REPORT TO

NSW DEPARTMENT OF EDUCATION

ON

DETAILED SITE INVESTIGATION

FOR

LISMORE SOUTH PUBLIC SCHOOL – FLOOD RECOVERY REBUILD

AT

69-79 KYOGLE STREET, SOUTH LISMORE, NSW

Date: 5 June 2025
Ref: E36310PTrpt3Rev2-DSI

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Executive Summary

NSW Department of Education ('the client') commissioned JK Environments (JKE) to undertake a Detailed Site Investigation (DSI) for the Lismore South Public School (LSPS) – Flood Recovery Rebuild, at 69-79 Kyogle Street, South Lismore, NSW. For the purpose of the DSI, 'the site' includes the activity area only (i.e. the activity area defined in the Review of Environmental Factors [REF]). The purpose of the investigation is to make a detailed assessment of site contamination in order to establish whether site remediation is required to address contamination risks. 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 REF for the LSPS – Flood Recovery Rebuild, 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). The results of the geotechnical investigation are presented in a separate report (Project ref: 36310BT). This report should be read in conjunction with the JKG report.

A Sampling Analysis Quality Plan (SAQP) was prepared for this investigation (Ref: E36310PTrpt2-SAQP, dated 20 September 2024). The SAQP is attached in Appendix H. JKE has previously undertaken a Preliminary (Desktop) Site Investigation (PSI) at the site. A summary of this information and other relevant previous investigation information has been included in Section 3.

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

The DSI objectives were to:

- 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 site information, including background and site history information from various sources outlined in the report; 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 H; 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.

Soil sampling was undertaken from 12 boreholes, 13 test pits, and 10 surface samples, and groundwater sampling from one of three monitoring wells (it is noted only one monitoring well made water). The boreholes/test pits encountered fill materials to depths of approximately 0.2m below ground level (BGL) to 0.8mBGL, underlain by clayey and sandy alluvial soils. The fill typically comprised silty clay, silty sand, silty sandy gravel, sand, silty gravel, silty sandy clay, silty clayey sand, with inclusions of igneous and ironstone gravels, plastic fragments, metal fragments, brick fragments, glass fragments, ash, slag, wood chips, root fibres, and organic material. Fibre cement fragments (FCF)/asbestos containing material (ACM) were encountered in four fill profiles across the site. Two FCF were also encountered at the ground surface, however these were found not to contain asbestos and were therefore not ACM.

A selection of soil and groundwater samples were analysed for the CoPC identified in the CSM. Lead, carcinogenic polycyclic aromatic hydrocarbons (PAHs) and asbestos (as bonded ACM) were reported in fill above the health-based SAC and total recoverable hydrocarbon (TRH F3) in one fill sample was reported above the ecological SAC. Asbestos (as asbestos fines/fibrous asbestos) was also detected in fill soils at one location, although the concentration of asbestos was below the health-based SAC. Zinc was reported above the ecological SAC in groundwater.

Remediation of the site will be required and based on the current dataset we anticipate that remediation will be limited to addressing risks associated with the occurrence of bonded ACM in soil. Additional investigation and risk assessment are also required beneath the buildings/structures (and to increase the asbestos in soil sampling density if optimisation of the remedial strategy is required). However, we consider that it would be reasonable to include the requirements for further investigation within the Remediation Action Plan (RAP) as this work will need to occur after demolition.

Notwithstanding, we consider that the site can be made suitable for the activity via remediation. We recommend the following:

1. Prepare an interim Asbestos Management Plan (AMP) to manage potential risks from asbestos in/on soil until the activity occurs;
2. Preparation and implementation of a RAP. In addition to the remediation and validation of fill, the RAP is to include requirements for a post-demolition investigation(s) to adequately address the data gaps discussed in Section 10.3 of this report;
3. Should the post-demolition investigation identify additional contamination that requires remediation outlined in the RAP, an addendum RAP/Remedial work Plan (RWP) must be prepared and implemented;
4. Preparation and implementation of a construction-phase AMP;
5. Preparation of a validation assessment report for the remediation works undertaken at the site; and
6. The client’s expert planner should make an assessment of whether remediation at the site will be Category 1 or Category 2 as this could have implications for the planning/approvals processes for the works.

Preliminary waste classifications are discussed in Section 9. In JKE’s opinion, all fill will classify as ‘General Solid Waste (non-putrescible) containing Special Waste (asbestos)’. Confirmatory waste classification assessment is required.

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

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Attachments

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**
Cation Exchange Capacity	**CEC**
Covered Outdoor Learning Area	**COLA**
Combined Risk Value	**CRV**
Contaminated Land Management	**CLM**
Contaminant(s) of Potential Concern	**CoPC**
Chain of Custody	**COC**
Conceptual Site Model	**CSM**
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**
General Learning Space	**GLS**
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**
Remediation Action Plan	**RAP**
Review of Environmental Factors	**REF**
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**
Virgin Excavated Natural Material	**VENM**
Volatile Organic Compounds	**VOC**
Work Health and Safety	**WHS**

Units

Litres	**L**
Metres BGL	**mBGL**
Metres	**m**
Millilitres	**ml or mL**
Micrograms per Litre	**µg/L**
Milligrams per Kilogram	**mg/kg**
Milligrams per Litre	**mg/L**
Parts Per Million	**ppm**
Percentage	**%**
Percentage weight for weight	**%w/w**

1 CLIENT SUPPLIED INTRODUCTION

This DSI has been prepared to support a Review of Environmental Factors (REF) for the rebuild of Lismore South Public School (the activity). The purpose of the REF is to assess the potential environmental impacts of the activity prescribed by *State Environmental Planning Policy (Transport and Infrastructure) 2021* (T&I SEPP) as "development permitted without consent" on land carried out by or on behalf of a public authority under Part 5 of the *Environmental Planning and Assessment Act 1979* (EP&A Act). The activity is to be undertaken pursuant to Chapter 3, Part 3.4, Section 3.37 of the T&I SEPP.

The activity will be carried out at Lismore South Public School (LSPS) located 69-79 Kyogle Street, South Lismore (the site).

The purpose of this report is to make a detailed assessment of site contamination.

1.1 Client Provided Site Description

The site, located at 69-79 Kyogle Street, South Lismore, consists of two separate land parcels situated on either side of Wilson Street. The proposed activity will be undertaken on the eastern parcel, where most of the school's existing structures are located. The western parcel contains sports fields and temporary learning facilities. Figure 1 outlines the school's boundary, covering approximately 2.5 hectares. Due to flood damage, the existing buildings on the eastern parcel are currently unused, and students are temporarily using facilities on the sports field and oval, located on the western side of Wilson Street, adjacent to the primary school.

Figure 1 Aerial image of site (Source: Nearmap)

1.2 Proposed Activity Description

The proposed activity comprises the rebuild of the LSPS on the eastern parcel of the existing site, in South Lismore, and will be delivered in a single stage. The western parcel is out of the scope of the activity. Any works required on the western parcel (such as removal of demountable classrooms) will be subject to separate approval (if required).

A detailed description of the proposal is as follows:

1. Retention of the existing play equipment, Building K and covered outdoor learning area (COLA) on the western parcel.
2. Bulk earthworks, comprising fill and excavation and other site preparation works on the eastern parcel.
3. Construction of a new building on the eastern parcel for LSPS including:
    a. A one storey building (with undercroft areas below) fronting Kyogle Street containing a general learning space (GLS) hub, hall, library, support hub, administration, and pre-school.
    b. Undercroft outdoor learning areas as well as amenities and storage located on ground level.
4. Landscaping and public domain works, including tree planting, a games court in the northeast corner and an outdoor playing area adjacent to the preschool.
5. A car park on the eastern side of the site, with access from Kyogle Street.
6. Waste collection area access from Kyogle Street.
7. Multiple entrance points, including:
    a. Primary and secondary entries distributed on site frontages.
    b. Vehicular access point to provide access to waste collection/delivery areas and car parking.
8. Ancillary public domain mitigation measures.

Figure 2 below shows the scope of works. A selection of the supplied REF plans is attached in Appendix B.

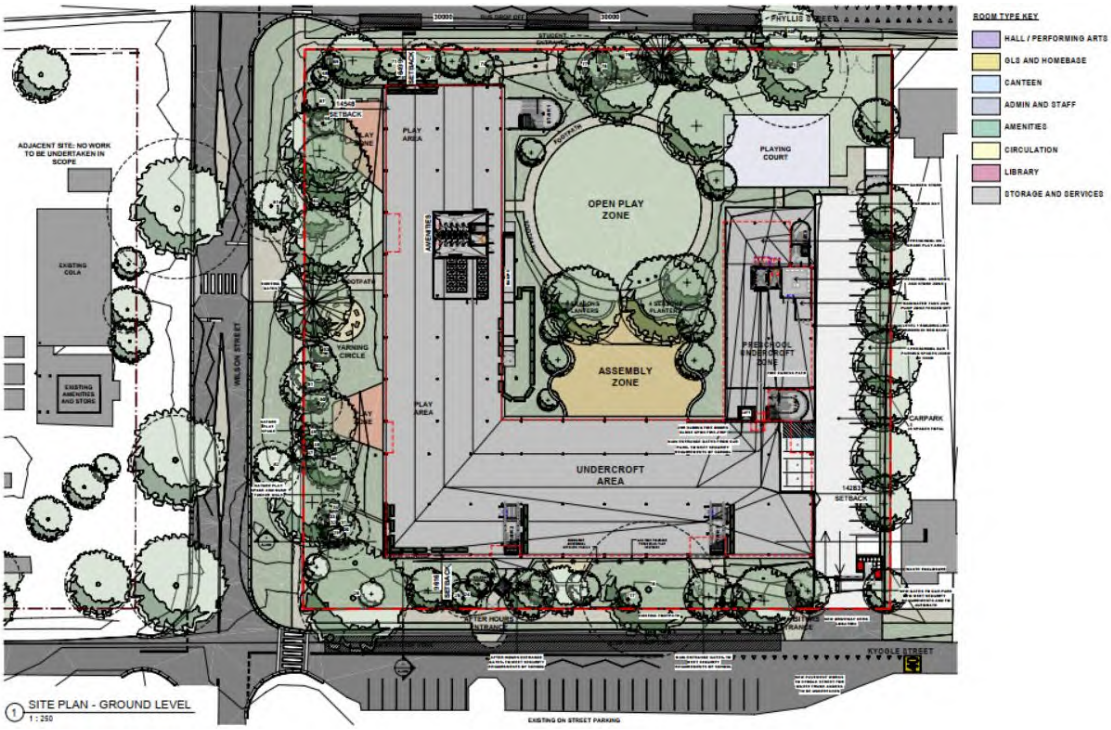

Figure 2 Proposed Site Plan (Source: EJE Architects)

2 DSI INTRODUCTION

NSW Department of Education ('the client') commissioned JK Environments (JKE) to undertake a DSI for the LSPS – Flood Recovery Rebuild, at 69-79 Kyogle Street, South Lismore, NSW. For the purpose of the DSI, 'the site' includes the activity area only (i.e. the activity area). The purpose of the investigation is to make a detailed assessment of site contamination in order to establish whether site remediation is required to address contamination risks. 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 REF for the LSPS – Flood Recovery Rebuild, with regards to Chapter 4 of State Environmental Planning Policy (Resilience and Hazards) 2021[1] (formerly known as SEPP55).

A geotechnical investigation was undertaken in conjunction with this DSI by JK Geotechnics (JKG). The results of the geotechnical investigation are presented in a separate report (Project ref: 36310BT). This report should be read in conjunction with the JKG report.

A Sampling Analysis Quality Plan (SAQP) was prepared for this investigation (Ref: E36310PTrpt2-SAQP, dated 20 September 2024)[2]. The SAQP is attached in Appendix H.

JKE has previously undertaken a Preliminary (Desktop) Site Investigation (PSI) at the site. A summary of this information and other relevant previous investigation information has been included in Section 3.

2.1 Aims and Objectives

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

The DSI objectives were to:

- 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.

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

[2] JKE, (2024). *Report to School Infrastructure New South Wales, on Sampling, Analysis and Quality Plan (SAQP) for Detailed Site Investigation for Lismore South Public School – Flood Recovery Rebuild at 69-79 Kyogle Street, South Lismore, NSW*. (Report ref: E36310PTrpt2-SAQP, dated 20 September 2024) (referred to as SAQP)

2.2 Scope of Work

The investigation was undertaken generally in accordance with a JKE proposal (Ref: 36310BTpropRev5_LSPS) of 17 June 2024 and written acceptance from the client. The scope of work included the following:

- Review of site information, including background and site history information from various sources outlined in the report;
- 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 H;
- 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)[3], other guidelines made under or with regards to the Contaminated Land Management Act (1997)[4] and SEPP Resilience and Hazards 2021. A list of reference documents/guidelines is included in the appendices.

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

[4] Contaminated Land Management Act 1997 (NSW) (referred to as CLM Act 1997)

3 SITE INFORMATION

3.1 Preliminary (Desktop) Site Investigation (PSI)

JKE previously undertook a PSI across the site and wider school property in December 2023[5]. The PSI included a review of historical information and other relevant information for the site, a limited site inspection (i.e. which occurred from outside the site boundary), and preparation of a preliminary CSM. It is acknowledged that at the time of the PSI, the area that was investigated included the site as defined in this DSI and also the western parcel of the wider school property which is on the western side of Wilson Street. The parts of the wider school property on the western side of Wilson Street do not form part of the site for the purpose of the DSI (see Figures 1, 2, 3 and 4 in Appendix A).

A timeline summary of the historical land uses and activities identified for the site is presented below in Table 2-1.

Table 3-1: Summary of Historical Land Uses / Activities

Year(s)	Potential Land Use / Activities
1901-1913	*On-site* • Agricultural (grazing) and rural residential. *Off-site* • Agricultural (grazing) and rural residential.
1913 to present	*On-site* • Agricultural (grazing), rural residential, commercial/industrial (potentially including motor mechanic at eastern end of site) and primary school; • Ongoing construction/demolition of structures; • Filling/earthworks for levelling purposes and installation of services; • Use of pesticides around site and beneath building; and • Use and impacts from hazardous building materials in former/existing structures. *Off-site* • Agricultural (i.e. grazing), rural residential, and commercial/ industrial (including fuel depots, cattle dips).

Potential contamination sources/AEC and CoPC were identified for the site, including: fill material; historical agricultural land use (grazing), historical motor mechanics workshop, use of pesticides, hazardous building materials (former and existing buildings), and off-site industrial/agricultural land uses (fuel depot and cattle dip).

A DSI was recommended (and is required) due to former land uses which are listed in Table 1 of the SEPP55 Planning Guidelines as activities that may cause contamination. A DSI investigation would establish whether the site is either suitable for its current state, or whether it needs to be remediated, with regards to Clause 4.6 of SEPP (Resilience and Hazards) 2021.

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[5] JKE, (2023). *Report to School Infrastructure New South Wales on Contamination - Preliminary (Desktop) Site Investigation for Due Diligence – Flood Recovery at Lismore South Public School, 69-79 Kyogle Street, South Lismore, NSW.* (Ref: E36310PTrpt, dated 18 December 2023) (referred to as PSI)

The PSI report recommended the following to better assess the risks associated with potential contamination at the site:

- A DSI to characterise the site contamination conditions and establish whether the site is suitable for the activity, or whether remediation is required. A SafeWork NSW search for historical dangerous goods licenses should also occur under the scope of the DSI;
- A SAQP should be prepared for the DSI. Soil sampling from test pits would be preferred, however, locations could be combined with the geotechnical investigation where practicable. Preliminary waste classification assessment should occur concurrently with this investigation if it is anticipated that soil waste will need to be disposed off-site during the activity works; and
- Where any buildings or structures are proposed to be demolished or refurbished, the project team must consider the need for updating the existing registers (and engage a suitably qualified consultant to do so where needed) prior to commencement of any works. An asbestos clearance certificate should be obtained following removal of any asbestos and/or hardstand.

The PSI also included a high-level review of the asbestos register, and it was indicated that asbestos containing material (ACM) is present within the site buildings/structures.

3.2 Site Identification

Table 3-2: Site Identification

Current Site Owner (certificate of title):	Department of Education (DoE) (formerly Minister for Education)
Site Address:	69-79 Kyogle Street, South Lismore, NSW
Lot & Deposited Plan:	Lots 21, 22, 23 & 26 Section 1 in DP448737, Lot 1 in DP64010, and Lots 1 & 2 in DP158407
Current Land Use:	Vacant – Primary School (kindergarten to year 6)
Proposed Land Use:	Primary school
Local Government Area:	Lismore City Council
Current Zoning:	R2 Low Density Residential
Site Area (m^2) (6pprox..):	10,660
RL (AHD in m) (6pprox..):	10
Geographical Location (decimal degrees) (6pprox..):	Latitude: -28.8093516 Longitude: 153.2591089
Site Plans:	Appendix A

3.3 Site Description

The site is located in a mixed use (residential/commercial) area of South Lismore and is bound by Kyogle Street to the south, Phyllis Street to the north, and Wilson Street to the west. The site is located approximately 525m to the south and 710m to the west of Wilsons River at its closest points.

The regional topography is characterised by level to gently undulating floodplains, generally flattening out towards the nearby rivers. The site is relatively flat, and fill is likely across the site to accommodate the existing development.

A walkover inspection of the site was undertaken by JKE on 27 September 2024 as part of the DSI. The findings of the inspection were generally similar to the previous inspection and have been summarised below:

- Numerous vacant buildings and structures of brick, timber and metal construction were observed. The buildings appeared to be between one and two storey construction, some with under-croft paved areas;
- The single storey building in the south-east corner of the site appeared to have formerly been utilised as a day care centre with external play areas;
- Parts of the site were paved, generally in the vicinity of the buildings and in the central and south-west of the site, with the northern extent and north-east corner comprising grass covered playground;
- The entire site was fenced with lockable vehicle and pedestrian gated access onto all street frontages. A paved carpark was located in the south of the site;
- During the inspection, two surficial fibre cement fragments (FCF1 and FCF6) were identified on the site surface. These were collected as samples and submitted for asbestos analysis, and were found not to contain asbestos. The results are discussed in Section 8;
- Evidence of flood impacts (excess leaves and silty water levels) were observed on the sides of the buildings as high up as the first storey windows (4-5m from ground level); and
- All vegetation inspected appeared to be in good condition with no obvious evidence of phyto-toxic stress or die back.

3.4 Surrounding Land Use

During the inspection, JKE observed the following land uses in the immediate surrounds:

- North – Phylis Street and residential properties;
- South – Kyogle Street with grass and weed covered verge, former Murwillumbah railway line, and commercial/industrial properties (warehousing, truck company, etc);
- East – Residential properties; and
- West – Wilson Street with the western portion of the wider school property beyond.

3.5 Underground Services

The 'Before You Dig Australia' (BYDA) plans were reviewed for the PSI/DSI in order to establish whether any major underground services exist at the site or in the immediate vicinity that could act as a preferential pathway for contamination migration. The BYDA plans indicated that a sewerage pipe extends through the lower eastern centre of the site from Lot 26 Section 1 in DP448737 extending out of the site in an east direction. Considering the geological conditions, there is a potential for the service trench to act as a preferential pathway for contamination migration (i.e. through relatively permeable backfill), should mobile contamination be present.

3.6 Local Meteorology

Key meteorological data for Lismore Airport weather station available on the Bureau of Meteorology (BOM)[6] website has been reviewed and JKE note the following:

- The highest mean rainfall occurs in March, with a total of 188.4mm;
- The lowest mean rainfall occurs in September, with a total of 50.4mm; and
- In the lead up to the JKE site inspection, on 27 September 2024, it was dry for two consecutive weeks (apart from 0.2mm of rainfall on 16 and 24 September 2024). On the day of the inspection, 53.4mm of rainfall was recorded.

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[6] http://www.bom.gov.au/climate/averages/tables/cw_066062.shtml visited on 2 October 2024

4 SUMMARY OF GEOLOGY AND HYDROGEOLOGY

4.1 Regional Geology

Regional geological information previously reviewed indicated that the site is underlain by Quaternary aged alluvial floodplain deposits, which typically consist of silt, very fine- to medium grained lithic to quartz-rich sand, and clay.

4.2 Soil Landscapes of Central and Eastern NSW

Soil Landscapes of Central and Eastern NSW information previously reviewed indicated that the site is located within the Leycester soil landscape, which are generally characterised by moderate erodibility with some higher local occurrences, and high dispersity.

4.3 Dryland Salinity – National Assessment

There was no dryland salinity national assessment data for the site.

4.4 Acid Sulfate Soil (ASS) Risk and Planning

ASS information previously reviewed for the site indicated that the site is not located in the ASS risk area.

4.5 Hydrogeology

Hydrogeological information presented in the PSI report 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 56 registered bores within the report buffer of 2,000m. In summary:

- The nearest registered bore was located approximately 70m from the site. This was registered for monitoring purposes;
- The majority of the bores were registered for monitoring purposes;
- One bore registered for irrigation was cross gradient and within 130m of the site. All other bores registered for irrigation, water supply and/or stock and domestic purposes were located over 700m from the site; and
- The drillers log information from the closest registered bores typically identified fill and/or clay soil to depths of 2.43m-29m, underlain by basalt or shale bedrock. Standing water levels (SWLs) in the bores ranged from 0.6m below ground level (BGL) to 8mBGL.

The information reviewed indicated that the subsurface conditions at the site are expected to consist of moderate to high permeability (alluvial) soils overlying bedrock. Abstraction and use of groundwater at the site or in the immediate surrounds may be visible under these conditions, however the use of groundwater is not proposed as part of the activity. There is a reticulated water supply in the area and consumption of groundwater is not expected to occur, although it cannot be ruled out given that some registered groundwater bores in the region are listed as water supply bores.

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

4.6 Water Bodies

The closest surface water body is Wilsons River located approximately 525m to the north and approximately 710m to the east of the site at its closest points. The areas nearer to the river appear to be at a similar elevation to the site and the river is considered to be a potential receptor given the regional topography.

5 REVIEW AND UPDATE OF 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.

5.1 Potential Contamination Sources/AEC and CoPC

The potential contamination sources/AEC and CoPC are presented in the following table:

Table 5-1: Potential (and/or known) Contamination Sources/AEC and Contaminants of Potential Concern

Source / AEC	CoPC
Fill material – 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. Site-won soils used during earthworks can also become contaminated with hazardous building materials from previous demolition works.	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.
Historical agricultural use – Part of the site the site may have been used for agricultural (grazing) purposes. This could have resulted in contamination across the site via application of pesticides and building/demolition of various structures.	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.
Historical motor mechanics workshop – The easternmost Lot within the site (see Figure 2 in Appendix A) may have been used as a mechanics. Fuels and oils may have been used during this site use.	Heavy metals, TRHs, BTEX, and PAHs.
Use of pesticides – Pesticides may have been used beneath the buildings and/or around the site	Heavy metals and OCPs.
Hazardous Building Material – Hazardous building materials may be present as a result of former building and demolition activities. The approximate areas where former buildings/structures existed and were demolished are indicated on Figure 2 in Appendix A. Asbestos is known to be present in the existing buildings/structures on site as discussed in Section 3.1. Site-won soils used during earthworks can also become contaminated with hazardous building materials from previous demolition works.	Asbestos, lead and PCBs

Source / AEC	CoPC
Off-site fuel depot – The site information reviewed indicated that a fuel depot was within approximately 60m of the site and is considered to be a potential source of contamination. Risks that could impact future development of the site would primarily be expected to relate to volatile contaminants in groundwater.	Heavy metals, TRHs, BTEX, and PAHs.
Off-site cattle dip – The information reviewed indicated that a cattle dip was located within approximately 290m of the site. Dependent on the groundwater flow direction, this may be a potential source of off-site contamination. However, we note that the former cattle dip is a reasonable distance from the site and is unlikely to represent a source of contamination for the site.	Heavy metals, TRHs, BTEX, and PAHs. Once the groundwater flow direction is understood, this AEC may be reassessed.

5.2 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 5-2: 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) is present, although this is considered to be the least likely mechanism for contamination. The mechanisms for contamination from off-site sources could have occurred via 'top down' impacts and spills, or sub-surface release. Impacts to the site could occur via the migration of contaminated groundwater.
Affected media	Soil and groundwater have been identified as potentially affected media.
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, groundwater users and recreational water users within Wilsons River. Ecological receptors include terrestrial organisms and plants within unpaved areas (including the proposed landscaped areas), and freshwater ecology in Wilsons River.
Potential exposure pathways	Dermal absorption, ingestion and inhalation of dust (all contaminants) and vapours (volatile TRH, naphthalene and BTEX). 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/direct 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. Potential exposure pathways to groundwater (for human receptors) would be via vapour intrusion, or potential primary/secondary contact with groundwater during construction or if groundwater migrates into the river which could be utilised for

	recreational purposes. Exposure to ecological receptors could also occur in this water body. Sporadic use of groundwater for drinking purposes may also occur in the region (as suggested by the registered water supply bores in the general vicinity), although it is noted there is a town water supply and there were no water supply bores in the immediate vicinity.
Potential exposure mechanisms	The following have been identified as potential exposure mechanisms for site contamination: • Vapour intrusion into proposed buildings (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; • Contact with groundwater during construction activities; • Migration of groundwater into nearby water bodies, including aquatic ecosystems and those being used for recreation; and • Potential consumption of groundwater, or primary/secondary contact during activities such as irrigation.
Presence of preferential pathways for contaminant movement	The sewer trench could act as a preferential pathway for contaminant migration. This could occur through fill soil and/or via groundwater/seepage. This would be dependent on the contaminant type and transport mechanisms.

6 SUMMARY SAMPLING, ANALYSIS AND QUALITY PLAN

JKE prepared a stand-alone SAQP for the DSI which is attached in Appendix H. The SAQP is 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 13 boreholes (BH1, BH2, BH7, BH9, BH11 to BH13, BH15, BH19 to BH21, BH23, and BH25) and 12 test pits (TP3 to TP6, TP8, TP10, TP14, TP16 to TP18, TP22, and TP24), generally spread across the site in accessible areas outside the building footprint, as shown in Figure 2 and Figure 3 in Appendix A;
- Surface soil samples were collected from 10 locations (SS26 to SS35) around the buildings and structures as shown on the attached Figure 2;
- Soil samples were obtained using a combination of hand tools (including a hand auger and shovel), drill rig equipped with spiral flight augers (150mm diameter), and a mechanical excavator fitted with a 300mm bucket attachment between 24 to 27 September 2024;
- Three monitoring wells were installed on 24 September 2024 in BH2 (MW2), BH11 (MW11) and BH23 (MW23) during the DSI, as shown in Figure 2 in Appendix A. The wells were generally positioned to provide site coverage;
- The monitoring well construction details are documented on the borehole logs for BH2, BH11, and BH23 attached in the appendices;
- The monitoring wells were dry on the day of development, 25 September 2024;
- The monitoring wells were allowed to recharge for 21 days after installation. Groundwater samples for the DSI were obtained on 15 October 2024 from MW2 only. Due to limited groundwater available in MW2, sampling was undertaken immediately and steady state conditions were not achieved;
- MW11 and MW23 were 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 surveyed using a GPS unit on 24 and 27 September 2024. This information is documented on the borehole logs and groundwater sampling field sheets attached in the appendices.

6.1 Deviations to the SAQP

The following deviations to the SAQP are noted:

- The intent was to, where practicable, position the sampling locations on a systematic plan with a grid spacing of approximately 21m between sampling locations. However, due to onsite obstructions including buildings/structures and buried services, a number of the sampling locations were off-set to the grid, resulting in a judgemental sampling plan with locations broadly positioned for site coverage in accessible areas. This sampling plan was considered suitable to make an assessment of potential risks associated with the AEC and CoPC identified in the CSM for ‘fill’, and assess whether further investigation/remediation is warranted. The additional surface sampling locations supplemented this data to consider the potential presence of pesticide applications to the soils beneath and around buildings;
- The fill was not penetrated in TP8, BH9, BH10, and BH20, due to limitations associated with the use of hand equipment and/or obstructions in fill;

- Asbestos bulk quantification/field screening was not undertaken for all fill profiles and the sample volumes for a limited number of samples was below 10L. The lack of sample or low volume was generally due to the use of augers which limited the sample return particularly in subsurface fill profiles; and
- Groundwater samples could not be obtained from the monitoring wells due to a lack of groundwater on the scheduled day of sampling, 28 September 2024. It is noted that during a return trip to the site on 15 October 2024 monitoring wells MW11 and MW23 remained dry and could not be sampled.

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

6.1.1 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 6-1: 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)	362946, 362946-A, 362946-B, 362946-C, and 364347
Inter-laboratory duplicates	Envirolab Services Pty Ltd VIC, NATA Accreditation Number – 2901 (ISO/IEC 17025 compliance)	MFJ0048

It is noted that report 362946 includes additional soil data relevant to the salinity assessment and report 364347 includes additional groundwater data relevant to the surface and groundwater impact assessment. These items have not been discussed in this DSI report and are to be reported under a separate cover.

7 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.

7.1 Soil

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

7.1.1 Human Health

- Health Investigation Levels (HILs) for a 'residential with accessible soils' exposure scenario (HIL-A);
- Health Screening Levels (HSLs) for a 'low-high density residential' exposure scenario (HSL-A & HSL-B). 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 against the HSL-A criteria. A summary of the asbestos criteria is provided in the table below:

Table 7-1: Details for Asbestos SAC

Guideline	Applicability
Asbestos in Soil	The HSL-A 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; • <0.01% 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): $$\textbf{\% w/w asbestos in soil} = \frac{\textbf{\% asbestos content x bonded ACM (kg)}}{\text{Soil volume (L) x soil density (kg/L)}}$$ 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): $$\textbf{\% w/w asbestos in soil} = \frac{\textbf{\% asbestos content x bonded ACM (g)}}{\text{Soil weight (g)}}$$

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[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)

7.1.2 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 Guidelines[9];
- ESLs were adopted based on the soil type;
- EILs for selected metals were generally 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]; and
- Site-specific soil parameters for pH and cation exchange capacity (CEC) were used for EILs for selected metals in TP14 (0.0-0.1m), BH25 (0.3-0.4m), and SS35 (0.0-0.1m). These data have been tabulated below for reference and were used to select the ACL values presented in Schedule B(1) of NEPM (2013) to sum with the published ABC presented in the document titled Trace Element Concentrations in Soils from Rural and Urban Areas of Australia (1995). This method is also considered to be adequate for the Tier 1 screening.

Table 7-2: Site Specific Soil Parameters

Location	Depth	Material type	pH	CEC
TP14	0.0-0.1	Fill: Silty sand	7.5	15
BH25	0.3-0.4	Fill: Gravelly clay	7.1	33
SS35	0.0-0.1	Fill: Silty clay	6.7	21

7.1.3 Management Limits for Petroleum Hydrocarbons

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

7.1.4 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 7-3: 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.

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[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
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.
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.

7.2 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 this investigation include aquatic ecosystems, human uses (incidental contact and recreational water use predominantly, but also potentially for drinking water supply), and human-health risks in non-use scenarios (vapour intrusion).

7.2.1 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 used to assess potential risks associated with consumption of groundwater; and
- The ADWG 2011 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, or with bore water used for irrigation, water supply and/or stock purposes. These have been deemed as 'recreational' SAC.

7.2.2 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)[14]. 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.

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[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] 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)

8 RESULTS

8.1 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.

8.2 SafeWork Search

The SafeWork NSW search was lodged in relation to dangerous goods licenses for the site. The search response is attached in Appendix B. The only licence pertained to an aboveground liquid petroleum gas (LPG) tank, which was noted to have been removed by the construction company when building the preschool in the south-east of the site.

8.3 Subsurface Conditions

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

Table 8-1: Summary of Subsurface Conditions

Profile	Description
Pavement	Asphaltic Concrete (AC) pavement was encountered at the surface in BH2 and BH15 and the bituminous surface was approximately 3mm in thickness.
Fill	Fill was encountered at the surface or beneath the pavement in all borehole/test pit locations and extended to depths of between approximately 0.2mBGL to 0.8mBGL. TP8, BH9, TP10, and BH20 were terminated in the fill at a maximum depth of approximately 0.8mBGL. The fill typically comprised silty clay, silty sand, silty sandy gravel, sand, silty gravel, silty sandy clay, silty clayey sand, with inclusions of igneous and ironstone gravels, plastic fragments, metal fragments, brick fragments, glass fragments, ash, slag, wood chips, root fibres, and organic material. No staining or odours were encountered in fill material during field work. FCF/ACM was encountered in the fill material in TP6 (0-0.1mBGL), TP8 (0-0.2mBGL), TP16 (0.3-0.5mBGL), and TP17 (0.2-0.4mBGL).
Natural Soil	With the exception of TP8, BH9, TP10, and BH20, natural silty clay, silty sand, silty gravel, sandy clay alluvial soils were encountered beneath the fill material in all locations, and extended to depths of between approximately 0.55mBGL to 6mBGL. Neither odours nor staining were recorded in the natural soil during fieldwork.
Groundwater	Groundwater seepage was not encountered in the boreholes/test pits during drilling/excavation. All boreholes/test pits remained dry on completion of drilling/excavation and a short time after.

8.4 Field Screening

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

Table 8-2: 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. The results ranged from 0.0ppm to 60.1ppm equivalent isobutylene. These results indicate that PID detectable VOCs were detected in some samples, however, we note that elevated PID results did not correlate with any staining or odours. Samples with elevated PID readings were analysed for TRH and BTEX.
Bulk Screening for Asbestos	The bulk field screening results are summarised in the attached report Table S5. ACM was encountered in TP6 (0-0.1m), TP8 (0-0.2m), TP16 (0.3-0.5m) and TP17 (0.2-0.4m). The ACM in all four locations was identified as FCF in the soil matrix. The calculated asbestos concentrations of 0.0651%w/w, 0.1168%w/w, 0.0187%w/w, and 0.0124%w/w respectively, were all greater than the HSL-A SAC of 0.01%w/w. All remaining results were below the SAC. FCF was not encountered in any other bulk field screening samples).
Groundwater Depth	Groundwater seepage was not encountered during drilling, and all three monitoring wells (MW2, MW11, and MW23) remained dry during and a short time after completion of drilling. The SWL in MW2 was recorded at 5.3m during sampling on 15 October 2024.
Groundwater Field Parameters	Groundwater was only encountered in MW2 and was limited in volume at the base of the well. No field measurements were taken in order to prioritise sampling volume. The PID readings in the monitoring well headspace recorded during sampling/attempted sampling ranged from 0ppm to 0.2ppm.
LNAPLs petroleum hydrocarbons	Phase separated product (i.e. LNAPL) was not detected using the interphase probe during groundwater sampling of MW2.

8.5 Soil Laboratory Results

The soil laboratory results were assessed against the SAC presented in Section 7.1. Individual SAC are shown in the report tables attached in the appendices. A summary of the results is presented below:

8.5.1 Human Health and Environmental (Ecological) Assessment

Table 8-3: Summary of Soil Laboratory Results – Human Health and Environmental (Ecological)

Analyte	N	Max. (mg/kg)	N> Human Health SAC	N> Ecological SAC	Comments
Arsenic	52	18	0	0	-
Cadmium	52	2	0	NSL	-
Chromium (total)	52	42	0	0	-

Analyte	N	Max. (mg/kg)	N> Human Health SAC	N> Ecological SAC	Comments
Copper	52	28	0	0	-
Lead	52	440	1	0	The lead concentration of 440mg/kg reported in BH25 (0.4-0.5m) exceeded the HIL-A SAC of 300mg/kg.
Mercury	52	0.1	0	NSL	-
Nickel	52	55	0	0	-
Zinc	52	280	0	0	-
Total PAHs	42	24	0	NSL	-
Benzo(a)pyrene	42	2.5	NSL	0	-
Carcinogenic PAHs (as BaP TEQ)	42	3.5	1	NSL	The carcinogenic PAH concentration of 3.5mg/kg reported in TP16 (0.4-0.5m) exceeded the HIL-A SAC of 3mg/kg.
Naphthalene	42	<1	0	NSL	-
DDT+DDE+DDD	34	NA	0	NSL	-
DDT	34	<0.1	NSL	0	-
Aldrin and dieldrin	34	<0.1	0	NSL	-
Chlordane	34	<0.1	0	NSL	-
Heptachlor	34	<0.1	0	NSL	-
Chlorpyrifos (OPP)	34	<0.1	0	NSL	-
PCBs	34	<0.1	0	NSL	-
TRH F1	42	<25	0	0	-
TRH F2	42	88	0	0	-
TRH F3	42	850	0	1	The TRH F3 concentration of 850mg/kg reported in TP4 (0.5-0.6m) exceeded the ecological SAC of 300mg/kg.
TRH F4	42	<100	0	0	-
Benzene	42	<0.2	0	0	-

Analyte	N	Max. (mg/kg)	N> Human Health SAC	N> Ecological SAC	Comments
Toluene	42	<0.5	0	0	-
Ethylbenzene	42	<1	0	0	-
Xylenes	42	<1	0	0	-
Asbestos (in soil) (%w/w)	26	<0.01%w/w ACM <0.001%w/w AF/FA	0	NA	All results were below the PQL. Asbestos was detected in TP6 (0-0.1m) at a concentration that was less than the PQL.
Asbestos in fibre cement	6	Asbestos detected	-	NSL	Asbestos was detected in samples FCF2 (TP8 0-0.2m), FCF3 (TP6 0-0.1m), FCF4 (TP16 0.4-0.5), and FCF5 (TP17 0.2-0.4m). FCF1 and FCF6 identified at the ground surface during the walkover inspection were found not to contain asbestos.

Notes:

N: Total number (primary samples)

NSL: No set limit

NL: Not limiting

8.5.2 Waste Classification Assessment

The laboratory results were assessed against the criteria presented in Section 7.1.4. The results are presented in the report tables attached in the appendices. A summary of the results is presented in the following table:

Table 8-4: Summary of Soil Laboratory Results Compared to CT and SCC Criteria

Analyte	N	N > CT Criteria	N > SCC Criteria	Comments
Arsenic	52	0	0	-
Cadmium	52	0	0	-
Chromium	52	0	0	-
Copper	52	NSL	NSL	-
Lead	52	1	0	The lead concentration in one fill sample collected from BH25 (0.4-0.5m) exceeded the CT1 criterion. The lead concentration was 440mg/kg.
Mercury	52	0	0	-

Analyte	N	N > CT Criteria	N > SCC Criteria	Comments
Nickel	52	1	0	The nickel concentration in one fill sample collected from BH25 (0.3-0.4m) exceeded the CT1 criterion. The nickel concentration was 55mg/kg.
Zinc	52	NSL	NSL	-
TRH (C_6-C_9)	42	0	0	-
TRH (C_{10}-C_{36})	42	0	0	-
BTEX	8	0	0	-
Total PAHs	42	0	0	-
Benzo(a)pyrene	42	0	0	Benzo(a)pyrene concentrations exceeded the CT1 criterion in four fill samples collected from TP10 (0-0.1m), TP10 (0.4-0.5m), TP16 (0.4-0.5m) and TP17 (0.3-0.4m). The maximum benzo(a)pyrene concentration was 2.5mg/kg.
OCPs & OPPs	34	0	0	-
PCBs	34	0	0	-
Asbestos in fill/soil	26	-	-	Asbestos was detected in one fill sample collected from TP6 (0-0.1m).
Asbestos (material)	6	NSL	NSL	Asbestos was detected in four material samples including FCF2 (TP8 0-0.2m), FCF3 (TP6 0-0.1m), FCF4 (TP16 0.4-0.5), and FCF5 (TP17 0.2-0.4m).

N: Total number (primary samples)

NSL: No set limit

Table 8-5: Summary of Soil Laboratory Results Compared to TCLP Criteria

Analyte	N	N > TCLP Criteria	Comments
Lead	1	0	-
Nickel	1	0	-
Benzo(a)pyrene	4	0	-

N: Total number (primary samples)

8.5.3 Statistical Analysis

It is noted that the sampling plan was non-probabilistic, however, we have undertaken 95% upper confidence limit (UCL) calculations using the available carcinogenic PAH, lead, nickel and benzo(a)pyrene data, and have undertaken combined risk value (CRV) calculations on the carcinogenic PAH and lead fill soil data (as there were exceedances of the HIL-A SAC for these CoPC) from all locations. The statistical analysis is preliminary and has been used as a line of evidence in assessing risks as part of the Tier 1 risk assessment process for carcinogenic PAHs. The UCL and CRV for carcinogenic PAHs have been considered in the context of human receptors and health-based risk.

The UCLs for lead, nickel and benzo(a)pyrene have been considered in the context of the preliminary waste classification assessment as lead, nickel and benzo(a)pyrene were encountered at concentrations that exceeded the CT1 criteria.

A summary of these calculations is presented below:

8.5.3.1 UCL calculations

Statistical calculations undertaken on the results using ProUCL (Version 5.1) are shown on Tables S1 and S7 attached in the appendices. In summary:

Table 8-6: Summary of 95% UCL calculations

Analyte	N ^	Standard Deviation (mg/kg)	95% UCL (mg/kg)	Comment
Carcinogenic PAHs	38	0.571	0.872	Both the UCL and the standard deviation were less than 50% of the HIL-A SAC.
Lead	48	61.91	63.14	Both the UCL and the standard deviation were less than 50% of the HIL-A SAC. The UCL was less than the CT1 criterion.
Nickel	48	8.92	14.62	The UCL was less than the CT1 criterion.
Benzo(a)pyrene	38	0.494	0.65	The UCL was less than the CT1 criterion.

Notes:

N^: Total number of samples, using the sample with the highest concentration where duplicates exist

8.5.3.2 Combined Risk Value Method (CRV)

A CRV calculation was undertaken for the carcinogenic PAH fill soil data with reference to Section 7.2 of the NSW EPA Sampling Design Part 1 – Application (2022)[15], Contaminated Land Guidelines. The CRV method is used to assess the minimum number of samples required to have an acceptable level of certainty around making Type I or Type II decision errors in determining whether or not a site is or is not contaminated (i.e. whether the power of the statistical tests is sufficient). As the sampling plan was non-probabilistic and there are data gaps associated with the existing buildings/structures etc, these statistical tests are preliminary in nature and have been used as a line of evidence in the Tier 1 risk assessment, rather than in the assessment of decision errors.

The number of samples (n) required for carcinogenic PAH and lead, calculated using the CRV method, was 0.3. As the number of samples (n) is less than the number of samples analysed, this suggests (also considering

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

the associated UCLs) that the site is not contaminated with carcinogenic PAHs and/or lead to the extent that there would be an unacceptable risk to human receptors, i.e. there is sufficient power and reliability in the UCL to reject the null hypothesis (H_0) if the sampling plan was complete and probabilistic data was obtained in line with the current dataset. This is discussed further in the Tier 1 risk assessment.

8.6 Groundwater Laboratory Results

The groundwater laboratory results were assessed against the SAC presented in Section 7.2. Individual SAC are shown in the report tables attached in the appendices. A summary of the results is presented below:

Table 8-7: Summary of Groundwater Laboratory Results – Human Health and Environmental (Ecological)

Analyte	N ^	Max. (µg/L)	N> Human Health SAC	N> Ecological SAC	Comments
Arsenic	1	<1	0	0	-
Cadmium	1	<0.1	0	0	-
Chromium (total)	1	<1	0	0	-
Copper	1	<1	0	0	-
Lead	1	<1	0	0	-
Mercury	1	<0.05	0	0	-
Nickel	1	9	0	0	-
Zinc	1	72	0	1	The zinc concentration of 72µg/L reported in MW2 exceeded the freshwater ecological SAC of 8µg/L.
Total PAHs	1	<0.1	0	0	-
Benzo(a)pyrene	1	<0.1	0	0	-
Naphthalene	1	<0.1	0	0	-
TRH F1	1	<10	0	NSL	-
TRH F2	1	<50	0	NSL	-
TRH F3	1	<100	NSL	NSL	-
TRH F4	1	<100	NSL	NSL	-
Benzene	1	<1	0	0	-
Toluene	1	<1	0	0	-
Ethylbenzene	1	<1	0	0	-

Analyte	N ^	Max. (µg/L)	N> Human Health SAC	N> Ecological SAC	Comments
m+p-Xylene	1	<2	0	0	-
o-Xylene	1	<1	0	0	-
Total Xylenes	1	<1	0	NSL	-
pH	1	7.3	0	0	-
EC	1	4,600	NSL	NSL	-

Notes:

^: Primary samples

N: Total number

NSL: No set limit

NL: Not limiting

9 WASTE CLASSIFICATION ASSESSMENT

9.1 Preliminary Waste Classification of Fill

Based on the results of the waste classification assessment, and at the time of reporting, the fill material is given a preliminary classification of **General Solid Waste (non-putrescible) containing Special Waste (asbestos)**. The waste classification must be confirmed prior to the off-site disposal of any waste.

9.2 Preliminary Classification of Natural Soil

Based on the scope of work undertaken for this assessment, and at the time of reporting, it is likely that the natural soil at the site meets the definition of **VENM** for off-site disposal or re-use purposes. However, due to the presence of manmade contaminants in the overlying fill (e.g. asbestos, lead, PAHs and TRH), the VENM classification may be compromised in some areas of the site. Notwithstanding, the VENM classification in these areas could potentially be confirmed following removal of the overlying fill.

10 DISCUSSION

10.1 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.

10.1.1 Soil

10.1.1.1 Health-Based Risk

Lead was detected at a concentration that exceeded the health-based SAC in fill/soils in one location and carcinogenic PAHs (PAHs) were also detected at a concentration that exceeded the health-based SAC in fill/soils in one location (see Figure 3). The source of the lead and PAHs is considered likely to be associated with imported fill material containing trace amounts of ash, slag and other anthropogenic inclusions. We note that the lead was encountered in a secondary fill profile in TP25 and the PAHs were encountered in a secondary fill profile in TP16, and therefore there is not considered to be a complete SPR linkage in the current site configuration. The lead concentration reported in the underlying natural soil was well below the SAC in BH25 and PAHs were not detected in the underlying natural soil in TP16. Statistical calculations were run on the entire fill soil dataset for lead and PAHs. The 95% UCL for lead and for PAHs in the fill soil were below the SAC.

Based on the above and considering multiple lines of evidence, potential risks associated with lead and PAHs in fill soils are considered to be low in the context of the current and future land use.

Asbestos as bonded ACM, was detected in fill soils above the health-based SAC in several locations (refer to Figure 3). Although not above the SAC, asbestos as AF/FA (as fibrous matted material) was detected in fill soils in one location (see Figure 3). It is likely in our opinion that the occurrence of trace AF/FA was associated with co-located bonded asbestos (i.e. ACM) in this fill profile. The source of the asbestos in fill at the site is considered likely to be associated with historical demolition activities, or imported fill material which was encountered to varying depths across the site.

Given asbestos/ACM was not visible on the site surface, a majority of the fill soils at the site were grass-covered or covered by hardstand, and the site is vacant/disused, it is our opinion that asbestos in fill soils poses a relatively low risk in the current site configuration and whilst the fill soils are not disturbed as there is a low potential for airborne asbestos fibres to be generated. Notwithstanding, as a duty of care, and to meet the requirements under Clause 429 of the Work Health and Safety Regulation (2017), an Asbestos Management Plan (AMP) (for asbestos in/on soil) must be prepared and implemented to manage the site until the activity occurs. Clause 429 will also apply in the context of the proposed construction works and will therefore need to be addressed by the contractors.

Based on various lines of evidence, asbestos in fill/soil is considered likely to be a widespread issue at the site and all fill/soil should be treated as asbestos containing unless/until demonstrated otherwise. We note that sampling was generally not undertaken beneath the existing buildings/structures due to access limitations. Further investigation will be required to assess the potential impact of asbestos in/on fill at the site following demolition of the buildings/structures and for waste classification purposes. This can be addressed via provisions in the Remediation Action Plan (RAP).

10.1.1.2 Ecological Risk

TRH F3 was detected at a concentration that exceeded the ecological SAC in fill in one location at the site (refer to Figure 3). The TRH F3 chromatograph was reviewed and indicated the concentration most closely resembled either a heavy oil or grease. There was no hydrocarbon odour or staining recorded during sampling of the soils in TP4.

Based on the existing condition of the vegetation (in proximity to TP4) and the fact that the site is situated in an urban setting and is not located in an ecological sensitive area, the potential ecological risks associated with the identified occurrence of TRH are considered to be low. The localised nature of this impact also contributes to our assessment of low ecological risk. This is to be further assessed in the remediation plan when the final activity details and all cut/fill earthworks are known.

10.1.1.3 Other CoPC

Elevated concentrations of the remaining CoPC were below the adopted SAC in the soil samples analysed during the DSI.

10.1.2 Groundwater

The groundwater samples encountered a concentration of zinc above the ecological SAC which is applicable to freshwater ecological receptors. The source of this heavy metal in the groundwater is considered likely to be a regional issue as elevated heavy metal concentrations associated with leaking water infrastructure and surface water runoff are typically encountered in urban groundwater (particularly zinc).

Although groundwater was not encountered in two of the three wells, the DSI demonstrated that the occurrence of groundwater under the current climatic conditions was around 6mBGL or greater. Groundwater levels are expected to fluctuate during wet or dry periods however, we did not observe any hydrocarbon type odours in the deep soils during the monitoring well installation process and we consider it highly unlikely that unacceptable risks associated with groundwater would exist in the activity scenario considering the site conditions.

10.1.2.1 Other CoPC

Elevated concentrations of the other CoPC were not encountered above the adopted SAC in the groundwater samples analysed and therefore unacceptable risks to the receptors have not been identified to date.

10.2 Decision Statements

The decision statements are addressed below:

Are any results above the SAC?

Yes. Reference should be made to Section 10.1.

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

Yes, there are potential health risks associated with asbestos in fill soil. Risks relate to future soil disturbance and the potential mobilisation of asbestos fibres from ACM in soil to air.

Is remediation required?

Yes, remediation of the site is required to address the identified asbestos contamination in fill. It is expected that remediation could include the removal/off-site disposal of contaminated soil and/or cap and containment of contaminated soil on site. Any contaminated soil remaining on-site would be managed under a long-term Environmental Management Plan (EMP). In our opinion the scope of remediation will not need to extend to groundwater in the context of rendering the site suitable for the activity.

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 can be made suitable for the activity outlined in Section 1.2, subject to preparation of a RAP, remediation and validation.

What is the preliminary waste classification of the fill soils?

Refer to Section 9.

10.3 Review of CSM and Data Gaps

An assessment of data gaps is provided in the following table:

Table 10-1: Data Gap Assessment

Data Gap	Assessment
Fill material	Fill ranging in depth between approximately 0.2mBGL and 0.8mBGL was encountered across the site. The fill contained anthropogenic inclusions such as plastic, metal, brick, glass, and ACM. Due to access constraints, probabilistic/grid-based sampling was not practicable on this site. It is also noted that some sampling occurred from boreholes which poses limitation for identifying asbestos in fill, and sampling was not undertaken beneath the buildings and hardstand. Further investigation of the fill will be required following demolition of the buildings/structures and when access becomes available to assess the full extent of

Data Gap	Assessment
	risks associated with this AEC. However, in our opinion, we consider it is likely that the fill conditions beneath the buildings will be broadly consistent with those encountered in the DSI boreholes/test pits. It is recommended that additional sampling is undertaken via test pits if practicable. In our opinion, this work can be incorporated into the requirements under the RAP and this data gap does not alter our recommendations. A higher density of fill sampling is required for asbestos characterisation unless remediation proceeds on the assumption that all fill is contaminated with asbestos. Such sampling could occur under the provisions of the RAP, post-demolition.
Historical agricultural 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.
Historical motor mechanics workshop	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 prior to demolition.
Hazardous building material	The existing HAZMAT confirms ACM is present in some of the existing site buildings/structures. Identification of asbestos (as ACM) in fill soils in four locations and anthropogenic inclusions in fill soils across the site were indicative of former demolition / construction activities (i.e. plastic, metal, brick, and glass). Further investigation of the fill will be required to assess the extent of asbestos for remediation purposes.
Off-site fuel depot	Groundwater sampling was limited to one well, with the position of that well on the western side of the site in the inferred intermediate section of the site. In the context of vapour risk, we note that the groundwater is deep, no abstraction of groundwater is proposed and the activity includes subfloors/raised structures with an undercroft area. Therefore, risks to the activity from this AEC are considered to be low. Review of this AEC should be undertaken if there are any design changes made to the activity.
Off-site cattle dip	Groundwater sampling was limited to one well, with the position of that well on the western side of the site in the inferred intermediate section of the site. In the context of contact with the groundwater, we note that the groundwater is deep, no abstraction of groundwater is proposed and we do not expect that any prolonged contact during construction or dewatering will occur in the context of the activity. Therefore, risks to the activity from this AEC are considered to be low. Review of this AEC should be undertaken if there are any design changes made to the activity.

11 CONCLUSIONS AND RECOMMENDATIONS

The DSI included a review of existing project information, a site inspection, soil sampling from 12 boreholes, 13 test pits, and 10 surface samples, and groundwater sampling from one of three monitoring wells (it is noted only one monitoring well made water).

The boreholes/test pits encountered fill materials to depths of approximately 0.2mBGL to 0.8mBGL, underlain by clayey and sandy alluvial soils. The fill typically comprised silty clay, silty sand, silty sandy gravel, sand, silty gravel, silty sandy clay, silty clayey sand, with inclusions of igneous and ironstone gravels, plastic fragments, metal fragments, brick fragments, glass fragments, ash, slag, wood chips, root fibres, and organic material. FCF/ACM were encountered in four fill profiles across the site. Two FCF were also encountered at the ground surface, however these were found not to contain asbestos and were therefore not ACM.

A selection of soil and groundwater samples were analysed for the CoPC identified in the CSM. Lead, carcinogenic PAHs and asbestos (as ACM) were reported in fill above the health-based SAC and TRH F3 in one fill sample was reported above the ecological SAC. Asbestos (as AF/FA) was also detected in fill soils at one location, although the concentration of asbestos was below the health-based SAC. Zinc was reported above the ecological SAC in groundwater.

Remediation of the site will be required and based on the current dataset we anticipate that remediation will be limited to addressing risks associated with the occurrence of bonded ACM in soil. Additional investigation and risk assessment are also required beneath the buildings/structures (and to increase the asbestos in soil sampling density if optimisation of the remedial strategy is required). However, we consider that it would be reasonable to include the requirements for further investigation within the RAP as this work will need to occur after demolition.

Notwithstanding, we consider that the site can be made suitable for the activity via remediation. We recommend the following:

1. Prepare an interim AMP to manage potential risks from asbestos in/on soil until the activity occurs;
2. Preparation and implementation of a RAP. In addition to the remediation and validation of fill, the RAP is to include requirements for a post-demolition investigation(s) to adequately address the data gaps discussed in Section 10.3 of this report;
3. Should the post-demolition investigation identify additional contamination that requires remediation outlined in the RAP, an addendum RAP/Remedial work Plan (RWP) must be prepared and implemented;
4. Preparation and implementation of a construction-phase AMP;
5. Preparation of a validation assessment report for the remediation works undertaken at the site; and
6. The client’s expert planner should make an assessment of whether remediation at the site will be Category 1 or Category 2 as this could have implications for the planning/approvals processes for the works.

Preliminary waste classifications are discussed in Section 9. In JKE’s opinion, all fill will classify as ‘General Solid Waste (non-putrescible) containing Special Waste (asbestos)’. Confirmatory waste classification assessment is required.

The requirement to report site contamination to the NSW EPA under the NSW EPA Guidelines on the Duty to Report Contamination under Section 60 of the CLM Act 1997 (2015)[16] must be assessed by a suitably qualified consultant as part of the additional investigation and site validation process.

JKE consider that the report objectives outlined in Section 2.1 have been addressed.

11.1 Mitigation Measures – REF Requirement

JKE was requested by the client to include a table to support the contamination-related risk mitigation measures to be included in the REF. Mitigation measures to avoid, minimise, rectify and/or reduce or eliminate over time the adverse environmental impacts identified in the DSI are outlined in the table below:

Table 11-1: Mitigation Measures Relating to DSI Findings

Mitigation Number / Name	Aspect / Section	Mitigation Measure	Reason for Mitigation Measure
Interim AMP	As soon as reasonably practicable	Preparation of an interim AMP	As a duty of care, and to meet the requirements under Clause 429 of the WHS Regulation, an AMP (for asbestos in/on soil) is required to be prepared and implemented to manage the site until activity occurs.
RAP	Prior to development.	Preparation of a RAP	The DSI identified triggers for remediation of the site and a RAP must be prepared and implemented for the activity.
Construction Phase AMP	Prior to soil disturbance, remediation and construction.	Preparation of a Construction phase AMP.	To meet the requirements under Clause 429 of the WHS Regulation a construction phase AMP is required for the proposed construction works.

11.2 Evaluation of Environmental Impacts – REF Requirement

It is considered that the environmental impacts as identified in the DSI can be adequately mitigated through the above recommend measures.

A site validation report must be prepared on completion of remediation to demonstrate that the remedial and validation actions have been completed and to confirm that the site is suitable for the activity form a contamination perspective.

NSW EPA, (2015). *Guidelines on the Duty to Report Contamination under Section 60 of the CLM Act 1997* (referred to as Duty to Report Contamination)

12 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.

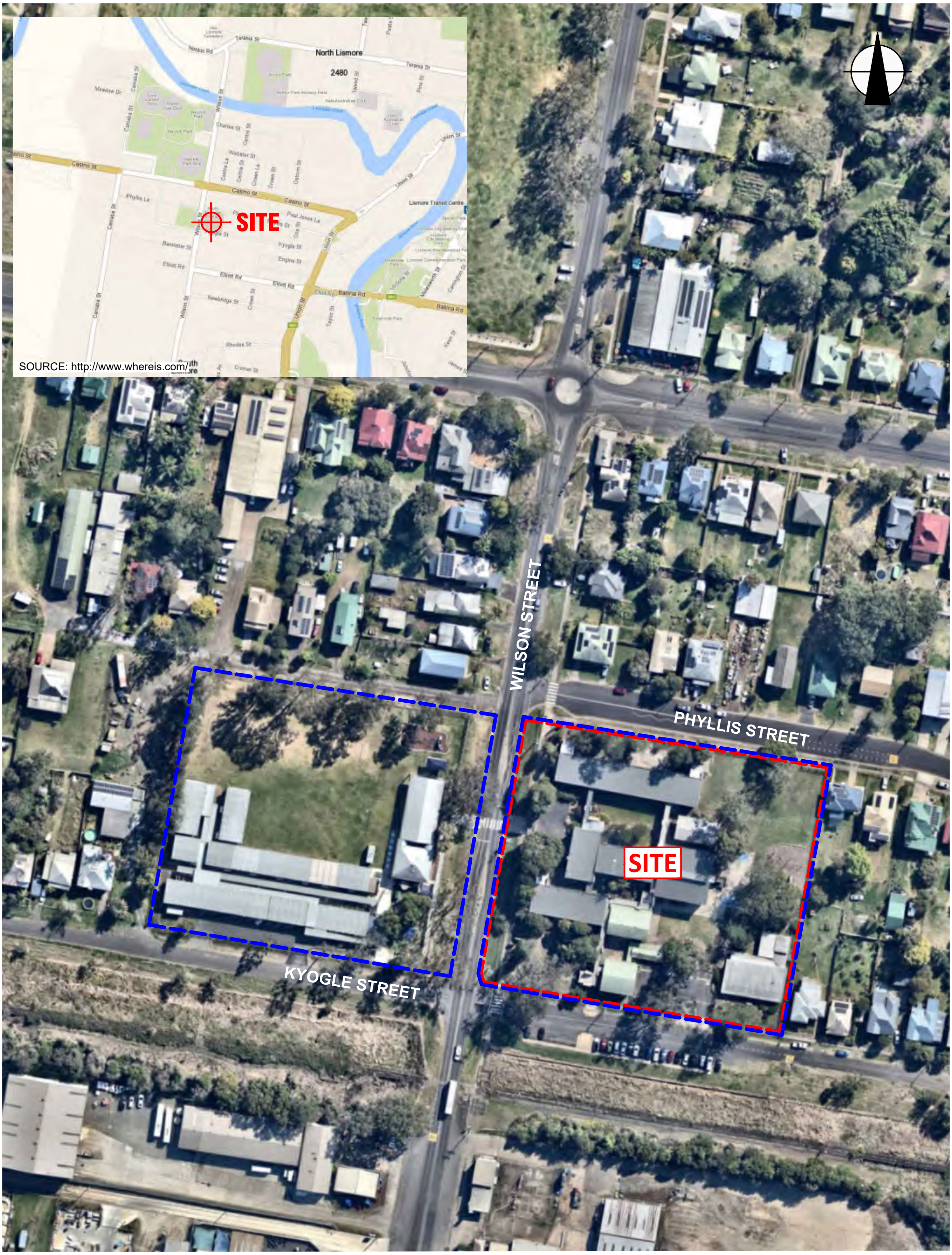
Misinterpretation of Site Investigations by Design Professionals
Costly problems can occur when other design professionals develop plans based on misinterpretation of an investigation report. To minimise problems associated with misinterpretations, the environmental consultant should be retained to work 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.whereis.com/

AERIAL IMAGE SOURCE: MAPS.AU.NEARMAP.COM

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

Title:

SITE LOCATION PLAN

Location: 69-79 KYOGLE STREET, LISMORE, NSW

Report Ref: E36310PTrpt3Rev2-DSI

Figure No: 1

JKEnvironments

PLOT DATE: 22/10/2024 3:42:19 PM DWG FILE: K:\5C EIS JOBS\36000'S\E36310PT SOUTH LISMORE (SLPS)\CAD\E36310PTRPT3.DWG

LEGEND

▬ ▬ ▬	APPROXIMATE PSI SITE BOUNDARY
▬ ▬ ▬	APPROXIMATE SITE BOUNDARY
▬ ▬ ▬	AREAS OF FORMER BUILDINGS/STRUCTURES
● BH(Fill Depth)	JKE BOREHOLE LOCATION, NUMBER AND DEPTH OF FILL (m)
● BH19	JKE/JKG BOREHOLE LOCATION, NUMBER AND DEPTH OF FILL (m)
⊕ BH/MW2	JKE/JKG BOREHOLE AND GROUNDWATER MONITORING WELL LOCATION, NUMBER AND DEPTH OF FILL (m)
▨ TP3	JKE TEST PIT LOCATION, NUMBER AND DEPTH OF FILL (m)
× SS	SOIL SAMPLE LOCATION AND NUMBER
× FCF(Surface)	FIBRE CEMENT FRAGMENT LOCATION, NUMBER AND DEPTH (Surface/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

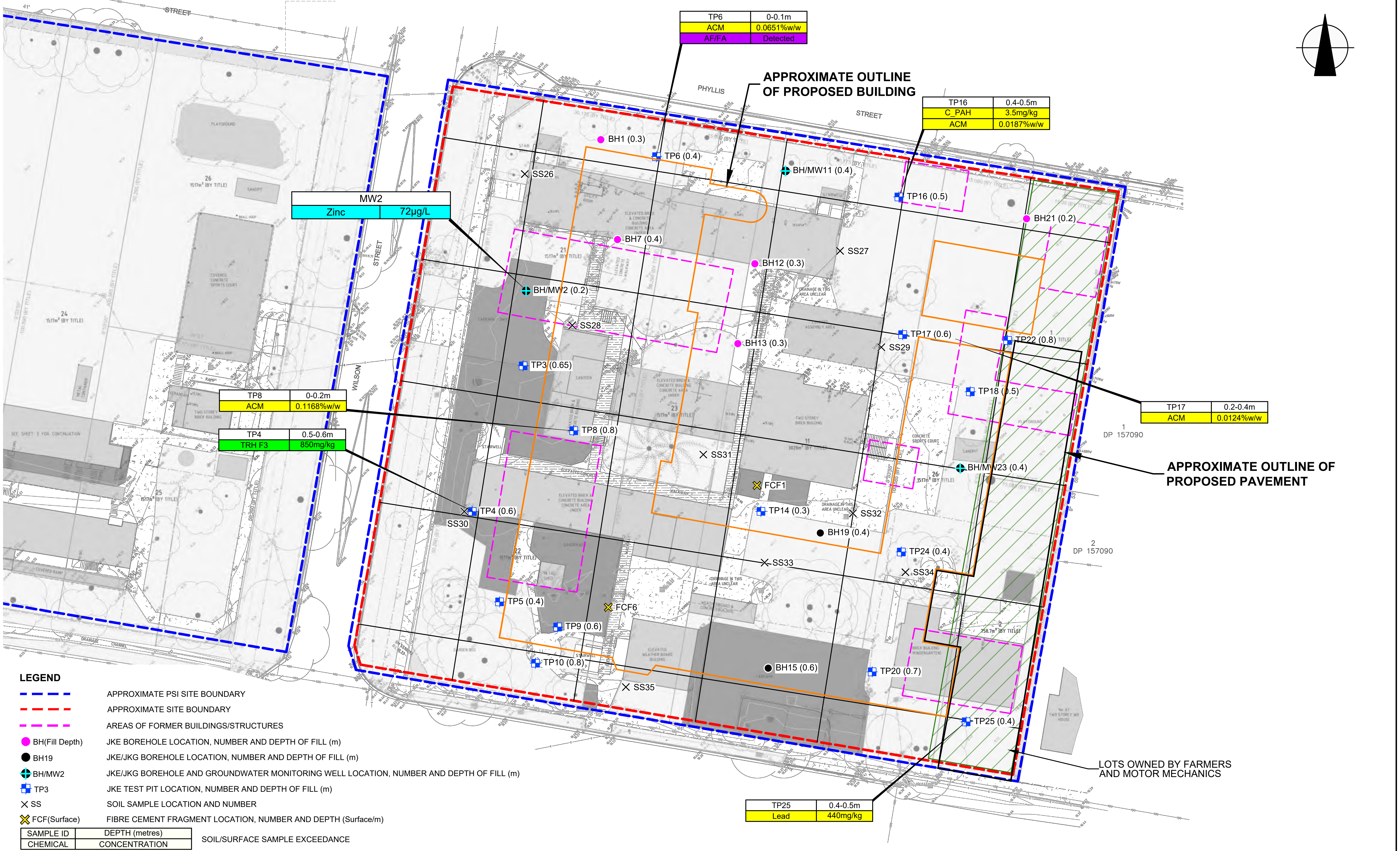
Location: 69-79 KYOGLE STREET, LISMORE, NSW

Report Ref: E36310PTrpt3Rev2-DSI

Figure No: 2

JKEnvironments

PLOT DATE: 5/06/2025 1:04:57 PM DWG FILE: K:\5C EIS JOBS\36000'S\E36310PT SOUTH LISMORE (SLPS)\CAD\E36310PTRPT3.DWG



LEGEND

▬ ▬	APPROXIMATE PSI SITE BOUNDARY
▬ ▬	APPROXIMATE SITE BOUNDARY
▬ ▬	AREAS OF FORMER BUILDINGS/STRUCTURES
● BH(Fill Depth)	JKE BOREHOLE LOCATION, NUMBER AND DEPTH OF FILL (m)
● BH19	JKE/JKG BOREHOLE LOCATION, NUMBER AND DEPTH OF FILL (m)
⊕ BH/MW2	JKE/JKG BOREHOLE AND GROUNDWATER MONITORING WELL LOCATION, NUMBER AND DEPTH OF FILL (m)
▣ TP3	JKE TEST PIT LOCATION, NUMBER AND DEPTH OF FILL (m)
✕ SS	SOIL SAMPLE LOCATION AND NUMBER
☒ FCF(Surface)	FIBRE CEMENT FRAGMENT LOCATION, NUMBER AND DEPTH (Surface/m)
SAMPLE ID | DEPTH (metres) CHEMICAL | CONCENTRATION	SOIL/SURFACE SAMPLE EXCEEDANCE
SAMPLE ID | - CHEMICAL | CONCENTRATION (µg/L)	GROUNDWATER SAMPLE EXCEEDANCE
🟨	SOIL/SURFACE CONTAMINATION ABOVE SAC FOR HUMAN HEALTH RISK
🟩	SOIL/SURFACE CONTAMINATION ABOVE SAC FOR ECOLOGICAL RISK
🟦	GROUNDWATER CONTAMINATION ABOVE SAC
🟪	ASBESTOS DETECTED - NOT ABOVE SAC

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

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

Title: **SAC EXCEEDANCE PLAN**
Location: 69-79 KYOGLE STREET, LISMORE, NSW
Report Ref: E36310PTrpt3Rev2-DSI
Figure No: 3

JKEnvironments

PLOT DATE: 5/06/2025 1:05:59 PM DWG FILE: K:\5C EIS JOBS\36000'S\E36310PT SOUTH LISMORE (SLPS)\CAD\E36310PTRPT3.DWG

Appendix B: SafeWork NSW Records

From: Licensing <licensing@safework.nsw.gov.au>
Sent: Thursday, 31 October 2024 1:39 PM
To: Katrina Taylor
Subject: SafeWork NSW: 01027655 –Site Search application – Result found [thread::fBCteQUvchOiAkPSV21OB3w::]

Security Classification: Sensitive Personal
Please do not amend the subject line of this email

Dear Katrina

Re: Site Search for Schedule 11 Hazardous Chemicals on premises Application – Result found

I refer to your application for a Site Search for Schedule 11 Hazardous Chemicals on premises, received by SafeWork NSW on 4 October 2024 for the following site: 69-79 Kyogle Street, LISMORE SOUTH, NSW, 2480 .

