	mg/kg	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-023	86	1	89	85	5	99	96

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	16	20/10/2025	20/10/2025		[NT]	[NT]
Date analysed	-			[NT]	16	21/10/2025	21/10/2025		[NT]	[NT]
TRH C ₆ - C ₉	mg/kg	25	Org-023	[NT]	16	<25	<25	0	[NT]	[NT]
TRH C ₆ - C ₁₀	mg/kg	25	Org-023	[NT]	16	<25	<25	0	[NT]	[NT]
Benzene	mg/kg	0.2	Org-023	[NT]	16	<0.2	<0.2	0	[NT]	[NT]
Toluene	mg/kg	0.5	Org-023	[NT]	16	<0.5	<0.5	0	[NT]	[NT]
Ethylbenzene	mg/kg	1	Org-023	[NT]	16	<1	<1	0	[NT]	[NT]
m+p-xylene	mg/kg	2	Org-023	[NT]	16	<2	<2	0	[NT]	[NT]
o-Xylene	mg/kg	1	Org-023	[NT]	16	<1	<1	0	[NT]	[NT]
Naphthalene	mg/kg	1	Org-023	[NT]	16	<1	<1	0	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-023	[NT]	16	89	90	1	[NT]	[NT]

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QUALITY CONTROL: svTRH (C10-C40) in Soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-2	393265-2
Date extracted	-			20/10/2025	1	20/10/2025	20/10/2025		20/10/2025	20/10/2025
Date analysed	-			21/10/2025	1	21/10/2025	21/10/2025		21/10/2025	21/10/2025
TRH C ₁₀ - C ₁₄	mg/kg	50	Org-020	<50	1	<50	<50	0	101	111
TRH C ₁₅ - C ₂₈	mg/kg	100	Org-020	<100	1	<100	<100	0	94	105
TRH C ₂₉ - C ₃₆	mg/kg	100	Org-020	<100	1	<100	<100	0	86	89
TRH >C ₁₀ -C ₁₆	mg/kg	50	Org-020	<50	1	<50	<50	0	101	111
TRH >C ₁₆ -C ₃₄	mg/kg	100	Org-020	<100	1	<100	<100	0	94	105
TRH >C ₃₄ -C ₄₀	mg/kg	100	Org-020	<100	1	<100	<100	0	86	89
Surrogate o-Terphenyl	%		Org-020	93	1	84	101	18	86	96

QUALITY CONTROL: svTRH (C10-C40) in Soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	16	20/10/2025	20/10/2025		[NT]	[NT]
Date analysed	-			[NT]	16	21/10/2025	21/10/2025		[NT]	[NT]
TRH C ₁₀ - C ₁₄	mg/kg	50	Org-020	[NT]	16	<50	<50	0	[NT]	[NT]
TRH C ₁₅ - C ₂₈	mg/kg	100	Org-020	[NT]	16	<100	<100	0	[NT]	[NT]
TRH C ₂₉ - C ₃₆	mg/kg	100	Org-020	[NT]	16	<100	<100	0	[NT]	[NT]
TRH >C ₁₀ -C ₁₆	mg/kg	50	Org-020	[NT]	16	<50	<50	0	[NT]	[NT]
TRH >C ₁₆ -C ₃₄	mg/kg	100	Org-020	[NT]	16	<100	<100	0	[NT]	[NT]
TRH >C ₃₄ -C ₄₀	mg/kg	100	Org-020	[NT]	16	<100	<100	0	[NT]	[NT]
Surrogate o-Terphenyl	%		Org-020	[NT]	16	76	83	9	[NT]	[NT]

QUALITY CONTROL: PAHs in Soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-2	393265-2
Date extracted	-			20/10/2025	1	20/10/2025	20/10/2025		20/10/2025	20/10/2025
Date analysed	-			21/10/2025	1	21/10/2025	21/10/2025		21/10/2025	21/10/2025
Naphthalene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	88	86
Acenaphthylene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Acenaphthene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	80	78
Fluorene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	90	72
Phenanthrene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	96	92
Anthracene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Fluoranthene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	90	88
Pyrene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	88	86
Benzo(a)anthracene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Chrysene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	86	86
Benzo(b,j,k)fluoranthene	mg/kg	0.2	Org-022/025	<0.2	1	<0.2	<0.2	0	[NT]	[NT]
Benzo(a)pyrene	mg/kg	0.05	Org-022/025	<0.05	1	<0.05	<0.05	0	82	84
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-022/025	91	1	92	92	0	93	92

QUALITY CONTROL: PAHs in Soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	16	20/10/2025	20/10/2025		[NT]	[NT]
Date analysed	-			[NT]	16	21/10/2025	21/10/2025		[NT]	[NT]
Naphthalene	mg/kg	0.1	Org-022/025	[NT]	16	<0.1	<0.1	0	[NT]	[NT]
Acenaphthylene	mg/kg	0.1	Org-022/025	[NT]	16	<0.1	<0.1	0	[NT]	[NT]
Acenaphthene	mg/kg	0.1	Org-022/025	[NT]	16	<0.1	<0.1	0	[NT]	[NT]
Fluorene	mg/kg	0.1	Org-022/025	[NT]	16	<0.1	<0.1	0	[NT]	[NT]
Phenanthrene	mg/kg	0.1	Org-022/025	[NT]	16	<0.1	<0.1	0	[NT]	[NT]
Anthracene	mg/kg	0.1	Org-022/025	[NT]	16	<0.1	<0.1	0	[NT]	[NT]
Fluoranthene	mg/kg	0.1	Org-022/025	[NT]	16	<0.1	<0.1	0	[NT]	[NT]
Pyrene	mg/kg	0.1	Org-022/025	[NT]	16	<0.1	<0.1	0	[NT]	[NT]
Benzo(a)anthracene	mg/kg	0.1	Org-022/025	[NT]	16	<0.1	<0.1	0	[NT]	[NT]
Chrysene	mg/kg	0.1	Org-022/025	[NT]	16	<0.1	<0.1	0	[NT]	[NT]
Benzo(b,j,k)fluoranthene	mg/kg	0.2	Org-022/025	[NT]	16	<0.2	<0.2	0	[NT]	[NT]
Benzo(a)pyrene	mg/kg	0.05	Org-022/025	[NT]	16	<0.05	<0.05	0	[NT]	[NT]
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-022/025	[NT]	16	<0.1	<0.1	0	[NT]	[NT]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-022/025	[NT]	16	<0.1	<0.1	0	[NT]	[NT]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-022/025	[NT]	16	<0.1	<0.1	0	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-022/025	[NT]	16	96	93	3	[NT]	[NT]

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QUALITY CONTROL: Organochlorine Pesticides in soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-2	393265-2
Date extracted	-			20/10/2025	1	20/10/2025	20/10/2025		20/10/2025	20/10/2025
Date analysed	-			21/10/2025	1	21/10/2025	21/10/2025		21/10/2025	21/10/2025
alpha-BHC	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	90	90
HCB	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
beta-BHC	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	92	88
gamma-BHC	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Heptachlor	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	90	92
delta-BHC	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aldrin	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	92	90
Heptachlor Epoxide	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	92	94
gamma-Chlordane	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
alpha-chlordane	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Endosulfan I	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
pp-DDE	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	86	90
Dieldrin	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	88	98
Endrin	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	84	96
Endosulfan II	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
pp-DDD	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	96	98
Endrin Aldehyde	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
pp-DDT	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Endosulfan Sulphate	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	88	94
Methoxychlor	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Mirex	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Surrogate 4-Chloro-3-NBTF	%		Org-022/025	90	1	89	94	5	92	93

QUALITY CONTROL: Organochlorine Pesticides in soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	16	20/10/2025	20/10/2025		[NT]	[NT]
Date analysed	-			[NT]	16	21/10/2025	21/10/2025		[NT]	[NT]
alpha-BHC	mg/kg	0.1	Org-022/025	[NT]	16	<0.1	<0.1	0	[NT]	[NT]
HCB	mg/kg	0.1	Org-022/025	[NT]	16	<0.1	<0.1	0	[NT]	[NT]
beta-BHC	mg/kg	0.1	Org-022/025	[NT]	16	<0.1	<0.1	0	[NT]	[NT]
gamma-BHC	mg/kg	0.1	Org-022/025	[NT]	16	<0.1	<0.1	0	[NT]	[NT]
Heptachlor	mg/kg	0.1	Org-022/025	[NT]	16	<0.1	<0.1	0	[NT]	[NT]
delta-BHC	mg/kg	0.1	Org-022/025	[NT]	16	<0.1	<0.1	0	[NT]	[NT]
Aldrin	mg/kg	0.1	Org-022/025	[NT]	16	<0.1	<0.1	0	[NT]	[NT]
Heptachlor Epoxide	mg/kg	0.1	Org-022/025	[NT]	16	<0.1	<0.1	0	[NT]	[NT]
gamma-Chlordane	mg/kg	0.1	Org-022/025	[NT]	16	<0.1	<0.1	0	[NT]	[NT]
alpha-chlordane	mg/kg	0.1	Org-022/025	[NT]	16	<0.1	<0.1	0	[NT]	[NT]
Endosulfan I	mg/kg	0.1	Org-022/025	[NT]	16	<0.1	<0.1	0	[NT]	[NT]
pp-DDE	mg/kg	0.1	Org-022/025	[NT]	16	<0.1	<0.1	0	[NT]	[NT]
Dieldrin	mg/kg	0.1	Org-022/025	[NT]	16	<0.1	<0.1	0	[NT]	[NT]
Endrin	mg/kg	0.1	Org-022/025	[NT]	16	<0.1	<0.1	0	[NT]	[NT]
Endosulfan II	mg/kg	0.1	Org-022/025	[NT]	16	<0.1	<0.1	0	[NT]	[NT]
pp-DDD	mg/kg	0.1	Org-022/025	[NT]	16	<0.1	<0.1	0	[NT]	[NT]
Endrin Aldehyde	mg/kg	0.1	Org-022/025	[NT]	16	<0.1	<0.1	0	[NT]	[NT]
pp-DDT	mg/kg	0.1	Org-022/025	[NT]	16	<0.1	<0.1	0	[NT]	[NT]
Endosulfan Sulphate	mg/kg	0.1	Org-022/025	[NT]	16	<0.1	<0.1	0	[NT]	[NT]
Methoxychlor	mg/kg	0.1	Org-022/025	[NT]	16	<0.1	<0.1	0	[NT]	[NT]
Mirex	mg/kg	0.1	Org-022/025	[NT]	16	<0.1	<0.1	0	[NT]	[NT]
Surrogate 4-Chloro-3-NBTF	%		Org-022/025	[NT]	16	91	93	2	[NT]	[NT]

QUALITY CONTROL: Organophosphorus Pesticides in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-2	393265-2
Date extracted	-			20/10/2025	1	20/10/2025	20/10/2025		20/10/2025	20/10/2025
Date analysed	-			21/10/2025	1	21/10/2025	21/10/2025		21/10/2025	21/10/2025
Dichlorvos	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	112	117
Mevinphos	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Phorate	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Dimethoate	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Diazinon	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Disulfoton	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Chlorpyrifos-methyl	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Parathion-Methyl	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Ronnel	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	97	93
Fenitrothion	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	108	125
Malathion	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	112	112
Chlorpyriphos	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	107	103
Fenthion	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Parathion	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	98	110
Bromophos-ethyl	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Methidathion	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Fenamiphos	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Ethion	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	105	117
Phosalone	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Azinphos-methyl (Guthion)	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Coumaphos	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Surrogate 4-Chloro-3-NBTF	%		Org-022/025	90	1	89	94	5	92	93

QUALITY CONTROL: Organophosphorus Pesticides in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	16	20/10/2025	20/10/2025		[NT]	[NT]
Date analysed	-			[NT]	16	21/10/2025	21/10/2025		[NT]	[NT]
Dichlorvos	mg/kg	0.1	Org-022/025	[NT]	16	<0.1	<0.1	0	[NT]	[NT]
Mevinphos	mg/kg	0.1	Org-022/025	[NT]	16	<0.1	<0.1	0	[NT]	[NT]
Phorate	mg/kg	0.1	Org-022/025	[NT]	16	<0.1	<0.1	0	[NT]	[NT]
Dimethoate	mg/kg	0.1	Org-022/025	[NT]	16	<0.1	<0.1	0	[NT]	[NT]
Diazinon	mg/kg	0.1	Org-022/025	[NT]	16	<0.1	<0.1	0	[NT]	[NT]
Disulfoton	mg/kg	0.1	Org-022/025	[NT]	16	<0.1	<0.1	0	[NT]	[NT]
Chlorpyrifos-methyl	mg/kg	0.1	Org-022/025	[NT]	16	<0.1	<0.1	0	[NT]	[NT]
Parathion-Methyl	mg/kg	0.1	Org-022/025	[NT]	16	<0.1	<0.1	0	[NT]	[NT]
Ronnel	mg/kg	0.1	Org-022/025	[NT]	16	<0.1	<0.1	0	[NT]	[NT]
Fenitrothion	mg/kg	0.1	Org-022/025	[NT]	16	<0.1	<0.1	0	[NT]	[NT]
Malathion	mg/kg	0.1	Org-022/025	[NT]	16	<0.1	<0.1	0	[NT]	[NT]
Chlorpyrifos	mg/kg	0.1	Org-022/025	[NT]	16	<0.1	<0.1	0	[NT]	[NT]
Fenthion	mg/kg	0.1	Org-022/025	[NT]	16	<0.1	<0.1	0	[NT]	[NT]
Parathion	mg/kg	0.1	Org-022/025	[NT]	16	<0.1	<0.1	0	[NT]	[NT]
Bromophos-ethyl	mg/kg	0.1	Org-022/025	[NT]	16	<0.1	<0.1	0	[NT]	[NT]
Methidathion	mg/kg	0.1	Org-022/025	[NT]	16	<0.1	<0.1	0	[NT]	[NT]
Fenamiphos	mg/kg	0.1	Org-022/025	[NT]	16	<0.1	<0.1	0	[NT]	[NT]
Ethion	mg/kg	0.1	Org-022/025	[NT]	16	<0.1	<0.1	0	[NT]	[NT]
Phosalone	mg/kg	0.1	Org-022/025	[NT]	16	<0.1	<0.1	0	[NT]	[NT]
Azinphos-methyl (Guthion)	mg/kg	0.1	Org-022/025	[NT]	16	<0.1	<0.1	0	[NT]	[NT]
Coumaphos	mg/kg	0.1	Org-022/025	[NT]	16	<0.1	<0.1	0	[NT]	[NT]
Surrogate 4-Chloro-3-NBTF	%		Org-022/025	[NT]	16	91	93	2	[NT]	[NT]

QUALITY CONTROL: PCBs in Soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-2	393265-2
Date extracted	-			20/10/2025	1	20/10/2025	20/10/2025		20/10/2025	20/10/2025
Date analysed	-			21/10/2025	1	21/10/2025	21/10/2025		21/10/2025	21/10/2025
Aroclor 1016	mg/kg	0.1	Org-021/022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1221	mg/kg	0.1	Org-021/022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1232	mg/kg	0.1	Org-021/022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1242	mg/kg	0.1	Org-021/022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1248	mg/kg	0.1	Org-021/022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1254	mg/kg	0.1	Org-021/022/025	<0.1	1	<0.1	<0.1	0	102	100
Aroclor 1260	mg/kg	0.1	Org-021/022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Surrogate 2-Fluorobiphenyl	%		Org-021/022/025	92	1	89	91	2	91	93

QUALITY CONTROL: PCBs in Soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	16	20/10/2025	20/10/2025		[NT]	[NT]
Date analysed	-			[NT]	16	21/10/2025	21/10/2025		[NT]	[NT]
Aroclor 1016	mg/kg	0.1	Org-021/022/025	[NT]	16	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1221	mg/kg	0.1	Org-021/022/025	[NT]	16	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1232	mg/kg	0.1	Org-021/022/025	[NT]	16	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1242	mg/kg	0.1	Org-021/022/025	[NT]	16	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1248	mg/kg	0.1	Org-021/022/025	[NT]	16	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1254	mg/kg	0.1	Org-021/022/025	[NT]	16	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1260	mg/kg	0.1	Org-021/022/025	[NT]	16	<0.1	<0.1	0	[NT]	[NT]
Surrogate 2-Fluorobiphenyl	%		Org-021/022/025	[NT]	16	90	91	1	[NT]	[NT]

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QUALITY CONTROL: Acid Extractable metals in soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-2	393265-2
Date prepared	-			20/10/2025	1	20/10/2025	20/10/2025		20/10/2025	20/10/2025
Date analysed	-			21/10/2025	1	21/10/2025	21/10/2025		21/10/2025	21/10/2025
Arsenic	mg/kg	4	Metals-020	<4	1	6	5	18	99	89
Cadmium	mg/kg	0.4	Metals-020	<0.4	1	<0.4	<0.4	0	94	82
Chromium	mg/kg	1	Metals-020	<1	1	15	13	14	94	92
Copper	mg/kg	1	Metals-020	<1	1	21	15	33	98	102
Lead	mg/kg	1	Metals-020	<1	1	18	19	5	94	87
Mercury	mg/kg	0.1	Metals-021	<0.1	1	<0.1	<0.1	0	119	112
Nickel	mg/kg	1	Metals-020	<1	1	7	6	15	94	85
Zinc	mg/kg	1	Metals-020	<1	1	51	53	4	92	80

QUALITY CONTROL: Acid Extractable metals in soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date prepared	-			[NT]	16	20/10/2025	20/10/2025		[NT]	[NT]
Date analysed	-			[NT]	16	21/10/2025	21/10/2025		[NT]	[NT]
Arsenic	mg/kg	4	Metals-020	[NT]	16	5	7	33	[NT]	[NT]
Cadmium	mg/kg	0.4	Metals-020	[NT]	16	<0.4	<0.4	0	[NT]	[NT]
Chromium	mg/kg	1	Metals-020	[NT]	16	14	23	49	[NT]	[NT]
Copper	mg/kg	1	Metals-020	[NT]	16	16	15	6	[NT]	[NT]
Lead	mg/kg	1	Metals-020	[NT]	16	14	18	25	[NT]	[NT]
Mercury	mg/kg	0.1	Metals-021	[NT]	16	<0.1	<0.1	0	[NT]	[NT]
Nickel	mg/kg	1	Metals-020	[NT]	16	5	5	0	[NT]	[NT]
Zinc	mg/kg	1	Metals-020	[NT]	16	28	28	0	[NT]	[NT]

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Water					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W2	[NT]
Date extracted	-			20/10/2025	[NT]	[NT]	[NT]	[NT]	20/10/2025	[NT]
Date analysed	-			21/10/2025	[NT]	[NT]	[NT]	[NT]	21/10/2025	[NT]
TRH C ₆ - C ₉	µg/L	10	Org-023	<10	[NT]	[NT]	[NT]	[NT]	108	[NT]
TRH C ₆ - C ₁₀	µg/L	10	Org-023	<10	[NT]	[NT]	[NT]	[NT]	108	[NT]
Benzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	106	[NT]
Toluene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	110	[NT]
Ethylbenzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	109	[NT]
m+p-xylene	µg/L	2	Org-023	<2	[NT]	[NT]	[NT]	[NT]	107	[NT]
o-xylene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	110	[NT]
Naphthalene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate Dibromofluoromethane	%		Org-023	98	[NT]	[NT]	[NT]	[NT]	101	[NT]
Surrogate Toluene-d8	%		Org-023	99	[NT]	[NT]	[NT]	[NT]	100	[NT]
Surrogate 4-Bromofluorobenzene	%		Org-023	101	[NT]	[NT]	[NT]	[NT]	99	[NT]

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QUALITY CONTROL: svTRH (C10-C40) in Water					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date extracted	-			20/10/2025	32	20/10/2025	20/10/2025		20/10/2025	[NT]
Date analysed	-			20/10/2025	32	21/10/2025	21/10/2025		20/10/2025	[NT]
TRH C ₁₀ - C ₁₄	µg/L	50	Org-020	<50	32	<50	<50	0	107	[NT]
TRH C ₁₅ - C ₂₈	µg/L	100	Org-020	<100	32	140	<100	33	112	[NT]
TRH C ₂₉ - C ₃₆	µg/L	100	Org-020	<100	32	260	<100	89	114	[NT]
TRH >C ₁₀ - C ₁₆	µg/L	50	Org-020	<50	32	<50	<50	0	107	[NT]
TRH >C ₁₆ - C ₃₄	µg/L	100	Org-020	<100	32	320	120	91	112	[NT]
TRH >C ₃₄ - C ₄₀	µg/L	100	Org-020	<100	32	150	<100	40	114	[NT]
Surrogate o-Terphenyl	%		Org-020	93	32	118	84	34	97	[NT]

QUALITY CONTROL: PAHs in Water					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W3	[NT]
Date extracted	-			20/10/2025	[NT]	[NT]	[NT]	[NT]	20/10/2025	[NT]
Date analysed	-			22/10/2025	[NT]	[NT]	[NT]	[NT]	22/10/2025	[NT]
Naphthalene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	94	[NT]
Acenaphthylene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Acenaphthene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	64	[NT]
Fluorene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	85	[NT]
Phenanthrene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	97	[NT]
Anthracene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Fluoranthene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	88	[NT]
Pyrene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	96	[NT]
Benzo(a)anthracene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Chrysene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	78	[NT]
Benzo(b,j+k)fluoranthene	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Benzo(a)pyrene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	79	[NT]
Indeno(1,2,3-c,d)pyrene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Dibenzo(a,h)anthracene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Benzo(g,h,i)perylene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-022/025	95	[NT]	[NT]	[NT]	[NT]	88	[NT]

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QUALITY CONTROL: Metals in Waters - Acid extractable					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date prepared	-			20/10/2025	[NT]	[NT]	[NT]	[NT]	20/10/2025	[NT]
Date analysed	-			21/10/2025	[NT]	[NT]	[NT]	[NT]	21/10/2025	[NT]
Arsenic - Total	mg/L	0.05	Metals-020	<0.05	[NT]	[NT]	[NT]	[NT]	97	[NT]
Cadmium - Total	mg/L	0.01	Metals-020	<0.01	[NT]	[NT]	[NT]	[NT]	91	[NT]
Chromium - Total	mg/L	0.01	Metals-020	<0.01	[NT]	[NT]	[NT]	[NT]	89	[NT]
Copper - Total	mg/L	0.01	Metals-020	<0.01	[NT]	[NT]	[NT]	[NT]	86	[NT]
Lead - Total	mg/L	0.03	Metals-020	<0.03	[NT]	[NT]	[NT]	[NT]	104	[NT]
Mercury - Total	mg/L	0.0005	Metals-021	<0.0005	[NT]	[NT]	[NT]	[NT]	88	[NT]
Nickel - Total	mg/L	0.02	Metals-020	<0.02	[NT]	[NT]	[NT]	[NT]	98	[NT]
Zinc - Total	mg/L	0.02	Metals-020	<0.02	[NT]	[NT]	[NT]	[NT]	98	[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.

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.

Air volumes are typically provided by customers (often as flow rate(s) and sampling time(s) and/or simply volumes) sampled or exposure times (determines 'volume' passive badges are exposed to)). Hence in such circumstances the volume measurement is inevitably not covered by Envirolab's NATA accreditation. An exception may occur where Envirolab Newcastle does the sampling where accreditation exists for certain types of sampling and hence volume determination(s). Note air volumes are often used to determine concentrations for dust and/or analyses on filters, sorbents and in impingers. For canister sampling, the air volume is covered by Envirolab's NATA accreditation.

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.

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.

For Dust Deposit Gauge (DDG) analysis the sampling, sampling period and funnel exposure area do not fall under Envirolab's NATA accreditation (unless the Newcastle laboratory where responsible for the sampling), hence the annotation on the DDG units of reporting.

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

Report Comments

Acid Extractable Metals in Soil: The laboratory RPD acceptance criteria has been exceeded for 393265-16 for Cr. Therefore a triplicate result has been issued as laboratory sample number 393265-33.

vTRH & BTEXN in Water NEPM - TRH C6-C9/C6-C10 Results are positive (or in part positive) due to the presence of THMs within the sample.

Asbestos-ID in soil: NEPM

This report is consistent with the reporting recommendations in the National Environment Protection (Assessment of Site Contamination) Measure, Schedule B1, May 2013. This is reported outside our scope of NATA accreditation.

SAMPLE RECEIPT ADVICE

Client Details

Client	JK Environments
Attention	Katrina Taylor

Sample Login Details

Your reference	E37664PT Mount Druitt
Envirolab Reference	393265
Date Sample Received	17/10/2025
Date Instructions Received	17/10/2025
Date Results Expected to be Reported	24/10/2025

Sample Condition

Samples received in appropriate condition for analysis	Yes
No. of Samples Provided	31 Soil, 1 Water
Turnaround Time Requested	Standard
Temperature on Receipt (°C)	3
Cooling Method	Ice
Sampling Date Provided	YES

Comments

NEPM bags missing for sample 1,2,4,6,7,8,14 and 18.

Please direct any queries to:

Aileen Hie	Jacinta Hurst
Phone: 02 9910 6200	Phone: 02 9910 6200
Fax: 02 9910 6201	Fax: 02 9910 6201
Email: ahie@envirolab.com.au	Email: jhurst@envirolab.com.au

Analysis Underway, details on the following page:

Sample ID	vTRH(C6-C10)/BTEXN in Soil	svTRH (C10-C40) in Soil	PAHs in Soil	Organochlorine Pesticides in soil	Organophosphorus Pesticides in Soil	PCBs in Soil	Acid Extractable metals in soil	Asbestos ID - soils NEPM - ASB-001	vTRH(C6-C10)/BTEXN in Water	svTRH (C10-C40) in Water	PAHs in Water	Metals in Waters - Acid extractable	On Hold
TP103-0-0.1	✓	✓	✓	✓	✓	✓	✓						
TP103-0.4-0.5	✓	✓	✓	✓	✓	✓	✓						
TP103-0.7-0.8													✓
TP104-0-0.1	✓	✓	✓	✓	✓	✓	✓						
TP104-0.5-0.1													✓
TP105-0-0.1	✓	✓	✓	✓	✓	✓	✓						
TP106-0-0.1	✓	✓	✓	✓	✓	✓	✓						
TP106-0.4-0.5	✓	✓	✓	✓	✓	✓	✓						
TP106-0.7-0.8													✓
TP107-0-0.1	✓	✓	✓	✓	✓	✓	✓	✓					
TP107-0.5-0.6													✓
TP108-0-0.1	✓	✓	✓	✓	✓	✓	✓	✓					
TP108-0.4-0.5													✓
TP109-0-0.1	✓	✓	✓	✓	✓	✓	✓						
TP109-0.2-0.3	✓	✓	✓				✓						
TP109-0.5-0.6	✓	✓	✓	✓	✓	✓	✓	✓					
TP109-0.6-0.7													✓
TP110-0-0.1	✓	✓	✓	✓	✓	✓	✓						
TP110-0.5-0.6													✓
TP111-0.1-0.2	✓	✓	✓	✓	✓	✓	✓	✓					
TP111-0.5-0.6	✓	✓	✓	✓	✓	✓	✓	✓					
TP111-1-1.1													✓
TP112-0-0.1	✓	✓	✓	✓	✓	✓	✓	✓					
TP112-0.4-0.5													✓
TP113-0-0.1	✓	✓	✓	✓	✓	✓	✓	✓					
TP113-0.3-0.4	✓	✓	✓	✓	✓	✓	✓	✓					
TP113-0.7-0.8													✓
SS101-0-0.1				✓			✓						
SDUP101	✓	✓	✓	✓	✓	✓	✓						
TB-101	✓	✓	✓				✓						
TS-101	✓												
FR-Shovel-101									✓	✓	✓	✓	

The '✓' indicates the testing you have requested. **THIS IS NOT A REPORT OF THE RESULTS.**

Additional Info

Sample storage - Waters are routinely disposed of approximately 1 month and soils approximately 2 months from receipt.

Requests for longer term sample storage must be received in writing.

Please contact the laboratory immediately if observed settled sediment present in water samples is to be included in the extraction and/or analysis (exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, Total Recoverable metals and PFAS analysis where solids are included by default.

TAT for Micro is dependent on incubation. This varies from 3 to 6 days.

We acknowledge receipt of your samples and Purchase Order (PO) (if provided). If a PO includes your terms & conditions, Envirolab hereby expressly rejects and will not be bound by any external or third-party terms and conditions, including those referenced or attached to a PO.

All services to be performed by Envirolab will be governed exclusively by Envirolab's General Terms and Conditions attached to this acknowledgement ([Envirolab Terms](#)) via hyperlink or found on our websites.

If you do not object in writing within two (2) business days of the date of this acknowledgement, you will be deemed to have accepted the Envirolab Terms. In addition, your provision of further instructions, additional samples, payment of any invoice, or acceptance of services or results from Envirolab will constitute acceptance of the Envirolab Terms. For clarity, Envirolab's commencement or continuation of work following receipt of the PO is performed solely under the Envirolab Terms and does not constitute acceptance of any external terms. All rights are expressly reserved.

SAMPLE AND CHAIN OF CUSTODY FORM

TO: ENVIROLAB SERVICES PTY LTD 12 ASHLEY STREET CHATSWOOD NSW 2067 P: (02) 99106200 F: (02) 99106201 Attention: Aileen	JKE Job Number: <u>E37644PT</u> Date Results Required: <u>STANDARD</u> Page: <u>1 of 2</u>	FROM: JKE Environments REAR OF 115 WICKS ROAD MACQUARIE PARK, NSW 2113 P: 02-9888 5000 F: 02-9888 5001 Attention: <u>KTaylor@jkenvironments.com.au</u>
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Location:	Mount Druitt						Sample Preserved in Esky on Ice												
Sampler:	VR						Tests Required												
Date Sampled	Lab Ref:	Sample Number	Depth (m)	Sample Container	PID	Sample Description	Combo 6aNEPM	Combo 3	Metals 8 / OCPs	Asbestos (detection)	BTEX	Combo 6							
15/10/2025	1	TP103	0-0.1	G, A	0	F: Silty Clay	X												
15/10/2025	2	TP103	0.4-0.5	G, A	0	F: Silty Clay	X												
15/10/2025	3	TP103	0.7-0.8	G, A	0	Silty Clay													
15/10/2025	4	TP104	0-0.1	G, A	0	F: Silty Clay	X												
15/10/2025	5	TP104	0.5-0.1	G, A	0	Silty Clay													
15/10/2025	6	TP105	0-0.1	G, A	0	F: Silty Clay	X												
15/10/2025	7	TP106	0-0.1	G, A	0	F: Silty Clay	X												
15/10/2025	8	TP106	0.4-0.5	G, A	0	F: Silty Clay	X												
15/10/2025	9	TP106	0.7-0.8	G, A	0	Silty Clay													
14/10/2025	10	TP107	0-0.1	G, A	0	F: Silty Clay	X												
14/10/2025	11	TP107	0.5-0.6	G, A	0	Silty Clay													
14/10/2025	12	TP108	0-0.1	G, A	0	F: Silty Clay	X												
14/10/2025	13	TP108	0.4-0.5	G, A	0	Silty Clay													
14/10/2025	14	TP109	0-0.1	G, A	0	F: Silty Clay	X												
14/10/2025	15	TP109	0.2-0.3	G, A	0	F: Silty Clay		X											
14/10/2025	16	TP109	0.5-0.6	G, A	0	F: Silty Clay	X												
14/10/2025	17	TP109	0.6-0.7	G, A	0	Silty Clay													
15/10/2025	18	TP110	0-0.1	G, A	0	F: Silty Sand	X												
15/10/2025	19	TP110	0.5-0.6	G, A	0	Silty Clay													
14/10/2025	20	TP111	0.1-0.2	G, A	0	F: Silty Clay	X												
14/10/2025	21	TP111	0.5-0.6	G, A	0	F: Silty Clay	X												
14/10/2025	22	TP111	1-1.1	G, A	0	Silty Clay													
14/10/2025	23	TP112	0-0.1	G, A	0	F: Silty Clay	X												
14/10/2025	24	TP112	0.4-0.5	G, A	0	Silty Clay													
14/10/2025	25	TP113	0-0.1	G, A	0	F: Silty Clay	X												
14/10/2025	26	TP113	0.3-0.4	G, A	0	F: Silty Clay	X												
14/10/2025	27	TP113	0.7-0.8	G, A	0	Silty Clay													
14/10/2025	28	SS101	0-0.1	G, A	0	F: Silty Clay			X										
14/10/2025	29	SDUP101	-	G	-	Duplicate						X							
15/10/2025	S/C	SDUP102	-	G	-	Duplicate						X							
Remarks (comments/detection limits required):							Sample Containers: G - 250mg Glass Jar V - BTEX Vial A - Ziplock Asbestos Bag												
Relinquished By:		VR		Date:		17/10/25		Time:		12pm		Received By:				Date:			

Envirolab Services
 12 Ashley St
 Chatswood NSW 2067
 Ph: (02) 9910 6200

 Job No: **393265**
 Date Received: **17.10.25**
 Time Received: **1530**
 Received By: **ALD**
 Temp: **60**/Ambient
 Cooling: **60**/Icepack
 Security: **60**/Broken/None

CERTIFICATE OF ANALYSIS 393265-A

Client Details

Client	JK Environments
Attention	Katrina Taylor
Address	PO Box 976, North Ryde BC, NSW, 1670

Sample Details

Your Reference	<u>E37664PT Mount Druitt</u>
Number of Samples	Additional analysis
Date samples received	17/10/2025
Date completed instructions received	27/10/2025

Analysis Details

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

Samples were analysed as received from the client unless as indicated below in the method summaries. 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.

Report Details

Date results requested by	03/11/2025
Date of Issue	30/10/2025

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

Results Approved By

Dragana Tomas, Senior Chemist
 Larry Ye, Senior Chemist
 Timothy Toll, Senior Chemist

Authorised By

Nancy Zhang, Laboratory Manager

vTRH(C6-C10)/BTEXN in Soil					
Our Reference		393265-A-5	393265-A-17	393265-A-19	393265-A-24
Your Reference	UNITS	TP104	TP109	TP110	TP112
Depth		0.5-0.6	0.6-0.7	0.5-0.6	0.4-0.5
Date Sampled		15/10/2025	14/10/2025	15/10/2025	14/10/2025
Type of sample		Soil	Soil	Soil	Soil
Date extracted	-	28/10/2025	28/10/2025	28/10/2025	28/10/2025
Date analysed	-	29/10/2025	29/10/2025	29/10/2025	29/10/2025
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	%	82	90	78	79

svTRH (C10-C40) in Soil					
Our Reference		393265-A-5	393265-A-17	393265-A-19	393265-A-24
Your Reference	UNITS	TP104	TP109	TP110	TP112
Depth		0.5-0.6	0.6-0.7	0.5-0.6	0.4-0.5
Date Sampled		15/10/2025	14/10/2025	15/10/2025	14/10/2025
Type of sample		Soil	Soil	Soil	Soil
Date extracted	-	28/10/2025	28/10/2025	28/10/2025	28/10/2025
Date analysed	-	30/10/2025	30/10/2025	30/10/2025	30/10/2025
TRH C ₁₀ - C ₁₄	mg/kg	<50	<50	<50	<50
TRH C ₁₅ - C ₂₈	mg/kg	<100	<100	<100	<100
TRH C ₂₉ - C ₃₆	mg/kg	<100	<100	<100	<100
Total +ve TRH (C10-C36)	mg/kg	<50	<50	<50	<50
TRH >C ₁₀ -C ₁₆	mg/kg	<50	<50	<50	<50
TRH >C ₁₀ -C ₁₆ less Naphthalene (F2)	mg/kg	<50	<50	<50	<50
TRH >C ₁₆ -C ₃₄	mg/kg	<100	<100	<100	<100
TRH >C ₃₄ -C ₄₀	mg/kg	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	<50	<50
Surrogate o-Terphenyl	%	91	92	90	94

PAHs in Soil					
Our Reference		393265-A-5	393265-A-17	393265-A-19	393265-A-24
Your Reference	UNITS	TP104	TP109	TP110	TP112
Depth		0.5-0.6	0.6-0.7	0.5-0.6	0.4-0.5
Date Sampled		15/10/2025	14/10/2025	15/10/2025	14/10/2025
Type of sample		Soil	Soil	Soil	Soil
Date extracted	-	28/10/2025	28/10/2025	28/10/2025	28/10/2025
Date analysed	-	30/10/2025	30/10/2025	30/10/2025	30/10/2025
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<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
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1
Total +ve PAH's	mg/kg	<0.05	<0.05	<0.05	<0.05
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5	<0.5
Surrogate <i>p</i> -Terphenyl-d14	%	104	105	102	104

Acid Extractable metals in soil					
Our Reference		393265-A-5	393265-A-17	393265-A-19	393265-A-24
Your Reference	UNITS	TP104	TP109	TP110	TP112
Depth		0.5-0.6	0.6-0.7	0.5-0.6	0.4-0.5
Date Sampled		15/10/2025	14/10/2025	15/10/2025	14/10/2025
Type of sample		Soil	Soil	Soil	Soil
Date prepared	-	28/10/2025	28/10/2025	28/10/2025	28/10/2025
Date analysed	-	29/10/2025	29/10/2025	29/10/2025	29/10/2025
Arsenic	mg/kg	<4	<4	5	5
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	12	15	20	17
Copper	mg/kg	15	13	16	16
Lead	mg/kg	12	12	16	14
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	3	2	4	1
Zinc	mg/kg	18	20	23	11

Moisture					
Our Reference		393265-A-5	393265-A-17	393265-A-19	393265-A-24
Your Reference	UNITS	TP104	TP109	TP110	TP112
Depth		0.5-0.6	0.6-0.7	0.5-0.6	0.4-0.5
Date Sampled		15/10/2025	14/10/2025	15/10/2025	14/10/2025
Type of sample		Soil	Soil	Soil	Soil
Date prepared	-	28/10/2025	28/10/2025	28/10/2025	28/10/2025
Date analysed	-	29/10/2025	29/10/2025	29/10/2025	29/10/2025
Moisture	%	18	14	18	16

Method ID	Methodology Summary
Inorg-008	Moisture content determined by heating at 105+/-5 °C for a minimum of 12 hours.
Metals-020	Determination of various metals/elements by ICP-AES. Total Phosphate determined stoichiometrically from Phosphorus (assumed to be present as Phosphate). Where salts (oxides, chlorides etc.) are calculated from the element concentration stoichiometrically there is no guarantee that the salt form is completely soluble in the acids used in the preparation. Submission of low masses of sample e.g. for dust samples, may result in raised PQLs. Where molecular anion forms are calculated from an element (e.g. SO₄ from S or PO₄ from P stoichiometrically), the assumption is that the element is only present in that molecular anion form.
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).

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.

Client Reference: E37664PT Mount Druitt

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-16	[NT]
Date extracted	-			28/10/2025	[NT]	[NT]	[NT]	[NT]	28/10/2025	[NT]
Date analysed	-			29/10/2025	[NT]	[NT]	[NT]	[NT]	29/10/2025	[NT]
TRH C ₆ - C ₉	mg/kg	25	Org-023	<25	[NT]	[NT]	[NT]	[NT]	107	[NT]
TRH C ₆ - C ₁₀	mg/kg	25	Org-023	<25	[NT]	[NT]	[NT]	[NT]	107	[NT]
Benzene	mg/kg	0.2	Org-023	<0.2	[NT]	[NT]	[NT]	[NT]	99	[NT]
Toluene	mg/kg	0.5	Org-023	<0.5	[NT]	[NT]	[NT]	[NT]	88	[NT]
Ethylbenzene	mg/kg	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	117	[NT]
m+p-xylene	mg/kg	2	Org-023	<2	[NT]	[NT]	[NT]	[NT]	115	[NT]
o-Xylene	mg/kg	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	100	[NT]
Naphthalene	mg/kg	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-023	84	[NT]	[NT]	[NT]	[NT]	91	[NT]

Client Reference: E37664PT Mount Druitt

QUALITY CONTROL: svTRH (C10-C40) in Soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-16	[NT]
Date extracted	-			28/10/2025	[NT]	[NT]	[NT]	[NT]	28/10/2025	[NT]
Date analysed	-			30/10/2025	[NT]	[NT]	[NT]	[NT]	30/10/2025	[NT]
TRH C ₁₀ - C ₁₄	mg/kg	50	Org-020	<50	[NT]	[NT]	[NT]	[NT]	94	[NT]
TRH C ₁₅ - C ₂₈	mg/kg	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	88	[NT]
TRH C ₂₉ - C ₃₆	mg/kg	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	86	[NT]
TRH >C ₁₀ -C ₁₆	mg/kg	50	Org-020	<50	[NT]	[NT]	[NT]	[NT]	94	[NT]
TRH >C ₁₆ -C ₃₄	mg/kg	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	88	[NT]
TRH >C ₃₄ -C ₄₀	mg/kg	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	86	[NT]
Surrogate o-Terphenyl	%		Org-020	91	[NT]	[NT]	[NT]	[NT]	110	[NT]

QUALITY CONTROL: PAHs in Soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-16	[NT]
Date extracted	-			28/10/2025	[NT]	[NT]	[NT]	[NT]	28/10/2025	[NT]
Date analysed	-			30/10/2025	[NT]	[NT]	[NT]	[NT]	30/10/2025	[NT]
Naphthalene	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	98	[NT]
Acenaphthylene	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Acenaphthene	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	96	[NT]
Fluorene	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	102	[NT]
Phenanthrene	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	104	[NT]
Anthracene	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Fluoranthene	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	112	[NT]
Pyrene	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	106	[NT]
Benzo(a)anthracene	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Chrysene	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	96	[NT]
Benzo(b,j+k)fluoranthene	mg/kg	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Benzo(a)pyrene	mg/kg	0.05	Org-022/025	<0.05	[NT]	[NT]	[NT]	[NT]	116	[NT]
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-022/025	105	[NT]	[NT]	[NT]	[NT]	106	[NT]

Client Reference: E37664PT Mount Druitt

QUALITY CONTROL: Acid Extractable metals in soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-10	[NT]
Date prepared	-			28/10/2025	[NT]	[NT]	[NT]	[NT]	28/10/2025	[NT]
Date analysed	-			29/10/2025	[NT]	[NT]	[NT]	[NT]	29/10/2025	[NT]
Arsenic	mg/kg	4	Metals-020	<4	[NT]	[NT]	[NT]	[NT]	94	[NT]
Cadmium	mg/kg	0.4	Metals-020	<0.4	[NT]	[NT]	[NT]	[NT]	87	[NT]
Chromium	mg/kg	1	Metals-020	<1	[NT]	[NT]	[NT]	[NT]	89	[NT]
Copper	mg/kg	1	Metals-020	<1	[NT]	[NT]	[NT]	[NT]	91	[NT]
Lead	mg/kg	1	Metals-020	<1	[NT]	[NT]	[NT]	[NT]	90	[NT]
Mercury	mg/kg	0.1	Metals-021	<0.1	[NT]	[NT]	[NT]	[NT]	110	[NT]
Nickel	mg/kg	1	Metals-020	<1	[NT]	[NT]	[NT]	[NT]	89	[NT]
Zinc	mg/kg	1	Metals-020	<1	[NT]	[NT]	[NT]	[NT]	95	[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.

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.

Air volumes are typically provided by customers (often as flow rate(s) and sampling time(s) and/or simply volumes) sampled or exposure times (determines 'volume' passive badges are exposed to)). Hence in such circumstances the volume measurement is inevitably not covered by Envirolab's NATA accreditation. An exception may occur where Envirolab Newcastle does the sampling where accreditation exists for certain types of sampling and hence volume determination(s). Note air volumes are often used to determine concentrations for dust and/or analyses on filters, sorbents and in impingers. For canister sampling, the air volume is covered by Envirolab's NATA accreditation.

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.

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.

For Dust Deposit Gauge (DDG) analysis the sampling, sampling period and funnel exposure area do not fall under Envirolab's NATA accreditation (unless the Newcastle laboratory where responsible for the sampling), hence the annotation on the DDG units of reporting.

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

SAMPLE RECEIPT ADVICE

Client Details

Client	JK Environments
Attention	Katrina Taylor

Sample Login Details

Your reference	E37664PT Mount Druitt
Envirolab Reference	393265-A
Date Sample Received	17/10/2025
Date Instructions Received	27/10/2025
Date Results Expected to be Reported	03/11/2025

Sample Condition

Samples received in appropriate condition for analysis	Yes
No. of Samples Provided	Additional analysis
Turnaround Time Requested	Standard
Temperature on Receipt (°C)	3
Cooling Method	Ice
Sampling Date Provided	YES

Comments

Nil

Please direct any queries to:

Aileen Hie

Phone: 02 9910 6200
Fax: 02 9910 6201
Email: ahie@envirolab.com.au

Jacinta Hurst

Phone: 02 9910 6200
Fax: 02 9910 6201
Email: jhurst@envirolab.com.au

Analysis Underway, details on the following page:



Envirolab Services Pty Ltd

ABN 37 112 535 645

12 Ashley St Chatswood NSW 2067

ph 02 9910 6200 fax 02 9910 6201

customerservice@envirolab.com.au

www.envirolab.com.au

Sample ID	vTRH(C6-C10)/BTEXN in Soil	svTRH (C10-C40) in Soil	PAHs in Soil	Acid Extractable metals in soil	On Hold
TP103-0-0.1					✓
TP103-0.4-0.5					✓
TP103-0.7-0.8					✓
TP104-0-0.1					✓
TP104-0.5-0.6	✓	✓	✓	✓	
TP105-0-0.1					✓
TP106-0-0.1					✓
TP106-0.4-0.5					✓
TP106-0.7-0.8					✓
TP107-0-0.1					✓
TP107-0.5-0.6					✓
TP108-0-0.1					✓
TP108-0.4-0.5					✓
TP109-0-0.1					✓
TP109-0.2-0.3					✓
TP109-0.5-0.6					✓
TP109-0.6-0.7	✓	✓	✓	✓	
TP110-0-0.1					✓
TP110-0.5-0.6	✓	✓	✓	✓	
TP111-0.1-0.2					✓
TP111-0.5-0.6					✓
TP111-1-1.1					✓
TP112-0-0.1					✓
TP112-0.4-0.5	✓	✓	✓	✓	
TP113-0-0.1					✓
TP113-0.3-0.4					✓
TP113-0.7-0.8					✓
SS101-0-0.1					✓
SDUP101					✓
TB-101					✓
TS-101					✓
FR-Shovel-101					✓



Sample ID	vTRH(C6-C10)/BTEXN in Soil	svTRH (C10-C40) in Soil	PAHs in Soil	Acid Extractable metals in soil	On Hold
TP109 - [TRIPLICATE]-0.5-0.6					✓

The '✓' indicates the testing you have requested. **THIS IS NOT A REPORT OF THE RESULTS.**

Additional Info

Sample storage - Waters are routinely disposed of approximately 1 month and soils approximately 2 months from receipt.

Requests for longer term sample storage must be received in writing.

Please contact the laboratory immediately if observed settled sediment present in water samples is to be included in the extraction and/or analysis (exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, Total Recoverable metals and PFAS analysis where solids are included by default.

TAT for Micro is dependent on incubation. This varies from 3 to 6 days.

We acknowledge receipt of your samples and Purchase Order (PO) (if provided). If a PO includes your terms & conditions, Envirolab hereby expressly rejects and will not be bound by any external or third-party terms and conditions, including those referenced or attached to a PO.

All services to be performed by Envirolab will be governed exclusively by Envirolab's General Terms and Conditions attached to this acknowledgement ([Envirolab Terms](#)) via hyperlink or found on our websites.

If you do not object in writing within two (2) business days of the date of this acknowledgement, you will be deemed to have accepted the Envirolab Terms. In addition, your provision of further instructions, additional samples, payment of any invoice, or acceptance of services or results from Envirolab will constitute acceptance of the Envirolab Terms. For clarity, Envirolab's commencement or continuation of work following receipt of the PO is performed solely under the Envirolab Terms and does not constitute acceptance of any external terms. All rights are expressly reserved.

Anna Bui

From: Katrina Taylor <KTaylor@jkenvironments.com.au>
Sent: Monday, 27 October 2025 2:36 PM
To: Anna Bui; Envirolab Sydney Sample Receipt
Subject: RE: Results for Registration 393265 E37664PT Mount Druitt

CAUTION: This email originated from outside of the organisation. Do not act on instructions, click links or open attachments unless you recognise the sender and know the content is authentic and safe.

Hi Anna,

Yes I do.

Please update the depth to 0.5-0.6 as this was a transcription error in the field/on the CoC. Thank you.

Regards
Katrina Taylor
Senior Associate | Environmental Scientist
NSW Licensed Asbestos Assessor



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D: +61 418 481 628
E: KTaylor@jkenvironments.com.au
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NORTH RYDE BC NSW 1670
115 Wicks Road
MACQUARIE PARK NSW 2113

ELJ REF: 393265-A
MT: STANDARD
DE: 3/11/25
AB-

JKEnvironments

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From: Anna Bui <ABui@envirolab.com.au>
Sent: Monday, 27 October 2025 2:33 PM
To: Katrina Taylor <KTaylor@jkenvironments.com.au>; Envirolab Sydney Sample Receipt <Samplereceipt@envirolab.com.au>
Subject: RE: Results for Registration 393265 E37664PT Mount Druitt

This message originated outside the JKG network. If this looks to be from a staff member, it is likely to be malicious (spam/phish attack). Do not click links of open attachments unless you recognise the sender and know the content is safe.

Hi Katrina,

Assuming you mean TP104 (0.5-0.1) (#5) for TP104 (0.5-0.6)?
Would you like me to update the depth for the A-job?

Kind Regards,

Anna Bui | Client Services Officer | Envirolab Services

Great Science. Great Service.

12 Ashley Street Chatswood NSW 2067
T 612 9910 6200
E ABui@envirolab.com.au | W www.envirolab.com.au

Follow us on: [LinkedIn](#) | [Facebook](#) | [Twitter](#)

Samples will be analysed per our T&C's.

From: Katrina Taylor <KTaylor@jkenvironments.com.au>
Sent: Monday, 27 October 2025 1:09 PM
To: Envirolab Sydney Sample Receipt <Samplereceipt@envirolab.com.au>
Subject: FW: Results for Registration 393265 E37664PT Mount Druitt

CAUTION: This email originated from outside of the organisation. Do not act on instructions, click links or open attachments unless you recognise the sender and know the content is authentic and safe.

Afternoon,

Please schedule the following samples on standard TA:

#3

5 TP104 (0.5-0.6)
17 TP109 (0.6-0.7)
19 TP110 (0.5-0.6)
24 TP112 (0.4-0.5)

Thank you.

Regards
Katrina Taylor
Senior Associate | Environmental Scientist
NSW Licensed Asbestos Assessor



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JKEnvironments

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From: Stuart Chen <SChen2@envirolab.com.au>
Sent: Friday, 24 October 2025 3:36 PM
To: Katrina Taylor <KTaylor@jkenvironments.com.au>
Subject: Results for Registration 393265 E37664PT Mount Druitt

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Please refer to attached for:
a copy of the Certificate of Analysis

Certificate of Analysis MGJ0285

Client Details

Client	JK Environments
Contact	Katrina Taylor
Address	115 Wicks Road, Macquarie Park, NSW, 2113

Sample Details

Your Reference	E37664PT
Number of Samples	1 Water
Date Samples Received	17/10/2025
Date Instructions Received	17/10/2025

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 Final Results Expected	23/10/2025
Date of Issue	23/10/2025

NATA Accreditation Number 2901. This document shall not be reproduced except in full.

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

Authorisation Details

Results Approved By	Azrin Akram, Senior Chemist Maggie Hu, Organics Supervisor Shawn See, Chemist Tara White, Metals Supervisor
Laboratory Manager	Chris De Luca

Certificate of Analysis MGJ0285

Samples in this Report

Envirolab ID	Sample ID	Matrix	Date Sampled	Date Received
MGJ0285-01	WDUP2	Water	15/10/2025	17/10/2025

Certificate of Analysis MGJ0285

Volatile TRH and BTEX (Water)

Envirolab ID	Units	PQL	MGJ0285-01
Your Reference			WDUP2
Date Sampled			15/10/2025
TRH C6-C9	µg/L	10	<10
TRH C6-C10	µg/L	10	<10
TRH C6-C10 less BTEX (F1)	µg/L	10	<10
Methyl tert butyl ether (MTBE)	µg/L	1.0	<1.0
Benzene	µg/L	1.0	<1.0
Toluene	µg/L	1.0	<1.0
Ethylbenzene	µg/L	1.0	<1.0
meta+para Xylene	µg/L	2.0	<2.0
ortho-Xylene	µg/L	1.0	<1.0
Total +ve Xylenes	µg/L	1.0	<1.0
Naphthalene (value used in F2 calc)	µg/L	1.0	<1.0
Total +ve BTEX	µg/L	1.0	<1.0
Surrogate Dibromofluoromethane	%		100
Surrogate Toluene-D8	%		92.3
Surrogate 4-Bromofluorobenzene	%		99.1

Certificate of Analysis MGJ0285

Semi-volatile TRH (Water)

Envirolab ID	Units	PQL	MGJ0285-01
Your Reference			WDUP2
Date Sampled			15/10/2025
TRH C10-C14	µg/L	50	<50
TRH C15-C28	µg/L	100	<100
TRH C29-C36	µg/L	100	<100
Total +ve TRH C10-C36	µg/L	50	<50
TRH >C10-C16	µg/L	50	<50
TRH >C10-C16 less Naphthalene F2	µg/L	50	<50
TRH >C16-C34 (F3)	µg/L	100	<100
TRH >C34-C40 (F4)	µg/L	100	<100
Total +ve TRH >C10-C40	µg/L	50	<50
Surrogate o-Terphenyl	%		79.0

Certificate of Analysis MGJ0285

Polycyclic Aromatic Hydrocarbons (Water)

Envirolab ID Your Reference Date Sampled	Units	PQL	MGJ0285-01 WDUP2 15/10/2025
Naphthalene	µg/L	0.10	<0.10
Acenaphthylene	µg/L	0.10	<0.10
Acenaphthene	µg/L	0.10	<0.10
Fluorene	µg/L	0.10	<0.10
Phenanthrene	µg/L	0.10	<0.10
Anthracene	µg/L	0.10	<0.10
Fluoranthene	µg/L	0.10	<0.10
Pyrene	µg/L	0.10	<0.10
Benzo(a)anthracene	µg/L	0.10	<0.10
Chrysene	µg/L	0.10	<0.10
Benzo(b,j,k)fluoranthene	µg/L	0.20	<0.20
Benzo(a)pyrene	µg/L	0.10	<0.10
Indeno(1,2,3-c,d)pyrene	µg/L	0.10	<0.10
Dibenzo(a,h)anthracene	µg/L	0.10	<0.10
Benzo(g,h,i)perylene	µg/L	0.10	<0.10
Total +ve PAH	µg/L	0.10	<0.10
Surrogate p-Terphenyl-D14	%		73.6

Certificate of Analysis MGJ0285

Dissolved Low Level Metals (Water)

Envirolab ID	Units	PQL	MGJ0285-01
Your Reference			WDUP2
Date Sampled			15/10/2025
Arsenic	µg/L	1.0	<2.0
Cadmium	µg/L	0.10	1.0
Chromium	µg/L	1.0	<2.0
Copper	µg/L	1.0	240
Mercury	µg/L	0.050	<0.050
Nickel	µg/L	1.0	12
Lead	µg/L	1.0	<2.0
Zinc	µg/L	1.0	33

Certificate of Analysis MGJ0285

PFAS Short List (Water)

Envirolab ID Your Reference Date Sampled	Units	PQL	MGJ0285-01 WDUP2 15/10/2025
Perfluorobutanesulfonic acid (PFBS)	µg/L	0.010	<0.010
Perfluorohexanesulfonic acid (PFHxS)	µg/L	0.010	<0.010
Perfluorooctanesulfonic acid (PFOS)	µg/L	0.010	<0.010
Perfluorooctanoic acid (PFOA)	µg/L	0.010	<0.010
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	µg/L	0.010	<0.010
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	µg/L	0.020	<0.020
Surrogate 13C8 PFOS	%		94.4
Surrogate 13C2 PFOA	%		95.9
Total +ve PFHxS+PFOS	µg/L	0.010	<0.010
Total +ve PFOA+PFOS	µg/L	0.010	<0.010
Total +ve PFAS	µg/L	0.010	<0.010
Extraction Internal Standard 13C3 PFBS	%		86.2
Extraction Internal Standard 18O2 PFHxS	%		86.5
Extraction Internal Standard 13C4 PFOS	%		86.7
Extraction Internal Standard 13C4 PFOA	%		84.5
Extraction Internal Standard 13C2 6:2FTS	%		55.2
Extraction Internal Standard 13C2 8:2FTS	%		65.6

Certificate of Analysis MGJ0285

Method Summary

Method ID	Methodology Summary
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. Where salts (oxides, chlorides etc.) are calculated from the element concentration stoichiometrically there is no guarantee that the salt form is completely soluble in the acids used in the preparation.
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-022_PAH	Determination of semi-volatile organic compounds (SVOCs) by GC-MS. Water samples are extracted by LLE and solids using DCM/Acetone/Methanol. For PAHs:- Benzo(a)pyrene TEQ as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater - 2013. 1. 'TEQ 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. 'TEQ 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. 'TEQ 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, for Total +ve calculations, the PQL is reflective of the lowest individual PQL and therefore, for example, "Total +ve PAHs" is simply a sum of the positive individual PAHs.
ORG-023_F1_TOT	Determination of volatile organic compounds (VOCs) by P&T-GC-MS. Water samples are analysed directly by purge and trap GC-MS. Solids are extracted with Methanol, diluted and analysed 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 therefore "Total +ve Xylenes" is simply a sum of the positive individual Xylenes.
ORG-029	Soil/solid and sorbent samples are extracted with basified Methanol. Waters and soil/sorbent extracts are directly injected and/or concentrated/extracted using SPE. TCLP/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 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.