Please find attached copies of the documents that SafeWork NSW holds on record number 35/029947 relating to the storage of Hazardous Chemicals at the above-mentioned premises.

If you have any further information or if you have any questions, please use one of the following options, quoting the SafeWork NSW enquiry reference number: 01027655

- Email: licensing@safework.nsw.gov.au
- Phone: 13 10 50

Kind regards
May
May Neill
Licensing Representative| Safework Licensing
Safework NSW
p 13 10 50 |
e may.neill@customerservice.nsw.gov.au | www.customerservice.nsw.gov.au
Level 3, 32 Mann Street, Gosford, NSW 2250

NSW GOVERNMENT SafeWork

Licence No. 35/029947

** REMINDER NOTICE **

APPLICATION FOR RENEWAL

OF LICENCE TO KEEP DANGEROUS GOODS

ISSUED UNDER AND SUBJECT TO THE PROVISIONS OF THE DANGEROUS GOODS ACT, 1975 AND REGULATION THEREUNDER

DECLARATION: Please renew licence number 35/029947 to 2004/2005 . I confirm that all the licence details shown below are correct (amend if necessary).

....	....	....
(Signature)	*(Please print name)*	*(Date signed)*

for: SCHOOL EDUCATION DEPARTMENT

*THIS **SIGNED** DECLARATION SHOULD BE **RETURNED TO:***

WorkCover New South Wales
Dangerous Goods Licensing Section
Locked Bag 2906
LISAROW NSW 2252

Enquiries: **ph (02) 4321 5500**
fax (02) 9287 5500

Details of licence on 4 June 2004

Licence Number 35/029947 **Expiry Date** 8/04/2004 **No. of Depots 1**

Licensee SCHOOL EDUCATION DEPARTMENT
LISMORE SOUTH PUBLIC SCHOOL

Postal Address: LISMORE SOUTH PUBLIC SCHOOL P O BOX 497 LISMORE NSW 2480

Licensee Contact ERWIN BATES Ph. 066 213 433 Fax. 066 222 797

Premises Licensed to Keep Dangerous Goods
SCHOOL EDUCATION DEPARTMENT LISMORE SOUTH PUBLIC SCHOOL
KYOGLE ST LISMORE SOUTH 2480

Nature of Site PRIMARY EDUCATION

Major Supplier of Dangerous Goods ELGAS

Emergency Contact for this Site ERWIN BATES (AH 066 243 337) Ph. 066 213 433

Site staffing 6 HRS 5 DAYS

Details of Depots

Depot No.	Depot Type	Goods Stored in Depot	Qty
1	**ABOVE-GROUND TANK**	**Class 2.1**	**4500 L**
		UN 1075 PETROLEUM GASES, LIQUEFIED	3800 L

PLEASE NOTE: Gas cylinder was removed by construction company to allow building of new Pre-school.

FORM DG10

689 -

WorkCover New South Wales, 400 Kent Street, Sydney 2000. Tel: 9370 5000 Fax: 9370 5999 ALL MAIL TO G.P.O. BOX 5364 SYDNEY 2001

Licence No. 35/029947

APPLICATION FOR RENEWAL

OF LICENCE TO KEEP DANGEROUS GOODS

WORKCOVER
NEW SOUTH WALES

ISSUED UNDER AND SUBJECT TO THE PROVISIONS OF THE DANGEROUS GOODS ACT, 1975 AND REGULATION THEREUNDER

DECLARATION: Please renew licence number 35/029947 to 9/04/2002 . I confirm that all the licence details shown below are correct (amend if necessary).

.... ERWIN BATES .... 6/4/01 ....

(Signature) *(Please print name)* *(Date signed)*

for: SCHOOL EDUCATION DEPARTMENT

*THIS **SIGNED** DECLARATION SHOULD BE **RETURNED TO: (please do not fax)***

WorkCover New South Wales
Dangerous Goods Licensing Section
GPO BOX 5364
SYDNEY 2001

Enquiries: ph (02) 9370 5187
fax (02) 9370 6104

RECEIVED
SERVICE CENTRE
17 APR 2001
WORKCOVER
NEW SOUTH WALES

Details of licence on 30 March 2001

Licence Number 35/029947 **Expiry Date** 9/04/2001

Licensee SCHOOL EDUCATION DEPARTMENT
LISMORE SOUTH PUBLIC SCHOOL

Postal Address: LISMORE SOUTH PUBLIC SCHOOL BOX 497 P O LISMORE NSW 2480

Licensee Contact *ERWIN BATES ~~GEORGE CONNELL~~ Ph. 066 213433 Fax. 066 222797

Premises Licensed to Keep Dangerous Goods
SCHOOL EDUCATION DEPARTMENT LISMORE SOUTH PUBLIC SCHOOL
KYOGLE ST LISMORE SOUTH 2480

* Amended LM.

Nature of Site PRIMARY EDUCATION

Major Supplier of Dangerous Goods BORAL

Emergency Contact for this Site *ERWIN BATES ~~GEORGE CONNELL~~ (AH 066 243337 ~~243272~~) Ph. 066 213433

Site staffing 6 HRS 5 DAYS

Details of Depots

Depot No.	**Depot Type**	**Goods Stored in Depot**	**Qty**
1	**ABOVE-GROUND TANK**	**Class 2.1**	**4500 L**
		UN 1075 PETROLEUM GASES, LIQUEFIED	3800 L

DATA
3 MAY 2001
ER

THE NEW SOUTH WALES GOVERNMENT
Putting people first by managing better

PART A

RECEIVED
10 APR 1995
CENTRAL SERVICES
BRANCH

WORKCOVER AUTHORITY

LICENCE TO KEEP DANGEROUS GOODS

(Dangerous Goods Act 1975)

P257

nd on rc

Application for new licence, amendment or transfer

1. Name of applicant School Education Dept ~~LISMORE SOUTH PRIMARY SCHOOL~~ ACN

6F
BF

2. Site to be licensed
No Street: KYOGLE STREET
Suburb/Town: SOUTH LISMORE Postcode: 2480

3. Previous licence number (if known) 35029947

4. Nature of site: EDUCATION

5. Emergency contact on site:
Phone: (066) 213433 Name: George Connell (A.H.:- (066) 243272)

6. Site staffing: Hours per day: 6 Days per week: 5

7. Major supplier of dangerous goods: BORAL GAS

8. If new site or significant modification
Plan stamped by: Accredited consultant's name: Date stamped

9. Number of dangerous goods depots at site: 1

DATA
26 SEP 1995
ENTERED

10. Trading name or occupier's name: LISMORE SOUTH PRIMARY SCHOOL

11. Postal address of applicant: PO BOX 497 Suburb/Town: LISMORE Postcode: 2480

12. Contact for licence enquiries:
Phone: (066) 213433 Fax: (066) 222797 Name: George Connell

I certify that the details contained in this application (or the accompanying computer disk) are true and correct

13. Signature of applicant Date 7 4 95

Please complete attached site sketch, depot listing and check sheet (if required) and return to WorkCover Authority in envelope provided.

SEP 1995

B17

Form DG1

Complete 1 section per depot

If you have more depots than the space provided, photocopy sufficient sheets first.

Depot number	Type of depot	Class	Licensed maximum storage capacity
LPG1	ABOVE GROUND TANK	2.1	4.5 KL

UN number	Shipping name	Class	Pkg. Group	EPG	Product or common name	Typical quantity	Unit eg. L, kg, m³
					LP Gas	4.5	kl

Depot number	Type of depot	Class	Licensed maximum storage capacity

UN number	Shipping name	Class	Pkg. Group	EPG	Product or common name	Typical quantity	Unit eg. L, kg, m³

Depot number	Type of depot	Class	Licensed maximum storage capacity

UN number	Shipping name	Class	Pkg. Group	EPG	Product or common name	Typical quantity	Unit eg. L, kg, m³

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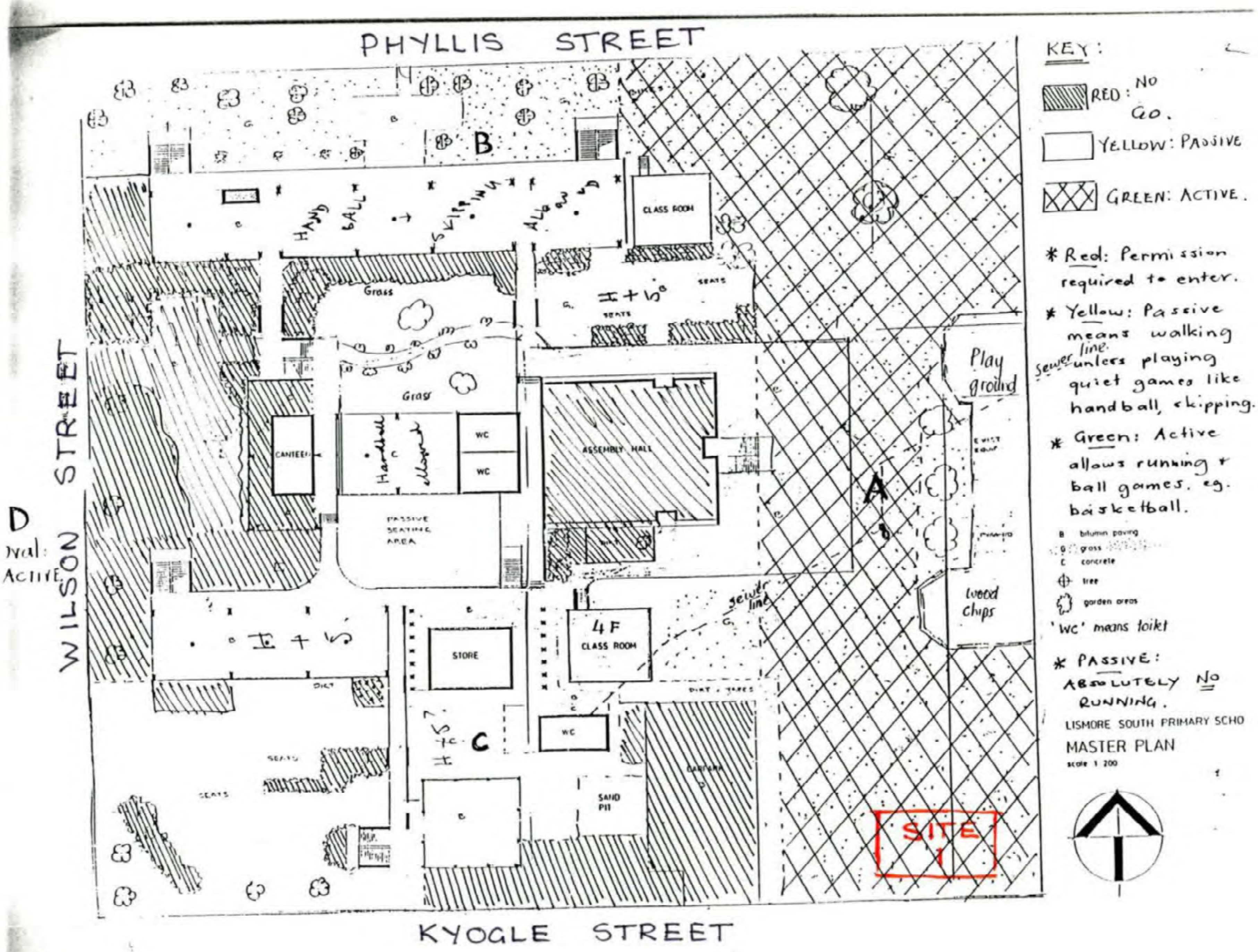
UN number	Shipping name	Class	Pkg. Group	EPG	Product or common name	Typical quantity	Unit eg. L, kg, m³



KEY:

▨ RED: NO GO.

☐ YELLOW: PASSIVE

☒ GREEN: ACTIVE.

* Red: Permission required to enter.

* Yellow: Passive means walking unless playing quiet games like handball, skipping.

sewer line.

* Green: Active allows running + ball games, eg. basketball.

B bitumin paving
G grass
C concrete
tree
garden areas

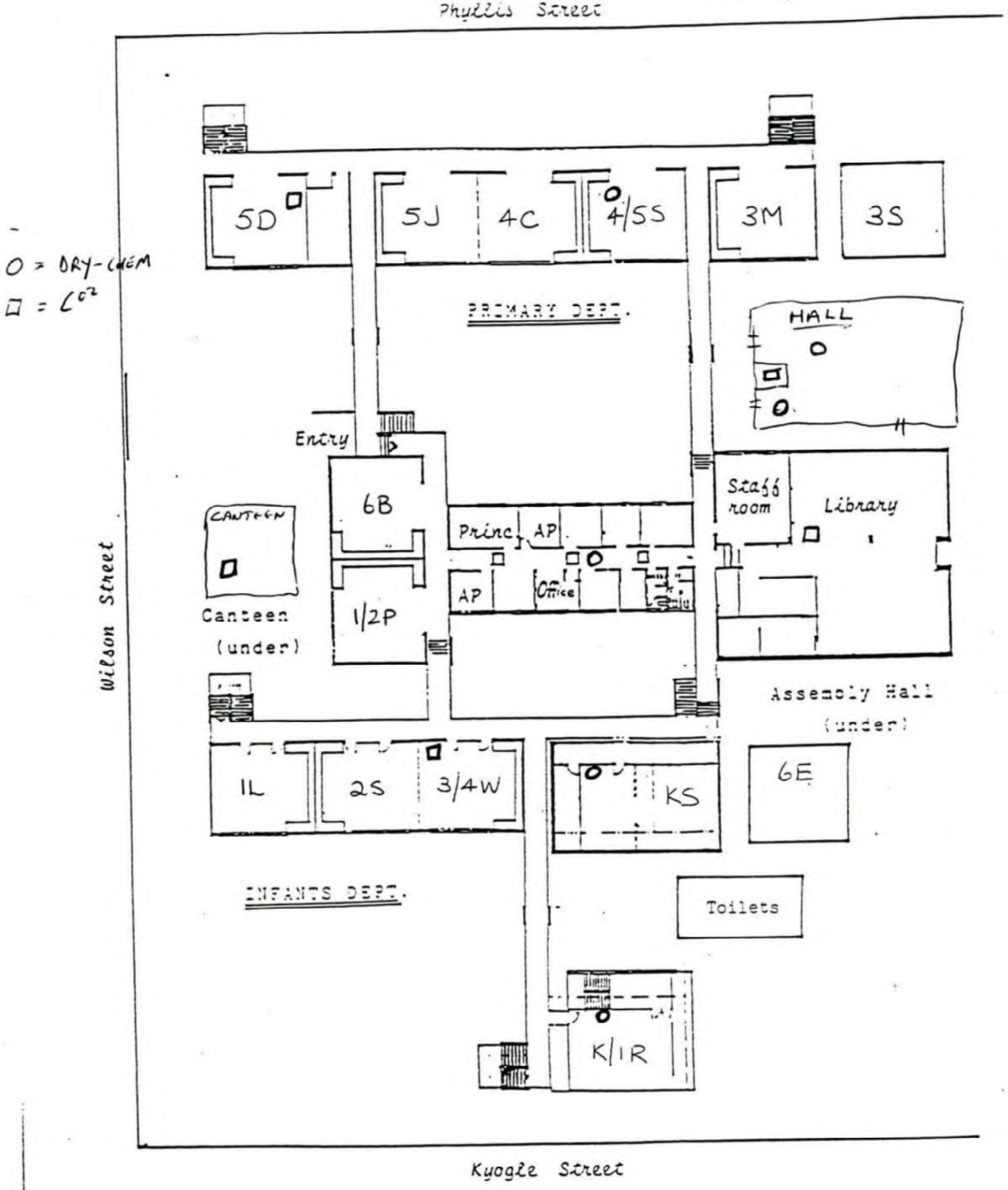
'WC' means toilet

* PASSIVE: ABSOLUTELY NO RUNNING.

LISMORE SOUTH PRIMARY SCHO
MASTER PLAN
scale 1 200

School Plan

1994



Appendix C: Laboratory Results Summary Tables

ABBREVIATIONS AND EXPLANATIONS

Abbreviations used in the Tables:

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

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 refered 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:

Site specific ABC values for specific metals have been adopted.

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.
- 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-A: 'Residential with garden/accessible soils; children's day care centers; preschools; and primary schools'

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)			100	20	100	6000	300	40	400	7400	300	3	10	270	300	6	50	240	6	160	1	Detected/Not Detected
Sample Reference	**Sample Depth**	**Sample Description**																				
BH1	0-0.1	F: Silty Sand	**15**	<0.4	**27**	**24**	**11**	<0.1	**11**	**77**	**6.8**	**0.9**	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	Not Detected
BH1 - [LAB_DUP]	0-0.1	F: Silty Sand	**17**	<0.4	**28**	**25**	**12**	<0.1	**9**	**81**	**6.2**	**0.8**	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	NA
BH2	0.05-0.2	F: Silty Sandy Gravel	<4	<0.4	**20**	**16**	**30**	<0.1	**24**	**120**	**0.2**	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	Not Detected
TP3	0-0.1	F: Silty Sand	<4	<0.4	**10**	**9**	**11**	<0.1	**5**	**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
TP3	0.5-0.6	F: Sand	<4	<0.4	**5**	<1	**2**	<0.1	<1	**2**	**0.06**	<0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TP4	0-0.1	F: Silty Sand	<4	<0.4	**14**	**18**	**27**	<0.1	**11**	**86**	**1.3**	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	Not Detected
TP4	0.4-0.5	F: Silty Clay	<4	<0.4	**21**	**22**	**39**	<0.1	**20**	**110**	**4.2**	**0.7**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TP4	0.5-0.6	F: Silty Gravel	<4	<0.4	**4**	**9**	**12**	<0.1	**5**	**24**	**3.4**	**0.6**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TP4	0.8-0.9	Silty Clay	<4	<0.4	**30**	**16**	**10**	<0.1	**15**	**32**	**1.1**	<0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TP5	0-0.1	F: Silty Sand	<4	<0.4	**25**	**15**	**9**	<0.1	**12**	**57**	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	Not Detected
TP6	0-0.1	F: Silty Sand	<4	<0.4	**8**	**13**	**20**	<0.1	**8**	**59**	**1.6**	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	Detected
TP6	0.3-0.4	F: Silty Sand	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	Not Detected
BH7	0-0.1	F: Silty Clay	<4	<0.4	**15**	**20**	**15**	<0.1	**10**	**79**	**0.07**	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	Not Detected
TP8	0-0.1	F: Silty Sandy Clay	<4	**1**	**14**	**15**	**26**	<0.1	**9**	**100**	**5.8**	**0.9**	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	Not Detected
TP8 - [LAB_DUP]	0-0.1	F: Silty Sandy Clay	<4	**0.5**	**15**	**15**	**25**	<0.1	**9**	**110**	**6.2**	**0.9**	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	NA
TP8	0.4-0.5	F: Silty Gravelly Clay	<4	<0.4	**5**	**19**	**5**	<0.1	**18**	**57**	<0.05	<0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BH9	0-0.1	Fill: Silty Sand	<4	<0.4	**8**	**9**	**13**	<0.1	**4**	**33**	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	Not Detected
TP10	0-0.1	F: Silty Sand	<4	<0.4	**11**	**10**	**14**	<0.1	**8**	**55**	**24**	**2.2**	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	Not Detected
TP10	0.4-0.5	F: Silty Sandy Clay	<4	<0.4	**24**	**10**	**9**	<0.1	**20**	**62**	**9.6**	**1.3**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BH11	0.0-0.1	Fill: Silty Sand	<4	<0.4	**7**	**12**	**11**	<0.1	**7**	**47**	**1.2**	<0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BH12	0-0.2	F: Silty Clay	<4	<0.4	**9**	**6**	**11**	<0.1	**4**	**54**	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	Not Detected
BH13	0-0.1	F: Silty Clay	<4	<0.4	**17**	**12**	**17**	<0.1	**10**	**63**	**6.1**	**1**	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	Not Detected
TP14	0-0.1	F: Silty Sand	<4	<0.4	**12**	**22**	**25**	**0.1**	**9**	**220**	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	Not Detected
TP14	0.9-1	Sandy Clay	<4	<0.4	**32**	**14**	**6**	<0.1	**30**	**64**	**0.3**	<0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BH15	0-0.1	F: Silty Sandy Gravel	**5**	<0.4	**10**	**15**	**9**	<0.1	**8**	**44**	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	Not Detected
TP16	0-0.1	F: Silty Sand	<4	<0.4	**11**	**14**	**10**	<0.1	**14**	**64**	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	Not Detected
TP16 - [LAB_DUP]	0-0.1	F: Silty Sand	<4	<0.4	**12**	**14**	**11**	<0.1	**13**	**61**	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	NA
TP16	0.4-0.5	F: Silty Clay	<4	<0.4	**20**	**15**	**37**	<0.1	**22**	**81**	**17**	**3.5**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TP16	1.0-1.2	Silty Clay	<4	<0.4	**24**	**15**	**9**	<0.1	**14**	**23**	<0.05	<0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TP17	0-0.1	F: Silty Sand	<4	<0.4	**11**	**14**	**13**	<0.1	**11**	**71**	**0.56**	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	Not Detected
TP17	0.3-0.4	F: Silty Sandy Clay	<4	<0.4	**34**	**19**	**30**	<0.1	**25**	**81**	**8.6**	**1.3**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TP18	0-0.1	F: Silty Clayey Sand	<4	<0.4	**17**	**15**	**14**	<0.1	**11**	**85**	**0.3**	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	Not Detected
TP18	0.4-0.5	F: Silty Clay	<4	<0.4	**26**	**16**	**14**	<0.1	**18**	**66**	**3.3**	<0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BH19	0-0.1	F: Silty Sand	<4	<0.4	**5**	**11**	**10**	<0.1	**5**	**46**	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	Not Detected
BH20	0-0.1	F: Silty Clay	<4	<0.4	**9**	**9**	**10**	<0.1	**5**	**31**	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	Not Detected
BH20	0.3-0.4	F: Silty Gravel	**7**	<0.4	**9**	**15**	**11**	<0.1	**9**	**44**	<0.05	<0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BH21	0-0.1	F: Silty Sand	<4	<0.4	**12**	**8**	**9**	<0.1	**7**	**38**	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	Not Detected
TP22	0-0.1	F: Silty Sand	<4	<0.4	**10**	**9**	**10**	<0.1	**5**	**39**	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	Not Detected
TP22	0.3-0.4	F: Silty Sandy Clay	<4	<0.4	**19**	**22**	**38**	<0.1	**16**	**120**	**5.4**	**0.6**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BH23	0-0.1	F: Silty Sand	<4	<0.4	**9**	**10**	**12**	<0.1	**6**	**56**	**0.4**	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	Not Detected
BH23 - [LAB_DUP]	0-0.1	F: Silty Sand	<4	<0.4	**9**	**12**	**26**	<0.1	**6**	**59**	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	NA
TP24	0-0.1	F: Silty Sand	**4**	<0.4	**4**	**14**	**14**	<0.1	**7**	**44**	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	Not Detected
TP24	0.3-0.4	F: Silty Gavelly Clay	<4	<0.4	**14**	**7**	**3**	<0.1	**5**	**21**	<0.05	<0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BH25	0-0.1	F: Silty Clay	<4	<0.4	**26**	**16**	**8**	<0.1	**24**	**61**	**1.2**	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	Not Detected
BH25	0.3-0.4	F: Gravelly Clay	<4	<0.4	**42**	**18**	**15**	<0.1	**55**	**78**	**1.2**	<0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BH25	0.4-0.5	F: Sandy Clay	<4	<0.4	**33**	**16**	**440**	<0.1	**29**	**72**	**4.8**	**0.7**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BH25	0.8-0.9	Silty Clay	<4	<0.4	**26**	**17**	**10**	<0.1	**11**	**20**	<0.05	<0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SS26	0-0.1	F: Sandy Gravel	<4	**1**	**14**	**16**	**15**	<0.1	**7**	**85**	NA	NA	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	NA	NA
SS27	0-0.1	F: Silty Clay	<4	<0.4	**13**	**17**	**8**	<0.1	**13**	**100**	NA	NA	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	NA	NA
SS28	0-0.1	F: Silty Sand	**18**	**2**	**27**	**24**	**16**	<0.1	**11**	**130**	NA	NA	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	NA	NA
SS29	0-0.1	F: Silty Sand	<4	**0.9**	**12**	**19**	**16**	<0.1	**14**	**120**	NA	NA	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	NA	NA
SS30	0-0.1	F: Silty Sand	**7**	<0.4	**7**	**28**	**17**	<0.1	**11**	**84**	NA	NA	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	NA	NA
SS31	0-0.1	F: Silty Sand	<4	<0.4	**18**	**17**	**12**	<0.1	**14**	**140**	NA	NA	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	NA	NA
SS32	0-0.1	F: Silty Sand	<4	<0.4	**9**	**13**	**9**	<0.1	**10**	**98**	NA	NA	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	NA	NA
SS33	0-0.1	F: Silty Clay	<4	<0.4	**11**	**10**	**10**	<0.1	**8**	**84**	NA	NA	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	NA	NA
SS34	0-0.1	F: Silty Sand	<4	<0.4	**13**	**11**	**7**	<0.1	**6**	**45**	NA	NA	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	NA	NA
SS35	0-0.1	F: Silty Clay	<4	<0.4	**24**	**16**	**22**	<0.1	**19**	**280**	NA	NA	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	NA	NA
SDUP1	BH11 (0-0.1m)	F: Silty Sand	<4	<0.4	**8**	**14**	**12**	<0.1	**9**	**55**	**0.3**	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	NA
SDUP1 - [LAB_DUP]	BH11 (0-0.1m)	F: Silty Sand	<4	<0.4	**9**	**12**	**11**	<0.1	**9**	**47**	**1.2**	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	NA
SDUP2	BH23 (0-0.1m)	F: Silty sand	<4	<0.4	**7.9**	**9.1**	**6.8**	<0.1	**5.7**	**46**	**0.051**	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	NA
SDUP3	BH19 (0-0.1m)	F: Silty Sand	<4	<0.4	**13**	**9**	**8**	<0.1	**6**	**49**	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	NA
SDUP4	BH21 (0-0.1m)	F: Silty sand	<4	<0.4	**14**	**11**	**9.3**	<0.1	**9.3**	**42**	**0.47**	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	NA
FCF1	Surface	Material	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	Not Detected
FCF2-TP8	0-0.2	Material	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	Detected
FCF3-TP6	0-0.1	Material	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	Detected
FCF4-TP16	0.4-0.5	Material	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	Detected
FCF5-TP17	0.2-0.4	Material	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	Detected
FCF6	Surface	Material	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	Not Detected
Total Number of Samples			61	61	61	61	61	61	61	61	51	51	43	43	43	43	43	43	43	43	33	31
Maximum Value			18	2	42	28	440	0.1	55	280	24	3.5	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	Detected
Statistical Analysis on Fill Samples																						
Number of Fill Samples			NC	NC	NC	NC	**48**	NC	NC	NC	NC	**38**	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
Mean Value			NC	NC	NC	NC	**24.19**	NC	NC	NC	NC	**0.716**	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
Standard Deviation			NC	NC	NC	NC	**61.91**	NC	NC	NC	NC	**0.571**	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
% UCL			NC	NC	NC	NC	**95**	NC	NC	NC	NC	**95**	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
UCL Value			NC	NC	NC	NC	**63.14**	NC	NC	NC	NC	**0.872**	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC

Concentration above the SAC	**VALUE**	Standard deviation exceeds data assessment criteria	**VALUE**
Concentration above the PQL	**Bold**		
Asbestos Detected	**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**								
BH1	0-0.1	F: Silty Sand	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	0
BH1 - [LAB_DUP]	0-0.1	F: Silty Sand	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	0
BH2	0.05-0.2	F: Silty Sandy Gravel	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	0
TP3	0-0.1	F: Silty Sand	0m to <1m	Sand	<25	**88**	<0.2	<0.5	<1	<1	<1	0
TP3	0.5-0.6	F: Sand	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	0
TP4	0-0.1	F: Silty Sand	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	0.2
TP4	0.4-0.5	F: Silty Clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	0.4
TP4	0.5-0.6	F: Silty Gravel	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	0.3
TP4	0.8-0.9	Silty Clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	0.3
TP5	0-0.1	F: Silty Sand	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	0.1
TP6	0-0.1	F: Silty Sand	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	0
BH7	0-0.1	F: Silty Clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	0
TP8	0-0.1	F: Silty Sandy Clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	0
TP8 - [LAB_DUP]	0-0.1	F: Silty Sandy Clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	0
TP8	0.4-0.5	F: Silty Gravelly Clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	0
BH9	0-0.1	Fill: Silty Sand	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	0
TP10	0-0.1	F: Silty Sand	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	0.3
TP10	0.4-0.5	F: Silty Sandy Clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	0.3
BH11	0.0-0.1	Fill: Silty Sand	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	0
BH12	0-0.2	F: Silty Clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	0
BH13	0-0.1	F: Silty Clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	0
TP14	0-0.1	F: Silty Sand	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	0
TP14	0.9-1	Sandy Clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	0
BH15	0-0.1	F: Silty Sandy Gravel	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	0.1
TP16	0-0.1	F: Silty Sand	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	0
TP16 - [LAB_DUP]	0-0.1	F: Silty Sand	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	0
TP16	0.4-0.5	F: Silty Clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	0
TP16	1.0-1.2	Silty Clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	0
TP17	0-0.1	F: Silty Sand	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	0
TP17	0.3-0.4	F: Silty Sandy Clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	0
TP18	0-0.1	F: Silty Clayey Sand	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	0
TP18	0.4-0.5	F: Silty Clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	0
BH19	0-0.1	F: Silty Sand	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	0
BH20	0-0.1	F: Silty Clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	0.3
BH20	0.3-0.4	F: Silty Gravel	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	0.3
BH21	0-0.1	F: Silty Sand	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	0
TP22	0-0.1	F: Silty Sand	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	0
TP22	0.3-0.4	F: Silty Sandy Clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	0
BH23	0-0.1	F: Silty Sand	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	0.1
BH23 - [LAB_DUP]	0-0.1	F: Silty Sand	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	0.1
TP24	0-0.1	F: Silty Sand	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	0
TP24	0.3-0.4	F: Silty Gavelly Clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	0
BH25	0-0.1	F: Silty Clay	0m to <1m	Sand	<25	**50**	<0.2	<0.5	<1	<1	<1	0
BH25	0.3-0.4	F: Gravelly Clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	0
BH25	0.4-0.5	F: Sandy Clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	0
BH25	0.8-0.9	Silty Clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	0
SDUP1	BH11 (0-0.1m)	F: Silty Sand	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	-
SDUP1 - [LAB_DUP]	BH11 (0-0.1m)	F: Silty Sand	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	-
SDUP2	BH23 (0-0.1m)	F: Silty sand	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	-
SDUP3	BH19 (0-0.1m)	F: Silty Sand	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	-
SDUP4	BH21 (0-0.1m)	F: Silty sand	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	-
Total Number of Samples					51	51	51	51	51	51	51	51
Maximum Value					<PQL	88	<PQL	<PQL	<PQL	<PQL	<PQL	0.4

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
BH1	0-0.1	F: Silty Sand	0m to <1m	Sand	45	110	0.5	160	55	40	3
BH1 - [LAB_DUP]	0-0.1	F: Silty Sand	0m to <1m	Sand	45	110	0.5	160	55	40	3
BH2	0.05-0.2	F: Silty Sandy Gravel	0m to <1m	Sand	45	110	0.5	160	55	40	3
TP3	0-0.1	F: Silty Sand	0m to <1m	Sand	45	110	0.5	160	55	40	3
TP3	0.5-0.6	F: Sand	0m to <1m	Sand	45	110	0.5	160	55	40	3
TP4	0-0.1	F: Silty Sand	0m to <1m	Sand	45	110	0.5	160	55	40	3
TP4	0.4-0.5	F: Silty Clay	0m to <1m	Sand	45	110	0.5	160	55	40	3
TP4	0.5-0.6	F: Silty Gravel	0m to <1m	Sand	45	110	0.5	160	55	40	3
TP4	0.8-0.9	Silty Clay	0m to <1m	Sand	45	110	0.5	160	55	40	3
TP5	0-0.1	F: Silty Sand	0m to <1m	Sand	45	110	0.5	160	55	40	3
TP6	0-0.1	F: Silty Sand	0m to <1m	Sand	45	110	0.5	160	55	40	3
BH7	0-0.1	F: Silty Clay	0m to <1m	Sand	45	110	0.5	160	55	40	3
TP8	0-0.1	F: Silty Sandy Clay	0m to <1m	Sand	45	110	0.5	160	55	40	3
TP8 - [LAB_DUP]	0-0.1	F: Silty Sandy Clay	0m to <1m	Sand	45	110	0.5	160	55	40	3
TP8	0.4-0.5	F: Silty Gravelly Clay	0m to <1m	Sand	45	110	0.5	160	55	40	3
BH9	0-0.1	Fill: Silty Sand	0m to <1m	Sand	45	110	0.5	160	55	40	3
TP10	0-0.1	F: Silty Sand	0m to <1m	Sand	45	110	0.5	160	55	40	3
TP10	0.4-0.5	F: Silty Sandy Clay	0m to <1m	Sand	45	110	0.5	160	55	40	3
BH11	0.0-0.1	Fill: Silty Sand	0m to <1m	Sand	45	110	0.5	160	55	40	3
BH12	0-0.2	F: Silty Clay	0m to <1m	Sand	45	110	0.5	160	55	40	3
BH13	0-0.1	F: Silty Clay	0m to <1m	Sand	45	110	0.5	160	55	40	3
TP14	0-0.1	F: Silty Sand	0m to <1m	Sand	45	110	0.5	160	55	40	3
TP14	0.9-1	Sandy Clay	0m to <1m	Sand	45	110	0.5	160	55	40	3
BH15	0-0.1	F: Silty Sandy Gravel	0m to <1m	Sand	45	110	0.5	160	55	40	3
TP16	0-0.1	F: Silty Sand	0m to <1m	Sand	45	110	0.5	160	55	40	3
TP16 - [LAB_DUP]	0-0.1	F: Silty Sand	0m to <1m	Sand	45	110	0.5	160	55	40	3
TP16	0.4-0.5	F: Silty Clay	0m to <1m	Sand	45	110	0.5	160	55	40	3
TP16	1.0-1.2	Silty Clay	0m to <1m	Sand	45	110	0.5	160	55	40	3
TP17	0-0.1	F: Silty Sand	0m to <1m	Sand	45	110	0.5	160	55	40	3
TP17	0.3-0.4	F: Silty Sandy Clay	0m to <1m	Sand	45	110	0.5	160	55	40	3
TP18	0-0.1	F: Silty Clayey Sand	0m to <1m	Sand	45	110	0.5	160	55	40	3
TP18	0.4-0.5	F: Silty Clay	0m to <1m	Sand	45	110	0.5	160	55	40	3
BH19	0-0.1	F: Silty Sand	0m to <1m	Sand	45	110	0.5	160	55	40	3
BH20	0-0.1	F: Silty Clay	0m to <1m	Sand	45	110	0.5	160	55	40	3
BH20	0.3-0.4	F: Silty Gravel	0m to <1m	Sand	45	110	0.5	160	55	40	3
BH21	0-0.1	F: Silty Sand	0m to <1m	Sand	45	110	0.5	160	55	40	3
TP22	0-0.1	F: Silty Sand	0m to <1m	Sand	45	110	0.5	160	55	40	3
TP22	0.3-0.4	F: Silty Sandy Clay	0m to <1m	Sand	45	110	0.5	160	55	40	3
BH23	0-0.1	F: Silty Sand	0m to <1m	Sand	45	110	0.5	160	55	40	3
BH23 - [LAB_DUP]	0-0.1	F: Silty Sand	0m to <1m	Sand	45	110	0.5	160	55	40	3
TP24	0-0.1	F: Silty Sand	0m to <1m	Sand	45	110	0.5	160	55	40	3
TP24	0.3-0.4	F: Silty Gavelly Clay	0m to <1m	Sand	45	110	0.5	160	55	40	3
BH25	0-0.1	F: Silty Clay	0m to <1m	Sand	45	110	0.5	160	55	40	3
BH25	0.3-0.4	F: Gravelly Clay	0m to <1m	Sand	45	110	0.5	160	55	40	3
BH25	0.4-0.5	F: Sandy Clay	0m to <1m	Sand	45	110	0.5	160	55	40	3
BH25	0.8-0.9	Silty Clay	0m to <1m	Sand	45	110	0.5	160	55	40	3
SDUP1	BH11 (0-0.1m)	F: Silty Sand	0m to <1m	Sand	45	110	0.5	160	55	40	3
SDUP1 - [LAB_DUP]	BH11 (0-0.1m)	F: Silty Sand	0m to <1m	Sand	45	110	0.5	160	55	40	3
SDUP2	BH23 (0-0.1m)	F: Silty sand	0m to <1m	Sand	45	110	0.5	160	55	40	3
SDUP3	BH19 (0-0.1m)	F: Silty Sand	0m to <1m	Sand	45	110	0.5	160	55	40	3
SDUP4	BH21 (0-0.1m)	F: Silty sand	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 napthalene	>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**				
BH1	0-0.1	Coarse	<25	<50	**140**	**120**
BH1 - [LAB_DUP]	0-0.1	Coarse	<25	<50	**150**	**120**
BH2	0.05-0.2	Coarse	<25	<50	<100	<100
TP3	0-0.1	Coarse	<25	**88**	<100	<100
TP3	0.5-0.6	Coarse	<25	<50	<100	<100
TP4	0-0.1	Coarse	<25	<50	<100	<100
TP4	0.4-0.5	Fine	<25	<50	<100	<100
TP4	0.5-0.6	Coarse	<25	<50	**850**	**690**
TP4	0.8-0.9	Fine	<25	<50	<100	<100
TP5	0-0.1	Coarse	<25	<50	**160**	**150**
TP6	0-0.1	Coarse	<25	<50	<100	<100
BH7	0-0.1	Fine	<25	<50	<100	<100
TP8	0-0.1	Fine	<25	<50	**200**	**140**
TP8 - [LAB_DUP]	0-0.1	Fine	<25	<50	**200**	**130**
TP8	0.4-0.5	Fine	<25	<50	<100	<100
BH9	0-0.1	Coarse	<25	<50	<100	<100
TP10	0-0.1	Coarse	<25	<50	**140**	<100
TP10	0.4-0.5	Fine	<25	<50	<100	<100
BH11	0.0-0.1	Coarse	<25	<50	<100	<100
BH12	0-0.2	Fine	<25	<50	<100	<100
BH13	0-0.1	Fine	<25	<50	<100	<100
TP14	0-0.1	Coarse	<25	<50	**120**	**110**
TP14	0.9-1	Fine	<25	<50	<100	<100
BH15	0-0.1	Coarse	<25	<50	<100	<100
TP16	0-0.1	Coarse	<25	<50	<100	<100
TP16 - [LAB_DUP]	0-0.1	Coarse	<25	<50	<100	<100
TP16	0.4-0.5	Fine	<25	<50	<100	<100
TP16	1.0-1.2	Fine	<25	<50	<100	<100
TP17	0-0.1	Coarse	<25	<50	<100	<100
TP17	0.3-0.4	Fine	<25	<50	<100	<100
TP18	0-0.1	Coarse	<25	<50	**190**	**140**
TP18	0.4-0.5	Fine	<25	<50	<100	<100
BH19	0-0.1	Coarse	<25	<50	<100	<100
BH20	0-0.1	Fine	<25	<50	<100	<100
BH20	0.3-0.4	Coarse	<25	<50	<100	<100
BH21	0-0.1	Coarse	<25	<50	<100	<100
TP22	0-0.1	Coarse	<25	<50	<100	<100
TP22	0.3-0.4	Fine	<25	<50	<100	<100
BH23	0-0.1	Coarse	<25	<50	**100**	<100
BH23 - [LAB_DUP]	0-0.1	Coarse	<25	<50	**140**	<100
TP24	0-0.1	Coarse	<25	<50	<100	<100
TP24	0.3-0.4	Fine	<25	<50	<100	<100
BH25	0-0.1	Fine	<25	**50**	**300**	**180**
BH25	0.3-0.4	Fine	<25	<50	<100	<100
BH25	0.4-0.5	Fine	<25	<50	<100	<100
BH25	0.8-0.9	Fine	<25	<50	<100	<100
SDUP1	BH11 (0-0.1m)	Coarse	<25	<50	<100	<100
SDUP1 - [LAB_DUP]	BH11 (0-0.1m)	Coarse	<25	<50	<100	<100
SDUP2	BH23 (0-0.1m)	Coarse	<25	<50	<100	<100
SDUP3	BH19 (0-0.1m)	Coarse	<25	<50	<100	<100
SDUP4	BH21 (0-0.1m)	Coarse	<25	<50	<100	<100
Total Number of Samples			51	51	51	51
Maximum Value			<PQL	88	850	690

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 napthalene	>C_{16}-C_{34} (F3)	>C_{34}-C_{40} (F4)
BH1	0-0.1	Coarse	700	1000	2500	10000
BH1 - [LAB_DUP]	0-0.1	Coarse	700	1000	2500	10000
BH2	0.05-0.2	Coarse	700	1000	2500	10000
TP3	0-0.1	Coarse	700	1000	2500	10000
TP3	0.5-0.6	Coarse	700	1000	2500	10000
TP4	0-0.1	Coarse	700	1000	2500	10000
TP4	0.4-0.5	Fine	800	1000	3500	10000
TP4	0.5-0.6	Coarse	700	1000	2500	10000
TP4	0.8-0.9	Fine	800	1000	3500	10000
TP5	0-0.1	Coarse	700	1000	2500	10000
TP6	0-0.1	Coarse	700	1000	2500	10000
BH7	0-0.1	Fine	800	1000	3500	10000
TP8	0-0.1	Fine	800	1000	3500	10000
TP8 - [LAB_DUP]	0-0.1	Fine	800	1000	3500	10000
TP8	0.4-0.5	Fine	800	1000	3500	10000
BH9	0-0.1	Coarse	700	1000	2500	10000
TP10	0-0.1	Coarse	700	1000	2500	10000
TP10	0.4-0.5	Fine	800	1000	3500	10000
BH11	0.0-0.1	Coarse	700	1000	2500	10000
BH12	0-0.2	Fine	800	1000	3500	10000
BH13	0-0.1	Fine	800	1000	3500	10000
TP14	0-0.1	Coarse	700	1000	2500	10000
TP14	0.9-1	Fine	800	1000	3500	10000
BH15	0-0.1	Coarse	700	1000	2500	10000
TP16	0-0.1	Coarse	700	1000	2500	10000
TP16 - [LAB_DUP]	0-0.1	Coarse	700	1000	2500	10000
TP16	0.4-0.5	Fine	800	1000	3500	10000
TP16	1.0-1.2	Fine	800	1000	3500	10000
TP17	0-0.1	Coarse	700	1000	2500	10000
TP17	0.3-0.4	Fine	800	1000	3500	10000
TP18	0-0.1	Coarse	700	1000	2500	10000
TP18	0.4-0.5	Fine	800	1000	3500	10000
BH19	0-0.1	Coarse	700	1000	2500	10000
BH20	0-0.1	Fine	800	1000	3500	10000
BH20	0.3-0.4	Coarse	700	1000	2500	10000
BH21	0-0.1	Coarse	700	1000	2500	10000
TP22	0-0.1	Coarse	700	1000	2500	10000
TP22	0.3-0.4	Fine	800	1000	3500	10000
BH23	0-0.1	Coarse	700	1000	2500	10000
BH23 - [LAB_DUP]	0-0.1	Coarse	700	1000	2500	10000
TP24	0-0.1	Coarse	700	1000	2500	10000
TP24	0.3-0.4	Fine	800	1000	3500	10000
BH25	0-0.1	Fine	800	1000	3500	10000
BH25	0.3-0.4	Fine	800	1000	3500	10000
BH25	0.4-0.5	Fine	800	1000	3500	10000
BH25	0.8-0.9	Fine	800	1000	3500	10000
SDUP1	BH11 (0-0.1m)	Coarse	700	1000	2500	10000
SDUP1 - [LAB_DUP]	BH11 (0-0.1m)	Coarse	700	1000	2500	10000
SDUP2	BH23 (0-0.1m)	Coarse	700	1000	2500	10000
SDUP3	BH19 (0-0.1m)	Coarse	700	1000	2500	10000
SDUP4	BH21 (0-0.1m)	Coarse	700	1000	2500	10000

TABLE S4
SOIL LABORATORY RESULTS COMPARED T0 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**										
BH1	0-0.1	<25	<50	**140**	**120**	<0.2	<0.5	<1	<1	<1	0
BH1 - [LAB_DUP]	0-0.1	<25	<50	**150**	**120**	<0.2	<0.5	<1	<1	<1	0
BH2	0.05-0.2	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	0
TP3	0-0.1	<25	**88**	<100	<100	<0.2	<0.5	<1	<1	<1	0
TP3	0.5-0.6	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	0
TP4	0-0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	**0.2**
TP4	0.4-0.5	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	**0.4**
TP4	0.5-0.6	<25	<50	**850**	**690**	<0.2	<0.5	<1	<1	<1	**0.3**
TP4	0.8-0.9	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	**0.3**
TP5	0-0.1	<25	<50	**160**	**150**	<0.2	<0.5	<1	<1	<1	**0.1**
TP6	0-0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	0
BH7	0-0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	0
TP8	0-0.1	<25	<50	**200**	**140**	<0.2	<0.5	<1	<1	<1	0
TP8 - [LAB_DUP]	0-0.1	<25	<50	**200**	**130**	<0.2	<0.5	<1	<1	<1	0
TP8	0.4-0.5	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	0
BH9	0-0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	0
TP10	0-0.1	<25	<50	**140**	<100	<0.2	<0.5	<1	<1	<1	**0.3**
TP10	0.4-0.5	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	**0.3**
BH11	0.0-0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	0
BH12	0-0.2	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	0
BH13	0-0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	0
TP14	0-0.1	<25	<50	**120**	**110**	<0.2	<0.5	<1	<1	<1	0
TP14	0.9-1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	0
BH15	0-0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	**0.1**
TP16	0-0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	0
TP16 - [LAB_DUP]	0-0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	0
TP16	0.4-0.5	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	0
TP16	1.0-1.2	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	0
TP17	0-0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	0
TP17	0.3-0.4	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	0
TP18	0-0.1	<25	<50	**190**	**140**	<0.2	<0.5	<1	<1	<1	0
TP18	0.4-0.5	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	0
BH19	0-0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	0
BH20	0-0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	**0.3**
BH20	0.3-0.4	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	**0.3**
BH21	0-0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	0
TP22	0-0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	0
TP22	0.3-0.4	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	0
BH23	0-0.1	<25	<50	**100**	<100	<0.2	<0.5	<1	<1	<1	**0.1**
BH23 - [LAB_DUP]	0-0.1	<25	<50	**140**	<100	<0.2	<0.5	<1	<1	<1	**0.1**
TP24	0-0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	0
TP24	0.3-0.4	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	0
BH25	0-0.1	<25	**50**	**300**	**180**	<0.2	<0.5	<1	<1	<1	0
BH25	0.3-0.4	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	0
BH25	0.4-0.5	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	0
BH25	0.8-0.9	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	0
SDUP1	BH11 (0-0.1m)	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	-
SDUP1 - [LAB_DUP]	BH11 (0-0.1m)	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	-
SDUP2	BH23 (0-0.1m)	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	-
SDUP3	BH19 (0-0.1m)	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	-
SDUP4	BH21 (0-0.1m)	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	-
Total Number of Samples		51	51	51	51	51	51	51	51	51	46
Maximum Value		<PQL	88	850	690	<PQL	<PQL	<PQL	<PQL	<PQL	0.4

Concentration above the SAC	**VALUE**
Concentration above the PQL	**Bold**

TABLE S5
ASBESTOS QUANTIFICATION - FIELD OBSERVATIONS AND LABORATORY RESULTS
HSL-A: Residential with garden/accessible soils; children's day care centers; preschools; and primary schools

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 refeference	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**					**0.01**			**0.001**			**0.001**											**0.01**	**0.001**
24/09/2024	BH1	0-0.2	No	>10	10,700	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	362946	BH1	0-0.1	583.69	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
24/09/2024	BH2	0.1-0.2	NA	<10	8,600	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	362946	BH2	0.05-0.2	480.5	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
26/09/2024	TP3	0-0.1	No	>10	11,900	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	362946	TP3	0-0.1	667.27	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
26/09/2024	TP3	0.5-0.6	NA	<10	4,850	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	362946	TP4	0-0.1	665.52	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
26/09/2024	TP3	1.2-1.4	NA	<10	8,150	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	--	--	--	--	--	--	--	--	--	--	--	--
27/09/2024	TP4	0-0.1	No	>10	11,400	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	362946	TP4	0-0.1	665.52	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
27/09/2024	TP4	0.3-0.5	NA	<10	8,950	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	--	--	--	--	--	--	--	--	--	--	--	--
27/09/2024	TP5	0-0.1	No	>10	12,400	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	362946	TP5	0-0.1	487.27	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
27/09/2024	TP5	0.3-0.5	NA	>10	11,600	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	--	--	--	--	--	--	--	--	--	--	--	--
27/09/2024	TP6	0-0.1	NA	>10	12,050	52.3	7.845	0.0651	No ACM <7mm observed	--	--	No FA observed	--	--	362946	TP6	0-0.1	777.81	No asbestos detected at reporting limit of 0.1g/kg: Organic fibres detected	No asbestos detected	<0.1	Chrysotile	–	0.0019	<0.01	<0.001
26/09/2024	TP6	0.2-0.4	NA	>10	14,550	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	362946-A	TP6	0.3-0.4	585.15	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
26/09/2024	TP6	1.0-1.2	NA	>10	10,050	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	362946	BH7	0-0.1	553.59	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
25/09/2024	BH7	0-0.2	No	>10	11,250	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	--	--	--	--	--	--	--	--	--	--	--	--
25/09/2024	TP8	0-0.2	No	>10	13,650	106.3	15.9375	0.1168	No ACM <7mm observed	--	--	No FA observed	--	--	362946	TP8	0-0.1	581.08	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
25/09/2024	TP8	0.3-0.6	NA	>10	12,600	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	--	--	--	--	--	--	--	--	--	--	--	--
26/09/2024	BH9	0-0.1	No	>10	11,600	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	362946	BH9	0-0.1	616.09	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
26/09/2024	TP10	0-0.1	No	>10	11,600	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	362946	TP10	0-0.1	520.07	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
24/09/2024	BH11	0-0.3	No	>10	10,200	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	--	--	--	--	--	--	--	--	--	--	--	--
24/09/2024	BH11	0..7-1.0	NA	<10	6,250	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	--	--	--	--	--	--	--	--	--	--	--	--
25/09/2024	BH12	0-0.1	No	>10	10,100	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	362946	BH12	0-0.2	539.19	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
25/09/2024	BH13	0-0.1	No	>10	11,650	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	362946	BH13	0-0.1	576.23	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
26/09/2024	TP14	0-0.1	No	>10	11,950	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	362946	TP14	0-0.1	762.85	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
26/09/2024	TP14	0.8-1.0	NA	>10	12,600	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	362946	BH15	0-0.1	494.21	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
24/09/2024	BH15	0.1-0.4	NA	>10	10,650	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	--	--	--	--	--	--	--	--	--	--	--	--
26/09/2024	TP16	0-0.1	No	>10	11,600	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	362946	TP16	0-0.1	658.69	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
26/09/2024	TP16	0.3-0.5	NA	>10	11,900	14.9	2.2305	0.0187	No ACM <7mm observed	--	--	No FA observed	--	--	--	--	--	--	--	--	--	--	--	--	--	--
26/09/2024	TP16	0.9-1.2	NA	>10	12,100	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	--	--	--	--	--	--	--	--	--	--	--	--
26/09/2024	TP17	0-0.1	No	>10	10,600	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	362946	TP17	0-0.1	664.51	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
26/09/2024	TP17	0.2-0.4	NA	>10	13,450	11.1	1.671	0.0124	No ACM <7mm observed	--	--	No FA observed	--	--	--	--	--	--	--	--	--	--	--	--	--	--
26/09/2024	TP17	0.8-1.0	NA	>10	10,800	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	--	--	--	--	--	--	--	--	--	--	--	--
26/09/2024	TP18	0-0.1	No	>10	11,750	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	362946	TP18	0-0.1	511.23	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
26/09/2024	TP18	0.3-0.5	NA	>10	10,700	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	--	--	--	--	--	--	--	--	--	--	--	--
26/09/2024	TP18	0.8-1.1	NA	>10	12,050	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	--	--	--	--	--	--	--	--	--	--	--	--
24/09/2024	BH19	0-0.2	No	>10	11,650	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	362946	BH19	0-0.1	747.49	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
27/09/2024	BH20	0-0.2	No	>10	10,600	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	362946	BH20	0-0.1	261.81	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
26/09/2024	BH21	0-0.4	No	>10	11,600	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	362946	BH21	0-0.1	731	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
26/09/2024	TP22	0-0.1	No	>10	10,100	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	362946	TP22	0-0.1	688.35	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
26/09/2024	TP22	0.3-.5	NA	>10	11,050	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	--	--	--	--	--	--	--	--	--	--	--	--
26/09/2024	TP22	0.6-0.8	NA	>10	13,250	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	--	--	--	--	--	--	--	--	--	--	--	--
26/09/2024	TP22	1.3-1.5	NA	>10	12,100	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	--	--	--	--	--	--	--	--	--	--	--	--
24/09/2024	BH23	0-0.4	No	<10	8,150	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	362946	BH23	0-0.1	537.41	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
24/09/2024	BH23	0.5-1.0	NA	<10	5,700	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	--	--	--	--	--	--	--	--	--	--	--	--
26/09/2024	TP24	0-0.1	No	>10	11,850	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	362946	TP24	0-0.1	864.83	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
26/09/2024	TP24	0.2-0.4	NA	>10	12,400	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	--	--	--	--	--	--	--	--	--	--	--	--
26/09/2024	TP24	0.5-0.7	NA	>10	11,100	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	--	--	--	--	--	--	--	--	--	--	--	--
25/09/2024	BH25	0-0.2	No	>	10,550	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	362946	BH25	0-0.1	324.68	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**																			
							AGED HEAVY METALS-EILs						EILs		ESLs								
				pH	CEC (cmolc/kg)	Clay Content (% clay)	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	8	18	104	5	77	NSL	NSL	NSL	NSL	NSL	NSL	NSL	NSL	NSL	NSL	NSL
Sample Reference	**Sample Depth**	**Sample Description**	**Soil Texture**																				
BH1	0-0.1	F: Silty Sand	Coarse	NA	NA	NA	**15**	**27**	**24**	**11**	**11**	**77**	<1	<0.1	<25	<50	**140**	**120**	<0.2	<0.5	<1	<1	**0.57**
BH1 - [LAB_DUP]	0-0.1	F: Silty Sand	Coarse	NA	NA	NA	**17**	**28**	**25**	**12**	**9**	**81**	<1	<0.1	<25	<50	**150**	**120**	<0.2	<0.5	<1	<1	**0.5**
BH2	0.05-0.2	F: Silty Sandy Gravel	Coarse	NA	NA	NA	<4	**20**	**16**	**30**	**24**	**120**	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	**0.05**
TP3	0-0.1	F: Silty Sand	Coarse	NA	NA	NA	<4	**10**	**9**	**11**	**5**	**35**	<1	<0.1	<25	**88**	<100	<100	<0.2	<0.5	<1	<1	<0.05
TP3	0.5-0.6	F: Sand	Coarse	NA	NA	NA	<4	**5**	<1	**2**	<1	**2**	<1	NA	<25	<50	<100	<100	<0.2	<0.5	<1	<1	**0.06**
TP4	0-0.1	F: Silty Sand	Coarse	NA	NA	NA	<4	**14**	**18**	**27**	**11**	**86**	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	**0.1**
TP4	0.4-0.5	F: Silty Clay	Fine	NA	NA	NA	<4	**21**	**22**	**39**	**20**	**110**	<1	NA	<25	<50	<100	<100	<0.2	<0.5	<1	<1	**0.4**
TP4	0.5-0.6	F: Silty Gravel	Coarse	NA	NA	NA	<4	**4**	**9**	**12**	**5**	**24**	<1	NA	<25	<50	**850**	**690**	<0.2	<0.5	<1	<1	**0.4**
TP4	0.8-0.9	Silty Clay	Fine	NA	NA	NA	<4	**30**	**16**	**10**	**15**	**32**	<1	NA	<25	<50	<100	<100	<0.2	<0.5	<1	<1	**0.1**
TP5	0-0.1	F: Silty Sand	Coarse	NA	NA	NA	<4	**25**	**15**	**9**	**12**	**57**	<1	<0.1	<25	<50	**160**	**150**	<0.2	<0.5	<1	<1	<0.05
TP6	0-0.1	F: Silty Sand	Coarse	NA	NA	NA	<4	**8**	**13**	**20**	**8**	**59**	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	**0.2**
BH7	0-0.1	F: Silty Clay	Fine	NA	NA	NA	<4	**15**	**20**	**15**	**10**	**79**	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	**0.07**
TP8	0-0.1	F: Silty Sandy Clay	Fine	NA	NA	NA	<4	**14**	**15**	**26**	**9**	**100**	<1	<0.1	<25	<50	**200**	**140**	<0.2	<0.5	<1	<1	**0.57**
TP8 - [LAB_DUP]	0-0.1	F: Silty Sandy Clay	Fine	NA	NA	NA	<4	**15**	**15**	**25**	**9**	**110**	<1	<0.1	<25	<50	**200**	**130**	<0.2	<0.5	<1	<1	**0.65**
TP8	0.4-0.5	F: Silty Gravelly Clay	Fine	NA	NA	NA	<4	**5**	**19**	**5**	**18**	**57**	<1	NA	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.05
BH9	0-0.1	Fill: Silty Sand	Coarse	NA	NA	NA	<4	**8**	**9**	**13**	**4**	**33**	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.05
TP10	0-0.1	F: Silty Sand	Coarse	NA	NA	NA	<4	**11**	**10**	**14**	**8**	**55**	<1	<0.1	<25	<50	**140**	<100	<0.2	<0.5	<1	<1	**1.6**
TP10	0.4-0.5	F: Silty Sandy Clay	Fine	NA	NA	NA	<4	**24**	**10**	**9**	**20**	**62**	<1	NA	<25	<50	<100	<100	<0.2	<0.5	<1	<1	**0.91**
BH11	0.0-0.1	Fill: Silty Sand	Coarse	NA	NA	NA	<4	**7**	**12**	**11**	**7**	**47**	<1	NA	<25	<50	<100	<100	<0.2	<0.5	<1	<1	**0.1**
BH12	0-0.2	F: Silty Clay	Fine	NA	NA	NA	<4	**9**	**6**	**11**	**4**	**54**	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.05
BH13	0-0.1	F: Silty Clay	Fine	NA	NA	NA	<4	**17**	**12**	**17**	**10**	**63**	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	**0.65**
TP14	0-0.1	F: Silty Sand	Coarse	**7.5**	**15**	NA	<4	**12**	**22**	**25**	**9**	**220**	<1	<0.1	<25	<50	**120**	**110**	<0.2	<0.5	<1	<1	<0.05
TP14	0.9-1	Sandy Clay	Fine	NA	NA	NA	<4	**32**	**14**	**6**	**30**	**64**	<1	NA	<25	<50	<100	<100	<0.2	<0.5	<1	<1	**0.05**
BH15	0-0.1	F: Silty Sandy Gravel	Coarse	NA	NA	NA	**5**	**10**	**15**	**9**	**8**	**44**	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.05
TP16	0-0.1	F: Silty Sand	Coarse	NA	NA	NA	<4	**11**	**14**	**10**	**14**	**64**	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.05
TP16 - [LAB_DUP]	0-0.1	F: Silty Sand	Coarse	NA	NA	NA	<4	**12**	**14**	**11**	**13**	**61**	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.05
TP16	0.4-0.5	F: Silty Clay	Fine	NA	NA	NA	<4	**20**	**15**	**37**	**22**	**81**	<1	NA	<25	<50	<100	<100	<0.2	<0.5	<1	<1	**2.5**
TP16	1.0-1.2	Silty Clay	Fine	NA	NA	NA	<4	**24**	**15**	**9**	**14**	**23**	<1	NA	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.05
TP17	0-0.1	F: Silty Sand	Coarse	NA	NA	NA	<4	**11**	**14**	**13**	**11**	**71**	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	**0.1**
TP17	0.3-0.4	F: Silty Sandy Clay	Fine	NA	NA	NA	<4	**34**	**19**	**30**	**25**	**81**	<1	NA	<25	<50	<100	<100	<0.2	<0.5	<1	<1	**0.86**
TP18	0-0.1	F: Silty Clayey Sand	Coarse	NA	NA	NA	<4	**17**	**15**	**14**	**11**	**85**	<1	<0.1	<25	<50	**190**	**140**	<0.2	<0.5	<1	<1	**0.07**
TP18	0.4-0.5	F: Silty Clay	Fine	NA	NA	NA	<4	**26**	**16**	**14**	**18**	**66**	<1	NA	<25	<50	<100	<100	<0.2	<0.5	<1	<1	**0.2**
BH19	0-0.1	F: Silty Sand	Coarse	NA	NA	NA	<4	**5**	**11**	**10**	**5**	**46**	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.05
BH20	0-0.1	F: Silty Clay	Fine	NA	NA	NA	<4	**9**	**9**	**10**	**5**	**31**	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.05
BH20	0.3-0.4	F: Silty Gravel	Coarse	NA	NA	NA	**7**	**9**	**15**	**11**	**9**	**44**	<1	NA	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.05
BH21	0-0.1	F: Silty Sand	Coarse	NA	NA	NA	<4	**12**	**8**	**9**	**7**	**38**	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.05
TP22	0-0.1	F: Silty Sand	Coarse	NA	NA	NA	<4	**10**	**9**	**10**	**5**	**39**	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.05
TP22	0.3-0.4	F: Silty Sandy Clay	Fine	NA	NA	NA	<4	**19**	**22**	**38**	**16**	**120**	<1	NA	<25	<50	<100	<100	<0.2	<0.5	<1	<1	**0.4**
BH23	0-0.1	F: Silty Sand	Coarse	NA	NA	NA	<4	**9**	**10**	**12**	**6**	**56**	<1	<0.1	<25	<50	**100**	<100	<0.2	<0.5	<1	<1	**0.08**
BH23 - [LAB_DUP]	0-0.1	F: Silty Sand	Coarse	NA	NA	NA	<4	**9**	**12**	**26**	**6**	**59**	<1	<0.1	<25	<50	**140**	<100	<0.2	<0.5	<1	<1	<0.05
TP24	0-0.1	F: Silty Sand	Coarse	NA	NA	NA	**4**	**4**	**14**	**14**	**7**	**44**	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.05
TP24	0.3-0.4	F: Silty Gavelly Clay	Fine	NA	NA	NA	<4	**14**	**7**	**3**	**5**	**21**	<1	NA	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.05
BH25	0-0.1	F: Silty Clay	Fine	NA	NA	NA	<4	**26**	**16**	**8**	**24**	**61**	<1	<0.1	<25	**50**	**300**	**180**	<0.2	<0.5	<1	<1	**0.1**
BH25	0.3-0.4	F: Gravelly Clay	Fine	**7.1**	**33**	NA	<4	**42**	**18**	**15**	**55**	**78**	<1	NA	<25	<50	<100	<100	<0.2	<0.5	<1	<1	**0.1**
BH25	0.4-0.5	F: Sandy Clay	Fine	NA	NA	NA	<4	**33**	**16**	**440**	**29**	**72**	<1	NA	<25	<50	<100	<100	<0.2	<0.5	<1	<1	**0.5**
BH25	0.8-0.9	Silty Clay	Fine	NA	NA	NA	<4	**26**	**17**	**10**	**11**	**20**	<1	NA	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.05
SS26	0-0.1	F: Sandy Gravel	Coarse	NA	NA	NA	<4	**14**	**16**	**15**	**7**	**85**	NA	<0.1	NA	NA	NA	NA	NA	NA	NA	NA	NA
SS27	0-0.1	F: Silty Clay	Fine	NA	NA	NA	<4	**13**	**17**	**8**	**13**	**100**	NA	<0.1	NA	NA	NA	NA	NA	NA	NA	NA	NA
SS28	0-0.1	F: Silty Sand	Coarse	NA	NA	NA	**18**	**27**	**24**	**16**	**11**	**130**	NA	<0.1	NA	NA	NA	NA	NA	NA	NA	NA	NA
SS29	0-0.1	F: Silty Sand	Coarse	NA	NA	NA	<4	**12**	**19**	**16**	**14**	**120**	NA	<0.1	NA	NA	NA	NA	NA	NA	NA	NA	NA
SS30	0-0.1	F: Silty Sand	Coarse	NA	NA	NA	**7**	**7**	**28**	**17**	**11**	**84**	NA	<0.1	NA	NA	NA	NA	NA	NA	NA	NA	NA
SS31	0-0.1	F: Silty Sand	Coarse	NA	NA	NA	<4	**18**	**17**	**12**	**14**	**140**	NA	<0.1	NA	NA	NA	NA	NA	NA	NA	NA	NA
SS32	0-0.1	F: Silty Sand	Coarse	NA	NA	NA	<4	**9**	**13**	**9**	**10**	**98**	NA	<0.1	NA	NA	NA	NA	NA	NA	NA	NA	NA
SS33	0-0.1	F: Silty Clay	Fine	NA	NA	NA	<4	**11**	**10**	**10**	**8**	**84**	NA	<0.1	NA	NA	NA	NA	NA	NA	NA	NA	NA
SS34	0-0.1	F: Silty Sand	Coarse	NA	NA	NA	<4	**13**	**11**	**7**	**6**	**45**	NA	<0.1	NA	NA	NA	NA	NA	NA	NA	NA	NA
SS35	0-0.1	F: Silty Clay	Fine	**6.7**	**21**	NA	<4	**24**	**16**	**22**	**19**	**280**	NA	<0.1	NA	NA	NA	NA	NA	NA	NA	NA	NA
SDUP1	BH11 (0-0.1m)	F: Silty Sand	Coarse	NA	NA	NA	<4	**8**	**14**	**12**	**9**	**55**	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	**0.06**
SDUP1 - [LAB_DUP]	BH11 (0-0.1m)	F: Silty Sand	Coarse	NA	NA	NA	<4	**9**	**12**	**11**	**9**	**47**	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	**0.1**
SDUP2	BH23 (0-0.1m)	F: Silty sand	Coarse	NA	NA	NA	<4	**7.9**	**9.1**	**6.8**	**5.7**	**46**	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	**0.051**
SDUP3	BH19 (0-0.1m)	F: Silty Sand	Coarse	NA	NA	NA	<4	**13**	**9**	**8**	**6**	**49**	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.05
SDUP4	BH21 (0-0.1m)	F: Silty sand	Coarse	NA	NA	NA	<4	**14**	**11**	**9.3**	**9.3**	**42**	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.1
Total Number of Samples				3	3	0	61	61	61	61	61	61	51	43	51	51	51	51	51	51	51	51	51
Maximum Value				7.5	33	NA	18	42	28	440	55	280	<PQL	<PQL	<PQL	88	850	690	<PQL	<PQL	<PQL	<PQL	2.5