Certificate of Analysis MGJ0285

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.

Certificate of Analysis MGJ0285

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 volumes are typically provided by customers (often as flow rate(s) and sampling time(s) and/or simply volume(s) sampled or exposure times (determines 'volume' passive badges are exposed to)). Hence in such circumstances the volume measurement is inevitably not covered by Envirolab's NATA accreditation. An exception may occur where Envirolab Newcastle does the sampling where accreditation exists for certain types of sampling and hence volume determination(s). Note air volumes are often used to determine concentrations for dust and/or analyses on filters, sorbents and in impingers. For canister sampling, the air volume is covered by Envirolab's NATA accreditation.

Data Quality Assessment Summary MGJ0285

Client Details

Client	JK Environments
Your Reference	E37664PT
Date Issued	23/10/2025

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	No	Matrix Spike Outliers Exist - See detailed list below
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 MGJ0285

Recommended Holding Time Compliance

Analysis	Sample Number(s)	Date Sampled	Date Extracted	Date Analysed	Compliant
vTRH&MBTEXN Water	1	15/10/2025	20/10/2025	20/10/2025	Yes
sTRH Water	1	15/10/2025	21/10/2025	22/10/2025	Yes
PAH Water	1	15/10/2025	21/10/2025	22/10/2025	Yes
Dissolved Metals (LL) Water	1	15/10/2025	17/10/2025	21/10/2025	Yes
Dissolved Metals (LL)-Hg Water	1	15/10/2025	17/10/2025	21/10/2025	Yes
PFAS - ISTD (Short) Water	1	15/10/2025	20/10/2025	20/10/2025	Yes
PFAS-Short Water	1	15/10/2025	20/10/2025	20/10/2025	Yes

Outliers: Matrix Spike

ORG-023_F1_TOT | Volatile TRH and BTEX (Water) | Batch BGJ3176

Sample ID	Analyte	% Limits	% Recovery
BGJ3176-MS1#	Benzene	60 - 140	58.6[2]
BGJ3176-MS1#	Dibromofluoromethane	60 - 140	##[3]
BGJ3176-MS1#	ortho-Xylene	60 - 140	##[2]
BGJ3176-MS1#	TRH C6-C10	60 - 140	##[1]
BGJ3176-MS1#	TRH C6-C9	60 - 140	##[1]

Quality Control MGJ0285

ORG-023_F1_TOT|Volatile TRH and BTEX (Water) | Batch BGJ3176

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %	Spike %
				BGJ3176-DUP1#	BGJ3176-DUP2#		
				Samp QC RPD %	Samp QC RPD %		
TRH C6-C9	µg/L	10	<10	<10 <10 [NA]	<10 <10 [NA]	93.9	##[1]
TRH C6-C10	µg/L	10	<10	<10 <10 [NA]	<10 <10 [NA]	93.4	##[1]
Methyl tert butyl ether (MTBE)	µg/L	1.0	<1.0	<1.0 <1.0 [NA]	<1.0 <1.0 [NA]	[NA]	[NA]
Benzene	µg/L	1.0	<1.0	<1.0 <1.0 [NA]	<1.0 <1.0 [NA]	102	58.6[2]
Toluene	µg/L	1.0	<1.0	<1.0 <1.0 [NA]	<1.0 <1.0 [NA]	107	89.8
Ethylbenzene	µg/L	1.0	<1.0	<1.0 <1.0 [NA]	<1.0 <1.0 [NA]	110	82.2
meta+para Xylene	µg/L	2.0	<2.0	<2.0 <2.0 [NA]	<2.0 <2.0 [NA]	106	79.1
ortho-Xylene	µg/L	1.0	<1.0	<1.0 <1.0 [NA]	<1.0 <1.0 [NA]	112	##[2]
Naphthalene (value used in F2 calc)	µg/L	1.0	<1.0	<1.0 <1.0 [NA]	<1.0 <1.0 [NA]	[NA]	[NA]
Surrogate Dibromofluoromethane	%		118	95.9 / 96.1	99.6 / 101	98.6	##[3]
Surrogate Toluene-D8	%		92.0	94.6 / 94.4	93.4 / 94.2	102	134
Surrogate 4-Bromofluorobenzene	%		108	97.9 / 97.7	97.7 / 98.6	95.3	90.3

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

ORG-020| Semi-volatile TRH (Water) | Batch BGJ3529

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %	Spike %
				MGJ0285-01	BGJ3529-DUP2#		BGJ3529-MS1#
				Samp QC RPD %	Samp QC RPD %		
TRH C10-C14	µg/L	50	<50	<50 <50 [NA]	<50 <50 [NA]	77.6	85.3
TRH C15-C28	µg/L	100	<100	<100 <100 [NA]	<100 <100 [NA]	73.8	102
TRH C29-C36	µg/L	100	<100	<100 <100 [NA]	<100 <100 [NA]	79.4	111
TRH >C10-C16	µg/L	50	<50	<50 <50 [NA]	<50 <50 [NA]	64.6	78.8
TRH >C16-C34 (F3)	µg/L	100	<100	<100 <100 [NA]	<100 <100 [NA]	76.1	106
TRH >C34-C40 (F4)	µg/L	100	<100	<100 <100 [NA]	<100 <100 [NA]	75.5	103
Surrogate o-Terphenyl	%		68.6	79.0 / 70.6	61.2 / 72.2	96.4	89.7

Analyte	Units	PQL	Blank			LCS %	Spike %		
								BGJ3529-MS2#	
Surrogate o-Terphenyl	%					[NA]	79.2		

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

ORG-022_PAH|Polycyclic Aromatic Hydrocarbons (Water) | Batch BGJ3529

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %	Spike %
				MGJ0285-01	BGJ3529-DUP2#		
				Samp QC RPD %	Samp QC RPD %		
Naphthalene	µg/L	0.10	<0.10	<0.10 <0.10 [NA]	<0.10 <0.10 [NA]	[NA]	84.4
Acenaphthylene	µg/L	0.10	<0.10	<0.10 <0.10 [NA]	<0.10 <0.10 [NA]	[NA]	[NA]
Acenaphthene	µg/L	0.10	<0.10	<0.10 <0.10 [NA]	<0.10 <0.10 [NA]	[NA]	84.9
Fluorene	µg/L	0.10	<0.10	<0.10 <0.10 [NA]	<0.10 <0.10 [NA]	[NA]	79.0
Phenanthrene	µg/L	0.10	<0.10	<0.10 <0.10 [NA]	<0.10 <0.10 [NA]	[NA]	83.2
Anthracene	µg/L	0.10	<0.10	<0.10 <0.10 [NA]	<0.10 <0.10 [NA]	[NA]	[NA]
Fluoranthene	µg/L	0.10	<0.10	<0.10 <0.10 [NA]	<0.10 <0.10 [NA]	[NA]	87.3
Pyrene	µg/L	0.10	<0.10	<0.10 <0.10 [NA]	<0.10 <0.10 [NA]	[NA]	88.2
Benzo(a)anthracene	µg/L	0.10	<0.10	<0.10 <0.10 [NA]	<0.10 <0.10 [NA]	[NA]	[NA]
Chrysene	µg/L	0.10	<0.10	<0.10 <0.10 [NA]	<0.10 <0.10 [NA]	[NA]	91.8
Benzo(b,j,k)fluoranthene	µg/L	0.20	<0.20	<0.20 <0.20 [NA]	<0.20 <0.20 [NA]	[NA]	[NA]
Benzo(a)pyrene	µg/L	0.10	<0.10	<0.10 <0.10 [NA]	<0.10 <0.10 [NA]	[NA]	71.3
Indeno(1,2,3-c,d)pyrene	µg/L	0.10	<0.10	<0.10 <0.10 [NA]	<0.10 <0.10 [NA]	[NA]	[NA]
Dibenzo(a,h)anthracene	µg/L	0.10	<0.10	<0.10 <0.10 [NA]	<0.10 <0.10 [NA]	[NA]	[NA]
Benzo(g,h,i)perylene	µg/L	0.10	<0.10	<0.10 <0.10 [NA]	<0.10 <0.10 [NA]	[NA]	[NA]
Surrogate p-Terphenyl-D14	%		70.0	73.6 / 62.2	63.1 / 68.6	72.5	70.2

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

Quality Control MGJ0285

METALS-021 | Dissolved Low Level Metals (Water) | Batch BGJ3015

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %	Spike %
				BGJ3015-DUP1#	BGJ3015-DUP2#		
				Samp QC RPD %	Samp QC RPD %		
Mercury	µg/L	0.050	<0.050	<0.050 <0.050 [NA]	<0.050 <0.050 [NA]	109	130

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

METALS-022 | Dissolved Low Level Metals (Water) | Batch BGJ3016

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %	Spike %
				BGJ3016-DUP1#	BGJ3016-DUP2#		
				Samp QC RPD %	Samp QC RPD %		
Arsenic	µg/L	1.0	<1.0	<2.0 2.34 [NA]	<1.0 <1.0 [NA]	99.1	98.0
Cadmium	µg/L	0.10	<0.10	<0.20 <0.20 [NA]	1.27 1.27 0.473	102	101
Chromium	µg/L	1.0	<1.0	<2.0 <2.0 [NA]	<1.0 <1.0 [NA]	101	101
Copper	µg/L	1.0	<1.0	<2.0 <2.0 [NA]	118 119 1.37	100	99.7
Lead	µg/L	1.0	<1.0	<2.0 <2.0 [NA]	<1.0 <1.0 [NA]	98.6	96.9
Nickel	µg/L	1.0	<1.0	24.1 24.2 0.413	6.23 6.42 3.00	100	98.7
Zinc	µg/L	1.0	<1.0	149 151 1.76	127 128 1.43	101	99.2

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

ORG-029 | PFAS Short List (Water) | Batch BGJ3178

Analyte	Units	PQL	Blank	DUP1	LCS %	Spike %
				BGJ3178-DUP1#		
				Samp QC RPD %		
Perfluorobutanesulfonic acid (PFBS)	µg/L	0.010	<0.010	0.265 0.254 4.10	120	115
Perfluorohexanesulfonic acid (PFHxS)	µg/L	0.010	<0.010	0.222 0.230 3.72	125	130
Perfluorooctanesulfonic acid (PFOS)	µg/L	0.010	<0.010	1.27 1.35 6.14	120	127
Perfluorooctanoic acid (PFOA)	µg/L	0.010	<0.010	0.122 0.128 4.56	117	120
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	µg/L	0.010	<0.010	0.267 0.260 2.94	131	133
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	µg/L	0.020	<0.020	<0.020 <0.020 [NA]	117	125
Surrogate 13C8 PFOS	%		91.2	95.3 99.8	95.9	91.4
Surrogate 13C2 PFOA	%		98.0	98.4 100	98.6	98.7
Extraction Internal Standard 13C3 PFBS	%		88.6	92.5 92.4 0.195	[NA]	[NA]
Extraction Internal Standard 18O2 PFHxS	%		89.4	86.7 85.5 1.32	[NA]	[NA]
Extraction Internal Standard 13C4 PFOS	%		91.9	85.7 85.9 0.187	[NA]	[NA]
Extraction Internal Standard 13C4 PFOA	%		94.7	95.8 93.6 2.32	[NA]	[NA]
Extraction Internal Standard 13C2 6:2FTS	%		93.5	140 140 0.322	[NA]	[NA]
Extraction Internal Standard 13C2 8:2FTS	%		93.7	114 113 0.901	[NA]	[NA]

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

QC Comments

Identifier	Description
[1]	Spike recovery is not applicable due to the relatively high analyte background in the sample (>3* spike level). However, the LCS recovery is within acceptance criteria.
[2]	Spike recovery is outside routine acceptance criteria (60-140%), this may be due to suspected non-homogeneity and/or matrix interference effects. However, an acceptable recovery was achieved for the LCS.
[3]	Surrogate recovery was outside routine acceptance criteria (60-140%) due to sample matrix effects. This may be due to the presence of carbon and/or other artefacts. An acceptable recovery was achieved for the LCS surrogates.

Sample Receipt Advice MGJ0285

Client Details

Client	JK Environments
Attention	Katrina Taylor

Sample Login Details

Your Reference	E37664PT
Envirolab Reference	MGJ0285
Date Sample Received	17/10/2025
Date Instructions Received	17/10/2025
Date Final Results Expected	23/10/2025

Sample Condition

Samples received in appropriate condition for analysis	Yes
Number of Samples	1 Water
Turnaround Time	4 Days
Temperatures / Cooling Methods	18.0°C Ice Pack

Additional Info

Sample storage - waters are routinely disposed at approximately 1 month and soils approximately 2 months from receipt.

Requests for longer term sample storage must be received in writing.

Where no sampling date has been supplied for some or all samples, the date of sample receipt has been used as the associated sampling date. The sampling dates are used to assess compliance to recommended Technical Holding Times.

Please contact the laboratory immediately if observed settled sediment present in water samples is to be included in the extraction and/or analysis (exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, Total Recoverable

Samples will be analysed per our T&C's.

Please direct any queries to:

Chris De Luca

Phone 03 9763 2500
Email cdeluca@envirolab.com.au

Tianna Milburn

Phone 03 9763 2500
Email tmilburn@envirolab.com.au

Analysis underway, details on the following page

Sample Receipt Advice MGJ0285

Analysis Grid

The • indicates the testing you have requested. **THIS IS NOT A REPORT OF THE RESULTS.**

	Combination 3 (D)	PFAS-Short
MGJ0285-01		
Water 15/10/2025	•	•
WDUP2		

Suite Details

Suite Name	Suite Analyses
Combination 3 (D) Water	vTRH&MBTEXN, sTRH, PAH, As - Dissolved (LL), Cd - Dissolved (LL), Cr - Dissolved (LL), Cu - Dissolved (LL), Hg - Dissolved, Ni - Dissolved (LL), Pb - Dissolved (LL), Zn - Dissolved (LL)
PFAS-Short Water	PFAS - ISTD (Short), PFAS-Short

100: 15/10/25 17:01

SAMPLE AND CHAIN OF CUSTODY FORM

TO: ENVIROLAB SERVICES PTY LTD 12 ASHLEY STREET CHATSWOOD NSW 2067 P: (02) 99106200 F: (02) 99106201 Attention: Aileen		JKE Job Number: E37664PT Date Results Required: STANDARD Page: 1 of 1		FROM:  JK Environments REAR OF 115 WICKS ROAD MACQUARIE PARK, NSW 2113 P: 02-9888 5000 F: 02-9888 5001 Attention: Katrina Taylor ktaylor@jkenvironments.com.au													
Location: Mount Druitt, NSW		Sample Preserved in Esky on Ice															
Sampler: VR		Tests Required															
Date Sampled	Lab Ref:	Sample Number	Sample Containers	PID	Sample Description	Combo 3	pH / EC	PFAS	BTEX								
15/10/2025	1	MW2	#3, 2x PFAS	0.2	Groundwater	X	X	X									
15/10/2025	2	MW4	#3, 2x PFAS	0	Groundwater	X	X	X									
15/10/2025	3	WDUP1	#3, 2x PFAS	-	Duplicate	X		X									
15/10/2025	S/O	WDUP2	#3, 2x PFAS	-	Duplicate	X		X		Please send to Melb Envirolab							
15/10/2025	4	TB-1	V	-	Trip Blank	X											
15/10/2025	5	TS-1	V	-	Trip Spike				X								
 Envirolab Services 12 Ashley St Chatswood NSW 2067 Ph: (02) 9910 6200 Job No: 303050 Date Received: 15/10/25 Time Received: 1730 Received By: ZH Temp: Cool/Ambient Cooling: Ice/Icepack Security: Intact/Broken/None						 Envirolab Services 25 Research Drive Croydon South VIC 3136 Ph: (03) 9763 2500 Job No: MCT0205 Date Received: 17/10/25 Time Received: 2:15pm Received By: ZJ Temp: Cool/Ambient Cooling: Ice/Icepack Security: Intact/Broken/None											
Remarks (comments/detection limits required):						Sample Containers: G1 - 500mL Amber Glass Bottle G2 - 1L Amber Glass Bottle V - BTEX Vial H - HNO3 Wash PVC PVC - HDPE Plastic Bottles											
Relinquished By:		Date:		Time:		Received By:		Date:									
EJ SYD. O. WILCKX		16/10/25				Richard Henry		15/10/25									

Certificate of Analysis MGJ0334

Client Details

Client	JK Environments
Contact	Katrina Taylor
Address	115 Wicks Road, Macquarie Park, NSW, 2113

Sample Details

Your Reference	E37644PT
Number of Samples	1 Soil
Date Samples Received	21/10/2025
Date Instructions Received	21/10/2025

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 Final Results Expected	27/10/2025
Date of Issue	27/10/2025

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Authorisation Details

Results Approved By	Chris De Luca, Lab Manager Maggie Hu, Organics Supervisor Shawn See, Chemist
Laboratory Manager	Chris De Luca

Certificate of Analysis MGJ0334

Samples in this Report

Envirolab ID	Sample ID	Matrix	Date Sampled	Date Received
MGJ0334-01	SDUP102	Soil	15/10/2025	21/10/2025

Certificate of Analysis MGJ0334

Volatile TRH and BTEX (Soil)

Envirolab ID	Units	PQL	MGJ0334-01
Your Reference			SDUP102
Date Sampled			15/10/2025
TRH C6-C9	mg/kg	25	<25
TRH C6-C10	mg/kg	25	<25
TRH C6-C10 less BTEX (F1)	mg/kg	25	<25
Methyl tert butyl ether (MTBE)	mg/kg	0.50	<0.50
Benzene	mg/kg	0.20	<0.20
Toluene	mg/kg	0.50	<0.50
Ethylbenzene	mg/kg	1.0	<1.0
meta+para Xylene	mg/kg	2.0	<2.0
ortho-Xylene	mg/kg	1.0	<1.0
Total +ve Xylenes	mg/kg	1.0	<1.0
Naphthalene (value used in F2 calc)	mg/kg	1.0	<1.0
Total +ve BTEX	mg/kg	0.20	<0.20
Surrogate aaa-Trifluorotoluene	%		99.3

Certificate of Analysis MGJ0334

Semi-volatile TRH (Soil)

Envirolab ID	Units	PQL	MGJ0334-01
Your Reference			SDUP102
Date Sampled			15/10/2025
TRH C10-C14	mg/kg	50	<50
TRH C15-C28	mg/kg	100	<100
TRH C29-C36	mg/kg	100	<100
Total +ve TRH C10-C36	mg/kg	50	<50
TRH >C10-C16	mg/kg	50	<50
TRH >C10-C16 less Naphthalene F2	mg/kg	50	<50
TRH >C16-C34 (F3)	mg/kg	100	<100
TRH >C34-C40 (F4)	mg/kg	100	<100
Total +ve TRH >C10-C40	mg/kg	50	<50
Surrogate o-Terphenyl	%		76.4

Certificate of Analysis MGJ0334

Polycyclic Aromatic Hydrocarbons (Soil)

Envirolab ID Your Reference Date Sampled	Units	PQL	MGJ0334-01 SDUP102 15/10/2025
Naphthalene	mg/kg	0.10	<0.10
Acenaphthylene	mg/kg	0.10	<0.10
Acenaphthene	mg/kg	0.10	<0.10
Fluorene	mg/kg	0.10	<0.10
Phenanthrene	mg/kg	0.10	<0.10
Anthracene	mg/kg	0.10	<0.10
Fluoranthene	mg/kg	0.10	<0.10
Pyrene	mg/kg	0.10	<0.10
Benzo(a)anthracene	mg/kg	0.10	<0.10
Chrysene	mg/kg	0.10	<0.10
Benzo(b,j,k)fluoranthene	mg/kg	0.20	<0.20
Benzo(a)pyrene	mg/kg	0.050	<0.050
Indeno(1,2,3-c,d)pyrene	mg/kg	0.10	<0.10
Dibenzo(a,h)anthracene	mg/kg	0.10	<0.10
Benzo(g,h,i)perylene	mg/kg	0.10	<0.10
Total +ve PAH	mg/kg	0.050	<0.050
Benzo(a)pyrene TEQ calc zero	mg/kg	0.50	<0.50
Benzo(a)pyrene TEQ calc Half	mg/kg	0.50	<0.50
Benzo(a)pyrene TEQ calc PQL	mg/kg	0.50	<0.50
Surrogate p-Terphenyl-D14	%		95.9

Certificate of Analysis MGJ0334

Organochlorine Pesticides (Soil)

Envirolab ID Your Reference Date Sampled	Units	PQL	MGJ0334-01 SDUP102 15/10/2025
alpha-BHC	mg/kg	0.10	<0.10
Hexachlorobenzene	mg/kg	0.10	<0.10
beta-BHC	mg/kg	0.10	<0.10
gamma-BHC	mg/kg	0.10	<0.10
delta-BHC	mg/kg	0.10	<0.10
Heptachlor	mg/kg	0.10	<0.10
Aldrin	mg/kg	0.10	<0.10
Heptachlor epoxide	mg/kg	0.10	<0.10
trans-Chlordane	mg/kg	0.10	<0.10
cis-Chlordane	mg/kg	0.10	<0.10
Endosulfan I	mg/kg	0.10	<0.10
4,4'-DDE	mg/kg	0.10	<0.10
Dieldrin	mg/kg	0.10	<0.10
Endrin	mg/kg	0.10	<0.10
4,4'-DDD	mg/kg	0.10	<0.10
Endosulfan II	mg/kg	0.10	<0.10
Endrin aldehyde	mg/kg	0.10	<0.10
4,4'-DDT	mg/kg	0.10	<0.10
Endosulfan sulfate	mg/kg	0.10	<0.10
Endrin ketone	mg/kg	0.10	<0.10
Methoxychlor	mg/kg	0.10	<0.10
Mirex	mg/kg	0.10	<0.10
Total +ve DDT+DDD+DDE	mg/kg	0.10	<0.10
Total +ve Aldrin + Dieldrin	mg/kg	0.10	<0.10
Total +ve OCP	mg/kg	0.10	<0.10
Surrogate 4-chloro-3-nitrobenzotrifluoride	%		107

Certificate of Analysis MGJ0334

Organophosphorus Pesticides (Soil)

Envirolab ID Your Reference Date Sampled	Units	PQL	MGJ0334-01 SDUP102 15/10/2025
Dichlorvos	mg/kg	0.10	<0.10
Dimethoate	mg/kg	0.10	<0.10
Diazinon	mg/kg	0.10	<0.10
Chlorpyrifos-methyl	mg/kg	0.10	<0.10
Ronnel	mg/kg	0.10	<0.10
Fenitrothion	mg/kg	0.10	<0.10
Malathion	mg/kg	0.10	<0.10
Chlorpyrifos	mg/kg	0.10	<0.10
Parathion	mg/kg	0.10	<0.10
Bromophos-ethyl	mg/kg	0.10	<0.10
Ethion	mg/kg	0.10	<0.10
Coumaphos	mg/kg	0.10	<0.10
Disulfoton	mg/kg	0.10	<0.10
Fenamiphos	mg/kg	0.10	<0.10
Fenthion	mg/kg	0.10	<0.10
Methidathion	mg/kg	0.10	<0.10
Mevinphos	mg/kg	0.10	<0.10
Parathion-methyl	mg/kg	0.10	<0.10
Phorate	mg/kg	0.10	<0.10
Phosalone	mg/kg	0.10	<0.10
Azinphos-methyl	mg/kg	0.10	<0.10
Surrogate 4-chloro-3-nitrobenzotrifluoride	%		107

Certificate of Analysis MGJ0334

Polychlorinated Biphenyls (Soil)

Envirolab ID	Units	PQL	MGJ0334-01
Your Reference			SDUP102
Date Sampled			15/10/2025
Aroclor 1016	mg/kg	0.10	<0.10
Aroclor 1221	mg/kg	0.10	<0.10
Aroclor 1232	mg/kg	0.10	<0.10
Aroclor 1242	mg/kg	0.10	<0.10
Aroclor 1248	mg/kg	0.10	<0.10
Aroclor 1254	mg/kg	0.10	<0.10
Aroclor 1260	mg/kg	0.10	<0.10
Total +ve PCB (1016-1260)	mg/kg	0.10	<0.10
Surrogate 2-Fluorobiphenyl	%		99.9

Certificate of Analysis MGJ0334

Acid Extractable Metals (Soil)

Envirolab ID	Units	PQL	MGJ0334-01
Your Reference			SDUP102
Date Sampled			15/10/2025
Arsenic	mg/kg	4.0	5.2
Cadmium	mg/kg	0.40	<0.40
Chromium	mg/kg	1.0	20
Copper	mg/kg	1.0	17
Mercury	mg/kg	0.10	<0.10
Nickel	mg/kg	1.0	6.5
Lead	mg/kg	1.0	20
Zinc	mg/kg	1.0	59

Certificate of Analysis MGJ0334

Inorganics - Moisture (Soil)

Envirolab ID	Units	PQL	MGJ0334-01
Your Reference			SDUP102
Date Sampled			15/10/2025
Moisture	%	0.10	14

Certificate of Analysis MGJ0334

Method Summary

Method ID	Methodology Summary
INORG-008	Moisture content determined by heating at 105+/-5 °C for a minimum of 12 hours.
METALS-020	Determination of various metals by ICP-OES. Where salts (oxides, chlorides etc.) are calculated from the element concentration stoichiometrically there is no guarantee that the salt form is completely soluble in the acids used in the preparation.
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. 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_P CB	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-ECD and/or GC-MS/GC-MSMS.
ORG-022	Determination of semi-volatile organic compounds (SVOCs) by GC-MS. Water samples are extracted by LLE and soils using DCM/Acetone/Methanol.
ORG-022_OC	Determination of semi-volatile organic compounds (SVOCs) by GC-MS. Water samples are extracted by LLE and soils using DCM/Acetone/Methanol.
ORG-022_PAH	Determination of semi-volatile organic compounds (SVOCs) by GC-MS. Water samples are extracted by LLE and solids using DCM/Acetone/Methanol. For PAHs:- Benzo(a)pyrene TEQ as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater - 2013. 1. 'TEQ 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. 'TEQ 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. 'TEQ 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, for Total +ve calculations, the PQL is reflective of the lowest individual PQL and therefore, for example, "Total +ve PAHs" is simply a sum of the positive individual PAHs.
ORG-023_F1_TOT	Determination of volatile organic compounds (VOCs) by P&T-GC-MS. Water samples are analysed directly by purge and trap GC-MS. Solids are extracted with Methanol, diluted and analysed 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 therefore "Total +ve Xylenes" is simply a sum of the positive individual Xylenes.

Certificate of Analysis MGJ0334

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.

Certificate of Analysis MGJ0334

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 volumes are typically provided by customers (often as flow rate(s) and sampling time(s) and/or simply volume(s) sampled or exposure times (determines 'volume' passive badges are exposed to)). Hence in such circumstances the volume measurement is inevitably not covered by Envirolab's NATA accreditation. An exception may occur where Envirolab Newcastle does the sampling where accreditation exists for certain types of sampling and hence volume determination(s). Note air volumes are often used to determine concentrations for dust and/or analyses on filters, sorbents and in impingers. For canister sampling, the air volume is covered by Envirolab's NATA accreditation.

Data Quality Assessment Summary MGJ0334

Client Details

Client	JK Environments
Your Reference	E37644PT
Date Issued	27/10/2025

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	No	Matrix Spike Outliers Exist - See detailed list below
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 MGJ0334

Recommended Holding Time Compliance

Analysis	Sample Number(s)	Date Sampled	Date Extracted	Date Analysed	Compliant
vTRH&MBTEXN Soil	1	15/10/2025	22/10/2025	24/10/2025	Yes
sTRH Soil	1	15/10/2025	22/10/2025	24/10/2025	Yes
PAH Soil	1	15/10/2025	22/10/2025	24/10/2025	Yes
OCP Soil	1	15/10/2025	22/10/2025	24/10/2025	Yes
OPP (21 list) Soil	1	15/10/2025	22/10/2025	24/10/2025	Yes
PCB Soil	1	15/10/2025	22/10/2025	24/10/2025	Yes
Metals Soil	1	15/10/2025	22/10/2025	23/10/2025	Yes
Metals-Hg Soil	1	15/10/2025	22/10/2025	23/10/2025	Yes
Moisture Soil	1	15/10/2025	22/10/2025	23/10/2025	Yes

Outliers: Matrix Spike

ORG-020 | Semi-volatile TRH (Soil) | Batch BGJ3744

Sample ID	Analyte	% Limits	% Recovery
BGJ3744-MS1#	TRH >C34-C40 (F4)	60 - 140	##[1]
BGJ3744-MS1#	TRH C29-C36	60 - 140	##[1]

ORG-022_OC | Organochlorine Pesticides (Soil) | Batch BGJ3744

Sample ID	Analyte	% Limits	% Recovery
BGJ3744-MS2#	beta-BHC	60 - 140	58.9[2]

ORG-022_PAH | Polycyclic Aromatic Hydrocarbons (Soil) | Batch BGJ3744

Sample ID	Analyte	% Limits	% Recovery
BGJ3744-MS2#	Benzo(a)pyrene	60 - 140	##[1]
BGJ3744-MS2#	Chrysene	60 - 140	##[1]
BGJ3744-MS2#	Fluoranthene	60 - 140	##[1]
BGJ3744-MS2#	Phenanthrene	60 - 140	##[1]

Quality Control MGJ0334

ORG-023_F1_TOT|Volatile TRH and BTEX (Soil) | Batch BGJ3743

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %	Spike %
				BGJ3743-DUP1#	BGJ3743-DUP2#		
				Samp QC RPD %	Samp QC RPD %		
TRH C6-C9	mg/kg	25	<25	<25 <25 [NA]	<25 <25 [NA]	101	88.6
TRH C6-C10	mg/kg	25	<25	<25 <25 [NA]	<25 <25 [NA]	99.0	87.5
Methyl tert butyl ether (MTBE)	mg/kg	0.50	<0.50	<0.50 <0.50 [NA]	<0.50 <0.50 [NA]	[NA]	[NA]
Benzene	mg/kg	0.20	<0.20	<0.20 <0.20 [NA]	<0.20 <0.20 [NA]	96.4	87.5
Toluene	mg/kg	0.50	<0.50	<0.50 <0.50 [NA]	<0.50 <0.50 [NA]	99.2	91.4
Ethylbenzene	mg/kg	1.0	<1.0	<1.0 <1.0 [NA]	<1.0 <1.0 [NA]	103	95.8
meta+para Xylene	mg/kg	2.0	<2.0	<2.0 <2.0 [NA]	<2.0 <2.0 [NA]	102	95.4
ortho-Xylene	mg/kg	1.0	<1.0	<1.0 <1.0 [NA]	<1.0 <1.0 [NA]	106	100
Naphthalene (value used in F2 calc)	mg/kg	1.0	<1.0	<1.0 <1.0 [NA]	<1.0 <1.0 [NA]	[NA]	[NA]
Surrogate aaa-Trifluorotoluene	%		100	100 / 99.4	99.8 / 100	115	95.4

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

ORG-020| Semi-volatile TRH (Soil) | Batch BGJ3744

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %	Spike %
				BGJ3744-DUP1#	BGJ3744-DUP2#		
				Samp QC RPD %	Samp QC RPD %		
TRH C10-C14	mg/kg	50	<50	<50 <50 [NA]	<50 <50 [NA]	120	102
TRH C15-C28	mg/kg	100	<100	<100 <100 [NA]	<100 <100 [NA]	107	92.1
TRH C29-C36	mg/kg	100	<100	207 150 [NA]	113 <100 [NA]	126	##[1]
TRH >C10-C16	mg/kg	50	<50	<50 <50 [NA]	<50 <50 [NA]	98.1	83.0
TRH >C16-C34 (F3)	mg/kg	100	<100	181 143 [NA]	<100 <100 [NA]	110	78.0
TRH >C34-C40 (F4)	mg/kg	100	<100	147 <100 [NA]	<100 <100 [NA]	128	##[1]
Surrogate o-Terphenyl	%		79.9	85.0 / 85.3	78.7 / 77.7	94.8	83.7

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

ORG-022_PAH|Polycyclic Aromatic Hydrocarbons (Soil) | Batch BGJ3744

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %	Spike %
				BGJ3744-DUP1#	BGJ3744-DUP2#		
				Samp QC RPD %	Samp QC RPD %		
Naphthalene	mg/kg	0.10	<0.10	<0.10 <0.10 [NA]	<0.10 <0.10 [NA]	91.4	92.5
Acenaphthylene	mg/kg	0.10	<0.10	<0.10 <0.10 [NA]	<0.10 <0.10 [NA]	[NA]	[NA]
Acenaphthene	mg/kg	0.10	<0.10	<0.10 <0.10 [NA]	<0.10 <0.10 [NA]	103	112
Fluorene	mg/kg	0.10	<0.10	<0.10 <0.10 [NA]	<0.10 <0.10 [NA]	97.5	134
Phenanthrene	mg/kg	0.10	<0.10	0.299 0.300 [NA]	<0.10 <0.10 [NA]	76.2	##[1]
Anthracene	mg/kg	0.10	<0.10	0.123 0.129 [NA]	<0.10 <0.10 [NA]	[NA]	[NA]
Fluoranthene	mg/kg	0.10	<0.10	0.860 0.877 2.04	<0.10 <0.10 [NA]	76.9	##[1]
Pyrene	mg/kg	0.10	<0.10	0.939 0.972 3.47	<0.10 <0.10 [NA]	79.8	##[1]
Benzo(a)anthracene	mg/kg	0.10	<0.10	0.422 0.452 [NA]	<0.10 <0.10 [NA]	[NA]	[NA]
Chrysene	mg/kg	0.10	<0.10	0.471 0.500 [NA]	<0.10 <0.10 [NA]	98.7	##[1]
Benzo(b,j,k)fluoranthene	mg/kg	0.20	<0.20	0.958 0.988 [NA]	<0.20 <0.20 [NA]	[NA]	[NA]
Benzo(a)pyrene	mg/kg	0.050	<0.050	0.671 0.706 5.09	<0.050 <0.050 [NA]	87.1	##[1]
Indeno(1,2,3-c,d)pyrene	mg/kg	0.10	<0.10	0.436 0.444 [NA]	<0.10 <0.10 [NA]	[NA]	[NA]
Dibenzo(a,h)anthracene	mg/kg	0.10	<0.10	<0.10 <0.10 [NA]	<0.10 <0.10 [NA]	[NA]	[NA]
Benzo(g,h,i)perylene	mg/kg	0.10	<0.10	0.427 0.430 [NA]	<0.10 <0.10 [NA]	[NA]	[NA]
Surrogate p-Terphenyl-D14	%		96.2	95.1 / 95.6	94.1 / 94.7	69.5	94.1

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

Quality Control MGJ0334

ORG-022_OC | Organochlorine Pesticides (Soil) | Batch BGJ3744

Analyte	Units	PQL	Blank	DUP1			DUP2			LCS %	Spike %
				BGJ3744-DUP1#			BGJ3744-DUP2#				
				Samp	QC	RPD %	Samp	QC	RPD %		
alpha-BHC	mg/kg	0.10	<0.10	<0.10	<0.10	[NA]	<0.10	<0.10	[NA]	99.7	113
Hexachlorobenzene	mg/kg	0.10	<0.10	<0.10	<0.10	[NA]	<0.10	<0.10	[NA]	[NA]	[NA]
beta-BHC	mg/kg	0.10	<0.10	<0.10	<0.10	[NA]	<0.10	<0.10	[NA]	99.8	58.9[2]
gamma-BHC	mg/kg	0.10	<0.10	<0.10	<0.10	[NA]	<0.10	<0.10	[NA]	[NA]	[NA]
delta-BHC	mg/kg	0.10	<0.10	<0.10	<0.10	[NA]	<0.10	<0.10	[NA]	[NA]	[NA]
Heptachlor	mg/kg	0.10	<0.10	<0.10	<0.10	[NA]	<0.10	<0.10	[NA]	75.5	102
Aldrin	mg/kg	0.10	<0.10	<0.10	<0.10	[NA]	<0.10	<0.10	[NA]	82.4	104
Heptachlor epoxide	mg/kg	0.10	<0.10	<0.10	<0.10	[NA]	<0.10	<0.10	[NA]	80.9	113
trans-Chlordane	mg/kg	0.10	<0.10	<0.10	<0.10	[NA]	<0.10	<0.10	[NA]	[NA]	[NA]
cis-Chlordane	mg/kg	0.10	<0.10	<0.10	<0.10	[NA]	<0.10	<0.10	[NA]	[NA]	[NA]
Endosulfan I	mg/kg	0.10	<0.10	<0.10	<0.10	[NA]	<0.10	<0.10	[NA]	[NA]	[NA]
4,4'-DDE	mg/kg	0.10	<0.10	<0.10	<0.10	[NA]	<0.10	<0.10	[NA]	75.6	103
Dieldrin	mg/kg	0.10	<0.10	<0.10	<0.10	[NA]	<0.10	<0.10	[NA]	81.2	113
Endrin	mg/kg	0.10	<0.10	<0.10	<0.10	[NA]	<0.10	<0.10	[NA]	71.1	126
4,4'-DDD	mg/kg	0.10	<0.10	<0.10	<0.10	[NA]	<0.10	<0.10	[NA]	82.3	111
Endosulfan II	mg/kg	0.10	<0.10	<0.10	<0.10	[NA]	<0.10	<0.10	[NA]	[NA]	[NA]
Endrin aldehyde	mg/kg	0.10	<0.10	<0.10	<0.10	[NA]	<0.10	<0.10	[NA]	[NA]	[NA]
4,4'-DDT	mg/kg	0.10	<0.10	<0.10	<0.10	[NA]	<0.10	<0.10	[NA]	[NA]	[NA]
Endosulfan sulfate	mg/kg	0.10	<0.10	<0.10	<0.10	[NA]	<0.10	<0.10	[NA]	70.1	106
Endrin ketone	mg/kg	0.10	<0.10	<0.10	<0.10	[NA]	<0.10	<0.10	[NA]	[NA]	[NA]
Methoxychlor	mg/kg	0.10	<0.10	<0.10	<0.10	[NA]	<0.10	<0.10	[NA]	[NA]	[NA]
Mirex	mg/kg	0.10	<0.10	<0.10	<0.10	[NA]	<0.10	<0.10	[NA]	[NA]	[NA]
Surrogate 4-chloro-3-nitrobenzotrifluoride	%		109	107 / 115			109 / 110			105	107

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

ORG-022 | Organophosphorus Pesticides (Soil) | Batch BGJ3744

Analyte	Units	PQL	Blank	DUP1			DUP2			LCS %	Spike % BGJ3744-MS2#
				BGJ3744-DUP1#			BGJ3744-DUP2#				
				Samp	QC	RPD %	Samp	QC	RPD %		
Dichlorvos	mg/kg	0.10	<0.10	<0.10	<0.10	[NA]	<0.10	<0.10	[NA]	84.1	92.6
Dimethoate	mg/kg	0.10	<0.10	<0.10	<0.10	[NA]	<0.10	<0.10	[NA]	[NA]	[NA]
Diazinon	mg/kg	0.10	<0.10	<0.10	<0.10	[NA]	<0.10	<0.10	[NA]	[NA]	[NA]
Chlorpyrifos-methyl	mg/kg	0.10	<0.10	<0.10	<0.10	[NA]	<0.10	<0.10	[NA]	75.1	101
Ronnel	mg/kg	0.10	<0.10	<0.10	<0.10	[NA]	<0.10	<0.10	[NA]	80.5	104
Fenitrothion	mg/kg	0.10	<0.10	<0.10	<0.10	[NA]	<0.10	<0.10	[NA]	60.9	92.9
Malathion	mg/kg	0.10	<0.10	<0.10	<0.10	[NA]	<0.10	<0.10	[NA]	66.3	97.9
Chlorpyrifos	mg/kg	0.10	<0.10	<0.10	<0.10	[NA]	<0.10	<0.10	[NA]	71.3	97.9
Parathion	mg/kg	0.10	<0.10	<0.10	<0.10	[NA]	<0.10	<0.10	[NA]	69.1	115
Bromophos-ethyl	mg/kg	0.10	<0.10	<0.10	<0.10	[NA]	<0.10	<0.10	[NA]	[NA]	[NA]
Ethion	mg/kg	0.10	<0.10	<0.10	<0.10	[NA]	<0.10	<0.10	[NA]	63.3	132
Coumaphos	mg/kg	0.10	<0.10	<0.10	<0.10	[NA]	<0.10	<0.10	[NA]	[NA]	[NA]
Disulfoton	mg/kg	0.10	<0.10	<0.10	<0.10	[NA]	<0.10	<0.10	[NA]	[NA]	[NA]
Fenamiphos	mg/kg	0.10	<0.10	<0.10	<0.10	[NA]	<0.10	<0.10	[NA]	[NA]	[NA]
Fenthion	mg/kg	0.10	<0.10	<0.10	<0.10	[NA]	<0.10	<0.10	[NA]	[NA]	[NA]
Methidathion	mg/kg	0.10	<0.10	<0.10	<0.10	[NA]	<0.10	<0.10	[NA]	[NA]	[NA]
Mevinphos	mg/kg	0.10	<0.10	<0.10	<0.10	[NA]	<0.10	<0.10	[NA]	[NA]	[NA]
Parathion-methyl	mg/kg	0.10	<0.10	<0.10	<0.10	[NA]	<0.10	<0.10	[NA]	[NA]	[NA]
Phorate	mg/kg	0.10	<0.10	<0.10	<0.10	[NA]	<0.10	<0.10	[NA]	[NA]	[NA]
Phosalone	mg/kg	0.10	<0.10	<0.10	<0.10	[NA]	<0.10	<0.10	[NA]	[NA]	[NA]
Azinphos-methyl	mg/kg	0.10	<0.10	<0.10	<0.10	[NA]	<0.10	<0.10	[NA]	[NA]	[NA]
Surrogate 4-chloro-3-nitrobenzotrifluoride	%		109	107 / 115			109 / 110			105	107

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

Quality Control MGJ0334

ORG-021/022/025_PCB | Polychlorinated Biphenyls (Soil) | Batch BGJ3744

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %	Spike %
				BGJ3744-DUP1#	BGJ3744-DUP2#		
				Samp QC RPD %	Samp QC RPD %		
Aroclor 1016	mg/kg	0.10	<0.10	<0.10 <0.10 [NA]	<0.10 <0.10 [NA]	[NA]	[NA]
Aroclor 1221	mg/kg	0.10	<0.10	<0.10 <0.10 [NA]	<0.10 <0.10 [NA]	[NA]	[NA]
Aroclor 1232	mg/kg	0.10	<0.10	<0.10 <0.10 [NA]	<0.10 <0.10 [NA]	[NA]	[NA]
Aroclor 1242	mg/kg	0.10	<0.10	<0.10 <0.10 [NA]	<0.10 <0.10 [NA]	[NA]	[NA]
Aroclor 1248	mg/kg	0.10	<0.10	<0.10 <0.10 [NA]	<0.10 <0.10 [NA]	[NA]	[NA]
Aroclor 1254	mg/kg	0.10	<0.10	<0.10 <0.10 [NA]	<0.10 <0.10 [NA]	[NA]	[NA]
Aroclor 1260	mg/kg	0.10	<0.10	<0.10 <0.10 [NA]	<0.10 <0.10 [NA]	[NA]	[NA]
PCB C103	mg/kg			0.00 0.00 [NA]	0.00 0.00 [NA]	84.9	110
Surrogate 2-Fluorobiphenyl	%		97.1	100 103	103 101	96.2	97.1

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

METALS-020 | Acid Extractable Metals (Soil) | Batch BGJ3745

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %	Spike %
				BGJ3745-DUP1#	BGJ3745-DUP2#		
				Samp QC RPD %	Samp QC RPD %		
Arsenic	mg/kg	4.0	<4.0	<4.0 <4.0 [NA]		102	108
Cadmium	mg/kg	0.40	<0.40	<0.40 <0.40 [NA]		114	104
Chromium	mg/kg	1.0	<1.0	28.1 27.5 1.91		108	109
Copper	mg/kg	1.0	<1.0	18.7 19.1 2.41		108	107
Lead	mg/kg	1.0	<1.0	18.9 18.4 2.79		105	101
Mercury	mg/kg	0.10	<0.10	<0.10 <0.10 [NA]		109	105
Nickel	mg/kg	1.0	<1.0	12.2 12.7 3.73		106	101
Zinc	mg/kg	1.0	<1.0	35.1 37.7 7.07		112	108

Analyte	Units	PQL	Blank	DUP3	DUP4	LCS %
				BGJ3745-DUP3#	BGJ3745-DUP4#	
				Samp QC RPD %	Samp QC RPD %	
Arsenic	mg/kg	4		<4.0 4.47 [NA]		[NA]
Cadmium	mg/kg	0.4		<0.40 <0.40 [NA]		[NA]
Chromium	mg/kg	1		6.18 6.70 8.04		[NA]
Copper	mg/kg	1		4.79 4.88 [NA]		[NA]
Lead	mg/kg	1		5.04 7.11 34.2		[NA]
Mercury	mg/kg	0.1		<0.10 <0.10 [NA]		[NA]
Nickel	mg/kg	1		<1.0 <1.0 [NA]		[NA]
Zinc	mg/kg	1		12.6 12.8 1.11		[NA]

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

INORG-008 | Inorganics - Moisture (Soil) | Batch BGJ3742

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %
				BGJ3742-DUP1#	BGJ3742-DUP2#	
				Samp QC RPD %	Samp QC RPD %	
Moisture	%	0.1		12.3 12.4 1.13	11.4 12.3 6.83	[NA]

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

QC Comments

Identifier	Description
[1]	Spike recovery is not applicable due to the relatively high analyte background in the sample (>3* spike level). However, the LCS recovery is within acceptance criteria.
[2]	Spike recovery is outside routine acceptance criteria (60-140%), this may be due to suspected non-homogeneity and/or matrix interference effects. However, an acceptable recovery was achieved for the LCS.



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Sample Receipt Advice MGJ0334

Client Details

Client	JK Environments
Attention	Katrina Taylor

Sample Login Details

Your Reference	E37644PT
Envirolab Reference	MGJ0334
Date Sample Received	21/10/2025
Date Instructions Received	21/10/2025
Date Final Results Expected	27/10/2025

Sample Condition

Samples received in appropriate condition for analysis	Yes
Number of Samples	1 Soil
Turnaround Time	4 Days
Temperatures / Cooling Methods	16.7°C Ice Pack

Additional Info

Sample storage - waters are routinely disposed at approximately 1 month and soils approximately 2 months from receipt.

Requests for longer term sample storage must be received in writing.

Where no sampling date has been supplied for some or all samples, the date of sample receipt has been used as the associated sampling date. The sampling dates are used to assess compliance to recommended Technical Holding Times.

Please contact the laboratory immediately if observed settled sediment present in water samples is to be included in the extraction and/or analysis (exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, Total Recoverable

Samples will be analysed per our T&C's.

Please direct any queries to:

Chris De Luca

Phone 03 9763 2500
Email cdeluca@envirolab.com.au

Tianna Milburn

Phone 03 9763 2500
Email tmilburn@envirolab.com.au

Analysis underway, details on the following page

Sample Receipt Advice MGJ0334

Analysis Grid

The • indicates the testing you have requested. **THIS IS NOT A REPORT OF THE RESULTS.**

	Combination 6	Moisture
MGJ0334-01		
Soil 15/10/2025	•	•
SDUP102		

Suite Details

Suite Name	Suite Analyses
Combination 6 Soil	vTRH&MBTEXN, sTRH, PAH, OCP, OPP (21 list), PCB, As, Cd, Cr, Cu, Hg, Ni, Pb, Zn

SAMPLE AND CHAIN OF CUSTODY FORM

TO: ENVIROLAB SERVICES PTY LTD 12 ASHLEY STREET CHATSWOOD NSW 2067 P: (02) 99106200 F: (02) 99106201 Attention: Aileen		JKE Job Number: E37644PT Date Results Required: STANDARD Page: 1 of 2		FROM:  JK Environments REAR OF 115 WICKS ROAD MACQUARIE PARK, NSW 2113 P: 02-9888 5000 F: 02-9888 5001 Attention: KTaylor@jkenvironments.com.au														
Location: Mount Druitt		Sample Preserved in Esky on Ice																
Sampler: VR		Tests Required																
Date Sampled	Lab Ref:	Sample Number	Depth (m)	Sample Container	PID	Sample Description	Combo 6aNEPM	Combo 3	Metals 8 / OCPs	Asbestos (detection)	BTEX	Combo 6						
15/10/2025	1	TP103	0-0.1	G, A	0	F: Silty Clay	X											
15/10/2025	2	TP103	0.4-0.5	G, A	0	F: Silty Clay	X											
15/10/2025	3	TP103	0.7-0.8	G, A	0	Silty Clay												
15/10/2025	4	TP104	0-0.1	G, A	0	F: Silty Clay	X											
15/10/2025	5	TP104	0.5-0.1	G, A	0	Silty Clay												
15/10/2025	6	TP105	0-0.1	G, A	0	F: Silty Clay	X											
15/10/2025	7	TP106	0-0.1	G, A	0	F: Silty Clay	X											
15/10/2025	8	TP106	0.4-0.5	G, A	0	F: Silty Clay	X											
15/10/2025	9	TP106	0.7-0.8	G, A	0	Silty Clay												
14/10/2025	10	TP107	0-0.1	G, A	0	F: Silty Clay	X											
14/10/2025	11	TP107	0.5-0.6	G, A	0	Silty Clay												
14/10/2025	12	TP108	0-0.1	G, A	0	F: Silty Clay	X											
14/10/2025	13	TP108	0.4-0.5	G, A	0	Silty Clay												
14/10/2025	14	TP109	0-0.1	G, A	0	F: Silty Clay	X											
14/10/2025	15	TP109	0.2-0.3	G, A	0	F: Silty Clay		X										
14/10/2025	16	TP109	0.5-0.6	G, A	0	F: Silty Clay	X											
14/10/2025	17	TP109	0.6-0.7	G, A	0	Silty Clay												
15/10/2025	18	TP110	0-0.1	G, A	0	F: Silty Sand	X											
15/10/2025	19	TP110	0.5-0.6	G, A	0	Silty Clay												
14/10/2025	20	TP111	0.1-0.2	G, A	0	F: Silty Clay	X											
14/10/2025	21	TP111	0.5-0.6	G, A	0	F: Silty Clay	X											
14/10/2025	22	TP111	1-1.1	G, A	0	Silty Clay												
14/10/2025	23	TP112	0-0.1	G, A	0	F: Silty Clay	X											
14/10/2025	24	TP112	0.4-0.5	G, A	0	Silty Clay												
14/10/2025	25	TP113	0-0.1	G, A	0	F: Silty Clay	X											
14/10/2025	26	TP113	0.3-0.4	G, A	0	F: Silty Clay	X											
14/10/2025	27	TP113	0.7-0.8	G, A	0	Silty Clay												
14/10/2025	28	SS101	0-0.1	G, A	0	F: Silty Clay			X									
14/10/2025	29	SDUP101	-	G	-	Duplicate							X					
15/10/2025	S/O	SDUP102	-	G	-	Duplicate							X					
Remarks (comments/detection limits required):							Sample Containers: G - 250mg Glass Jar V - BTEX Vial A - Ziplock Asbestos Bag											
Relinquished By: VR		Date: 17/10/25		Time: 12pm		Received By:		Date:										

Relinquished by: ELS SVD
 Katherine Chamer
 20/10/25 1115
 KC.

Envirolab Services
 12 Ashley St
 Chatswood NSW 2067
 Ph: (02) 9910 6200
 Job No: 393265
 Date Received: 17.10.25
 Time Received: 1530
 Received By: ALD
 Temp: Cool/Ambient
 Cooling: Ice/Icepack
 Security: Intact/Broken/None



Appendix E: Report Explanatory Notes



QA/QC Definitions

The QA/QC terms used in this report are defined below. The definitions are in accordance with US EPA publication SW-846, entitled *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods* (1994)¹⁶ methods and those described in *Environmental Sampling and Analysis, A Practical Guide*, (1991)¹⁷. The NEPM (2013) is consistent with these documents.

A. Practical Quantitation Limit (PQL), Limit of Reporting (LOR) & Estimated Quantitation Limit (EQL)

These terms all refer to the concentration above which results can be expressed with a minimum 95% confidence level. The laboratory reporting limits are generally set at ten times the standard deviation for the Method Detection Limit for each specific analyte. For the purposes of this report the LOR, PQL, and EQL are considered to be equivalent.

When assessing laboratory data it should be borne in mind that values at or near the PQL have two important limitations: *"The uncertainty of the measurement value can approach, and even equal, the reported value. Secondly, confirmation of the analytes reported is virtually impossible unless identification uses highly selective methods. These issues diminish when reliably measurable amounts of analytes are present. Accordingly, legal and regulatory actions should be limited to data at or above the reliable detection limit"* (Keith, 1991).

B. Precision

The degree to which data generated from repeated measurements differ from one another due to random errors. Precision is measured using the standard deviation or Relative Percent Difference (RPD).

C. Accuracy

Accuracy is a measure of the agreement between an experimental result and the true value of the parameter being measured (i.e. the proximity of an averaged result to the true value, where all random errors have been statistically removed). The assessment of accuracy for an analysis can be achieved through the analysis of known reference materials or assessed by the analysis of surrogates, field blanks, trip spikes and matrix spikes. Accuracy is typically reported as percent recovery.

D. Representativeness

Representativeness expresses the degree to which sample data accurately and precisely represents a characteristic of a population, parameter variations at a sampling point, or an environmental condition. Representativeness is primarily dependent upon the design and implementation of the sampling program. Representativeness of the data is partially ensured by the avoidance of contamination, adherence to sample handling and analysis protocols and use of proper chain-of-custody and documentation procedures.

E. Completeness

Completeness is a measure of the number of valid measurements in a data set compared to the total number of measurements made and overall performance against DQIs. The following information is assessed for completeness:

- Chain-of-custody forms;
- Sample receipt form;
- All sample results reported;
- All blank data reported;

¹⁶ US EPA, (1994). *SW-846: Test Methods for Evaluating Solid Waste, Physical/Chemical Methods*. (US EPA SW-846)

¹⁷ Keith., H, (1991). *Environmental Sampling and Analysis, A Practical Guide*

- All laboratory duplicate and RPDs calculated;
- All surrogate spike data reported;
- All matrix spike and lab control spike (LCS) data reported and RPDs calculated;
- Spike recovery acceptable limits reported; and
- NATA stamp on reports.

F. Comparability

Comparability is the evaluation of the similarity of conditions (e.g. sample depth, sample homogeneity) under which separate sets of data are produced. Data comparability checks include a bias assessment that may arise from the following sources:

- Collection and analysis of samples by different personnel; Use of different techniques;
- Collection and analysis by the same personnel using the same methods but at different times; and
- Spatial and temporal changes (due to environmental dynamics).

G. Blanks

The purpose of laboratory and field blanks is to check for artefacts and interferences that may arise during sampling, transport and analysis.

H. Matrix Spikes

Samples are spiked with laboratory grade standards to detect interactive effects between the sample matrix and the analytes being measured. Matrix Spikes are reported as a percent recovery and are prepared for 1 in every 20 samples. Sample batches that contain less than 20 samples may be reported with a Matrix Spike from another batch. The percent recovery is calculated using the formula below. Acceptable recovery limits are 70% to 130%.

$$\frac{(\text{Spike Sample Result} - \text{Sample Result}) \times 100}{\text{Concentration of Spike Added}}$$

I. Surrogate Spikes

Samples are spiked with a known concentration of compounds that are chemically related to the analyte being investigated but unlikely to be detected in the environment. The purpose of the Surrogate Spikes is to check the accuracy of the analytical technique. Surrogate Spikes are reported as percent recovery.

J. Duplicates

Laboratory duplicates measure precision, expressed as Relative Percent Difference. Duplicates are prepared from a single field sample and analysed as two separate extraction procedures in the laboratory. The RPD is calculated using the formula where D1 is the sample concentration and D2 is the duplicate sample concentration:

$$\frac{(D1 - D2) \times 100}{\{(D1 + D2)/2\}}$$



Appendix F: Data (QA/QC) Evaluation

Data (QA/QC) Evaluation

A. INTRODUCTION

This Data (QA/QC) Evaluation forms part of the validation process for the DQOs documented in the SAQP in Appendix G of this report. Checks were made to assess the data in terms of precision, accuracy, representativeness, comparability and completeness. These 'PARCC' parameters are referred to collectively as DQIs and are defined in the Report Explanatory Notes attached in the report appendices.

1. Field and Laboratory Considerations

The quality of the analytical data produced for this project has been considered in relation to the following:

- Sample collection, storage, transport and analysis;
- Laboratory PQLs;
- Field QA/QC results; and
- Laboratory QA/QC results.

2. Field QA/QC Samples and Analysis

The results for the field QA/QC samples are detailed in the laboratory summary tables (Table Q1 to Table Q2 inclusive) attached to the investigation report and are discussed in the subsequent sections of this Data (QA/QC) Evaluation report. A summary of the field QA/QC samples collected and analysed for this investigation is provided in the following table:

Sample Type	Number Analysed	Frequency (of Sample Type)
<u>Intra-laboratory duplicate</u>		
Soil	1	Approximately 9% of primary samples
Groundwater	1	Approximately 50% of primary samples
<u>Inter-laboratory duplicate</u>		
Soil	1	As above
Groundwater	1	As above
<u>Trip spikes</u>		
Soil	1	One per media for the investigation to demonstrate adequacy of preservation, storage and transport methods
Water	1	
<u>Trip blanks</u>		
Soil	1	One per media for the investigation to demonstrate adequacy of storage and transport methods
Water	1	
Rinsate (shovel)	1	One for the investigation to demonstrate adequacy of decontamination methods

3. Data Assessment Criteria

JK Environments adopted the following criteria for assessing the field and laboratory QA/QC analytical results:

Field Duplicates

Acceptable targets for precision of field duplicates in this report will be 30% or less, consistent with NEPM (2013). RPD failures will be considered qualitatively on a case-by-case basis taking into account factors such as the concentrations used to calculate the RPD (i.e. RPD exceedance where concentrations are close to the PQL are typically not as significant as those where concentrations are reported at least five or 10 times the PQL), sample type, collection methods and the specific analyte where the RPD exceedance was reported.