Concentration above the SAC 🟩 **VALUE**
Concentration above the PQL **Bold**
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	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
BH1	0-0.1	F: Silty Sand	Coarse	NA	NA	NA	100	200	80	1200	35	150	170	180	180	120	300	2800	50	85	70	105	20
BH1 - [LAB_DUP]	0-0.1	F: Silty Sand	Coarse	NA	NA	NA	100	200	80	1200	35	150	170	180	180	120	300	2800	50	85	70	105	20
BH2	0.05-0.2	F: Silty Sandy Gravel	Coarse	NA	NA	NA	100	200	80	1200	35	150	170	180	180	120	300	2800	50	85	70	105	20
TP3	0-0.1	F: Silty Sand	Coarse	NA	NA	NA	100	200	80	1200	35	150	170	180	180	120	300	2800	50	85	70	105	20
TP3	0.5-0.6	F: Sand	Coarse	NA	NA	NA	100	200	80	1200	35	150	170	--	180	120	300	2800	50	85	70	105	20
TP4	0-0.1	F: Silty Sand	Coarse	NA	NA	NA	100	200	80	1200	35	150	170	180	180	120	300	2800	50	85	70	105	20
TP4	0.4-0.5	F: Silty Clay	Fine	NA	NA	NA	100	200	80	1200	35	150	170	--	180	120	1300	5600	65	105	125	45	20
TP4	0.5-0.6	F: Silty Gravel	Coarse	NA	NA	NA	100	200	80	1200	35	150	170	--	180	120	300	2800	50	85	70	105	20
TP4	0.8-0.9	Silty Clay	Fine	NA	NA	NA	100	200	80	1200	35	150	170	--	180	120	1300	5600	65	105	125	45	20
TP5	0-0.1	F: Silty Sand	Coarse	NA	NA	NA	100	200	80	1200	35	150	170	180	180	120	300	2800	50	85	70	105	20
TP6	0-0.1	F: Silty Sand	Coarse	NA	NA	NA	100	200	80	1200	35	150	170	180	180	120	300	2800	50	85	70	105	20
BH7	0-0.1	F: Silty Clay	Fine	NA	NA	NA	100	200	80	1200	35	150	170	180	180	120	1300	5600	65	105	125	45	20
TP8	0-0.1	F: Silty Sandy Clay	Fine	NA	NA	NA	100	200	80	1200	35	150	170	180	180	120	1300	5600	65	105	125	45	20
TP8 - [LAB_DUP]	0-0.1	F: Silty Sandy Clay	Fine	NA	NA	NA	100	200	80	1200	35	150	170	180	180	120	1300	5600	65	105	125	45	20
TP8	0.4-0.5	F: Silty Gravelly Clay	Fine	NA	NA	NA	100	200	80	1200	35	150	170	--	180	120	1300	5600	65	105	125	45	20
BH9	0-0.1	Fill: Silty Sand	Coarse	NA	NA	NA	100	200	80	1200	35	150	170	180	180	120	300	2800	50	85	70	105	20
TP10	0-0.1	F: Silty Sand	Coarse	NA	NA	NA	100	200	80	1200	35	150	170	180	180	120	300	2800	50	85	70	105	20
TP10	0.4-0.5	F: Silty Sandy Clay	Fine	NA	NA	NA	100	200	80	1200	35	150	170	--	180	120	1300	5600	65	105	125	45	20
BH11	0.0-0.1	Fill: Silty Sand	Coarse	NA	NA	NA	100	200	80	1200	35	150	170	--	180	120	300	2800	50	85	70	105	20
BH12	0-0.2	F: Silty Clay	Fine	NA	NA	NA	100	200	80	1200	35	150	170	180	180	120	1300	5600	65	105	125	45	20
BH13	0-0.1	F: Silty Clay	Fine	NA	NA	NA	100	200	80	1200	35	150	170	180	180	120	1300	5600	65	105	125	45	20
TP14	0-0.1	F: Silty Sand	Coarse	7.5	15	NA	100	200	230	1200	280	780	170	180	180	120	300	2800	50	85	70	105	20
TP14	0.9-1	Sandy Clay	Fine	NA	NA	NA	100	200	80	1200	35	150	170	--	180	120	1300	5600	65	105	125	45	20
BH15	0-0.1	F: Silty Sandy Gravel	Coarse	NA	NA	NA	100	200	80	1200	35	150	170	180	180	120	300	2800	50	85	70	105	20
TP16	0-0.1	F: Silty Sand	Coarse	NA	NA	NA	100	200	80	1200	35	150	170	180	180	120	300	2800	50	85	70	105	20
TP16 - [LAB_DUP]	0-0.1	F: Silty Sand	Coarse	NA	NA	NA	100	200	80	1200	35	150	170	180	180	120	300	2800	50	85	70	105	20
TP16	0.4-0.5	F: Silty Clay	Fine	NA	NA	NA	100	200	80	1200	35	150	170	--	180	120	1300	5600	65	105	125	45	20
TP16	1.0-1.2	Silty Clay	Fine	NA	NA	NA	100	200	80	1200	35	150	170	--	180	120	1300	5600	65	105	125	45	20
TP17	0-0.1	F: Silty Sand	Coarse	NA	NA	NA	100	200	80	1200	35	150	170	180	180	120	300	2800	50	85	70	105	20
TP17	0.3-0.4	F: Silty Sandy Clay	Fine	NA	NA	NA	100	200	80	1200	35	150	170	--	180	120	1300	5600	65	105	125	45	20
TP18	0-0.1	F: Silty Clayey Sand	Coarse	NA	NA	NA	100	200	80	1200	35	150	170	180	180	120	300	2800	50	85	70	105	20
TP18	0.4-0.5	F: Silty Clay	Fine	NA	NA	NA	100	200	80	1200	35	150	170	--	180	120	1300	5600	65	105	125	45	20
BH19	0-0.1	F: Silty Sand	Coarse	NA	NA	NA	100	200	80	1200	35	150	170	180	180	120	300	2800	50	85	70	105	20
BH20	0-0.1	F: Silty Clay	Fine	NA	NA	NA	100	200	80	1200	35	150	170	180	180	120	1300	5600	65	105	125	45	20
BH20	0.3-0.4	F: Silty Gravel	Coarse	NA	NA	NA	100	200	80	1200	35	150	170	--	180	120	300	2800	50	85	70	105	20
BH21	0-0.1	F: Silty Sand	Coarse	NA	NA	NA	100	200	80	1200	35	150	170	180	180	120	300	2800	50	85	70	105	20
TP22	0-0.1	F: Silty Sand	Coarse	NA	NA	NA	100	200	80	1200	35	150	170	180	180	120	300	2800	50	85	70	105	20
TP22	0.3-0.4	F: Silty Sandy Clay	Fine	NA	NA	NA	100	200	80	1200	35	150	170	--	180	120	1300	5600	65	105	125	45	20
BH23	0-0.1	F: Silty Sand	Coarse	NA	NA	NA	100	200	80	1200	35	150	170	180	180	120	300	2800	50	85	70	105	20
BH23 - [LAB_DUP]	0-0.1	F: Silty Sand	Coarse	NA	NA	NA	100	200	80	1200	35	150	170	180	180	120	300	2800	50	85	70	105	20
TP24	0-0.1	F: Silty Sand	Coarse	NA	NA	NA	100	200	80	1200	35	150	170	180	180	120	300	2800	50	85	70	105	20
TP24	0.3-0.4	F: Silty Gavelly Clay	Fine	NA	NA	NA	100	200	80	1200	35	150	170	--	180	120	1300	5600	65	105	125	45	20
BH25	0-0.1	F: Silty Clay	Fine	NA	NA	NA	100	200	80	1200	35	150	170	180	180	120	1300	5600	65	105	125	45	20
BH25	0.3-0.4	F: Gravelly Clay	Fine	7.1	33	NA	100	200	240	1200	420	1300	170	--	180	120	1300	5600	65	105	125	45	20
BH25	0.4-0.5	F: Sandy Clay	Fine	NA	NA	NA	100	200	80	1200	35	150	170	--	180	120	1300	5600	65	105	125	45	20
BH25	0.8-0.9	Silty Clay	Fine	NA	NA	NA	100	200	80	1200	35	150	170	--	180	120	1300	5600	65	105	125	45	20
SS26	0-0.1	F: Sandy Gravel	Coarse	NA	NA	NA	100	200	80	1200	35	150	--	180	--	--	--	--	--	--	--	--	--
SS27	0-0.1	F: Silty Clay	Fine	NA	NA	NA	100	200	80	1200	35	150	--	180	--	--	--	--	--	--	--	--	--
SS28	0-0.1	F: Silty Sand	Coarse	NA	NA	NA	100	200	80	1200	35	150	--	180	--	--	--	--	--	--	--	--	--
SS29	0-0.1	F: Silty Sand	Coarse	NA	NA	NA	100	200	80	1200	35	150	--	180	--	--	--	--	--	--	--	--	--
SS30	0-0.1	F: Silty Sand	Coarse	NA	NA	NA	100	200	80	1200	35	150	--	180	--	--	--	--	--	--	--	--	--
SS31	0-0.1	F: Silty Sand	Coarse	NA	NA	NA	100	200	80	1200	35	150	--	180	--	--	--	--	--	--	--	--	--
SS32	0-0.1	F: Silty Sand	Coarse	NA	NA	NA	100	200	80	1200	35	150	--	180	--	--	--	--	--	--	--	--	--
SS33	0-0.1	F: Silty Clay	Fine	NA	NA	NA	100	200	80	1200	35	150	--	180	--	--	--	--	--	--	--	--	--
SS34	0-0.1	F: Silty Sand	Coarse	NA	NA	NA	100	200	80	1200	35	150	--	180	--	--	--	--	--	--	--	--	--
SS35	0-0.1	F: Silty Clay	Fine	6.7	21	NA	100	200	240	1200	360	960	--	180	--	--	--	--	--	--	--	--	--
SDUP1	BH11 (0-0.1m)	F: Silty Sand	Coarse	NA	NA	NA	100	200	80	1200	35	150	170	180	180	120	300	2800	50	85	70	105	20
SDUP1 - [LAB_DUP]	BH11 (0-0.1m)	F: Silty Sand	Coarse	NA	NA	NA	100	200	80	1200	35	150	170	180	180	120	300	2800	50	85	70	105	20
SDUP2	BH23 (0-0.1m)	F: Silty sand	Coarse	NA	NA	NA	100	200	80	1200	35	150	170	180	180	120	300	2800	50	85	70	105	20
SDUP3	BH19 (0-0.1m)	F: Silty Sand	Coarse	NA	NA	NA	100	200	80	1200	35	150	170	180	180	120	300	2800	50	85	70	105	20
SDUP4	BH21 (0-0.1m)	F: Silty sand	Coarse	NA	NA	NA	100	200	80	1200	35	150	170	180	180	120	300	2800	50	85	70	105	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	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	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	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**																									
BH1	0-0.1	F: Silty Sand	**15**	<0.4	**27**	**24**	**11**	<0.1	**11**	**77**	**6.8**	**0.57**	<0.1	<0.1	<0.1	<0.1	<0.1	<25	<50	<100	**100**	**100**	<0.2	<0.5	<1	<1	Not Detected
BH1 - [LAB_DUP]	0-0.1	F: Silty Sand	**17**	<0.4	**28**	**25**	**12**	<0.1	**9**	**81**	**6.2**	**0.5**	<0.1	<0.1	<0.1	<0.1	<0.1	<25	<50	<100	**120**	**120**	<0.2	<0.5	<1	<1	NA
BH2	0.05-0.2	F: Silty Sandy Gravel	<4	<0.4	**20**	**16**	**30**	<0.1	**24**	**120**	**0.2**	**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
TP3	0-0.1	F: Silty Sand	<4	<0.4	**10**	**9**	**11**	<0.1	**5**	**35**	<0.05	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<25	**54**	<100	<100	**54**	<0.2	<0.5	<1	<1	Not Detected
TP3	0.5-0.6	F: Sand	<4	<0.4	**5**	<1	**2**	<0.1	<1	**2**	**0.06**	**0.06**	NA	NA	NA	NA	NA	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<1	NA
TP4	0-0.1	F: Silty Sand	<4	<0.4	**14**	**18**	**27**	<0.1	**11**	**86**	**1.3**	**0.1**	<0.1	<0.1	<0.1	<0.1	<0.1	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<1	Not Detected
TP4	0.4-0.5	F: Silty Clay	<4	<0.4	**21**	**22**	**39**	<0.1	**20**	**110**	**4.2**	**0.4**	NA	NA	NA	NA	NA	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<1	NA
TP4	0.5-0.6	F: Silty Gravel	<4	<0.4	**4**	**9**	**12**	<0.1	**5**	**24**	**3.4**	**0.4**	NA	NA	NA	NA	NA	<25	<50	**290**	**780**	**1070**	<0.2	<0.5	<1	<1	NA
TP4	0.8-0.9	Silty Clay	<4	<0.4	**30**	**16**	**10**	<0.1	**15**	**32**	**1.1**	**0.1**	NA	NA	NA	NA	NA	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<1	NA
TP5	0-0.1	F: Silty Sand	<4	<0.4	**25**	**15**	**9**	<0.1	**12**	**57**	<0.05	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<25	<50	<100	**140**	**140**	<0.2	<0.5	<1	<1	Not Detected
TP6	0-0.1	F: Silty Sand	<4	<0.4	**8**	**13**	**20**	<0.1	**8**	**59**	**1.6**	**0.2**	<0.1	<0.1	<0.1	<0.1	<0.1	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<1	Detected
TP6	0.3-0.4	F: Silty Sand	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	Not Detected
BH7	0-0.1	F: Silty Clay	<4	<0.4	**15**	**20**	**15**	<0.1	**10**	**79**	**0.07**	**0.07**	<0.1	<0.1	<0.1	<0.1	<0.1	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<1	Not Detected
TP8	0-0.1	F: Silty Sandy Clay	<4	**1**	**14**	**15**	**26**	<0.1	**9**	**100**	**5.8**	**0.57**	<0.1	<0.1	<0.1	<0.1	<0.1	<25	<50	**110**	**140**	**250**	<0.2	<0.5	<1	<1	Not Detected
TP8 - [LAB_DUP]	0-0.1	F: Silty Sandy Clay	<4	**0.5**	**15**	**15**	**25**	<0.1	**9**	**110**	**6.2**	**0.65**	<0.1	<0.1	<0.1	<0.1	<0.1	<25	<50	**120**	**140**	**260**	<0.2	<0.5	<1	<1	NA
TP8	0.4-0.5	F: Silty Gravelly Clay	<4	<0.4	**5**	**19**	**5**	<0.1	**18**	**57**	<0.05	<0.05	NA	NA	NA	NA	NA	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<1	NA
BH9	0-0.1	Fill: Silty Sand	<4	<0.4	**8**	**9**	**13**	<0.1	**4**	**33**	<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
TP10	0-0.1	F: Silty Sand	<4	<0.4	**11**	**10**	**14**	<0.1	**8**	**55**	**24**	**1.6**	<0.1	<0.1	<0.1	<0.1	<0.1	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<1	Not Detected
TP10	0.4-0.5	F: Silty Sandy Clay	<4	<0.4	**24**	**10**	**9**	<0.1	**20**	**62**	**9.6**	**0.91**	NA	NA	NA	NA	NA	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<1	NA
BH11	0.0-0.1	Fill: Silty Sand	<4	<0.4	**7**	**12**	**11**	<0.1	**7**	**47**	**1.2**	**0.1**	NA	NA	NA	NA	NA	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<1	NA
BH12	0-0.2	F: Silty Clay	<4	<0.4	**9**	**6**	**11**	<0.1	**4**	**54**	<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
BH13	0-0.1	F: Silty Clay	<4	<0.4	**17**	**12**	**17**	<0.1	**10**	**63**	**6.1**	**0.65**	<0.1	<0.1	<0.1	<0.1	<0.1	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<1	Not Detected
TP14	0-0.1	F: Silty Sand	<4	<0.4	**12**	**22**	**25**	**0.1**	**9**	**220**	<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
TP14	0.9-1	Sandy Clay	<4	<0.4	**32**	**14**	**6**	<0.1	**30**	**64**	**0.3**	**0.05**	NA	NA	NA	NA	NA	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<1	NA
BH15	0-0.1	F: Silty Sandy Gravel	**5**	<0.4	**10**	**15**	**9**	<0.1	**8**	**44**	<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
TP16	0-0.1	F: Silty Sand	<4	<0.4	**11**	**14**	**10**	<0.1	**14**	**64**	<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
TP16 - [LAB_DUP]	0-0.1	F: Silty Sand	<4	<0.4	**12**	**14**	**11**	<0.1	**13**	**61**	<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
TP16	0.4-0.5	F: Silty Clay	<4	<0.4	**20**	**15**	**37**	<0.1	**22**	**81**	**17**	**2.5**	NA	NA	NA	NA	NA	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<1	NA
TP16	1.0-1.2	Silty Clay	<4	<0.4	**24**	**15**	**9**	<0.1	**14**	**23**	<0.05	<0.05	NA	NA	NA	NA	NA	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<1	NA
TP17	0-0.1	F: Silty Sand	<4	<0.4	**11**	**14**	**13**	<0.1	**11**	**71**	**0.56**	**0.1**	<0.1	<0.1	<0.1	<0.1	<0.1	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<1	Not Detected
TP17	0.3-0.4	F: Silty Sandy Clay	<4	<0.4	**34**	**19**	**30**	<0.1	**25**	**81**	**8.6**	**0.86**	NA	NA	NA	NA	NA	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<1	NA
TP18	0-0.1	F: Silty Clayey Sand	<4	<0.4	**17**	**15**	**14**	<0.1	**11**	**85**	**0.3**	**0.07**	<0.1	<0.1	<0.1	<0.1	<0.1	<25	<50	<100	**140**	**140**	<0.2	<0.5	<1	<1	Not Detected
TP18	0.4-0.5	F: Silty Clay	<4	<0.4	**26**	**16**	**14**	<0.1	**18**	**66**	**3.3**	**0.2**	NA	NA	NA	NA	NA	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<1	NA
BH19	0-0.1	F: Silty Sand	<4	<0.4	**5**	**11**	**10**	<0.1	**5**	**46**	<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
BH20	0-0.1	F: Silty Clay	<4	<0.4	**9**	**9**	**10**	<0.1	**5**	**31**	<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
BH20	0.3-0.4	F: Silty Gravel	**7**	<0.4	**9**	**15**	**11**	<0.1	**9**	**44**	<0.05	<0.05	NA	NA	NA	NA	NA	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<1	NA
BH21	0-0.1	F: Silty Sand	<4	<0.4	**12**	**8**	**9**	<0.1	**7**	**38**	<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
TP22	0-0.1	F: Silty Sand	<4	<0.4	**10**	**9**	**10**	<0.1	**5**	**39**	<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
TP22	0.3-0.4	F: Silty Sandy Clay	<4	<0.4	**19**	**22**	**38**	<0.1	**16**	**120**	**5.4**	**0.4**	NA	NA	NA	NA	NA	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<1	NA
BH23	0-0.1	F: Silty Sand	<4	<0.4	**9**	**10**	**12**	<0.1	**6**	**56**	**0.4**	**0.08**	<0.1	<0.1	<0.1	<0.1	<0.1	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<1	Not Detected
BH23 - [LAB_DUP]	0-0.1	F: Silty Sand	<4	<0.4	**9**	**12**	**26**	<0.1	**6**	**59**	<0.05	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<25	<50	<100	**110**	**110**	<0.2	<0.5	<1	<1	NA
TP24	0-0.1	F: Silty Sand	**4**	<0.4	**4**	**14**	**14**	<0.1	**7**	**44**	<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
TP24	0.3-0.4	F: Silty Gavelly Clay	<4	<0.4	**14**	**7**	**3**	<0.1	**5**	**21**	<0.05	<0.05	NA	NA	NA	NA	NA	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<1	NA
BH25	0-0.1	F: Silty Clay	<4	<0.4	**26**	**16**	**8**	<0.1	**24**	**61**	**1.2**	**0.1**	<0.1	<0.1	<0.1	<0.1	<0.1	<25	<50	**190**	**190**	**380**	<0.2	<0.5	<1	<1	Not Detected
BH25	0.3-0.4	F: Gravelly Clay	<4	<0.4	**42**	**18**	**15**	<0.1	**55**	**78**	**1.2**	**0.1**	NA	NA	NA	NA	NA	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<1	NA
BH25	0.4-0.5	F: Sandy Clay	<4	<0.4	**33**	**16**	**440**	<0.1	**29**	**72**	**4.8**	**0.5**	NA	NA	NA	NA	NA	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<1	NA
BH25	0.8-0.9	Silty Clay	<4	<0.4	**26**	**17**	**10**	<0.1	**11**	**20**	<0.05	<0.05	NA	NA	NA	NA	NA	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<1	NA
SS26	0-0.1	F: Sandy Gravel	<4	**1**	**14**	**16**	**15**	<0.1	**7**	**85**	NA	NA	<0.1	<0.1	<0.1	<0.1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SS27	0-0.1	F: Silty Clay	<4	<0.4	**13**	**17**	**8**	<0.1	**13**	**100**	NA	NA	<0.1	<0.1	<0.1	<0.1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SS28	0-0.1	F: Silty Sand	**18**	**2**	**27**	**24**	**16**	<0.1	**11**	**130**	NA	NA	<0.1	<0.1	<0.1	<0.1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SS29	0-0.1	F: Silty Sand	<4	**0.9**	**12**	**19**	**16**	<0.1	**14**	**120**	NA	NA	<0.1	<0.1	<0.1	<0.1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SS30	0-0.1	F: Silty Sand	**7**	<0.4	**7**	**28**	**17**	<0.1	**11**	**84**	NA	NA	<0.1	<0.1	<0.1	<0.1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SS31	0-0.1	F: Silty Sand	<4	<0.4	**18**	**17**	**12**	<0.1	**14**	**140**	NA	NA	<0.1	<0.1	<0.1	<0.1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SS32	0-0.1	F: Silty Sand	<4	<0.4	**9**	**13**	**9**	<0.1	**10**	**98**	NA	NA	<0.1	<0.1	<0.1	<0.1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SS33	0-0.1	F: Silty Clay	<4	<0.4	**11**	**10**	**10**	<0.1	**8**	**84**	NA	NA	<0.1	<0.1	<0.1	<0.1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SS34	0-0.1	F: Silty Sand	<4	<0.4	**13**	**11**	**7**	<0.1	**6**	**45**	NA	NA	<0.1	<0.1	<0.1	<0.1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SS35	0-0.1	F: Silty Clay	<4	<0.4	**24**	**16**	**22**	<0.1	**19**	**280**	NA	NA	<0.1	<0.1	<0.1	<0.1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SDUP1	BH11 (0-0.1m)	F: Silty Sand	<4	<0.4	**8**	**14**	**12**	<0.1	**9**	**55**	**0.3**	**0.06**	<0.1	<0.1	<0.1	<0.1	<0.1	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<1	NA
SDUP1 - [LAB_DUP]	BH11 (0-0.1m)	F: Silty Sand	<4	<0.4	**9**	**12**	**11**	<0.1	**9**	**47**	**1.2**	**0.1**	<0.1	<0.1	<0.1	<0.1	<0.1	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<1	NA
SDUP2	BH23 (0-0.1m)	F: Silty sand	<4	<0.4	**7.9**	**9.1**	**6.8**	<0.1	**5.7**	**46**	**0.051**	**0.051**	<0.1	<0.1	<0.1	<0.1	<0.1	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<1	NA
SDUP3	BH19 (0-0.1m)	F: Silty Sand	<4	<0.4	**13**	**9**	**8**	<0.1	**6**	**49**	<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
SDUP4	BH21 (0-0.1m)	F: Silty sand	<4	<0.4	**14**	**11**	**9.3**	<0.1	**9.3**	**42**	**0.47**	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<1	NA
FCF1	Surface	Material	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	Not Detected
FCF2-TP8	0-0.2	Material	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	Detected
FCF3-TP6	0-0.1	Material	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	Detected
FCF4-TP16	0.4-0.5	Material	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	Detected
FCF5-TP17	0.2-0.4	Material	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	Detected
FCF6	Surface	Material	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	Not Detected
Total Number of Samples			61	61	61	61	61	61	61	61	51	51	43	43	43	43	33	51	51	51	51	51	51	51	51	51	31
Maximum Value			18	2	42	28	440	0.1	55	280	24	2.5	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	54	290	780	1070	<PQL	<PQL	<PQL	<PQL	Detected
Statistical Analysis on Fill Samples																											
Number of Fill Samples			NC	NC	NC	NC	**48**	NC	**48**	NC	NC	**38**	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
Mean Value			NC	NC	NC	NC	**24.19**	NC	**12.42**	NC	NC	**0.301**	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
Standard Deviation			NC	NC	NC	NC	**61.91**	NC	**8.92**	NC	NC	**0.494**	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
% UCL			NC	NC	NC	NC	**95**	NC	**95**	NC	NC	**95**	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
UCL Value			NC	NC	NC	NC	**63.14**	NC	**14.62**	NC	NC	**0.65**	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC

Concentration above the CT1	**VALUE**	Standard deviation exceeds data assessment criteria	**VALUE**
Concentration above SCC1	**VALUE**		
Concentration above the SCC2	**VALUE**		
Concentration above PQL	**Bold**		
Asbestos Detected > Special Waste (asbestos)	**Detected**		

TABLE S8
SOIL LABORATORY TCLP RESULTS
All data in mg/L unless stated otherwise

			Lead	Nickel	B(a)P
PQL - Envirolab Services			0.03	0.02	0.001
TCLP1 - General Solid Waste			5	2	0.04
TCLP2 - Restricted Solid Waste			20	8	0.16
TCLP3 - Hazardous Waste			>20	>8	>0.16
Sample Reference	**Sample Depth**	**Sample Description**			
TP10	0-0.1	F: Silty Sand	NA	NA	<0.0001
TP10	0.4-0.5	F: Silty Sandy Clay	NA	NA	<0.0001
TP16	0.4-0.5	F: Silty Clay	NA	NA	<0.0001
TP17	0.3-0.4	F: Silty Sandy Clay	NA	NA	<0.0001
BH25	0.3-0.4	F: Gravelly Clay	<0.03	<0.02	NA
BH25	0.4-0.5	F: Sandy Clay	0.1	NA	NA
Total Number of samples			0	1	4
Maximum Value			NA	<PQL	<PQL

General Solid Waste	**VALUE**
Restricted Solid Waste	**VALUE**
Hazardous Waste	**VALUE**
Concentration above PQL	**Bold**

Detailed Site Investigation (DSI)
69-79 Kyogle Street, Lismore South, NSW
E36310PT

TABLE Q1
SOIL 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	Acenaph-thene	Fluorene	Phenanthrene	Anthracene	Fluoranthene	Pyrene	Benzo(a)anthracene	Chrysene	Benzo(b,j+k)fluoranthene	Benzo(a)pyrene	Indeno(1,2,3-c,d)pyrene	Dibenzo(a,h)anthra-cene	Benzo(g,h,i)perylene
	PQL Envirolab SYD		*25*	*50*	*100*	*100*	*0.2*	*0.5*	*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*	*0.05*	*0.1*	*0.1*	*0.1*
	PQL Envirolab VIC		*25*	*50*	*100*	*100*	*0.2*	*0.5*	*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*
Intra	SDUP1	BH11 (0-0.1m)	<25	<50	<100	<100	<0.2	<0.5	<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	0.06	<0.1	<0.1	<0.1
laboratory	BH11	0.0-0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<2	<1	<0.1	<0.1	<0.1	<0.1	0.1	<0.1	0.2	0.2	0.1	0.1	0.2	0.1	<0.1	<0.1	<0.1
duplicate	MEAN		nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	0.075	nc	0.15	0.15	0.075	0.075	0.15	0.08	nc	nc	nc
	RPD %		nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	67%	nc	67%	67%	67%	67%	67%	50%	nc	nc	nc
Intra	SDUP3	BH19 (0-0.1m)	<25	<50	<100	<100	<0.2	<0.5	<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	<0.05	<0.1	<0.1	<0.1
laboratory	BH19	0-0.1	<25	<50	<100	<100	<0.2	<0.5	<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	<0.05	<0.1	<0.1	<0.1
duplicate	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
	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
Inter	SDUP2	BH23 (0-0.1m)	<25	<50	<100	<100	<0.2	<0.5	<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	0.051	<0.1	<0.1	<0.1
laboratory	BH23	0-0.1	<25	<50	100	<100	<0.2	<0.5	<1	<2	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.2	0.1	<0.1	<0.1	<0.2	0.08	<0.1	<0.1	<0.1
duplicate	MEAN		nc	nc	75	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	0.125	0.075	nc	nc	nc	0.0655	nc	nc	nc
	RPD %		nc	nc	67%	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	120%	67%	nc	nc	nc	44%	nc	nc	nc
Inter	SDUP4	BH21 (0-0.1m)	<25	<50	<100	<100	<0.2	<0.5	<1	<2	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.18	0.19	<0.1	<0.1	<0.2	<0.1	<0.1	<0.1	<0.1
laboratory	BH21	0-0.1	<25	<50	<100	<100	<0.2	<0.5	<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	<0.05	<0.1	<0.1	<0.1
duplicate	MEAN		nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	0.115	0.12	nc	nc	nc	nc	nc	nc	nc
	RPD %		nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	113%	117%	nc	nc	nc	nc	nc	nc	nc
Field	TB	-	<25	<50	<100	<100	<0.2	<0.5	<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	<0.05	<0.1	<0.1	<0.1
Blank	19/09/24																									
Trip	TS	-	-	-	-	-	98%	99%	99%	99%	98%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Spike	19/09/24																									
Field	FR-SPT-1	µg/L	<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
Rinsate	24/09/24																									
Field	FR-HA-1	µg/L	13	<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
Rinsate	27/09/24																									

			HCB	alpha- BHC	gamma- BHC	beta- BHC	Heptachlor	delta- BHC	Aldrin	Heptachlor Epoxide	Gamma- Chlordane	alpha- chlordane	Endosulfan I	pp- DDE	Dieldrin	Endrin	pp- DDD	Endosulfan II	pp- DDT	Endrin Aldehyde	Endosulfan Sulphate	Methoxychlor
	PQL Envirolab SYD		*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*
	PQL Envirolab VIC		*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*
Intra	SDUP1	BH11 (0-0.1m)	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
laboratory	BH11	0.0-0.1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
duplicate	MEAN		nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc
	RPD %		nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc
Intra	SDUP3	BH19 (0-0.1m)	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
laboratory	BH19	0-0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
duplicate	MEAN		nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc
	RPD %		nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc
Inter	SDUP2	BH23 (0-0.1m)	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
laboratory	BH23	0-0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
duplicate	MEAN		nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc
	RPD %		nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc
Inter	SDUP4	BH21 (0-0.1m)	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
laboratory	BH21	0-0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
duplicate	MEAN		nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc
	RPD %		nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc
Field	TB	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Blank	19/09/24																					
Trip	TS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Spike	19/09/24																					
Field	FR-SPT-1	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Rinsate	24/09/24																					
Field	FR-HA-1	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Rinsate	27/09/24																					

			Azinphos-methyl (Guthion	Bromophos-ethyl	Chlorpyriphos	Chlorpyriphos-methyl	Diazinon	Dichlorvos	Dimethoate	Ethion	Fenitrothion	Malathion	Parathion	Ronnel	Total PCBS	Arsenic	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Zinc
	PQL Envirolab SYD		*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*4*	*0.4*	*1*	*1*	*1*	*0.1*	*1*	*1*
	PQL Envirolab VIC		*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*4.0*	*0.4*	*1.0*	*1.0*	*1.0*	*0.1*	*1.0*	*1.0*
Intra	SDUP1	BH11 (0-0.1m)	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<4	<0.4	8	14	12	<0.1	9	55
laboratory	BH11	0.0-0.1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<4	<0.4	7	12	11	<0.1	7	47
duplicate	MEAN		nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	7.5	13	11.5	nc	8	51
	RPD %		nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	13%	15%	9%	nc	25%	16%
Intra	SDUP3	BH19 (0-0.1m)	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<4	<0.4	13	9	8	<0.1	6	49
laboratory	BH19	0-0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<4	<0.4	5	11	10	<0.1	5	46
duplicate	MEAN		nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	9	10	9	nc	5.5	47.5
	RPD %		nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	89%	20%	22%	nc	18%	6%
Inter	SDUP2	BH23 (0-0.1m)	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<4	<0.4	7.9	9.1	6.8	<0.1	5.7	46
laboratory	BH23	0-0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<4	<0.4	9	10	12	<0.1	6	56
duplicate	MEAN		nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	8.45	9.55	9.4	nc	5.85	51
	RPD %		nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	13%	9%	55%	nc	5%	20%
Inter	SDUP4	BH21 (0-0.1m)	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<4	<0.4	14	11	9.3	<0.1	9.3	42
laboratory	BH21	0-0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<4	<0.4	12	8	9	<0.1	7	38
duplicate	MEAN		nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	13	9.5	9.15	nc	8.15	40
	RPD %		nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	15%	32%	3%	nc	28%	10%
Field	TB	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<4	<0.4	<1	<1	<1	<0.1	<1	<1
Blank	19/09/24																						
Trip	TS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Spike	19/09/24																						
Field	FR-SPT-1	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.05	<0.01	<0.01	<0.01	<0.03	<0.0005	<0.02	<0.02
Rinsate	24/09/24																						
Field	FR-HA-1	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.05	<0.01	<0.01	<0.01	<0.03	<0.0005	<0.02	<0.02
Rinsate	27/09/24																						

Result outside of QA/QC acceptance criteria 🟨

Rinsate metals results in mg/L

ABBREVIATIONS AND EXPLANATIONS

Abbreviations used in the Tables:

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

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
Inorganic Compounds and Parameters			
pH		6.5 - 8.5	7.3
Electrical Conductivity (µS/cm)	1	NSL	**4600**
Metals and Metalloids			
Arsenic (As lll)	1	24	<1
Cadmium	0.1	0.2	<0.1
Chromium (SAC for Cr III adopted)	1	3.3	<1
Copper	1	1.4	<1
Lead	1	3.4	<1
Total Mercury (inorganic)	0.05	0.06	<0.05
Nickel	1	11	**9**
Zinc	1	8	**72**
Monocyclic Aromatic Hydrocarbons (BTEX Compounds)			
Benzene	1	950	<1
Toluene	1	180	<1
Ethylbenzene	1	80	<1
m+p-xylene	2	75	<2
o-xylene	1	350	<1
Total xylenes	2	NSL	<2
Polycyclic Aromatic Hydrocarbons (PAHs)			
Naphthalene	0.2	16	<0.1
Acenaphthylene	0.1	NSL	<0.1
Acenaphthene	0.1	NSL	<0.1
Fluorene	0.1	NSL	<0.1
Phenanthrene	0.1	0.6	<0.1
Anthracene	0.1	0.01	<0.1
Fluoranthene	0.1	1	<0.1
Pyrene	0.1	NSL	<0.1
Benzo(a)anthracene	0.1	NSL	<0.1
Chrysene	0.1	NSL	<0.1
Benzo(b,j+k)fluoranthene	0.2	NSL	<0.2
Benzo(a)pyrene	0.1	0.1	<0.1
Indeno(1,2,3-c,d)pyrene	0.1	NSL	<0.1
Dibenzo(a,h)anthracene	0.1	NSL	<0.1
Benzo(g,h,i)perylene	0.1	NSL	<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
Inorganic Compounds and Parameters			
pH		6.5 - 8.5	7.3
Electrical Conductivity (µS/cm)	1	NSL	**4600**
Metals and Metalloids			
Arsenic (As III)	1	100	<1
Cadmium	0.1	20	<0.1
Chromium (total)	1	500	<1
Copper	1	20000	<1
Lead	1	100	<1
Total Mercury (inorganic)	0.05	10	<0.05
Nickel	1	200	**9**
Zinc	1	30000	**72**
Monocyclic Aromatic Hydrocarbons (BTEX Compounds)			
Benzene	1	10	<1
Toluene	1	8000	<1
Ethylbenzene	1	3000	<1
m+p-xylene	2	NSL	<2
o-xylene	1	NSL	<1
Total xylenes	2	6000	<2
Polycyclic Aromatic Hydrocarbons (PAHs)			
Naphthalene	0.2	NSL	<0.1
Acenaphthylene	0.1	NSL	<0.1
Acenaphthene	0.1	NSL	<0.1
Fluorene	0.1	NSL	<0.1
Phenanthrene	0.1	NSL	<0.1
Anthracene	0.1	NSL	<0.1
Fluoranthene	0.1	NSL	<0.1
Pyrene	0.1	NSL	<0.1
Benzo(a)anthracene	0.1	NSL	<0.1
Chrysene	0.1	NSL	<0.1
Benzo(b,j+k)fluoranthene	0.2	NSL	<0.2
Benzo(a)pyrene	0.1	0.1	<0.1
Indeno(1,2,3-c,d)pyrene	0.1	NSL	<0.1
Dibenzo(a,h)anthracene	0.1	NSL	<0.1
Benzo(g,h,i)perylene	0.1	NSL	<0.1

Concentration above the SAC	**VALUE**
Concentration above the PQL	**Bold**
GIL >PQL	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	Naphthalene	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	5.3	4m to <8m	Clay	<10	<50	<1	<1	<1	<2	<1	0
Total Number of Samples				1	1	1	1	1	1	1	1
Maximum Value				<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	0

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	5.3	4m to <8m	Clay	NL	NL	5000	NL	NL	NL	NL

TABLE G4
SUMMARY OF GROUNDWATER LABORATORY RESULTS COMPARED TO DRINKING WATER GILs
All results in µg/L unless stated otherwise.

	PQL Envirolab Services	NHMRC ADWG 2011	SAMPLES
			MW2
Inorganic Compounds and Parameters			
pH		6.5 - 8.5	7.3
Electrical Conductivity (µS/cm)	1	NSL	**4600**
Metals and Metalloids			
Arsenic (As III)	1	10	<1
Cadmium	0.1	2	<0.1
Chromium (total)	1	50	<1
Copper	1	2000	<1
Lead	1	10	<1
Total Mercury (inorganic)	0.05	1	<0.05
Nickel	1	20	**9**
Zinc	1	3000	**72**
Monocyclic Aromatic Hydrocarbons (BTEX Compounds)			
Benzene	1	1	<1
Toluene	1	800	<1
Ethylbenzene	1	300	<1
m+p-xylene	2	NSL	<2
o-xylene	1	NSL	<1
Total xylenes	2	600	<2
Polycyclic Aromatic Hydrocarbons (PAHs)			
Naphthalene	0.2	NSL	<0.1
Acenaphthylene	0.1	NSL	<0.1
Acenaphthene	0.1	NSL	<0.1
Fluorene	0.1	NSL	<0.1
Phenanthrene	0.1	NSL	<0.1
Anthracene	0.1	NSL	<0.1
Fluoranthene	0.1	NSL	<0.1
Pyrene	0.1	NSL	<0.1
Benzo(a)anthracene	0.1	NSL	<0.1
Chrysene	0.1	NSL	<0.1
Benzo(b,j+k)fluoranthene	0.2	NSL	<0.2
Benzo(a)pyrene	0.1	0.01	<0.1
Indeno(1,2,3-c,d)pyrene	0.1	NSL	<0.1
Dibenzo(a,h)anthracene	0.1	NSL	<0.1
Benzo(g,h,i)perylene	0.1	NSL	<0.1

Concentration above the SAC	**VALUE**
Concentration above the PQL	**Bold**
GIL >PQL	Red

Appendix D: Borehole / Test pit Logs

JKEnvironments

ENVIRONMENTAL LOG

Log No.
BH1
1/1

Environmental logs are not to be used for geotechnical purposes

Client: SCHOOL INFRASTRUCTURE NSW

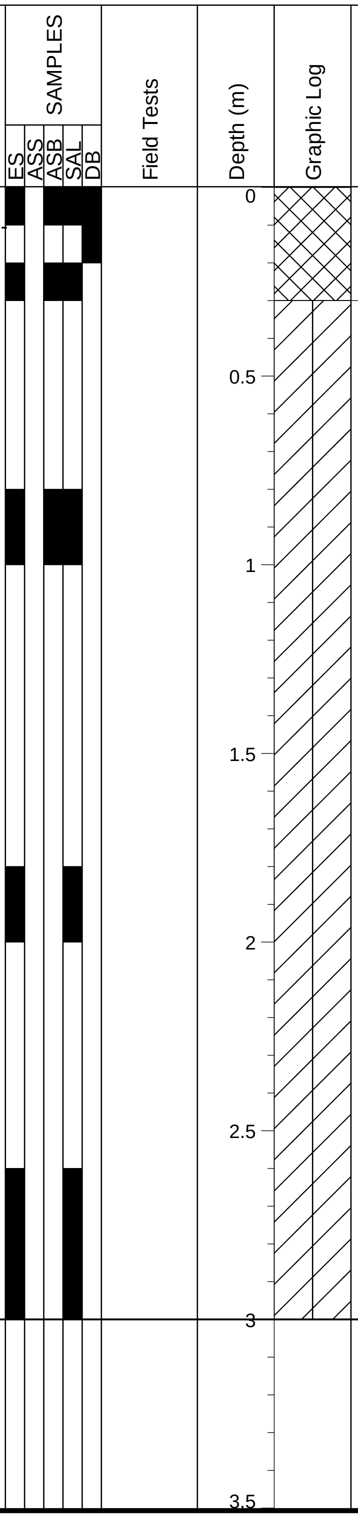
Project: PROPOSED SCHOOL DEVELOPMENT

Location: LISMORE SOUTH PUBLIC SCHOOL, 69-79 KYOGLE STREET, SOUTH LISMORE, NSW

Job No.: E36310PT **Method:** SPIRAL AUGER **R.L. Surface:** N/A

Date: 24/9/24 **Datum:** -

Plant Type: JK300 **Logged/Checked by:** V.R./B.P.



Groundwater Record	Depth (m)	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
DRY ON COMPLETION	0		FILL: Silty sand, fine to medium grained, brown, trace of igneous gravel and root fibres.	M			GRASS COVER SCREEN: 10.70kg 0-0.2m, NO FCF
		CH	Silty CLAY: high plasticity, dark brown, trace of fine to medium grained sand, ash and root fibres.	w>PL			ALLUVIAL
			Silty CLAY: high plasticity, dark grey mottled brown, trace of fine to medium grained gravel, and root fibres.	w≈PL			
	3		END OF BOREHOLE AT 3.0m				

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BOREHOLE LOG

Borehole No.
2
1 / 1

Client: SCHOOL INFRASTRUCTURE NSW
Project: PROPOSED SCHOOL REDEVELOPMENT
Location: LISMORE SOUTH PUBLIC SCHOOL, 69-79 KYOGLE STREET, SOUTH LISMORE, NSW

Job No.: 36310LT
Method: SPIRAL AUGER
R.L. Surface: ~10.5 m
Date: 24/9/24
Datum: AHD
Plant Type: JK300
Logged/Checked By: K.R./A.B.

Groundwater Record	SAMPLES ES	U50	DB	DS	Field Tests	RL (m AHD)	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel Density	Hand Penetrometer Readings (kPa)	Remarks
DRY ON COMPLETION								▨	-	BITUMINOUS SURFACE: 3mm.t	w>PL			
								▨	CH	FILL: Silty sandy gravel, fine to medium grained, dark grey, igneous, angular, fine to medium grained sand.	w>PL	St		ALLUVIAL
				■	N = 4 1,2,2	10		▨		Silty CLAY: high plasticity, dark grey, brown and light brown, trace of fine to medium grained rounded gravel, and root fibres.			110 110 120	
		■					1	▨						
				■	N = 6 1,2,4	9		▨					130 110 110	
							2	▨						
						8		▨						
								▨		Silty CLAY: high plasticity, grey mottled brown, trace of fine to medium grained rounded gravel.	w~PL	VSt		
				■	N = 15 5,8,7		3	▨					360 340 370	
						7		▨						
							4	▨						GROUNDWATER MONITORING WELL INSTALLED TO 6.0m. CLASS 18 MACHINE SLOTTED 50mm DIA. PVC STANDPIPE 1.5m TO 6.0m. CASING 0.1m TO 1.5m. 2mm SAND FILTER PACK 1.4m TO 6.0m. BENTONITE SEAL 0.3m TO 1.4m. BACKFILLED WITH SAND AND CUTTINGS TO THE SURFACE. COMPLETED WITH A CONCRETED GATIC COVER.
						6		▨						
							5	▨						
▽ ON 15/10/24						5		▨						
							6			END OF BOREHOLE AT 6.00 m				
						4								

JKEnvironments

ENVIRONMENTAL LOG

Log No. **TP3** **1/1**

Environmental logs are not to be used for geotechnical purposes

Client: SCHOOL INFRASTRUCTURE NSW

Project: PROPOSED SCHOOL DEVELOPMENT

Location: LISMORE SOUTH PUBLIC SCHOOL, 69-79 KYOGLE STREET, SOUTH LISMORE, NSW

Job No.: E36310PT **Method:** TEST PIT **R.L. Surface:** N/A

Date: 26/9/24 **Datum:** -

Plant Type: EXCAVATOR **Logged/Checked by:** V.R./B.P.

Groundwater Record	SAMPLES ES	ASS	ASB	SAL	DB	Field Tests	Depth (m)	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
DRY ON COMPLETION	■		■		■		0		FILL: Silty sand, fine to medium grained, dark brown, trace of igneous gravel, organic material, plastic and root fibres.	M			LEAF LITTER COVER SCREEN: 11.90kg 0-0.1m, NO FCF
									FILL: Bitumen/Asphaltic Concrete layer				
	■		■		■		0.5		FILL: Sand, medium to coarse grained, yellow orange.	D			SCREEN: 4.85kg (<10L) 0.5-0.6m, NO FCF
									FILL: Asphaltic concrete				
								CH	Silty CLAY: high plasticity, dark grey mottled orange.	w≈PL			ALLUVIAL
							1						
	■				■								SCREEN: 8.15kg (<10L) 1.2-1.4m, NO FCF
									END OF TEST PIT AT 1.4m				
							1.5						
							2						
							2.5						
							3						
							3.5						

JKEnvironments

ENVIRONMENTAL LOG

Log No.
TP4
1/1

Environmental logs are not to be used for geotechnical purposes

Client: SCHOOL INFRASTRUCTURE NSW
Project: PROPOSED SCHOOL DEVELOPMENT
Location: LISMORE SOUTH PUBLIC SCHOOL, 69-79 KYOGLE STREET, SOUTH LISMORE, NSW

Job No.: E36310PT **Method:** TEST PIT **R.L. Surface:** N/A
Date: 27/9/24 **Datum:** -
Plant Type: EXCAVATOR **Logged/Checked by:** V.R./B.P.

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, dark brown, trace of fine to medium grained igneous gravel, plastic and metal fragments and root fibres.	M			TOPSOIL / LEAF COVER SCREEN: 11.40kg 0-0.1m, NO FCF
										FILL: Silty clay, medium to high plasticity, dark brown, trace of fine to medium grained igneous gravel, brick fragments and root fibres.	w≈PL			SCREEN: 8.95kg (<10L) 0.3-0.5m, NO FCF
							0.5			FILL: Silty gravel, fine to coarse grained, igneous, and asphaltic concrete.	D			
									CH	Silty CLAY: high plasticity, dark brown, trace of roots and root fibres.	w<PL			ALLUVIAL
							1							
										END OF TEST PIT AT 1.2m				
							1.5							
							2							
							2.5							
							3							
							3.5							

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ENVIRONMENTAL LOG

Environmental logs are not to be used for geotechnical purposes

Log No.
TP5
1/1

Client: SCHOOL INFRASTRUCTURE NSW

Project: PROPOSED SCHOOL DEVELOPMENT

Location: LISMORE SOUTH PUBLIC SCHOOL, 69-79 KYOGLE STREET, SOUTH LISMORE, NSW

Job No.: E36310PT **Method:** TEST PIT **R.L. Surface:** N/A

Date: 27/9/24 **Datum:** -

Plant Type: EXCAVATOR **Logged/Checked by:** V.R./B.P.

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, light brown, trace of igneous gravel, plastic fragments and rootlets.	M			GRASS COVER / TOPSOIL
	■		■		■					FILL: Silty sandy clay, medium to high plasticity, dark brown, trace of igneous gravel and root fibres.	w<PL			SCREEN: 12.40kg 0-0.1m, NO FCF SCREEN: 11.60kg 0.3-0.5m, NO FCF
	■		■				0.5		CH	Silty CLAY: high plasticity, dark brown, trace of roots and root fibres.	w≈PL			ALLUVIAL
							1			END OF TEST PIT AT 0.9m				
							1.5							
							2							
							2.5							
							3							
							3.5							

ENVIRONMENTAL LOG

Log No. TP6
1/1

Environmental logs are not to be used for geotechnical purposes

Client: SCHOOL INFRASTRUCTURE NSW
Project: PROPOSED SCHOOL DEVELOPMENT
Location: LISMORE SOUTH PUBLIC SCHOOL, 69-79 KYOGLE STREET, SOUTH LISMORE, NSW

Job No.: E36310PT **Method:** TEST PIT **R.L. Surface:** N/A
Date: 26/9/24 **Datum:** -
Plant Type: EXCAVATOR **Logged/Checked by:** V.R./B.P.

Groundwater Record	SAMPLES ES	SAMPLES ASS	SAMPLES ASB	SAMPLES SAL	SAMPLES 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 sand, fine to medium grained, brown, trace of igneous gravel, brick and plastic fragments, FCF, ash and root fibres.	M			GRASS COVER / TOPSOIL SCREEN: 12.05kg 0-0.1m, FCF-3 SCREEN: 14.55kg 0.2-0.4m, NO FCF
	■		■		■		0.5 1	▨	CH	Silty CLAY: high plasticity, dark brown, trace of fine to medium grained gravel.	w<PL			ALLUVIAL SCREEN: 10.05kg 1.0-1.2m, NO FCF
							1.5 2 2.5 3 3.5			END OF TEST PIT AT 1.2m				

ENVIRONMENTAL LOG

Log No.
BH7
1/1

Environmental logs are not to be used for geotechnical purposes

SDUP5: 0.4-0.6m

Client: SCHOOL INFRASTRUCTURE NSW

Project: PROPOSED SCHOOL DEVELOPMENT

Location: LISMORE SOUTH PUBLIC SCHOOL, 69-79 KYOGLE STREET, SOUTH LISMORE, NSW

Job No.: E36310PT
Method: HAND AUGER
R.L. Surface: N/A

Date: 25/9/24
Datum: -

Plant Type: -
Logged/Checked by: V.R./B.P.

Groundwater Record	SAMPLES ES	ASS	ASB	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, medium to high plasticity, dark brown, trace of plastic fragments and root fibres.	w≈PL			GRASS COVER TOPSOIL SCREEN: 11.25kg 0-0.2m, NO FCF
	■						0.5		SM	Silty SAND: medium to coarse grained, yellow orange.	D			ALLUVIAL
	■						1		CH	Silty CLAY: high plasticity, dark grey.	w<PL			
							1.5			END OF BOREHOLE AT 1.1m				
							2							
							2.5							
							3							
							3.5							

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ENVIRONMENTAL LOG

Log No.
TP8
1/1

Environmental logs are not to be used for geotechnical purposes

Client: SCHOOL INFRASTRUCTURE NSW

Project: PROPOSED SCHOOL DEVELOPMENT

Location: LISMORE SOUTH PUBLIC SCHOOL, 69-79 KYOGLE STREET, SOUTH LISMORE, NSW

Job No.: E36310PT **Method:** SHOVEL / HAND TOOLS **R.L. Surface:** N/A

Date: 25/9/24 **Datum:** -

Plant Type: SHOVEL **Logged/Checked by:** V.R./B.P.

Groundwater Record	SAMPLES ES	SAMPLES ASS	SAMPLES ASB	SAMPLES SAL	SAMPLES 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 sandy clay, medium plasticity, dark brown, trace of fine to medium grained sand, FCF, igneous gravel, slag and root fibres.	w<PL			SCREEN: 13.65kg 0-0.2m, FCF-2
	■ ■		■ ■		■		0.5	▨		FILL: Silty gravelly clay, medium plasticity, dark brown, with igneous gravel.	w<PL			SCREEN: 12.60kg 0.3-0.6m, NO FCF
							1 1.5 2 2.5 3 3.5			END OF TEST PIT AT 0.8m				REFUSAL ON INFERRED COBBLES

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ENVIRONMENTAL LOG

Log No.
BH9
1/1

Environmental logs are not to be used for geotechnical purposes

Client: SCHOOL INFRASTRUCTURE NSW

Project: PROPOSED SCHOOL DEVELOPMENT

Location: LISMORE SOUTH PUBLIC SCHOOL, 69-79 KYOGLE STREET, SOUTH LISMORE, NSW

Job No.: E36310PT
Method: HAND AUGER
R.L. Surface: N/A
Date: 26/9/24
Datum: -
Plant Type: -
Logged/Checked by: V.R./B.P.

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, dark brown, trace of igneous gravel, plastic and root fibres.	M			LEAF LITTER COVER SCREEN: 11.60kg 0-0.1m, NO FCF
	■						0.5	▨		FILL: Silty sand, fine to medium grained, orange, trace of fine to medium grained gravel.	M			INSUFFICIENT RETURN FOR BULK SCREENING SAMPLE
								▨		as above, but brown.				
										END OF BOREHOLE AT 0.74m				REFUSAL ON INCLUSIONS IN FILL
							1							
							1.5							
							2							
							2.5							
							3							
							3.5							

ENVIRONMENTAL LOG

Log No.
TP10
1/1

Environmental logs are not to be used for geotechnical purposes

Client: SCHOOL INFRASTRUCTURE NSW

Project: PROPOSED SCHOOL DEVELOPMENT

Location: LISMORE SOUTH PUBLIC SCHOOL, 69-79 KYOGLE STREET, SOUTH LISMORE, NSW

Job No.: E36310PT **Method:** TEST PIT **R.L. Surface:** N/A

Date: 27/9/24 **Datum:** -

Plant Type: EXCAVATOR **Logged/Checked by:** V.R./B.P.

Groundwater Record	SAMPLES ES	SAMPLES ASS	SAMPLES ASB	SAMPLES SAL	SAMPLES 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 sand, fine to medium grained, dark brown, trace of igneous gravel, plastic fragments and root fibres.				GRASS COVER / TOPSOIL SCREEN: 11.60kg 0-0.1m, NO FCF
	■		■				0.5	▨		FILL: Silty sandy clay, medium to high plasticity, dark brown, trace of igneous gravel.	w≈PL			
							1	▨	CH	Silty CLAY: high plasticity, dark brown.	w>PL			ALLUVIAL
							1.5			END OF TEST PIT AT 1.2m				
							2							
							2.5							
							3							
							3.5							

BOREHOLE LOG

Borehole No.
11
1 / 1

SDUP1: 0-0.1m

Client: SCHOOL INFRASTRUCTURE NSW
Project: PROPOSED SCHOOL REDEVELOPMENT
Location: LISMORE SOUTH PUBLIC SCHOOL, 69-79 KYOGLE STREET, SOUTH LISMORE, NSW

Job No.: 36310LT
Method: SPIRAL AUGER
R.L. Surface: ~10.8 m
Date: 24/9/24
Datum: AHD
Plant Type: JK300
Logged/Checked By: K.R./A.B.

Groundwater Record	SAMPLES ES	U50	DB	DS	Field Tests	RL (m AHD)	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel Density	Hand Penetrometer Readings (kPa)	Remarks
DRY ON COMPLETION AND ON 15/10/24							0	▩		FILL: Silty sand, fine to medium grained, brown, trace of fine to medium grained igneous gravel, metal fragments and root fibres.	M			GRASS COVER
								▨	CH	Silty CLAY: high plasticity, dark brown, trace of fine to medium grained sand.	w>PL	St		ALLUVIAL
				■	N = 8 2,4,4	10	1	▨					120 130 130	NO SPT SAMPLE RECOVERY
								▨		Silty CLAY: high plasticity, grey and dark brown, trace of ash and root fibres.	w~PL	VSt		
				■	N = 5 2,2,3	9	2	▨					215 220 220	
						8		▨						
				■	N = 14 5,7,7	7	3	▨					350 380 390	
							4	▨						GROUNDWATER MONITORING WELL INSTALLED TO 6.0m. CLASS 18 MACHINE SLOTTED 50mm DIA. PVC STANDPIPE 2.0m TO 6.0m. CASING 0.04m TO 2.0m. 2mm SAND FILTER PACK 1.5m TO 6.0m. BENTONITE SEAL 0.3m TO 1.5m. BACKFILLED WITH SAND AND CUTTINGS TO THE SURFACE. COMPLETED WITH A CONCRETED GATIC COVER.
				■		6	5	▨		as above, but brown.				
						5	6			END OF BOREHOLE AT 6.00 m				
						4								

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ENVIRONMENTAL LOG

Log No. BH12 1/1

Environmental logs are not to be used for geotechnical purposes

Client: SCHOOL INFRASTRUCTURE NSW

Project: PROPOSED SCHOOL DEVELOPMENT

Location: LISMORE SOUTH PUBLIC SCHOOL, 69-79 KYOGLE STREET, SOUTH LISMORE, NSW

Job No.: E36310PT **Method:** HAND AUGER **R.L. Surface:** N/A

Date: 25/9/24 **Datum:** -

Plant Type: - **Logged/Checked by:** V.R./B.P.

Groundwater Record	SAMPLES ES	SAMPLES ASS	SAMPLES ASB	SAMPLES SAL	SAMPLES 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, medium to high plasticity, dark brown, trace of plastic and metal fragments and root fibres.	w≈PL			GRASS COVER / TOPSOIL SCREEN: 10.10kg 0-0.1m, NO FCF
	■ ■		■ ■				0.5	▨	CH	Silty CLAY: high plasticity, dark grey.	w<PL			ALLUVIAL
							1 1.5 2 2.5 3 3.5			END OF BOREHOLE AT 0.9m				

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ENVIRONMENTAL LOG

Log No.
BH13
1/1

Environmental logs are not to be used for geotechnical purposes

Client: SCHOOL INFRASTRUCTURE NSW

Project: PROPOSED SCHOOL DEVELOPMENT

Location: LISMORE SOUTH PUBLIC SCHOOL, 69-79 KYOGLE STREET, SOUTH LISMORE, NSW

Job No.: E36310PT **Method:** HAND AUGER **R.L. Surface:** N/A

Date: 25/9/24 **Datum:** -

Plant Type: - **Logged/Checked by:** V.R./B.P.

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, medium to high plasticity, dark brown, trace of igneous gravel and root fibres.	w<PL			SCREEN: 11.65kg 0-0.1m, NO FCF
	■		■						CH	Silty CLAY: high plasticity, dark grey.	w≈PL			ALLUVIAL
							0.5		SP	Silty GRAVEL: medium to coarse grained, igneous, dark grey.	M			
										END OF BOREHOLE AT 0.55m				
							1							
							1.5							
							2							
							2.5							
							3							
							3.5							

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ENVIRONMENTAL LOG

Log No.
TP14
1/1

Environmental logs are not to be used for geotechnical purposes

Client: SCHOOL INFRASTRUCTURE NSW

Project: PROPOSED SCHOOL DEVELOPMENT

Location: LISMORE SOUTH PUBLIC SCHOOL, 69-79 KYOGLE STREET, SOUTH LISMORE, NSW

Job No.: E36310PT
Method: TEST PIT
R.L. Surface: N/A

Date: 26/9/24
Datum: -

Plant Type: EXCAVATOR
Logged/Checked by: V.R./B.P.