Field/Trip Blanks and Rinsates

Acceptable targets for field blank and rinsate samples in this report will be less than the PQL for organic analytes. Metals will be considered on a case-by-case basis with regards to typical background concentrations in soils and published drinking water guidelines for waters.

Trip Spikes

Acceptable targets for trip spike samples in this report will be 70% to 130%.

Laboratory QA/QC

The suitability of the laboratory data is assessed against the laboratory QA/QC criteria which is outlined in the laboratory reports. These criteria were developed and implemented in accordance with the laboratory's NATA accreditation and align with the acceptable limits for QA/QC samples as outlined in NEPM (2013) and other relevant guidelines.

A summary of the acceptable limits adopted by the primary laboratory (EnviroLab) is provided below:

RPDs

- Results that are <5 times the PQL, any RPD is acceptable; and
- Results >5 times the PQL, RPDs between 0-50% are acceptable.

Laboratory Control Samples (LCS) and Matrix Spikes

- 70-130% recovery acceptable for metals and inorganics;
- 60-140% recovery acceptable for organics; and
- 10-140% recovery acceptable for VOCs.

Surrogate Spikes

- 60-140% recovery acceptable for general organics; and
- 10-140% recovery acceptable for VOCs.

Method Blanks

- All results less than PQL.

B. DATA EVALUATION

1. Sample Collection, Storage, Transport and Analysis

Samples were collected by trained field staff in accordance with our standard sampling procedures. Field sampling procedures were designed to be consistent with relevant guidelines, including NEPM (2013) and other guidelines made under the CLM Act 1997.

Appropriate sample preservation, handling and storage procedures were adopted. Laboratory analysis was undertaken within specified holding times generally in accordance with Schedule B(3) of NEPM (2013) and the laboratory NATA accredited methodologies.

EnviroLab noted that the asbestos results were reported to be consistent with the recommendations in NEPM (2013), however this level of reporting is outside the scope of their NATA accreditation. In the absence of other available analytical methods for asbestos, this was found to be acceptable for the purpose of this investigation.

Review of the project data also indicated that:

- COC documentation was adequately maintained;
- Sample receipt advice documentation was provided for all sample batches;
- All analytical results were reported; and
- Consistent units were used to report the analysis results.

2. Laboratory PQLs

Appropriate PQLs were adopted for the analysis and all PQLs were below the SAC, with the exception of the anthracene and PFOS PQL for groundwater analysis. In light of the PAH and overall PFAS concentrations reported for soil and groundwater, JKE is of the opinion that this is not significant, and it does not affect the quality of the dataset as a whole or the outcome of the investigation.

3. Field QA/QC Sample Results

Field Duplicates

The results indicated that field precision was acceptable. RPD non-conformances were reported for some analytes as discussed below:

- Elevated RPDs were reported for TRH F2 and F3 in SDUP101/TP109 (0-0.1m);
- Elevated RPDs were reported for TRH F2 and F3, copper, nickel and zinc in SDUP102/TP103 (0-0.1m);
- Elevated RPDs were reported for cadmium and copper in WDUP101/MW2; and
- Elevated RPDs were reported for cadmium and copper in WDUP102/MW4.

Values outside the acceptable limits have been attributed to sample heterogeneity and the difficulties associated with obtaining homogenous duplicate samples of heterogeneous matrices. As both the primary and duplicate sample results were less than the SAC, the exceedances are not considered to have had an adverse impact on the data set as a whole.

Field/Trip Blanks

During the investigation, one soil and one water trip blank was placed in the esky during sampling and transported back to the laboratory.

The soil trip blank analysis results were all less than the PQLs with the exception of chromium, lead and zinc, all with reported concentrations of 3mg/kg. Low level metals concentrations are typical in washed sand which is utilised as blank material. In JKE's experience, the concentrations reported were consistent with background concentrations in a sand matrix and were not indicative of cross-contamination. On this basis, cross contamination between samples that may have significance for data validity did not occur.

The water trip blank results were all less than the PQLs, therefore cross contamination between samples that may have significance for data validity did not occur.

Rinsates

The detectable concentration of light fraction TRH is attributed to trihalomethanes as per Envirolab report 393265. These compounds are breakdown products from the chlorination process and are common in potable water at the concentration reported (the Australian drinking water guideline for total trihalomethanes is 250µg/L). Similarly, the detections of copper and zinc are also common in potable water at the concentrations reported and considering the soil analysis results obtained during the investigation, there is considered to be a low potential for cross contamination to have occurred to an extent that may have significance for data validity.

Trip Spikes

The results ranged from 102% to 118% and indicated that field preservation methods were appropriate.

The water trip spike results ranged from 114% to 117% and indicated that field preservation methods were appropriate.

4. Laboratory QA/QC

The analytical methods implemented by the laboratory were performed in accordance with their NATA accreditation and were consistent with Schedule B(3) of NEPM (2013). The frequency of data reported for the laboratory QA/QC (i.e. duplicates, spikes, blanks, LCS) was considered to be acceptable for the purpose of this investigation. A review of the laboratory QA/QC data identified the following minor non-conformances:

Envirolab report 393050:

- The PQL was raised for some PFAS compounds in the samples due to the sample matrix thereby requiring a dilution;
- No filtered, preserved sample was received for one sample therefore an unpreserved sample was filtered through 0.45µm filter at the lab, and there is a possibility some elements may be underestimated.

Envirolab report 393265:

- The laboratory RPD acceptance criteria was exceeded for chromium for one sample. Therefore, a triplicate result was issued.

Envirolab report MGJ0285:

- Spike recovery was not applicable due to the relatively high analyte background in a sample (>3 x spike level). However, the LCS recovery was within acceptance criteria;
- Spike recovery was outside routine acceptance criteria (60-140%), this was suspected to be due to non-homogeneity and/or matrix interference effects. However, an acceptable recovery was achieved for the LCS; and
- Surrogate recovery was outside routine acceptance criteria (60-140%) due to sample matrix effects. This may have been due to the presence of carbon and/or other artefacts. An acceptable recovery was achieved for the LCS surrogates.

Envirolab report MGJ0334:

- Spike recovery was not applicable due to the relatively high analyte background in a sample (>3 x spike level). However, the LCS recovery was within the acceptance criteria; and
- Spike recovery was outside routine acceptance criteria (60-140%), this may be due to suspected non-homogeneity and/or matrix interference effects. However, an acceptable recovery was achieved for the LCS.

C. DATA QUALITY SUMMARY

JKE is of the opinion that the data are adequately precise, accurate, representative, comparable and complete to serve as a basis for interpretation to achieve the investigation objectives.

Non-conformances were reported for some field QA/QC samples and laboratory QA/QC analysis. These non-conformances were considered to be sporadic and minor, and were not considered to be indicative of systematic sampling or analytical errors. On this basis, these non-conformances are not considered to materially impact the report findings.

There was only one groundwater monitoring event undertaken for the investigation. On this basis there is some uncertainty around the representativeness of the groundwater data, particularly during different climatic conditions and after wet/dry periods. However, given the low contaminant concentrations reported, the site history and the surrounding land uses, this is not considered to alter the conclusions of the investigation.



Appendix G: Field Work Documents



JKE SAQP



REPORT TO
HEALTH INFRASTRUCTURE

ON
SAMPLING ANALYSIS AND QUALITY PLAN FOR
DETAILED SITE INVESTIGATION

FOR
EXPANSION PROJECT

AT
MT DRUITT HOSPITAL, 75 RAILWAY STREET,
MT DRUITT, NSW

Date: 1 October 2025

Ref: E37664PTrpt3-SAQP

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Abbreviations

Asbestos Fines/Fibrous Asbestos	AF/FA
Ambient Background Concentrations	ABC
Added Contaminant Limits	ACL
Asbestos Containing Material	ACM
Australian Drinking Water Guidelines	ADWG
Area of Environmental Concern	AEC
Australian Height Datum	AHD
Acid Sulfate Soil	ASS
Before You Dig Australia	BYDA
Below Ground Level	BGL
Benzo(a)pyrene Toxicity Equivalent Factor	BaP TEQ
Bureau of Meteorology	BOM
Benzene, Toluene, Ethylbenzene, Xylene	BTEX
Contaminated Land Management	CLM
Contaminant(s) of Potential Concern	CoPC
Chain of Custody	COC
Conceptual Site Model	CSM
Central Sterile Services Department	CSSD
Data Quality Indicator	DQI
Data Quality Objective	DQO
Detailed Site Investigation	DSI
Ecological Investigation Level	EIL
Ecological Screening Level	ESL
Environment Protection Authority	EPA
Fibre Cement Fragment(s)	FCF
Pharmacy	FFE
Finished Floor Level	FFL
General Approval of Immobilisation	GAI
Health Investigation Level	HIL
Health Screening Level	HSL
International Organisation of Standardisation	ISO
JK Environments	JKE
JK Geotechnics	JKG
Lab Control Spike	LCS
Light Non-Aqueous Phase Liquid	LNAPL
Map Grid of Australia	MGA
National Association of Testing Authorities	NATA
National Environmental Protection Measure	NEPM
Organochlorine Pesticides	OCP
Organophosphate Pesticides	OPP
Polycyclic Aromatic Hydrocarbons	PAH
Polychlorinated Biphenyls	PCB
Photo-ionisation Detector	PID
Protection of the Environment Operations	POEO
Practical Quantitation Limit	PQL
Quality Assurance	QA
Quality Control	QC
Relative Percentage Difference	RPD
Site Assessment Criteria	SAC
Sampling, Analysis and Quality Plan	SAQP
State Environmental Planning Policy	SEPP
Site Specific Assessment	SSA
Source, Pathway, Receptor	SPR



Specific Contamination Concentration	SCC
Standard Penetration Test	SPT
Standing Water Level	SWL
Trip Blank	TB
Toxicity Characteristic Leaching Procedure	TCLP
Total Recoverable Hydrocarbons	TRH
Trip Spike	TS
Upper Confidence Limit	UCL
United States Environmental Protection Agency	USEPA
Volatile Organic Compounds	VOC
World Health Organisation	WHO
Western Sydney Local Health District	WSLHD

Units

Litres	L
Metres BGL	mBGL
Metres	m
Millivolts	mV
Millilitres	ml or mL
Milliequivalents	meq
micro Siemens per Centimetre	$\mu\text{S}/\text{cm}$
Micrograms per Litre	$\mu\text{g}/\text{L}$
Milligrams per Kilogram	mg/kg
Milligrams per Litre	mg/L
Parts Per Million	ppm
Percentage	%
Percentage weight for weight	%w/w

APPENDIX G - SAQP

1 INTRODUCTION

Health Infrastructure ('the client') commissioned JK Environments (JKE) to prepare a Sampling Analysis and Quality Plan (SAQP) for the Detailed Site Investigation (DSI) to be undertaken by JKE for the expansion project at Mt Druitt Hospital, 75 Railway Street, Mt Druitt, NSW ('the site'). The site location is shown on Figure 1 and the proposed investigation will be confined to the site boundaries as shown on Figure 2 attached in the appendices.

JKE has previously undertaken a Desktop Preliminary Site Investigation (Desktop) and a Preliminary Site Investigation (PSI) at the site, and Coffey Geotechnics has previously undertaken a Geotechnical Investigation and Preliminary Contamination Assessment report for the wider hospital property in 2011. A summary of relevant information from these investigations is included in Section 2 and throughout the report.

JK Geotechnics (JKG) have also previously undertaken a desktop and (intrusive) geotechnical investigation previously. The results of the JKG investigations are presented in separate reports under Project Ref: E37665LF.

1.1 Proposed Development Details

Based on the details provided to date, JKE understand that the proposed development includes:

- New building connected to the east of the existing hospital inclusive of a 20-bed medical short stay unit on Level 2 and outpatient department on Level 1, with an expansion to the outpatient department subject to affordability;
- A 10-bed surgical short stay unit within Ward 2B of the existing hospital to be delivered by the Western Sydney Local Health District (WSLHD);
- Refurbishment of Central Sterile Services Department (CSSD) within the existing hospital (Loan Set Room);
- Pharmacy (FFE);
- Aboriginal Family Room with location subject to further discussions with WSLHD; and
- Additional works including a drainage swale to the east of the proposed building, associated installation of stormwater pipework, relocation of a pedestrian path, and localised regrading and kerb improvements in the car park to the south of the proposed building and removal of the existing helipad and associated pavements, with make good of the area.

1.2 Aims and Objectives

The primary aim of the DSI is to characterise the soil and groundwater contamination conditions in order to assess site risks in relation to contamination and establish whether remediation is required. Secondary aims of the investigation are to provide preliminary waste classification data for off-site disposal of soil waste which may be generated during the proposed development works.

The DSI objectives are to:

- Assess the current site conditions and use(s) via a site walkover inspection;

- Review the site history information from the previous JKE reports with regards to the site area applicable to the DSI;
- Assess the soil and groundwater contamination conditions via implementation of a sampling and analysis program;
- Document an iteration and review of the conceptual site model (CSM);
- Assess the potential risks posed by contamination to the receptors identified in the CSM (Tier 1 assessment);
- Provide a preliminary waste classification for off-site disposal of soil;
- Assess whether the site is suitable or can be made suitable for the proposed development (from a contamination viewpoint); and
- Assess whether further intrusive investigation and/or remediation is required.

1.3 Scope of Work

The SAQP has been prepared generally in accordance with a JK proposal (Ref: P71358LT) of 21 March 2025, acceptance by signed contract HI24278 and a JKE variation proposal (EP71360PT2rev1) of 25 August 2025 and written acceptance of 10 September 2025.

The scope of work included review of the previous JKE reports and preparation of an SAQP with regards to National Environmental Protection (Assessment of Site Contamination) Measure 1999 as amended (2013)¹, and other guidelines made under or with regards to the Contaminated Land Management Act (1997)².

A list of reference documents/guidelines is included in the appendices.

¹ National Environment Protection Council (NEPC), (2013). *National Environmental Protection (Assessment of Site Contamination) Measure 1999 (as amended 2013)*. (referred to as NEPM 2013)

² Contaminated Land Management Act 1997 (NSW) (referred to as CLM Act 1997)

2 SITE INFORMATION

2.1 Previous Investigations

Several phases of previous investigation have been undertaken on the wider hospital property and/or the site. A high-level summary of relevant information from these investigations is tabulated below:

Report	High level summary
Geotechnical Investigation and Preliminary Contamination Assessment, Coffey Geotechnics Pty Ltd, 2011 ³ .	The site for the purpose of the report included areas of extension to the eastern and/or western portion of the main building, with a potential for a northern extension, and extension and expansion of the oral healthcare facility. The intrusive works included drilling of nine boreholes and excavation of three test pits. Of these borehole locations, only one was within the site footprint applicable to the site. The report identified the following areas of environmental concern (AEC) at the site and or wider hospital property: fill material; transformers and generator; and aboveground (diesel fuel) storage tank (AST) and a decommissioned underground storage tank (UST). It is noted that the locations of the AST and decommissioned UST were not identified within the report. We also note that the transformers and generator were reported to be to the north-west of the main building and are therefore not considered to be an AEC in the context of the site. Contaminants of potential concern (CoPC) associated with these AEC were listed as: Heavy metals (arsenic, cadmium, chromium, copper, lead, mercury, nickel and zinc); petroleum hydrocarbons (referred to as total recoverable hydrocarbons – TRHs); benzene, toluene, ethylbenzene and xylene (BTEX); polycyclic aromatic hydrocarbons (PAHs); organochlorine pesticides (OCPs); organophosphate pesticides (OPPs); polychlorinated biphenyls (PCBs); and asbestos. The contamination portion of the report concluded that based on the results of the limited environmental assessment, there was no evidence to suggest contamination conditions that may present significant limitations to the proposed hospital development. Further to this, a preliminary classification of general solid waste (GSW) was indicated to be applicable to the fill material tested.
Preliminary (Desktop) Site Investigation, JKE 2025 ⁴	The Desktop included a review of site information and site history information, a site inspection and preparation of a report. The site history review and site inspection identified the following potential contamination sources/AEC for the site: fill material; historical agricultural (grazing) land use; use of pesticides; and hazardous building materials. Based on these potential contamination sources/AEC identified, and the potential for contamination, further investigation of the contamination conditions was considered to be required. JKE was of the opinion that the historical land uses and potential sources of contamination identified would not preclude the proposed development. The following was recommended to better assess the risks associated with potential contamination at the site: ▪ An intrusive Preliminary Site Investigation (PSI) should be undertaken as a first step to make an initial assessment of the soil contamination conditions and better inform the scope of a DSI; ▪ Following the PSI, a SAQP should be prepared for the DSI;

³ Coffey Geotechnics Pty Ltd, (2011). *Report to Health Infrastructure NSW on Geotechnical Investigation and Preliminary Contamination Assessment for Proposed Additions to Mount Druitt Hospital, Mount Druitt, NSW.* (Ref: GEOTLCOV24207AA-AD Rev1, dated 16 May 2011)

⁴ JK Environments, (2025). *Report to Health Infrastructure on Preliminary Desktop Site Investigation for Expansion Project at Mt Druitt Hospital, 75 Railway Street, Mt Druitt, NSW.* (Ref: E37664PTrpt-Desktop, dated 25 July 2025) (referred to as Desktop)

Report	High level summary
	- A DSI should be undertaken to characterise the site contamination conditions and establish whether the site is suitable for the proposed development, or whether remediation is required; and - A hazardous building materials survey should be undertaken prior to disturbance of the original main hospital building (relevant to development works), if survey information does not already exist.
Preliminary Site Investigation (PSI), JKE 2025 ⁵	The PSI included a review of existing site information, and soil sampling from one test pit and five boreholes. The PSI sample locations are shown on Figure 2 in Appendix A. The sampling locations encountered fill to depths of approximately 0.3m below ground level (BGL) to 2.9mBGL, underlain by clayey residual soils. The fill typically comprised inclusions of ironstone and igneous gravel, slag, clay nodules, ash, roots and root fibres. No odours or staining were observed in the fill material during fieldwork. No fibre cement fragments (FCF)/asbestos containing material (ACM) was encountered in or on the fill material during fieldwork. A selection of soil samples was analysed for the CoPC identified in the CSM. Elevated concentrations of the CoPC were not encountered above the adopted SAC and asbestos was not detected in any of the soil samples analysed. There were no unacceptable risks identified that triggered the need for remediation. The report concluded that a DSI is required to characterise the fill and address the data gaps identified during the investigation. Following the Desktop and the PSI, the extent of the proposed development area changed and a new site boundary was established. This increased the site area and the changes to the site area will be considered in the context of the proposed DSI.

2.2 Site Identification

Table 2-1: Site Identification

Current Site Owner (certificate of title):	Health Administration Corporation
Site Address:	75 Railway Street, Mt Druitt
Lot & Deposited Plan:	Part of Lot 11 in DP1268736
Current Land Use:	Hospital use
Proposed Land Use:	Continued hospital use
Local Government Authority (LGA):	Blacktown City Council
Current Zoning:	SP1: Health Services Facilities
Site Area (m²) (approx.):	5,625
RL (AHD in m) (approx.):	64

⁵ JKE Environments, (2025). *Report to Health Infrastructure on Preliminary Site Investigation for Expansion Project at Mt Druitt Hospital, 75 Railway Street, Mt Druitt, NSW.* (Ref: E37664PTTrpt2-PSI DRAFT, dated 25 July 2025) (referred to as PSI)

Geographical Location (decimal degrees) (approx. centre of site):	Latitude: -33.766674 Longitude: 150.830229
Site Plans:	Appendix A

2.3 Site Description

The site is located within the wider Mt Druitt Hospital property in a special uses area (i.e. health services, educational, recreational, and emergency services) of Mt Druitt. The wider hospital property is bound by Railway Street to the north-east and Luxford Road to the north-west. The site is located approximately 1.12km to the south-west of Bells Creek.

The regional topography is generally characterised by a rise within undulating regional topography. The site itself is relatively level with a slight fall to the east overall and a short but steep rise in the western-most area. The north-eastern most area is relatively flat and level, associated with the hospital helipad. Parts of the site appear to have been cut/filled (i.e. levelled or raised) to accommodate the existing development to the north and north-west of the site.

The most recent walkover inspection was undertaken by JKE on 14 July 2025 as part of the PSI and was generally limited to the PSI site area applicable at the time (referred to as 'the area inspected' below), and the immediate surrounds. Key observations are summarised below:

- The area inspected generally comprised a grass covered landscaped area to the south of the main hospital building, with pathways around the boundaries and a small section of the main hospital building in the north of the site and the concrete paved helipad to the east of the main hospital building;
- The south-west corner of the existing main hospital building and concrete retaining wall forms the north of the area inspected. This section of the main hospital was constructed circa 2014 and appeared to be constructed with concrete, metal and glass. A 1m x 1m brick memorial plaque monolith was present in the grassed area, and a shade structure over a distribution board/electrical circuit board on the western boundary of the site;
- Concrete paved pathways generally border the site leading from the main hospital building entrance on the ground floor and level 1 to the car park areas;
- Some erosion, likely due to surface water movement, was visible where the batter sloped down from the retaining wall in the west of the area inspected. No other soil stability or erosion issues were observed during the site inspection;
- Evidence of filling was observed in the west of the area inspected where a steep batter slope extended from the concrete retaining wall and cut down into the site and to the north beneath the main building. The surficial fill material contained visible inclusions of igneous gravels, and some brick, concrete and plastic fragments. The remainder of area inspected was also observed to have been cut/filled to achieve the existing levels and install the observed footpaths and services;
- The area inspected was predominantly unpaved (i.e. was grass covered) and excess surface water would be expected to be adsorbed into the ground surface or flow in keeping with the site topography

(to the east). A stormwater pit was also present in the southern portion of the site and it was assumed that this would discharge into the regional stormwater system; and

- There were medium to large trees present along the west boundary and the east boundary to the south of the main building, and some smaller shrubs and trees present in a garden bed along the southern frontage of the main hospital building. The vegetation appeared to be in reasonable condition based on a cursory inspection, with no obvious or extensive dieback observed. There were some bare patches on the steep batter slope due to surface water runoff and at the interface between grass areas and pavements.

2.4 Surrounding Land Use

The site is situated within the existing wider hospital property with the main hospital building located to the north/north-west, an asphaltic paved car park to the west, and grass covered landscaped areas to the east and south. The Mt Druitt Fire Station (opened in 2017), was located to the north-east of the site.

JKE did not observe any land uses in the immediate surrounds that were identified as potential contamination sources for the site.

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2.5 Summary of Regional Geology and Hydrogeology

2.5.1 Regional Geology

Regional geological information reviewed for the previous investigations indicated that the site is underlain by Bringelly Shale of the Wianamatta Group, which typically consists of shale, carbonaceous claystone, claystone, laminite, fine to medium grained lithic sandstone, rare coal and tuff.

2.5.2 Salinity Hazard Mapping

Information presented in the Desktop and PSI reports indicated that the site is:

- Mapped in a region of moderate Salinity Potential of Western Sydney. The moderate classification is attributed to scattered areas of scalding and indicator vegetation, in areas where concentrations have not been mapped. Saline areas may occur in this zone, which have not been identified or may occur if risk factors change adversely; and
- Mapped on the boundary of an area of delineated risk but no high hazard or risk rating for 2000, 2020 or 2050 (southern portion of the site) and high hazard or risk defined for all years 2000, 2020 and 2050 under the Dryland Salinity National Assessment.

2.5.3 Acid Sulfate Soil (ASS) Risk and Planning

Information presented in the Desktop and PSI reports indicated:

- The site is not located in an ASS risk area according to the risk maps prepared by the Department of Land and Water Conservation;
- The site is not mapped within an ASS risk area as per the Blacktown City Council Local Environmental Plan 2015.

2.5.4 Hydrogeology

Hydrogeological information was reviewed for the previous investigations indicated that the regional aquifer on-site and in the areas immediately surrounding the site includes porous, extensive aquifers of low to moderate productivity. There was a total of three registered bores within the report buffer of 1,000m. In summary:

- The nearest registered bore was located approximately 440m from the site. This was utilised for monitoring purposes;
- All three bores were registered for monitoring purposes;
- There were no nearby bores (i.e. within 1,000m) registered for domestic, water supply or irrigation uses; and
- The drillers log information from the closest registered bores typically identified fill and/or clay soil to depths of 3.66-4.0m, underlain by shale bedrock. Standing water levels (SWLs) in the bores were not recorded.

The information reviewed for the previous investigations indicates that the subsurface conditions at the site are likely to consist of relatively low permeability (residual) soils overlying shallow bedrock. The potential for viable groundwater abstraction and use of groundwater under these conditions is considered to be low.

There is a reticulated water supply in the area and consumption of groundwater is not expected to occur. Use of groundwater is not proposed as part of the development.

Considering the local topography and surrounding land features, JKE anticipate groundwater to flow towards the east to north-east overall.

2.5.5 Receiving Water Bodies

Surface water bodies were not identified in the immediate vicinity of the site. The closest surface water body is Bells Creek located approximately 1.12km to the north-east of the site. This waterway is considered to be a potential receptor, although it is acknowledged that it is a substantial distance from the site and wider hospital property. The creek is likely to support a freshwater environment.

APPENDIX G - SAQP

3 CONCEPTUAL SITE MODEL

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 CSM for the site is presented in the following sub-sections and is based on the site information (including the site inspection information) and background/site history site history information. Reference should also be made to the figures attached in the appendices.

3.1 Potential Contamination Sources/AEC and CoPC

The potential contamination sources/areas of environmental concern (AEC) and contaminants of potential concern (CoPC) are presented in the following table:

Table 3-1: Potential (and/or known) Contamination Sources/AEC and Contaminants of Potential Concern

Source / AEC	CoPC
<u>Fill material</u> – The site appears to have been historically filled to achieve the existing levels. The fill may have been imported from various sources and could be contaminated. The PSI identified fill to depths of between 0.3mBGL to 2.7mBGL on the level grassed area in the west of the site, and fill of up to 2.9m in depth in the batter slope along the north-west boundary of the site.	Heavy metals (arsenic, cadmium, chromium, copper, lead, mercury, nickel and zinc), TRHs, BTEX, PAHs, OCPs, OPPs, PCBs and asbestos.
<u>Historical agricultural use</u> – Historical aerial photographs and title records indicated that the site was used for agricultural purposes (likely grazing). This could have resulted in contamination across the site via use of machinery, application of pesticides and building/demolition of various structures. It is considered unlikely that poultry farming activities occurred on site.	Heavy metals, TRH, PAHs, OCPs, PCBs and asbestos. JKE note that OCPs only became commercially available in the 1940s. Prior to this time pesticides were predominantly heavy metal compounds.
<u>Use of pesticides</u> – Pesticides may have been used beneath the buildings and/or around the site.	Heavy metals and OCPs.
<u>Hazardous Building Material</u> – Hazardous building materials may be present as a result of former building and demolition activities in the vicinity of the site, or associated with soils used as fill on site. The review of historical aerial photos did not identify any historical on-site structures prior to the hospital development. These materials may also be present in the existing original section of the main hospital building on site and on the wider hospital property.	Asbestos, lead and PCBs.

3.2 Mechanism for Contamination, Affected Media, Receptors and Exposure Pathways

The mechanisms for contamination, affected media, receptors and exposure pathways relevant to the potential contamination sources/AEC are outlined in the following CSM table:

Table 3-2: CSM

Potential mechanism for contamination	The potential mechanisms for contamination are most likely to include ‘top-down’ impacts and spills. There is a potential for sub-surface releases to have occurred if deep fill or other buried industrial infrastructure such as a UST is present, although this is considered to be the least likely mechanism for contamination. The UST in the wider hospital was not in the vicinity of the site and was not identified as an AEC.
Potentially Affected media	The PSI identified soil as the potentially affected medium. For the purpose of the DSI, groundwater will also be investigated for screening purposes.
Receptor identification	Human receptors include site occupants/users (including adults and children), construction workers and intrusive maintenance workers. Off-site human receptors include adjacent land users adjacent land users and, although unlikely, recreational water users in down-gradient water bodies. Ecological receptors include terrestrial organisms and plants within unpaved areas (including any proposed landscaped areas), and although unlikely, freshwater ecology in Bells Creek.
Potential exposure pathways	Potential exposure pathways relevant to the human receptors include ingestion, dermal absorption and inhalation of dust (all contaminants) and vapours (volatile TRH, BTEX, and naphthalene [a PAH compound]). The potential for exposure would typically be associated with the construction and excavation works, and future use of the site. Potential exposure pathways for ecological receptors include primary contact and ingestion. Exposure during future site use could occur via direct contact with soil in unpaved areas such as gardens, inhalation of airborne asbestos fibres during soil disturbance, or inhalation of vapours within enclosed spaces such as buildings. Exposure to groundwater is unlikely to occur in the creek through direct migration due to its distance from the site. Groundwater could enter the creek via the stormwater system (which is expected to discharge into the creek) in a construction dewatering scenario. However, based on the current proposed development details, this is unlikely to eventuate.
Potential exposure mechanisms	The following have been identified as potential exposure mechanisms for site contamination: • Vapour intrusion into the proposed basement and/or building (either from soil contamination or volatilisation of contaminants from groundwater); • Contact (dermal, ingestion or inhalation) with exposed soils in landscaped areas and/or unpaved areas; and • Migration of groundwater off-site and into nearby water bodies, including aquatic ecosystems and those being used for recreation.
Presence of preferential pathways for contaminant movement	None. To be reviewed further during future iterations of the CSM.