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, trace of ironstone gravel, plastic fragments, ash and root fibres.	M			GRASS COVER / TOPSOIL SCREEN: 11.95kg 0-0.1m, NO FCF
								▨	CI-CH	Sandy CLAY: medium to high plasticity, dark grey.	w≈PL			ALLUVIAL
							0.5	▨						
	■				■			▨						SCREEN: 12.60kg 0.8-1.0m, NO FCF
							1			END OF TEST PIT AT 1.0m				
							1.5							
							2							
							2.5							
							3							
							3.5							

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BOREHOLE LOG

Borehole No.
15
1 / 1

Client: SCHOOL INFRASTRUCTURE NSW
Project: PROPOSED SCHOOL REDEVELOPMENT
Location: LISMORE SOUTH PUBLIC SCHOOL, 69-79 KYOGLE STREET, SOUTH LISMORE, NSW

Job No.: 36310LT **Method:** SPIRAL AUGER **R.L. Surface:** ~10.6 m
Date: 24/9/24 **Datum:** AHD
Plant Type: JK300 **Logged/Checked By:** K.R./A.B.

Groundwater Record	SAMPLES ES	 U50	 DB	 DS	Field Tests	RL (m AHD)	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel Density	Hand Penetrometer Readings (kPa)	Remarks
DRY ON COMPLETION								▩	-	BITUMINOUS SURFACE: 3mm.t	M			
								▩		FILL: Silty sandy gravel, fine to medium grained, dark grey, igneous, angular, fine to medium grained sand, trace of brick fragments.				
					N=SPT 5/ 0mm REFUSAL	10		▨	CH	Silty CLAY: high plasticity, grey mottled brown and light brown, trace of fine to medium grained rounded gravel, and root fibres.	w>PL	St - VSt		ALLUVIAL
				■				▨						
							1	▨						
				■	N = 8 3,4,4	9		▨					190 230 200	
							2	▨						
						8		▨						
							3			END OF BOREHOLE AT 3.00 m				
						7								
							4							
						6								
							5							
						5								
							6							
						4								

JK 9.02.4 LIB.GLB Log JK AUGERHOLE - MASTER 36310LT LISMORE.GPJ <<DrawingFile>> 06/11/2024 09:21 10.01.00.01 Datgel Lab and In Situ Tool - DGD | Lib: JK 9.02.4 2019-05-31 Prj: JK 9.01.0 2018-03-20

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ENVIRONMENTAL LOG

Log No. TP16
1/1

Environmental logs are not to be used for geotechnical purposes

Client: SCHOOL INFRASTRUCTURE NSW
Project: PROPOSED SCHOOL DEVELOPMENT
Location: LISMORE SOUTH PUBLIC SCHOOL, 69-79 KYOGLE STREET, SOUTH LISMORE, NSW

Job No.: E36310PT **Method:** TEST PIT **R.L. Surface:** N/A
Date: 26/9/24 **Datum:** -
Plant Type: EXCAVATOR **Logged/Checked by:** V.R./B.P.

Groundwater Record	SAMPLES ES	ASS	ASB	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 sand, fine to medium grained, brown, trace of fine to medium grained igneous gravel, and root fibres.	M			GRASS COVER / TOPSOIL SCREEN: 11.60kg 0-0.1m, NO FCF
	■		■		■			▩		FILL: Silty clay, low to medium plasticity, brown, trace of fine to medium grained igneous gravel, FCF and root fibres.	w>PL			SCREEN: 11.90kg 0.3-0.5m, FCF-4
	■				■		0.5 1	▨	CH	Silty CLAY: high plasticity, brown and grey.	w>PL			ALLUVIAL SCREEN: 12.10kg 0.9-1.2m, NO FCF
							1.5 2 2.5 3 3.5			END OF TEST PIT AT 1.2m				

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ENVIRONMENTAL LOG

Log No.
TP17
1/1

Environmental logs are not to be used for geotechnical purposes

Client: SCHOOL INFRASTRUCTURE NSW

Project: PROPOSED SCHOOL DEVELOPMENT

Location: LISMORE SOUTH PUBLIC SCHOOL, 69-79 KYOGLE STREET, SOUTH LISMORE, NSW

Job No.: E36310PT **Method:** TEST PIT **R.L. Surface:** N/A

Date: 26/9/24 **Datum:** -

Plant Type: EXCAVATOR **Logged/Checked by:** V.R./B.P.

Groundwater Record	SAMPLES ES	SAMPLES ASS	SAMPLES ASB	SAMPLES SAL	SAMPLES 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 sand, fine to medium grained, brown, trace of igneous gravel and root fibres.	M			SCREEN: 10.60kg 0-0.1m, NO FCF
	■		■		■		0.5	▨		FILL: Silty sandy clay, low to medium plasticity, brown, trace of fine to medium grained igneous and ironstone gravel, metal fragments and root fibres.	w≈PL			SCREEN: 13.45kg 0.2-0.4m, FCF-5
	■		■		■		1	▨	CH	Silty CLAY: high plasticity, dark brown and grey, trace of fine to medium grained gravel.	w<PL			ALLUVIAL SCREEN: 10.80kg 0.8-1.0m, NO FCF
							1.5 2 2.5 3 3.5			END OF TEST PIT AT 1.1m				

Log No.
TP18
1/1

ENVIRONMENTAL LOG

Environmental logs are not to be used for geotechnical purposes

Client: SCHOOL INFRASTRUCTURE NSW

Project: PROPOSED SCHOOL DEVELOPMENT

Location: LISMORE SOUTH PUBLIC SCHOOL, 69-79 KYOGLE STREET, SOUTH LISMORE, NSW

Job No.: E36310PT **Method:** TEST PIT **R.L. Surface:** N/A

Date: 26/9/24 **Datum:** -

Plant Type: EXCAVATOR **Logged/Checked by:** V.R./B.P.

Groundwater Record	SAMPLES ES	SAMPLES ASS	SAMPLES ASB	SAMPLES SAL	SAMPLES 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 clayey sand, fine to medium grained, dark brown, trace of igneous gravel, plastic fragments and root fibres.	M			SCREEN: 11.75kg 0-0.1m, NO FCF
										FILL: Silty clay, low to medium plasticity, dark brown, trace of slag and igneous gravel and root fibres.	w<PL			SCREEN: 10.70kg 0.3-0.5m, NO FCF
							0.5		CH	Silty CLAY: high plasticity, dark grey.	w<PL			ALLUVIAL SCREEN: 12.05kg 0.8-1.1m, NO FCF
							1							
										END OF TEST PIT AT 1.1m				
							1.5							
							2							
							2.5							
							3							
							3.5							

BOREHOLE LOG

Borehole No.
19
1 / 1

Client: SCHOOL INFRASTRUCTURE NSW
Project: PROPOSED SCHOOL REDEVELOPMENT
Location: LISMORE SOUTH PUBLIC SCHOOL, 69-79 KYOGLE STREET, SOUTH LISMORE, NSW

Job No.: 36310LT
Method: SPIRAL AUGER
R.L. Surface: ~10.7 m
Date: 24/9/24
Datum: AHD
Plant Type: JK300
Logged/Checked By: K.R./A.B.

Groundwater Record	SAMPLES ES	SAMPLES U50	SAMPLES DB	SAMPLES DS	Field Tests	RL (m AHD)	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel Density	Hand Penetrometer Readings (kPa)	Remarks
DRY ON COMPLETION								☒		FILL: Silty sand, fine to medium grained, brown, trace of fine grained igneous gravel, plastic fragments and root fibers.				GRASS COVER
			■	■	N = 6 2,3,3	10	1	▨	CH	SILTY CLAY: high plasticity, dark brown, trace of root fibres.	w>PL	St	130 100 110	ALLUVIAL
		■		■	N = 9 3,5,4	9	2	▨		SILTY CLAY: high plasticity, grey mottled brown.			120 120 120	
				■	N = 14 5,7,7	8	3	▨		SILTY CLAY: high plasticity, grey mottled red brown and brown, trace of fine to medium grained rounded gravel, and ash.	w~PL	VSt	370 360 300	
						7 6 5 4	4 5 6			END OF BOREHOLE AT 3.45 m				

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ENVIRONMENTAL LOG

Log No.
BH20
1/1

Environmental logs are not to be used for geotechnical purposes

Client: SCHOOL INFRASTRUCTURE NSW

Project: PROPOSED SCHOOL DEVELOPMENT

Location: LISMORE SOUTH PUBLIC SCHOOL, 69-79 KYOGLE STREET, SOUTH LISMORE, NSW

Job No.: E36310PT **Method:** HAND AUGER **R.L. Surface:** N/A

Date: 27/9/24 **Datum:** -

Plant Type: - **Logged/Checked by:** V.R./B.P.

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, medium to high plasticity, dark brown, trace of fine to medium grained igneous gravel, and root fibres.	w>PL			SCREEN: 10.60kg 0-0.2m, NO FCF
	■		■				0.5	▨		FILL: Silty gravel, medium to coarse grained, dark grey, with igneous gravel.	M			INSUFFICIENT RETURN FOR BULK FIELD SCREENING SAMPLES
							1 1.5 2 2.5 3 3.5			END OF BOREHOLE AT 0.7m				REFUSAL ON COARSE GRAVEL

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BOREHOLE LOG

Borehole No.
21
1 / 1

Client: SCHOOL INFRASTRUCTURE NSW
Project: PROPOSED SCHOOL REDEVELOPMENT
Location: LISMORE SOUTH PUBLIC SCHOOL, 69-79 KYOGLE STREET, SOUTH LISMORE, NSW

Job No.: 36310LT **Method:** SPIRAL AUGER **R.L. Surface:** ~10.6 m
Date: 24/9/24 **Datum:** AHD
Plant Type: JK300 **Logged/Checked By:** K.R./A.B.

Groundwater Record	SAMPLES ES	U50	DB	DS	Field Tests	RL (m AHD)	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel Density	Hand Penetrometer Readings (kPa)	Remarks
DRY ON COMPLETION								☒		FILL: Silty sand, fine to medium grained, brown, trace of fine to medium grained igneous gravel, clay nodules and root fibres.	M			GRASS COVER
								▨	CH	Silty CLAY: high plasticity, grey mottled brown, trace of root fibres.	w>PL	(St)		ALLUVIAL
			■	■	N = 7 2,4,3	10		▨				VSt	280 310 300	
				■	N = 9 3,4,5	9	1	▨					370 370 380	
				■	N = 17 6,9,8	8	2 3	▨						
						7 6 5 4	4 5 6			END OF BOREHOLE AT 3.45 m				

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ENVIRONMENTAL LOG

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Log No. TP22
1/1

SDUP6: 0-0.1m

Client: SCHOOL INFRASTRUCTURE NSW
Project: PROPOSED SCHOOL DEVELOPMENT
Location: LISMORE SOUTH PUBLIC SCHOOL, 69-79 KYOGLE STREET, SOUTH LISMORE, NSW

Job No.: E36310PT
Method: TEST PIT
R.L. Surface: N/A
Date: 26/9/24
Datum: -
Plant Type: EXCAVATOR
Logged/Checked by: V.R./B.P.

Groundwater Record	SAMPLES ES	ASS	ASB	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 sand, fine to medium grained, brown, trace of fine to medium grained igneous gravel, and root fibres.	M			GRASS COVER / TOPSOIL
										FILL: Silty sandy clay, medium plasticity, dark brown mottled orange, trace of igneous gravel, brick and glass fragments, ash and root fibres.	w>PL			SCREEN: 10.10kg 0-0.1m, NO FCF SCREEN: 11.05kg 0.3-0.5m, NO FCF SCREEN: 13.25kg 0.6-0.8m, NO FCF
							0.5							
							1		CH	Silty CLAY: high plasticity, dark grey.	w>PL			ALLUVIAL SCREEN: 12.10kg 1.3-1.5m, NO FCF
							1.5			END OF TEST PIT AT 1.5m				
							2							
							2.5							
							3							
							3.5							

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BOREHOLE LOG

Borehole No.
23
1 / 1

Client: SCHOOL INFRASTRUCTURE NSW
Project: PROPOSED SCHOOL REDEVELOPMENT
Location: LISMORE SOUTH PUBLIC SCHOOL, 69-79 KYOGLE STREET, SOUTH LISMORE, NSW

Job No.: 36310LT **Method:** SPIRAL AUGER **R.L. Surface:** ~10.8 m
Date: 24/9/24 **Datum:** AHD
Plant Type: JK300 **Logged/Checked By:** K.R./A.B.

Groundwater Record	SAMPLES ES	SAMPLES U50	SAMPLES DB	SAMPLES DS	Field Tests	RL (m AHD)	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel Density	Hand Penetrometer Readings (kPa)	Remarks
DRY ON COMPLETION AND ON 15/10/24								⊠		FILL: Silty sand, fine to medium grained, brown and light grey, trace of fine to medium grained igneous gravel, roots and root fibres.	w>PL			GRASS COVER
			■		N = 7 2,3,4	10	1	▨	CH	Silty CLAY: high plasticity, dark grey and brown, trace of root fibres.	w>PL	St	130 110 140	ALLUVIAL
	■							▨						
				■	N = 6 2,2,4	9		▨		as above, but grey mottled brown.			150 140 150	
				■	N = 12 4,6,6		2	▨						
				■		8	3	▨			w~PL	VSt	220 210 220	
						7 6 5	4 5	▨						GROUNDWATER MONITORING WELL INSTALLED TO 6.0m. CLASS 18 MACHINE SLOTTED 50mm DIA. PVC STANDPIPE 2.0m TO 6.0m. CASING 0.11m TO 2.0m. 2mm SAND FILTER PACK 1.5m TO 6.0m. BENTONITE SEAL 0.3m TO 1.5m. BACKFILLED WITH SAND AND CUTTINGS TO THE SURFACE. COMPLETED WITH A CONCRETED GATIC COVER.
						4	6			END OF BOREHOLE AT 6.00 m				

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ENVIRONMENTAL LOG

Log No.
TP24
1/1

Environmental logs are not to be used for geotechnical purposes

Client: SCHOOL INFRASTRUCTURE NSW
Project: PROPOSED SCHOOL DEVELOPMENT
Location: LISMORE SOUTH PUBLIC SCHOOL, 69-79 KYOGLE STREET, SOUTH LISMORE, NSW

Job No.: E36310PT
Method: TEST PIT
R.L. Surface: N/A
Date: 26/9/24
Datum: -
Plant Type: EXCAVATOR
Logged/Checked by: V.R./B.P.

Groundwater Record	SAMPLES ES	ASS	ASB	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 sand, fine to medium grained, trace of fine to medium grained igneous gravel, and root fibres.	M			SCREEN: 11.85kg 0-0.1m, NO FCF
	■		■		■					FILL: Silty gravelly clay, low to medium plasticity, trace of fine to medium grained sand, and igneous and ironstone gravel.	w>PL			SCREEN: 12.40kg 0.2-0.4m, NO FCF
	■		■		■		0.5		CL	Sandy CLAY: low plasticity, dark brown mottled orange, with fine grained sand.	w<PL			ALLUVIAL SCREEN: 11.10kg 0.5-0.7m, NO FCF
							1		CH	Silty CLAY: high plasticity, dark grey.	w<PL			
							1.5			END OF TEST PIT AT 1.1m				
							2							
							2.5							
							3							
							3.5							

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ENVIRONMENTAL LOG

Log No.
BH25
1/1

Environmental logs are not to be used for geotechnical purposes

Client: SCHOOL INFRASTRUCTURE NSW

Project: PROPOSED SCHOOL DEVELOPMENT

Location: LISMORE SOUTH PUBLIC SCHOOL, 69-79 KYOGLE STREET, SOUTH LISMORE, NSW

Job No.: E36310PT **Method:** TEST PIT / HAND AUGER **R.L. Surface:** N/A

Date: 25/9/24 **Datum:** -

Plant Type: SHOVEL **Logged/Checked by:** V.R./B.P.

Groundwater Record	SAMPLES ES	 ASS	 ASB	 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, low to medium plasticity, dark brown, trace of organic materials, wood chips and root fibres.	w<PL			SCREEN: 10.55kg 0-0.2m, NO FCF
	■		■							FILL: Gravelly clay, high plasticity, yellow and dark brown, trace of ironstone gravel.	w≈PL			INSUFFICIENT RETURN FOR BULK FIELD SCREENING SAMPLE
	■		■				0.5		CH	Sandy CLAY: high plasticity, dark brown, trace of ironstone gravel.	w<PL			HAND AUGER FROM 0.4m DEPTH
	■									Silty CLAY: high plasticity, dark brown and grey.	w<PL			ALLUVIAL
							1 1.5 2 2.5 3 3.5			END OF TEST PIT AT 0.9m				

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 65% 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	

Major Divisions		Group Symbol	Typical Names	Field Classification of Silt and Clay			Laboratory Classification
				Dry Strength	Dilatancy	Toughness	% < 0.075mm
ine 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	–	–	–	–

Laboratory **Classification** Criteria

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

$$C_U = \frac{D_{60}}{D_{10}} \qquad and \qquad C_C = \frac{(D_{30})^2}{D_{10}\,D_{60}}$$

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:

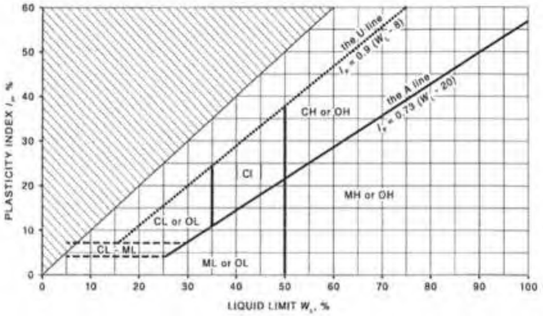
1 For a coarse grained soil with a fines content between 5% and 12%, the soil is given a dual classification comprising the two group symbols separated by a dash; for example, for a poorly graded gravel with between 5% and 12% silt fines, the classification is GP-GM.

2 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.

3 Clay soils with liquid limits > 35% and ≤ 50% may be classified as being of medium plasticity.

4 The U line on the Modified Casagrande Chart is an approximate upper bound for most natural soils.

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	Vane shear reading in kPa of undrained shear strength.
	PID = 100	Photoionisation detector reading in ppm (soil sample headspace test).
Moisture Condition (Fine 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.
(Coarse Grained Soils)	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)			**Density Index (I_D) Range (%)**	**SPT 'N' Value Range (Blows/300mm)**
	VL	VERY LOOSE	≤ 15	0 – 4
	L	LOOSE	> 15 and ≤ 35	4 – 10
	MD	MEDIUM DENSE	> 35 and ≤ 65	10 – 30
	D	DENSE	> 65 and ≤ 85	30 – 50
	VD	VERY DENSE	> 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	Hardened steel 'V' shaped bit.
	'TC' bit	Twin pronged tungsten carbide bit.
	T_{60}	Penetration of auger string in mm under static load of rig applied by drill head hydraulics without rotation of augers.
	Soil Origin	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 E: Laboratory Reports & COC Documents

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CERTIFICATE OF ANALYSIS 362946

Client Details

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

Sample Details

Your Reference	**E36310PT, South Lismore, NSW**
Number of Samples	129 Soil, 2 Water, 6 Material
Date samples received	30/09/2024
Date completed instructions received	30/09/2024

Analysis Details

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

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

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

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

Report Details

Date results requested by	08/10/2024
Date of Issue	08/10/2024

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Asbestos Approved By
Analysed by Asbestos Approved Analyst: Nyovan Moonean, Stuart Chen
Authorised by Asbestos Approved Signatory: Nyovan Moonean

Results Approved By
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Dragana Tomas, Senior Chemist
Loren Bardwell, Development Chemist
Nyovan Moonean, Asbestos Approved Identifier/Counter
Steven Luong, Senior Chemist
Tabitha Roberts, Senior Chemist
Timothy Toll, Senior Chemist

Authorised By
Nancy Zhang, Laboratory Manager

vTRH(C6-C10)/BTEXN in Soil						
Our Reference		362946-1	362946-6	362946-11	362946-12	362946-14
Your Reference	UNITS	BH1	BH2	TP3	TP3	TP4
Depth		0-0.1	0.05-0.2	0-0.1	0.5-0.6	0-0.1
Date Sampled		24/09/2024	24/09/2024	26/09/2024	26/09/2024	27/09/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	02/10/2024	02/10/2024	02/10/2024	02/10/2024	02/10/2024
Date analysed	-	04/10/2024	04/10/2024	04/10/2024	04/10/2024	04/10/2024
TRH C_6 - C_9	mg/kg	<25	<25	<25	<25	<25
TRH C_6 - C_{10}	mg/kg	<25	<25	<25	<25	<25
vTRH C_6 - C_{10} less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
Naphthalene	mg/kg	<1	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	86	81	92	89	87

vTRH(C6-C10)/BTEXN in Soil						
Our Reference		362946-15	362946-16	362946-18	362946-22	362946-25
Your Reference	UNITS	TP4	TP4	TP5	TP6	BH7
Depth		0.4-0.5	0.5-0.6	0-0.1	0-0.1	0-0.1
Date Sampled		27/09/2024	27/09/2024	27/09/2024	26/09/2024	25/09/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	02/10/2024	02/10/2024	02/10/2024	02/10/2024	02/10/2024
Date analysed	-	04/10/2024	04/10/2024	04/10/2024	04/10/2024	04/10/2024
TRH C_6 - C_9	mg/kg	<25	<25	<25	<25	<25
TRH C_6 - C_{10}	mg/kg	<25	<25	<25	<25	<25
vTRH C_6 - C_{10} less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
Naphthalene	mg/kg	<1	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	86	90	89	87	83

vTRH(C6-C10)/BTEXN in Soil						
Our Reference		362946-28	362946-29	362946-31	362946-33	362946-34
Your Reference	UNITS	TP8	TP8	BH9	TP10	TP10
Depth		0-0.1	0.4-0.5	0-0.1	0-0.1	0.4-0.5
Date Sampled		25/09/2024	25/09/2024	26/09/2024	27/09/2024	27/09/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	02/10/2024	02/10/2024	02/10/2024	02/10/2024	02/10/2024
Date analysed	-	04/10/2024	04/10/2024	04/10/2024	04/10/2024	04/10/2024
TRH C_6 - C_9	mg/kg	<25	<25	<25	<25	<25
TRH C_6 - C_{10}	mg/kg	<25	<25	<25	<25	<25
vTRH C_6 - C_{10} less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
Naphthalene	mg/kg	<1	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	83	87	89	85	87

vTRH(C6-C10)/BTEXN in Soil						
Our Reference		362946-35	362946-40	362946-43	362946-45	362946-48
Your Reference	UNITS	BH11	BH12	BH13	TP14	BH15
Depth		0.0-0.1	0-0.2	0-0.1	0-0.1	0-0.1
Date Sampled		24/09/2024	25/09/2024	25/09/2024	26/09/2024	24/09/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	02/10/2024	02/10/2024	02/10/2024	02/10/2024	02/10/2024
Date analysed	-	04/10/2024	04/10/2024	04/10/2024	04/10/2024	04/10/2024
TRH C_6 - C_9	mg/kg	<25	<25	<25	<25	<25
TRH C_6 - C_{10}	mg/kg	<25	<25	<25	<25	<25
vTRH C_6 - C_{10} less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
Naphthalene	mg/kg	<1	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	90	82	81	84	84

vTRH(C6-C10)/BTEXN in Soil						
Our Reference		362946-53	362946-54	362946-56	362946-57	362946-59
Your Reference	UNITS	TP16	TP16	TP17	TP17	TP18
Depth		0-0.1	0.4-0.5	0-0.1	0.3-0.4	0-0.1
Date Sampled		26/09/2024	26/09/2024	26/09/2024	26/09/2024	26/09/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	02/10/2024	02/10/2024	02/10/2024	02/10/2024	02/10/2024
Date analysed	-	04/10/2024	04/10/2024	04/10/2024	04/10/2024	04/10/2024
TRH C_6 - C_9	mg/kg	<25	<25	<25	<25	<25
TRH C_6 - C_{10}	mg/kg	<25	<25	<25	<25	<25
vTRH C_6 - C_{10} less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
Naphthalene	mg/kg	<1	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	85	84	86	86	79

vTRH(C6-C10)/BTEXN in Soil						
Our Reference		362946-60	362946-62	362946-68	362946-69	362946-70
Your Reference	UNITS	TP18	BH19	BH20	BH20	BH21
Depth		0.4-0.5	0-0.1	0-0.1	0.3-0.4	0-0.1
Date Sampled		26/09/2024	24/09/2024	27/09/2024	27/09/2024	24/09/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	02/10/2024	02/10/2024	02/10/2024	02/10/2024	02/10/2024
Date analysed	-	04/10/2024	04/10/2024	04/10/2024	04/10/2024	04/10/2024
TRH C_6 - C_9	mg/kg	<25	<25	<25	<25	<25
TRH C_6 - C_{10}	mg/kg	<25	<25	<25	<25	<25
vTRH C_6 - C_{10} less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
Naphthalene	mg/kg	<1	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	80	88	86	89	84

vTRH(C6-C10)/BTEXN in Soil

Our Reference		362946-76	362946-77	362946-80	362946-86	362946-87
Your Reference	UNITS	TP22	TP22	BH23	TP24	TP24
Depth		0-0.1	0.3-0.4	0-0.1	0-0.1	0.3-0.4
Date Sampled		26/09/2024	26/09/2024	24/09/2024	26/09/2024	26/09/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	02/10/2024	02/10/2024	02/10/2024	02/10/2024	02/10/2024
Date analysed	-	04/10/2024	04/10/2024	04/10/2024	08/10/2024	08/10/2024
TRH C_6 - C_9	mg/kg	<25	<25	<25	<25	<25
TRH C_6 - C_{10}	mg/kg	<25	<25	<25	<25	<25
vTRH C_6 - C_{10} less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
Naphthalene	mg/kg	<1	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	84	84	85	92	88

vTRH(C6-C10)/BTEXN in Soil

Our Reference		362946-89	362946-90	362946-103	362946-104	362946-115
Your Reference	UNITS	BH25	BH25	SDUP1	SDUP3	TS
Depth		0-0.1	0.3-0.4	-	-	-
Date Sampled		25/09/2024	25/09/2024	24/09/2024	24/09/2024	19/09/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	02/10/2024	02/10/2024	02/10/2024	02/10/2024	02/10/2024
Date analysed	-	08/10/2024	08/10/2024	08/10/2024	08/10/2024	08/10/2024
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	98%
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	99%
Ethylbenzene	mg/kg	<1	<1	<1	<1	99%
m+p-xylene	mg/kg	<2	<2	<2	<2	99%
o-Xylene	mg/kg	<1	<1	<1	<1	98%
Naphthalene	mg/kg	<1	<1	<1	<1	[NA]
Total +ve Xylenes	mg/kg	<1	<1	<1	<1	[NA]
Surrogate aaa-Trifluorotoluene	%	86	84	83	88	98

vTRH(C6-C10)/BTEXN in Soil		
Our Reference		362946-116
Your Reference	UNITS	TB
Depth		-
Date Sampled		19/09/2024
Type of sample		Soil
Date extracted	-	02/10/2024
Date analysed	-	08/10/2024
TRH C_6 - C_9	mg/kg	<25
TRH C_6 - C_{10}	mg/kg	<25
vTRH C_6 - C_{10} less BTEX (F1)	mg/kg	<25
Benzene	mg/kg	<0.2
Toluene	mg/kg	<0.5
Ethylbenzene	mg/kg	<1
m+p-xylene	mg/kg	<2
o-Xylene	mg/kg	<1
Naphthalene	mg/kg	<1
Total +ve Xylenes	mg/kg	<1
Surrogate aaa-Trifluorotoluene	%	92

svTRH (C10-C40) in Soil						
Our Reference		362946-1	362946-6	362946-11	362946-12	362946-14
Your Reference	UNITS	BH1	BH2	TP3	TP3	TP4
Depth		0-0.1	0.05-0.2	0-0.1	0.5-0.6	0-0.1
Date Sampled		24/09/2024	24/09/2024	26/09/2024	26/09/2024	27/09/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	02/10/2024	02/10/2024	02/10/2024	02/10/2024	02/10/2024
Date analysed	-	04/10/2024	04/10/2024	03/10/2024	03/10/2024	04/10/2024
TRH C_{10} - C_{14}	mg/kg	<50	<50	54	<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	100	<50	50	<50	<50
TRH >C_{10} -C_{16}	mg/kg	<50	<50	88	<50	<50
TRH >C_{10} -C_{16} less Naphthalene (F2)	mg/kg	<50	<50	88	<50	<50
TRH >C_{16} -C_{34}	mg/kg	140	<100	<100	<100	<100
TRH >C_{34} -C_{40}	mg/kg	120	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	260	<50	90	<50	<50
Surrogate o-Terphenyl	%	97	95	95	93	93

svTRH (C10-C40) in Soil						
Our Reference		362946-15	362946-16	362946-18	362946-22	362946-25
Your Reference	UNITS	TP4	TP4	TP5	TP6	BH7
Depth		0.4-0.5	0.5-0.6	0-0.1	0-0.1	0-0.1
Date Sampled		27/09/2024	27/09/2024	27/09/2024	26/09/2024	25/09/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	02/10/2024	02/10/2024	02/10/2024	02/10/2024	02/10/2024
Date analysed	-	04/10/2024	04/10/2024	04/10/2024	04/10/2024	04/10/2024
TRH C_{10} - C_{14}	mg/kg	<50	<50	<50	<50	<50
TRH C_{15} - C_{28}	mg/kg	<100	290	<100	<100	<100
TRH C_{29} - C_{36}	mg/kg	<100	780	140	<100	<100
Total +ve TRH (C10-C36)	mg/kg	<50	1,100	140	<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	850	160	<100	<100
TRH >C_{34} -C_{40}	mg/kg	<100	690	150	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	1,500	310	<50	<50
Surrogate o-Terphenyl	%	92	100	96	96	94

svTRH (C10-C40) in Soil						
Our Reference		362946-28	362946-29	362946-31	362946-33	362946-34
Your Reference	UNITS	TP8	TP8	BH9	TP10	TP10
Depth		0-0.1	0.4-0.5	0-0.1	0-0.1	0.4-0.5
Date Sampled		25/09/2024	25/09/2024	26/09/2024	27/09/2024	27/09/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	02/10/2024	02/10/2024	02/10/2024	02/10/2024	02/10/2024
Date analysed	-	04/10/2024	03/10/2024	03/10/2024	04/10/2024	03/10/2024
TRH C_{10} - C_{14}	mg/kg	<50	<50	<50	<50	<50
TRH C_{15} - C_{28}	mg/kg	110	<100	<100	<100	<100
TRH C_{29} - C_{36}	mg/kg	140	<100	<100	<100	<100
Total +ve TRH (C10-C36)	mg/kg	250	<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	200	<100	<100	140	<100
TRH >C_{34} -C_{40}	mg/kg	140	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	340	<50	<50	140	<50
Surrogate o-Terphenyl	%	99	93	93	99	94

svTRH (C10-C40) in Soil						
Our Reference		362946-35	362946-40	362946-43	362946-45	362946-48
Your Reference	UNITS	BH11	BH12	BH13	TP14	BH15
Depth		0.0-0.1	0-0.2	0-0.1	0-0.1	0-0.1
Date Sampled		24/09/2024	25/09/2024	25/09/2024	26/09/2024	24/09/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	02/10/2024	02/10/2024	02/10/2024	02/10/2024	02/10/2024
Date analysed	-	03/10/2024	03/10/2024	03/10/2024	04/10/2024	04/10/2024
TRH C_{10} - C_{14}	mg/kg	<50	<50	<50	<50	<50
TRH C_{15} - C_{28}	mg/kg	<100	<100	<100	<100	<100
TRH C_{29} - C_{36}	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (C10-C36)	mg/kg	<50	<50	<50	<50	<50
TRH >C_{10} -C_{16}	mg/kg	<50	<50	<50	<50	<50
TRH >C_{10} -C_{16} less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH >C_{16} -C_{34}	mg/kg	<100	<100	<100	120	<100
TRH >C_{34} -C_{40}	mg/kg	<100	<100	<100	110	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	<50	230	<50
Surrogate o-Terphenyl	%	94	93	97	97	97

svTRH (C10-C40) in Soil						
Our Reference		362946-53	362946-54	362946-56	362946-57	362946-59
Your Reference	UNITS	TP16	TP16	TP17	TP17	TP18
Depth		0-0.1	0.4-0.5	0-0.1	0.3-0.4	0-0.1
Date Sampled		26/09/2024	26/09/2024	26/09/2024	26/09/2024	26/09/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	02/10/2024	02/10/2024	02/10/2024	02/10/2024	02/10/2024
Date analysed	-	03/10/2024	03/10/2024	03/10/2024	03/10/2024	04/10/2024
TRH C_{10} - C_{14}	mg/kg	<50	<50	<50	<50	<50
TRH C_{15} - C_{28}	mg/kg	<100	<100	<100	<100	<100
TRH C_{29} - C_{36}	mg/kg	<100	<100	<100	<100	140
Total +ve TRH (C10-C36)	mg/kg	<50	<50	<50	<50	140
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	190
TRH >C_{34}-C_{40}	mg/kg	<100	<100	<100	<100	140
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	<50	<50	330
Surrogate o-Terphenyl	%	95	95	96	98	100

svTRH (C10-C40) in Soil						
Our Reference		362946-60	362946-62	362946-68	362946-69	362946-70
Your Reference	UNITS	TP18	BH19	BH20	BH20	BH21
Depth		0.4-0.5	0-0.1	0-0.1	0.3-0.4	0-0.1
Date Sampled		26/09/2024	24/09/2024	27/09/2024	27/09/2024	24/09/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	02/10/2024	02/10/2024	02/10/2024	02/10/2024	02/10/2024
Date analysed	-	03/10/2024	03/10/2024	03/10/2024	03/10/2024	03/10/2024
TRH C_{10} - C_{14}	mg/kg	<50	<50	<50	<50	<50
TRH C_{15} - C_{28}	mg/kg	<100	<100	<100	<100	<100
TRH C_{29} - C_{36}	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (C10-C36)	mg/kg	<50	<50	<50	<50	<50
TRH >C_{10}-C_{16}	mg/kg	<50	<50	<50	<50	<50
TRH >C_{10}-C_{16} less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH >C_{16}-C_{34}	mg/kg	<100	<100	<100	<100	<100
TRH >C_{34}-C_{40}	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	<50	<50	<50
Surrogate o-Terphenyl	%	99	99	99	96	95

svTRH (C10-C40) in Soil						
Our Reference		362946-76	362946-77	362946-80	362946-86	362946-87
Your Reference	UNITS	TP22	TP22	BH23	TP24	TP24
Depth		0-0.1	0.3-0.4	0-0.1	0-0.1	0.3-0.4
Date Sampled		26/09/2024	26/09/2024	24/09/2024	26/09/2024	26/09/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	02/10/2024	02/10/2024	02/10/2024	02/10/2024	02/10/2024
Date analysed	-	03/10/2024	03/10/2024	03/10/2024	04/10/2024	04/10/2024
TRH C_{10} - C_{14}	mg/kg	<50	<50	<50	<50	<50
TRH C_{15} - C_{28}	mg/kg	<100	<100	<100	<100	<100
TRH C_{29} - C_{36}	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (C10-C36)	mg/kg	<50	<50	<50	<50	<50
TRH >C_{10}-C_{16}	mg/kg	<50	<50	<50	<50	<50
TRH >C_{10}-C_{16} less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH >C_{16}-C_{34}	mg/kg	<100	<100	100	<100	<100
TRH >C_{34}-C_{40}	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	100	<50	<50
Surrogate o-Terphenyl	%	92	94	95	93	95

svTRH (C10-C40) in Soil						
Our Reference		362946-89	362946-90	362946-103	362946-104	362946-116
Your Reference	UNITS	BH25	BH25	SDUP1	SDUP3	TB
Depth		0-0.1	0.3-0.4	-	-	-
Date Sampled		25/09/2024	25/09/2024	24/09/2024	24/09/2024	19/09/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	02/10/2024	02/10/2024	02/10/2024	02/10/2024	02/10/2024
Date analysed	-	04/10/2024	04/10/2024	04/10/2024	04/10/2024	04/10/2024
TRH C_{10} - C_{14}	mg/kg	<50	<50	<50	<50	<50
TRH C_{15} - C_{28}	mg/kg	190	<100	<100	<100	<100
TRH C_{29} - C_{36}	mg/kg	190	<100	<100	<100	<100
Total +ve TRH (C10-C36)	mg/kg	380	<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	300	<100	<100	<100	<100
TRH >C_{34}-C_{40}	mg/kg	180	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	540	<50	<50	<50	<50
Surrogate o-Terphenyl	%	99	95	94	97	97

PAHs in Soil						
Our Reference	UNITS	362946-1	362946-6	362946-11	362946-12	362946-14
Your Reference		BH1	BH2	TP3	TP3	TP4
Depth		0-0.1	0.05-0.2	0-0.1	0.5-0.6	0-0.1
Date Sampled		24/09/2024	24/09/2024	26/09/2024	26/09/2024	27/09/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	02/10/2024	02/10/2024	02/10/2024	02/10/2024	02/10/2024
Date analysed	-	08/10/2024	08/10/2024	08/10/2024	08/10/2024	08/10/2024
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	0.7	<0.1	<0.1	<0.1	0.1
Anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	1.4	<0.1	<0.1	<0.1	0.2
Pyrene	mg/kg	1.3	0.1	<0.1	<0.1	0.2
Benzo(a)anthracene	mg/kg	0.5	<0.1	<0.1	<0.1	0.1
Chrysene	mg/kg	0.6	<0.1	<0.1	<0.1	0.2
Benzo(b,j+k)fluoranthene	mg/kg	0.9	<0.2	<0.2	<0.2	0.2
Benzo(a)pyrene	mg/kg	0.57	0.05	<0.05	0.06	0.1
Indeno(1,2,3-c,d)pyrene	mg/kg	0.3	<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	0.5	<0.1	<0.1	<0.1	0.1
Total +ve PAH's	mg/kg	6.8	0.2	<0.05	0.06	1.3
Benzo(a)pyrene TEQ calc (zero)	mg/kg	0.8	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	0.8	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	0.9	<0.5	<0.5	<0.5	<0.5
Surrogate p-Terphenyl-d14	%	88	96	88	110	93

PAHs in Soil						
Our Reference		362946-15	362946-16	362946-18	362946-22	362946-25
Your Reference	UNITS	TP4	TP4	TP5	TP6	BH7
Depth		0.4-0.5	0.5-0.6	0-0.1	0-0.1	0-0.1
Date Sampled		27/09/2024	27/09/2024	27/09/2024	26/09/2024	25/09/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	02/10/2024	02/10/2024	02/10/2024	02/10/2024	02/10/2024
Date analysed	-	08/10/2024	08/10/2024	08/10/2024	08/10/2024	08/10/2024
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	0.3	0.1	<0.1	0.2	<0.1
Anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	0.6	0.5	<0.1	0.3	<0.1
Pyrene	mg/kg	0.7	0.6	<0.1	0.3	<0.1
Benzo(a)anthracene	mg/kg	0.4	0.3	<0.1	0.1	<0.1
Chrysene	mg/kg	0.3	0.3	<0.1	0.2	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	0.5	0.6	<0.2	0.2	<0.2
Benzo(a)pyrene	mg/kg	0.4	0.4	<0.05	0.2	0.07
Indeno(1,2,3-c,d)pyrene	mg/kg	0.2	0.3	<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	0.3	0.4	<0.1	0.1	<0.1
Total +ve PAH's	mg/kg	4.2	3.4	<0.05	1.6	0.07
Benzo(a)pyrene TEQ calc (zero)	mg/kg	0.6	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	0.6	0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	0.7	0.6	<0.5	<0.5	<0.5
Surrogate p-Terphenyl-d14	%	111	122	91	93	99

PAHs in Soil						
Our Reference		362946-28	362946-29	362946-31	362946-33	362946-34
Your Reference	UNITS	TP8	TP8	BH9	TP10	TP10
Depth		0-0.1	0.4-0.5	0-0.1	0-0.1	0.4-0.5
Date Sampled		25/09/2024	25/09/2024	26/09/2024	27/09/2024	27/09/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	02/10/2024	02/10/2024	02/10/2024	02/10/2024	02/10/2024
Date analysed	-	08/10/2024	08/10/2024	08/10/2024	08/10/2024	08/10/2024
Naphthalene	mg/kg	<0.1	<0.1	<0.1	0.1	<0.1
Acenaphthylene	mg/kg	0.1	<0.1	<0.1	0.3	0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	0.2	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	0.4	<0.1
Phenanthrene	mg/kg	0.3	<0.1	<0.1	4.4	0.8
Anthracene	mg/kg	0.1	<0.1	<0.1	0.8	0.2
Fluoranthene	mg/kg	1	<0.1	<0.1	4.2	1.7
Pyrene	mg/kg	1.0	<0.1	<0.1	4.1	1.7
Benzo(a)anthracene	mg/kg	0.6	<0.1	<0.1	2.0	0.8
Chrysene	mg/kg	0.5	<0.1	<0.1	2.0	0.8
Benzo(b,j+k)fluoranthene	mg/kg	0.8	<0.2	<0.2	2.3	1
Benzo(a)pyrene	mg/kg	0.57	<0.05	<0.05	1.6	0.91
Indeno(1,2,3-c,d)pyrene	mg/kg	0.3	<0.1	<0.1	0.6	0.5
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	0.1
Benzo(g,h,i)perylene	mg/kg	0.4	<0.1	<0.1	0.8	0.6
Total +ve PAH's	mg/kg	5.8	<0.05	<0.05	24	9.6
Benzo(a)pyrene TEQ calc (zero)	mg/kg	0.8	<0.5	<0.5	2.1	1.3
Benzo(a)pyrene TEQ calc(half)	mg/kg	0.8	<0.5	<0.5	2.2	1.3
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	0.9	<0.5	<0.5	2.2	1.3
Surrogate p-Terphenyl-d14	%	97	113	84	91	114

PAHs in Soil						
Our Reference		362946-35	362946-40	362946-43	362946-45	362946-48
Your Reference	UNITS	BH11	BH12	BH13	TP14	BH15
Depth		0.0-0.1	0-0.2	0-0.1	0-0.1	0-0.1
Date Sampled		24/09/2024	25/09/2024	25/09/2024	26/09/2024	24/09/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	02/10/2024	02/10/2024	02/10/2024	02/10/2024	02/10/2024
Date analysed	-	08/10/2024	08/10/2024	08/10/2024	08/10/2024	08/10/2024
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	0.1	<0.1	0.4	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	0.2	<0.1	1	<0.1	<0.1
Pyrene	mg/kg	0.2	<0.1	1.0	<0.1	<0.1
Benzo(a)anthracene	mg/kg	0.1	<0.1	0.7	<0.1	<0.1
Chrysene	mg/kg	0.1	<0.1	0.7	<0.1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	0.2	<0.2	1	<0.2	<0.2
Benzo(a)pyrene	mg/kg	0.1	<0.05	0.65	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	0.3	<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	0.4	<0.1	<0.1
Total +ve PAH's	mg/kg	1.2	<0.05	6.1	<0.05	<0.05
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	0.9	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	0.9	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	1	<0.5	<0.5
Surrogate p-Terphenyl-d14	%	119	95	100	91	95

PAHs in Soil						
Our Reference	UNITS	362946-53	362946-54	362946-56	362946-57	362946-59
Your Reference		TP16	TP16	TP17	TP17	TP18
Depth		0-0.1	0.4-0.5	0-0.1	0.3-0.4	0-0.1
Date Sampled		26/09/2024	26/09/2024	26/09/2024	26/09/2024	26/09/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	02/10/2024	02/10/2024	02/10/2024	02/10/2024	02/10/2024
Date analysed	-	08/10/2024	08/10/2024	08/10/2024	08/10/2024	08/10/2024
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	0.1	<0.1	0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	0.8	<0.1	0.6	<0.1
Anthracene	mg/kg	<0.1	0.3	<0.1	0.2	<0.1
Fluoranthene	mg/kg	<0.1	2.1	0.2	1.4	0.1
Pyrene	mg/kg	<0.1	2.4	0.2	1.3	0.1
Benzo(a)anthracene	mg/kg	<0.1	2.0	<0.1	0.9	<0.1
Chrysene	mg/kg	<0.1	1.5	0.1	0.7	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	2.8	<0.2	1	<0.2
Benzo(a)pyrene	mg/kg	<0.05	2.5	0.1	0.86	0.07
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	1.1	<0.1	0.5	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	0.3	<0.1	0.2	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	1.5	<0.1	0.6	<0.1
Total +ve PAH's	mg/kg	<0.05	17	0.56	8.6	0.3
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	3.5	<0.5	1.3	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	3.5	<0.5	1.3	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	3.5	<0.5	1.3	<0.5
Surrogate p-Terphenyl-d14	%	97	121	95	127	98

PAHs in Soil						
Our Reference	UNITS	362946-60	362946-62	362946-68	362946-69	362946-70
Your Reference		TP18	BH19	BH20	BH20	BH21
Depth		0.4-0.5	0-0.1	0-0.1	0.3-0.4	0-0.1
Date Sampled		26/09/2024	24/09/2024	27/09/2024	27/09/2024	24/09/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	02/10/2024	02/10/2024	02/10/2024	02/10/2024	02/10/2024
Date analysed	-	08/10/2024	08/10/2024	08/10/2024	08/10/2024	08/10/2024
Naphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	0.5	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	0.6	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	0.5	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	0.3	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	0.2	<0.1	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	0.4	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	0.2	<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	0.2	<0.1	<0.1	<0.1	<0.1
Total +ve PAH's	mg/kg	3.3	<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	%	123	97	97	129	99

PAHs in Soil						
Our Reference		362946-76	362946-77	362946-80	362946-86	362946-87
Your Reference	UNITS	TP22	TP22	BH23	TP24	TP24
Depth		0-0.1	0.3-0.4	0-0.1	0-0.1	0.3-0.4
Date Sampled		26/09/2024	26/09/2024	24/09/2024	26/09/2024	26/09/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	02/10/2024	02/10/2024	02/10/2024	02/10/2024	02/10/2024
Date analysed	-	08/10/2024	08/10/2024	08/10/2024	08/10/2024	08/10/2024
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	0.5	<0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	0.2	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	1	0.2	<0.1	<0.1
Pyrene	mg/kg	<0.1	1	0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	0.6	<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	0.7	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	0.4	0.08	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	0.3	<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	5.4	0.4	<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	0.6	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	0.6	<0.5	<0.5	<0.5
Surrogate p-Terphenyl-d14	%	90	114	91	85	111

PAHs in Soil						
Our Reference		362946-89	362946-90	362946-103	362946-104	362946-116
Your Reference	UNITS	BH25	BH25	SDUP1	SDUP3	TB
Depth		0-0.1	0.3-0.4	-	-	-
Date Sampled		25/09/2024	25/09/2024	24/09/2024	24/09/2024	19/09/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	02/10/2024	02/10/2024	02/10/2024	02/10/2024	02/10/2024
Date analysed	-	08/10/2024	08/10/2024	08/10/2024	08/10/2024	08/10/2024
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	0.1	0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	0.2	0.2	0.1	<0.1	<0.1
Pyrene	mg/kg	0.2	0.3	0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	0.2	0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	0.2	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	0.1	0.1	0.06	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	0.1	<0.1	<0.1	<0.1
Total +ve PAH's	mg/kg	1.2	1.2	0.3	<0.05	<0.05
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Surrogate p-Terphenyl-d14	%	96	117	85	97	117

Organochlorine Pesticides in soil						
Our Reference		362946-1	362946-6	362946-11	362946-14	362946-18
Your Reference	UNITS	BH1	BH2	TP3	TP4	TP5
Depth		0-0.1	0.05-0.2	0-0.1	0-0.1	0-0.1
Date Sampled		24/09/2024	24/09/2024	26/09/2024	27/09/2024	27/09/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	02/10/2024	02/10/2024	02/10/2024	02/10/2024	02/10/2024
Date analysed	-	08/10/2024	08/10/2024	08/10/2024	08/10/2024	08/10/2024
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
HCB	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Mirex	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve DDT+DDD+DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total Positive Aldrin+Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate 4-Chloro-3-NBTF	%	85	91	97	81	85

Organochlorine Pesticides in soil						
Our Reference		362946-22	362946-25	362946-28	362946-31	362946-33
Your Reference	UNITS	TP6	BH7	TP8	BH9	TP10
Depth		0-0.1	0-0.1	0-0.1	0-0.1	0-0.1
Date Sampled		26/09/2024	25/09/2024	25/09/2024	26/09/2024	27/09/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	02/10/2024	02/10/2024	02/10/2024	02/10/2024	02/10/2024
Date analysed	-	08/10/2024	08/10/2024	08/10/2024	08/10/2024	08/10/2024
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
HCB	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Mirex	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve DDT+DDD+DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total Positive Aldrin+Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate 4-Chloro-3-NBTF	%	85	85	84	77	89

Organochlorine Pesticides in soil						
Our Reference		362946-40	362946-43	362946-45	362946-48	362946-53
Your Reference	UNITS	BH12	BH13	TP14	BH15	TP16
Depth		0-0.2	0-0.1	0-0.1	0-0.1	0-0.1
Date Sampled		25/09/2024	25/09/2024	26/09/2024	24/09/2024	26/09/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	02/10/2024	02/10/2024	02/10/2024	02/10/2024	02/10/2024
Date analysed	-	08/10/2024	08/10/2024	08/10/2024	08/10/2024	08/10/2024
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
HCB	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Mirex	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve DDT+DDD+DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total Positive Aldrin+Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate 4-Chloro-3-NBTF	%	96	94	81	87	93

Organochlorine Pesticides in soil						
Our Reference		362946-56	362946-59	362946-62	362946-68	362946-70
Your Reference	UNITS	TP17	TP18	BH19	BH20	BH21
Depth		0-0.1	0-0.1	0-0.1	0-0.1	0-0.1
Date Sampled		26/09/2024	26/09/2024	24/09/2024	27/09/2024	24/09/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	02/10/2024	02/10/2024	02/10/2024	02/10/2024	02/10/2024
Date analysed	-	08/10/2024	08/10/2024	08/10/2024	08/10/2024	08/10/2024
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
HCB	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Mirex	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve DDT+DDD+DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total Positive Aldrin+Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate 4-Chloro-3-NBTF	%	85	97	95	93	92

Organochlorine Pesticides in soil						
Our Reference		362946-76	362946-80	362946-86	362946-89	362946-93
Your Reference	UNITS	TP22	BH23	TP24	BH25	SS26
Depth		0-0.1	0-0.1	0-0.1	0-0.1	0-0.1
Date Sampled		26/09/2024	24/09/2024	26/09/2024	25/09/2024	26/09/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	02/10/2024	02/10/2024	02/10/2024	02/10/2024	02/10/2024
Date analysed	-	08/10/2024	08/10/2024	08/10/2024	08/10/2024	08/10/2024
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
HCB	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Mirex	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve DDT+DDD+DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total Positive Aldrin+Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate 4-Chloro-3-NBTF	%	83	83	86	89	91

Organochlorine Pesticides in soil						
Our Reference		362946-94	362946-95	362946-96	362946-97	362946-98
Your Reference	UNITS	SS27	SS28	SS29	SS30	SS31
Depth		0-0.1	0-0.1	0-0.1	0-0.1	0-0.1
Date Sampled		24/09/2024	26/09/2024	26/09/2024	26/09/2024	26/09/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	02/10/2024	02/10/2024	02/10/2024	02/10/2024	02/10/2024
Date analysed	-	08/10/2024	08/10/2024	08/10/2024	08/10/2024	08/10/2024
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
HCB	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Mirex	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve DDT+DDD+DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total Positive Aldrin+Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate 4-Chloro-3-NBTF	%	95	90	93	88	91

Organochlorine Pesticides in soil						
Our Reference		362946-99	362946-100	362946-101	362946-102	362946-103
Your Reference	UNITS	SS32	SS33	SS34	SS35	SDUP1
Depth		0-0.1	0-0.1	0-0.1	0-0.1	-
Date Sampled		26/09/2024	24/09/2024	26/09/2024	24/09/2024	24/09/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	02/10/2024	02/10/2024	02/10/2024	02/10/2024	02/10/2024
Date analysed	-	08/10/2024	08/10/2024	08/10/2024	08/10/2024	08/10/2024
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
HCB	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Mirex	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve DDT+DDD+DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total Positive Aldrin+Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate 4-Chloro-3-NBTF	%	89	98	88	95	85

Organochlorine Pesticides in soil		
Our Reference		362946-104
Your Reference	UNITS	SDUP3
Depth		-
Date Sampled		24/09/2024
Type of sample		Soil
Date extracted	-	02/10/2024
Date analysed	-	08/10/2024
alpha-BHC	mg/kg	<0.1
HCB	mg/kg	<0.1
beta-BHC	mg/kg	<0.1
gamma-BHC	mg/kg	<0.1
Heptachlor	mg/kg	<0.1
delta-BHC	mg/kg	<0.1
Aldrin	mg/kg	<0.1
Heptachlor Epoxide	mg/kg	<0.1
gamma-Chlordane	mg/kg	<0.1
alpha-chlordane	mg/kg	<0.1
Endosulfan I	mg/kg	<0.1
pp-DDE	mg/kg	<0.1
Dieldrin	mg/kg	<0.1
Endrin	mg/kg	<0.1
Endosulfan II	mg/kg	<0.1
pp-DDD	mg/kg	<0.1
Endrin Aldehyde	mg/kg	<0.1
pp-DDT	mg/kg	<0.1
Endosulfan Sulphate	mg/kg	<0.1
Methoxychlor	mg/kg	<0.1
Mirex	mg/kg	<0.1
Total +ve DDT+DDD+DDE	mg/kg	<0.1
Total Positive Aldrin+Dieldrin	mg/kg	<0.1
Surrogate 4-Chloro-3-NBTF	%	95

Organophosphorus Pesticides in Soil						
Our Reference		362946-1	362946-6	362946-11	362946-14	362946-18
Your Reference	UNITS	BH1	BH2	TP3	TP4	TP5
Depth		0-0.1	0.05-0.2	0-0.1	0-0.1	0-0.1
Date Sampled		24/09/2024	24/09/2024	26/09/2024	27/09/2024	27/09/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	02/10/2024	02/10/2024	02/10/2024	02/10/2024	02/10/2024
Date analysed	-	08/10/2024	08/10/2024	08/10/2024	08/10/2024	08/10/2024
Dichlorvos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Mevinphos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phorate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dimethoate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Diazinon	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Disulfoton	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyrifos-methyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Parathion-Methyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ronnel	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fenitrothion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Malathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyriphos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fenthion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Parathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methidathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fenamiphos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ethion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phosalone	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Azinphos-methyl (Guthion)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Coumaphos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate 4-Chloro-3-NBTF	%	85	91	97	81	85

Organophosphorus Pesticides in Soil						
Our Reference		362946-22	362946-25	362946-28	362946-31	362946-33
Your Reference	UNITS	TP6	BH7	TP8	BH9	TP10
Depth		0-0.1	0-0.1	0-0.1	0-0.1	0-0.1
Date Sampled		26/09/2024	25/09/2024	25/09/2024	26/09/2024	27/09/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	02/10/2024	02/10/2024	02/10/2024	02/10/2024	02/10/2024
Date analysed	-	08/10/2024	08/10/2024	08/10/2024	08/10/2024	08/10/2024
Dichlorvos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Mevinphos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phorate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dimethoate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Diazinon	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Disulfoton	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyrifos-methyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Parathion-Methyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ronnel	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fenitrothion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Malathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyriphos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fenthion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Parathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methidathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fenamiphos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ethion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phosalone	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Azinphos-methyl (Guthion)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Coumaphos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate 4-Chloro-3-NBTF	%	85	85	84	77	89

Organophosphorus Pesticides in Soil						
Our Reference		362946-40	362946-43	362946-45	362946-48	362946-53
Your Reference	UNITS	BH12	BH13	TP14	BH15	TP16
Depth		0-0.2	0-0.1	0-0.1	0-0.1	0-0.1
Date Sampled		25/09/2024	25/09/2024	26/09/2024	24/09/2024	26/09/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	02/10/2024	02/10/2024	02/10/2024	02/10/2024	02/10/2024
Date analysed	-	08/10/2024	08/10/2024	08/10/2024	08/10/2024	08/10/2024
Dichlorvos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Mevinphos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phorate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dimethoate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Diazinon	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Disulfoton	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyrifos-methyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Parathion-Methyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ronnel	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fenitrothion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Malathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyriphos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fenthion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Parathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methidathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fenamiphos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ethion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phosalone	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Azinphos-methyl (Guthion)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Coumaphos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate 4-Chloro-3-NBTF	%	96	94	81	87	93

Organophosphorus Pesticides in Soil						
Our Reference	UNITS	362946-56	362946-59	362946-62	362946-68	362946-70
Your Reference		TP17	TP18	BH19	BH20	BH21
Depth		0-0.1	0-0.1	0-0.1	0-0.1	0-0.1
Date Sampled		26/09/2024	26/09/2024	24/09/2024	27/09/2024	24/09/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	02/10/2024	02/10/2024	02/10/2024	02/10/2024	02/10/2024
Date analysed	-	08/10/2024	08/10/2024	08/10/2024	08/10/2024	08/10/2024
Dichlorvos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Mevinphos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phorate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dimethoate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Diazinon	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Disulfoton	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyrifos-methyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Parathion-Methyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ronnel	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fenitrothion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Malathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyriphos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fenthion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Parathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methidathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fenamiphos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ethion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phosalone	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Azinphos-methyl (Guthion)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Coumaphos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate 4-Chloro-3-NBTF	%	85	97	95	93	92

Organophosphorus Pesticides in Soil						
Our Reference		362946-76	362946-80	362946-86	362946-89	362946-93
Your Reference	UNITS	TP22	BH23	TP24	BH25	SS26
Depth		0-0.1	0-0.1	0-0.1	0-0.1	0-0.1
Date Sampled		26/09/2024	24/09/2024	26/09/2024	25/09/2024	26/09/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	02/10/2024	02/10/2024	02/10/2024	02/10/2024	02/10/2024
Date analysed	-	08/10/2024	08/10/2024	08/10/2024	08/10/2024	08/10/2024
Dichlorvos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Mevinphos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phorate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dimethoate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Diazinon	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Disulfoton	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyrifos-methyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Parathion-Methyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ronnel	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fenitrothion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Malathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyriphos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fenthion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Parathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methidathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fenamiphos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ethion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phosalone	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Azinphos-methyl (Guthion)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Coumaphos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate 4-Chloro-3-NBTF	%	83	83	86	89	91

Organophosphorus Pesticides in Soil						
Our Reference		362946-94	362946-95	362946-96	362946-97	362946-98
Your Reference	UNITS	SS27	SS28	SS29	SS30	SS31
Depth		0-0.1	0-0.1	0-0.1	0-0.1	0-0.1
Date Sampled		24/09/2024	26/09/2024	26/09/2024	26/09/2024	26/09/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	02/10/2024	02/10/2024	02/10/2024	02/10/2024	02/10/2024
Date analysed	-	08/10/2024	08/10/2024	08/10/2024	08/10/2024	08/10/2024
Dichlorvos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Mevinphos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phorate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dimethoate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Diazinon	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Disulfoton	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyrifos-methyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Parathion-Methyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ronnel	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fenitrothion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Malathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyriphos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fenthion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Parathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methidathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fenamiphos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ethion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phosalone	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Azinphos-methyl (Guthion)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Coumaphos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate 4-Chloro-3-NBTF	%	95	90	93	88	91

Organophosphorus Pesticides in Soil						
Our Reference		362946-99	362946-100	362946-101	362946-102	362946-103
Your Reference	UNITS	SS32	SS33	SS34	SS35	SDUP1
Depth		0-0.1	0-0.1	0-0.1	0-0.1	-
Date Sampled		26/09/2024	24/09/2024	26/09/2024	24/09/2024	24/09/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	02/10/2024	02/10/2024	02/10/2024	02/10/2024	02/10/2024
Date analysed	-	08/10/2024	08/10/2024	08/10/2024	08/10/2024	08/10/2024
Dichlorvos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Mevinphos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phorate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dimethoate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Diazinon	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Disulfoton	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyrifos-methyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Parathion-Methyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ronnel	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fenitrothion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Malathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyriphos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fenthion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Parathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methidathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fenamiphos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ethion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phosalone	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Azinphos-methyl (Guthion)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Coumaphos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate 4-Chloro-3-NBTF	%	89	98	88	95	85

Organophosphorus Pesticides in Soil		
Our Reference		362946-104
Your Reference	UNITS	SDUP3
Depth		-
Date Sampled		24/09/2024
Type of sample		Soil
Date extracted	-	02/10/2024
Date analysed	-	08/10/2024
Dichlorvos	mg/kg	<0.1
Mevinphos	mg/kg	<0.1
Phorate	mg/kg	<0.1
Dimethoate	mg/kg	<0.1
Diazinon	mg/kg	<0.1
Disulfoton	mg/kg	<0.1
Chlorpyrifos-methyl	mg/kg	<0.1
Parathion-Methyl	mg/kg	<0.1
Ronnel	mg/kg	<0.1
Fenitrothion	mg/kg	<0.1
Malathion	mg/kg	<0.1
Chlorpyriphos	mg/kg	<0.1
Fenthion	mg/kg	<0.1
Parathion	mg/kg	<0.1
Bromophos-ethyl	mg/kg	<0.1
Methidathion	mg/kg	<0.1
Fenamiphos	mg/kg	<0.1
Ethion	mg/kg	<0.1
Phosalone	mg/kg	<0.1
Azinphos-methyl (Guthion)	mg/kg	<0.1
Coumaphos	mg/kg	<0.1
Surrogate 4-Chloro-3-NBTF	%	95

PCBs in Soil						
Our Reference		362946-1	362946-6	362946-11	362946-14	362946-18
Your Reference	UNITS	BH1	BH2	TP3	TP4	TP5
Depth		0-0.1	0.05-0.2	0-0.1	0-0.1	0-0.1
Date Sampled		24/09/2024	24/09/2024	26/09/2024	27/09/2024	27/09/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	02/10/2024	02/10/2024	02/10/2024	02/10/2024	02/10/2024
Date analysed	-	08/10/2024	08/10/2024	08/10/2024	08/10/2024	08/10/2024
Aroclor 1016	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1221	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1232	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1242	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1248	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1254	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1260	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PCBs (1016-1260)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate 2-Fluorobiphenyl	%	93	97	95	100	92

PCBs in Soil						
Our Reference		362946-22	362946-25	362946-28	362946-31	362946-33
Your Reference	UNITS	TP6	BH7	TP8	BH9	TP10
Depth		0-0.1	0-0.1	0-0.1	0-0.1	0-0.1
Date Sampled		26/09/2024	25/09/2024	25/09/2024	26/09/2024	27/09/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	02/10/2024	02/10/2024	02/10/2024	02/10/2024	02/10/2024
Date analysed	-	08/10/2024	08/10/2024	08/10/2024	08/10/2024	08/10/2024
Aroclor 1016	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1221	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1232	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1242	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1248	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1254	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1260	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PCBs (1016-1260)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate 2-Fluorobiphenyl	%	89	100	101	91	95

PCBs in Soil						
Our Reference		362946-40	362946-43	362946-45	362946-48	362946-53
Your Reference	UNITS	BH12	BH13	TP14	BH15	TP16
Depth		0-0.2	0-0.1	0-0.1	0-0.1	0-0.1
Date Sampled		25/09/2024	25/09/2024	26/09/2024	24/09/2024	26/09/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	02/10/2024	02/10/2024	02/10/2024	02/10/2024	02/10/2024
Date analysed	-	08/10/2024	08/10/2024	08/10/2024	08/10/2024	08/10/2024
Aroclor 1016	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1221	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1232	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1242	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1248	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1254	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1260	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PCBs (1016-1260)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate 2-Fluorobiphenyl	%	98	101	97	96	100

PCBs in Soil						
Our Reference		362946-56	362946-59	362946-62	362946-68	362946-70
Your Reference	UNITS	TP17	TP18	BH19	BH20	BH21
Depth		0-0.1	0-0.1	0-0.1	0-0.1	0-0.1
Date Sampled		26/09/2024	26/09/2024	24/09/2024	27/09/2024	24/09/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	02/10/2024	02/10/2024	02/10/2024	02/10/2024	02/10/2024
Date analysed	-	08/10/2024	08/10/2024	08/10/2024	08/10/2024	08/10/2024
Aroclor 1016	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1221	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1232	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1242	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1248	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1254	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1260	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PCBs (1016-1260)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate 2-Fluorobiphenyl	%	96	103	103	103	96