4 SAMPLING, ANALYSIS AND QUALITY PLAN

4.1 Data Quality Objectives (DQO)

Data Quality Objectives (DQOs) have been developed to define the type and quality of data required to achieve the project objectives outlined in Section 1.2. The DQOs were prepared with reference to the process outlined in Schedule B2 of NEPM (2013). The seven-step DQO approach for this project is outlined in the following sub-sections.

The DQO process is validated in part by the Data Quality Assurance/Quality Control (QA/QC) Evaluation. The Data (QA/QC) Evaluation will be summarised in the DSI report.

4.1.1 Step 1 - State the Problem

The CSM identified potential sources of contamination/AEC at the site that may pose a risk to human health and the environment. Investigation data is required to assess the contamination status of the site, assess the risks posed by the contaminants in the context of the proposed development/intended land use, and assess whether remediation is required. This information will be considered by the consent (or determining) authority in exercising its planning functions in relation to the development proposal.

Sampling will not occur in the existing building footprint or beneath the hardstand on the helipad. However, samples will be obtained in close proximity in an attempt to obtain representative data in these areas.

A waste classification is required prior to off-site disposal of excavated soil/bedrock.

4.1.2 Step 2 - Identify the Decisions of the Study

The objectives of the DSI are outlined in Section 1.2. The decisions to be made reflect these objectives and are as follows:

- Are any results above the SAC?
- Do potential risks associated with contamination exist, and if so, what are they?
- Is remediation required?
- Is the site suitable for the proposed development, or can the site be made suitable subject to further characterisation and/or remediation?
- What is the waste classification of the fill material and natural soils sampled?

4.1.3 Step 3 - Identify Information Inputs

The primary information inputs required to address the decisions outlined in Step 2 include the following:

- Existing relevant environmental data from previous reports;
- Site information, including site observations and site history documentation;
- Sampling of potentially affected media, including soil and groundwater;
- Observations of sub-surface variables such as soil type, photo-ionisation detector (PID) concentrations, odours and staining, and groundwater physiochemical parameters;
- Laboratory analysis of soils, fibre cement (if encountered), and groundwater samples for the CoPC identified in the CSM; and

- Field and laboratory QA/QC data.

4.1.4 Step 4 - Define the Study Boundary

The sampling will be confined to the site boundaries as shown in Figure 2 and will be limited vertically to a maximum nominated sampling depth of 2mBGL or 0.5m into the natural soil or prior refusal (whichever is shallower) (spatial boundary). The final depth could depend on site conditions and will be noted in the DSI.

Groundwater investigation will be limited to the depths of the existing monitoring well installation, which is a maximum of 6mBGL.

At this stage, the sampling is scheduled to be completed in October 2025 (temporal boundary). Areas not accessible for sampling will be noted in the DSI as data gaps.

4.1.5 Step 5 - Develop an Analytical Approach (or Decision Rule)

4.1.5.1 Tier 1 Screening Criteria

The laboratory data will be assessed against relevant Tier 1 screening criteria (referred to as SAC), as outlined in Section 5. Exceedances of the SAC do not necessarily indicate a requirement for remediation or a risk to human health and/or the environment. Exceedances are considered in the context of the CSM and valid SPR-linkages.

Statistical evaluation of the dataset via calculation of mean values and/or 95% upper confidence limit (UCL) values will not be undertaken due to the spatial distribution of the data and the number of samples submitted for analysis. For the DSI, the individual results will be assessed as either above or below the SAC.

4.1.5.2 Field and Laboratory QA/QC

Field QA/QC will include analysis of inter-laboratory duplicates (minimum of 5% of primary samples), intra-laboratory duplicates (minimum of 5% of primary samples), and trip spike (for volatiles), trip blank (for selected organic and inorganic compounds) and rinsate (for selected organic and inorganic compounds) samples (one for each medium sampled to assess the adequacy of field practices).

Further details regarding the sampling and analysis undertaken, and the acceptable limits adopted, will be included in the Data Quality (QA/QC) Evaluation presented in the DSI report.

The suitability of the laboratory data is assessed against the laboratory QA/QC criteria which will be outlined in the laboratory reports. These criteria are developed and implemented in accordance with the laboratory's National Association of Testing Authorities, Australia (NATA) accreditation and align with the acceptable limits for QA/QC samples as outlined in NEPM (2013) and other relevant guidelines.

In the event that acceptable limits are not met by the laboratory analysis, other lines of evidence are reviewed (e.g. field observations of samples, preservation, handling etc) and, where required, consultation

with the laboratory is undertaken in an effort to establish the cause of the non-conformance. Where uncertainty exists, the most conservative concentration reported are to be adopted.

4.1.5.3 Appropriateness of Practical Quantitation Limits (PQLs)

The PQLs of the analytical methods are to be considered in relation to the SAC to confirm that the PQLs are less than the SAC. In cases where the PQLs are greater than the SAC, a discussion of this is provided.

4.1.6 Step 6 – Specify Limits on Decision Errors

To limit the potential for decision errors, a range of quality assurance processes are adopted. A quantitative assessment of the potential for false positives and false negatives in the analytical results will be undertaken with reference to Schedule B(3) of NEPM (2013) using the data quality assurance information collected.

Decision errors can be controlled through the use of hypothesis testing. The test can be used to show either that the baseline condition is false or that there is insufficient evidence to indicate that the baseline condition is false. The null hypothesis is an assumption that is assumed to be true in the absence of contrary evidence. For the DSI, the null hypothesis will be adopted which is that, there is considered to be a complete source-pathway-receptor (SPR) linkage for the CoPC identified in the CSM, unless this linkage can be proven not to (or unlikely to) exist. The null hypothesis will be adopted for this investigation. Quantitative limits on decision errors were not established as the sample plan is not probabilistic.

Data Quality Indicators (DQI) for field and laboratory QA/QC samples are defined below. An assessment of the DQI's is to be made in relation to precision, accuracy, representativeness, completeness and comparability.

Field Duplicates

Acceptable targets for precision of field duplicates will be 30% or less, consistent with NEPM (2013). RPD failures will be considered qualitatively on a case-by-case basis taking into account factors such as the concentrations used to calculate the RPD (i.e. RPD exceedance where concentrations are close to the PQL) are typically not as significant as those where concentrations are reported at least five or 10 times the PQL), sample type, collection methods and the specific analyte where the RPD exceedance was reported.

Trip Blanks and Rinsates

Acceptable targets for field blank and rinsate samples in this report will be less than the PQL for organic analytes. Metals will be considered on a case-by-case basis with regards to typical background concentrations in soils and published drinking water guidelines for waters.

Trip Spikes

Acceptable targets for trip spike samples will be 70% to 130%.

Laboratory QA/QC

The suitability of the laboratory data will be assessed against the laboratory QA/QC criteria. These criteria are developed and implemented in accordance with the laboratory's NATA accreditation and align with the acceptable limits for QA/QC samples as outlined in NEPM (2013) and other relevant guidelines.

A summary of the typical limits is provided below:

RPDs

- Results that are <5 times the PQL, any RPD is acceptable; and
- Results >5 times the PQL, RPDs between 0-50% are acceptable.

Laboratory Control Samples (LCS) and Matrix Spikes

- 70-130% recovery acceptable for metals and inorganics; and
- 60-140% recovery acceptable for organics.

Surrogate Spikes

- 60-140% recovery acceptable for general organics.

Method Blanks

- All results less than PQL.

In the event that acceptable limits are not met by the laboratory analysis, other lines of evidence will be reviewed (e.g. field observations of samples, preservation, handling etc) and, where required, consultation with the laboratory is to be undertaken in an effort to establish the cause of the non-conformance. Where uncertainty exists, we will adopt the most conservative concentration reported.

4.1.7 Step 7 - Optimise the Design for Obtaining Data

The most resource-effective design will be used in an optimum manner to achieve the investigation objectives. Adjustment of the investigation design can occur following consultation or feedback from project stakeholders. For this investigation, the design was optimised via consideration of the various lines of evidence used to select the sample locations, the media being sampled, and also by the way in which the data will be collected. The sampling plan and methodology are outlined in the following sub-sections.

4.2 Soil Sampling Plan and Methodology

The soil sampling plan and methodology proposed for the DSI is outlined in the table below:

Table 4-1: Proposed DSI Soil Sampling Plan and Methodology

Aspect	Input
Sampling Density	Samples for the DSI will be collected from eight test pit locations (TP101 to TP108) and one surface soil location (SS01) as shown on the attached Figure 2. This number of locations meets the minimum sampling density for hotspot identification based on the site area, as outlined in the NSW EPA Sampling Design Part 1 – Application (2022) ⁶ contaminated land guidelines. However, it is noted that the sampling plan is not probabilistic (see below), therefore the hotspot sampling density does not strictly apply.

⁶ NSW EPA, (2022). *Sampling design part 1 - application*. (referred to as EPA Sampling Design Guidelines 2022)

Aspect	Input
Sampling Plan	The sampling locations will be placed on a judgemental sampling plan and broadly positioned for site coverage, taking into consideration areas not accessible. This sampling plan is considered suitable to make an assessment of potential risks associated with the AEC and CoPC identified in the CSM, in light of the site access constraints. SS01 and TP104 will be positioned close to the building floor slab and helipad respectively in an attempt to obtain representative data associated with these hardstand areas.
Set-out and Sampling Equipment	Sampling locations will be set out using a hand-held GPS unit (with an accuracy of $\pm 0.02\text{m}$). In-situ sampling locations will be checked for underground services by an external contractor prior to sampling. Samples will be collected using a backhoe/excavator. Samples will be obtained from the test pit walls or directly from the bucket by hand. Where sampling occurred from the bucket, JKE will collect samples from the central portion of large soil clods, or from material that is unlikely to have come into contact with the bucket. Samples from SS01 will be collected using hand tools.
Sample Collection and Field QA/QC	Soil samples will be obtained in accordance with our standard field procedures. Soil samples will be collected from the fill and natural profiles based on field observations. The sample depths will be shown on the logs included in the DSI report. Soil samples for contamination testing will be placed in glass jars with plastic caps and Teflon seals with minimal headspace. Samples for asbestos analysis will be placed in zip-lock plastic bags. During sampling, soil at selected depths will be split into primary and duplicate samples for field QA/QC analysis. The field splitting procedure includes alternate filling of the sampling containers to obtain a representative split sample. Homogenisation of duplicate samples will not occur to minimise the potential for the release of volatile organic compounds.
Field Screening	A portable Photoionisation Detector (PID) fitted with a 10.6mV lamp will be used to screen the samples for the presence of volatile organic compounds (VOCs). PID screening for VOCs will be undertaken on soil samples using the soil sample headspace method. VOC data will be obtained from partly filled zip-lock plastic bags following equilibration of the headspace gases. PID calibration records will be maintained for the project. The field screening for asbestos quantification will include the following: • A representative bulk sample (approximately 10L sample, to the extent achievable based on sample return) is to be collected from fill at 1m intervals, or from each distinct fill profile. The quantity of material for each sample may vary based on the return achieved using the auger. The bulk sample intervals will be shown on the test pit logs; • Each sample will be weighed using an electronic scale; • Each bulk sample will be passed through a sieve with a 7.1mm aperture and inspected for the presence of fibre cement. If the soil are cohesive in nature, the samples will be subsequently placed on a contrasting support (blue tarpaulin) and inspected for the presence of fibre cement. Any soil clumps/nodules will be disaggregated;

Aspect	Input
	- The condition of fibre cement or any other suspected asbestos materials will be noted on the field records; and - If observed, any fragments of fibre cement in the bulk sample will be collected, placed in a zip-lock bag and assigned a unique identifier. Calculations for asbestos content will be undertaken based on the requirements outlined in Schedule B1 of NEPM (2013), as summarised in Section 5.1. Bulk samples in unpaved areas will be taken from the top 100mm, then each distinct fill profile thereafter, with a minimum of one sample per 1m depth of each fill profile. Bulk sampling will not occur at location SS01.
Decontamination and Sample Preservation	Sampling personnel will use disposable nitrile gloves during sampling activities. Re-usable sampling equipment will be decontaminated between sampling events using a Decon and potable water solution, followed by a rinse in potable water. Soil samples will be preserved by immediate storage in an insulated sample container with ice. On completion of the fieldwork, the samples may be stored temporarily in fridges in the JKE warehouse before being delivered in the insulated sample container to a NATA registered laboratory for analysis under standard chain of custody (COC) procedures.

4.3 Groundwater Sampling Plan and Methodology

The groundwater sampling plan and methodology proposed for the DSI is outlined in the table below:

Table 4-2: Proposed Groundwater Sampling Plan and Methodology

Aspect	Input
Sampling Plan	Groundwater monitoring wells were installed in three of the locations drilled during the PSI (MW2, MW4 and MW5). The wells were positioned to establish background groundwater conditions at the site during the DSI. Considering the topography and the location of the nearest down-gradient water body, MW2 is considered to be in the up-gradient area of the site and expected to provide an indication of groundwater flowing onto (beneath) the site from the south to south-west. MW4 and MW5 are considered to be in the intermediate to down-gradient area of the site and expected to provide an indication of groundwater flowing across (beneath) the site and beyond the down-gradient site boundary.
Monitoring Well Installation Procedure	The monitoring well construction details will be documented on the appropriate borehole logs. The monitoring wells will be installed to depths of approximately 5.7mBGL to 6mBGL. The wells were generally constructed as follows: 50mm diameter Class 18 PVC (machine slotted screen) installed in the lower section of the well to intersect groundwater; 50mm diameter Class 18 PVC casing installed in the upper section of the well (screw fixed); - A 2mm sand filter pack used around the screen section for groundwater infiltration; - A hydrated bentonite seal/plug used on top of the sand pack to seal the well; and - A gatic cover installed at the surface with a concrete plug to limit the inflow of surface water. The borehole logs for the wells are attached in Appendix B.

Aspect	Input
Monitoring Well Development	The monitoring wells will be developed using a submersible electrical pump/dedicated disposable plastic bailer. During development, the following parameters will be monitored using calibrated field instruments: • Standing water level (SWL) using an electronic dip meter; and • pH, temperature, electrical conductivity (EC), dissolved oxygen (DO) and redox potential (Eh) using a YSI Multi-probe water quality meter. Steady state conditions are considered to have been achieved when the difference in the pH measurements is less than 0.2 units, the difference in conductivity is less than 10%, and when the SWL is not in drawdown. In the event that groundwater in-flow is relatively slow, the development will continue until the wells are effectively dry. The field monitoring records and calibration data will be included in the DSI report.
Groundwater Sampling	The monitoring wells will be allowed to recharge for a minimum of 24 hours after development. Prior to sampling, the monitoring wells will be checked for the presence of Light Non-Aqueous Phase Liquids (LNAPL) using an inter-phase probe electronic dip meter. The monitoring well head space will be checked for VOCs using a calibrated PID unit. The samples will be obtained using a peristaltic pump/disposable plastic bailer. During sampling, the following parameters will be monitored using calibrated field instruments: • SWL using an electronic dip meter; and • pH, temperature, EC, DO and Eh using a YSI Multi-probe water quality meter. Steady state conditions is considered to have been achieved when the difference in the pH measurements is less than 0.2 units, the difference in conductivity is less than 10%, and when the SWL was not in drawdown. Groundwater samples will be obtained directly from the single use PVC tubing and placed in the sample containers. Duplicate samples are to be obtained by alternate filling of sample containers. This technique is adopted to minimise disturbance of the samples and loss of volatile contaminants associated with mixing of liquids in secondary containers, etc. Groundwater removed from the wells during development and sampling will be transported to JKE in jerry cans and stored in holding drums prior to collection by a licensed waste water contractor for off-site disposal. The field monitoring record and calibration data will be included in the DSI report.
Decontaminant and Sample Preservation	During development, the development pump and hose will be flushed between monitoring wells with a potable water and Decon solution, followed by a pulse of potable water (single-use tubing will be used for each well). This will also occur for the inter-phase probe electronic dip meter during development and sampling. The groundwater sampling process utilises a peristaltic pump and single-use tubing, therefore no decontamination procedure for the sampling is considered necessary. The samples will be preserved with reference to the analytical requirements and placed in an insulated container with ice or ice bricks. On completion of the fieldwork, the samples may be temporarily stored in a fridge at the JKE office, before being delivered in the insulated sample container to a NATA registered laboratory for analysis under standard COC procedures.

4.4 Laboratory Analysis and Proposed Analytical Schedule

Samples will be analysed by an appropriate, NATA Accredited laboratory using the analytical methods detailed in Schedule B(3) of NEPM 2013. The laboratory details are provided in the table below:

Table 4-3: Laboratory Details

Samples	Laboratory
All primary samples and field QA/QC samples including intra-laboratory duplicates, trip blanks, trip spikes, and field rinsate samples	EnviroLab Services Pty Ltd NSW, NATA Accreditation Number – 2901 (ISO/IEC 17025 compliance)
Inter-laboratory duplicates	EnviroLab Services Pty Ltd VIC, NATA Accreditation Number – 2901 (ISO/IEC 17025 compliance)

For the DSI, an allowance has been made for the following analysis:

- Up to 16 selected soil samples for: heavy metals (arsenic, cadmium, chromium, copper, lead, mercury, nickel and zinc); PAHs; TRH; and BTEX;
- Up to 13 selected soil samples for: OCP; OPP; and PCBs;
- Up to 13 selected soil samples (500mL) for asbestos using laboratory quantification (gravimetric) methods;
- Up to four selected FCF, if found on or in soil, analysed for asbestos;
- The surface soil sample at location SS01 will be analysed for: heavy metals and OCPs;
- Targeted toxicity characteristic leachate procedure (TCLP) analysis for selected metals and PAHs for waste classification purposes; and
- Up to two groundwater samples for: heavy metals; TRH/BTEX; PAHs; pH; and EC.

The soil analysis will generally target the fill soils and the first contact of natural soils. Deeper samples may be analysed based on the results of the shallow soils and site observations. A staged approach to soil sample analysis has been undertaken to allow for targeting areas based on the results of the initial analysis round.

5 SITE ASSESSMENT CRITERIA (SAC)

The following SAC derived from the NEPM 2013 and other guidelines, as discussed in the following sub-sections, will be adopted for the DSI.

5.1 Soil

Soil data will be compared to relevant Tier 1 screening criteria in accordance with NEPM (2013) as outlined below.

5.1.1 Human Health

- Health Investigation Levels (HILs) for a 'public open space; secondary schools; and footpaths' land use exposure scenario (HIL-C). We are of the opinion that use of the HIL-C criteria aligns with the philosophy of the NEPM (2013) as the less conservative 'commercial/industrial' criteria are not suitably protective of the most sensitive receptors (e.g. children) who may infrequently visit the site, or be in outdoor areas for short a short duration;
- Health Screening Levels (HSLs) for a 'low-high density residential' exposure scenario (HSL-A & HSL-B). The NEPM (2013) indicates that HSL-C criteria are suitable for sites with no buildings or with small and infrequently utilised, amenities-type buildings. On this basis, the HSL-C criteria are not appropriate for the proposal land use and we have adopted the HSL-A & HSL-B criteria to provide a more conservative screening to assess vapour related risks. HSLs were calculated based on conservative assumptions including a 'sand' type and a depth interval of 0m to 1m;
- HSLs for direct contact presented in the CRC Care Technical Report No. 10 – Health screening levels for hydrocarbons in soil and groundwater Part 1: Technical development document (2011)⁷; and
- Asbestos was assessed on the basis of presence/absence and against the HSL-C criteria. A summary of the asbestos criteria is provided in the table below:

Table 5-1: Details for Asbestos SAC

Guideline	Applicability
Asbestos in Soil	The HSL-C criteria were adopted for the assessment of asbestos in soil. The SAC adopted for asbestos were derived from the NEPM 2013 and are based on the Guidelines for the Assessment, Remediation and Management of Asbestos-Contaminated Sites in Western Australia (2021)⁸. The SAC include the following: • No visible asbestos at the surface/in the top 10cm of soil; • <0.02% w/w bonded asbestos containing material (ACM) in soil; and • <0.001% w/w asbestos fines/fibrous asbestos (AF/FA) in soil. Concentrations for bonded ACM concentrations in soil are based on the following equation which is presented in Schedule B1 of NEPM (2013): $\% \text{ w/w asbestos in soil} = \frac{\% \text{ asbestos content} \times \text{bonded ACM (kg)}}{\text{Soil volume (L)} \times \text{soil density (kg/L)}}$

⁷ Cooperative Research Centre for Contamination Assessment and Remediation of the Environment (CRC Care), (2011). Technical Report No. 10 - Health screening levels for hydrocarbons in soil and groundwater Part 1: Technical development document

⁸ Western Australian (WA) Department of Health (DoH), (2021). Guidelines for the Assessment, Remediation and Management of Asbestos-Contaminated Sites in Western Australia. (referred to as WA DoH 2021)

Guideline	Applicability
	However, we are of the opinion that the actual soil volume in a 10L bucket varies considerably due to the presence of voids, particularly when assessing cohesive soils. Therefore, each bucket sample was weighed using electronic scales and the above equation was adjusted as follows (we note that the units have also converted to grams): $\% \text{ w/w asbestos in soil} = \frac{\% \text{ asbestos content} \times \text{bonded ACM (g)}}{\text{Soil weight (g)}}$

5.1.2 Environment (Ecological – terrestrial ecosystems)

- Ecological Investigation Levels (EILs) and Ecological Screening Levels (ESLs) for an 'urban residential and public open space' (URPOS) exposure scenario. These have only been applied to the top 2m of soil as outlined in NEPM (2013). The criterion for benzo(a)pyrene has been increased from the value presented in NEPM (2013) based on the Canadian Soil Quality Guidelines⁹;
- ESLs were adopted based on the soil type; and
- EILs for selected metals were calculated based on the most conservative added contaminant limit (ACL) values presented in Schedule B(1) of NEPM (2013) and published ambient background concentration (ABC) values presented in the document titled Trace Element Concentrations in Soils from Rural and Urban Areas of Australia (1995)¹⁰. This method is considered to be adequate for the Tier 1 screening.

5.1.3 Management Limits for Petroleum Hydrocarbons

Management limits for petroleum hydrocarbons (as presented in Schedule B1 of NEPM 2013) were considered.

5.1.4 Waste Classification

Data for the waste classification assessment were assessed in accordance with the Waste Classification Guidelines, Part 1: Classifying Waste (2014)¹¹ as outlined in the following table:

Table 5-2: Waste Categories

Category	Description
General Solid Waste (non-putrescible)	• If Specific Contaminant Concentration (SCC) ≤ Contaminant Threshold (CT1) then Toxicity Characteristics Leaching Procedure (TCLP) not needed to classify the soil as general solid waste; and • If TCLP ≤ TCLP1 and SCC ≤ SCC1 then treat as general solid waste.
Restricted Solid Waste (non-putrescible)	• If SCC ≤ CT2 then TCLP not needed to classify the soil as restricted solid waste; and • If TCLP ≤ TCLP2 and SCC ≤ SCC2 then treat as restricted solid waste.

⁹ Canadian Council of Ministers of the Environment, (1999). *Canadian soil quality guidelines for the protection of environmental and human health: Benzo(a)Pyrene (1997)* (referred to as the Canadian Soil Quality Guidelines)

¹⁰ Olszowy, H., Torr, P., and Imray, P., (1995), *Trace Element Concentrations in Soils from Rural and Urban Areas of Australia. Contaminated Sites Monograph Series No. 4*. Department of Human Services and Health, Environment Protection Agency, and South Australian Health Commission

¹¹ NSW EPA, (2014). *Waste Classification Guidelines, Part 1: Classifying Waste*. (referred to as Waste Classification Guidelines 2014)

Category	Description
Hazardous Waste	- If SCC > CT2 then TCLP must be undertaken to classify the soil as hazardous waste; and - If TCLP > TCLP2 and/or SCC > SCC2 then treat as hazardous waste.
Virgin Excavated Natural Material (VENM)	Natural material (such as clay, gravel, sand, soil or rock fines) that meet the following: - That has been excavated or quarried from areas that are not contaminated with manufactured chemicals, or with process residues, as a result of industrial, commercial mining or agricultural activities; - That does not contain sulfidic ores or other waste; and - Includes excavated natural material that meets such criteria for virgin excavated natural material as may be approved from time to time by a notice published in the NSW Government Gazette.

5.2 Groundwater

Groundwater data will be compared to relevant Tier 1 screening criteria in accordance with NEPM (2013), following an assessment of environmental values in accordance with the Guidelines for the Assessment and Management of Groundwater Contamination (2007)¹². Environmental values for the DSI include aquatic ecosystems, human uses (incidental contact and recreational water use), and human-health risks in non-use scenarios (vapour intrusion).

5.2.1 Human Health

- HSLs for a 'low-high density residential' exposure scenario (HSL-A/HSL-B). HSLs will be calculated based on the soil type and the observed depth to groundwater;
- Where the NEPM (2013) HSLs are not applicable for this project i.e. the groundwater is recorded at depths shallower than 2m, a site-specific assessment (SSA) will be undertaken for the Tier 1 screening of human health risks posed by volatile contaminants in groundwater. The assessment will include a selection of alternative Tier 1 criteria that are considered suitably protective of human health. These criteria are based on drinking water guidelines and have been referred to as HSL-SSA. The criteria are based on the following:
 - Australian Drinking Water Guidelines 2011 (updated 2025)¹³ for BTEX compounds and selected VOCs;
 - World Health Organisation (WHO) document titled Petroleum Products in Drinking-water, Background document for the development of WHO Guidelines for Drinking Water Quality (2008)¹⁴ for petroleum hydrocarbons. We have conservatively adopted the value of 100µg/L for TRH F1 and F2;
 - USEPA Region 9 screening levels for naphthalene (threshold value for tap water); and
 - The use of the laboratory PQLs for other contaminants where there are no Australian guidelines.

¹² NSW Department of Environment and Conservation, (2007). *Guidelines for the Assessment and Management of Groundwater Contamination*.

¹³ National Health and Medical Research Council (NHMRC), (2025). *National Water Quality Management Strategy, Australian Drinking Water Guidelines 2011* (referred to as ADWG 2011)

¹⁴ World Health Organisation (WHO), (2008). *Petroleum Products in Drinking-water, Background document for the development of WHO Guidelines for Drinking Water Quality* (referred to as WHO 2008)

- The ADWG 2011 will be multiplied by a factor of 10 to assess potential risks associated with incidental/recreational-type exposure to groundwater (e.g. within down-gradient water bodies). These have been deemed as 'recreational' SAC.

5.2.2 Environment (Ecological - aquatic ecosystems)

Groundwater Investigation Levels (GILs) for 95% protection of freshwater species will be adopted based on the Default Guideline Values in the Australian and New Zealand Guidelines for Fresh and Marine Water Quality (2018)¹⁵. The 99% trigger values will be adopted where required to account for bioaccumulation. Low and moderate reliability trigger values will also be adopted for some contaminants where high-reliability trigger values don't exist.

APPENDIX G - SAQP

¹⁵ Australian and New Zealand Governments (ANZG), (2018). *Australian and New Zealand Guidelines for Fresh and Marine Water Quality*. Australian and New Zealand Governments and Australian state and territory governments, Canberra ACT, Australia (referred to as ANZG 2018)

6 DSI REPORTING REQUIREMENTS

A DSI report is to be prepared presenting the results of the investigation, in accordance with the NSW EPA Consultants Reporting on Contaminated Land, Contaminated Land Guidelines (2020)¹⁶.