PCBs in Soil						
Our Reference		362946-76	362946-80	362946-86	362946-89	362946-103
Your Reference	UNITS	TP22	BH23	TP24	BH25	SDUP1
Depth		0-0.1	0-0.1	0-0.1	0-0.1	-
Date Sampled		26/09/2024	24/09/2024	26/09/2024	25/09/2024	24/09/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	02/10/2024	02/10/2024	02/10/2024	02/10/2024	02/10/2024
Date analysed	-	08/10/2024	08/10/2024	08/10/2024	08/10/2024	08/10/2024
Aroclor 1016	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1221	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1232	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1242	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1248	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1254	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1260	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PCBs (1016-1260)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate 2-Fluorobiphenyl	%	87	95	88	99	91

PCBs in Soil		
Our Reference		362946-104
Your Reference	UNITS	SDUP3
Depth		-
Date Sampled		24/09/2024
Type of sample		Soil
Date extracted	-	02/10/2024
Date analysed	-	08/10/2024
Aroclor 1016	mg/kg	<0.1
Aroclor 1221	mg/kg	<0.1
Aroclor 1232	mg/kg	<0.1
Aroclor 1242	mg/kg	<0.1
Aroclor 1248	mg/kg	<0.1
Aroclor 1254	mg/kg	<0.1
Aroclor 1260	mg/kg	<0.1
Total +ve PCBs (1016-1260)	mg/kg	<0.1
Surrogate 2-Fluorobiphenyl	%	101

Acid Extractable metals in soil						
Our Reference		362946-1	362946-6	362946-11	362946-12	362946-14
Your Reference	UNITS	BH1	BH2	TP3	TP3	TP4
Depth		0-0.1	0.05-0.2	0-0.1	0.5-0.6	0-0.1
Date Sampled		24/09/2024	24/09/2024	26/09/2024	26/09/2024	27/09/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	02/10/2024	02/10/2024	02/10/2024	02/10/2024	02/10/2024
Date analysed	-	03/10/2024	03/10/2024	03/10/2024	03/10/2024	03/10/2024
Arsenic	mg/kg	15	<4	<4	<4	<4
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	27	20	10	5	14
Copper	mg/kg	24	16	9	<1	18
Lead	mg/kg	11	30	11	2	27
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	11	24	5	<1	11
Zinc	mg/kg	77	120	35	2	86

Acid Extractable metals in soil						
Our Reference		362946-15	362946-16	362946-18	362946-22	362946-25
Your Reference	UNITS	TP4	TP4	TP5	TP6	BH7
Depth		0.4-0.5	0.5-0.6	0-0.1	0-0.1	0-0.1
Date Sampled		27/09/2024	27/09/2024	27/09/2024	26/09/2024	25/09/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	02/10/2024	02/10/2024	02/10/2024	02/10/2024	02/10/2024
Date analysed	-	03/10/2024	03/10/2024	03/10/2024	03/10/2024	03/10/2024
Arsenic	mg/kg	<4	<4	<4	<4	<4
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	21	4	25	8	15
Copper	mg/kg	22	9	15	13	20
Lead	mg/kg	39	12	9	20	15
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	20	5	12	8	10
Zinc	mg/kg	110	24	57	59	79

Acid Extractable metals in soil						
Our Reference		362946-28	362946-29	362946-31	362946-33	362946-34
Your Reference	UNITS	TP8	TP8	BH9	TP10	TP10
Depth		0-0.1	0.4-0.5	0-0.1	0-0.1	0.4-0.5
Date Sampled		25/09/2024	25/09/2024	26/09/2024	27/09/2024	27/09/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	02/10/2024	02/10/2024	02/10/2024	02/10/2024	02/10/2024
Date analysed	-	03/10/2024	03/10/2024	03/10/2024	03/10/2024	03/10/2024
Arsenic	mg/kg	<4	<4	<4	<4	<4
Cadmium	mg/kg	1	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	14	5	8	11	24
Copper	mg/kg	15	19	9	10	10
Lead	mg/kg	26	5	13	14	9
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	9	18	4	8	20
Zinc	mg/kg	100	57	33	55	62

Acid Extractable metals in soil						
Our Reference		362946-35	362946-40	362946-43	362946-45	362946-48
Your Reference	UNITS	BH11	BH12	BH13	TP14	BH15
Depth		0.0-0.1	0-0.2	0-0.1	0-0.1	0-0.1
Date Sampled		24/09/2024	25/09/2024	25/09/2024	26/09/2024	24/09/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	02/10/2024	02/10/2024	02/10/2024	02/10/2024	02/10/2024
Date analysed	-	03/10/2024	03/10/2024	03/10/2024	03/10/2024	03/10/2024
Arsenic	mg/kg	<4	<4	<4	<4	5
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	7	9	17	12	10
Copper	mg/kg	12	6	12	22	15
Lead	mg/kg	11	11	17	25	9
Mercury	mg/kg	<0.1	<0.1	<0.1	0.1	<0.1
Nickel	mg/kg	7	4	10	9	8
Zinc	mg/kg	47	54	63	220	44

Acid Extractable metals in soil						
Our Reference		362946-53	362946-54	362946-56	362946-57	362946-59
Your Reference	UNITS	TP16	TP16	TP17	TP17	TP18
Depth		0-0.1	0.4-0.5	0-0.1	0.3-0.4	0-0.1
Date Sampled		26/09/2024	26/09/2024	26/09/2024	26/09/2024	26/09/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	02/10/2024	02/10/2024	02/10/2024	02/10/2024	02/10/2024
Date analysed	-	03/10/2024	03/10/2024	03/10/2024	03/10/2024	03/10/2024
Arsenic	mg/kg	<4	<4	<4	<4	<4
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	11	20	11	34	17
Copper	mg/kg	14	15	14	19	15
Lead	mg/kg	10	37	13	30	14
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	14	22	11	25	11
Zinc	mg/kg	64	81	71	81	85

Acid Extractable metals in soil						
Our Reference		362946-60	362946-62	362946-68	362946-69	362946-70
Your Reference	UNITS	TP18	BH19	BH20	BH20	BH21
Depth		0.4-0.5	0-0.1	0-0.1	0.3-0.4	0-0.1
Date Sampled		26/09/2024	24/09/2024	27/09/2024	27/09/2024	24/09/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	02/10/2024	02/10/2024	02/10/2024	02/10/2024	02/10/2024
Date analysed	-	03/10/2024	03/10/2024	03/10/2024	03/10/2024	03/10/2024
Arsenic	mg/kg	<4	<4	<4	7	<4
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	26	5	9	9	12
Copper	mg/kg	16	11	9	15	8
Lead	mg/kg	14	10	10	11	9
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	18	5	5	9	7
Zinc	mg/kg	66	46	31	44	38

Acid Extractable metals in soil						
Our Reference		362946-76	362946-77	362946-80	362946-86	362946-87
Your Reference	UNITS	TP22	TP22	BH23	TP24	TP24
Depth		0-0.1	0.3-0.4	0-0.1	0-0.1	0.3-0.4
Date Sampled		26/09/2024	26/09/2024	24/09/2024	26/09/2024	26/09/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	02/10/2024	02/10/2024	02/10/2024	02/10/2024	02/10/2024
Date analysed	-	03/10/2024	03/10/2024	03/10/2024	03/10/2024	03/10/2024
Arsenic	mg/kg	<4	<4	<4	4	<4
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	10	19	9	4	14
Copper	mg/kg	9	22	10	14	7
Lead	mg/kg	10	38	12	14	3
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	5	16	6	7	5
Zinc	mg/kg	39	120	56	44	21

Acid Extractable metals in soil						
Our Reference		362946-89	362946-90	362946-93	362946-94	362946-95
Your Reference	UNITS	BH25	BH25	SS26	SS27	SS28
Depth		0-0.1	0.3-0.4	0-0.1	0-0.1	0-0.1
Date Sampled		25/09/2024	25/09/2024	26/09/2024	24/09/2024	26/09/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	02/10/2024	02/10/2024	02/10/2024	02/10/2024	02/10/2024
Date analysed	-	03/10/2024	03/10/2024	03/10/2024	03/10/2024	03/10/2024
Arsenic	mg/kg	<4	<4	<4	<4	18
Cadmium	mg/kg	<0.4	<0.4	1	<0.4	2
Chromium	mg/kg	26	42	14	13	27
Copper	mg/kg	16	18	16	17	24
Lead	mg/kg	8	15	15	8	16
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	24	55	7	13	11
Zinc	mg/kg	61	78	85	100	130

Acid Extractable metals in soil						
Our Reference		362946-96	362946-97	362946-98	362946-99	362946-100
Your Reference	UNITS	SS29	SS30	SS31	SS32	SS33
Depth		0-0.1	0-0.1	0-0.1	0-0.1	0-0.1
Date Sampled		26/09/2024	26/09/2024	26/09/2024	26/09/2024	24/09/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	02/10/2024	02/10/2024	02/10/2024	02/10/2024	02/10/2024
Date analysed	-	03/10/2024	03/10/2024	03/10/2024	03/10/2024	03/10/2024
Arsenic	mg/kg	<4	7	<4	<4	<4
Cadmium	mg/kg	0.9	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	12	7	18	9	11
Copper	mg/kg	19	28	17	13	10
Lead	mg/kg	16	17	12	9	10
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	14	11	14	10	8
Zinc	mg/kg	120	84	140	98	84

Acid Extractable metals in soil						
Our Reference		362946-101	362946-102	362946-103	362946-104	362946-116
Your Reference	UNITS	SS34	SS35	SDUP1	SDUP3	TB
Depth		0-0.1	0-0.1	-	-	-
Date Sampled		26/09/2024	24/09/2024	24/09/2024	24/09/2024	19/09/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	02/10/2024	02/10/2024	02/10/2024	02/10/2024	02/10/2024
Date analysed	-	03/10/2024	03/10/2024	03/10/2024	03/10/2024	03/10/2024
Arsenic	mg/kg	<4	<4	<4	<4	<4
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	13	24	8	13	<1
Copper	mg/kg	11	16	14	9	<1
Lead	mg/kg	7	22	12	8	<1
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	6	19	9	6	<1
Zinc	mg/kg	45	280	55	49	<1

Acid Extractable metals in soil		
Our Reference		362946-138
Your Reference	UNITS	BH23 - [TRIPLICATE]
Depth		0-0.1
Date Sampled		24/09/2024
Type of sample		Soil
Date prepared	-	02/10/2024
Date analysed	-	03/10/2024
Arsenic	mg/kg	<4
Cadmium	mg/kg	<0.4
Chromium	mg/kg	8
Copper	mg/kg	11
Lead	mg/kg	8
Mercury	mg/kg	<0.1
Nickel	mg/kg	6
Zinc	mg/kg	57

Moisture						
Our Reference		362946-1	362946-6	362946-11	362946-12	362946-14
Your Reference	UNITS	BH1	BH2	TP3	TP3	TP4
Depth		0-0.1	0.05-0.2	0-0.1	0.5-0.6	0-0.1
Date Sampled		24/09/2024	24/09/2024	26/09/2024	26/09/2024	27/09/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	02/10/2024	02/10/2024	02/10/2024	02/10/2024	02/10/2024
Date analysed	-	03/10/2024	03/10/2024	03/10/2024	03/10/2024	03/10/2024
Moisture	%	8.0	25	9.1	6.5	23

Moisture						
Our Reference		362946-15	362946-16	362946-18	362946-22	362946-25
Your Reference	UNITS	TP4	TP4	TP5	TP6	BH7
Depth		0.4-0.5	0.5-0.6	0-0.1	0-0.1	0-0.1
Date Sampled		27/09/2024	27/09/2024	27/09/2024	26/09/2024	25/09/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	02/10/2024	02/10/2024	02/10/2024	02/10/2024	02/10/2024
Date analysed	-	03/10/2024	03/10/2024	03/10/2024	03/10/2024	03/10/2024
Moisture	%	15	3.6	17	3.4	14

Moisture						
Our Reference		362946-28	362946-29	362946-31	362946-33	362946-34
Your Reference	UNITS	TP8	TP8	BH9	TP10	TP10
Depth		0-0.1	0.4-0.5	0-0.1	0-0.1	0.4-0.5
Date Sampled		25/09/2024	25/09/2024	26/09/2024	27/09/2024	27/09/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	02/10/2024	02/10/2024	02/10/2024	02/10/2024	02/10/2024
Date analysed	-	03/10/2024	03/10/2024	03/10/2024	03/10/2024	03/10/2024
Moisture	%	21	9.4	13	18	13

Moisture						
Our Reference		362946-35	362946-40	362946-43	362946-45	362946-48
Your Reference	UNITS	BH11	BH12	BH13	TP14	BH15
Depth		0.0-0.1	0-0.2	0-0.1	0-0.1	0-0.1
Date Sampled		24/09/2024	25/09/2024	25/09/2024	26/09/2024	24/09/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	02/10/2024	02/10/2024	02/10/2024	02/10/2024	02/10/2024
Date analysed	-	03/10/2024	03/10/2024	03/10/2024	03/10/2024	03/10/2024
Moisture	%	6.2	16	19	12	6.1

Client Reference: E36310PT, South Lismore, NSW

Moisture						
Our Reference		362946-53	362946-54	362946-56	362946-57	362946-59
Your Reference	UNITS	TP16	TP16	TP17	TP17	TP18
Depth		0-0.1	0.4-0.5	0-0.1	0.3-0.4	0-0.1
Date Sampled		26/09/2024	26/09/2024	26/09/2024	26/09/2024	26/09/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	02/10/2024	02/10/2024	02/10/2024	02/10/2024	02/10/2024
Date analysed	-	03/10/2024	03/10/2024	03/10/2024	03/10/2024	03/10/2024
Moisture	%	18	15	15	20	26

Moisture						
Our Reference		362946-60	362946-62	362946-68	362946-69	362946-70
Your Reference	UNITS	TP18	BH19	BH20	BH20	BH21
Depth		0.4-0.5	0-0.1	0-0.1	0.3-0.4	0-0.1
Date Sampled		26/09/2024	24/09/2024	27/09/2024	27/09/2024	24/09/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	02/10/2024	02/10/2024	02/10/2024	02/10/2024	02/10/2024
Date analysed	-	03/10/2024	03/10/2024	03/10/2024	03/10/2024	03/10/2024
Moisture	%	25	8.9	22	11	12

Moisture						
Our Reference		362946-76	362946-77	362946-80	362946-86	362946-87
Your Reference	UNITS	TP22	TP22	BH23	TP24	TP24
Depth		0-0.1	0.3-0.4	0-0.1	0-0.1	0.3-0.4
Date Sampled		26/09/2024	26/09/2024	24/09/2024	26/09/2024	26/09/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	02/10/2024	02/10/2024	02/10/2024	02/10/2024	02/10/2024
Date analysed	-	03/10/2024	03/10/2024	03/10/2024	03/10/2024	03/10/2024
Moisture	%	14	14	22	8.9	7.8

Moisture						
Our Reference		362946-89	362946-90	362946-93	362946-94	362946-95
Your Reference	UNITS	BH25	BH25	SS26	SS27	SS28
Depth		0-0.1	0.3-0.4	0-0.1	0-0.1	0-0.1
Date Sampled		25/09/2024	25/09/2024	26/09/2024	24/09/2024	26/09/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	02/10/2024	02/10/2024	02/10/2024	02/10/2024	02/10/2024
Date analysed	-	03/10/2024	03/10/2024	03/10/2024	03/10/2024	03/10/2024
Moisture	%	26	10	6.5	6.4	23

Moisture						
Our Reference		362946-96	362946-97	362946-98	362946-99	362946-100
Your Reference	UNITS	SS29	SS30	SS31	SS32	SS33
Depth		0-0.1	0-0.1	0-0.1	0-0.1	0-0.1
Date Sampled		26/09/2024	26/09/2024	26/09/2024	26/09/2024	24/09/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	02/10/2024	02/10/2024	02/10/2024	02/10/2024	02/10/2024
Date analysed	-	03/10/2024	03/10/2024	03/10/2024	03/10/2024	03/10/2024
Moisture	%	14	4.5	27	5.7	7.6

Moisture						
Our Reference		362946-101	362946-102	362946-103	362946-104	362946-116
Your Reference	UNITS	SS34	SS35	SDUP1	SDUP3	TB
Depth		0-0.1	0-0.1	-	-	-
Date Sampled		26/09/2024	24/09/2024	24/09/2024	24/09/2024	19/09/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	02/10/2024	02/10/2024	02/10/2024	02/10/2024	02/10/2024
Date analysed	-	03/10/2024	03/10/2024	03/10/2024	03/10/2024	03/10/2024
Moisture	%	15	21	5.8	4.1	<0.1

Asbestos ID - soils NEPM - ASB-001						
Our Reference		362946-1	362946-6	362946-11	362946-14	362946-18
Your Reference	UNITS	BH1	BH2	TP3	TP4	TP5
Depth		0-0.1	0.05-0.2	0-0.1	0-0.1	0-0.1
Date Sampled		24/09/2024	24/09/2024	26/09/2024	27/09/2024	27/09/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date analysed	-	04/10/2024	04/10/2024	04/10/2024	04/10/2024	04/10/2024
Sample mass tested	g	583.69	480.5	667.27	665.52	487.27
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		362946-22	362946-25	362946-28	362946-31	362946-33
Your Reference	UNITS	TP6	BH7	TP8	BH9	TP10
Depth		0-0.1	0-0.1	0-0.1	0-0.1	0-0.1
Date Sampled		26/09/2024	25/09/2024	25/09/2024	26/09/2024	27/09/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date analysed	-	04/10/2024	04/10/2024	04/10/2024	04/10/2024	04/10/2024
Sample mass tested	g	777.81	553.59	581.08	616.09	520.07
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*	-	Chrysotile	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	0.0019	–	–	–	–
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	-	YES	Nil	Nil	Nil	Nil

Asbestos ID - soils NEPM - ASB-001						
Our Reference		362946-40	362946-43	362946-45	362946-48	362946-53
Your Reference	UNITS	BH12	BH13	TP14	BH15	TP16
Depth		0-0.2	0-0.1	0-0.1	0-0.1	0-0.1
Date Sampled		25/09/2024	25/09/2024	26/09/2024	24/09/2024	26/09/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date analysed	-	04/10/2024	04/10/2024	04/10/2024	04/10/2024	04/10/2024
Sample mass tested	g	539.19	576.23	762.85	494.21	658.69
Sample Description	-	Brown coarse-grained soil & rocks	Brown coarse-grained soil & rocks	Brown coarse-grained soil & rocks	Grey 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		362946-56	362946-59	362946-62	362946-68	362946-70
Your Reference	UNITS	TP17	TP18	BH19	BH20	BH21
Depth		0-0.1	0-0.1	0-0.1	0-0.1	0-0.1
Date Sampled		26/09/2024	26/09/2024	24/09/2024	27/09/2024	24/09/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date analysed	-	04/10/2024	04/10/2024	04/10/2024	04/10/2024	04/10/2024
Sample mass tested	g	664.51	511.23	747.49	261.81	731
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		362946-76	362946-80	362946-86	362946-89
Your Reference	UNITS	TP22	BH23	TP24	BH25
Depth		0-0.1	0-0.1	0-0.1	0-0.1
Date Sampled		26/09/2024	24/09/2024	26/09/2024	25/09/2024
Type of sample		Soil	Soil	Soil	Soil
Date analysed	-	04/10/2024	04/10/2024	04/10/2024	04/10/2024
Sample mass tested	g	688.35	537.41	864.83	324.68
Sample Description	-	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
Trace Analysis	-	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
Asbestos ID in soil <0.1g/kg*	-	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
FA and AF Estimation*#2	%(w/w)	<0.001	<0.001	<0.001	<0.001
Asbestos comments	-	Nil	Nil	Nil	Nil

Asbestos ID - materials						
Our Reference		362946-109	362946-110	362946-111	362946-112	362946-113
Your Reference	UNITS	FCF1	FCF2	FCF3	FCF4	FCF5
Depth		Surface	0-0.2	0-0.1	0.4-0.5	0.2-0.4
Date Sampled		24/09/2024	25/09/2024	26/09/2024	26/09/2024	26/09/2024
Type of sample		Material	Material	Material	Material	Material
Date analysed	-	04/10/2024	04/10/2024	04/10/2024	04/10/2024	04/10/2024
Mass / Dimension of Sample	-	318x220x5mm	155x71x6mm	115x77x6mm	54x49x5mm	39x35x8mm
Sample Description	-	Brown fibreboard	Beige fibre cement material	Grey fibre cement material	Grey fibre cement material	Beige fibre cement material
Asbestos ID in materials	-	No asbestos detected Organic fibres detected	Chrysotile asbestos detected	Chrysotile asbestos detected Amosite asbestos detected	Chrysotile asbestos detected	Chrysotile asbestos detected
Trace Analysis	-	No asbestos detected	[NT]	[NT]	[NT]	[NT]

Asbestos ID - materials		
Our Reference		362946-114
Your Reference	UNITS	FCF6
Depth		Surface
Date Sampled		27/09/2024
Type of sample		Material
Date analysed	-	04/10/2024
Mass / Dimension of Sample	-	153x126x7mm
Sample Description	-	Brown fibreboard
Asbestos ID in materials	-	No asbestos detected Organic fibres detected
Trace Analysis	-	No asbestos detected

vTRH(C6-C10)/BTEXN in Water			
Our Reference		362946-107	362946-108
Your Reference	UNITS	FR-SPT-1	FR-HA-1
Depth		-	-
Date Sampled		24/09/2024	27/09/2024
Type of sample		Water	Water
Date extracted	-	04/10/2024	04/10/2024
Date analysed	-	08/10/2024	08/10/2024
TRH C_6 - C_9	µg/L	<10	12
TRH C_6 - C_{10}	µg/L	<10	13
TRH C_6 - C_{10} less BTEX (F1)	µg/L	<10	11
Benzene	µg/L	<1	<1
Toluene	µg/L	<1	1
Ethylbenzene	µg/L	<1	<1
m+p-xylene	µg/L	<2	<2
o-xylene	µg/L	<1	<1
Naphthalene	µg/L	<1	<1
Surrogate Dibromofluoromethane	%	98	99
Surrogate Toluene-d8	%	97	99
Surrogate 4-Bromofluorobenzene	%	99	101

svTRH (C10-C40) in Water			
Our Reference		362946-107	362946-108
Your Reference	UNITS	FR-SPT-1	FR-HA-1
Depth		-	-
Date Sampled		24/09/2024	27/09/2024
Type of sample		Water	Water
Date extracted	-	02/10/2024	02/10/2024
Date analysed	-	03/10/2024	03/10/2024
TRH C_{10} - C_{14}	µg/L	<50	<50
TRH C_{15} - C_{28}	µg/L	<100	<100
TRH C_{29} - C_{36}	µg/L	<100	<100
Total +ve TRH (C10-C36)	µg/L	<50	<50
TRH >C_{10} - C_{16}	µg/L	<50	<50
TRH >C_{10} - C_{16} less Naphthalene (F2)	µg/L	<50	<50
TRH >C_{16} - C_{34}	µg/L	<100	<100
TRH >C_{34} - C_{40}	µg/L	<100	<100
Total +ve TRH (>C10-C40)	µg/L	<50	<50
Surrogate o-Terphenyl	%	69	64

PAHs in Water			
Our Reference		362946-107	362946-108
Your Reference	UNITS	FR-SPT-1	FR-HA-1
Depth		-	-
Date Sampled		24/09/2024	27/09/2024
Type of sample		Water	Water
Date extracted	-	02/10/2024	02/10/2024
Date analysed	-	03/10/2024	08/10/2024
Naphthalene	µg/L	<0.1	<0.1
Acenaphthylene	µg/L	<0.1	<0.1
Acenaphthene	µg/L	<0.1	<0.1
Fluorene	µg/L	<0.1	<0.1
Phenanthrene	µg/L	<0.1	<0.1
Anthracene	µg/L	<0.1	<0.1
Fluoranthene	µg/L	<0.1	<0.1
Pyrene	µg/L	<0.1	<0.1
Benzo(a)anthracene	µg/L	<0.1	<0.1
Chrysene	µg/L	<0.1	<0.1
Benzo(b,j+k)fluoranthene	µg/L	<0.2	<0.2
Benzo(a)pyrene	µg/L	<0.1	<0.1
Indeno(1,2,3-c,d)pyrene	µg/L	<0.1	<0.1
Dibenzo(a,h)anthracene	µg/L	<0.1	<0.1
Benzo(g,h,i)perylene	µg/L	<0.1	<0.1
Benzo(a)pyrene TEQ	µg/L	<0.5	<0.5
Total +ve PAH's	µg/L	<0.1	<0.1
Surrogate p-Terphenyl-d14	%	69	63

Metals in Waters - Acid extractable			
Our Reference		362946-107	362946-108
Your Reference	UNITS	FR-SPT-1	FR-HA-1
Depth		-	-
Date Sampled		24/09/2024	27/09/2024
Type of sample		Water	Water
Date prepared	-	03/10/2024	03/10/2024
Date analysed	-	03/10/2024	03/10/2024
Arsenic - Total	mg/L	<0.05	<0.05
Cadmium - Total	mg/L	<0.01	<0.01
Chromium - Total	mg/L	<0.01	<0.01
Copper - Total	mg/L	<0.01	<0.01
Lead - Total	mg/L	<0.03	<0.03
Mercury - Total	mg/L	<0.0005	<0.0005
Nickel - Total	mg/L	<0.02	<0.02
Zinc - Total	mg/L	<0.02	<0.02

Misc Inorg - Soil						
Our Reference		362946-117	362946-119	362946-120	362946-121	362946-127
Your Reference	UNITS	BH1	BH1	BH1	BH1	BH19
Depth		0-0.1	0.8-1	1.8-2	2.6-3	0-0.1
Date Sampled		24/09/2024	24/09/2024	24/09/2024	24/09/2024	24/09/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	01/10/2024	01/10/2024	01/10/2024	01/10/2024	01/10/2024
Date analysed	-	01/10/2024	01/10/2024	01/10/2024	01/10/2024	01/10/2024
pH 1:5 soil:water	pH Units	6.9	7.2	5.6	6.5	7.3
Chloride, Cl 1:5 soil:water	mg/kg	<10	54	410	290	20
Sulphate, SO4 1:5 soil:water	mg/kg	<10	81	65	120	21
Resistivity in soil*	ohm m	240	79	28	35	170

Misc Inorg - Soil						
Our Reference		362946-128	362946-130	362946-131	362946-132	362946-134
Your Reference	UNITS	BH19	BH19	BH19	BH21	BH21
Depth		0.8-0.95	1.8-1.95	2.8-2.95	0-0.1	0.8-1.0
Date Sampled		24/09/2024	24/09/2024	24/09/2024	24/09/2024	24/09/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	01/10/2024	01/10/2024	01/10/2024	01/10/2024	01/10/2024
Date analysed	-	01/10/2024	01/10/2024	01/10/2024	01/10/2024	01/10/2024
pH 1:5 soil:water	pH Units	5.1	5.4	7.1	5.8	5.0
Chloride, Cl 1:5 soil:water	mg/kg	52	370	180	<10	460
Sulphate, SO4 1:5 soil:water	mg/kg	410	71	140	10	120
Resistivity in soil*	ohm m	38	29	36	280	25

Misc Inorg - Soil			
Our Reference		362946-135	362946-137
Your Reference	UNITS	BH21	BH21
Depth		1.8-1.95	2.8-2.95
Date Sampled		24/09/2024	24/09/2024
Type of sample		Soil	Soil
Date prepared	-	01/10/2024	01/10/2024
Date analysed	-	01/10/2024	01/10/2024
pH 1:5 soil:water	pH Units	5.9	7.0
Chloride, Cl 1:5 soil:water	mg/kg	500	530
Sulphate, SO4 1:5 soil:water	mg/kg	190	170
Resistivity in soil*	ohm m	19	19

Texture and Salinity*						
Our Reference		362946-117	362946-119	362946-120	362946-121	362946-127
Your Reference	UNITS	BH1	BH1	BH1	BH1	BH19
Depth		0-0.1	0.8-1	1.8-2	2.6-3	0-0.1
Date Sampled		24/09/2024	24/09/2024	24/09/2024	24/09/2024	24/09/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	01/10/2024	01/10/2024	01/10/2024	01/10/2024	01/10/2024
Date analysed	-	01/10/2024	01/10/2024	01/10/2024	01/10/2024	01/10/2024
Electrical Conductivity 1:5 soil:water	µS/cm	42	130	360	280	59
Texture Value	-	9.0	8.0	8.0	7.0	9.0
Texture	-	CLAY LOAM	LIGHT MEDIUM CLAY	LIGHT MEDIUM CLAY	MEDIUM CLAY	CLAY LOAM
ECe	dS/m	<2	<2	2.9	<2	<2
Class	-	NON SALINE	NON SALINE	SLIGHTLY SALINE	NON SALINE	NON SALINE

Texture and Salinity*						
Our Reference		362946-128	362946-130	362946-131	362946-132	362946-134
Your Reference	UNITS	BH19	BH19	BH19	BH21	BH21
Depth		0.8-0.95	1.8-1.95	2.8-2.95	0-0.1	0.8-1.0
Date Sampled		24/09/2024	24/09/2024	24/09/2024	24/09/2024	24/09/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	01/10/2024	01/10/2024	01/10/2024	01/10/2024	01/10/2024
Date analysed	-	01/10/2024	01/10/2024	01/10/2024	01/10/2024	01/10/2024
Electrical Conductivity 1:5 soil:water	µS/cm	260	340	280	36	400
Texture Value	-	8.0	8.0	7.0	9.0	8.0
Texture	-	LIGHT MEDIUM CLAY	LIGHT MEDIUM CLAY	MEDIUM CLAY	CLAY LOAM	LIGHT MEDIUM CLAY
ECe	dS/m	2.1	2.7	<2	<2	3.2
Class	-	SLIGHTLY SALINE	SLIGHTLY SALINE	NON SALINE	NON SALINE	SLIGHTLY SALINE

Texture and Salinity*			
Our Reference		362946-135	362946-137
Your Reference	UNITS	BH21	BH21
Depth		1.8-1.95	2.8-2.95
Date Sampled		24/09/2024	24/09/2024
Type of sample		Soil	Soil
Date prepared	-	01/10/2024	01/10/2024
Date analysed	-	01/10/2024	01/10/2024
Electrical Conductivity 1:5 soil:water	µS/cm	530	530
Texture Value	-	7.0	7.0
Texture	-	MEDIUM CLAY	MEDIUM CLAY
ECe	dS/m	3.7	3.7
Class	-	SLIGHTLY SALINE	SLIGHTLY SALINE

CEC				
Our Reference		362946-117	362946-127	362946-134
Your Reference	UNITS	BH1	BH19	BH21
Depth		0-0.1	0-0.1	0.8-1.0
Date Sampled		24/09/2024	24/09/2024	24/09/2024
Type of sample		Soil	Soil	Soil
Date prepared	-	04/10/2024	04/10/2024	04/10/2024
Date analysed	-	04/10/2024	04/10/2024	04/10/2024
Exchangeable Ca	meq/100g	13	8.8	3.4
Exchangeable K	meq/100g	0.7	0.1	<0.1
Exchangeable Mg	meq/100g	3.5	1.3	3.8
Exchangeable Na	meq/100g	<0.1	<0.1	0.8
Cation Exchange Capacity	meq/100g	17	10	8.0

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-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.
Inorg-002	Conductivity and Salinity - measured using a conductivity cell at 25oC in accordance with APHA 22nd ED 2510 and Rayment & Lyons. Resistivity is calculated from Conductivity (non NATA). Resistivity (calculated) may not correlate with results otherwise obtained using Resistivity-Current method, depending on the nature of the soil being analysed.
Inorg-008	Moisture content determined by heating at 105+/-5 °C for a minimum of 12 hours.
Inorg-081	Anions - a range of Anions are determined by Ion Chromatography, in accordance with APHA latest edition, 4110-B. Waters samples are filtered on receipt prior to analysis. Alternatively determined by colourimetry/turbidity using Discrete Analyser.
INORG-123	Determined using a "Texture by Feel" method.
Metals-020	Determination of various metals by ICP-AES.

Method ID	Methodology Summary
Metals-020	Determination of exchangeable cations and cation exchange capacity in soils using 1M Ammonium Chloride exchange and ICP-OES analytical finish.
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)-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.

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-9	362946-6
Date extracted	-			02/10/2024	1	02/10/2024	02/10/2024		02/10/2024	02/10/2024
Date analysed	-			04/10/2024	1	04/10/2024	04/10/2024		04/10/2024	04/10/2024
TRH C_6 - C_9	mg/kg	25	Org-023	<25	1	<25	<25	0	94	89
TRH C_6 - C_{10}	mg/kg	25	Org-023	<25	1	<25	<25	0	94	89
Benzene	mg/kg	0.2	Org-023	<0.2	1	<0.2	<0.2	0	89	85
Toluene	mg/kg	0.5	Org-023	<0.5	1	<0.5	<0.5	0	91	87
Ethylbenzene	mg/kg	1	Org-023	<1	1	<1	<1	0	92	87
m+p-xylene	mg/kg	2	Org-023	<2	1	<2	<2	0	98	94
o-Xylene	mg/kg	1	Org-023	<1	1	<1	<1	0	99	94
Naphthalene	mg/kg	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-023	87	1	86	89	3	91	84

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-10	362946-56
Date extracted	-			[NT]	28	02/10/2024	02/10/2024		02/10/2024	02/10/2024
Date analysed	-			[NT]	28	04/10/2024	04/10/2024		04/10/2024	04/10/2024
TRH C_6 - C_9	mg/kg	25	Org-023	[NT]	28	<25	<25	0	97	95
TRH C_6 - C_{10}	mg/kg	25	Org-023	[NT]	28	<25	<25	0	97	95
Benzene	mg/kg	0.2	Org-023	[NT]	28	<0.2	<0.2	0	91	89
Toluene	mg/kg	0.5	Org-023	[NT]	28	<0.5	<0.5	0	92	90
Ethylbenzene	mg/kg	1	Org-023	[NT]	28	<1	<1	0	95	93
m+p-xylene	mg/kg	2	Org-023	[NT]	28	<2	<2	0	103	101
o-Xylene	mg/kg	1	Org-023	[NT]	28	<1	<1	0	103	101
Naphthalene	mg/kg	1	Org-023	[NT]	28	<1	<1	0	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-023	[NT]	28	83	84	1	89	86

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-11	362946-104
Date extracted	-			[NT]	53	02/10/2024	02/10/2024		02/10/2024	02/10/2024
Date analysed	-			[NT]	53	04/10/2024	04/10/2024		04/10/2024	08/10/2024
TRH C_6 - C_9	mg/kg	25	Org-023	[NT]	53	<25	<25	0	93	91
TRH C_6 - C_{10}	mg/kg	25	Org-023	[NT]	53	<25	<25	0	93	91
Benzene	mg/kg	0.2	Org-023	[NT]	53	<0.2	<0.2	0	87	86
Toluene	mg/kg	0.5	Org-023	[NT]	53	<0.5	<0.5	0	87	89
Ethylbenzene	mg/kg	1	Org-023	[NT]	53	<1	<1	0	91	96
m+p-xylene	mg/kg	2	Org-023	[NT]	53	<2	<2	0	99	91
o-Xylene	mg/kg	1	Org-023	[NT]	53	<1	<1	0	97	98
Naphthalene	mg/kg	1	Org-023	[NT]	53	<1	<1	0	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-023	[NT]	53	85	84	1	90	97

Client Reference: E36310PT, South Lismore, NSW

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]	80	02/10/2024	02/10/2024		[NT]	[NT]
Date analysed	-			[NT]	80	04/10/2024	08/10/2024		[NT]	[NT]
TRH C_6 - C_9	mg/kg	25	Org-023	[NT]	80	<25	<25	0	[NT]	[NT]
TRH C_6 - C_{10}	mg/kg	25	Org-023	[NT]	80	<25	<25	0	[NT]	[NT]
Benzene	mg/kg	0.2	Org-023	[NT]	80	<0.2	<0.2	0	[NT]	[NT]
Toluene	mg/kg	0.5	Org-023	[NT]	80	<0.5	<0.5	0	[NT]	[NT]
Ethylbenzene	mg/kg	1	Org-023	[NT]	80	<1	<1	0	[NT]	[NT]
m+p-xylene	mg/kg	2	Org-023	[NT]	80	<2	<2	0	[NT]	[NT]
o-Xylene	mg/kg	1	Org-023	[NT]	80	<1	<1	0	[NT]	[NT]
Naphthalene	mg/kg	1	Org-023	[NT]	80	<1	<1	0	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-023	[NT]	80	85	88	3	[NT]	[NT]

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]	103	02/10/2024	02/10/2024		[NT]	[NT]
Date analysed	-			[NT]	103	08/10/2024	08/10/2024		[NT]	[NT]
TRH C_6 - C_9	mg/kg	25	Org-023	[NT]	103	<25	<25	0	[NT]	[NT]
TRH C_6 - C_{10}	mg/kg	25	Org-023	[NT]	103	<25	<25	0	[NT]	[NT]
Benzene	mg/kg	0.2	Org-023	[NT]	103	<0.2	<0.2	0	[NT]	[NT]
Toluene	mg/kg	0.5	Org-023	[NT]	103	<0.5	<0.5	0	[NT]	[NT]
Ethylbenzene	mg/kg	1	Org-023	[NT]	103	<1	<1	0	[NT]	[NT]
m+p-xylene	mg/kg	2	Org-023	[NT]	103	<2	<2	0	[NT]	[NT]
o-Xylene	mg/kg	1	Org-023	[NT]	103	<1	<1	0	[NT]	[NT]
Naphthalene	mg/kg	1	Org-023	[NT]	103	<1	<1	0	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-023	[NT]	103	83	88	6	[NT]	[NT]

Client Reference: E36310PT, South Lismore, NSW

QUALITY CONTROL: svTRH (C10-C40) in Soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-9	362946-6
Date extracted	-			02/10/2024	1	02/10/2024	02/10/2024		02/10/2024	02/10/2024
Date analysed	-			04/10/2024	1	04/10/2024	04/10/2024		03/10/2024	04/10/2024
TRH C_{10} - C_{14}	mg/kg	50	Org-020	<50	1	<50	<50	0	93	90
TRH C_{15} - C_{28}	mg/kg	100	Org-020	<100	1	<100	<100	0	88	86
TRH C_{29} - C_{36}	mg/kg	100	Org-020	<100	1	100	120	18	100	85
TRH >C_{10} -C_{16}	mg/kg	50	Org-020	<50	1	<50	<50	0	93	90
TRH >C_{16} -C_{34}	mg/kg	100	Org-020	<100	1	140	150	7	88	86
TRH >C_{34} -C_{40}	mg/kg	100	Org-020	<100	1	120	120	0	100	85
Surrogate o-Terphenyl	%		Org-020	99	1	97	96	1	92	94

QUALITY CONTROL: svTRH (C10-C40) in Soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-10	362946-56
Date extracted	-			[NT]	28	02/10/2024	02/10/2024		02/10/2024	02/10/2024
Date analysed	-			[NT]	28	04/10/2024	04/10/2024		04/10/2024	03/10/2024
TRH C_{10} - C_{14}	mg/kg	50	Org-020	[NT]	28	<50	<50	0	91	86
TRH C_{15} - C_{28}	mg/kg	100	Org-020	[NT]	28	110	120	9	90	89
TRH C_{29} - C_{36}	mg/kg	100	Org-020	[NT]	28	140	140	0	89	71
TRH >C_{10} -C_{16}	mg/kg	50	Org-020	[NT]	28	<50	<50	0	91	86
TRH >C_{16} -C_{34}	mg/kg	100	Org-020	[NT]	28	200	200	0	90	89
TRH >C_{34} -C_{40}	mg/kg	100	Org-020	[NT]	28	140	130	7	89	71
Surrogate o-Terphenyl	%		Org-020	[NT]	28	99	99	0	94	93

QUALITY CONTROL: svTRH (C10-C40) in Soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-11	362946-104
Date extracted	-			[NT]	53	02/10/2024	02/10/2024		02/10/2024	02/10/2024
Date analysed	-			[NT]	53	03/10/2024	03/10/2024		04/10/2024	04/10/2024
TRH C_{10} - C_{14}	mg/kg	50	Org-020	[NT]	53	<50	<50	0	90	105
TRH C_{15} - C_{28}	mg/kg	100	Org-020	[NT]	53	<100	<100	0	90	90
TRH C_{29} - C_{36}	mg/kg	100	Org-020	[NT]	53	<100	<100	0	92	114
TRH >C_{10} -C_{16}	mg/kg	50	Org-020	[NT]	53	<50	<50	0	90	105
TRH >C_{16} -C_{34}	mg/kg	100	Org-020	[NT]	53	<100	<100	0	90	90
TRH >C_{34} -C_{40}	mg/kg	100	Org-020	[NT]	53	<100	<100	0	92	114
Surrogate o-Terphenyl	%		Org-020	[NT]	53	95	93	2	95	90

QUALITY CONTROL: svTRH (C10-C40) in Soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	80	02/10/2024	02/10/2024		[NT]	[NT]
Date analysed	-			[NT]	80	03/10/2024	03/10/2024		[NT]	[NT]
TRH C_{10} - C_{14}	mg/kg	50	Org-020	[NT]	80	<50	<50	0	[NT]	[NT]
TRH C_{15} - C_{28}	mg/kg	100	Org-020	[NT]	80	<100	<100	0	[NT]	[NT]
TRH C_{29} - C_{36}	mg/kg	100	Org-020	[NT]	80	<100	110	10	[NT]	[NT]
TRH >C_{10} -C_{16}	mg/kg	50	Org-020	[NT]	80	<50	<50	0	[NT]	[NT]
TRH >C_{16} -C_{34}	mg/kg	100	Org-020	[NT]	80	100	140	33	[NT]	[NT]
TRH >C_{34} -C_{40}	mg/kg	100	Org-020	[NT]	80	<100	<100	0	[NT]	[NT]
Surrogate o-Terphenyl	%		Org-020	[NT]	80	95	94	1	[NT]	[NT]

QUALITY CONTROL: svTRH (C10-C40) in Soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	103	02/10/2024	02/10/2024		[NT]	[NT]
Date analysed	-			[NT]	103	04/10/2024	04/10/2024		[NT]	[NT]
TRH C_{10} - C_{14}	mg/kg	50	Org-020	[NT]	103	<50	<50	0	[NT]	[NT]
TRH C_{15} - C_{28}	mg/kg	100	Org-020	[NT]	103	<100	<100	0	[NT]	[NT]
TRH C_{29} - C_{36}	mg/kg	100	Org-020	[NT]	103	<100	<100	0	[NT]	[NT]
TRH >C_{10} -C_{16}	mg/kg	50	Org-020	[NT]	103	<50	<50	0	[NT]	[NT]
TRH >C_{16} -C_{34}	mg/kg	100	Org-020	[NT]	103	<100	<100	0	[NT]	[NT]
TRH >C_{34} -C_{40}	mg/kg	100	Org-020	[NT]	103	<100	<100	0	[NT]	[NT]
Surrogate o-Terphenyl	%		Org-020	[NT]	103	94	96	2	[NT]	[NT]

QUALITY CONTROL: PAHs in Soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-9	362946-6
Date extracted	-			02/10/2024	1	02/10/2024	02/10/2024		02/10/2024	02/10/2024
Date analysed	-			08/10/2024	1	08/10/2024	08/10/2024		08/10/2024	08/10/2024
Naphthalene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	100	74
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	102	68
Fluorene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	98	74
Phenanthrene	mg/kg	0.1	Org-022/025	<0.1	1	0.7	0.6	15	104	80
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	1.4	1.2	15	102	83
Pyrene	mg/kg	0.1	Org-022/025	<0.1	1	1.3	1.2	8	100	78
Benzo(a)anthracene	mg/kg	0.1	Org-022/025	<0.1	1	0.5	0.5	0	[NT]	[NT]
Chrysene	mg/kg	0.1	Org-022/025	<0.1	1	0.6	0.5	18	94	90
Benzo(b,j+k)fluoranthene	mg/kg	0.2	Org-022/025	<0.2	1	0.9	0.8	12	[NT]	[NT]
Benzo(a)pyrene	mg/kg	0.05	Org-022/025	<0.05	1	0.57	0.5	13	102	76
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-022/025	<0.1	1	0.3	0.3	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	0.5	0.5	0	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-022/025	93	1	88	95	8	117	94

QUALITY CONTROL: PAHs in Soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-10	362946-56
Date extracted	-			[NT]	28	02/10/2024	02/10/2024		02/10/2024	02/10/2024
Date analysed	-			[NT]	28	08/10/2024	08/10/2024		08/10/2024	08/10/2024
Naphthalene	mg/kg	0.1	Org-022/025	[NT]	28	<0.1	<0.1	0	68	66
Acenaphthylene	mg/kg	0.1	Org-022/025	[NT]	28	0.1	0.1	0	[NT]	[NT]
Acenaphthene	mg/kg	0.1	Org-022/025	[NT]	28	<0.1	<0.1	0	64	62
Fluorene	mg/kg	0.1	Org-022/025	[NT]	28	<0.1	<0.1	0	70	68
Phenanthrene	mg/kg	0.1	Org-022/025	[NT]	28	0.3	0.4	29	70	80
Anthracene	mg/kg	0.1	Org-022/025	[NT]	28	0.1	<0.1	0	[NT]	[NT]
Fluoranthene	mg/kg	0.1	Org-022/025	[NT]	28	1	1	0	68	82
Pyrene	mg/kg	0.1	Org-022/025	[NT]	28	1.0	1.1	10	66	80
Benzo(a)anthracene	mg/kg	0.1	Org-022/025	[NT]	28	0.6	0.6	0	[NT]	[NT]
Chrysene	mg/kg	0.1	Org-022/025	[NT]	28	0.5	0.6	18	86	90
Benzo(b,j+k)fluoranthene	mg/kg	0.2	Org-022/025	[NT]	28	0.8	0.9	12	[NT]	[NT]
Benzo(a)pyrene	mg/kg	0.05	Org-022/025	[NT]	28	0.57	0.65	13	68	72
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-022/025	[NT]	28	0.3	0.3	0	[NT]	[NT]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-022/025	[NT]	28	<0.1	<0.1	0	[NT]	[NT]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-022/025	[NT]	28	0.4	0.5	22	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-022/025	[NT]	28	97	86	12	83	79

QUALITY CONTROL: PAHs in Soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-11	362946-104
Date extracted	-			[NT]	53	02/10/2024	02/10/2024		02/10/2024	02/10/2024
Date analysed	-			[NT]	53	08/10/2024	08/10/2024		08/10/2024	08/10/2024
Naphthalene	mg/kg	0.1	Org-022/025	[NT]	53	<0.1	<0.1	0	62	68
Acenaphthylene	mg/kg	0.1	Org-022/025	[NT]	53	<0.1	<0.1	0	[NT]	[NT]
Acenaphthene	mg/kg	0.1	Org-022/025	[NT]	53	<0.1	<0.1	0	60	62
Fluorene	mg/kg	0.1	Org-022/025	[NT]	53	<0.1	<0.1	0	66	70
Phenanthrene	mg/kg	0.1	Org-022/025	[NT]	53	<0.1	<0.1	0	72	76
Anthracene	mg/kg	0.1	Org-022/025	[NT]	53	<0.1	<0.1	0	[NT]	[NT]
Fluoranthene	mg/kg	0.1	Org-022/025	[NT]	53	<0.1	<0.1	0	72	76
Pyrene	mg/kg	0.1	Org-022/025	[NT]	53	<0.1	<0.1	0	70	74
Benzo(a)anthracene	mg/kg	0.1	Org-022/025	[NT]	53	<0.1	<0.1	0	[NT]	[NT]
Chrysene	mg/kg	0.1	Org-022/025	[NT]	53	<0.1	<0.1	0	80	84
Benzo(b,j+k)fluoranthene	mg/kg	0.2	Org-022/025	[NT]	53	<0.2	<0.2	0	[NT]	[NT]
Benzo(a)pyrene	mg/kg	0.05	Org-022/025	[NT]	53	<0.05	<0.05	0	64	66
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-022/025	[NT]	53	<0.1	<0.1	0	[NT]	[NT]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-022/025	[NT]	53	<0.1	<0.1	0	[NT]	[NT]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-022/025	[NT]	53	<0.1	<0.1	0	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-022/025	[NT]	53	97	89	9	80	78

QUALITY CONTROL: PAHs in Soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	80	02/10/2024	02/10/2024		[NT]	[NT]
Date analysed	-			[NT]	80	08/10/2024	08/10/2024		[NT]	[NT]
Naphthalene	mg/kg	0.1	Org-022/025	[NT]	80	<0.1	<0.1	0	[NT]	[NT]
Acenaphthylene	mg/kg	0.1	Org-022/025	[NT]	80	<0.1	<0.1	0	[NT]	[NT]
Acenaphthene	mg/kg	0.1	Org-022/025	[NT]	80	<0.1	<0.1	0	[NT]	[NT]
Fluorene	mg/kg	0.1	Org-022/025	[NT]	80	<0.1	<0.1	0	[NT]	[NT]
Phenanthrene	mg/kg	0.1	Org-022/025	[NT]	80	<0.1	<0.1	0	[NT]	[NT]
Anthracene	mg/kg	0.1	Org-022/025	[NT]	80	<0.1	<0.1	0	[NT]	[NT]
Fluoranthene	mg/kg	0.1	Org-022/025	[NT]	80	0.2	<0.1	67	[NT]	[NT]
Pyrene	mg/kg	0.1	Org-022/025	[NT]	80	0.1	<0.1	0	[NT]	[NT]
Benzo(a)anthracene	mg/kg	0.1	Org-022/025	[NT]	80	<0.1	<0.1	0	[NT]	[NT]
Chrysene	mg/kg	0.1	Org-022/025	[NT]	80	<0.1	<0.1	0	[NT]	[NT]
Benzo(b,j+k)fluoranthene	mg/kg	0.2	Org-022/025	[NT]	80	<0.2	<0.2	0	[NT]	[NT]
Benzo(a)pyrene	mg/kg	0.05	Org-022/025	[NT]	80	0.08	<0.05	46	[NT]	[NT]
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-022/025	[NT]	80	<0.1	<0.1	0	[NT]	[NT]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-022/025	[NT]	80	<0.1	<0.1	0	[NT]	[NT]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-022/025	[NT]	80	<0.1	<0.1	0	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-022/025	[NT]	80	91	88	3	[NT]	[NT]

Client Reference: E36310PT, South Lismore, NSW

QUALITY CONTROL: PAHs in Soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	103	02/10/2024	02/10/2024		[NT]	[NT]
Date analysed	-			[NT]	103	08/10/2024	08/10/2024		[NT]	[NT]
Naphthalene	mg/kg	0.1	Org-022/025	[NT]	103	<0.1	<0.1	0	[NT]	[NT]
Acenaphthylene	mg/kg	0.1	Org-022/025	[NT]	103	<0.1	<0.1	0	[NT]	[NT]
Acenaphthene	mg/kg	0.1	Org-022/025	[NT]	103	<0.1	<0.1	0	[NT]	[NT]
Fluorene	mg/kg	0.1	Org-022/025	[NT]	103	<0.1	<0.1	0	[NT]	[NT]
Phenanthrene	mg/kg	0.1	Org-022/025	[NT]	103	<0.1	0.1	0	[NT]	[NT]
Anthracene	mg/kg	0.1	Org-022/025	[NT]	103	<0.1	<0.1	0	[NT]	[NT]
Fluoranthene	mg/kg	0.1	Org-022/025	[NT]	103	0.1	0.2	67	[NT]	[NT]
Pyrene	mg/kg	0.1	Org-022/025	[NT]	103	0.1	0.2	67	[NT]	[NT]
Benzo(a)anthracene	mg/kg	0.1	Org-022/025	[NT]	103	<0.1	0.1	0	[NT]	[NT]
Chrysene	mg/kg	0.1	Org-022/025	[NT]	103	<0.1	0.2	67	[NT]	[NT]
Benzo(b,j+k)fluoranthene	mg/kg	0.2	Org-022/025	[NT]	103	<0.2	0.2	0	[NT]	[NT]
Benzo(a)pyrene	mg/kg	0.05	Org-022/025	[NT]	103	0.06	0.1	50	[NT]	[NT]
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-022/025	[NT]	103	<0.1	<0.1	0	[NT]	[NT]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-022/025	[NT]	103	<0.1	<0.1	0	[NT]	[NT]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-022/025	[NT]	103	<0.1	<0.1	0	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-022/025	[NT]	103	85	94	10	[NT]	[NT]

QUALITY CONTROL: Organochlorine Pesticides in soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-10	362946-6
Date extracted	-			02/10/2024	1	02/10/2024	02/10/2024		02/10/2024	02/10/2024
Date analysed	-			08/10/2024	1	08/10/2024	08/10/2024		08/10/2024	08/10/2024
alpha-BHC	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	73	78
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	74	72
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	66	70
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	74	86
Heptachlor Epoxide	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	74	86
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	68	78
Dieldrin	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	80	90
Endrin	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	76	90
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	76	90
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	72	74
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	79	1	85	84	1	83	90

Client Reference: E36310PT, South Lismore, NSW

QUALITY CONTROL: Organochlorine Pesticides in soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-11	362946-56
Date extracted	-			[NT]	28	02/10/2024	02/10/2024		02/10/2024	02/10/2024
Date analysed	-			[NT]	28	08/10/2024	08/10/2024		08/10/2024	08/10/2024
alpha-BHC	mg/kg	0.1	Org-022/025	[NT]	28	<0.1	<0.1	0	68	70
HCB	mg/kg	0.1	Org-022/025	[NT]	28	<0.1	<0.1	0	[NT]	[NT]
beta-BHC	mg/kg	0.1	Org-022/025	[NT]	28	<0.1	<0.1	0	70	72
gamma-BHC	mg/kg	0.1	Org-022/025	[NT]	28	<0.1	<0.1	0	[NT]	[NT]
Heptachlor	mg/kg	0.1	Org-022/025	[NT]	28	<0.1	<0.1	0	62	66
delta-BHC	mg/kg	0.1	Org-022/025	[NT]	28	<0.1	<0.1	0	[NT]	[NT]
Aldrin	mg/kg	0.1	Org-022/025	[NT]	28	<0.1	<0.1	0	72	76
Heptachlor Epoxide	mg/kg	0.1	Org-022/025	[NT]	28	<0.1	<0.1	0	70	78
gamma-Chlordane	mg/kg	0.1	Org-022/025	[NT]	28	<0.1	<0.1	0	[NT]	[NT]
alpha-chlordane	mg/kg	0.1	Org-022/025	[NT]	28	<0.1	<0.1	0	[NT]	[NT]
Endosulfan I	mg/kg	0.1	Org-022/025	[NT]	28	<0.1	<0.1	0	[NT]	[NT]
pp-DDE	mg/kg	0.1	Org-022/025	[NT]	28	<0.1	<0.1	0	66	68
Dieldrin	mg/kg	0.1	Org-022/025	[NT]	28	<0.1	<0.1	0	72	80
Endrin	mg/kg	0.1	Org-022/025	[NT]	28	<0.1	<0.1	0	74	74
Endosulfan II	mg/kg	0.1	Org-022/025	[NT]	28	<0.1	<0.1	0	[NT]	[NT]
pp-DDD	mg/kg	0.1	Org-022/025	[NT]	28	<0.1	<0.1	0	76	80
Endrin Aldehyde	mg/kg	0.1	Org-022/025	[NT]	28	<0.1	<0.1	0	[NT]	[NT]
pp-DDT	mg/kg	0.1	Org-022/025	[NT]	28	<0.1	<0.1	0	[NT]	[NT]
Endosulfan Sulphate	mg/kg	0.1	Org-022/025	[NT]	28	<0.1	<0.1	0	70	74
Methoxychlor	mg/kg	0.1	Org-022/025	[NT]	28	<0.1	<0.1	0	[NT]	[NT]
Mirex	mg/kg	0.1	Org-022/025	[NT]	28	<0.1	<0.1	0	[NT]	[NT]
Surrogate 4-Chloro-3-NBTF	%		Org-022/025	[NT]	28	84	78	7	73	86

QUALITY CONTROL: Organochlorine Pesticides in soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	362946-104
Date extracted	-			[NT]	53	02/10/2024	02/10/2024		[NT]	02/10/2024
Date analysed	-			[NT]	53	08/10/2024	08/10/2024		[NT]	08/10/2024
alpha-BHC	mg/kg	0.1	Org-022/025	[NT]	53	<0.1	<0.1	0	[NT]	72
HCB	mg/kg	0.1	Org-022/025	[NT]	53	<0.1	<0.1	0	[NT]	[NT]
beta-BHC	mg/kg	0.1	Org-022/025	[NT]	53	<0.1	<0.1	0	[NT]	74
gamma-BHC	mg/kg	0.1	Org-022/025	[NT]	53	<0.1	<0.1	0	[NT]	[NT]
Heptachlor	mg/kg	0.1	Org-022/025	[NT]	53	<0.1	<0.1	0	[NT]	60
delta-BHC	mg/kg	0.1	Org-022/025	[NT]	53	<0.1	<0.1	0	[NT]	[NT]
Aldrin	mg/kg	0.1	Org-022/025	[NT]	53	<0.1	<0.1	0	[NT]	72
Heptachlor Epoxide	mg/kg	0.1	Org-022/025	[NT]	53	<0.1	<0.1	0	[NT]	70
gamma-Chlordane	mg/kg	0.1	Org-022/025	[NT]	53	<0.1	<0.1	0	[NT]	[NT]
alpha-chlordane	mg/kg	0.1	Org-022/025	[NT]	53	<0.1	<0.1	0	[NT]	[NT]
Endosulfan I	mg/kg	0.1	Org-022/025	[NT]	53	<0.1	<0.1	0	[NT]	[NT]
pp-DDE	mg/kg	0.1	Org-022/025	[NT]	53	<0.1	<0.1	0	[NT]	68
Dieldrin	mg/kg	0.1	Org-022/025	[NT]	53	<0.1	<0.1	0	[NT]	76
Endrin	mg/kg	0.1	Org-022/025	[NT]	53	<0.1	<0.1	0	[NT]	72
Endosulfan II	mg/kg	0.1	Org-022/025	[NT]	53	<0.1	<0.1	0	[NT]	[NT]
pp-DDD	mg/kg	0.1	Org-022/025	[NT]	53	<0.1	<0.1	0	[NT]	78
Endrin Aldehyde	mg/kg	0.1	Org-022/025	[NT]	53	<0.1	<0.1	0	[NT]	[NT]
pp-DDT	mg/kg	0.1	Org-022/025	[NT]	53	<0.1	<0.1	0	[NT]	[NT]
Endosulfan Sulphate	mg/kg	0.1	Org-022/025	[NT]	53	<0.1	<0.1	0	[NT]	72
Methoxychlor	mg/kg	0.1	Org-022/025	[NT]	53	<0.1	<0.1	0	[NT]	[NT]
Mirex	mg/kg	0.1	Org-022/025	[NT]	53	<0.1	<0.1	0	[NT]	[NT]
Surrogate 4-Chloro-3-NBTF	%		Org-022/025	[NT]	53	93	80	15	[NT]	84

QUALITY CONTROL: Organochlorine Pesticides in soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	80	02/10/2024	02/10/2024		[NT]	[NT]
Date analysed	-			[NT]	80	08/10/2024	08/10/2024		[NT]	[NT]
alpha-BHC	mg/kg	0.1	Org-022/025	[NT]	80	<0.1	<0.1	0	[NT]	[NT]
HCB	mg/kg	0.1	Org-022/025	[NT]	80	<0.1	<0.1	0	[NT]	[NT]
beta-BHC	mg/kg	0.1	Org-022/025	[NT]	80	<0.1	<0.1	0	[NT]	[NT]
gamma-BHC	mg/kg	0.1	Org-022/025	[NT]	80	<0.1	<0.1	0	[NT]	[NT]
Heptachlor	mg/kg	0.1	Org-022/025	[NT]	80	<0.1	<0.1	0	[NT]	[NT]
delta-BHC	mg/kg	0.1	Org-022/025	[NT]	80	<0.1	<0.1	0	[NT]	[NT]
Aldrin	mg/kg	0.1	Org-022/025	[NT]	80	<0.1	<0.1	0	[NT]	[NT]
Heptachlor Epoxide	mg/kg	0.1	Org-022/025	[NT]	80	<0.1	<0.1	0	[NT]	[NT]
gamma-Chlordane	mg/kg	0.1	Org-022/025	[NT]	80	<0.1	<0.1	0	[NT]	[NT]
alpha-chlordane	mg/kg	0.1	Org-022/025	[NT]	80	<0.1	<0.1	0	[NT]	[NT]
Endosulfan I	mg/kg	0.1	Org-022/025	[NT]	80	<0.1	<0.1	0	[NT]	[NT]
pp-DDE	mg/kg	0.1	Org-022/025	[NT]	80	<0.1	<0.1	0	[NT]	[NT]
Dieldrin	mg/kg	0.1	Org-022/025	[NT]	80	<0.1	<0.1	0	[NT]	[NT]
Endrin	mg/kg	0.1	Org-022/025	[NT]	80	<0.1	<0.1	0	[NT]	[NT]
Endosulfan II	mg/kg	0.1	Org-022/025	[NT]	80	<0.1	<0.1	0	[NT]	[NT]
pp-DDD	mg/kg	0.1	Org-022/025	[NT]	80	<0.1	<0.1	0	[NT]	[NT]
Endrin Aldehyde	mg/kg	0.1	Org-022/025	[NT]	80	<0.1	<0.1	0	[NT]	[NT]
pp-DDT	mg/kg	0.1	Org-022/025	[NT]	80	<0.1	<0.1	0	[NT]	[NT]
Endosulfan Sulphate	mg/kg	0.1	Org-022/025	[NT]	80	<0.1	<0.1	0	[NT]	[NT]
Methoxychlor	mg/kg	0.1	Org-022/025	[NT]	80	<0.1	<0.1	0	[NT]	[NT]
Mirex	mg/kg	0.1	Org-022/025	[NT]	80	<0.1	<0.1	0	[NT]	[NT]
Surrogate 4-Chloro-3-NBTF	%		Org-022/025	[NT]	80	83	90	8	[NT]	[NT]

Client Reference: E36310PT, South Lismore, NSW

QUALITY CONTROL: Organochlorine Pesticides in soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	103	02/10/2024	02/10/2024		[NT]	[NT]
Date analysed	-			[NT]	103	08/10/2024	08/10/2024		[NT]	[NT]
alpha-BHC	mg/kg	0.1	Org-022/025	[NT]	103	<0.1	<0.1	0	[NT]	[NT]
HCB	mg/kg	0.1	Org-022/025	[NT]	103	<0.1	<0.1	0	[NT]	[NT]
beta-BHC	mg/kg	0.1	Org-022/025	[NT]	103	<0.1	<0.1	0	[NT]	[NT]
gamma-BHC	mg/kg	0.1	Org-022/025	[NT]	103	<0.1	<0.1	0	[NT]	[NT]
Heptachlor	mg/kg	0.1	Org-022/025	[NT]	103	<0.1	<0.1	0	[NT]	[NT]
delta-BHC	mg/kg	0.1	Org-022/025	[NT]	103	<0.1	<0.1	0	[NT]	[NT]
Aldrin	mg/kg	0.1	Org-022/025	[NT]	103	<0.1	<0.1	0	[NT]	[NT]
Heptachlor Epoxide	mg/kg	0.1	Org-022/025	[NT]	103	<0.1	<0.1	0	[NT]	[NT]
gamma-Chlordane	mg/kg	0.1	Org-022/025	[NT]	103	<0.1	<0.1	0	[NT]	[NT]
alpha-chlordane	mg/kg	0.1	Org-022/025	[NT]	103	<0.1	<0.1	0	[NT]	[NT]
Endosulfan I	mg/kg	0.1	Org-022/025	[NT]	103	<0.1	<0.1	0	[NT]	[NT]
pp-DDE	mg/kg	0.1	Org-022/025	[NT]	103	<0.1	<0.1	0	[NT]	[NT]
Dieldrin	mg/kg	0.1	Org-022/025	[NT]	103	<0.1	<0.1	0	[NT]	[NT]
Endrin	mg/kg	0.1	Org-022/025	[NT]	103	<0.1	<0.1	0	[NT]	[NT]
Endosulfan II	mg/kg	0.1	Org-022/025	[NT]	103	<0.1	<0.1	0	[NT]	[NT]
pp-DDD	mg/kg	0.1	Org-022/025	[NT]	103	<0.1	<0.1	0	[NT]	[NT]
Endrin Aldehyde	mg/kg	0.1	Org-022/025	[NT]	103	<0.1	<0.1	0	[NT]	[NT]
pp-DDT	mg/kg	0.1	Org-022/025	[NT]	103	<0.1	<0.1	0	[NT]	[NT]
Endosulfan Sulphate	mg/kg	0.1	Org-022/025	[NT]	103	<0.1	<0.1	0	[NT]	[NT]
Methoxychlor	mg/kg	0.1	Org-022/025	[NT]	103	<0.1	<0.1	0	[NT]	[NT]
Mirex	mg/kg	0.1	Org-022/025	[NT]	103	<0.1	<0.1	0	[NT]	[NT]
Surrogate 4-Chloro-3-NBTF	%		Org-022/025	[NT]	103	85	91	7	[NT]	[NT]

QUALITY CONTROL: Organophosphorus Pesticides in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-10	362946-6
Date extracted	-			02/10/2024	1	02/10/2024	02/10/2024		02/10/2024	02/10/2024
Date analysed	-			08/10/2024	1	08/10/2024	08/10/2024		08/10/2024	08/10/2024
Dichlorvos	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	80	86
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	62	70
Fenitrothion	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	68	80
Malathion	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	68	78
Chlorpyriphos	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	62	74
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	60	72
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	68	84
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	79	1	85	84	1	87	90

QUALITY CONTROL: Organophosphorus Pesticides in Soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-11	362946-56
Date extracted	-			[NT]	28	02/10/2024	02/10/2024		02/10/2024	02/10/2024
Date analysed	-			[NT]	28	08/10/2024	08/10/2024		08/10/2024	08/10/2024
Dichlorvos	mg/kg	0.1	Org-022/025	[NT]	28	<0.1	<0.1	0	74	78
Mevinphos	mg/kg	0.1	Org-022/025	[NT]	28	<0.1	<0.1	0	[NT]	[NT]
Phorate	mg/kg	0.1	Org-022/025	[NT]	28	<0.1	<0.1	0	[NT]	[NT]
Dimethoate	mg/kg	0.1	Org-022/025	[NT]	28	<0.1	<0.1	0	[NT]	[NT]
Diazinon	mg/kg	0.1	Org-022/025	[NT]	28	<0.1	<0.1	0	[NT]	[NT]
Disulfoton	mg/kg	0.1	Org-022/025	[NT]	28	<0.1	<0.1	0	[NT]	[NT]
Chlorpyrifos-methyl	mg/kg	0.1	Org-022/025	[NT]	28	<0.1	<0.1	0	[NT]	[NT]
Parathion-Methyl	mg/kg	0.1	Org-022/025	[NT]	28	<0.1	<0.1	0	[NT]	[NT]
Ronnel	mg/kg	0.1	Org-022/025	[NT]	28	<0.1	<0.1	0	60	62
Fenitrothion	mg/kg	0.1	Org-022/025	[NT]	28	<0.1	<0.1	0	66	72
Malathion	mg/kg	0.1	Org-022/025	[NT]	28	<0.1	<0.1	0	66	70
Chlorpyriphos	mg/kg	0.1	Org-022/025	[NT]	28	<0.1	<0.1	0	62	64
Fenthion	mg/kg	0.1	Org-022/025	[NT]	28	<0.1	<0.1	0	[NT]	[NT]
Parathion	mg/kg	0.1	Org-022/025	[NT]	28	<0.1	<0.1	0	60	64
Bromophos-ethyl	mg/kg	0.1	Org-022/025	[NT]	28	<0.1	<0.1	0	[NT]	[NT]
Methidathion	mg/kg	0.1	Org-022/025	[NT]	28	<0.1	<0.1	0	[NT]	[NT]
Fenamiphos	mg/kg	0.1	Org-022/025	[NT]	28	<0.1	<0.1	0	[NT]	[NT]
Ethion	mg/kg	0.1	Org-022/025	[NT]	28	<0.1	<0.1	0	70	76
Phosalone	mg/kg	0.1	Org-022/025	[NT]	28	<0.1	<0.1	0	[NT]	[NT]
Azinphos-methyl (Guthion)	mg/kg	0.1	Org-022/025	[NT]	28	<0.1	<0.1	0	[NT]	[NT]
Coumaphos	mg/kg	0.1	Org-022/025	[NT]	28	<0.1	<0.1	0	[NT]	[NT]
Surrogate 4-Chloro-3-NBTF	%		Org-022/025	[NT]	28	84	78	7	84	87

QUALITY CONTROL: Organophosphorus Pesticides in Soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	362946-104
Date extracted	-			[NT]	53	02/10/2024	02/10/2024		[NT]	02/10/2024
Date analysed	-			[NT]	53	08/10/2024	08/10/2024		[NT]	08/10/2024
Dichlorvos	mg/kg	0.1	Org-022/025	[NT]	53	<0.1	<0.1	0	[NT]	78
Mevinphos	mg/kg	0.1	Org-022/025	[NT]	53	<0.1	<0.1	0	[NT]	[NT]
Phorate	mg/kg	0.1	Org-022/025	[NT]	53	<0.1	<0.1	0	[NT]	[NT]
Dimethoate	mg/kg	0.1	Org-022/025	[NT]	53	<0.1	<0.1	0	[NT]	[NT]
Diazinon	mg/kg	0.1	Org-022/025	[NT]	53	<0.1	<0.1	0	[NT]	[NT]
Disulfoton	mg/kg	0.1	Org-022/025	[NT]	53	<0.1	<0.1	0	[NT]	[NT]
Chlorpyrifos-methyl	mg/kg	0.1	Org-022/025	[NT]	53	<0.1	<0.1	0	[NT]	[NT]
Parathion-Methyl	mg/kg	0.1	Org-022/025	[NT]	53	<0.1	<0.1	0	[NT]	[NT]
Ronnel	mg/kg	0.1	Org-022/025	[NT]	53	<0.1	<0.1	0	[NT]	60
Fenitrothion	mg/kg	0.1	Org-022/025	[NT]	53	<0.1	<0.1	0	[NT]	66
Malathion	mg/kg	0.1	Org-022/025	[NT]	53	<0.1	<0.1	0	[NT]	68
Chlorpyriphos	mg/kg	0.1	Org-022/025	[NT]	53	<0.1	<0.1	0	[NT]	62
Fenthion	mg/kg	0.1	Org-022/025	[NT]	53	<0.1	<0.1	0	[NT]	[NT]
Parathion	mg/kg	0.1	Org-022/025	[NT]	53	<0.1	<0.1	0	[NT]	60
Bromophos-ethyl	mg/kg	0.1	Org-022/025	[NT]	53	<0.1	<0.1	0	[NT]	[NT]
Methidathion	mg/kg	0.1	Org-022/025	[NT]	53	<0.1	<0.1	0	[NT]	[NT]
Fenamiphos	mg/kg	0.1	Org-022/025	[NT]	53	<0.1	<0.1	0	[NT]	[NT]
Ethion	mg/kg	0.1	Org-022/025	[NT]	53	<0.1	<0.1	0	[NT]	74
Phosalone	mg/kg	0.1	Org-022/025	[NT]	53	<0.1	<0.1	0	[NT]	[NT]
Azinphos-methyl (Guthion)	mg/kg	0.1	Org-022/025	[NT]	53	<0.1	<0.1	0	[NT]	[NT]
Coumaphos	mg/kg	0.1	Org-022/025	[NT]	53	<0.1	<0.1	0	[NT]	[NT]
Surrogate 4-Chloro-3-NBTF	%		Org-022/025	[NT]	53	93	80	15	[NT]	94

Client Reference: E36310PT, South Lismore, NSW

QUALITY CONTROL: Organophosphorus Pesticides in Soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	80	02/10/2024	02/10/2024		[NT]	[NT]
Date analysed	-			[NT]	80	08/10/2024	08/10/2024		[NT]	[NT]
Dichlorvos	mg/kg	0.1	Org-022/025	[NT]	80	<0.1	<0.1	0	[NT]	[NT]
Mevinphos	mg/kg	0.1	Org-022/025	[NT]	80	<0.1	<0.1	0	[NT]	[NT]
Phorate	mg/kg	0.1	Org-022/025	[NT]	80	<0.1	<0.1	0	[NT]	[NT]
Dimethoate	mg/kg	0.1	Org-022/025	[NT]	80	<0.1	<0.1	0	[NT]	[NT]
Diazinon	mg/kg	0.1	Org-022/025	[NT]	80	<0.1	<0.1	0	[NT]	[NT]
Disulfoton	mg/kg	0.1	Org-022/025	[NT]	80	<0.1	<0.1	0	[NT]	[NT]
Chlorpyrifos-methyl	mg/kg	0.1	Org-022/025	[NT]	80	<0.1	<0.1	0	[NT]	[NT]
Parathion-Methyl	mg/kg	0.1	Org-022/025	[NT]	80	<0.1	<0.1	0	[NT]	[NT]
Ronnel	mg/kg	0.1	Org-022/025	[NT]	80	<0.1	<0.1	0	[NT]	[NT]
Fenitrothion	mg/kg	0.1	Org-022/025	[NT]	80	<0.1	<0.1	0	[NT]	[NT]
Malathion	mg/kg	0.1	Org-022/025	[NT]	80	<0.1	<0.1	0	[NT]	[NT]
Chlorpyriphos	mg/kg	0.1	Org-022/025	[NT]	80	<0.1	<0.1	0	[NT]	[NT]
Fenthion	mg/kg	0.1	Org-022/025	[NT]	80	<0.1	<0.1	0	[NT]	[NT]
Parathion	mg/kg	0.1	Org-022/025	[NT]	80	<0.1	<0.1	0	[NT]	[NT]
Bromophos-ethyl	mg/kg	0.1	Org-022/025	[NT]	80	<0.1	<0.1	0	[NT]	[NT]
Methidathion	mg/kg	0.1	Org-022/025	[NT]	80	<0.1	<0.1	0	[NT]	[NT]
Fenamiphos	mg/kg	0.1	Org-022/025	[NT]	80	<0.1	<0.1	0	[NT]	[NT]
Ethion	mg/kg	0.1	Org-022/025	[NT]	80	<0.1	<0.1	0	[NT]	[NT]
Phosalone	mg/kg	0.1	Org-022/025	[NT]	80	<0.1	<0.1	0	[NT]	[NT]
Azinphos-methyl (Guthion)	mg/kg	0.1	Org-022/025	[NT]	80	<0.1	<0.1	0	[NT]	[NT]
Coumaphos	mg/kg	0.1	Org-022/025	[NT]	80	<0.1	<0.1	0	[NT]	[NT]
Surrogate 4-Chloro-3-NBTF	%		Org-022/025	[NT]	80	83	90	8	[NT]	[NT]

Client Reference: E36310PT, South Lismore, NSW

QUALITY CONTROL: Organophosphorus Pesticides in Soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	103	02/10/2024	02/10/2024		[NT]	[NT]
Date analysed	-			[NT]	103	08/10/2024	08/10/2024		[NT]	[NT]
Dichlorvos	mg/kg	0.1	Org-022/025	[NT]	103	<0.1	<0.1	0	[NT]	[NT]
Mevinphos	mg/kg	0.1	Org-022/025	[NT]	103	<0.1	<0.1	0	[NT]	[NT]
Phorate	mg/kg	0.1	Org-022/025	[NT]	103	<0.1	<0.1	0	[NT]	[NT]
Dimethoate	mg/kg	0.1	Org-022/025	[NT]	103	<0.1	<0.1	0	[NT]	[NT]
Diazinon	mg/kg	0.1	Org-022/025	[NT]	103	<0.1	<0.1	0	[NT]	[NT]
Disulfoton	mg/kg	0.1	Org-022/025	[NT]	103	<0.1	<0.1	0	[NT]	[NT]
Chlorpyrifos-methyl	mg/kg	0.1	Org-022/025	[NT]	103	<0.1	<0.1	0	[NT]	[NT]
Parathion-Methyl	mg/kg	0.1	Org-022/025	[NT]	103	<0.1	<0.1	0	[NT]	[NT]
Ronnel	mg/kg	0.1	Org-022/025	[NT]	103	<0.1	<0.1	0	[NT]	[NT]
Fenitrothion	mg/kg	0.1	Org-022/025	[NT]	103	<0.1	<0.1	0	[NT]	[NT]
Malathion	mg/kg	0.1	Org-022/025	[NT]	103	<0.1	<0.1	0	[NT]	[NT]
Chlorpyriphos	mg/kg	0.1	Org-022/025	[NT]	103	<0.1	<0.1	0	[NT]	[NT]
Fenthion	mg/kg	0.1	Org-022/025	[NT]	103	<0.1	<0.1	0	[NT]	[NT]
Parathion	mg/kg	0.1	Org-022/025	[NT]	103	<0.1	<0.1	0	[NT]	[NT]
Bromophos-ethyl	mg/kg	0.1	Org-022/025	[NT]	103	<0.1	<0.1	0	[NT]	[NT]
Methidathion	mg/kg	0.1	Org-022/025	[NT]	103	<0.1	<0.1	0	[NT]	[NT]
Fenamiphos	mg/kg	0.1	Org-022/025	[NT]	103	<0.1	<0.1	0	[NT]	[NT]
Ethion	mg/kg	0.1	Org-022/025	[NT]	103	<0.1	<0.1	0	[NT]	[NT]
Phosalone	mg/kg	0.1	Org-022/025	[NT]	103	<0.1	<0.1	0	[NT]	[NT]
Azinphos-methyl (Guthion)	mg/kg	0.1	Org-022/025	[NT]	103	<0.1	<0.1	0	[NT]	[NT]
Coumaphos	mg/kg	0.1	Org-022/025	[NT]	103	<0.1	<0.1	0	[NT]	[NT]
Surrogate 4-Chloro-3-NBTF	%		Org-022/025	[NT]	103	85	91	7	[NT]	[NT]

Client Reference: E36310PT, South Lismore, NSW

QUALITY CONTROL: PCBs in Soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-10	362946-6
Date extracted	-			02/10/2024	1	02/10/2024	02/10/2024		02/10/2024	02/10/2024
Date analysed	-			08/10/2024	1	08/10/2024	08/10/2024		08/10/2024	08/10/2024
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	84	80
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	94	1	93	99	6	94	99

QUALITY CONTROL: PCBs in Soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-11	362946-56
Date extracted	-			[NT]	28	02/10/2024	02/10/2024		02/10/2024	02/10/2024
Date analysed	-			[NT]	28	08/10/2024	08/10/2024		08/10/2024	08/10/2024
Aroclor 1016	mg/kg	0.1	Org-021/022/025	[NT]	28	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1221	mg/kg	0.1	Org-021/022/025	[NT]	28	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1232	mg/kg	0.1	Org-021/022/025	[NT]	28	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1242	mg/kg	0.1	Org-021/022/025	[NT]	28	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1248	mg/kg	0.1	Org-021/022/025	[NT]	28	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1254	mg/kg	0.1	Org-021/022/025	[NT]	28	<0.1	<0.1	0	80	80
Aroclor 1260	mg/kg	0.1	Org-021/022/025	[NT]	28	<0.1	<0.1	0	[NT]	[NT]
Surrogate 2-Fluorobiphenyl	%		Org-021/022/025	[NT]	28	101	87	15	91	92

QUALITY CONTROL: PCBs in Soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	362946-104
Date extracted	-			[NT]	53	02/10/2024	02/10/2024		[NT]	02/10/2024
Date analysed	-			[NT]	53	08/10/2024	08/10/2024		[NT]	08/10/2024
Aroclor 1016	mg/kg	0.1	Org-021/022/025	[NT]	53	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1221	mg/kg	0.1	Org-021/022/025	[NT]	53	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1232	mg/kg	0.1	Org-021/022/025	[NT]	53	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1242	mg/kg	0.1	Org-021/022/025	[NT]	53	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1248	mg/kg	0.1	Org-021/022/025	[NT]	53	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1254	mg/kg	0.1	Org-021/022/025	[NT]	53	<0.1	<0.1	0	[NT]	80
Aroclor 1260	mg/kg	0.1	Org-021/022/025	[NT]	53	<0.1	<0.1	0	[NT]	[NT]
Surrogate 2-Fluorobiphenyl	%		Org-021/022/025	[NT]	53	100	91	9	[NT]	103

QUALITY CONTROL: PCBs in Soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	80	02/10/2024	02/10/2024		[NT]	[NT]
Date analysed	-			[NT]	80	08/10/2024	08/10/2024		[NT]	[NT]
Aroclor 1016	mg/kg	0.1	Org-021/022/025	[NT]	80	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1221	mg/kg	0.1	Org-021/022/025	[NT]	80	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1232	mg/kg	0.1	Org-021/022/025	[NT]	80	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1242	mg/kg	0.1	Org-021/022/025	[NT]	80	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1248	mg/kg	0.1	Org-021/022/025	[NT]	80	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1254	mg/kg	0.1	Org-021/022/025	[NT]	80	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1260	mg/kg	0.1	Org-021/022/025	[NT]	80	<0.1	<0.1	0	[NT]	[NT]
Surrogate 2-Fluorobiphenyl	%		Org-021/022/025	[NT]	80	95	94	1	[NT]	[NT]

QUALITY CONTROL: PCBs in Soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	103	02/10/2024	02/10/2024		[NT]	[NT]
Date analysed	-			[NT]	103	08/10/2024	08/10/2024		[NT]	[NT]
Aroclor 1016	mg/kg	0.1	Org-021/022/025	[NT]	103	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1221	mg/kg	0.1	Org-021/022/025	[NT]	103	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1232	mg/kg	0.1	Org-021/022/025	[NT]	103	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1242	mg/kg	0.1	Org-021/022/025	[NT]	103	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1248	mg/kg	0.1	Org-021/022/025	[NT]	103	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1254	mg/kg	0.1	Org-021/022/025	[NT]	103	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1260	mg/kg	0.1	Org-021/022/025	[NT]	103	<0.1	<0.1	0	[NT]	[NT]
Surrogate 2-Fluorobiphenyl	%		Org-021/022/025	[NT]	103	91	96	5	[NT]	[NT]

QUALITY CONTROL: Acid Extractable metals in soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-9	362946-6
Date prepared	-			02/10/2024	1	02/10/2024	02/10/2024		02/10/2024	02/10/2024
Date analysed	-			03/10/2024	1	03/10/2024	03/10/2024		03/10/2024	03/10/2024
Arsenic	mg/kg	4	Metals-020	<4	1	15	17	12	108	79
Cadmium	mg/kg	0.4	Metals-020	<0.4	1	<0.4	<0.4	0	98	81
Chromium	mg/kg	1	Metals-020	<1	1	27	28	4	100	91
Copper	mg/kg	1	Metals-020	<1	1	24	25	4	101	98
Lead	mg/kg	1	Metals-020	<1	1	11	12	9	100	85
Mercury	mg/kg	0.1	Metals-021	<0.1	1	<0.1	<0.1	0	96	98
Nickel	mg/kg	1	Metals-020	<1	1	11	9	20	100	88
Zinc	mg/kg	1	Metals-020	<1	1	77	81	5	101	108

QUALITY CONTROL: Acid Extractable metals in soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-10	362946-56
Date prepared	-			[NT]	28	02/10/2024	02/10/2024		02/10/2024	02/10/2024
Date analysed	-			[NT]	28	03/10/2024	03/10/2024		03/10/2024	03/10/2024
Arsenic	mg/kg	4	Metals-020	[NT]	28	<4	<4	0	105	92
Cadmium	mg/kg	0.4	Metals-020	[NT]	28	1	0.5	67	95	86
Chromium	mg/kg	1	Metals-020	[NT]	28	14	15	7	97	94
Copper	mg/kg	1	Metals-020	[NT]	28	15	15	0	98	99
Lead	mg/kg	1	Metals-020	[NT]	28	26	25	4	98	91
Mercury	mg/kg	0.1	Metals-021	[NT]	28	<0.1	<0.1	0	93	96
Nickel	mg/kg	1	Metals-020	[NT]	28	9	9	0	97	88
Zinc	mg/kg	1	Metals-020	[NT]	28	100	110	10	98	85

QUALITY CONTROL: Acid Extractable metals in soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-11	362946-104
Date prepared	-			[NT]	53	02/10/2024	02/10/2024		02/10/2024	02/10/2024
Date analysed	-			[NT]	53	03/10/2024	03/10/2024		03/10/2024	03/10/2024
Arsenic	mg/kg	4	Metals-020	[NT]	53	<4	<4	0	103	97
Cadmium	mg/kg	0.4	Metals-020	[NT]	53	<0.4	<0.4	0	96	90
Chromium	mg/kg	1	Metals-020	[NT]	53	11	12	9	96	92
Copper	mg/kg	1	Metals-020	[NT]	53	14	14	0	95	99
Lead	mg/kg	1	Metals-020	[NT]	53	10	11	10	98	93
Mercury	mg/kg	0.1	Metals-021	[NT]	53	<0.1	<0.1	0	96	93
Nickel	mg/kg	1	Metals-020	[NT]	53	14	13	7	97	92
Zinc	mg/kg	1	Metals-020	[NT]	53	64	61	5	99	87

QUALITY CONTROL: Acid Extractable metals in soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date prepared	-			[NT]	80	02/10/2024	02/10/2024		[NT]	[NT]
Date analysed	-			[NT]	80	03/10/2024	03/10/2024		[NT]	[NT]
Arsenic	mg/kg	4	Metals-020	[NT]	80	<4	<4	0	[NT]	[NT]
Cadmium	mg/kg	0.4	Metals-020	[NT]	80	<0.4	<0.4	0	[NT]	[NT]
Chromium	mg/kg	1	Metals-020	[NT]	80	9	9	0	[NT]	[NT]
Copper	mg/kg	1	Metals-020	[NT]	80	10	12	18	[NT]	[NT]
Lead	mg/kg	1	Metals-020	[NT]	80	12	26	74	[NT]	[NT]
Mercury	mg/kg	0.1	Metals-021	[NT]	80	<0.1	<0.1	0	[NT]	[NT]
Nickel	mg/kg	1	Metals-020	[NT]	80	6	6	0	[NT]	[NT]
Zinc	mg/kg	1	Metals-020	[NT]	80	56	59	5	[NT]	[NT]

QUALITY CONTROL: Acid Extractable metals in soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date prepared	-			[NT]	103	02/10/2024	02/10/2024		[NT]	[NT]
Date analysed	-			[NT]	103	03/10/2024	03/10/2024		[NT]	[NT]
Arsenic	mg/kg	4	Metals-020	[NT]	103	<4	<4	0	[NT]	[NT]
Cadmium	mg/kg	0.4	Metals-020	[NT]	103	<0.4	<0.4	0	[NT]	[NT]
Chromium	mg/kg	1	Metals-020	[NT]	103	8	9	12	[NT]	[NT]
Copper	mg/kg	1	Metals-020	[NT]	103	14	12	15	[NT]	[NT]
Lead	mg/kg	1	Metals-020	[NT]	103	12	11	9	[NT]	[NT]
Mercury	mg/kg	0.1	Metals-021	[NT]	103	<0.1	<0.1	0	[NT]	[NT]
Nickel	mg/kg	1	Metals-020	[NT]	103	9	9	0	[NT]	[NT]
Zinc	mg/kg	1	Metals-020	[NT]	103	55	47	16	[NT]	[NT]

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Water					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date extracted	-			04/10/2024	[NT]	[NT]	[NT]	[NT]	04/10/2024	[NT]
Date analysed	-			08/10/2024	[NT]	[NT]	[NT]	[NT]	08/10/2024	[NT]
TRH C_6 - C_9	µg/L	10	Org-023	<10	[NT]	[NT]	[NT]	[NT]	109	[NT]
TRH C_6 - C_{10}	µg/L	10	Org-023	<10	[NT]	[NT]	[NT]	[NT]	109	[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]	105	[NT]
Ethylbenzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	111	[NT]
m+p-xylene	µg/L	2	Org-023	<2	[NT]	[NT]	[NT]	[NT]	111	[NT]
o-xylene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	112	[NT]
Naphthalene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate Dibromofluoromethane	%		Org-023	96	[NT]	[NT]	[NT]	[NT]	97	[NT]
Surrogate Toluene-d8	%		Org-023	96	[NT]	[NT]	[NT]	[NT]	102	[NT]
Surrogate 4-Bromofluorobenzene	%		Org-023	87	[NT]	[NT]	[NT]	[NT]	113	[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	-			02/10/2024	[NT]	[NT]	[NT]	[NT]	02/10/2024	[NT]
Date analysed	-			04/10/2024	[NT]	[NT]	[NT]	[NT]	04/10/2024	[NT]
TRH C_{10} - C_{14}	µg/L	50	Org-020	<50	[NT]	[NT]	[NT]	[NT]	92	[NT]
TRH C_{15} - C_{28}	µg/L	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	91	[NT]
TRH C_{29} - C_{36}	µg/L	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	86	[NT]
TRH >C_{10} - C_{16}	µg/L	50	Org-020	<50	[NT]	[NT]	[NT]	[NT]	92	[NT]
TRH >C_{16} - C_{34}	µg/L	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	91	[NT]
TRH >C_{34} - C_{40}	µg/L	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	86	[NT]
Surrogate o-Terphenyl	%		Org-020	66	[NT]	[NT]	[NT]	[NT]	97	[NT]

QUALITY CONTROL: PAHs in Water					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date extracted	-			02/10/2024	[NT]	[NT]	[NT]	[NT]	02/10/2024	[NT]
Date analysed	-			03/10/2024	[NT]	[NT]	[NT]	[NT]	03/10/2024	[NT]
Naphthalene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	87	[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]	98	[NT]
Fluorene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	107	[NT]
Phenanthrene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	91	[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]	89	[NT]
Pyrene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	92	[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]	80	[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]	89	[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	66	[NT]	[NT]	[NT]	[NT]	95	[NT]

QUALITY CONTROL: Metals in Waters - Acid extractable					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date prepared	-			03/10/2024	[NT]	[NT]	[NT]	[NT]	03/10/2024	[NT]
Date analysed	-			03/10/2024	[NT]	[NT]	[NT]	[NT]	03/10/2024	[NT]
Arsenic - Total	mg/L	0.05	Metals-020	<0.05	[NT]	[NT]	[NT]	[NT]	98	[NT]
Cadmium - Total	mg/L	0.01	Metals-020	<0.01	[NT]	[NT]	[NT]	[NT]	92	[NT]
Chromium - Total	mg/L	0.01	Metals-020	<0.01	[NT]	[NT]	[NT]	[NT]	95	[NT]
Copper - Total	mg/L	0.01	Metals-020	<0.01	[NT]	[NT]	[NT]	[NT]	95	[NT]
Lead - Total	mg/L	0.03	Metals-020	<0.03	[NT]	[NT]	[NT]	[NT]	94	[NT]
Mercury - Total	mg/L	0.0005	Metals-021	<0.0005	[NT]	[NT]	[NT]	[NT]	110	[NT]
Nickel - Total	mg/L	0.02	Metals-020	<0.02	[NT]	[NT]	[NT]	[NT]	94	[NT]
Zinc - Total	mg/L	0.02	Metals-020	<0.02	[NT]	[NT]	[NT]	[NT]	94	[NT]

QUALITY CONTROL: Misc Inorg - Soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	362946-119
Date prepared	-			01/10/2024	117	01/10/2024	01/10/2024		01/10/2024	01/10/2024
Date analysed	-			01/10/2024	117	01/10/2024	01/10/2024		01/10/2024	01/10/2024
pH 1:5 soil:water	pH Units		Inorg-001	[NT]	117	6.9	6.4	8	99	[NT]
Chloride, Cl 1:5 soil:water	mg/kg	10	Inorg-081	<10	117	<10	<10	0	106	109
Sulphate, SO4 1:5 soil:water	mg/kg	10	Inorg-081	<10	117	<10	10	0	110	100
Resistivity in soil*	ohm m	1	Inorg-002	<1	117	240	160	40	[NT]	[NT]

QUALITY CONTROL: Misc Inorg - Soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date prepared	-			[NT]	135	01/10/2024	01/10/2024		[NT]	[NT]
Date analysed	-			[NT]	135	01/10/2024	01/10/2024		[NT]	[NT]
pH 1:5 soil:water	pH Units		Inorg-001	[NT]	135	5.9	5.9	0	[NT]	[NT]
Chloride, Cl 1:5 soil:water	mg/kg	10	Inorg-081	[NT]	135	500	590	17	[NT]	[NT]
Sulphate, SO4 1:5 soil:water	mg/kg	10	Inorg-081	[NT]	135	190	190	0	[NT]	[NT]
Resistivity in soil*	ohm m	1	Inorg-002	[NT]	135	19	17	11	[NT]	[NT]

QUALITY CONTROL: Texture and Salinity*					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
Date prepared	-			01/10/2024	[NT]	[NT]	[NT]	[NT]	01/10/2024	[NT]
Date analysed	-			01/10/2024	[NT]	[NT]	[NT]	[NT]	01/10/2024	[NT]
Electrical Conductivity 1:5 soil:water	µS/cm	1	Inorg-002	<1	[NT]	[NT]	[NT]	[NT]	101	[NT]

QUALITY CONTROL: CEC					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
Date prepared	-			04/10/2024	[NT]	[NT]	[NT]	[NT]	04/10/2024	[NT]
Date analysed	-			04/10/2024	[NT]	[NT]	[NT]	[NT]	04/10/2024	[NT]
Exchangeable Ca	meq/100g	0.1	Metals-020	<0.1	[NT]	[NT]	[NT]	[NT]	105	[NT]
Exchangeable K	meq/100g	0.1	Metals-020	<0.1	[NT]	[NT]	[NT]	[NT]	110	[NT]
Exchangeable Mg	meq/100g	0.1	Metals-020	<0.1	[NT]	[NT]	[NT]	[NT]	106	[NT]
Exchangeable Na	meq/100g	0.1	Metals-020	<0.1	[NT]	[NT]	[NT]	[NT]	125	[NT]

Result Definitions

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

Quality Control Definitions

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

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

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

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

Laboratory Acceptance Criteria

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

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

Spikes for Physical and Aggregate Tests are not applicable.

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

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

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

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

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

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

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

Measurement Uncertainty estimates are available for most tests upon request.

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

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

Report Comments

Acid Extractable Metals in Soil: The laboratory RPD acceptance criteria has been exceeded for 362946-80 for Pb. Therefore a triplicate result has been issued as laboratory sample number 362946-138.

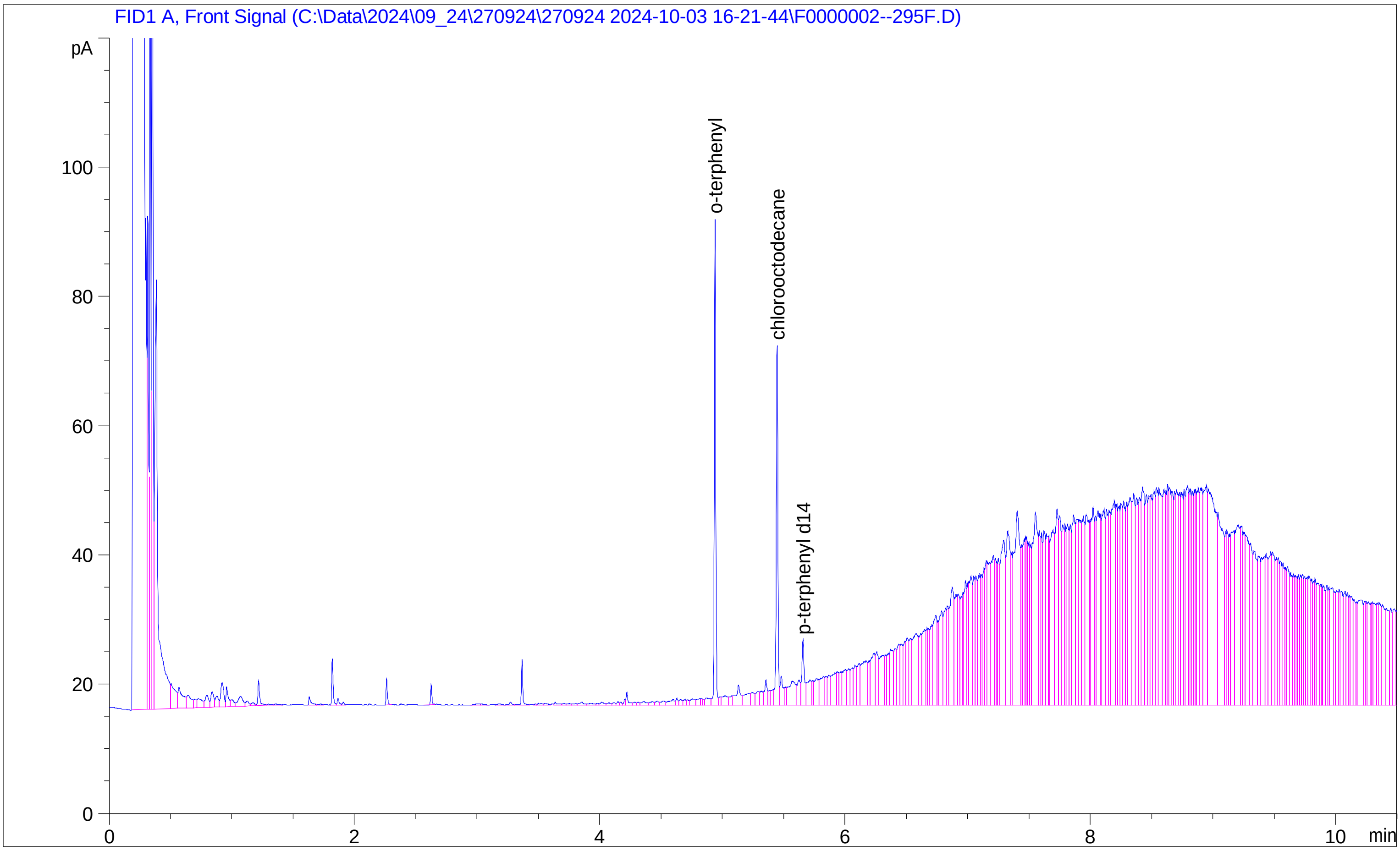
Asbestos-ID in soil: NEPM
This report is consistent with the reporting recommendations in the National Environment Protection (Assessment of Site Contamination) Measure, Schedule B1, May 2013. This is reported outside our scope of NATA accreditation.

Factual description of asbestos identified in the soil samples: NEPM
Sample 362946-22; Chrysotile asbestos identified in 0.0024g of fibrous matted material

Note: All samples analysed as received. However, sample 362946-68 is below the minimum recommended 500mL sample volume as per National Environment Protection (Assessment of Site Contamination) Measure, Schedule B1, May 2013.

```
Data File C:\Data\2024\09_24\270924\270924 2024-10-03 16-21-44\F0000002--295F.D
Sample Name: s362946-16

    =====================================================================
    Acq. Operator   : SYSTEM                          Seq. Line : 295
    Sample Operator : SYSTEM
    Acq. Instrument : gc7                              Location :   55  (F)
    Injection Date  : 4/10/2024 7:31:06 AM                  Inj :   1
                                                     Inj Volume : 1 µl
    Acq. Method     : C:\Data\2024\09_24\270924\270924 2024-10-03 16-21-44\TRH_FAST LT Broken
                      Racer.M
    Last changed    : 30/04/2024 5:32:52 PM by SYSTEM
    Analysis Method : C:\METHODS\2024\09_24\270924-F PROCESSING.M
    Last changed    : 2/10/2024 10:00:28 AM by SYSTEM
    Method Info     : FAST TPH WITH 15M HP5 COLUMNS
```



```
    =====================================================================
                          External Standard Report
    =====================================================================

    Sorted By             :      Signal
    Calib. Data Modified  :      30/09/2024 11:29:34 AM
    Multiplier            :      1.0000
    Dilution              :      1.0000
    Do not use Multiplier & Dilution Factor with ISTDs

    Signal 1: FID1 A, Front Signal

    RetTime  Type     Area      Amt/Area     Amount    Grp   Name
     [min]          [pA*s]                   [mg/L]
    -------|------|----------|----------|----------|--|------------------
      4.941 VV   I   62.00464 1.60799e-1    9.97029    o-terphenyl
      5.447 VV       53.99167 1.93260e-1   10.43442    chlorooctodecane
```

```
    RetTime  Type     Area     Amt/Area    Amount   Grp   Name
     [min]          [pA*s]                 [mg/L]
    -------|------|----------|----------|----------|--|------------------
      5.658 VV   I   14.70245 1.72125e-1    2.53067    p-terphenyl d14

    Totals :                               22.93538


    ======================================================================

    ======================================================================
                             Summed Peaks Report
    ======================================================================

    Signal 1: FID1 A, Front Signal

    Signal 1: FID1 A, Front Signal
    Name            Start Time  End Time  Total Area   Amount
                      [min]       [min]    [pA*s]       [mg/L]
    ---------------|----------|----------|----------|----------|
    TRH C10-C14          1.387      3.535   22.67992   4.0319
    NEPM >C10-C16        1.940      4.175   23.13786   4.1134
    TRH C15-C28          3.535      7.003  828.28893 154.1661
    NEPM >C16-C34        4.175      8.040 2388.23123 444.5119
    TRH C29-C36          7.003      8.360 2178.42527 409.4459
    NEPM >C34-C40        8.040      8.980 1915.14266 359.9606

    Totals :                                        1376.2299

    ======================================================================
                          Final Summed Peaks Report
    ======================================================================

    Signal 1: FID1 A, Front Signal
    Name            Total Area  Amount
                     [pA*s]      [mg/L]
    ---------------|----------|----------|
    TRH C10-C14       22.67992   4.0319
    NEPM >C10-C16     23.13786   4.1134
    TRH C15-C28      828.28893 154.1661
    NEPM >C16-C34   2388.23123 444.5119
    TRH C29-C36     2178.42527 409.4459
    NEPM >C34-C40   1915.14266 359.9606
    o-terphenyl       62.00464   9.9703
    chlorooctodecan   53.99167  10.4344
    p-terphenyl d14   14.70245   2.5307

    Totals :                  1399.1653

                              *** End of Report ***
```

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12 Ashley St Chatswood NSW 2067
ph 02 9910 6200   fax 02 9910 6201
customerservice@envirolab.com.au
www.envirolab.com.au

SAMPLE RECEIPT ADVICE

Client Details

Client	JK Environments
Attention	Katrina Taylor

Sample Login Details

Your reference	E36310PT, South Lismore, NSW
Envirolab Reference	362946
Date Sample Received	30/09/2024
Date Instructions Received	30/09/2024
Date Results Expected to be Reported	08/10/2024

Sample Condition

Samples received in appropriate condition for analysis	Broken Sample
No. of Samples Provided	129 Soil, 2 Water, 6 Material
Turnaround Time Requested	Standard
Temperature on Receipt (°C)	3
Cooling Method	Ice
Sampling Date Provided	YES

Comments

Sample #107-FR-SPT-1: 1 x 100mL Amber received broken in transit.

Sample 'BH13/0.7-0.8': Not received.
Sample 'FCF1/0.7-0.8': Not received.
Samples confirmed to be not sent by client via email - 01/10.

Samples #89 - #93: Sample ID on samples written as 'BH...', whereas CoC sample IDs written as 'TP...'. Assumed CoC sample IDs to be correct.

Please contact the laboratory within 24 hours if you wish to cancel the aformentioned testing. Otherwise testing will proceed as per the COC and hence invoiced accordingly.

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 metalsin soil	Asbestos ID - soils NEPM - ASB-001	Asbestos ID - materials	vTRH(C6-C10)/BTEXN in Water	svTRH (C10-C40) in Water	PAHs in Water	Metals in Waters -Acid extractable	Misc Inorg - Soil	Texture and Salinity*	CEC	On Hold
BH1-0-0.1	✓	✓	✓	✓	✓	✓	✓	✓									
BH1-0.2-0.3																	✓
BH1-0.8-1																	✓
BH1-1.8-2																	✓
BH1-2.6-3																	✓
BH2-0.05-0.2	✓	✓	✓	✓	✓	✓	✓	✓									
BH2-0.4-0.6																	✓
BH2-0.8-1.0																	✓
BH2-1.8-1.95																	✓
BH2-5.8-6.0																	✓
TP3-0-0.1	✓	✓	✓	✓	✓	✓	✓	✓									
TP3-0.5-0.6	✓	✓	✓				✓										
TP3-1.2-1.4																	✓
TP4-0-0.1	✓	✓	✓	✓	✓	✓	✓	✓									
TP4-0.4-0.5	✓	✓	✓				✓										
TP4-0.5-0.6	✓	✓	✓				✓										
TP4-0.8-0.9																	✓
TP5-0-0.1	✓	✓	✓	✓	✓	✓	✓	✓									
TP5-0.3-0.4																	✓
TP5-0.7-0.8																	✓
TP5-0.8-0.9																	✓
TP6-0-0.1	✓	✓	✓	✓	✓	✓	✓	✓									
TP6-0.3-0.4																	✓
TP6-1.0-1.1																	✓
BH7-0-0.1	✓	✓	✓	✓	✓	✓	✓	✓									
BH7-0.4-0.6																	✓
BH7-0.8-0.9																	✓
TP8-0-0.1	✓	✓	✓	✓	✓	✓	✓	✓									
TP8-0.4-0.5	✓	✓	✓				✓										
TP8-0.6-0.7																	✓
BH9-0-0.1	✓	✓	✓	✓	✓	✓	✓	✓									
BH9-0.4-0.5																	✓

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 metalsin soil	Asbestos ID - soils NEPM - ASB-001	Asbestos ID - materials	vTRH(C6-C10)/BTEXN in Water	svTRH (C10-C40) in Water	PAHs in Water	Metals in Waters -Acid extractable	Misc Inorg - Soil	Texture and Salinity*	CEC	On Hold
TP10-0-0.1	✓	✓	✓	✓	✓	✓	✓	✓									
TP10-0.4-0.5	✓	✓	✓				✓										
BH11-0.0-0.1	✓	✓	✓				✓										
BH11-0.8-0.95																	✓
BH11-1.3-1.5																	✓
BH11-1.8-1.95																	✓
BH11-5.7-6																	✓
BH12-0-0.2	✓	✓	✓	✓	✓	✓	✓	✓									
BH12-0.3-0.5																	✓
BH12-0.7-0.9																	✓
BH13-0-0.1	✓	✓	✓	✓	✓	✓	✓	✓									
BH13-0.3-0.5																	✓
TP14-0-0.1	✓	✓	✓	✓	✓	✓	✓	✓									
TP14-0.2-0.3																	✓
TP14-0.9-1																	✓
BH15-0-0.1	✓	✓	✓	✓	✓	✓	✓	✓									
BH15-0.6-0.7																	✓
BH15-1.2-1.35																	✓
BH15-1.8-1.95																	✓
BH15-2.8-2.95																	✓
TP16-0-0.1	✓	✓	✓	✓	✓	✓	✓	✓									
TP16-0.4-0.5	✓	✓	✓				✓										
TP16-1.0-1.2																	✓
TP17-0-0.1	✓	✓	✓	✓	✓	✓	✓	✓									
TP17-0.3-0.4	✓	✓	✓				✓										
TP17-0.9-1																	✓
TP18-0-0.1	✓	✓	✓	✓	✓	✓	✓	✓									
TP18-0.4-0.5	✓	✓	✓				✓										
TP18-1.0-1.1																	✓
BH19-0-0.1	✓	✓	✓	✓	✓	✓	✓	✓									
BH19-0.3-0.5																	✓
BH19-0.8-0.95																	✓

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 metalsin soil	Asbestos ID - soils NEPM - ASB-001	Asbestos ID - materials	vTRH(C6-C10)/BTEXN in Water	svTRH (C10-C40) in Water	PAHs in Water	Metals in Waters -Acid extractable	Misc Inorg - Soil	Texture and Salinity*	CEC	On Hold
BH19-1.3-1.5																	✓
BH19-1.8-1.95																	✓
BH19-2.8-2.95																	✓
BH20-0-0.1	✓	✓	✓	✓	✓	✓	✓	✓									
BH20-0.3-0.4	✓	✓	✓				✓										
BH21-0-0.1	✓	✓	✓	✓	✓	✓	✓	✓									
BH21-0.2-0.4																	✓
BH21-0.8-1.0																	✓
BH21-1.8-1.95																	✓
BH21-2.3-2.4																	✓
BH21-2.8-2.95																	✓
TP22-0-0.1	✓	✓	✓	✓	✓	✓	✓	✓									
TP22-0.3-0.4	✓	✓	✓				✓										
TP22-0.7-0.8																	✓
TP22-1.3-1.4																	✓
BH23-0-0.1	✓	✓	✓	✓	✓	✓	✓	✓									
BH23-0.3-0.4																	✓
BH23-0.8-0.95																	✓
BH23-1.8-1.95																	✓
BH23-2.8-2.95																	✓
BH23-5.5-6.0																	✓
TP24-0-0.1	✓	✓	✓	✓	✓	✓	✓	✓									
TP24-0.3-0.4	✓	✓	✓				✓										
TP24-0.6-0.7																	✓
BH25-0-0.1	✓	✓	✓	✓	✓	✓	✓	✓									
BH25-0.3-0.4	✓	✓	✓				✓										
BH25-0.4-0.5																	✓
BH25-0.8-0.9																	✓
SS26-0-0.1				✓	✓		✓										
SS27-0-0.1				✓	✓		✓										
SS28-0-0.1				✓	✓		✓										
SS29-0-0.1				✓	✓		✓										

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 metalsin soil	Asbestos ID - soils NEPM - ASB-001	Asbestos ID - materials	vTRH(C6-C10)/BTEXN in Water	svTRH (C10-C40) in Water	PAHs in Water	Metals in Waters -Acid extractable	Misc Inorg - Soil	Texture and Salinity*	CEC	On Hold
SS30-0-0.1				✓	✓		✓										
SS31-0-0.1				✓	✓		✓										
SS32-0-0.1				✓	✓		✓										
SS33-0-0.1				✓	✓		✓										
SS34-0-0.1				✓	✓		✓										
SS35-0-0.1				✓	✓		✓										
SDUP1	✓	✓	✓	✓	✓	✓	✓										
SDUP3	✓	✓	✓	✓	✓	✓	✓										
SDUP5																	✓
SDUP6																	✓
FR-SPT-1										✓	✓	✓	✓				
FR-HA-1										✓	✓	✓	✓				
FCF1-Surface									✓								
FCF2-0-0.2									✓								
FCF3-0-0.1									✓								
FCF4-0.4-0.5									✓								
FCF5-0.2-0.4									✓								
FCF6-Surface									✓								
TS	✓																
TB	✓	✓	✓				✓										
BH1-0-0.1														✓	✓	✓	
BH1-0.2-0.3																	✓
BH1-0.8-1														✓	✓		
BH1-1.8-2														✓	✓		
BH1-2.6-3														✓	✓		
BH2-0.05-0.2																	✓
BH2-0.4-0.6																	✓
BH2-0.8-1.0																	✓
BH2-1.8-1.95																	✓
BH2-5.8-6.0																	✓
BH19-0-0.1														✓	✓	✓	
BH19-0.8-0.95														✓	✓		

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 metalsin soil	Asbestos ID - soils NEPM - ASB-001	Asbestos ID - materials	vTRH(C6-C10)/BTEXN in Water	svTRH (C10-C40) in Water	PAHs in Water	Metals in Waters -Acid extractable	Misc Inorg - Soil	Texture and Salinity*	CEC	On Hold
BH19-1.3-1.5																	✓
BH19-1.8-1.95														✓	✓		
BH19-2.8-2.95														✓	✓		
BH21-0-0.1														✓	✓		
BH21-0.2-0.4																	✓
BH21-0.8-1.0														✓	✓	✓	
BH21-1.8-1.95														✓	✓		
BH21-2.3-2.4																	✓
BH21-2.8-2.95														✓	✓		

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.

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: E36310PT

Date Results Required: STANDARD

Page: 1 of 7

FROM:
JKEnvironments
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: South Lismore, NSW

Sampler: VR

Sample Preserved in Esky on Ice

Tests Required

Date Sampled	Lab Ref:	Sample Number	Depth (m)	Sample Container	PID	Sample Description	#6aNEPM	#3	Asbestos (Detection)	8Metals, OCP, OPP	#6	BTEX						
24/09/2024	1	BH1	0-0.1	G, A	0	F: Silty Sand	X											
24/09/2024	2	BH1	0.2-0.3	G, A	0	F: Silty Sand												
24/09/2024	3	BH1	0.8-1	G, A	0	Silty Clay												
24/09/2024	4	BH1	1.8-2	G	0	Silty Clay												
24/09/2024	5	BH1	2.6-3	G	0	Silty Clay												
24/09/2024	6	BH2	0.05-0.2	G, A	0	F: Silty Sandy Gravel	X											
24/09/2024	7	BH2	0.4-0.6	G, A	0	Silty Clay												
24/09/2024	8	BH2	0.8-1.0	G, A	0.1	Silty Clay												
24/09/2024	9	BH2	1.8-1.95	G	0	Silty Clay												
24/09/2024	10	BH2	5.8-6.0	G	0	Silty Clay												
24/09/2024	11	TP3	0-0.1	G, A	0	F: Silty Sand	X											
26/09/2024	12	TP3	0.5-0.6	G, A	0	F: Sand		X										
26/09/2024	13	TP3	1.2-1.4	G	0	Silty Clay												
24/09/2024	14	TP4	0-0.1	G, A	0.2	F: Silty Sand	X											
27/09/2024	15	TP4	0.4-0.5	G, A	0.4	F: Silty Clay		X										
27/09/2024	16	TP4	0.5-0.6	G, A	0.3	F: Silty Gravel		X										
27/09/2024	17	TP4	0.8-0.9	G, A	0.3	Silty Clay												
27/09/2024	18	TP5	0-0.1	G, A	0.1	F: Silty Sand	X											
24/09/2024	19	TP5	0.3-0.4	G, A	0.2	F: Silty Sand												
27/09/2024	20	TP3	0.7-0.8	G, A	0.3	Silty Clay												
27/09/2024	21	TP5	0.8-0.9	G, A	0.2	Silty Clay												
26/09/2024	22	TP6	0-0.1	G, A	0	F: Silty Sand	X											
26/09/2024	23	TP5	0.3-0.4	G, A	0	F: Silty Sand												
26/09/2024	24	TP6	1.0-1.1	G, A	0	Silty Clay												

Remarks (comments/detection limits required):

Sample Containers:
G - 250mg Glass Jar
A - Ziplock Asbestos Bag
P - Plastic Bag

Relinquished By:

Date:

Time: 1540

Received By: ST

Date: 30/9/24

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

Job No: 362946
Date Received: 30/9/24
Time Received: 1540
Received By: ST
Temp: [✓ Cool]/Ambient
Cooling: [✓ Ice]/Icepack
Security: [✓ Intact]/Broken/None

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: E36310PT

Date Results Required: STANDARD

Page: 2 of 7

FROM:
JKEnvironments
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: South Lismore, NSW

Sampler: VR

Sample Preserved in Esky on Ice

Date Sampled	Lab Ref:	Sample Number	Depth (m)	Sample Container	PID	Sample Description	Tests Required #6aNEPM	#3	Asbestos (Detection)	8Metals, OCP, OPP	#6	BTEX						
25/09/2024	25	BH7	0-0.1	G, A	0	F: Silty Clay	X											
25/09/2024	26	BH7	0.4-0.6	G	0	Silty Sand												
25/09/2024	27	BH7	0.8-0.9	G	0	Silty Clay												
25/09/2024	28	TP8	0-0.1	G, A	0	F: Silty Sandy Clay	X											
25/09/2024	29	TP8	0.4-0.5	G, A	0	F: Silty Gravelly Clay		X										
25/09/2024	30	TP8	0.6-0.7	G, A	0	F: Silty Gravelly Clay												
25/09/2024	31	BH9	0-0.1	G, A	0	Fill: Silty Sand	X											
25/09/2024	32	BH9	0.4-0.6	G	0	Silty Sand												
27/09/2024	33	TP10	0-0.1	G, A	0.3	F: Silty Sand	X											
27/09/2024	34	TP10	0.4-0.6	G, A	0.3	F: Silty Sandy Clay		X										
24/09/2024	35	BH11	0.8-0.9	G, A	0	Fill: Silty Sand		X										
24/09/2024	36	BH11	0.8-0.95	G, A	0.1	Silty Clay												
24/09/2024	37	BH11	1.3-1.5	G, A	0	Silty Clay												
24/09/2024	38	BH11	1.8-1.95	G, A	0.2	Silty Clay												
25/09/2024	39	BH11	5.7-6	G	0.1	Silty Clay												
25/09/2024	40	BH12	0-0.2	G, A	0	F: Silty Clay	X											
25/09/2024	41	BH12	0.3-0.5	G, A	0	Silty Clay												
25/09/2024	42	BH12	0.7-0.9	G, A	0	Silty Clay												
25/09/2024	43	BH13	0-0.1	G, A	0	F: Silty Clay	X											
24/09/2024	NR	BH13	0.7-0.8	G, A	0	Silty Clay												
25/09/2024	44	BH13	0.3-0.5	G, A	0	Silty Clay												
26/09/2024	45	TP14	0-0.1	G, A	0	F: Silty Sand	X											
26/09/2024	46	TP14	0.4-0.5	G, A	0	F: Silty Sand												
26/09/2024	47	TP14	0.9-1	G	0	Sandy Clay												

Remarks (comments/detection limits required):

Sample Containers:
G - 250mg Glass Jar
A - Ziplock Asbestos Bag
P - Plastic Bag

Relinquished By:	Date:	Time:	Received By:	Date:

#362946
ST
30/9/24

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: E36310PT

Date Results Required: STANDARD

Page: 3 of 7

FROM:
JKEnvironments
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: South Lismore, NSW

Sampler: VR

Sample Preserved in Esky on Ice

Tests Required

Date Sampled	Lab Ref:	Sample Number	Depth (m)	Sample Container	PID	Sample Description	#6aNEPM	#3	Asbestos (Detection)	8Metals, OCP, OPP	#6	BTEX						
24/09/2024	48	BH15	0-0.1	G, A	0.1	F: Silty Sandy Gravel	X											
24/09/2024	49	BH15	0.6-0.7	G, A	0.1	Silty Clay												
24/09/2024	50	BH15	1.2-1.35	G, A	0.2	Silty Clay												
24/09/2024	51	BH15	1.8-1.95	G, A	1	Silty Clay												
24/09/2024	52	BH15	2.8-2.95	G	0.1	Silty Clay												
26/09/2024	53	TP16	0-0.1	G, A	0	F: Silty Sand	X											
26/09/2024	54	TP16	0.4-0.5	G, A	0	F: Silty Clay		X										
26/09/2024	55	TP16	1.0-1.2	G	0	Silty Clay												
24/09/2024	56	TP17	0-0.1	G, A	0	F: Silty Sand	X											
26/09/2024	57	TP17	0.3-0.4	G, A	0	F: Silty Sandy Clay		X										
26/09/2024	58	TP17	0.9-1	G, A	0	Silty Clay												
24/09/2024	59	TP18	0-0.1	G, A	0	F: Silty Clayey Sand	X											
24/09/2024	60	TP16	0.4-0.5	G, A	0	F: Silty Clay		X										
26/09/2024	61	TP16	1.0-1.1	G, A	0	Silty Clay												
24/09/2024	62	BH15	0-0.1	G, A	0	F: Silty Sand	X											
24/09/2024	63	BH19	0.4-0.5	G, A	0	Silty Clay												
24/09/2024	64	BH19	0.8-0.95	G, A	0	Silty Clay												
24/09/2024	65	BH19	1.3-1.5	G, A	0	Silty Clay												
24/09/2024	66	BH19	1.8-1.95	G	0.1	Silty Clay												
24/09/2024	67	BH19	2.8-2.95	G	0.2	Silty Clay												
27/09/2024	68	BH20	0-0.1	G, A	0.1	F: Silty Clay	X											
27/09/2024	69	BH20	0.3-0.4	G, A	0.3	F: Silty Gravel		X										

Remarks (comments/detection limits required):

Sample Containers:
G - 250mg Glass Jar
A - Ziplock Asbestos Bag
P - Plastic Bag

Relinquished By:	Date:	Time:	Received By:	Date:

#362946
ST
30/9/24

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: E36310PT

Date Results Required: STANDARD

Page: 4 of 7

FROM:
JKEnvironments
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: South Lismore, NSW

Sampler: VR

Sample Preserved in Esky on Ice

Date Sampled	Lab Ref:	Sample Number	Depth (m)	Sample Container	PID	Sample Description	Tests Required #6aNEPM	#3	Asbestos (Detection)	8Metals, OCP, OPP	#6	BTEX						
24/09/2024	70	BH21	0-0.1	G, A	0	F: Silty Sand	X											
24/09/2024	71	BH21	0.2-0.4	G, A	0	Silty Clay												
24/09/2024	72	BH21	0.8-1.0	G	0	Silty Clay												
24/09/2024	73	BH21	1.8-1.95	G	0	Silty Clay												
24/09/2024	74	BH21	2.3-2.4	G	0	Silty Clay												
24/09/2024	75	BH21	2.8-2.95	G	0	Silty Clay												
24/09/2024	76	TP22	0-0.1	G, A	0	F: Silty Sand	X											
26/09/2024	77	TP22	0.2-0.4	G, A	0	F: Silty Sandy Clay		X										
26/09/2024	78	TP22	0.7-0.8	G, A	0	F: Silty Sandy Clay												
26/09/2024	79	TP22	1.3-1.4	G, A	0	Silty Clay												
24/09/2024	80	BH23	0-0.1	G, A	0.1	F: Silty Sand	X											
26/09/2024	81	BH23	0.3-0.4	G, A	60.1	F: Silty Sand												
24/09/2024	82	BH23	0.8-0.95	G, A	7.7	Silty Clay												
24/09/2024	83	BH23	1.8-1.95	G, A	0.3	Silty Clay												
24/09/2024	84	BH23	2.8-2.95	G	0	Silty Clay												
24/09/2024	85	BH23	5.5-6.0	G	`0	Silty Clay												
26/09/2024	86	TP24	0-0.1	G, A	0	F: Silty Sand	X											
24/09/2024	87	TP24	0.2-0.4	G, A	0	F: Silty Gavelly Clay		X										
24/09/2024	88	TP24	0.6-0.7	G, A	0	Sandy Clay												
25/09/2024	89	BH25	0-0.1	G, A	0	F: Silty Clay	X											
25/09/2024	90	BH23	0.3-0.4	G, A	0	F: Gravelly Clay		X										
25/09/2024	91	BH25	0.4-0.5	G, A	0	Sandy Clay												
25/09/2024	92	BH25	0.4-0.5	G, A	0	Silty Clay												

Remarks (comments/detection limits required):

Sample Containers:
G - 250mg Glass Jar
A - Ziplock Asbestos Bag
P - Plastic Bag

Relinquished By:

Date:

Time:

Received By:

Date:

#362946
1540
ST

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: E36310PT

Date Results Required: STANDARD

Page: 5 of 7

FROM:
JKEnvironments
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: South Lismore, NSW

Sampler: VR

Sample Preserved in Esky on Ice

Tests Required

	Date Sampled	Lab Ref:	Sample Number	Depth (m)	Sample Container	PID	Sample Description	#6aNEPM	#3	Asbestos (Detection)	8Metals, OCP, OPP	#6	BTEX						
	26/09/2024	93	SS26	0-0.1	G	0	F: Sandy Gravel				X								
	24/09/2024	94	SS27	0-0.1	G	0	F: Silty Clay				X								
	24/09/2024	95	SS28	0-0.1	G	0	F: Silty Sand				X								
	26/09/2024	96	SS29	0-0.1	G	0	F: Silty Sand				X								
	26/09/2024	97	SS30	0-0.1	G	0	F: Silty Sand				X								
	26/09/2024	98	SS31	0-0.1	G	0	F: Silty Sand				X								
	26/09/2024	99	SS32	0-0.1	G	0	F: Silty Sand				X								
	26/09/2024	100	SS33	0-0.1	G	0	F: Silty Clay				X								
	26/09/2024	101	SS34	0-0.1	G	0	F: Silty Sand				X								
	26/09/2024	102	SS35	0-0.1	G	0	F: Silty Clay				X								
	24/09/2024	103	SDUP1	-	G, A	-	F: Silty Sand					X							
	26/09/2024	S10	SDUP2	-	G	-	F: Silty Sand					X	Please send to Melbourne Envirolab						
	24/09/2024	104	SDUP2	-	G	-	F: Silty Sand					X							
	24/09/2024	S10	SDUP2	-	G, A	-	F: Silty Sand					X	Please send to Melbourne Envirolab						
	24/09/2024	105	SDUP5	-	G, A	-	Silty Sand												
	24/09/2024	106	SDUP5	-	G, A	-	F: Silty Sand												
	24/09/2024	107	FR-SPT-1	-	G, A	-	Rinsate		X										
	27/09/2024	108	FR-HA-1	-	G, A	-	Rinsate		X										
	24/09/2024	109	FCF1	Surface	P	-	Material			X									
NR	27/09/2024	~~110~~	FCF1	0.7-0.8	A	-	Material			X									
110	25/09/2024	~~111~~	FCF2	0-0.2	A	-	Material			X									
111	26/09/2024	~~112~~	FCF3	0-0.1	A	-	Material			X									
112	26/09/2024	~~113~~	FCF4	0.4-0.5	A	-	Material			X									
113	26/09/2024	~~114~~	FCF5	0.7-0.8	A	-	Material			X									
114	27/09/2024	~~115~~	FCF6	Surface	A	-	Material			X									

Remarks (comments/detection limits required):

Sample Containers:
G - 250mg Glass Jar
A - Ziplock Asbestos Bag
P - Plastic Bag

Relinquished By:

Date:

Time:

Received By:

Date:

#362946
ST
30/9/24

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: E36310PT

Date Results Required: STANDARD

Page: 6 of 7

FROM:
JKEnvironments
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: South Lismore, NSW

Sampler: VR

Sample Preserved in Esky on Ice

Tests Required

	Date Sampled	Lab Ref:	Sample Number	Depth (m)	Sample Container	PID	Sample Description	#6aNEPM	#3	Asbestos (Detection)	8Metals, OCP, OPP	#6	BTEX						
115	19/09/2024	~~116~~	TS	-	V	-	Trip Spike						X						
116	19/09/2024	~~117~~	TB	-	V	-	Trip Blank		X										
				-		-													
				-		-													
				-		-													
				-		-													
				-		-													
						-													
				-		-													
				-		-													
				-		-													
				-		-													
				-		-													

Remarks (comments/detection limits required):

Sample Containers:
G - 250mg Glass Jar
A - Ziplock Asbestos Bag
P - Plastic Bag

Relinquished By:	Date:	Time:	Received By:	Date:

#362946
ST
30/9/24

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: E36310PT

Date Results Required: STANDARD

Page: 7 of 7

FROM:
JKEnvironments
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: South Lismore, NSW

Sampler: VR

Sample Preserved in Esky on Ice

Tests Required

	Date Sampled	Lab Ref:	Sample Number	Depth (m)	Sample Container	Sample Description	Aggressivity: Sulfate, chloride, pH, EC, resistivity	ECe (texture)	CEC									
117	24/09/2024	118	BH1	0-0.1	G	F: Silty Sand	X	X	X									
118	24/09/2024	119	BH1	0.2-0.3	G	F: Silty Sand												
119	24/09/2024	120	BH1	0.8-1	G	Silty Clay	X	X										
120	24/09/2024	121	BH1	1.8-2	G	Silty Clay	X	X										
121	24/09/2024	122	BH1	2.6-3	G	Silty Clay	X	X										
122	24/09/2024	123	BH2	0.05-0.2	G	F: Silty Sandy Gravel												
123	24/09/2024	124	BH2	0.4-0.6	G	Silty Clay												
124	24/09/2024	125	BH2	0.8-1.0	G	Silty Clay												
125	24/09/2024	126	BH2	1.8-1.95	G	Silty Clay												
126	24/09/2024	127	BH2	5.8-6.0	G	Silty Clay												
127	24/09/2024	128	BH19	0-0.1	G	F: Silty Sand	X	X	X									
128	24/09/2024	129	BH19	0.8-0.95	G	Silty Clay	X	X										
129	24/09/2024	130	BH19	1.3-1.5	G	Silty Clay												
130	24/09/2024	131	BH19	1.8-1.95	G	Silty Clay	X	X										
131	24/09/2024	132	BH19	2.8-2.95	G	Silty Clay	X	X										
132	24/09/2024	133	BH21	0-0.1	G	F: Silty Sand	X	X										
133	24/09/2024	134	BH21	0.2-0.4	G	Silty Clay												
134	24/09/2024	135	BH21	0.8-1.0	G	Silty Clay	X	X	X									
135	24/09/2024	136	BH21	1.8-1.95	G	Silty Clay	X	X										
136	24/09/2024	137	BH21	2.3-2.4	G	Silty Clay												
137	24/09/2024	138	BH21	2.8-2.95	G	Silty Clay	X	X										

Remarks (comments/detection limits required):

Sample Containers:
G - 250mg Glass Jar
A - Ziplock Asbestos Bag
P - Plastic Bag

Relinquished By:	Date:	Time:	Received By:	Date:

#362946
ST
30/9/24

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

CERTIFICATE OF ANALYSIS 362946-A

Client Details

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

Sample Details

Your Reference	**E36310PT, South Lismore, NSW**
Number of Samples	Additional analysis
Date samples received	30/09/2024
Date completed instructions received	09/10/2024

Analysis Details

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

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

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

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

Report Details

Date results requested by	16/10/2024
Date of Issue	16/10/2024

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vTRH(C6-C10)/BTEXN in Soil					
Our Reference		362946-A-17	362946-A-47	362946-A-55	362946-A-91
Your Reference	UNITS	TP4	TP14	TP16	BH25
Depth		0.8-0.9	0.9-1	1.0-1.2	0.4-0.5
Date Sampled		27/09/2024	26/09/2024	26/09/2024	25/09/2024
Type of sample		Soil	Soil	Soil	Soil
Date extracted	-	10/10/2024	10/10/2024	10/10/2024	10/10/2024
Date analysed	-	14/10/2024	14/10/2024	14/10/2024	14/10/2024
TRH C_6 - C_9	mg/kg	<25	<25	<25	<25
TRH C_6 - C_{10}	mg/kg	<25	<25	<25	<25
vTRH C_6 - C_{10} less BTEX (F1)	mg/kg	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1
Naphthalene	mg/kg	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	105	97	104	103

svTRH (C10-C40) in Soil					
Our Reference		362946-A-17	362946-A-47	362946-A-55	362946-A-91
Your Reference	UNITS	TP4	TP14	TP16	BH25
Depth		0.8-0.9	0.9-1	1.0-1.2	0.4-0.5
Date Sampled		27/09/2024	26/09/2024	26/09/2024	25/09/2024
Type of sample		Soil	Soil	Soil	Soil
Date extracted	-	10/10/2024	10/10/2024	10/10/2024	10/10/2024
Date analysed	-	10/10/2024	10/10/2024	10/10/2024	10/10/2024
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	%	90	88	89	88

PAHs in Soil					
Our Reference	UNITS	362946-A-17	362946-A-47	362946-A-55	362946-A-91
Your Reference		TP4	TP14	TP16	BH25
Depth		0.8-0.9	0.9-1	1.0-1.2	0.4-0.5
Date Sampled		27/09/2024	26/09/2024	26/09/2024	25/09/2024
Type of sample		Soil	Soil	Soil	Soil
Date extracted	-	10/10/2024	10/10/2024	10/10/2024	10/10/2024
Date analysed	-	11/10/2024	11/10/2024	11/10/2024	11/10/2024
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	0.2	<0.1	<0.1	0.4
Anthracene	mg/kg	<0.1	<0.1	<0.1	0.1
Fluoranthene	mg/kg	0.2	0.1	<0.1	0.9
Pyrene	mg/kg	0.2	0.1	<0.1	0.9
Benzo(a)anthracene	mg/kg	0.2	<0.1	<0.1	0.4
Chrysene	mg/kg	0.1	<0.1	<0.1	0.4
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	0.6
Benzo(a)pyrene	mg/kg	0.1	0.05	<0.05	0.5
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	0.2
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	0.3
Total +ve PAH's	mg/kg	1.1	0.3	<0.05	4.8
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5	0.6
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5	0.7
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5	0.7
Surrogate p-Terphenyl-d14	%	103	97	99	102

Acid Extractable metals in soil					
Our Reference		362946-A-17	362946-A-47	362946-A-55	362946-A-91
Your Reference	UNITS	TP4	TP14	TP16	BH25
Depth		0.8-0.9	0.9-1	1.0-1.2	0.4-0.5
Date Sampled		27/09/2024	26/09/2024	26/09/2024	25/09/2024
Type of sample		Soil	Soil	Soil	Soil
Date prepared	-	10/10/2024	10/10/2024	10/10/2024	10/10/2024
Date analysed	-	10/10/2024	10/10/2024	10/10/2024	10/10/2024
Arsenic	mg/kg	<4	<4	<4	<4
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	30	32	24	33
Copper	mg/kg	16	14	15	16
Lead	mg/kg	10	6	9	440
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	15	30	14	29
Zinc	mg/kg	32	64	23	72

Moisture					
Our Reference		362946-A-17	362946-A-47	362946-A-55	362946-A-91
Your Reference	UNITS	TP4	TP14	TP16	BH25
Depth		0.8-0.9	0.9-1	1.0-1.2	0.4-0.5
Date Sampled		27/09/2024	26/09/2024	26/09/2024	25/09/2024
Type of sample		Soil	Soil	Soil	Soil
Date prepared	-	10/10/2024	10/10/2024	10/10/2024	10/10/2024
Date analysed	-	11/10/2024	11/10/2024	11/10/2024	11/10/2024
Moisture	%	29	17	28	16

Asbestos ID - soils NEPM - ASB-001		
Our Reference		362946-A-23
Your Reference	UNITS	TP6
Depth		0.3-0.4
Date Sampled		26/09/2024
Type of sample		Soil
Date analysed	-	11/10/2024
Sample mass tested	g	585.15
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

Misc Inorg - Soil				
Our Reference		362946-A-45	362946-A-90	362946-A-102
Your Reference	UNITS	TP14	BH25	SS35
Depth		0-0.1	0.3-0.4	0-0.1
Date Sampled		26/09/2024	25/09/2024	24/09/2024
Type of sample		Soil	Soil	Soil
Date prepared	-	10/10/2024	10/10/2024	10/10/2024
Date analysed	-	14/10/2024	14/10/2024	14/10/2024
pH 1:5 soil:water	pH Units	7.5	7.1	6.7

CEC				
Our Reference		362946-A-45	362946-A-90	362946-A-102
Your Reference	UNITS	TP14	BH25	SS35
Depth		0-0.1	0.3-0.4	0-0.1
Date Sampled		26/09/2024	25/09/2024	24/09/2024
Type of sample		Soil	Soil	Soil
Date prepared	-	14/10/2024	14/10/2024	14/10/2024
Date analysed	-	14/10/2024	14/10/2024	14/10/2024
Exchangeable Ca	meq/100g	14	22	17
Exchangeable K	meq/100g	0.3	0.9	0.2
Exchangeable Mg	meq/100g	1.6	10	4.0
Exchangeable Na	meq/100g	<0.1	0.2	<0.1
Cation Exchange Capacity	meq/100g	15	33	21

TCLP Preparation - Acid						
Our Reference		362946-A-33	362946-A-34	362946-A-54	362946-A-57	362946-A-90
Your Reference	UNITS	TP10	TP10	TP16	TP17	BH25
Depth		0-0.1	0.4-0.5	0.4-0.5	0.3-0.4	0.3-0.4
Date Sampled		27/09/2024	27/09/2024	26/09/2024	26/09/2024	25/09/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
pH of soil for fluid# determ.	pH units	8.5	8.7	8.5	6.5	8.2
pH of soil TCLP (after HCl)	pH units	1.4	1.5	1.4	1.5	1.3
Extraction fluid used		1	1	1	1	1
pH of final Leachate	pH units	4.9	4.9	4.9	5.0	4.9

PAHs in TCLP (USEPA 1311)					
Our Reference		362946-A-33	362946-A-34	362946-A-54	362946-A-57
Your Reference	UNITS	TP10	TP10	TP16	TP17
Depth		0-0.1	0.4-0.5	0.4-0.5	0.3-0.4
Date Sampled		27/09/2024	27/09/2024	26/09/2024	26/09/2024
Type of sample		Soil	Soil	Soil	Soil
Date extracted	-	14/10/2024	14/10/2024	14/10/2024	14/10/2024
Date analysed	-	15/10/2024	15/10/2024	15/10/2024	15/10/2024
Naphthalene in TCLP	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Acenaphthylene in TCLP	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Acenaphthene in TCLP	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Fluorene in TCLP	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Phenanthrene in TCLP	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Anthracene in TCLP	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Fluoranthene in TCLP	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Pyrene in TCLP	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Benzo(a)anthracene in TCLP	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Chrysene in TCLP	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Benzo(bjk)fluoranthene in TCLP	mg/L	<0.0002	<0.0002	<0.0002	<0.0002
Benzo(a)pyrene in TCLP	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Indeno(1,2,3-c,d)pyrene - TCLP	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Dibenzo(a,h)anthracene in TCLP	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Benzo(g,h,i)perylene in TCLP	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Total +ve PAH's	mg/L	NIL (+)VE	NIL (+)VE	NIL (+)VE	NIL (+)VE
Surrogate p-Terphenyl-d14	%	93	99	88	100

Metals from Leaching Fluid pH 2.9 or 5		
Our Reference		362946-A-90
Your Reference	UNITS	BH25
Depth		0.3-0.4
Date Sampled		25/09/2024
Type of sample		Soil
Date extracted	-	14/10/2024
Date analysed	-	14/10/2024
Nickel	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-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-004	Toxicity Characteristic Leaching Procedure (TCLP) using AS 4439. Please note that the mass used may be scaled down from default based on sample mass available. Samples are stored at 2-6oC before and after leachate preparation.
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-AES.