APPENDIX G - SAQP

¹⁶ NSW EPA, (2020). *Consultants Reporting on Contaminated Land, Contaminated Land Guidelines*

7 LIMITATIONS

The report limitations are outlined below:

- This SAQP was developed based on the information available, as documented in this plan. There is always a potential that the proposed investigation will identify contamination impacts (actual or potential) that trigger a need for further investigation;
- JKE accepts no responsibility for any unidentified contamination issues at the site. Any unexpected problems/subsurface features that may be encountered during development works should be inspected by an environmental consultant as soon as possible;
- Previous use of this site may have involved excavation for the foundations of buildings, services, and similar facilities. In addition, unrecorded excavation and burial of material may have occurred on the site. Backfilling of excavations could have been undertaken with potentially contaminated material that may be discovered in discrete, isolated locations across the site during construction work;
- This report has been prepared based on site conditions which existed at the time of the investigation; scope of work and limitation outlined in the JKE proposal; and terms of contract between JKE and the client (as applicable);
- The plan is based on investigation of conditions at specific locations, chosen to be as representative as possible under the given circumstances, visual observations of the site and immediate surrounds and documents reviewed as described in the report;
- Subsurface soil and rock conditions encountered between investigation locations may be found to be different from those expected. Groundwater conditions may also vary, especially after climatic changes;
- The preparation of this report has been undertaken in accordance with accepted practice for environmental consultants, with reference to applicable environmental regulatory authority and industry standards, guidelines and the assessment criteria outlined in the report;
- Where information has been provided by third parties, JKE has not undertaken any verification process, except where specifically stated in the report;
- JKE has not undertaken any assessment of off-site areas that may be potential contamination sources or may have been impacted by site contamination, except where specifically stated in the report;
- JKE accept no responsibility for potentially asbestos containing materials that may exist at the site. These materials may be associated with demolition of pre-1990 constructed buildings or fill material at the site;
- JKE have not and will not make any determination regarding finances associated with the site;
- Additional investigation work may be required in the event of changes to the proposed development or landuse. JKE should be contacted immediately in such circumstances;
- Material considered to be suitable from a geotechnical point of view may be unsatisfactory from a soil contamination viewpoint, and vice versa; and
- This report has been prepared for the particular project described and no responsibility is accepted for the use of any part of this report in any other context or for any other purpose.

Important Information About This Report

These notes have been prepared by JKE to assist with the assessment and interpretation of this report.

The Report is based on a Unique Set of Project Specific Factors

This report has been prepared in response to specific project requirements as stated in the JKE proposal document which may have been limited by instructions from the client. This report should be reviewed, and if necessary, revised if any of the following occur:

- The proposed land use is altered;
- The defined subject site is increased or sub-divided;
- The proposed development details including size, configuration, location, orientation of the structures or landscaped areas are modified;
- The proposed development levels are altered, eg addition of basement levels; or
- Ownership of the site changes.

JKE will not accept any responsibility whatsoever for situations where one or more of the above factors have changed since completion of the investigation. If the subject site is sold, ownership of the investigation report should be transferred by JKE to the new site owners who will be informed of the conditions and limitations under which the investigation was undertaken. No person should apply an investigation for any purpose other than that originally intended without first conferring with the consultant.

Changes in Subsurface Conditions

Subsurface conditions are influenced by natural geological and hydrogeological process and human activities. Groundwater conditions are likely to vary over time with changes in climatic conditions and human activities within the catchment (e.g. water extraction for irrigation or industrial uses, subsurface waste water disposal, construction related dewatering). Soil and groundwater contaminant concentrations may also vary over time through contaminant migration, natural attenuation of organic contaminants, ongoing contaminating activities and placement or removal of fill material. The conclusions of an investigation report may have been affected by the above factors if a significant period of time has elapsed prior to commencement of the proposed development.

This Report is based on Professional Interpretations of Factual Data

Site investigations identify actual subsurface conditions at the actual sampling locations at the time of the investigation. Data obtained from the sampling and subsequent laboratory analyses, available site history information and published regional information is interpreted by geologists, engineers or environmental scientists and opinions are drawn about the overall subsurface conditions, the nature and extent of contamination, the likely impact on the proposed development and appropriate remediation measures.

Actual conditions may differ from those inferred, because no professional, no matter how qualified, and no subsurface exploration program, no matter how comprehensive, can reveal what is hidden by earth, rock and time. The actual interface between materials may be far more gradual or abrupt than an investigation indicates. Actual conditions in areas not sampled may differ from predictions. Nothing can be done to prevent the unanticipated, but steps can be taken to help minimise the impact. For this reason, site owners should retain the services of their consultants throughout the development stage of the project, to identify variances, conduct additional tests which may be needed, and to recommend solutions to problems encountered on site.

Investigation Limitations

Although information provided by a site investigation can reduce exposure to the risk of the presence of contamination, no environmental site investigation can eliminate the risk. Even a rigorous professional investigation may not detect all contamination on a site. Contaminants may be present in areas that were not surveyed or sampled, or may migrate to areas which showed no signs of contamination when sampled. Contaminant analysis cannot possibly cover every type of contaminant which may occur; only the most likely contaminants are screened.

Misinterpretation of Site Investigations by Design Professionals

Costly problems can occur when other design professionals develop plans based on misinterpretation of an investigation report. To minimise problems associated with misinterpretations, the environmental consultant should be retained to work with appropriate professionals to explain relevant findings and to review the adequacy of plans and specifications relevant to contamination issues.

Logs Should not be Separated from the Investigation Report

Borehole and test pit logs are prepared by environmental scientists, engineers or geologists based upon interpretation of field conditions and laboratory evaluation of field samples. Logs are normally provided in our reports and these should not be re-drawn for inclusion in site remediation or other design drawings, as subtle but significant drafting errors or omissions may occur in the transfer process. Photographic reproduction can eliminate this problem, however contractors can still misinterpret the logs during bid preparation if separated from the text of the investigation. If this occurs, delays, disputes and unanticipated costs may result. In all cases it is necessary to refer to the rest of the report to obtain a proper understanding of the investigation. Please note that logs with the 'Environmental Log' header are not suitable for geotechnical purposes as they have not been peer reviewed by a Senior Geotechnical Engineer.

To reduce the likelihood of borehole and test pit log misinterpretation, the complete investigation should be available to persons or organisations involved in the project, such as contractors, for their use. Denial of such access and disclaiming responsibility for the accuracy of subsurface information does not insulate an owner from the attendant liability. It is critical that the site owner provides all available site information to persons and organisations such as contractors.

Read Responsibility Clauses Closely

Because an environmental site investigation is based extensively on judgement and opinion, it is necessarily less exact than other disciplines. This situation has resulted in wholly unwarranted claims being lodged against consultants. To help prevent this problem, model clauses have been developed for use in written transmittals. These are definitive clauses designed to indicate consultant responsibility. Their use helps all parties involved recognise individual responsibilities and formulate appropriate action. Some of these definitive clauses are likely to appear in the environmental site investigation, and you are encouraged to read them closely. Your consultant will be pleased to give full and frank answers to any questions.

APPENDIX G - SPECIAL



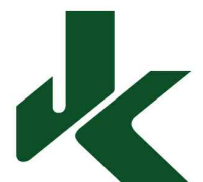
APPENDIX G - SAQP

Appendix A: Report Figures



AERIAL IMAGE SOURCE: MAPS.AU.NEARMAP.COM

Title:		SITE LOCATION PLAN
Location:		75 RAILWAY STREET, MOUNT DRUITT, NSW
Project No:	E37664PTrpt3	Figure No: 1
This plan should be read in conjunction with the Environmental report.		JKEnvironments

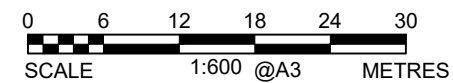


PLOT DATE: 3/10/2025 11:03:11 AM DWG FILE: K:\5C EIS JOBS\37000\5E37664PT BLACKTOWN & MOUNT DRUITT\CAD\IE37664PTRPT3.DWG



LEGEND

	APPROXIMATE SITE BOUNDARY
	BH(Fill Depth)
	BH/MW(Fill Depth)
	TP(Fill Depth)
	BH101
	TP103
	SS01
	BOREHOLE LOCATION, NUMBER AND DEPTH OF FILL (m) (JKE/JKG, PSI 2025)
	BOREHOLE AND GROUNDWATER MONITORING WELL LOCATION, NUMBER AND DEPTH OF FILL (m) (JKE/JKG, PSI 2025)
	TEST PIT LOCATION, NUMBER AND DEPTH OF FILL (m) (JKE/JKG, PSI 2025)
	PROPOSED JKE BOREHOLE LOCATION
	PROPOSED JKE TEST PIT LOCATION
	PROPOSED JKE SURFACE SOIL LOCATION



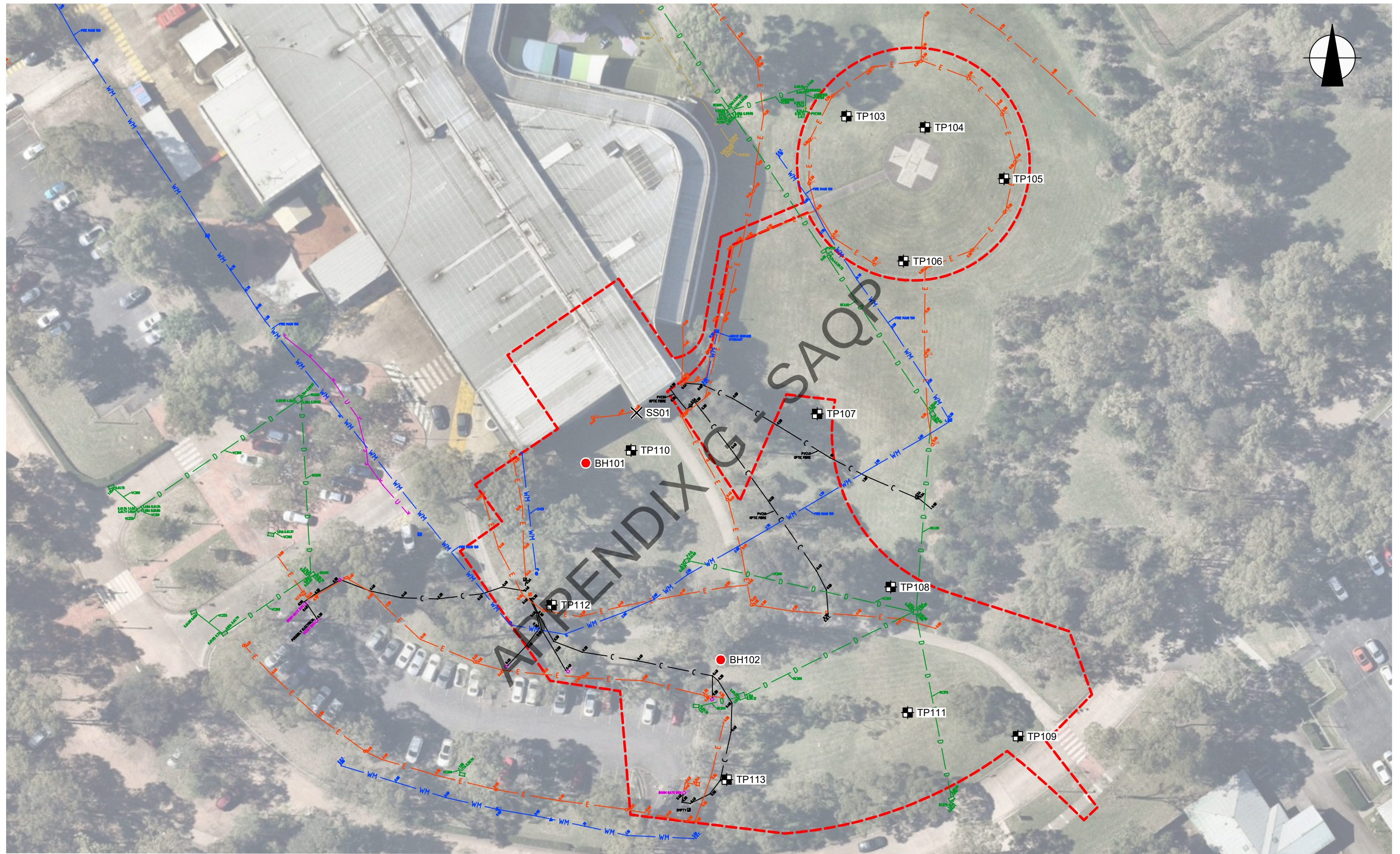
This plan should be read in conjunction with the Environmental report.

Title: PROPOSED SAMPLE LOCATIONS	
Location: 75 RAILWAY STREET, MOUNT DRUITT, NSW	
Project No: E37664PTrpt3	Figure No: 2
JKEnvironments	



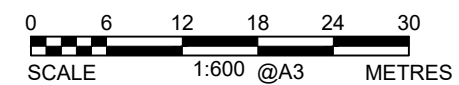
PLOT DATE: 7/10/2025 10:13:26 AM DWG FILE: K:\5C EIS JOBS\37000\5E37664PT BLACKTOWN & MOUNT DRUITT\CAD\IE37664PTRPT3.DWG

© JK ENVIRONMENTS



LEGEND

- APPROXIMATE SITE BOUNDARY
- BH101 PROPOSED JKG BOREHOLE LOCATION
- TP103 PROPOSED JKE TEST PIT LOCATION
- × SS01 PROPOSED JKE SURFACE SOIL LOCATION



This plan should be read in conjunction with the Environmental report.

Title:		PROPOSED SAMPLE LOCATIONS	
Location:		75 RAILWAY STREET, MOUNT DRUITT, NSW	
Project No:		E37664PTrpt3	Figure No: 2a
JKEnvironments			





Appendix B: Monitoring Well Borehole Logs

APPENDIX G - SAQP

JKGeotechnics

BOREHOLE LOG



Borehole No.
2

1/1

Client:HEALTH INFRASTRUCTURE

Project:GEOTECHNICAL AND CONTAMINATION ASSESSMENT SERVICES

Location:MOUNT DRUITT HOSPITAL, MOUNT DRUITT, NSW

Job No.:37665LF

Date:14/7/25

Plant Type:JK500

Method:HAND AUGER / SPIRAL AUGER

Logged/Checked by:A.M./O.F.

R.L. Surface:61.30m

Datum:AHD

Groundwater Record	SAMPLES			Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
	ES	U50	DB									
DRY ON COMPLETION					0			FILL: Silty clay, low to medium plasticity, brown, with fine to medium grained sand, trace of fine grained ironstone gravel, and root fibres.	w<PL			GRASS COVER
							CH	Silty CLAY: high plasticity, red brown and grey, trace of fine to medium grained ironstone gravel.	w>PL	VSt	250 320 320	SCREEN: 10.25kg 0-0.1m, NO FCF
				N = 6 2,3,3	1							HAND AUGER TO 0.5m
								as above, but light grey and red brown.		Hd		RESIDUAL
				N = 13 3,6,7	2						300 350 400	GROUNDWATER MONITORING WELL INSTALLED TO 5.7m. CLASS 18 MACHINE SLOTTED 50mm DIA. PVC STANDPIPE 3.0m TO 5.7m. CASING 0m TO 3.0m. 2mm SAND FILTER PACK 3.0m TO 5.7m. BENTONITE SEAL 2.5m TO 3.0m. BACKFILLED WITH SAND TO THE SURFACE. COMPLETED WITH A CONCRETED GATIC COVER.
				N = SPT 11/100mm REFUSAL	3			Extremely Weathered siltstone: silty CLAY, low to medium plasticity, red brown and grey, with very low strength siltstone bands.	XW	Hd		BRINGELLY SHALE
								SILTSTONE: grey brown, with occasional extremely weathered bands.	DW	VL-L		LOW 'TC' BIT RESISTANCE
												LOW TO MODERATE RESISTANCE
					5							
					6			END OF BOREHOLE AT 6.0m				
				7								

▼

AFTER 3 HRS

JKGeotechnics

BOREHOLE LOG



Borehole No.
4

1/1

SDUP1: 0-0.1m

Client:HEALTH INFRASTRUCTURE

Project:GEOTECHNICAL AND CONTAMINATION ASSESSMENT SERVICES

Location:MOUNT DRUITT HOSPITAL, MOUNT DRUITT, NSW

Job No.: 37665LF

Date: 14/7/25

Plant Type: JK500

Method: HAND AUGER / SPIRAL AUGER

Logged/Checked by: A.M./O.F.

R.L. Surface: 61.20m

Datum: AHD

Groundwater Record	SAMPLES				Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
	ES	U50	DB	DS									
DRY ON COMPLETION						0			FILL: Silty sand, fine to medium grained, dark brown, trace of clay nodules and root fibres.	M w>PL			GRASS COVER
					N = 6 2,2,4			CH	FILL: Silty clay, high plasticity, dark brown and brown, trace of fine grained ironstone gravel, slag and root fibres.	w>PL	VSt	210 220 230	SCREEN: 11.85kg 0-0.1m, NO FCF
						1			Silty CLAY: high plasticity, red brown and grey, trace of fine to medium grained ironstone gravel, and root fibres.				HAND AUGER TO 0.5m
					N = 8 2,3,5				as above, but light grey and red brown, without root fibres.			300 280 280	SCREEN: 6.65kg (<10L) 0.1-0.5m, NO FCF RESIDUAL
						2							
					N = 33 6,14,19	3						>600 >600 >600	
						4		-	SILTSTONE: grey brown, with occasional extremely weathered bands and iron indurated bands.	DW	VL-L		BRINGELLY SHALE LOW 'TC' BIT RESISTANCE WITH VERY LOW AND MODERATE BANDS
						5							GROUNDWATER MONITORING WELL INSTALLED TO 6.0m. CLASS 18 MACHINE SLOTTED 50mm DIA. PVC STANDPIPE 3.0m TO 6.0m. CASING 0m TO 3.0m. 2mm SAND FILTER PACK 2.8m TO 6.0m. BENTONITE SEAL
						6			END OF BOREHOLE AT 6.0m				2.3m TO 2.8m. BACKFILLED WITH CUTTINGS TO THE SURFACE. COMPLETED WITH A CONCRETED GATIC COVER.
						7							

▼

AFTER 3 HRS

JKGeotechnics

BOREHOLE LOG



Borehole No.
5

1/1

SDUP2: 0-0.1m

Client:HEALTH INFRASTRUCTURE

Project:GEOTECHNICAL AND CONTAMINATION ASSESSMENT SERVICES

Location:MOUNT DRUITT HOSPITAL, MOUNT DRUITT, NSW

Job No.:37665LF

Date:14/7/25

Plant Type:JK500

Method:HAND AUGER / SPIRAL AUGER

Logged/Checked by:A.M./O.F.

R.L. Surface:64.35m

Datum:AHD

Groundwater Record	SAMPLES			Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
	ES	U50	DB									
DRY ON COMPLETION					0			FILL: Silty clay, high plasticity, brown, with fine to medium grained igneous gravel, trace of fine to medium grained sand.	w<PL			GRASS COVER SCREEN: 9.20kg (<10L) 0-0.2m, NO FCF APPEARS WELL COMPACTED HAND AUGER TO 0.5m (0.2m) INSUFFICIENT RETURN FOR BULK SCREEN
				N = 10 2,4,6	1		FILL: Silty clay, high plasticity, grey and brown, with fine to medium grained ironstone gravel, trace of ash.	w>PL				
				N = 14 4,6,8	2		as above, but red brown and brown.	w<PL				
				N = 16 6,10,6	3	CH Silty CLAY: high plasticity, red brown and grey, trace of fine to medium grained ironstone gravel.	w<PL	Hd	>600 >600 >600	RESIDUAL		
				N = 39 8,20,19	5	- Extremely Weathered siltstone: silty CLAY, high plasticity, light grey and red brown, with iron indurated bands.	XW	Hd	>600 >600 >600	BRINGELLY SHALE		
					6			END OF BOREHOLE AT 6.0m				2.3m TO 2.8m. BACKFILLED WITH CUTTINGS TO THE SURFACE. COMPLETED WITH A CONCRETED GATIC COVER.
					7							

▼

AFTER 3 HRS

ENVIRONMENTAL LOGS EXPLANATION NOTES

INTRODUCTION

These notes have been provided to amplify the environmental report in regard to classification methods, field procedures and certain matters relating to the logging of soil and rock. Not all notes are necessarily relevant to all reports.

Where geotechnical borehole logs are utilised for environmental purpose, reference should also be made to the explanatory notes included in the geotechnical report. Environmental logs are not suitable for geotechnical purposes.

The ground is a product of continuing natural and man-made processes and therefore exhibits a variety of characteristics and properties which vary from place to place and can change with time. Environmental studies include gathering and assimilating limited facts about these characteristics and properties in order to understand or predict the behaviour of the ground on a particular site under certain conditions. This report may contain such facts obtained by inspection, excavation, probing, sampling, testing or other means of investigation. If so, they are directly relevant only to the ground at the place where and time when the investigation was carried out.

DESCRIPTION AND CLASSIFICATION METHODS

The methods of description and classification of soils and rocks used in this report are based on Australian Standard 1726:2017 'Geotechnical Site Investigations'. In general, descriptions cover the following properties – soil or rock type, colour, structure, strength or density, and inclusions. Identification and classification of soil and rock involves judgement and the Company infers accuracy only to the extent that is common in current geoenvironmental practice.

Soil types are described according to the predominating particle size and behaviour as set out in the attached soil classification table qualified by the grading of other particles present (eg. sandy clay) as set out below:

Soil Classification	Particle Size
Clay	< 0.002mm
Silt	0.002 to 0.075mm
Sand	0.075 to 2.36mm
Gravel	2.36 to 63mm
Cobbles	63 to 200mm
Boulders	> 200mm

Non-cohesive soils are classified on the basis of relative density, generally from the results of Standard Penetration Test (SPT) as below:

Relative Density	SPT 'N' Value (blows/300mm)
Very loose (VL)	< 4
Loose (L)	4 to 10
Medium dense (MD)	10 to 30
Dense (D)	30 to 50
Very Dense (VD)	> 50

Cohesive soils are classified on the basis of strength (consistency) either by use of a hand penetrometer, vane shear, laboratory testing and/or tactile engineering examination. The strength terms are defined as follows.

Classification	Unconfined Compressive Strength (kPa)	Indicative Undrained Shear Strength (kPa)
Very Soft (VS)	≤ 25	≤ 12
Soft (S)	> 25 and ≤ 50	> 12 and ≤ 25
Firm (F)	> 50 and ≤ 100	> 25 and ≤ 50
Stiff (St)	> 100 and ≤ 200	> 50 and ≤ 100
Very Stiff (VSt)	> 200 and ≤ 400	> 100 and ≤ 200
Hard (Hd)	> 400	> 200
Friable (Fr)	Strength not attainable – soil crumbles	

Rock types are classified by their geological names, together with descriptive terms regarding weathering, strength, defects, etc. Where relevant, further information regarding rock classification is given in the text of the report. In the Sydney Basin, 'shale' is used to describe fissile mudstone, with a weakness parallel to bedding. Rocks with alternating inter-laminations of different grain size (eg. siltstone/claystone and siltstone/fine grained sandstone) are referred to as 'laminite'.

INVESTIGATION METHODS

The following is a brief summary of investigation methods currently adopted by the Company and some comments on their use and application. All methods except test pits, hand auger drilling and portable Dynamic Cone Penetrometers require the use of a mechanical rig which is commonly mounted on a truck chassis or track base.

Test Pits: These are normally excavated with a backhoe or a tracked excavator, allowing close examination of the insitu soils and 'weaker' bedrock if it is safe to descend into the pit. The depth of penetration is limited to about 3m for a backhoe and up to 6m for a large excavator. Limitations of test pits are the problems associated with disturbance and difficulty of reinstatement and the consequent effects on close-by structures. Care must be taken if construction is to be carried out near test pit locations to either properly recompact the backfill during construction or to design and construct the

structure so as not to be adversely affected by poorly compacted backfill at the test pit location.

Hand Auger Drilling: A borehole of 50mm to 100mm diameter is advanced by manually operated equipment. Refusal of the hand auger can occur on a variety of materials such as obstructions within any fill, tree roots, hard clay, gravel or ironstone, cobbles and boulders, and does not necessarily indicate rock level.

Continuous Spiral Flight Augers: The borehole is advanced using 75mm to 115mm diameter continuous spiral flight augers, which are withdrawn at intervals to allow sampling and insitu testing. This is a relatively economical means of drilling in clays and in sands above the water table. Samples are returned to the surface by the flights or may be collected after withdrawal of the auger flights, but they can be very disturbed and layers may become mixed. Information from the auger sampling (as distinct from specific sampling by SPTs or undisturbed samples) is of limited reliability due to mixing or softening of samples by groundwater, or uncertainties as to the original depth of the samples. Augering below the groundwater table is of even lesser reliability than augering above the water table.

Rock Augering: Use can be made of a Tungsten Carbide (TC) bit for auger drilling into rock to indicate rock quality and continuity by variation in drilling resistance and from examination of recovered rock cuttings. This method of investigation is quick and relatively inexpensive but provides only an indication of the likely rock strength and predicted values may be in error by a strength order. Where rock strengths may have a significant impact on construction feasibility or costs, then further investigation by means of cored boreholes may be warranted.

Wash Boring: The borehole is usually advanced by a rotary bit, with water being pumped down the drill rods and returned up the annulus, carrying the drill cuttings. Only major changes in stratification can be assessed from the cuttings, together with some information from "feel" and rate of penetration.

Mud Stabilised Drilling: Either Wash Boring or Continuous Core Drilling can use drilling mud as a circulating fluid to stabilise the borehole. The term 'mud' encompasses a range of products ranging from bentonite to polymers. The mud tends to mask the cuttings and reliable identification is only possible from intermittent intact sampling (eg. from SPT and U50 samples) or from rock coring, etc.

Continuous Core Drilling: A continuous core sample is obtained using a diamond tipped core barrel. Provided full core recovery is achieved (which is not always possible in very low strength rocks and granular soils), this technique provides a very reliable (but relatively expensive) method of investigation. In rocks, NMLC or HQ triple tube core barrels, which give a core of about 50mm and 61mm diameter, respectively, is usually used with water flush. The length of core recovered is compared to the length drilled and any length not recovered is shown as NO CORE. The location of NO CORE recovery is determined on site by the supervising engineer; where the location is uncertain, the loss is placed at the bottom of the drill run.

Standard Penetration Tests: Standard Penetration Tests (SPT) are used mainly in non-cohesive soils, but can also be used in cohesive soils, as a means of indicating density or strength and also of obtaining a relatively undisturbed sample. The test procedure is

described in Australian Standard 1289.6.3.1–2004 (R2016) '*Methods of Testing Soils for Engineering Purposes, Soil Strength and Consolidation Tests – Determination of the Penetration Resistance of a Soil – Standard Penetration Test (SPT)*'.

The test is carried out in a borehole by driving a 50mm diameter split sample tube with a tapered shoe, under the impact of a 63.5kg hammer with a free fall of 760mm. It is normal for the tube to be driven in three successive 150mm increments and the 'N' value is taken as the number of blows for the last 300mm. In dense sands, very hard clays or weak rock, the full 450mm penetration may not be practicable and the test is discontinued.

The test results are reported in the following form:

- In the case where full penetration is obtained with successive blow counts for each 150mm of, say, 4, 6 and 7 blows, as

N = 13
4, 6, 7

- In a case where the test is discontinued short of full penetration, say after 15 blows for the first 150mm and 30 blows for the next 40mm, as

N > 30
15, 30/40mm

The results of the test can be related empirically to the engineering properties of the soil.

A modification to the SPT is where the same driving system is used with a solid 60° tipped steel cone of the same diameter as the SPT hollow sampler. The solid cone can be continuously driven for some distance in soft clays or loose sands, or may be used where damage would otherwise occur to the SPT. The results of this Solid Cone Penetration Test (SCPT) are shown as 'N_c' on the borehole logs, together with the number of blows per 150mm penetration.

LOGS

The borehole or test pit logs presented herein are an interpretation of the subsurface conditions, and their reliability will depend to some extent on the frequency of sampling and the method of drilling or excavation. Ideally, continuous undisturbed sampling or core drilling will enable the most reliable assessment, but is not always practicable or possible to justify on economic grounds. In any case, the boreholes or test pits represent only a very small sample of the total subsurface conditions.

The terms and symbols used in preparation of the logs are defined in the following pages.

Interpretation of the information shown on the logs, and its application to design and construction, should therefore take into account the spacing of boreholes or test pits, the method of drilling or excavation, the frequency of sampling and testing and the possibility of other than 'straight line' variations between the boreholes or test pits. Subsurface conditions between boreholes or test pits may vary significantly from conditions encountered at the borehole or test pit locations.

GROUNDWATER

Where groundwater levels are measured in boreholes, there are several potential problems:

- Although groundwater may be present, in low permeability soils it may enter the hole slowly or perhaps not at all during the time it is left open.
- A localised perched water table may lead to an erroneous indication of the true water table.
- Water table levels will vary from time to time with seasons or recent weather changes and may not be the same at the time of construction.
- The use of water or mud as a drilling fluid will mask any groundwater inflow. Water has to be blown out of the hole and drilling mud must be washed out of the hole or 'reverted' chemically if reliable water observations are to be made.

More reliable measurements can be made by installing standpipes which are read after the groundwater level has stabilised at intervals ranging from several days to perhaps weeks for low permeability soils. Piezometers, sealed in a particular stratum, may be advisable in low permeability soils or where there may be interference from perched water tables or surface water.

FILL

The presence of fill materials can often be determined only by the inclusion of foreign objects (eg. bricks, steel, etc) or by distinctly unusual colour, texture or fabric. Identification of the extent of fill materials will also depend on investigation methods and frequency. Where natural soils similar to those at the site are used for fill, it may be difficult with limited testing and sampling to reliably assess the extent of the fill.

The presence of fill materials is usually regarded with caution as the possible variation in density and material type is much greater than with natural soil deposits. Consequently, there is an increased risk of adverse environmental characteristics or behaviour. If the volume and nature of fill is of importance to a project, then frequent test pit excavations are preferable to boreholes.