Method ID	Methodology Summary
Metals-020	Determination of various metals by ICP-AES following buffer determination as per USEPA 1311 and hence AS 4439.3. Extraction Fluid 1 refers to the pH 5.0 buffer and Extraction Fluid 2 is the pH 2.9 buffer.
Metals-020	Determination of exchangeable cations and cation exchange capacity in soils using 1M Ammonium Chloride exchange and ICP-OES analytical finish.
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-022/025	Leachates are extracted 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 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.

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-2	[NT]
Date extracted	-			10/10/2024	[NT]	[NT]	[NT]	[NT]	10/10/2024	[NT]
Date analysed	-			14/10/2024	[NT]	[NT]	[NT]	[NT]	14/10/2024	[NT]
TRH C_6 - C_9	mg/kg	25	Org-023	<25	[NT]	[NT]	[NT]	[NT]	96	[NT]
TRH C_6 - C_{10}	mg/kg	25	Org-023	<25	[NT]	[NT]	[NT]	[NT]	96	[NT]
Benzene	mg/kg	0.2	Org-023	<0.2	[NT]	[NT]	[NT]	[NT]	95	[NT]
Toluene	mg/kg	0.5	Org-023	<0.5	[NT]	[NT]	[NT]	[NT]	97	[NT]
Ethylbenzene	mg/kg	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	91	[NT]
m+p-xylene	mg/kg	2	Org-023	<2	[NT]	[NT]	[NT]	[NT]	99	[NT]
o-Xylene	mg/kg	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	99	[NT]
Naphthalene	mg/kg	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-023	101	[NT]	[NT]	[NT]	[NT]	98	[NT]

Client Reference: E36310PT, South Lismore, NSW

QUALITY CONTROL: svTRH (C10-C40) in Soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-2	[NT]
Date extracted	-			10/10/2024	[NT]	[NT]	[NT]	[NT]	10/10/2024	[NT]
Date analysed	-			10/10/2024	[NT]	[NT]	[NT]	[NT]	10/10/2024	[NT]
TRH C_{10} - C_{14}	mg/kg	50	Org-020	<50	[NT]	[NT]	[NT]	[NT]	102	[NT]
TRH C_{15} - C_{28}	mg/kg	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	97	[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]	102	[NT]
TRH >C_{16} -C_{34}	mg/kg	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	97	[NT]
TRH >C_{34} -C_{40}	mg/kg	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	86	[NT]
Surrogate o-Terphenyl	%		Org-020	89	[NT]	[NT]	[NT]	[NT]	88	[NT]

Client Reference: E36310PT, South Lismore, NSW

QUALITY CONTROL: PAHs in Soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-2	[NT]
Date extracted	-			10/10/2024	[NT]	[NT]	[NT]	[NT]	10/10/2024	[NT]
Date analysed	-			11/10/2024	[NT]	[NT]	[NT]	[NT]	11/10/2024	[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]	100	[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]	102	[NT]
Pyrene	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	100	[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]	90	[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]	90	[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	100	[NT]	[NT]	[NT]	[NT]	98	[NT]

QUALITY CONTROL: Acid Extractable metals in soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-2	[NT]
Date prepared	-			10/10/2024	[NT]	[NT]	[NT]	[NT]	10/10/2024	[NT]
Date analysed	-			10/10/2024	[NT]	[NT]	[NT]	[NT]	10/10/2024	[NT]
Arsenic	mg/kg	4	Metals-020	<4	[NT]	[NT]	[NT]	[NT]	110	[NT]
Cadmium	mg/kg	0.4	Metals-020	<0.4	[NT]	[NT]	[NT]	[NT]	97	[NT]
Chromium	mg/kg	1	Metals-020	<1	[NT]	[NT]	[NT]	[NT]	101	[NT]
Copper	mg/kg	1	Metals-020	<1	[NT]	[NT]	[NT]	[NT]	111	[NT]
Lead	mg/kg	1	Metals-020	<1	[NT]	[NT]	[NT]	[NT]	97	[NT]
Mercury	mg/kg	0.1	Metals-021	<0.1	[NT]	[NT]	[NT]	[NT]	101	[NT]
Nickel	mg/kg	1	Metals-020	<1	[NT]	[NT]	[NT]	[NT]	104	[NT]
Zinc	mg/kg	1	Metals-020	<1	[NT]	[NT]	[NT]	[NT]	104	[NT]

QUALITY CONTROL: Misc Inorg - Soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
Date prepared	-			10/10/2024	[NT]	[NT]	[NT]	[NT]	10/10/2024	[NT]
Date analysed	-			14/10/2024	[NT]	[NT]	[NT]	[NT]	14/10/2024	[NT]
pH 1:5 soil:water	pH Units		Inorg-001	[NT]	[NT]	[NT]	[NT]	[NT]	100	[NT]

Client Reference: E36310PT, South Lismore, NSW

QUALITY CONTROL: CEC					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
Date prepared	-			14/10/2024	[NT]	[NT]	[NT]	[NT]	14/10/2024	[NT]
Date analysed	-			14/10/2024	[NT]	[NT]	[NT]	[NT]	14/10/2024	[NT]
Exchangeable Ca	meq/100g	0.1	Metals-020	<0.1	[NT]	[NT]	[NT]	[NT]	98	[NT]
Exchangeable K	meq/100g	0.1	Metals-020	<0.1	[NT]	[NT]	[NT]	[NT]	101	[NT]
Exchangeable Mg	meq/100g	0.1	Metals-020	<0.1	[NT]	[NT]	[NT]	[NT]	94	[NT]
Exchangeable Na	meq/100g	0.1	Metals-020	<0.1	[NT]	[NT]	[NT]	[NT]	97	[NT]

QUALITY CONTROL: PAHs in TCLP (USEPA 1311)						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W2	[NT]
Date extracted	-			14/10/2024	[NT]	[NT]	[NT]	[NT]	14/10/2024	[NT]
Date analysed	-			15/10/2024	[NT]	[NT]	[NT]	[NT]	15/10/2024	[NT]
Naphthalene in TCLP	mg/L	0.0001	Org-022/025	<0.0001	[NT]	[NT]	[NT]	[NT]	91	[NT]
Acenaphthylene in TCLP	mg/L	0.0001	Org-022/025	<0.0001	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Acenaphthene in TCLP	mg/L	0.0001	Org-022/025	<0.0001	[NT]	[NT]	[NT]	[NT]	93	[NT]
Fluorene in TCLP	mg/L	0.0001	Org-022/025	<0.0001	[NT]	[NT]	[NT]	[NT]	92	[NT]
Phenanthrene in TCLP	mg/L	0.0001	Org-022/025	<0.0001	[NT]	[NT]	[NT]	[NT]	88	[NT]
Anthracene in TCLP	mg/L	0.0001	Org-022/025	<0.0001	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Fluoranthene in TCLP	mg/L	0.0001	Org-022/025	<0.0001	[NT]	[NT]	[NT]	[NT]	89	[NT]
Pyrene in TCLP	mg/L	0.0001	Org-022/025	<0.0001	[NT]	[NT]	[NT]	[NT]	89	[NT]
Benzo(a)anthracene in TCLP	mg/L	0.0001	Org-022/025	<0.0001	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Chrysene in TCLP	mg/L	0.0001	Org-022/025	<0.0001	[NT]	[NT]	[NT]	[NT]	66	[NT]
Benzo(bjk)fluoranthene in TCLP	mg/L	0.0002	Org-022/025	<0.0002	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Benzo(a)pyrene in TCLP	mg/L	0.0001	Org-022/025	<0.0001	[NT]	[NT]	[NT]	[NT]	87	[NT]
Indeno(1,2,3-c,d)pyrene - TCLP	mg/L	0.0001	Org-022/025	<0.0001	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Dibenzo(a,h)anthracene in TCLP	mg/L	0.0001	Org-022/025	<0.0001	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Benzo(g,h,i)perylene in TCLP	mg/L	0.0001	Org-022/025	<0.0001	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-022/025	94	[NT]	[NT]	[NT]	[NT]	105	[NT]

QUALITY CONTROL: Metals from Leaching Fluid pH 2.9 or 5					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date extracted	-			14/10/2024	[NT]	[NT]	[NT]	[NT]	14/10/2024	[NT]
Date analysed	-			14/10/2024	[NT]	[NT]	[NT]	[NT]	14/10/2024	[NT]
Nickel	mg/L	0.02	Metals-020	<0.02	[NT]	[NT]	[NT]	[NT]	93	[NT]

Result Definitions

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

Quality Control Definitions

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

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

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

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

Laboratory Acceptance Criteria

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

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

Spikes for Physical and Aggregate Tests are not applicable.

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

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

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

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

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

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

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

Measurement Uncertainty estimates are available for most tests upon request.

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

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

Report Comments

Samples received in good order: Holding time exceedance

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.

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ph 02 9910 6200 fax 02 9910 6201
customerservice@envirolab.com.au
www.envirolab.com.au

SAMPLE RECEIPT ADVICE

Client Details

Client	JK Environments
Attention	Katrina Taylor

Sample Login Details

Your reference	E36310PT, South Lismore, NSW
Envirolab Reference	362946-A
Date Sample Received	30/09/2024
Date Instructions Received	09/10/2024
Date Results Expected to be Reported	16/10/2024

Sample Condition

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

Comments

Holding time exceedance pH

Please contact the laboratory within 24 hours if you wish to cancel the aforementioned testing. Otherwise testing will proceed as per the COC and hence invoiced accordingly.

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	Acid Extractable metalsin soil	Asbestos ID - soils NEPM - ASB-001	Misc Inorg - Soil	CEC	TCLP Preparation - Acid	PAHs in TCLP (USEPA 1311)	Nickel	On Hold
BH1-0-0.1											✓
BH1-0.2-0.3											✓
BH1-0.8-1											✓
BH1-1.8-2											✓
BH1-2.6-3											✓
BH2-0.05-0.2											✓
BH2-0.4-0.6											✓
BH2-0.8-1.0											✓
BH2-1.8-1.95											✓
BH2-5.8-6.0											✓
TP3-0-0.1											✓
TP3-0.5-0.6											✓
TP3-1.2-1.4											✓
TP4-0-0.1											✓
TP4-0.4-0.5											✓
TP4-0.5-0.6											✓
TP4-0.8-0.9	✓	✓	✓	✓							
TP5-0-0.1											✓
TP5-0.3-0.4											✓
TP5-0.7-0.8											✓
TP5-0.8-0.9											✓
TP6-0-0.1											✓
TP6-0.3-0.4					✓						
TP6-1.0-1.1											✓
BH7-0-0.1											✓
BH7-0.4-0.6											✓
BH7-0.8-0.9											✓
TP8-0-0.1											✓
TP8-0.4-0.5											✓
TP8-0.6-0.7											✓
BH9-0-0.1											✓
BH9-0.4-0.5											✓

Sample ID	vTRH(C6-C10)/BTEXN in Soil	svTRH (C10-C40) in Soil	PAHs in Soil	Acid Extractable metalsin soil	Asbestos ID - soils NEPM - ASB-001	Misc Inorg - Soil	CEC	TCLP Preparation - Acid	PAHs in TCLP (USEPA 1311)	Nickel	On Hold
TP10-0-0.1								✓	✓		
TP10-0.4-0.5								✓	✓		
BH11-0.0-0.1											✓
BH11-0.8-0.95											✓
BH11-1.3-1.5											✓
BH11-1.8-1.95											✓
BH11-5.7-6											✓
BH12-0-0.2											✓
BH12-0.3-0.5											✓
BH12-0.7-0.9											✓
BH13-0-0.1											✓
BH13-0.3-0.5											✓
TP14-0-0.1						✓	✓				
TP14-0.2-0.3											✓
TP14-0.9-1	✓	✓	✓	✓							
BH15-0-0.1											✓
BH15-0.6-0.7											✓
BH15-1.2-1.35											✓
BH15-1.8-1.95											✓
BH15-2.8-2.95											✓
TP16-0-0.1											✓
TP16-0.4-0.5								✓	✓		
TP16-1.0-1.2	✓	✓	✓	✓							
TP17-0-0.1											✓
TP17-0.3-0.4								✓	✓		
TP17-0.9-1											✓
TP18-0-0.1											✓
TP18-0.4-0.5											✓
TP18-1.0-1.1											✓
BH19-0-0.1											✓
BH19-0.3-0.5											✓
BH19-0.8-0.95											✓

Sample ID	vTRH(C6-C10)/BTEXN in Soil	svTRH (C10-C40) in Soil	PAHs in Soil	Acid Extractable metalsin soil	Asbestos ID - soils NEPM - ASB-001	Misc Inorg - Soil	CEC	TCLP Preparation - Acid	PAHs in TCLP (USEPA 1311)	Nickel	On Hold
BH19-1.3-1.5											✓
BH19-1.8-1.95											✓
BH19-2.8-2.95											✓
BH20-0-0.1											✓
BH20-0.3-0.4											✓
BH21-0-0.1											✓
BH21-0.2-0.4											✓
BH21-0.8-1.0											✓
BH21-1.8-1.95											✓
BH21-2.3-2.4											✓
BH21-2.8-2.95											✓
TP22-0-0.1											✓
TP22-0.3-0.4											✓
TP22-0.7-0.8											✓
TP22-1.3-1.4											✓
BH23-0-0.1											✓
BH23-0.3-0.4											✓
BH23-0.8-0.95											✓
BH23-1.8-1.95											✓
BH23-2.8-2.95											✓
BH23-5.5-6.0											✓
TP24-0-0.1											✓
TP24-0.3-0.4											✓
TP24-0.6-0.7											✓
BH25-0-0.1											✓
BH25-0.3-0.4						✓	✓	✓		✓	
BH25-0.4-0.5	✓	✓	✓	✓							
BH25-0.8-0.9											✓
SS26-0-0.1											✓
SS27-0-0.1											✓
SS28-0-0.1											✓
SS29-0-0.1											✓

Sample ID	vTRH(C6-C10)/BTEXN in Soil	svTRH (C10-C40) in Soil	PAHs in Soil	Acid Extractable metalsin soil	Asbestos ID - soils NEPM - ASB-001	Misc Inorg - Soil	CEC	TCLP Preparation - Acid	PAHs in TCLP (USEPA 1311)	Nickel	On Hold
SS30-0-0.1											✓
SS31-0-0.1											✓
SS32-0-0.1											✓
SS33-0-0.1											✓
SS34-0-0.1											✓
SS35-0-0.1						✓	✓				
SDUP1											✓
SDUP3											✓
SDUP5											✓
SDUP6											✓
FR-SPT-1											✓
FR-HA-1											✓
FCF1-Surface											✓
FCF2-0-0.2											✓
FCF3-0-0.1											✓
FCF4-0.4-0.5											✓
FCF5-0.2-0.4											✓
FCF6-Surface											✓
TS											✓
TB											✓
BH1-0-0.1											✓
BH1-0.2-0.3											✓
BH1-0.8-1											✓
BH1-1.8-2											✓
BH1-2.6-3											✓
BH2-0.05-0.2											✓
BH2-0.4-0.6											✓
BH2-0.8-1.0											✓
BH2-1.8-1.95											✓
BH2-5.8-6.0											✓
BH19-0-0.1											✓
BH19-0.8-0.95											✓

Sample ID	vTRH(C6-C10)/BTEXN in Soil	svTRH (C10-C40) in Soil	PAHs in Soil	Acid Extractable metalsin soil	Asbestos ID - soils NEPM - ASB-001	Misc Inorg - Soil	CEC	TCLP Preparation - Acid	PAHs in TCLP (USEPA 1311)	Nickel	On Hold
BH19-1.3-1.5											✓
BH19-1.8-1.95											✓
BH19-2.8-2.95											✓
BH21-0-0.1											✓
BH21-0.2-0.4											✓
BH21-0.8-1.0											✓
BH21-1.8-1.95											✓
BH21-2.3-2.4											✓
BH21-2.8-2.95											✓
BH23 - [TRIPLICATE]-0-0.1											✓

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.

Anna Bui

From: Katrina Taylor <KTaylor@jkenvironments.com.au>
Sent: Wednesday, 9 October 2024 12:59 PM
To: Envirolab Sydney Sample Receipt
Subject: FW: Results for Registration 362946 E36310PT, South Lismore, NSW
Attachments: 362946-[R00].pdf; 362946-COC.pdf; JK Environment Soil for Envirolab 362946.xlsx; 362946.Excel.xlsx

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 analysis on standard TA:

17 - TP4 (0.8-0.9) #3
23 - TP6 (0.3-0.4) asbestos 500ml (NEPM)
47 - TP14 (0.9-1.0) #3
55 - TP16 (1.0-1.2) #3
91 - BH25 (0.4-0.5) #3
45 - TP14 (0-0.1) pH & CEC
90 - BH25 (0.3-0.4) pH & CEC, TCLP Nickel
102 - SS35 (0-0.1) pH & CEC
33 - TP10 (0-0.1) TCLP PAHs
34 - TP10 (0.4-0.5) TCLP PAHs
54 - TP16 (0.4-0.5) TCLP PAHs
57 - TP17 (0.3-0.4) TCLP PAHs

ELS REF: 362946-A
TAT: STANDARD
DUE: 16/10/24
AB

Thank you.

Regards
Katrina Taylor
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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PO Box 976
NORTH RYDE BC NSW 1670
115 Wicks Road
MACQUARIE PARK NSW 2113

JKEnvironments

From: Stuart Chen <SChen2@envirolab.com.au>
Sent: Tuesday, 8 October 2024 6:06 PM
To: Katrina Taylor <KTaylor@jkenvironments.com.au>
Subject: Results for Registration 362946 E36310PT, South Lismore, NSW

Envirolab Services Pty Ltd
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12 Ashley St Chatswood NSW 2067
ph 02 9910 6200   fax 02 9910 6201
customerservice@envirolab.com.au
www.envirolab.com.au

CERTIFICATE OF ANALYSIS 362946-B

Client Details

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

Sample Details

Your Reference	**E36310PT, South Lismore, NSW**
Number of Samples	Additional analysis 2 samples
Date samples received	30/09/2024
Date completed instructions received	21/10/2024

Analysis Details

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

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

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

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

Report Details

Date results requested by	28/10/2024
Date of Issue	28/10/2024

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

Results Approved By
Giovanni Agosti, Group Technical Manager
Jack Wallis, Senior Chemist
Nancy Zhang, Laboratory Manager, Sydney
Tabitha Roberts, Senior Chemist
Timothy Toll, Senior Chemist

Authorised By
Nancy Zhang, Laboratory Manager

vTRH(C6-C10)/BTEXN in Soil		
Our Reference		362946-B-92
Your Reference	UNITS	BH25
Depth		0.8-0.9
Date Sampled		25/09/2024
Type of sample		Soil
Date extracted	-	22/10/2024
Date analysed	-	22/10/2024
TRH C_6 - C_9	mg/kg	<25
TRH C_6 - C_{10}	mg/kg	<25
vTRH C_6 - C_{10} less BTEX (F1)	mg/kg	<25
Benzene	mg/kg	<0.2
Toluene	mg/kg	<0.5
Ethylbenzene	mg/kg	<1
m+p-xylene	mg/kg	<2
o-Xylene	mg/kg	<1
Naphthalene	mg/kg	<1
Total +ve Xylenes	mg/kg	<1
Surrogate aaa-Trifluorotoluene	%	99

svTRH (C10-C40) in Soil		
Our Reference		362946-B-92
Your Reference	UNITS	BH25
Depth		0.8-0.9
Date Sampled		25/09/2024
Type of sample		Soil
Date extracted	-	22/10/2024
Date analysed	-	23/10/2024
TRH C_{10} - C_{14}	mg/kg	<50
TRH C_{15} - C_{28}	mg/kg	<100
TRH C_{29} - C_{36}	mg/kg	<100
Total +ve TRH (C10-C36)	mg/kg	<50
TRH >C_{10} -C_{16}	mg/kg	<50
TRH >C_{10} -C_{16} less Naphthalene (F2)	mg/kg	<50
TRH >C_{16} -C_{34}	mg/kg	<100
TRH >C_{34} -C_{40}	mg/kg	<100
Total +ve TRH (>C10-C40)	mg/kg	<50
Surrogate o-Terphenyl	%	75

PAHs in Soil		
Our Reference		362946-B-92
Your Reference	UNITS	BH25
Depth		0.8-0.9
Date Sampled		25/09/2024
Type of sample		Soil
Date extracted	-	22/10/2024
Date analysed	-	23/10/2024
Naphthalene	mg/kg	<0.1
Acenaphthylene	mg/kg	<0.1
Acenaphthene	mg/kg	<0.1
Fluorene	mg/kg	<0.1
Phenanthrene	mg/kg	<0.1
Anthracene	mg/kg	<0.1
Fluoranthene	mg/kg	<0.1
Pyrene	mg/kg	<0.1
Benzo(a)anthracene	mg/kg	<0.1
Chrysene	mg/kg	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2
Benzo(a)pyrene	mg/kg	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1
Total +ve PAH's	mg/kg	<0.05
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5
Surrogate p-Terphenyl-d14	%	105

Acid Extractable metals in soil		
Our Reference		362946-B-92
Your Reference	UNITS	BH25
Depth		0.8-0.9
Date Sampled		25/09/2024
Type of sample		Soil
Date prepared	-	22/10/2024
Date analysed	-	22/10/2024
Arsenic	mg/kg	<4
Cadmium	mg/kg	<0.4
Chromium	mg/kg	26
Copper	mg/kg	17
Lead	mg/kg	10
Mercury	mg/kg	<0.1
Nickel	mg/kg	11
Zinc	mg/kg	20

Moisture		
Our Reference		362946-B-92
Your Reference	UNITS	BH25
Depth		0.8-0.9
Date Sampled		25/09/2024
Type of sample		Soil
Date prepared	-	22/10/2024
Date analysed	-	23/10/2024
Moisture	%	31

Metals from Leaching Fluid pH 2.9 or 5		
Our Reference		362946-B-90
Your Reference	UNITS	BH25
Depth		0.3-0.4
Date Sampled		25/09/2024
Type of sample		Soil
Date extracted	-	14/10/2024
Date analysed	-	14/10/2024
Lead	mg/L	<0.03

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-AES.
Metals-020	Determination of various metals by ICP-AES following buffer determination as per USEPA 1311 and hence AS 4439.3. Extraction Fluid 1 refers to the pH 5.0 buffer and Extraction Fluid 2 is the pH 2.9 buffer.
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-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.

Method ID	Methodology Summary
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.

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
Date extracted	-			22/10/2024	[NT]	[NT]	[NT]	[NT]	22/10/2024	[NT]
Date analysed	-			22/10/2024	[NT]	[NT]	[NT]	[NT]	22/10/2024	[NT]
TRH C_6 - C_9	mg/kg	25	Org-023	<25	[NT]	[NT]	[NT]	[NT]	97	[NT]
TRH C_6 - C_{10}	mg/kg	25	Org-023	<25	[NT]	[NT]	[NT]	[NT]	97	[NT]
Benzene	mg/kg	0.2	Org-023	<0.2	[NT]	[NT]	[NT]	[NT]	93	[NT]
Toluene	mg/kg	0.5	Org-023	<0.5	[NT]	[NT]	[NT]	[NT]	94	[NT]
Ethylbenzene	mg/kg	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	98	[NT]
m+p-xylene	mg/kg	2	Org-023	<2	[NT]	[NT]	[NT]	[NT]	101	[NT]
o-Xylene	mg/kg	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	102	[NT]
Naphthalene	mg/kg	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-023	101	[NT]	[NT]	[NT]	[NT]	95	[NT]

Client Reference: E36310PT, South Lismore, NSW

QUALITY CONTROL: svTRH (C10-C40) in Soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
Date extracted	-			22/10/2024	[NT]	[NT]	[NT]	[NT]	22/10/2024	[NT]
Date analysed	-			23/10/2024	[NT]	[NT]	[NT]	[NT]	23/10/2024	[NT]
TRH C_{10} - C_{14}	mg/kg	50	Org-020	<50	[NT]	[NT]	[NT]	[NT]	80	[NT]
TRH C_{15} - C_{28}	mg/kg	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	84	[NT]
TRH C_{29} - C_{36}	mg/kg	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	100	[NT]
TRH >C_{10} -C_{16}	mg/kg	50	Org-020	<50	[NT]	[NT]	[NT]	[NT]	80	[NT]
TRH >C_{16} -C_{34}	mg/kg	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	84	[NT]
TRH >C_{34} -C_{40}	mg/kg	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	100	[NT]
Surrogate o-Terphenyl	%		Org-020	72	[NT]	[NT]	[NT]	[NT]	90	[NT]

Client Reference: E36310PT, South Lismore, NSW

QUALITY CONTROL: PAHs in Soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
Date extracted	-			22/10/2024	[NT]	[NT]	[NT]	[NT]	22/10/2024	[NT]
Date analysed	-			23/10/2024	[NT]	[NT]	[NT]	[NT]	23/10/2024	[NT]
Naphthalene	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	88	[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]	88	[NT]
Fluorene	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	78	[NT]
Phenanthrene	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	94	[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]	86	[NT]
Pyrene	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	86	[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]	88	[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]	86	[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	108	[NT]	[NT]	[NT]	[NT]	106	[NT]

Client Reference: E36310PT, South Lismore, NSW

QUALITY CONTROL: Acid Extractable metals in soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
Date prepared	-			22/10/2024	[NT]	[NT]	[NT]	[NT]	22/10/2024	[NT]
Date analysed	-			22/10/2024	[NT]	[NT]	[NT]	[NT]	22/10/2024	[NT]
Arsenic	mg/kg	4	Metals-020	<4	[NT]	[NT]	[NT]	[NT]	111	[NT]
Cadmium	mg/kg	0.4	Metals-020	<0.4	[NT]	[NT]	[NT]	[NT]	103	[NT]
Chromium	mg/kg	1	Metals-020	<1	[NT]	[NT]	[NT]	[NT]	107	[NT]
Copper	mg/kg	1	Metals-020	<1	[NT]	[NT]	[NT]	[NT]	108	[NT]
Lead	mg/kg	1	Metals-020	<1	[NT]	[NT]	[NT]	[NT]	106	[NT]
Mercury	mg/kg	0.1	Metals-021	<0.1	[NT]	[NT]	[NT]	[NT]	104	[NT]
Nickel	mg/kg	1	Metals-020	<1	[NT]	[NT]	[NT]	[NT]	104	[NT]
Zinc	mg/kg	1	Metals-020	<1	[NT]	[NT]	[NT]	[NT]	99	[NT]

QUALITY CONTROL: Metals from Leaching Fluid pH 2.9 or 5					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date extracted	-			14/10/2024	[NT]	[NT]	[NT]	[NT]	14/10/2024	[NT]
Date analysed	-			14/10/2024	[NT]	[NT]	[NT]	[NT]	14/10/2024	[NT]
Lead	mg/L	0.03	Metals-020	<0.03	[NT]	[NT]	[NT]	[NT]	89	[NT]

Result Definitions

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

Quality Control Definitions

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

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

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

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

Laboratory Acceptance Criteria

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

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

Spikes for Physical and Aggregate Tests are not applicable.

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

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

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

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

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

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

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

Measurement Uncertainty estimates are available for most tests upon request.

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

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

Report Comments

Samples received in good order: Holding time exceedance

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 RECEIPT ADVICE

Client Details	
Client	JK Environments
Attention	Katrina Taylor

Sample Login Details	
Your reference	E36310PT, South Lismore, NSW
Envirolab Reference	362946-B
Date Sample Received	30/09/2024
Date Instructions Received	21/10/2024
Date Results Expected to be Reported	28/10/2024

Sample Condition	
Samples received in appropriate condition for analysis	Holding time exceedance
No. of Samples Provided	Additional analysis 2 samples
Turnaround Time Requested	Standard
Temperature on Receipt (°C)	3
Cooling Method	Ice
Sampling Date Provided	YES

Comments

Holding time exceedance TRH/BTEX, PAH

Please contact the laboratory within 24 hours if you wish to cancel the aformentioned testing. Otherwise testing will proceed as per the COC and hence invoiced accordingly.

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	Acid Extractable metalsin soil	Lead	On Hold
BH1-0-0.1						✓
BH1-0.2-0.3						✓
BH1-0.8-1						✓
BH1-1.8-2						✓
BH1-2.6-3						✓
BH2-0.05-0.2						✓
BH2-0.4-0.6						✓
BH2-0.8-1.0						✓
BH2-1.8-1.95						✓
BH2-5.8-6.0						✓
TP3-0-0.1						✓
TP3-0.5-0.6						✓
TP3-1.2-1.4						✓
TP4-0-0.1						✓
TP4-0.4-0.5						✓
TP4-0.5-0.6						✓
TP4-0.8-0.9						✓
TP5-0-0.1						✓
TP5-0.3-0.4						✓
TP5-0.7-0.8						✓
TP5-0.8-0.9						✓
TP6-0-0.1						✓
TP6-0.3-0.4						✓
TP6-1.0-1.1						✓
BH7-0-0.1						✓
BH7-0.4-0.6						✓
BH7-0.8-0.9						✓
TP8-0-0.1						✓
TP8-0.4-0.5						✓
TP8-0.6-0.7						✓
BH9-0-0.1						✓
BH9-0.4-0.5						✓

Sample ID	vTRH(C6-C10)/BTEXN in Soil	svTRH (C10-C40) in Soil	PAHs in Soil	Acid Extractable metalsin soil	Lead	On Hold
TP10-0-0.1						✓
TP10-0.4-0.5						✓
BH11-0.0-0.1						✓
BH11-0.8-0.95						✓
BH11-1.3-1.5						✓
BH11-1.8-1.95						✓
BH11-5.7-6						✓
BH12-0-0.2						✓
BH12-0.3-0.5						✓
BH12-0.7-0.9						✓
BH13-0-0.1						✓
BH13-0.3-0.5						✓
TP14-0-0.1						✓
TP14-0.2-0.3						✓
TP14-0.9-1						✓
BH15-0-0.1						✓
BH15-0.6-0.7						✓
BH15-1.2-1.35						✓
BH15-1.8-1.95						✓
BH15-2.8-2.95						✓
TP16-0-0.1						✓
TP16-0.4-0.5						✓
TP16-1.0-1.2						✓
TP17-0-0.1						✓
TP17-0.3-0.4						✓
TP17-0.9-1						✓
TP18-0-0.1						✓
TP18-0.4-0.5						✓
TP18-1.0-1.1						✓
BH19-0-0.1						✓
BH19-0.3-0.5						✓
BH19-0.8-0.95						✓

Sample ID	vTRH(C6-C10)/BTEXN in Soil	svTRH (C10-C40) in Soil	PAHs in Soil	Acid Extractable metalsin soil	Lead	On Hold
BH19-1.3-1.5						✓
BH19-1.8-1.95						✓
BH19-2.8-2.95						✓
BH20-0-0.1						✓
BH20-0.3-0.4						✓
BH21-0-0.1						✓
BH21-0.2-0.4						✓
BH21-0.8-1.0						✓
BH21-1.8-1.95						✓
BH21-2.3-2.4						✓
BH21-2.8-2.95						✓
TP22-0-0.1						✓
TP22-0.3-0.4						✓
TP22-0.7-0.8						✓
TP22-1.3-1.4						✓
BH23-0-0.1						✓
BH23-0.3-0.4						✓
BH23-0.8-0.95						✓
BH23-1.8-1.95						✓
BH23-2.8-2.95						✓
BH23-5.5-6.0						✓
TP24-0-0.1						✓
TP24-0.3-0.4						✓
TP24-0.6-0.7						✓
BH25-0-0.1						✓
BH25-0.3-0.4					✓	
BH25-0.4-0.5						✓
BH25-0.8-0.9	✓	✓	✓	✓		
SS26-0-0.1						✓
SS27-0-0.1						✓
SS28-0-0.1						✓
SS29-0-0.1						✓

Sample ID	vTRH(C6-C10)/BTEXN in Soil	svTRH (C10-C40) in Soil	PAHs in Soil	Acid Extractable metalsin soil	Lead	On Hold
SS30-0-0.1						✓
SS31-0-0.1						✓
SS32-0-0.1						✓
SS33-0-0.1						✓
SS34-0-0.1						✓
SS35-0-0.1						✓
SDUP1						✓
SDUP3						✓
SDUP5						✓
SDUP6						✓
FR-SPT-1						✓
FR-HA-1						✓
FCF1-Surface						✓
FCF2-0-0.2						✓
FCF3-0-0.1						✓
FCF4-0.4-0.5						✓
FCF5-0.2-0.4						✓
FCF6-Surface						✓
TS						✓
TB						✓
BH1-0-0.1						✓
BH1-0.2-0.3						✓
BH1-0.8-1						✓
BH1-1.8-2						✓
BH1-2.6-3						✓
BH2-0.05-0.2						✓
BH2-0.4-0.6						✓
BH2-0.8-1.0						✓
BH2-1.8-1.95						✓
BH2-5.8-6.0						✓
BH19-0-0.1						✓
BH19-0.8-0.95						✓

Sample ID	vTRH(C6-C10)/BTEXN in Soil	svTRH (C10-C40) in Soil	PAHs in Soil	Acid Extractable metalsin soil	Lead	On Hold
BH19-1.3-1.5						✓
BH19-1.8-1.95						✓
BH19-2.8-2.95						✓
BH21-0-0.1						✓
BH21-0.2-0.4						✓
BH21-0.8-1.0						✓
BH21-1.8-1.95						✓
BH21-2.3-2.4						✓
BH21-2.8-2.95						✓
BH23 - [TRIPLICATE]-0-0.1						✓

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.

Anna Bui

From: Anna Bui
Sent: Monday, 21 October 2024 1:24 PM
To: Simon Song; Katrina Taylor; Envirolab Sydney Sample Receipt
Subject: RE: Results for Registration 362946-A E36310PT, South Lismore, NSW

Hi Katrina,

We've already done CEC on BH25 (0.3-0.4m) in 362946-A, so I'll disregard that.

Thanks,

ELS REF: 362946-B
TAT: STANDARD
DUE: 28/10/24
AB

Kind Regards,

Anna Bui | Customer Service | 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: Simon Song <SSong@envirolab.com.au>
Sent: Monday, 21 October 2024 11:09 AM
To: Katrina Taylor <KTaylor@jkenvironments.com.au>; Envirolab Sydney Sample Receipt <Samplereceipt@envirolab.com.au>
Subject: RE: Results for Registration 362946-A E36310PT, South Lismore, NSW

No problem

Kind Regards,

Simon Song | Senior Customer Service | Envirolab Services

Great Science. Great Service.

12 Ashley Street Chatswood NSW 2067
T 612 9910 6200
E SSong@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, 21 October 2024 11:04 AM
To: Envirolab Sydney Sample Receipt <Samplereceipt@envirolab.com.au>
Subject: FW: Results for Registration 362946-A E36310PT, South Lismore, NSW

From: Katrina Taylor <KTaylor@jkenvironments.com.au>
Sent: Monday, 21 October 2024 11:04 AM
To: Envirolab Sydney Sample Receipt
Subject: FW: Results for Registration 362946-A E36310PT, South Lismore, NSW
Attachments: 362946-A-[R00].pdf; 362946-A-COC.pdf; JK Environment Soil for Envirolab 362946-A.xlsx; 362946-A.Excel.xlsx

Morning,

Please schedule the following on standard TA:

90 - BH25 (0.3-0.4m) – CEC & TCLP Lead
92 - BH25 (0.8-0.9m) – #3

ELS REF: 362946-B
TAT: STANDARD
DUE: 28/10/24
AB.

Thank you.

Regards
Katrina Taylor
Associate | Environmental Scientist
NSW Licensed Asbestos Assessor

T: +61 2 9888 5000
D: +61 418 481 628
E: KTaylor@jkenvironments.com.au
www.jkenvironments.com.au

PO Box 976
NORTH RYDE BC NSW 1670
115 Wicks Road
MACQUARIE PARK NSW 2113

JKEnvironments

From: Nancy Zhang <NZhang@envirolab.com.au>
Sent: Wednesday, 16 October 2024 1:45 PM
To: Katrina Taylor <KTaylor@jkenvironments.com.au>
Subject: Results for Registration 362946-A E36310PT, South Lismore, NSW

Please refer to attached for:
a copy of the Certificate of Analysis
a copy of the COC/paperwork received from you
an Excel or .csv file containing the results

Please note that a hard copy will not be posted.

Enquiries should be made directly to:
customerservice@envirolab.com.au

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

CERTIFICATE OF ANALYSIS 362946-C

Client Details

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

Sample Details

Your Reference	**E36310PT, South Lismore, NSW**
Number of Samples	Additional analysis 1 sample
Date samples received	30/09/2024
Date completed instructions received	04/11/2024

Analysis Details

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

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

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

Report Details

Date results requested by	06/11/2024
Date of Issue	06/11/2024

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

Results Approved By
Giovanni Agosti, Group Technical Manager

Authorised By
Nancy Zhang, Laboratory Manager

Metals from Leaching Fluid pH 2.9 or 5		
Our Reference		362946-C-91
Your Reference	UNITS	BH25
Depth		0.4-0.5
Date Sampled		25/09/2024
Type of sample		Soil
Date extracted	-	05/11/2024
Date analysed	-	05/11/2024
pH of soil for fluid# determ.	pH units	8.1
pH of soil TCLP (after HCl)	pH units	1.7
Extraction fluid used		1
pH of final Leachate	pH units	4.9
Lead	mg/L	0.1

Method ID	Methodology Summary
Inorg-004	Toxicity Characteristic Leaching Procedure (TCLP) using AS 4439. Please note that the mass used may be scaled down from default based on sample mass available. Samples are stored at 2-6oC before and after leachate preparation.
Metals-020	Determination of various metals by ICP-AES following buffer determination as per USEPA 1311 and hence AS 4439.3. Extraction Fluid 1 refers to the pH 5.0 buffer and Extraction Fluid 2 is the pH 2.9 buffer.

QUALITY CONTROL: Metals from Leaching Fluid pH 2.9 or 5					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date extracted	-			05/11/2024	[NT]	[NT]	[NT]	[NT]	05/11/2024	[NT]
Date analysed	-			05/11/2024	[NT]	[NT]	[NT]	[NT]	05/11/2024	[NT]
Lead	mg/L	0.03	Metals-020	<0.03	[NT]	[NT]	[NT]	[NT]	102	[NT]

Result Definitions

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

Quality Control Definitions

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

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

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

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

Laboratory Acceptance Criteria

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

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

Spikes for Physical and Aggregate Tests are not applicable.

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

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

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

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

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

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

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

Measurement Uncertainty estimates are available for most tests upon request.

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

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

Envirolab Services Pty Ltd
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12 Ashley St Chatswood NSW 2067
ph 02 9910 6200   fax 02 9910 6201
customerservice@envirolab.com.au
www.envirolab.com.au

SAMPLE RECEIPT ADVICE

Client Details	
Client	JK Environments
Attention	Katrina Taylor

Sample Login Details	
Your reference	E36310PT, South Lismore, NSW
Envirolab Reference	362946-C
Date Sample Received	30/09/2024
Date Instructions Received	04/11/2024
Date Results Expected to be Reported	06/11/2024

Sample Condition	
Samples received in appropriate condition for analysis	Yes
No. of Samples Provided	Additional analysis 1 sample
Turnaround Time Requested	2 days
Temperature on Receipt (°C)	3
Cooling Method	Ice
Sampling Date Provided	YES

Comments
Nil

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	pH of soil for fluid#determ.	pH of soil TCLP (after HCl)	Extraction fluid used	pH of final Leachate	Lead	On Hold
BH1-0-0.1						✓
BH1-0.2-0.3						✓
BH1-0.8-1						✓
BH1-1.8-2						✓
BH1-2.6-3						✓
BH2-0.05-0.2						✓
BH2-0.4-0.6						✓
BH2-0.8-1.0						✓
BH2-1.8-1.95						✓
BH2-5.8-6.0						✓
TP3-0-0.1						✓
TP3-0.5-0.6						✓
TP3-1.2-1.4						✓
TP4-0-0.1						✓
TP4-0.4-0.5						✓
TP4-0.5-0.6						✓
TP4-0.8-0.9						✓
TP5-0-0.1						✓
TP5-0.3-0.4						✓
TP5-0.7-0.8						✓
TP5-0.8-0.9						✓
TP6-0-0.1						✓
TP6-0.3-0.4						✓
TP6-1.0-1.1						✓
BH7-0-0.1						✓
BH7-0.4-0.6						✓
BH7-0.8-0.9						✓
TP8-0-0.1						✓
TP8-0.4-0.5						✓
TP8-0.6-0.7						✓
BH9-0-0.1						✓
BH9-0.4-0.5						✓

Sample ID	pH of soil for fluid#determ.	pH of soil TCLP (after HCl)	Extraction fluid used	pH of final Leachate	Lead	On Hold
TP10-0-0.1						✓
TP10-0.4-0.5						✓
BH11-0.0-0.1						✓
BH11-0.8-0.95						✓
BH11-1.3-1.5						✓
BH11-1.8-1.95						✓
BH11-5.7-6						✓
BH12-0-0.2						✓
BH12-0.3-0.5						✓
BH12-0.7-0.9						✓
BH13-0-0.1						✓
BH13-0.3-0.5						✓
TP14-0-0.1						✓
TP14-0.2-0.3						✓
TP14-0.9-1						✓
BH15-0-0.1						✓
BH15-0.6-0.7						✓
BH15-1.2-1.35						✓
BH15-1.8-1.95						✓
BH15-2.8-2.95						✓
TP16-0-0.1						✓
TP16-0.4-0.5						✓
TP16-1.0-1.2						✓
TP17-0-0.1						✓
TP17-0.3-0.4						✓
TP17-0.9-1						✓
TP18-0-0.1						✓
TP18-0.4-0.5						✓
TP18-1.0-1.1						✓
BH19-0-0.1						✓
BH19-0.3-0.5						✓
BH19-0.8-0.95						✓

Sample ID	pH of soil for fluid#determ.	pH of soil TCLP (after HCl)	Extraction fluid used	pH of final Leachate	Lead	On Hold
BH19-1.3-1.5						✓
BH19-1.8-1.95						✓
BH19-2.8-2.95						✓
BH20-0-0.1						✓
BH20-0.3-0.4						✓
BH21-0-0.1						✓
BH21-0.2-0.4						✓
BH21-0.8-1.0						✓
BH21-1.8-1.95						✓
BH21-2.3-2.4						✓
BH21-2.8-2.95						✓
TP22-0-0.1						✓
TP22-0.3-0.4						✓
TP22-0.7-0.8						✓
TP22-1.3-1.4						✓
BH23-0-0.1						✓
BH23-0.3-0.4						✓
BH23-0.8-0.95						✓
BH23-1.8-1.95						✓
BH23-2.8-2.95						✓
BH23-5.5-6.0						✓
TP24-0-0.1						✓
TP24-0.3-0.4						✓
TP24-0.6-0.7						✓
BH25-0-0.1						✓
BH25-0.3-0.4						✓
BH25-0.4-0.5	✓	✓	✓	✓	✓	
BH25-0.8-0.9						✓
SS26-0-0.1						✓
SS27-0-0.1						✓
SS28-0-0.1						✓
SS29-0-0.1						✓

Sample ID	pH of soil for fluid#determ.	pH of soil TCLP (after HCl)	Extraction fluid used	pH of final Leachate	Lead	On Hold
SS30-0-0.1						✓
SS31-0-0.1						✓
SS32-0-0.1						✓
SS33-0-0.1						✓
SS34-0-0.1						✓
SS35-0-0.1						✓
SDUP1						✓
SDUP3						✓
SDUP5						✓
SDUP6						✓
FR-SPT-1						✓
FR-HA-1						✓
FCF1-Surface						✓
FCF2-0-0.2						✓
FCF3-0-0.1						✓
FCF4-0.4-0.5						✓
FCF5-0.2-0.4						✓
FCF6-Surface						✓
TS						✓
TB						✓
BH1-0-0.1						✓
BH1-0.2-0.3						✓
BH1-0.8-1						✓
BH1-1.8-2						✓
BH1-2.6-3						✓
BH2-0.05-0.2						✓
BH2-0.4-0.6						✓
BH2-0.8-1.0						✓
BH2-1.8-1.95						✓
BH2-5.8-6.0						✓
BH19-0-0.1						✓
BH19-0.8-0.95						✓

Sample ID	pH of soil for fluid#determ.	pH of soil TCLP (after HCl)	Extraction fluid used	pH of final Leachate	Lead	On Hold
BH19-1.3-1.5						✓
BH19-1.8-1.95						✓
BH19-2.8-2.95						✓
BH21-0-0.1						✓
BH21-0.2-0.4						✓
BH21-0.8-1.0						✓
BH21-1.8-1.95						✓
BH21-2.3-2.4						✓
BH21-2.8-2.95						✓
BH23 - [TRIPLICATE]-0-0.1						✓

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.

Anna Bui

From: Katrina Taylor <KTaylor@jkenvironments.com.au>
Sent: Monday, 4 November 2024 12:10 PM
To: Envirolab Sydney Sample Receipt
Subject: FW: Sample Receipt for 362946-B E36310PT, South Lismore, NSW
Attachments: 362946-B-COC.pdf; 362946-B-SRA.pdf

Hi,

91

Please run TCLP lead on 2 day TA on BH25 (0.4-0.5m)

Thank you.

ELS REF: 362946-C
TAT: 2 DAY
DUE: 6/11/24
AB

Regards
Katrina Taylor
Associate | Environmental Scientist
NSW Licensed Asbestos Assessor

T: +61 2 9888 5000
D: +61 418 481 628
E: KTaylor@jkenvironments.com.au
www.jkenvironments.com.au

PO Box 976
NORTH RYDE BC NSW 1670
115 Wicks Road
MACQUARIE PARK NSW 2113

JKEnvironments

From: Simon Song <SSong@envirolab.com.au>
Sent: Monday, 21 October 2024 4:31 PM
To: Katrina Taylor <KTaylor@jkenvironments.com.au>
Subject: Sample Receipt for 362946-B E36310PT, South Lismore, NSW

Please refer to attached for:
a copy of the COC/paperwork received from you
a copy of our Sample Receipt Advice (SRA)
Please open and read the SRA as it contains important information.
Please let the lab know immediately if there are any issues.

Results will be available by 6.30pm on the date indicated.

PLEASE NOTE COMBO PRICES WILL ONLY APPLY IF COMBOS ARE SELECTED ON COC.

We have a new reporting format and would welcome your feedback. Sydney@envirolab.com.au

Please note that subcontracted testing or non routine testing may take significantly longer than just the standard 5 day TAT, contact the lab to get an approximate due date.

Enquiries should be made directly to:
customerservice@envirolab.com.au

Envirolab Services Pty Ltd
ABN 37 112 535 645 - 002
25 Research Drive Croydon South VIC 3136
ph +61 3 9763 2500
melbourne@envirolab.com.au
www.envirolab.com.au

Certificate of Analysis MFJ0048

Client Details

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

Sample Details

Your Reference	E36310PT
Number of Samples	2 Soil
Date Samples Received	02/10/2024
Date Instructions Received	02/10/2024

Analysis Details

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

Report Details

Date Results Requested by	08/10/2024
Date of Issue	07/10/2024

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Authorisation Details

Results Approved By	Tara White, Metals Supervisor Tianna Milburn, Senior Chemist
Laboratory Manager	Pamela Adams

Certificate of Analysis MFJ0048

Samples in this Report

Envirolab ID	Sample ID	Matrix	Date Sampled	Date Received
MFJ0048-01	SDUP2	Soil	24/09/2024	02/10/2024
MFJ0048-02	SDUP4	Soil	24/09/2024	02/10/2024

Certificate of Analysis MFJ0048

Volatile TRH and BTEX (Soil)

Envirolab ID	**Units**	**PQL**	MFJ0048-01	MFJ0048-02
Your Reference			SDUP2	SDUP4
Date Sampled			24/09/2024	24/09/2024
TRH C6-C9	mg/kg	25	<25	<25
TRH C6-C10	mg/kg	25	<25	<25
TRH C6-C10 less BTEX (F1)	mg/kg	25	<25	<25
Methyl tert butyl ether (MTBE)	mg/kg	0.50	<0.50	<0.50
Benzene	mg/kg	0.20	<0.20	<0.20
Toluene	mg/kg	0.50	<0.50	<0.50
Ethylbenzene	mg/kg	1.0	<1.0	<1.0
meta+para Xylene	mg/kg	2.0	<2.0	<2.0
ortho-Xylene	mg/kg	1.0	<1.0	<1.0
Total Xylene	mg/kg	3.0	<3.0	<3.0
Naphthalene (value used in F2 calc)	mg/kg	1.0	<1.0	<1.0
Surrogate aaa-Trifluorotoluene	%		*73.1*	*72.7*

Certificate of Analysis MFJ0048

Semi-volatile TRH (Soil)

Envirolab ID **Your Reference** **Date Sampled**	**Units**	**PQL**	MFJ0048-01 SDUP2 24/09/2024	MFJ0048-02 SDUP4 24/09/2024
TRH C10-C14	mg/kg	50	<50	<50
TRH C15-C28	mg/kg	100	<100	<100
TRH C29-C36	mg/kg	100	<100	<100
Total +ve TRH C10-C36	mg/kg	50	<50	<50
TRH >C10-C16	mg/kg	50	<50	<50
TRH >C10-C16 less Naphthalene F2	mg/kg	50	<50	<50
TRH >C16-C34 (F3)	mg/kg	100	<100	<100
TRH >C34-C40 (F4)	mg/kg	100	<100	<100
Total +ve TRH >C10-C40	mg/kg	50	<50	<50
Surrogate o-Terphenyl	%		*83.1*	*88.0*

Certificate of Analysis MFJ0048

Polycyclic Aromatic Hydrocarbons (Soil)

Envirolab ID **Your Reference** **Date Sampled**	**Units**	**PQL**	MFJ0048-01 SDUP2 24/09/2024	MFJ0048-02 SDUP4 24/09/2024
Naphthalene	mg/kg	0.10	<0.10	<0.10
Acenaphthylene	mg/kg	0.10	<0.10	<0.10
Acenaphthene	mg/kg	0.10	<0.10	<0.10
Fluorene	mg/kg	0.10	<0.10	<0.10
Phenanthrene	mg/kg	0.10	<0.10	<0.10
Anthracene	mg/kg	0.10	<0.10	<0.10
Fluoranthene	mg/kg	0.10	<0.10	0.18
Pyrene	mg/kg	0.10	<0.10	0.19
Benzo(a)anthracene	mg/kg	0.10	<0.10	<0.10
Chrysene	mg/kg	0.10	<0.10	<0.10
Benzo(b,j,k)fluoranthene	mg/kg	0.20	<0.20	<0.20
Benzo(a)pyrene	mg/kg	0.050	0.051	0.10
Indeno(1,2,3-c,d)pyrene	mg/kg	0.10	<0.10	<0.10
Dibenzo(a,h)anthracene	mg/kg	0.10	<0.10	<0.10
Benzo(g,h,i)perylene	mg/kg	0.10	<0.10	<0.10
Total +ve PAH	mg/kg	0.050	0.051	0.47
Benzo(a)pyrene TEQ calc zero	mg/kg	0.50	<0.50	<0.50
Benzo(a)pyrene TEQ calc Half	mg/kg	0.50	<0.50	<0.50
Benzo(a)pyrene TEQ calc PQL	mg/kg	0.50	<0.50	<0.50
Surrogate p-Terphenyl-D14	%		*125*	*133*

Certificate of Analysis MFJ0048

Organochlorine Pesticides (Soil)

Envirolab ID **Your Reference** **Date Sampled**	**Units**	**PQL**	MFJ0048-01 SDUP2 24/09/2024	MFJ0048-02 SDUP4 24/09/2024
alpha-BHC	mg/kg	0.10	<0.10	<0.10
Hexachlorobenzene	mg/kg	0.10	<0.10	<0.10
beta-BHC	mg/kg	0.10	<0.10	<0.10
gamma-BHC	mg/kg	0.10	<0.10	<0.10
delta-BHC	mg/kg	0.10	<0.10	<0.10
Heptachlor	mg/kg	0.10	<0.10	<0.10
Aldrin	mg/kg	0.10	<0.10	<0.10
Heptachlor epoxide	mg/kg	0.10	<0.10	<0.10
trans-Chlordane	mg/kg	0.10	<0.10	<0.10
cis-Chlordane	mg/kg	0.10	<0.10	<0.10
Endosulfan I	mg/kg	0.10	<0.10	<0.10
4,4'-DDE	mg/kg	0.10	<0.10	<0.10
Dieldrin	mg/kg	0.10	<0.10	<0.10
Endrin	mg/kg	0.10	<0.10	<0.10
4,4'-DDD	mg/kg	0.10	<0.10	<0.10
Endosulfan II	mg/kg	0.10	<0.10	<0.10
Endrin aldehyde	mg/kg	0.10	<0.10	<0.10
4,4'-DDT	mg/kg	0.10	<0.10	<0.10
Endosulfan sulfate	mg/kg	0.10	<0.10	<0.10
Endrin ketone	mg/kg	0.10	<0.10	<0.10
Methoxychlor	mg/kg	0.10	<0.10	<0.10
Mirex	mg/kg	0.10	<0.10	<0.10
Total +ve DDT+DDD+DDE	mg/kg	0.10	<0.10	<0.10
Total +ve Aldrin + Dieldrin	mg/kg	0.10	<0.10	<0.10
Total +ve OCP	mg/kg	0.10	<0.10	<0.10
Surrogate 4-chloro-3-nitrobenzotrifluoride	%		*97.1*	*99.5*

Certificate of Analysis MFJ0048

Organophosphorus Pesticides (Soil)

Envirolab ID **Your Reference** **Date Sampled**	**Units**	**PQL**	MFJ0048-01 SDUP2 24/09/2024	MFJ0048-02 SDUP4 24/09/2024
Dichlorvos	mg/kg	0.10	<0.10	<0.10
Dimethoate	mg/kg	0.10	<0.10	<0.10
Diazinon	mg/kg	0.10	<0.10	<0.10
Chlorpyrifos-methyl	mg/kg	0.10	<0.10	<0.10
Ronnel	mg/kg	0.10	<0.10	<0.10
Fenitrothion	mg/kg	0.10	<0.10	<0.10
Malathion	mg/kg	0.10	<0.10	<0.10
Chlorpyrifos	mg/kg	0.10	<0.10	<0.10
Parathion	mg/kg	0.10	<0.10	<0.10
Bromophos-ethyl	mg/kg	0.10	<0.10	<0.10
Ethion	mg/kg	0.10	<0.10	<0.10
Coumaphos	mg/kg	0.10	<0.10	<0.10
Disulfoton	mg/kg	0.10	<0.10	<0.10
Fenamiphos	mg/kg	0.10	<0.10	<0.10
Fenthion	mg/kg	0.10	<0.10	<0.10
Methidathion	mg/kg	0.10	<0.10	<0.10
Mevinphos	mg/kg	0.10	<0.10	<0.10
Parathion-methyl	mg/kg	0.10	<0.10	<0.10
Phorate	mg/kg	0.10	<0.10	<0.10
Phosalone	mg/kg	0.10	<0.10	<0.10
Azinphos-methyl	mg/kg	0.10	<0.10	<0.10
Surrogate 4-chloro-3-nitrobenzotrifluoride	%		*97.1*	*99.5*

Certificate of Analysis MFJ0048

Polychlorinated Biphenyls (Soil)

Envirolab ID	**Units**	**PQL**	MFJ0048-01	MFJ0048-02
Your Reference			SDUP2	SDUP4
Date Sampled			24/09/2024	24/09/2024
Aroclor 1016	mg/kg	0.10	<0.10	<0.10
Aroclor 1221	mg/kg	0.10	<0.10	<0.10
Aroclor 1232	mg/kg	0.10	<0.10	<0.10
Aroclor 1242	mg/kg	0.10	<0.10	<0.10
Aroclor 1248	mg/kg	0.10	<0.10	<0.10
Aroclor 1254	mg/kg	0.10	<0.10	<0.10
Aroclor 1260	mg/kg	0.10	<0.10	<0.10
Total +ve PCB (1016-1260)	mg/kg	0.10	<0.10	<0.10
Surrogate 2-Fluorobiphenyl	%		*118*	*117*

Certificate of Analysis MFJ0048

Acid Extractable Metals (Soil)

Envirolab ID	**Units**	**PQL**	MFJ0048-01	MFJ0048-02
Your Reference			SDUP2	SDUP4
Date Sampled			24/09/2024	24/09/2024
Arsenic	mg/kg	4.0	<4.0	<4.0
Cadmium	mg/kg	0.40	<0.40	<0.40
Chromium	mg/kg	1.0	7.9	14
Copper	mg/kg	1.0	9.1	11
Mercury	mg/kg	0.10	<0.10	<0.10
Nickel	mg/kg	1.0	5.7	9.3
Lead	mg/kg	1.0	6.8	9.3
Zinc	mg/kg	1.0	46	42

Certificate of Analysis MFJ0048

Inorganics - Moisture (Soil)

Envirolab ID	**Units**	**PQL**	MFJ0048-01	MFJ0048-02
Your Reference			SDUP2	SDUP4
Date Sampled			24/09/2024	24/09/2024
Moisture	%	0.10	16	14

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.
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_PCB	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 is therefore "Total +ve Xylenes" is simply a sum of the positive individual Xylenes.

Result Definitions

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

Quality Control Definitions

Blank

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

Surrogate Spike

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

LCS (Laboratory Control Sample)

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

Matrix Spike

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

Duplicate

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

Laboratory Acceptance Criteria

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

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

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

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

Miscellaneous Information

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

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

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

Measurement Uncertainty estimates are available for most tests upon request.