LABORATORY TESTING

Laboratory testing has not been undertaken to confirm the soil classification and rock strengths indicated on the environmental logs unless noted in the report.

APPENDIX G - SAGP

SYMBOL LEGENDS

SOIL



FILL



TOPSOIL



CLAY (CL, CI, CH)



SILT (ML, MH)



SAND (SP, SW)



GRAVEL (GP, GW)



SANDY CLAY (CL, CI, CH)



SILTY CLAY (CL, CI, CH)



CLAYEY SAND (SC)



SILTY SAND (SM)



GRAVELLY CLAY (CL, CI, CH)



CLAYEY GRAVEL (GC)



SANDY SILT (ML, MH)



PEAT AND HIGHLY ORGANIC SOILS (Pt)

ROCK



CONGLOMERATE



SANDSTONE



SHALE/MUDSTONE



SILTSTONE



CLAYSTONE



COAL



LAMINITE



LIMESTONE



PHYLLITE, SCHIST



TUFF



GRANITE, GABBRO



DOLERITE, DIORITE



BASALT, ANDESITE



QUARTZITE

OTHER MATERIALS



BRICKS OR PAVERS



CONCRETE



ASPHALTIC CONCRETE

CLASSIFICATION OF COARSE AND FINE GRAINED SOILS

Major Divisions		Group Symbol	Typical Names	Field Classification of Sand and Gravel	Laboratory Classification	
Coarse grained soil (more than 60% of soil excluding oversize fraction is greater than 0.075mm)	GRAVEL (more than half of coarse fraction is larger than 2.36mm)	GW	Gravel and gravel-sand mixtures, little or no fines	Wide range in grain size and substantial amounts of all intermediate sizes, not enough fines to bind coarse grains, no dry strength	≤ 5% fines	$C_u > 4$ $1 < C_c < 3$
		GP	Gravel and gravel-sand mixtures, little or no fines, uniform gravels	Predominantly one size or range of sizes with some intermediate sizes missing, not enough fines to bind coarse grains, no dry strength	≤ 5% fines	Fails to comply with above
		GM	Gravel-silt mixtures and gravel-sand-silt mixtures	'Dirty' materials with excess of non-plastic fines, zero to medium dry strength	≥ 12% fines, fines are silty	Fines behave as silt
		GC	Gravel-clay mixtures and gravel-sand-clay mixtures	'Dirty' materials with excess of plastic fines, medium to high dry strength	≥ 12% fines, fines are clayey	Fines behave as clay
	SAND (more than half of coarse fraction is smaller than 2.36mm)	SW	Sand and gravel-sand mixtures, little or no fines	Wide range in grain size and substantial amounts of all intermediate sizes, not enough fines to bind coarse grains, no dry strength	≤ 5% fines	$C_u > 6$ $1 < C_c < 3$
		SP	Sand and gravel-sand mixtures, little or no fines	Predominantly one size or range of sizes with some intermediate sizes missing, not enough fines to bind coarse grains, no dry strength	≤ 5% fines	Fails to comply with above
		SM	Sand-silt mixtures	'Dirty' materials with excess of non-plastic fines, zero to medium dry strength	≥ 12% fines, fines are silty	N/A
		SC	Sand-clay mixtures	'Dirty' materials with excess of plastic fines, medium to high dry strength	≥ 12% fines, fines are clayey	

Laboratory Classification Criteria

A well graded coarse grained soil is one for which the coefficient of uniformity $C_u > 4$ and the coefficient of curvature $1 < C_c < 3$. Otherwise, the soil is poorly graded. These coefficients are given by:

$$C_u = \frac{D_{60}}{D_{10}} \quad \text{and} \quad C_c = \frac{(D_{30})^2}{D_{10} D_{60}}$$

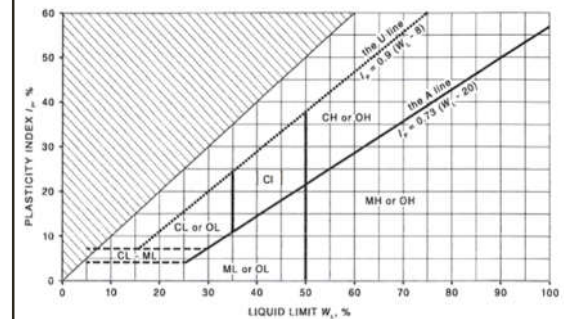
Where D_{10} , D_{30} and D_{60} are those grain sizes for which 10%, 30% and 60% of the soil grains, respectively, are smaller.

NOTES:

- For a coarse grained soil with a fines content between 5% and 12%, the soil is given a dual classification comprising the two group symbols separated by a dash; for example, for a poorly graded gravel with between 5% and 12% silt fines, the classification is GP-GM.
- Where the grading is determined from laboratory tests, it is defined by coefficients of curvature (C_c) and uniformity (C_u) derived from the particle size distribution curve.
- Clay soils with liquid limits $> 35\%$ and $\leq 50\%$ may be classified as being of medium plasticity.
- The U line on the Modified Casagrande Chart is an approximate upper bound for most natural soils.

Major Divisions		Group Symbol	Typical Names	Field Classification of Silt and Clay			Laboratory Classification
				Dry Strength	Dilatancy	Toughness	% < 0.075mm
fine grained soils (more than 35% of soil excluding oversize fraction is less than 0.075mm)	SILT and CLAY (low to medium plasticity)	ML	Inorganic silt and very fine sand, rock flour, silty or clayey fine sand or silt with low plasticity	None to low	Slow to rapid	Low	Below A line
		CL, CI	Inorganic clay of low to medium plasticity, gravelly clay, sandy clay	Medium to high	None to slow	Medium	Above A line
		OL	Organic silt	Low to medium	Slow	Low	Below A line
	SILT and CLAY (high plasticity)	MH	Inorganic silt	Low to medium	None to slow	Low to medium	Below A line
		CH	Inorganic clay of high plasticity	High to very high	None	High	Above A line
		OH	Organic clay of medium to high plasticity, organic silt	Medium to high	None to very slow	Low to medium	Below A line
	Highly organic soil	Pt	Peat, highly organic soil	–	–	–	–

Modified Casagrande Chart for Classifying Silts and Clays according to their Behaviour





LOG SYMBOLS

Log Column	Symbol	Definition		
Groundwater Record		Standing water level. Time delay following completion of drilling/excavation may be shown.		
		Extent of borehole/test pit collapse shortly after drilling/excavation.		
		Groundwater seepage into borehole or test pit noted during drilling or excavation.		
Samples	ES	Sample taken over depth indicated, for environmental analysis.		
	U50	Undisturbed 50mm diameter tube sample taken over depth indicated.		
	DB	Bulk disturbed sample taken over depth indicated.		
	DS	Small disturbed bag sample taken over depth indicated.		
	ASB	Soil sample taken over depth indicated, for asbestos analysis.		
	ASS	Soil sample taken over depth indicated, for acid sulfate soil analysis.		
	SAL	Soil sample taken over depth indicated, for salinity analysis.		
	PFAS	Soil sample taken over depth indicated, for analysis of Per- and Polyfluoroalkyl Substances.		
Field Tests	N = 17 4, 7, 10	Standard Penetration Test (SPT) performed between depths indicated by lines. Individual figures show blows per 150mm penetration. 'Refusal' refers to apparent hammer refusal within the corresponding 150mm depth increment.		
	N _c =	5	Solid Cone Penetration Test (SCPT) performed between depths indicated by lines. Individual figures show blows per 150mm penetration for 60° solid cone driven by SPT hammer. 'R' refers to apparent hammer refusal within the corresponding 150mm depth increment.	
		7		
		3R		
VNS = 25 PID = 100	Vane shear reading in kPa of undrained shear strength. Photoionisation detector reading in ppm (soil sample headspace test).			
Moisture Condition (Fine Grained Soils) (Coarse Grained Soils)	w > PL	Moisture content estimated to be greater than plastic limit.		
	w ≈ PL	Moisture content estimated to be approximately equal to plastic limit.		
	w < PL	Moisture content estimated to be less than plastic limit.		
	w ≈ LL	Moisture content estimated to be near liquid limit.		
	w > LL	Moisture content estimated to be wet of liquid limit.		
	D	DRY – runs freely through fingers.		
	M	MOIST – does not run freely but no free water visible on soil surface.		
	W	WET – free water visible on soil surface.		
Strength (Consistency) Cohesive Soils	VS	VERY SOFT – unconfined compressive strength ≤ 25kPa.		
	S	SOFT – unconfined compressive strength > 25kPa and ≤ 50kPa.		
	F	FIRM – unconfined compressive strength > 50kPa and ≤ 100kPa.		
	St	STIFF – unconfined compressive strength > 100kPa and ≤ 200kPa.		
	VSt	VERY STIFF – unconfined compressive strength > 200kPa and ≤ 400kPa.		
	Hd	HARD – unconfined compressive strength > 400kPa.		
	Fr	FRIABLE – strength not attainable, soil crumbles.		
	()	Bracketed symbol indicates estimated consistency based on tactile examination or other assessment.		
Density Index/ Relative Density (Cohesionless Soils)	VL	VERY LOOSE	Density Index (I _D) Range (%)	SPT 'N' Value Range (Blows/300mm)
	L	LOOSE	≤ 15	0 – 4
	MD	MEDIUM DENSE	> 15 and ≤ 35	4 – 10
	D	DENSE	> 35 and ≤ 65	10 – 30
	VD	VERY DENSE	> 65 and ≤ 85	30 – 50
			> 85	> 50
	()	Bracketed symbol indicates estimated density based on ease of drilling or other assessment.		



Log Column	Symbol	Definition
Hand Penetrometer Readings	300 250	Measures reading in kPa of unconfined compressive strength. Numbers indicate individual test results on representative undisturbed material unless noted otherwise.
Remarks	'V' bit 'TC' bit T_{60} Soil Origin	Hardened steel 'V' shaped bit. Twin pronged tungsten carbide bit. Penetration of auger string in mm under static load of rig applied by drill head hydraulics without rotation of augers. The geological origin of the soil can generally be described as: RESIDUAL – soil formed directly from insitu weathering of the underlying rock. No visible structure or fabric of the parent rock. EXTREMELY WEATHERED – soil formed directly from insitu weathering of the underlying rock. Material is of soil strength but retains the structure and/or fabric of the parent rock. ALLUVIAL – soil deposited by creeks and rivers. ESTUARINE – soil deposited in coastal estuaries, including sediments caused by inflowing creeks and rivers, and tidal currents. MARINE – soil deposited in a marine environment. AEOLIAN – soil carried and deposited by wind. COLLUVIAL – soil and rock debris transported downslope by gravity, with or without the assistance of flowing water. Colluvium is usually a thick deposit formed from a landslide. The description 'slopewash' is used for thinner surficial deposits. LITTORAL – beach deposited soil.

APPENDIX C

Classification of Material Weathering

Term		Abbreviation		Definition
Residual Soil		RS		Material is weathered to such an extent that it has soil properties. Mass structure and material texture and fabric of original rock are no longer visible, but the soil has not been significantly transported.
Extremely Weathered		XW		Material is weathered to such an extent that it has soil properties. Mass structure and material texture and fabric of original rock are still visible.
Highly Weathered	Distinctly Weathered (Note 1)	HW	DW	The whole of the rock material is discoloured, usually by iron staining or bleaching to the extent that the colour of the original rock is not recognisable. Rock strength is significantly changed by weathering. Some primary minerals have weathered to clay minerals. Porosity may be increased by leaching, or may be decreased due to deposition of weathering products in pores.
Moderately Weathered		MW		The whole of the rock material is discoloured, usually by iron staining or bleaching to the extent that the colour of the original rock is not recognisable, but shows little or no change of strength from fresh rock.
Slightly Weathered		SW		Rock is partially discoloured with staining or bleaching along joints but shows little or no change of strength from fresh rock.
Fresh		FR		Rock shows no sign of decomposition of individual minerals or colour changes.

NOTE 1: The term 'Distinctly Weathered' is used where it is not practicable to distinguish between 'Highly Weathered' and 'Moderately Weathered' rock. 'Distinctly Weathered' is defined as follows: 'Rock strength usually changed by weathering. The rock may be highly discoloured, usually by iron staining. Porosity may be increased by leaching, or may be decreased due to deposition of weathering products in pores'. There is some change in rock strength.

Rock Material Strength Classification

Term	Abbreviation	Uniaxial Compressive Strength (MPa)	Guide to Strength	
			Point Load Strength Index $Is_{(50)}$ (MPa)	Field Assessment
Very Low Strength	VL	0.6 to 2	0.03 to 0.1	Material crumbles under firm blows with sharp end of pick; can be peeled with knife; too hard to cut a triaxial sample by hand. Pieces up to 30mm thick can be broken by finger pressure.
Low Strength	L	2 to 6	0.1 to 0.3	Easily scored with a knife; indentations 1mm to 3mm show in the specimen with firm blows of the pick point; has dull sound under hammer. A piece of core 150mm long by 50mm diameter may be broken by hand. Sharp edges of core may be friable and break during handling.
Medium Strength	M	6 to 20	0.3 to 1	Scored with a knife; a piece of core 150mm long by 50mm diameter can be broken by hand with difficulty.
High Strength	H	20 to 60	1 to 3	A piece of core 150mm long by 50mm diameter cannot be broken by hand but can be broken by a pick with a single firm blow; rock rings under hammer.
Very High Strength	VH	60 to 200	3 to 10	Hand specimen breaks with pick after more than one blow; rock rings under hammer.
Extremely High Strength	EH	> 200	> 10	Specimen requires many blows with geological pick to break through intact material; rock rings under hammer.



Appendix C: Report Explanatory Notes

APPENDIX G - SAQP



QA/QC Definitions

The QA/QC terms used in this report are defined below. The definitions are in accordance with US EPA publication SW-846, entitled *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods* (1994)¹⁷ methods and those described in *Environmental Sampling and Analysis, A Practical Guide*, (1991)¹⁸. The NEPM (2013) is consistent with these documents.

A. Practical Quantitation Limit (PQL), Limit of Reporting (LOR) & Estimated Quantitation Limit (EQL)

These terms all refer to the concentration above which results can be expressed with a minimum 95% confidence level. The laboratory reporting limits are generally set at ten times the standard deviation for the Method Detection Limit for each specific analyte. For the purposes of this report the LOR, PQL, and EQL are considered to be equivalent.

When assessing laboratory data it should be borne in mind that values at or near the PQL have two important limitations: *"The uncertainty of the measurement value can approach, and even equal, the reported value. Secondly, confirmation of the analytes reported is virtually impossible unless identification uses highly selective methods. These issues diminish when reliably measurable amounts of analytes are present. Accordingly, legal and regulatory actions should be limited to data at or above the reliable detection limit"* (Keith, 1991).

B. Precision

The degree to which data generated from repeated measurements differ from one another due to random errors. Precision is measured using the standard deviation or Relative Percent Difference (RPD).

C. Accuracy

Accuracy is a measure of the agreement between an experimental result and the true value of the parameter being measured (i.e. the proximity of an averaged result to the true value, where all random errors have been statistically removed). The assessment of accuracy for an analysis can be achieved through the analysis of known reference materials or assessed by the analysis of surrogates, field blanks, trip spikes and matrix spikes. Accuracy is typically reported as percent recovery.

D. Representativeness

Representativeness expresses the degree to which sample data accurately and precisely represents a characteristic of a population, parameter variations at a sampling point, or an environmental condition. Representativeness is primarily dependent upon the design and implementation of the sampling program. Representativeness of the data is partially ensured by the avoidance of contamination, adherence to sample handling and analysis protocols and use of proper chain-of-custody and documentation procedures.

E. Completeness

Completeness is a measure of the number of valid measurements in a data set compared to the total number of measurements made and overall performance against DQIs. The following information is assessed for completeness:

- Chain-of-custody forms;
- Sample receipt form;
- All sample results reported;
- All blank data reported;

¹⁷ US EPA, (1994). *SW-846: Test Methods for Evaluating Solid Waste, Physical/Chemical Methods*. (US EPA SW-846)

¹⁸ Keith., H, (1991). *Environmental Sampling and Analysis, A Practical Guide*

- All laboratory duplicate and RPDs calculated;
- All surrogate spike data reported;
- All matrix spike and lab control spike (LCS) data reported and RPDs calculated;
- Spike recovery acceptable limits reported; and
- NATA stamp on reports.

F. Comparability

Comparability is the evaluation of the similarity of conditions (e.g. sample depth, sample homogeneity) under which separate sets of data are produced. Data comparability checks include a bias assessment that may arise from the following sources:

- Collection and analysis of samples by different personnel; Use of different techniques;
- Collection and analysis by the same personnel using the same methods but at different times; and
- Spatial and temporal changes (due to environmental dynamics).

G. Blanks

The purpose of laboratory and field blanks is to check for artefacts and interferences that may arise during sampling, transport and analysis.

H. Matrix Spikes

Samples are spiked with laboratory grade standards to detect interactive effects between the sample matrix and the analytes being measured. Matrix Spikes are reported as a percent recovery and are prepared for 1 in every 20 samples. Sample batches that contain less than 20 samples may be reported with a Matrix Spike from another batch. The percent recovery is calculated using the formula below. Acceptable recovery limits are 70% to 130%.

$$\frac{(\text{Spike Sample Result} - \text{Sample Result}) \times 100}{\text{Concentration of Spike Added}}$$

I. Surrogate Spikes

Samples are spiked with a known concentration of compounds that are chemically related to the analyte being investigated but unlikely to be detected in the environment. The purpose of the Surrogate Spikes is to check the accuracy of the analytical technique. Surrogate Spikes are reported as percent recovery.

J. Duplicates

Laboratory duplicates measure precision, expressed as Relative Percent Difference. Duplicates are prepared from a single field sample and analysed as two separate extraction procedures in the laboratory. The RPD is calculated using the formula where D1 is the sample concentration and D2 is the duplicate sample concentration:

$$\frac{(D1 - D2) \times 100}{\{(D1 + D2)/2\}}$$



Appendix D: Guidelines and Reference Documents

APPENDIX G - SAQP



Australian and New Zealand Environment Conservation Council (ANZECC), (2000). Australian and New Zealand Guidelines for Fresh and Marine Water Quality

Canadian Council of Ministers of the Environment, (1999). Canadian soil quality guidelines for the protection of environmental and human health: Benzo(a)Pyrene (1997)

CRC Care, (2011). Technical Report No. 10 – Health screening levels for hydrocarbons in soil and groundwater Part 1: Technical development document

Contaminated Land Management Act 1997 (NSW)

Department of Land and Water Conservation, (1997). 1:25,000 Acid Sulfate Soil Risk Map Series

Managing Land Contamination, Planning Guidelines SEPP55 – Remediation of Land (1998)

National Health and Medical Research Council (NHMRC), (2021). National Water Quality Management Strategy, Australian Drinking Water Guidelines 2011

NSW Department of Environment and Conservation, (2007). Guidelines for the Assessment and Management of Groundwater Contamination

NSW EPA, (2014). Waste Classification Guidelines - Part 1: Classifying Waste

NSW EPA, (2015). Guidelines on the Duty to Report Contamination under Section 60 of the CLM Act 1997

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

NSW EPA, (2020). Consultants Reporting on Contaminated Land, Contaminated Land Guidelines

NSW EPA, (2022). *Sampling design part 1 - application*, Contaminated Land Guidelines

National Environment Protection Council (NEPC), (2013). National Environmental Protection (Assessment of Site Contamination) Measure 1999 as amended (2013)

Olszowy, H., Torr, P., and Imray, P., (1995). Trace Element Concentrations in Soils from Rural and Urban Areas of Australia. Contaminated Sites Monograph Series No. 4. Department of Human Services and Health, Environment Protection Agency, and South Australian Health Commission

Protection of the Environment Operations Act 1997 (NSW)

State Environmental Planning Policy (Resilience and Hazards) 2021 (NSW)

World Health Organisation (WHO), (2008). Petroleum Products in Drinking-water, Background document for the development of WHO Guidelines for Drinking Water Quality

Western Australia Department of Health, (2021). Guidelines for the Assessment, Remediation and Management of Asbestos-Contaminated Sites in Western Australia



Groundwater Field Sheets

Client:	Health Infrastructure	Job No.:	E37664PT
Project:	Proposed Additional Beds Project	Well No.:	mw2
Location:	75 Railway Street, Mt Druitt, NSW	Depth (m):	5.7m

WELL FINISH DETAILS

	Gatic Cover ☒	Standpipe ☐	Other (describe) ☐
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WELL DEVELOPMENT DETAILS

Method:	Development Pump	SWL - Before (m):	2.63m
Date:	13/10/2025	Time - Before:	9.11am
Undertaken By:	VR	SWL - After (m):	
Total Vol. Removed:		Time - After:	
PID Reading (ppm):	0.0		

Comments:

DEVELOPMENT MEASUREMENTS

[illegible]

Comments: Odours (YES / **NO**), NAPL/PSH (YES / **NO**), Sheen (YES / **NO**), Steady State Achieved (**YES** / NO)

YSI Used:

VS14

Tested By:	VR	Remarks: - Steady state conditions - Difference in the pH less than 0.2 units, difference in the conductivity less than 10% and SWL stable/not in drawdown - Minimum 3 monitoring well volumes purged, unless well purged until it is effectively dry
Date Tested:	13/10/25	
Checked By:	KT	
Date:	24.10.25	

WELL FINISH DETAILS

WELL DEVELOPMENT DETAILS	
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Comments:

Comments: Odours (YES / NO) NAPL/PSH (YES / NO) Sheen (YES / NO) Steady State Achieved ~~YES~~ NO
YSI Used:

YSI 4

High Silt Load.

Tested By:	UR	Remarks: - Steady state conditions - Difference in the pH less than 0.2 units, difference in the conductivity less than 10% and SWL stable/not in drawdown - Minimum 3 monitoring well volumes purged, unless well purged until it is effectively dry
Date Tested:	13/10/25	
Checked By:	KT	
Date:	24.10.25	

WELL FINISHWELL PURGE DETAILS:

PURGING / SAMPLING MEASUREMENTS	
1	2
3	4
5	6
7	8
9	10
11	12
13	14
15	16
17	18
19	20
21	22
23	24
25	26
27	28
29	30
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59	60
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63	64
65	66
67	68
69	70
71	72
73	74
75	76
77	78
79	80
81	82
83	84
85	86
87	88
89	90
91	92
93	94
95	96
97	98
99	100

Comments: Odours (YES / NO), NAPL/PSH (YES / NO), Sheen (YES / NO), Steady State Achieved (YES / NO)
--

Sampling Containers Used: 2x glass amber, 2x BTEX vials, 2x HNO₃ plastic, 1x H₂SO₄ plastic, 1x unpreserved plastic, 2x PALS.

YSI used:

YSI 1

WDVP 2 - #3, 2x PFAS

Tested By: <u>VR</u>	Remarks: - Steady state conditions - difference in the pH less than 0.2 units, difference in conductivity less than 10% 10% and SWL stable/not in drawdown
Date Tested: <u>15/10/25</u>	
Checked By: KT	
Date: 24.10.25	

Client:	Health Infrastructure	Job No.:	E37644PT
Project:	Expansion Project	Well No.:	MW4
Location:	Mount Druitt Hospital, 75 Railway Street, Mount Druitt	Depth (m):	6m.

WELL FINISH

☒	Gatic Cover		Standpipe		Other (describe)
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WELL PURGE DETAILS:

Method:	Peristaltic Pump	SWL – Before:	3.68m
Date:	15/10/2025	Time – Before:	1.40pm
Undertaken By:	VRL	Total Vol Removed:	Approx. 7 Litres
Pump Program No:	low flow	PID (ppm):	0.0

PURGING / SAMPLING MEASUREMENTS	
1	2
3	4
5	6
7	8
9	10
11	12
13	14
15	16
17	18
19	20
21	22
23	24
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27	28
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67	68
69	70
71	72
73	74
75	76
77	78
79	80
81	82
83	84
85	86
87	88
89	90
91	92
93	94
95	96
97	98
99	100

[illegible]

Comments: Odours (YES / NO) NAPL/PSH (YES / NO), Sheen (YES / NO), Steady State Achieved (YES / NO)

Sampling Containers Used: 2x glass amber, 2x BTEX vials, 2x HNO₃ plastic, 0x H₂SO₄ plastic, 1x unpreserved plastic, 2x PFAS

YSI used:

4511

WDUPI - #3, 2x PTAS

Tested By: VR	Remarks: - Steady state conditions - difference in the pH less than 0.2 units, difference in conductivity less than 10% 10% and SWL stable/not in drawdown
Date Tested: 15/10/25	
Checked By: KT	
Date: 24.10.25	

re-calibrated the conductivity - high readings persisted

Tested By: VP	Remarks: - Steady state conditions - difference in the pH less than 0.2 units, difference in conductivity less than 10% 10% and SWL stable/not in drawdown
Date Tested: 15/10/25	
Checked By: KT	
Date: 24.10.25	



WATER QUALITY METER CALIBRATION FORM

Client: Health Infrastructure		
Project: Expansion Project		
Location: Mount Druitt Hospital, 75 Railway Street, Mount Druitt		
Job Number: E37644PT		
DISSOLVED OXYGEN		
Make: VSI 1	Model: ✓	
Date of calibration: 15/10/25	Name of Calibrator: VR	
Span value: 70% to 130%		
Measured value: 91.37		
Measured reading Acceptable (Yes/No):		
pH		
Make: VSI 1	Model: ✓	
Date of calibration: 15/10/25	Name of Calibrator: VR	
Buffer 1: Theoretical pH = 7.01 ± 0.01	Expiry date: 01/26	Lot No: DJ060325
Buffer 2: Theoretical pH = 4.01 ± 0.01	Expiry date: 03/26	Lot No: DU040225
Measured reading of Buffer 1: 7.02		
Measured reading of Buffer 2: 3.97		
Slope: NA	Measured reading Acceptable (Yes/No):	
EC		
Make: VSI 1	Model: ✓	
Date: 15/10/25	Name of Calibrator: VR	Temperature: 25 °C
Calibration solution: Rowe Scientific	Expiry date: 03/26	Lot No: CY211124
Theoretical conductivity at temperature (see solution container): 1410 µS/cm		
Measured conductivity: 1413 µS/cm	Measured reading Acceptable (Yes/No):	
REDOX		
Make: VSI 1	Model: ✓	
Date of calibration: 15/10/25	Name of Calibrator: VR	
Calibration solution: Hanna 240 ORP	Expiry date: 03/26	Lot No: 0675
Theoretical redox value: 240mV		
Measured redox reading: 242.1 mV	Measured reading Acceptable (Yes/No):	



PID FIELD CALIBRATION FORM

Client: Health Infrastructure			
Project: Expansion Project			
Location: Mount Druitt Hospital, 75 Railway Street, Mount Druitt			
Job Number: E37644PT			
PID			
Make: RAE Systems	Model: mini RAE	Unit: PID-2	Date of last factory calibration: 04/07/25
Date of calibration: 15/10/25		Name of Calibrator: W2	
Calibration gas: Iso-butylene		Calibration Gas Concentration: 100.0 ppm	
Measured reading: 99.8 ppm		Error in measured reading: ± ppm	
Measured reading Acceptable (Yes/No):			
PID			
Make:	Model:	Unit:	Date of last factory calibration:
Date of calibration:		Name of Calibrator:	
Calibration gas: Iso-butylene		Calibration Gas Concentration: 100.0 ppm	
Measured reading: ppm		Error in measured reading: ± ppm	
Measured reading Acceptable (Yes/No):			
PID			
Make:	Model:	Unit:	Date of last factory calibration:
Date of calibration:		Name of Calibrator:	
Calibration gas: Iso-butylene		Calibration Gas Concentration: 100.0 ppm	
Measured reading: ppm		Error in measured reading: ± ppm	
Measured reading Acceptable (Yes/No):			
PID			
Make:	Model:	Unit:	Date of last factory calibration:
Date of calibration:		Name of Calibrator:	
Calibration gas: Iso-butylene		Calibration Gas Concentration: 100.0 ppm	
Measured reading: ppm		Error in measured reading: ± ppm	
Measured reading Acceptable (Yes/No):			
PID			
Make:	Model:	Unit:	Date of last factory calibration:
Date of calibration:		Name of Calibrator:	
Calibration gas: Iso-butylene		Calibration Gas Concentration: 100.0 ppm	
Measured reading: ppm		Error in measured reading: ± ppm	
Measured reading Acceptable (Yes/No):			



Appendix H: Guidelines and Reference Documents



Australian and New Zealand Governments (ANZG), (2018). Australian and New Zealand Guidelines for Fresh and Marine Water Quality. Australian and New Zealand Governments and Australian state and territory governments, Canberra ACT, Australia

Canadian Council of Ministers of the Environment, (1999). Canadian soil quality guidelines for the protection of environmental and human health: Benzo(a)Pyrene (1997)

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National Health and Medical Research Council (NHMRC), (2021). National Water Quality Management Strategy, Australian Drinking Water Guidelines 2011

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