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

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

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

Data Quality Assessment Summary MFJ0048

Client Details

Client	JK Environments
Your Reference	E36310PT
Date Issued	07/10/2024

Recommended Holding Time Compliance

No recommended holding time exceedances

Quality Control and QC Frequency

QC Type	Compliant	Details
Blank	Yes	No Outliers
LCS	Yes	No Outliers
Duplicates	No	Duplicate Outliers Exist - See detailed list below
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 MFJ0048

Recommended Holding Time Compliance

Analysis	Sample Number(s)	Date Sampled	Date Extracted	Date Analysed	Compliant
vTRH&MBTEXN | Soil	1-2	24/09/2024	03/10/2024	04/10/2024	Yes
sTRH | Soil	1-2	24/09/2024	03/10/2024	04/10/2024	Yes
PAH | Soil	1-2	24/09/2024	03/10/2024	03/10/2024	Yes
OCP | Soil	1-2	24/09/2024	03/10/2024	03/10/2024	Yes
OPP (21 list) | Soil	1-2	24/09/2024	03/10/2024	03/10/2024	Yes
PCB | Soil	1-2	24/09/2024	03/10/2024	03/10/2024	Yes
Metals | Soil	1-2	24/09/2024	03/10/2024	03/10/2024	Yes
Metals-Hg | Soil	1-2	24/09/2024	03/10/2024	03/10/2024	Yes
Moisture | Soil	1-2	24/09/2024	03/10/2024	04/10/2024	Yes

Outliers: Duplicates

METALS-020|Acid Extractable Metals (Soil)| Batch BFJ0566

Sample ID	Duplicate ID	Analyte	% Limits	RPD
BFJ0566-DUP1#	DUP1	Copper	40.00	56.8[4]
BFJ0566-DUP1#	DUP1	Lead	40.00	78.2[4]

ORG-023_F1_TOT|Volatile TRH and BTEX (Soil)| Batch BFJ0567

Sample ID	Duplicate ID	Analyte	% Limits	RPD
BFJ0567-DUP2#	DUP2	Naphthalene (value used in F2 calc)	50.00	73.1[5]

Outliers: Matrix Spike

ORG-020|Semi-volatile TRH (Soil)| Batch BFJ0568

Sample ID	Analyte	% Limits	% Recovery
BFJ0568-MS1#	TRH >C34-C40 (F4)	60 - 140	##[1]

Quality Control MFJ0048

ORG-023_F1_TOT|Volatile TRH and BTEX (Soil) | Batch BFJ0567

Analyte	Units	PQL	Blank	DUP1 BFJ0567-DUP1# Samp | QC | RPD %	DUP2 BFJ0567-DUP2# Samp | QC | RPD %	LCS %	Spike % BFJ0567-MS2#
TRH C6-C9	mg/kg	25	<25	<25 | <25 | [NA]	<25 | <25 | [NA]	73.4	76.3
TRH C6-C10	mg/kg	25	<25	<25 | <25 | [NA]	28.5 | 47.5 | [NA]	76.8	76.4
TRH C6-C10 less BTEX (F1)	mg/kg	25	<25	<25 | <25 | [NA]	<25 | 31.4 | [NA]	[NA]	[NA]
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]	76.8	78.4
Toluene	mg/kg	0.50	<0.50	<0.50 | <0.50 | [NA]	1.83 | 2.78 | [NA]	80.8	84.4
Ethylbenzene	mg/kg	1.0	<1.0	<1.0 | <1.0 | [NA]	<1.0 | 1.56 | [NA]	90.4	94.1
meta+para Xylene	mg/kg	2.0	<2.0	<2.0 | <2.0 | [NA]	5.52 | 8.56 | [NA]	95.9	100
ortho-Xylene	mg/kg	1.0	<1.0	<1.0 | <1.0 | [NA]	2.00 | 3.26 | [NA]	93.5	96.9
Total Xylene	mg/kg	3.0	<3.0	<3.0 | <3.0 | [NA]	7.52 | 11.8 | [NA]	[NA]	[NA]
Naphthalene (value used in F2 calc)	mg/kg	1.0	<1.0	<1.0 | <1.0 | [NA]	4.24 | 9.13 | 73.1 [5]	[NA]	[NA]
Surrogate aaa-Trifluorotoluene	*%*		*65.0*	*60.6 | 67.0*	*84.5 | 105*	*75.6*	*74.7*

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 BFJ0568

Analyte	Units	PQL	Blank	DUP1 BFJ0568-DUP1# Samp | QC | RPD %	DUP2 BFJ0568-DUP2# Samp | QC | RPD %	LCS %	Spike % BFJ0568-MS1#
TRH C10-C14	mg/kg	50	<50	<50 | <50 | [NA]		96.3	92.6
TRH C15-C28	mg/kg	100	<100	<100 | <100 | [NA]		70.5	71.7
TRH C29-C36	mg/kg	100	<100	<100 | <100 | [NA]		81.7	67.1
TRH >C10-C16	mg/kg	50	<50	<50 | <50 | [NA]		74.8	73.0
TRH >C16-C34 (F3)	mg/kg	100	<100	<100 | <100 | [NA]		71.2	72.5
TRH >C34-C40 (F4)	mg/kg	100	<100	<100 | <100 | [NA]		85.3	##[1]
Surrogate o-Terphenyl	*%*		*85.6*	*84.3 | 82.6*		*92.1*	*96.5*

Analyte	Units	PQL	Blank	DUP3 BFJ0568-DUP3# Samp | QC | RPD %	DUP4 BFJ0568-DUP4# Samp | QC | RPD %	LCS %
TRH C10-C14	mg/kg	50		425 | 449 | 5.46		[NA]
TRH C15-C28	mg/kg	100		2450 | 2760 | 11.8		[NA]
TRH C29-C36	mg/kg	100		814 | 885 | 8.33		[NA]
TRH >C10-C16	mg/kg	50		473 | 507 | 6.80		[NA]
TRH >C16-C34 (F3)	mg/kg	100		2870 | 3220 | 11.3		[NA]
TRH >C34-C40 (F4)	mg/kg	100		336 | 389 | [NA]		[NA]
Surrogate o-Terphenyl	*%*			*## | ##[NA] [2]*		*[NA]*

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

Quality Control MFJ0048

ORG-022_PAH | Polycyclic Aromatic Hydrocarbons (Soil) | Batch BFJ0568

<table>
<tr><th>Analyte</th><th>Units</th><th>PQL</th><th>Blank</th><th>DUP1
BFJ0568-DUP1#
Samp | QC | RPD %</th><th>DUP2
BFJ0568-DUP2#
Samp | QC | RPD %</th><th>LCS %</th><th>Spike %
BFJ0568-MS2#</th></tr>
<tr><td>Naphthalene</td><td>mg/kg</td><td>0.10</td><td><0.10</td><td><0.10 | <0.10 | [NA]</td><td></td><td>88.9</td><td>88.8</td></tr>
<tr><td>Acenaphthylene</td><td>mg/kg</td><td>0.10</td><td><0.10</td><td><0.10 | <0.10 | [NA]</td><td></td><td>[NA]</td><td>[NA]</td></tr>
<tr><td>Acenaphthene</td><td>mg/kg</td><td>0.10</td><td><0.10</td><td><0.10 | <0.10 | [NA]</td><td></td><td>91.6</td><td>92.9</td></tr>
<tr><td>Fluorene</td><td>mg/kg</td><td>0.10</td><td><0.10</td><td><0.10 | <0.10 | [NA]</td><td></td><td>87.6</td><td>93.9</td></tr>
<tr><td>Phenanthrene</td><td>mg/kg</td><td>0.10</td><td><0.10</td><td><0.10 | <0.10 | [NA]</td><td></td><td>90.2</td><td>91.6</td></tr>
<tr><td>Anthracene</td><td>mg/kg</td><td>0.10</td><td><0.10</td><td><0.10 | <0.10 | [NA]</td><td></td><td>[NA]</td><td>[NA]</td></tr>
<tr><td>Fluoranthene</td><td>mg/kg</td><td>0.10</td><td><0.10</td><td><0.10 | <0.10 | [NA]</td><td></td><td>98.9</td><td>99.8</td></tr>
<tr><td>Pyrene</td><td>mg/kg</td><td>0.10</td><td><0.10</td><td><0.10 | <0.10 | [NA]</td><td></td><td>106</td><td>110</td></tr>
<tr><td>Benzo(a)anthracene</td><td>mg/kg</td><td>0.10</td><td><0.10</td><td><0.10 | <0.10 | [NA]</td><td></td><td>[NA]</td><td>[NA]</td></tr>
<tr><td>Chrysene</td><td>mg/kg</td><td>0.10</td><td><0.10</td><td><0.10 | <0.10 | [NA]</td><td></td><td>98.2</td><td>92.7</td></tr>
<tr><td>Benzo(b,j,k)fluoranthene</td><td>mg/kg</td><td>0.20</td><td><0.20</td><td><0.20 | <0.20 | [NA]</td><td></td><td>[NA]</td><td>[NA]</td></tr>
<tr><td>Benzo(a)pyrene</td><td>mg/kg</td><td>0.050</td><td><0.050</td><td><0.050 | <0.050 | [NA]</td><td></td><td>86.0</td><td>84.2</td></tr>
<tr><td>Indeno(1,2,3-c,d)pyrene</td><td>mg/kg</td><td>0.10</td><td><0.10</td><td><0.10 | <0.10 | [NA]</td><td></td><td>[NA]</td><td>[NA]</td></tr>
<tr><td>Dibenzo(a,h)anthracene</td><td>mg/kg</td><td>0.10</td><td><0.10</td><td><0.10 | <0.10 | [NA]</td><td></td><td>[NA]</td><td>[NA]</td></tr>
<tr><td>Benzo(g,h,i)perylene</td><td>mg/kg</td><td>0.10</td><td><0.10</td><td><0.10 | <0.10 | [NA]</td><td></td><td>[NA]</td><td>[NA]</td></tr>
<tr><td><i>Surrogate p-Terphenyl-D14</i></td><td><i>%</i></td><td></td><td><i>122</i></td><td><i>126 | 119</i></td><td></td><td><i>116</i></td><td><i>113</i></td></tr>
</table>

<table>
<tr><th>Analyte</th><th>Units</th><th>PQL</th><th>Blank</th><th>DUP3
BFJ0568-DUP3#
Samp | QC | RPD %</th><th>DUP4
BFJ0568-DUP4#
Samp | QC | RPD %</th><th>LCS %</th></tr>
<tr><td>Naphthalene</td><td>mg/kg</td><td>0.1</td><td></td><td>3.93 | 4.42 | [NA]</td><td></td><td>[NA]</td></tr>
<tr><td>Acenaphthylene</td><td>mg/kg</td><td>0.1</td><td></td><td><1.0 | <1.0 | [NA] [3]</td><td></td><td>[NA]</td></tr>
<tr><td>Acenaphthene</td><td>mg/kg</td><td>0.1</td><td></td><td><1.0 | <1.0 | [NA] [3]</td><td></td><td>[NA]</td></tr>
<tr><td>Fluorene</td><td>mg/kg</td><td>0.1</td><td></td><td><1.0 | <1.0 | [NA] [3]</td><td></td><td>[NA]</td></tr>
<tr><td>Phenanthrene</td><td>mg/kg</td><td>0.1</td><td></td><td><1.0 | <1.0 | [NA] [3]</td><td></td><td>[NA]</td></tr>
<tr><td>Anthracene</td><td>mg/kg</td><td>0.1</td><td></td><td><1.0 | <1.0 | [NA] [3]</td><td></td><td>[NA]</td></tr>
<tr><td>Fluoranthene</td><td>mg/kg</td><td>0.1</td><td></td><td><1.0 | <1.0 | [NA] [3]</td><td></td><td>[NA]</td></tr>
<tr><td>Pyrene</td><td>mg/kg</td><td>0.1</td><td></td><td><1.0 | <1.0 | [NA] [3]</td><td></td><td>[NA]</td></tr>
<tr><td>Benzo(a)anthracene</td><td>mg/kg</td><td>0.1</td><td></td><td><1.0 | <1.0 | [NA] [3]</td><td></td><td>[NA]</td></tr>
<tr><td>Chrysene</td><td>mg/kg</td><td>0.1</td><td></td><td><1.0 | <1.0 | [NA] [3]</td><td></td><td>[NA]</td></tr>
<tr><td>Benzo(b,j,k)fluoranthene</td><td>mg/kg</td><td>0.2</td><td></td><td><2.0 | <2.0 | [NA] [3]</td><td></td><td>[NA]</td></tr>
<tr><td>Benzo(a)pyrene</td><td>mg/kg</td><td>0.05</td><td></td><td><0.50 | <0.50 | [NA] [3]</td><td></td><td>[NA]</td></tr>
<tr><td>Indeno(1,2,3-c,d)pyrene</td><td>mg/kg</td><td>0.1</td><td></td><td><1.0 | <1.0 | [NA] [3]</td><td></td><td>[NA]</td></tr>
<tr><td>Dibenzo(a,h)anthracene</td><td>mg/kg</td><td>0.1</td><td></td><td><1.0 | <1.0 | [NA] [3]</td><td></td><td>[NA]</td></tr>
<tr><td>Benzo(g,h,i)perylene</td><td>mg/kg</td><td>0.1</td><td></td><td><1.0 | <1.0 | [NA] [3]</td><td></td><td>[NA]</td></tr>
<tr><td><i>Surrogate p-Terphenyl-D14</i></td><td><i>%</i></td><td></td><td></td><td><i>130 | 126</i></td><td></td><td><i>[NA]</i></td></tr>
</table>

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

Quality Control MFJ0048

ORG-022_OC|Organochlorine Pesticides (Soil) | Batch BFJ0568

Analyte	**Units**	**PQL**	**Blank**	**DUP1** BFJ0568-DUP1# Samp | QC | RPD %	**DUP2** BFJ0568-DUP2# Samp | QC | RPD %	**LCS %**	**Spike %** BFJ0568-MS2#
alpha-BHC	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		85.1	91.3
Hexachlorobenzene	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		[NA]	[NA]
beta-BHC	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		86.9	90.2
gamma-BHC	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		[NA]	[NA]
delta-BHC	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		[NA]	[NA]
Heptachlor	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		94.1	92.8
Aldrin	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		94.4	94.3
Heptachlor epoxide	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		98.8	98.5
trans-Chlordane	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		[NA]	[NA]
cis-Chlordane	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		[NA]	[NA]
Endosulfan I	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		[NA]	[NA]
4,4'-DDE	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		103	99.5
Dieldrin	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		106	102
Endrin	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		97.8	98.7
4,4'-DDD	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		102	104
Endosulfan II	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		[NA]	[NA]
Endrin aldehyde	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		[NA]	[NA]
4,4'-DDT	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		[NA]	[NA]
Endosulfan sulfate	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		93.1	94.2
Endrin ketone	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		[NA]	[NA]
Methoxychlor	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		[NA]	[NA]
Mirex	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		[NA]	[NA]
Surrogate *4-chloro-3-nitrobenzotrifluoride*	*%*		*81.6*	*81.6 | 77.4*		*85.3*	*84.0*

Analyte	**Units**	**PQL**	**Blank**	**DUP3** BFJ0568-DUP3# Samp | QC | RPD %	**DUP4** BFJ0568-DUP4# Samp | QC | RPD %	**LCS %**
alpha-BHC	mg/kg	0.1		<1.0 | <1.0 | [NA] [3]		[NA]
Hexachlorobenzene	mg/kg	0.1		<1.0 | <1.0 | [NA] [3]		[NA]
beta-BHC	mg/kg	0.1		<1.0 | <1.0 | [NA] [3]		[NA]
gamma-BHC	mg/kg	0.1		<1.0 | <1.0 | [NA] [3]		[NA]
delta-BHC	mg/kg	0.1		<1.0 | <1.0 | [NA] [3]		[NA]
Heptachlor	mg/kg	0.1		<1.0 | <1.0 | [NA] [3]		[NA]
Aldrin	mg/kg	0.1		<1.0 | <1.0 | [NA] [3]		[NA]
Heptachlor epoxide	mg/kg	0.1		<1.0 | <1.0 | [NA] [3]		[NA]
trans-Chlordane	mg/kg	0.1		<1.0 | <1.0 | [NA] [3]		[NA]
cis-Chlordane	mg/kg	0.1		<1.0 | <1.0 | [NA] [3]		[NA]
Endosulfan I	mg/kg	0.1		<1.0 | <1.0 | [NA] [3]		[NA]
4,4'-DDE	mg/kg	0.1		<1.0 | <1.0 | [NA] [3]		[NA]
Dieldrin	mg/kg	0.1		<1.0 | <1.0 | [NA] [3]		[NA]
Endrin	mg/kg	0.1		<1.0 | <1.0 | [NA] [3]		[NA]
4,4'-DDD	mg/kg	0.1		<1.0 | <1.0 | [NA] [3]		[NA]
Endosulfan II	mg/kg	0.1		<1.0 | <1.0 | [NA] [3]		[NA]
Endrin aldehyde	mg/kg	0.1		<1.0 | <1.0 | [NA] [3]		[NA]
4,4'-DDT	mg/kg	0.1		<1.0 | <1.0 | [NA] [3]		[NA]
Endosulfan sulfate	mg/kg	0.1		<1.0 | <1.0 | [NA] [3]		[NA]
Endrin ketone	mg/kg	0.1		<1.0 | <1.0 | [NA] [3]		[NA]
Methoxychlor	mg/kg	0.1		<1.0 | <1.0 | [NA] [3]		[NA]
Mirex	mg/kg	0.1		<1.0 | <1.0 | [NA] [3]		[NA]
Surrogate *4-chloro-3-nitrobenzotrifluoride*	*%*			*86.8 | 91.4*		*[NA]*

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

Quality Control MFJ0048

ORG-022|Organophosphorus Pesticides (Soil) | Batch BFJ0568

Analyte	Units	PQL	Blank	DUP1 BFJ0568-DUP1# Samp | QC | RPD %	DUP2 BFJ0568-DUP2# Samp | QC | RPD %	LCS %	Spike % BFJ0568-MS2#
Dichlorvos	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		65.7	68.7
Dimethoate	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		[NA]	[NA]
Diazinon	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		[NA]	[NA]
Chlorpyrifos-methyl	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		73.8	80.5
Ronnel	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		83.7	86.7
Fenitrothion	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		63.4	71.0
Malathion	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		70.1	80.9
Chlorpyrifos	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		94.0	93.2
Parathion	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		76.2	78.2
Bromophos-ethyl	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		[NA]	[NA]
Ethion	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		84.2	87.6
Coumaphos	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		[NA]	[NA]
Disulfoton	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		[NA]	[NA]
Fenamiphos	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		[NA]	[NA]
Fenthion	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		[NA]	[NA]
Methidathion	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		[NA]	[NA]
Mevinphos	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		[NA]	[NA]
Parathion-methyl	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		[NA]	[NA]
Phorate	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		[NA]	[NA]
Phosalone	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		[NA]	[NA]
Azinphos-methyl	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		[NA]	[NA]
Surrogate 4-chloro-3-nitrobenzotrifluoride	*%*		*81.6*	*81.6 | 77.4*		*85.3*	*84.0*

Analyte	Units	PQL	Blank	DUP3 BFJ0568-DUP3# Samp | QC | RPD %	DUP4 BFJ0568-DUP4# Samp | QC | RPD %	LCS %
Dichlorvos	mg/kg	0.1		<1.0 | <1.0 | [NA] [3]		[NA]
Dimethoate	mg/kg	0.1		<1.0 | <1.0 | [NA] [3]		[NA]
Diazinon	mg/kg	0.1		<1.0 | <1.0 | [NA] [3]		[NA]
Chlorpyrifos-methyl	mg/kg	0.1		<1.0 | <1.0 | [NA] [3]		[NA]
Ronnel	mg/kg	0.1		<1.0 | <1.0 | [NA] [3]		[NA]
Fenitrothion	mg/kg	0.1		<1.0 | <1.0 | [NA] [3]		[NA]
Malathion	mg/kg	0.1		<1.0 | <1.0 | [NA] [3]		[NA]
Chlorpyrifos	mg/kg	0.1		<1.0 | <1.0 | [NA] [3]		[NA]
Parathion	mg/kg	0.1		<1.0 | <1.0 | [NA] [3]		[NA]
Bromophos-ethyl	mg/kg	0.1		<1.0 | <1.0 | [NA] [3]		[NA]
Ethion	mg/kg	0.1		<1.0 | <1.0 | [NA] [3]		[NA]
Coumaphos	mg/kg	0.1		<1.0 | <1.0 | [NA] [3]		[NA]
Disulfoton	mg/kg	0.1		<1.0 | <1.0 | [NA] [3]		[NA]
Fenamiphos	mg/kg	0.1		<1.0 | <1.0 | [NA] [3]		[NA]
Fenthion	mg/kg	0.1		<1.0 | <1.0 | [NA] [3]		[NA]
Methidathion	mg/kg	0.1		<1.0 | <1.0 | [NA] [3]		[NA]
Mevinphos	mg/kg	0.1		<1.0 | <1.0 | [NA] [3]		[NA]
Parathion-methyl	mg/kg	0.1		<1.0 | <1.0 | [NA] [3]		[NA]
Phorate	mg/kg	0.1		<1.0 | <1.0 | [NA] [3]		[NA]
Phosalone	mg/kg	0.1		<1.0 | <1.0 | [NA] [3]		[NA]
Azinphos-methyl	mg/kg	0.1		<1.0 | <1.0 | [NA] [3]		[NA]
Surrogate 4-chloro-3-nitrobenzotrifluoride	*%*			*86.8 | 91.4*		*[NA]*

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

Quality Control MFJ0048

ORG-021/022/025_PCB | Polychlorinated Biphenyls (Soil) | Batch BFJ0568

Analyte	Units	PQL	Blank	DUP1 BFJ0568-DUP1# Samp | QC | RPD %	DUP2 BFJ0568-DUP2# Samp | QC | RPD %	LCS %	Spike % BFJ0568-MS2#
Aroclor 1016	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		[NA]	[NA]
Aroclor 1221	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		[NA]	[NA]
Aroclor 1232	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		[NA]	[NA]
Aroclor 1242	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		[NA]	[NA]
Aroclor 1248	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		[NA]	[NA]
Aroclor 1254	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		[NA]	[NA]
Aroclor 1260	mg/kg	0.10	<0.10	<0.10 | <0.10 | [NA]		[NA]	[NA]
PCB C103	mg/kg			0.00 | 0.00 | [NA]		65.5	63.6
Surrogate 2-Fluorobiphenyl	*%*		*84.4*	*85.8 | 85.1*		*95.7*	*90.1*

Analyte	Units	PQL	Blank	DUP3 BFJ0568-DUP3# Samp | QC | RPD %	DUP4 BFJ0568-DUP4# Samp | QC | RPD %	LCS %
Aroclor 1016	mg/kg	0.1		<1.0 | <1.0 | [NA] [3]		[NA]
Aroclor 1221	mg/kg	0.1		<1.0 | <1.0 | [NA] [3]		[NA]
Aroclor 1232	mg/kg	0.1		<1.0 | <1.0 | [NA] [3]		[NA]
Aroclor 1242	mg/kg	0.1		<1.0 | <1.0 | [NA] [3]		[NA]
Aroclor 1248	mg/kg	0.1		<1.0 | <1.0 | [NA] [3]		[NA]
Aroclor 1254	mg/kg	0.1		<1.0 | <1.0 | [NA] [3]		[NA]
Aroclor 1260	mg/kg	0.1		<1.0 | <1.0 | [NA] [3]		[NA]
PCB C103	mg/kg			0.00 | 0.00 | [NA] [3]		[NA]
Surrogate 2-Fluorobiphenyl	*%*			*103 | 106*		*[NA]*

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 BFJ0566

Analyte	Units	PQL	Blank	DUP1 BFJ0566-DUP1# Samp | QC | RPD %	DUP2 BFJ0566-DUP2# Samp | QC | RPD %	LCS %	Spike % BFJ0566-MS1#
Arsenic	mg/kg	4.0	<4.0	6.01 | 6.29 | [NA]		99.9	93.7
Cadmium	mg/kg	0.40	<0.40	<0.40 | <0.40 | [NA]		94.2	77.7
Chromium	mg/kg	1.0	<1.0	33.6 | 35.8 | 6.28		99.7	94.2
Copper	mg/kg	1.0	<1.0	121 | 67.4 | 56.8 [4]		106	112
Lead	mg/kg	1.0	<1.0	73.1 | 167 | 78.2 [4]		97.5	92.9
Mercury	mg/kg	0.10	<0.10	0.538 | 0.270 | [NA]		90.4	93.9
Nickel	mg/kg	1.0	<1.0	66.0 | 56.1 | 16.2		101	94.7
Zinc	mg/kg	1.0	<1.0	171 | 146 | 16.3		99.0	96.5

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

INORG-008 | Inorganics - Moisture (Soil) | Batch BFJ0559

Analyte	Units	PQL	Blank	DUP1 BFJ0559-DUP1# Samp | QC | RPD %	DUP2 BFJ0559-DUP2# Samp | QC | RPD %	LCS %
Moisture	%	0.1		8.49 | 8.85 | 4.15	25.0 | 25.7 | 2.68	[NA]

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

Quality Control MFJ0048

QC Comments

Identifier	Description
[1]	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.
[2]	Surrogate recovery is outside routine acceptance criteria (60-140%) as a result of the high concentration of analyte(s) in the sample.
[3]	PQL has been raised due to matrix requiring dilution
[4]	Duplicate analysis precision is/are outside acceptable %RPD, re-analysis indicates possible sample heterogeneity.
[5]	The laboratory duplicate RPD acceptance criteria has been exceeded. Results are accepted due to the inhomogeneous nature of the sample.

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melbourne@envirolab.com.au
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Sample Receipt Advice MFJ0048

Client Details

Client	JK Environments
Attention	Katrina Taylor

Sample Login Details

Your Reference	E36310PT
Envirolab Reference	MFJ0048
Date Sample Received	02/10/2024
Date Instructions Received	02/10/2024
Date Final Results Expected	08/10/2024

Sample Condition

Samples received in appropriate condition for analysis	Yes
Number of Samples	2 Soil
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 metals and PFAS analysis where solids are included by default).

Please direct any queries to:

Pamela Adams

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

Chris De Luca

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

Analysis underway, details on the following page

Sample Receipt Advice MFJ0048

Analysis Grid

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

	Combination 6	Moisture
MFJ0048-01 Soil | 24/09/2024 SDUP2	●	●
MFJ0048-02 Soil | 24/09/2024 SDUP4	●	●

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: **E36310PT**

Date Results Required: **STANDARD**

Page: 5 of 7

FROM:
JKEnvironments
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: **South Lismore, NSW**

Sampler: **VR**

Sample Preserved in Esky on Ice

Tests Required

Date Sampled	Lab Ref:	Sample Number	Depth (m)	Sample Container	PID	Sample Description	#6aNEPM	#3	Asbestos (Detection)	8Metals, OCP, OPP	#6	BTEX						
26/09/2024		SS26	0-0.1	G	0	F: Sandy Gravel				X								
24/09/2024		SS27	0-0.1	G	0	F: Silty Clay				X								
26/09/2024		SS28	0-0.1	G	0	F: Silty Sand				X								
26/09/2024		SS29	0-0.1	G	0	F: Silty Sand				X								
26/09/2024		SS30	0-0.1	G	0	F: Silty Sand				X								
26/09/2024		SS31	0-0.1	G	0	F: Silty Sand				X								
26/09/2024		SS32	0-0.1	G	0	F: Silty Sand				X								
24/09/2024		SS33	0-0.1	G	0	F: Silty Clay				X								
26/09/2024		SS34	0-0.1	G	0	F: Silty Sand				X								
24/09/2024		SS35	0-0.1	G	0	F: Silty Clay				X								
24/09/2024		SDUP1	-	G, A	-	F: Silty Sand					X							
24/09/2024	1	SDUP2	-	G	-	F: Silty Sand					X	Please send to Melbourne Envirolab						
24/09/2024		SDUP3	-	G	-	F: Silty Sand					X							
24/09/2024	2	SDUP4	-	G, A	-	F: Silty Sand					X	Please send to Melbourne Envirolab						
25/09/2024		SDUP5	-	G, A	-	Silty Sand												
26/09/2024		SDUP6	-	G, A	-	F: Silty Sand												
24/09/2024		FR-SPT-1	-	G, A	-	Rinsate		X										
27/09/2024		FR-HA-1	-	G, A	-	Rinsate		X										
24/09/2024		FCF1	Surface	P	-	Material			X									
27/09/2024		FCF1	0.7-0.8	A	-	Material			X									
25/09/2024		FCF2	0-0.2	A	-	Material			X									
26/09/2024		FCF3	0-0.1	A	-	Material			X									
26/09/2024		FCF4	0.4-0.5	A	-	Material			X									
26/09/2024		FCF5	0.2-0.4	A	-	Material			X									
27/09/2024		FCF6	Surface	A	-	Material			X									

Remarks (comments/detection limits required):

Sample Containers:
G - 250mg Glass Jar
A - Ziplock Asbestos Bag
P - Plastic Bag

Relinquished By: Eli ND
O.Willciak

Date: 1/10/24 1100

Time:

Received By:

Date:

O.W.

ENVIROLAB
Envirolab Services
25 Research Drive
Croydon South VIC 3136
Ph: (03) 9763 2500

Job No: MPJ0048

Date Received: 2/10/24
Time Received: 12:30pm
Received by: D
Temp: Cool/[✓ Ambient]
Cooling: Ice/[✓ Icepack]
Security: [✓ Intact]/Broken/None

18°C

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

CERTIFICATE OF ANALYSIS 364347

Client Details

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

Sample Details

Your Reference	**E36310PT, South Lismore**
Number of Samples	1 Water
Date samples received	18/10/2024
Date completed instructions received	18/10/2024

Analysis Details

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

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

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

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

Report Details

Date results requested by	28/10/2024
Date of Issue	28/10/2024

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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
Giovanni Agosti, Group Technical Manager
Nick Sarlamis, Assistant Operation Manager
Timothy Toll, Senior Chemist

Authorised By
Nancy Zhang, Laboratory Manager

vTRH(C6-C10)/BTEXN in Water		
Our Reference		364347-1
Your Reference	UNITS	MW2
Date Sampled		15/10/2024
Type of sample		Water
Date extracted	-	21/10/2024
Date analysed	-	21/10/2024
TRH C_6 - C_9	µg/L	<10
TRH C_6 - C_{10}	µg/L	<10
TRH C_6 - C_{10} less BTEX (F1)	µg/L	<10
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	%	107
Surrogate Toluene-d8	%	99
Surrogate 4-Bromofluorobenzene	%	94

svTRH (C10-C40) in Water		
Our Reference		364347-1
Your Reference	UNITS	MW2
Date Sampled		15/10/2024
Type of sample		Water
Date extracted	-	21/10/2024
Date analysed	-	21/10/2024
TRH C_{10} - C_{14}	µg/L	<50
TRH C_{15} - C_{28}	µg/L	<100
TRH C_{29} - C_{36}	µg/L	<100
Total +ve TRH (C10-C36)	µg/L	<50
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	<100
TRH >C_{34} - C_{40}	µg/L	<100
Total +ve TRH (>C10-C40)	µg/L	<50
Surrogate o-Terphenyl	%	98

PAHs in Water		
Our Reference		364347-1
Your Reference	UNITS	MW2
Date Sampled		15/10/2024
Type of sample		Water
Date extracted	-	21/10/2024
Date analysed	-	22/10/2024
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 p-Terphenyl-d14	%	103

All metals in water-dissolved		
Our Reference		364347-1
Your Reference	UNITS	MW2
Date Sampled		15/10/2024
Type of sample		Water
Date prepared	-	21/10/2024
Date analysed	-	21/10/2024
Arsenic-Dissolved	µg/L	<1
Cadmium-Dissolved	µg/L	<0.1
Chromium-Dissolved	µg/L	<1
Copper-Dissolved	µg/L	<1
Mercury-Dissolved	µg/L	<0.05
Nickel-Dissolved	µg/L	9
Lead-Dissolved	µg/L	<1
Zinc-Dissolved	µg/L	72
Aluminium-Dissolved	µg/L	10
Silver-Dissolved	µg/L	<1
Antimony-Dissolved	µg/L	<1
Barium-Dissolved	µg/L	480
Beryllium-Dissolved	µg/L	<0.5
Boron-Dissolved	µg/L	40
Cobalt-Dissolved	µg/L	4
Iron-Dissolved	µg/L	<10
Lithium-Dissolved	µg/L	5
Manganese-Dissolved	µg/L	510
Molybdenum-Dissolved	µg/L	<1
Selenium-Dissolved	µg/L	<1
Strontium-Dissolved	µg/L	2,800
Uranium-Dissolved	µg/L	0.7
Vanadium-Dissolved	µg/L	2

Miscellaneous Inorganics		
Our Reference		364347-1
Your Reference	UNITS	MW2
Date Sampled		15/10/2024
Type of sample		Water
Date prepared	-	23/10/2024
Date analysed	-	23/10/2024
pH	pH Units	7.3
Electrical Conductivity	µS/cm	4,600
Redox Potential*	mV	160
Dissolved Oxygen*	mg/L	5.8
Sodium Adsorption Ratio	-	6.3
Silica (Reactive - SiO_2)	mg/L	36
Ammonia as N in water	mg/L	0.097
Nitrate as N in water	mg/L	0.26
Nitrite as N in water	mg/L	<0.005
NOx as N in water	mg/L	0.3
Total Nitrogen in water	mg/L	0.8
TKN in water	mg/L	0.5
Phosphate as P in water	mg/L	0.067
Organic Nitrogen as N	mg/L	0.4

Ion Balance		
Our Reference		364347-1
Your Reference	UNITS	MW2
Date Sampled		15/10/2024
Type of sample		Water
Date prepared	-	23/10/2024
Date analysed	-	23/10/2024
Calcium - Dissolved	mg/L	200
Potassium - Dissolved	mg/L	3
Sodium - Dissolved	mg/L	480
Magnesium - Dissolved	mg/L	140
Hardness (calc) equivalent $CaCO_3$	mg/L	1,100
Hydroxide Alkalinity (OH^-) as $CaCO_3$	mg/L	<5
Bicarbonate Alkalinity as $CaCO_3$	mg/L	320
Carbonate Alkalinity as $CaCO_3$	mg/L	<5
Total Alkalinity as $CaCO_3$	mg/L	320
Sulphate, SO4	mg/L	49
Chloride, Cl	mg/L	1,400
Ionic Balance	%	-6.0

Metals in Waters - Total		
Our Reference		364347-1
Your Reference	UNITS	MW2
Date Sampled		15/10/2024
Type of sample		Water
Date prepared	-	21/10/2024
Date analysed	-	21/10/2024
Phosphorus - Total	mg/L	0.51

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.
Inorg-006	Alkalinity - determined titrimetrically in accordance with APHA latest edition, 2320-B.
Inorg-035	Analysed using an electrode. Please note that the results for water analyses are indicative only, samples are ideally analysed on collection.
Inorg-040	The concentrations of the major ions (mg/L) are converted to milliequivalents and summed. The ionic balance should be within +/- 15% ie total anions = total cations +/-15%.
Inorg-055	Nitrate - determined colourimetrically. Waters samples are filtered on receipt prior to analysis. Soils are analysed following a water extraction.
Inorg-055	Nitrite - determined colourimetrically based on APHA latest edition NO2- B. Waters samples are filtered on receipt prior to analysis. Soils are analysed following a water extraction.
Inorg-055/062/127	Total Nitrogen - Calculation sum of TKN and oxidised Nitrogen. Alternatively analysed by combustion and chemiluminescence.
Inorg-057	Ammonia - determined colourimetrically, based on APHA latest edition 4500-NH3 F. Waters samples are filtered on receipt prior to analysis. Soils are analysed following a KCl extraction.
Inorg-060	Phosphate determined colourimetrically based on EPA365.1 and APHA latest edition 4500 P E. Waters samples are filtered on receipt prior to analysis. Soils are analysed following a water extraction.
Inorg-062	TKN - determined colourimetrically based on APHA latest edition 4500 Norg. Alternatively, TKN can be derived from calculation (Total N - NOx).
Inorg-081	Anions - a range of Anions are determined by Ion Chromatography, in accordance with APHA latest edition, 4110-B. Waters samples are filtered on receipt prior to analysis. Alternatively determined by colourimetry/turbidity using Discrete Analyser.
Inorg-112	Dissolved Oxygen using membrane electrode. Note this analysis should ideally be carried out immediately after sampling.
INORG-120	Reactive Silica (SiO2) determined colorimetrically. Waters samples are filtered on receipt prior to analysis.
Metals-020	Determination of various metals by ICP-AES.
Metals-020	Calcium and Magnesium analysed by ICP-AES and SAR calculated.
Metals-021	Determination of Mercury by Cold Vapour AAS.
Metals-022	Determination of various metals by ICP-MS. Please note for Bromine and Iodine, any forms of these elements that are present are included together in the one result reported for each of these two elements. Salt forms (e.g. FeO, PbO, ZnO) are determined stoichiometrically from the base metal concentration.

Method ID	Methodology Summary
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.

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	-			21/10/2024	[NT]	[NT]	[NT]	[NT]	21/10/2024	[NT]
Date analysed	-			21/10/2024	[NT]	[NT]	[NT]	[NT]	21/10/2024	[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]	113	[NT]
Toluene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	115	[NT]
Ethylbenzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	103	[NT]
m+p-xylene	µg/L	2	Org-023	<2	[NT]	[NT]	[NT]	[NT]	104	[NT]
o-xylene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	104	[NT]
Naphthalene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate Dibromofluoromethane	%		Org-023	106	[NT]	[NT]	[NT]	[NT]	107	[NT]
Surrogate Toluene-d8	%		Org-023	100	[NT]	[NT]	[NT]	[NT]	100	[NT]
Surrogate 4-Bromofluorobenzene	%		Org-023	94	[NT]	[NT]	[NT]	[NT]	94	[NT]

QUALITY CONTROL: svTRH (C10-C40) in Water					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W3	[NT]
Date extracted	-			21/10/2024	[NT]	[NT]	[NT]	[NT]	21/10/2024	[NT]
Date analysed	-			21/10/2024	[NT]	[NT]	[NT]	[NT]	21/10/2024	[NT]
TRH C_{10} - C_{14}	µg/L	50	Org-020	<50	[NT]	[NT]	[NT]	[NT]	94	[NT]
TRH C_{15} - C_{28}	µg/L	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	95	[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]	94	[NT]
TRH >C_{16} - C_{34}	µg/L	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	95	[NT]
TRH >C_{34} - C_{40}	µg/L	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	100	[NT]
Surrogate o-Terphenyl	%		Org-020	87	[NT]	[NT]	[NT]	[NT]	99	[NT]

QUALITY CONTROL: PAHs in Water						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W2	[NT]
Date extracted	-			21/10/2024	[NT]	[NT]	[NT]	[NT]	21/10/2024	[NT]
Date analysed	-			22/10/2024	[NT]	[NT]	[NT]	[NT]	22/10/2024	[NT]
Naphthalene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	86	[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]	80	[NT]
Fluorene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	90	[NT]
Phenanthrene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	108	[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]	110	[NT]
Pyrene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	110	[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]	115	[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]	99	[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	111	[NT]	[NT]	[NT]	[NT]	96	[NT]

Client Reference: E36310PT, South Lismore

QUALITY CONTROL: All metals in water-dissolved					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W6	[NT]
Date prepared	-			21/10/2024	[NT]	[NT]	[NT]	[NT]	21/10/2024	[NT]
Date analysed	-			21/10/2024	[NT]	[NT]	[NT]	[NT]	21/10/2024	[NT]
Arsenic-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	96	[NT]
Cadmium-Dissolved	µg/L	0.1	Metals-022	<0.1	[NT]	[NT]	[NT]	[NT]	96	[NT]
Chromium-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	94	[NT]
Copper-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	93	[NT]
Mercury-Dissolved	µg/L	0.05	Metals-021	<0.05	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Nickel-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	93	[NT]
Lead-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	108	[NT]
Zinc-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	92	[NT]
Aluminium-Dissolved	µg/L	10	Metals-022	<10	[NT]	[NT]	[NT]	[NT]	96	[NT]
Silver-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	99	[NT]
Antimony-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	92	[NT]
Barium-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	101	[NT]
Beryllium-Dissolved	µg/L	0.5	Metals-022	<0.5	[NT]	[NT]	[NT]	[NT]	98	[NT]
Boron-Dissolved	µg/L	20	Metals-022	<20	[NT]	[NT]	[NT]	[NT]	87	[NT]
Cobalt-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	96	[NT]
Iron-Dissolved	µg/L	10	Metals-022	<10	[NT]	[NT]	[NT]	[NT]	84	[NT]
Lithium-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	109	[NT]
Manganese-Dissolved	µg/L	5	Metals-022	<5	[NT]	[NT]	[NT]	[NT]	90	[NT]
Molybdenum-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	90	[NT]
Selenium-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	91	[NT]
Strontium-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	90	[NT]
Uranium-Dissolved	µg/L	0.5	Metals-022	<0.5	[NT]	[NT]	[NT]	[NT]	108	[NT]
Vanadium-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	92	[NT]

Client Reference: E36310PT, South Lismore

QUALITY CONTROL: All metals in water-dissolved						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W2	[NT]
Date prepared	-			[NT]	[NT]	[NT]	[NT]	[NT]	21/10/2024	[NT]
Date analysed	-			[NT]	[NT]	[NT]	[NT]	[NT]	21/10/2024	[NT]
Mercury-Dissolved	μg/L	0.05	Metals-021	[NT]	[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	-			23/10/2024	[NT]	[NT]	[NT]	[NT]	23/10/2024	[NT]
Date analysed	-			23/10/2024	[NT]	[NT]	[NT]	[NT]	23/10/2024	[NT]
pH	pH Units		Inorg-001	[NT]	[NT]	[NT]	[NT]	[NT]	99	[NT]
Electrical Conductivity	µS/cm	1	Inorg-002	<1	[NT]	[NT]	[NT]	[NT]	98	[NT]
Redox Potential*	mV		Inorg-035	[NT]	[NT]	[NT]	[NT]	[NT]	84	[NT]
Dissolved Oxygen*	mg/L	0.1	Inorg-112	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Silica (Reactive - SiO_2)	mg/L	0.1	INORG-120	<0.1	[NT]	[NT]	[NT]	[NT]	91	[NT]
Ammonia as N in water	mg/L	0.005	Inorg-057	<0.005	[NT]	[NT]	[NT]	[NT]	91	[NT]
Nitrate as N in water	mg/L	0.005	Inorg-055	<0.005	[NT]	[NT]	[NT]	[NT]	106	[NT]
Nitrite as N in water	mg/L	0.005	Inorg-055	<0.005	[NT]	[NT]	[NT]	[NT]	85	[NT]
NOx as N in water	mg/L	0.005	Inorg-055	<0.005	[NT]	[NT]	[NT]	[NT]	106	[NT]
Total Nitrogen in water	mg/L	0.1	Inorg-055/062/127	<0.1	[NT]	[NT]	[NT]	[NT]	102	[NT]
TKN in water	mg/L	0.1	Inorg-062	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Phosphate as P in water	mg/L	0.005	Inorg-060	<0.005	[NT]	[NT]	[NT]	[NT]	89	[NT]
Organic Nitrogen as N	mg/L	0.2	Inorg-055/062/127	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]

Client Reference: E36310PT, South Lismore

QUALITY CONTROL: Ion Balance						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date prepared	-			23/10/2024	[NT]	[NT]	[NT]	[NT]	23/10/2024	[NT]
Date analysed	-			23/10/2024	[NT]	[NT]	[NT]	[NT]	23/10/2024	[NT]
Calcium - Dissolved	mg/L	0.5	Metals-020	<0.5	[NT]	[NT]	[NT]	[NT]	96	[NT]
Potassium - Dissolved	mg/L	0.5	Metals-020	<0.5	[NT]	[NT]	[NT]	[NT]	90	[NT]
Sodium - Dissolved	mg/L	0.5	Metals-020	<0.5	[NT]	[NT]	[NT]	[NT]	100	[NT]
Magnesium - Dissolved	mg/L	0.5	Metals-020	<0.5	[NT]	[NT]	[NT]	[NT]	94	[NT]
Hardness (calc) equivalent $CaCO_3$	mg/L	3	Metals-020	<3	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Hydroxide Alkalinity (OH^-) as $CaCO_3$	mg/L	5	Inorg-006	<5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Bicarbonate Alkalinity as $CaCO_3$	mg/L	5	Inorg-006	<5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Carbonate Alkalinity as $CaCO_3$	mg/L	5	Inorg-006	<5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Total Alkalinity as $CaCO_3$	mg/L	5	Inorg-006	<5	[NT]	[NT]	[NT]	[NT]	118	[NT]
Sulphate, SO4	mg/L	1	Inorg-081	<1	[NT]	[NT]	[NT]	[NT]	104	[NT]
Chloride, Cl	mg/L	1	Inorg-081	<1	[NT]	[NT]	[NT]	[NT]	102	[NT]

Client Reference: E36310PT, South Lismore

QUALITY CONTROL: Metals in Waters - Total					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date prepared	-			21/10/2024	[NT]	[NT]	[NT]	[NT]	21/10/2024	[NT]
Date analysed	-			21/10/2024	[NT]	[NT]	[NT]	[NT]	21/10/2024	[NT]
Phosphorus - Total	mg/L	0.05	Metals-020	<0.05	[NT]	[NT]	[NT]	[NT]	103	[NT]

Result Definitions

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

Quality Control Definitions

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

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

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

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

Laboratory Acceptance Criteria

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

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

Spikes for Physical and Aggregate Tests are not applicable.

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

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

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

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

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

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

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

Measurement Uncertainty estimates are available for most tests upon request.

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

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

Report Comments

Total metals: no unfiltered, preserved sample was received, therefore analysis was conducted from the unpreserved sample bottle.
Note: there is a possibility some elements may be underestimated.

Dissolved Metals: no filtered, preserved sample was received, therefore the unpreserved sample was filtered through 0.45µm filter at the lab.
Note: there is a possibility some elements may be underestimated.

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 RECEIPT ADVICE

Client Details

Client	JK Environments
Attention	Katrina Taylor

Sample Login Details

Your reference	E36310PT, South Lismore
Envirolab Reference	364347
Date Sample Received	18/10/2024
Date Instructions Received	18/10/2024
Date Results Expected to be Reported	28/10/2024

Sample Condition

Samples received in appropriate condition for analysis	Incorrect Container
No. of Samples Provided	1 Water
Turnaround Time Requested	Standard
Temperature on Receipt (°C)	10
Cooling Method	Ice
Sampling Date Provided	YES

Comments

250ML of sample received in incorrect containers.

We will prioritise Combo 3 as instructed.

Insufficient sample supplied for all testing requested. Micro, TSS, TDS, TOC, turbidity.

Please contact the laboratory within 24 hours if you wish to cancel the aformentioned testing. Otherwise testing will proceed as per the COC and hence invoiced accordingly.

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:

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 Water	svTRH (C10-C40) in Water	PAHs in Water	All metals in water-dissolved	pH	Electrical Conductivity	Redox Potential*	Dissolved Oxygen*	Sodium Adsorption Ratio	Silica (Reactive - SiO2)	Ammonia as N in water	Nitrate as N in water	Nitrite as N in water	NOx as N in water	Total Nitrogen in water	TKN in water	Phosphate as P in water	Organic Nitrogen as N	Calcium - Dissolved	Potassium - Dissolved	Sodium - Dissolved	Magnesium - Dissolved	Hardness (calc) equivalent CaCO3	Hydroxide Alkalinity (OH-) as CaCO3	Bicarbonate Alkalinity as CaCO3	Carbonate Alkalinity as CaCO3	Total Alkalinity as CaCO3	Sulphate, SO4	Chloride, Cl	Ionic Balance	Metals in Waters -Total
MW2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

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.

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: E36310PT

Date Results Required: STANDARD

Page: 1 of 1

FROM:
JKEnvironments
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: South Lismore

Sampler: VR

Sample Preserved in Esky on Ice

Tests Required

Date Sampled	Lab Ref:	Sample Number	Sample Containers	PID	Sample Description	Combo 3L	EC, pH, reddox, DO	Alkalinity suite	Turbidity	TDS, TSS, TOC, SAR	Ionic balance, including hardness	Additional metals: Al, Ag, Sb, Ba, Be, B, Co, Fe, Li, Mn, Mo, Se, Sr, U, V	Silica (reactive) - dissolved silica	Nutrient suite	Faecal coliforms + Escherichia (E) coli		
15/10/2024	1	MW2	G1	0	Water	X	X	X	X	X	X	X	X	X	X		

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

Job No: 364347
Date Received: 18/10/24
Time Received: 1630
Received By: DC
Temp: [✓ Cool]/Ambient
Cooling: Ice/[✓ Icepack]
Security: [✓ Intact]/Broken/None

Remarks (comments/detection limits required):

[redacted]

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: JB	**Date:** 18/10/24	**Time:** 13:45	**Received By:** Dahyun Lee	**Date:** 18/10/24

Appendix F: 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)**[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 handing 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;

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[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 G: 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 attached in the appendices 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 table Q1 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)
Intra-laboratory duplicate (soil)	1	Approximately 5% of primary samples
Intra-laboratory duplicate (soil)	1	As above
Inter-laboratory duplicate (soil)	1	Approximately 5% of primary samples
Inter-laboratory duplicate (soil)	1	As above
Trip spike soil	1	One for the investigation to demonstrate adequacy of preservation, storage and transport methods
Trip blank soil	1	One for the investigation to demonstrate adequacy of storage and transport methods
Rinsate soil SPT soil hand auger	 1 1	One of each for the investigation to demonstrate adequacy of decontamination methods

Groundwater field duplicates were not taken due to the low monitoring well volume. We note also that a water blank and trip spike were not analysed specifically for this project. However, the groundwater sampling occurred concurrently with that of another project in Lismore during the same mobilisation and the trip spike and blank for that project reported acceptable results which demonstrated that field procedures were robust.

3. Data Assessment Criteria

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

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.

We note that the groundwater sample was not field filtered for total or dissolved metals due to the volume of water in the well at the time of sampling. The sample was filtered at the lab as noted in Laboratory report 364347 and there is a possibility some elements may be underestimated. The reported heavy metal concentrations in the groundwater at the site were considered to be reflective of background concentrations in an urban environment. 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.

There were several holding time exceedances for pH and TCLP analysis as reported in laboratory reports 362946-A, 362946-B, and 362946-C. Given the samples were kept on ice, in a fridge at the JKE office or in the laboratory prior to analysis, all reports indicate the samples were received in good order and the requested analysis was not for volatiles, 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.

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 PQL for groundwater analysis which was 10 times greater than the ecological SAC. In light of the PAH 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 several PAH compounds in SDUP1/BH11 (0-0.1m);
- Elevated RPDs were reported for chromium in SDUP3/BH9 (0-0.1m);
- Elevated RPDs were reported for TRH F3, several PAH compounds and lead in SDUP2/BH23 (0-0.1m); and
- Elevated RPDs were reported for several PAH compounds and copper in SDUP4/BH21 (0-0.1m).

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 trip blank was placed in the esky during sampling and transported back to the laboratory. The results were all less than the PQLs, therefore cross contamination between samples that may have significance for data validity did not occur.

Rinsates

Two rinsate samples were obtained for the investigation. One from the SPT and one from the hand auger. All results were below the PQL on the rinsate sample from the SPT. This indicated that cross-contamination artefacts associated with sampling equipment were not present and the potential for cross-contamination to have occurred was low.

With the exception of TRH F1 and toluene, all results were below the PQL on the rinsate from the hand auger. The detectable concentration of light fraction TRH and toluene is considered to be an anomaly given that these contaminants were all reported at less than the laboratory PQL in the soil and groundwater samples obtained during the investigation. It is noted that these compounds were detected only marginally above the PQLs.

Trip Spikes

The results ranged from 98% to 99% 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 362946

- The laboratory RPD acceptance criteria was exceeded for acid extractable metals in one sample for lead. Therefore, a triplicate result was issued.

Envirolab report MFJ0048

- Spike recovery was outside routine acceptance criteria (60-140%), this may have been due to suspected non-homogeneity and/or matrix interference effects. However, an acceptable recovery was achieved for the LCS;
- Surrogate recovery was outside routine acceptance criteria (60-140%) as a result of the high concentration of analyte(s) in the sample. The PQL was raised due to matrix requiring dilution;
- Duplicate analysis precision was outside acceptable %RPD, re-analysis indicates possible sample heterogeneity; and
- The laboratory duplicate RPD acceptance criteria was exceeded. Results were accepted due to the inhomogeneous nature of the sample.

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

Appendix H: Field Work Documents

JKE SAQP

REPORT TO

SCHOOL INFRASTRUCTURE NSW

ON

SAMPLING ANALYSIS AND QUALITY PLAN FOR DETAILED SITE INVESTIGATION

FOR

LISMORE SOUTH PUBLIC SCHOOL – FLOOD RECOVERY REBUILD

AT

69-79 KYOGLE STREET, SOUTH LISMORE, NSW

Date: 20 September 2024
Ref: E36310PTrpt2-SAQP

JKEnvironments
www.jkenvironments.com.au

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ABN 90 633 911 403

Report prepared by:

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Associate | Environmental Scientist

Report reviewed by:

B Page

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Principal| Environmental Scientist
CEnvP SC

2024/2025
SC40059

For and on behalf of
JKE
PO BOX 976
NORTH RYDE BC NSW 1670

DOCUMENT REVISION RECORD

Report Reference	Report Status	Report Date
E36310PTrpt2-SAQP	Final Report	20 September 2024

This Report (which includes all attachments and annexures) has been prepared by JKE for the Client, and is intended for the use only by that Client.

This Report has been prepared pursuant to a contract between JKE and the Client and is therefore subject to:
a) JKE's proposal in respect of the work covered by the Report;
b) The limitations defined in the client's brief to JKE; and
c) The terms of contract between JKE and the Client, including terms limiting the liability of JKE.

If the Client, or any person, provides a copy of this Report to any third party, such third party must not rely on this Report, except with the express written consent of JKE which, if given, will be deemed to be upon the same terms, conditions, restrictions and limitations as apply by virtue of (a), (b), and (c) above.

Any third party who seeks to rely on this Report without the express written consent of JKE does so entirely at their own risk and to the fullest extent permitted by law, JKE accepts no liability whatsoever, in respect of any loss or damage suffered by any such third party.

Table of Contents

List of Tables

Attachments

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**
Development Application	**DA**
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**
Health Screening Level-Site Specific Assessment	**HSL-SSA**
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**
Potential ASS	**PASS**
Polychlorinated Biphenyls	**PCB**
Photo-ionisation Detector	**PID**
Protection of the Environment Operations	**POEO**
Practical Quantitation Limit	**PQL**
Quality Assurance	**QA**
Quality Control	**QC**
Remediation Action Plan	**RAP**
Reduced/Relative Level	**RL**
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**
Underground Storage Tank	**UST**
Virgin Excavated Natural Material	**VENM**
Volatile Organic Compounds	**VOC**
Vinyl Chloride	**VC**
World Health Organisation	**WHO**
Work Health and Safety	**WHS**

Units

Litres	**L**
Metres BGL	**mBGL**
Metres	**m**
Millivolts	**mV**
Millilitres	**ml or mL**
Milliequivalents	**meq**
micro Siemens per Centimetre	**µS/cm**
Micrograms per Litre	**µg/L**
Milligrams per Kilogram	**mg/kg**
Milligrams per Litre	**mg/L**
Parts Per Million	**ppm**
Percentage	**%**
Percentage weight for weight	**%w/w**

1 INTRODUCTION

School Infrastructure NSW ('the client') commissioned JK Environments (JKE) to prepare a Sampling Analysis and Quality Plan (SAQP) for the Detailed Site Contamination Investigation (DSI) to be undertaken by JKE for the Lismore South Public School – Flood Recovery Rebuild, at 69-79 Kyogle Street, South Lismore, 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 Preliminary (Desktop) Site Investigation (PSI) for the site and wider school property. A summary of relevant information is included in Section 2.

1.1 Proposed Development Details

Based on the details provided, JKE understand that the eastern portion of the existing public school (primary aged children, Kindergarten to year 6), campus was significantly impacted by the 2022 floods. As such, the campus requires extensive redevelopment.

1.2 Aims and Objectives

The primary aim of the DSI is to characterise the soil and groundwater contamination conditions in accessible areas 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 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 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 variation proposal (Ref: 36310BTpropRev5_LSPS) of 17 June 2024 and written acceptance from the client.

The scope of work included review of the PSI 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.

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[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 Background

JKE previously undertook a PSI across the site and wider school property in December 2023[3]. The PSI included a review of historical information and other relevant information for the site, a limited site inspection (i.e. which occurred from outside the site boundary), and preparation of a preliminary CSM. It is acknowledged that at the time of the PSI, the area that was investigated included the site as defined in this SAQP and also the western portion of the wider school property which is on the western side of Wilson Street. The parts of the wider school property on the western side of Wilson Street do not form part of the site for the purpose of the DSI (see Figures 1 and 2 in Appendix A).

A time line summary of the historical land uses and activities identified for the site is presented in the table below.

Table 2-1: Summary of Historical Land Uses / Activities

Year(s)	Potential Land Use / Activities
1901-1913	*On-site* • Agricultural (grazing) and rural residential. *Off-site* • Agricultural (grazing) and rural residential.
1913 to present	*On-site* • Agricultural (grazing), rural residential, commercial/industrial (potentially including motor mechanic at eastern end of site) and primary school; • Ongoing construction/demolition of structures; • Filling/earthworks for levelling purposes and installation of services; • Use of pesticides around site and beneath building; and • Use and impacts from hazardous building materials in former/existing structures. *Off-site* • Agricultural (i.e. grazing), rural residential, and commercial/ industrial (including fuel depots, cattle dips).

The following potential contamination sources/AEC were identified in the PSI: fill material; historical agricultural land use (grazing); historical motor mechanic workshop; use of pesticides around site; hazardous building materials (former and existing buildings); and off-site industrial/agricultural land uses (fuel depot and cattle dip).

As the site was identified to have been used for agricultural purposes (grazing) and as a motor mechanics which are listed in Table 1 of the SEPP55 Planning Guidelines as activities that may cause contamination, a DSI was recommended (and is required) to establish whether the site is either suitable in its current state, or whether it needs to be remediated, with regards to Clause 4.6 of State Environmental Planning Policy (Resilience and Hazards) 2021[4] (formerly known as SEPP55).

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[3] JKE, (2023). *Report to School Infrastructure New South Wales on Contamination - Preliminary (Desktop) Site Investigation for Due Diligence – Flood Recovery at Lismore South Public School, 69-79 Kyogle Street, South Lismore, NSW.* (Ref: E36310PTrpt, dated 18 December 2023) (referred to as PSI)

[4] *State Environmental Planning Policy (Resilience and Hazards) 2021* (NSW) (referred to as SEPP Resilience and Hazards 2021)

The PSI report recommended the following to better assess the risks associated with potential contamination at the site:

- A DSI to characterise the site contamination conditions and establish whether the site is suitable for the proposed development, or whether remediation is required. A SafeWork NSW search for historical dangerous goods licenses should also occur under the scope of the DSI;
- A SAQP should be prepared for the DSI. Soil sampling from test pits would be preferred, however, locations could be combined with the geotechnical investigation where practicable. Preliminary waste classification assessment should occur concurrently with this investigation if it is anticipated that soil waste will need to be disposed off-site during the development works; and
- Where any buildings or structures are proposed to be demolished or refurbished, the project team must consider the need for updating the existing registers (and engage a suitably qualified consultant to do so where needed) prior to commencement of any works. An asbestos clearance certificate should be obtained following removal of any asbestos and/or hardstand.

In addition to the above, JKE undertook a review of the NSW Government website[5] to establish whether a site-specific ‘Asbestos In Grounds Management Plan’ exists for the site. It was noted that there was an Asbestos Register for the buildings/structures listed on the website. A high-level review of the asbestos register indicated that asbestos is present within the site buildings/structures.

2.2 Site Identification

Table 2-2: Site Identification

Current Site Owner (certificate of title):	Minister for Education
Site Address:	69-79 Kyogle Street, South Lismore, NSW
Lot & Deposited Plan:	Lots 21, 22, 23 & 26 Section 1 in DP448737, Lot 1 in DP64010, and Lots 1 & 2 in DP158407
Current Land Use:	Primary School (kindergarten to year 6)
Proposed Land Use:	Primary school
Local Government Area:	Lismore City Council
Current Zoning:	R2 Low Density Residential
Site Area (m^2) (approx.):	10,660
RL (AHD in m) (approx.):	10
Geographical Location (decimal degrees) (approx.):	Latitude: -28.8093516 Longitude: 153.2591089
Site Plans:	Appendix A

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[5] https://education.nsw.gov.au/about-us/strategies-and-reports/our-reports-and-reviews/schools-asbestos-register

2.3 Site Description

The site is located in a mixed use (residential/commercial) area of South Lismore and is bound by Kyogle Street to the south, Phyllis Street to the north, and Wilson Street to the west. The site is located approximately 525m to the south and 710m to the west of Wilsons River at its closest points.

The regional topography is characterised by level to gently undulating floodplains, generally flattening out around the Wilsons River. The site itself appeared to be relatively flat. It is possible that parts of the site have been levelled/filled to accommodate the existing development.

The most recent inspection of the site was undertaken by JKE on 4 March 2024 subsequent to completion and issue of the PSI. The inspection was limited to accessible areas of the site and immediate surrounds. An internal inspection of buildings was not undertaken. A summary of key inspections findings is outlined below:

- Numerous vacant buildings and structures of brick, timber and metal construction were observed. The buildings appeared to be between one and two storey construction, some with under-croft paved areas;
- The single storey building in the south-east corner of the site appeared to have formerly been utilised as a day care centre with external play areas;
- Parts of the site were paved, generally in the vicinity of the buildings and in the central and south-west of the site, with the northern extent and north-east corner comprising grass covered playground;
- The entire site was fenced with lockable vehicle and pedestrian gated access onto all street frontages. A paved carpark was located in the south of the site;
- Evidence of flood impacts (excess leaves and silty water levels) were observed on the sides of the buildings as high up as the first storey windows (4-5m from ground level); and
- All vegetation inspected appeared to be in good condition with no obvious evidence of phyto-toxic stress or die back.

2.4 Surrounding Land Use

During the site inspection, JKE observed the following land uses in the immediate surrounds:

- North – Phyllis Street and residential properties beyond;
- South – Kyogle Street with grass and weed covered verge, former Muwillumbah railway line and commercial/industrial properties (warehousing, truck company, etc) beyond;
- East – residential properties; and
- West – Wilson Street with the western portion of the school site beyond.

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

2.5 Underground Services

The 'Before You Dig Australia' (BYDA) plans were reviewed for the PSI in order to establish whether any major underground services exist at the site or in the immediate vicinity that could act as a preferential pathway for contamination migration. The BYDA plans indicated that a sewerage pipe extends through the lower eastern centre of the site from Lot 26 Section 1 in DP448737 extending out of the site in an east direction. Considering the geological conditions (discussed in Section 2.6.1). There is a potential for the service trench to act as a preferential pathway for contamination migration (i.e. through relatively permeable backfill), should mobile contamination be present. Copies of the relevant plans are attached in Appendix B.

2.6 Summary of Regional Geology and Hydrogeology

2.6.1 Regional Geology

Regional geological information was reviewed for the PSI. The PSI indicated that the site is underlain by Quaternary aged alluvial floodplain deposits, which typically consists of silt, very fine- to medium grained lithic to quartz-rich sand, and clay.

2.6.2 Soil Landscapes of Central and Eastern NSW

Soil Landscapes of Central and Eastern NSW information was reviewed for the PSI. The information indicated that the site is located within the Leycester soil landscape. Leycester soils are generally characterised by moderate erodibility with some higher local occurrences, and high dispersivity.

2.6.3 Dryland Salinity – National Assessment

There was no dryland salinity national assessment data for the site.

2.6.4 Acid Sulfate Soil (ASS) Risk and Planning

ASS related information was reviewed for the PSI. The PSI indicated that the site is not located in an ASS risk area.

2.6.5 Hydrogeology

Hydrogeological information presented in the PSI indicated that the regional aquifer on-site and in the areas immediately surrounding the site includes porous, extensive highly productive aquifers. There was a total of 56 registered bores within the report buffer of 2,000m. In summary:

- The nearest registered bore was located approximately 70m from the site. This was registered for monitoring purposes;
- The majority of the bores were registered for monitoring purposes;
- One bore registered for irrigation was cross gradient and within 130m of the site. All other bores registered for irrigation, water supply and/or stock and domestic purposes were located over 700m from the site; and
- The drillers log information from the closest registered bores typically identified fill and/or clay soil to depths of 2.43m-29m, underlain by basalt or shale bedrock. Standing water levels (SWLs) in the bores ranged from 0.6m below ground level (BGL) to 8mBGL.

The information reviewed indicated that the subsurface conditions at the site are expected to consist of moderate to high permeability (alluvial) soils overlying bedrock. Abstraction and use of groundwater at the site or in the immediate surrounds may be viable under these conditions, however the use of groundwater is not proposed as part of the development. There is a reticulated water supply in the area and consumption of groundwater is not expected to occur, although it cannot be ruled out given that some registered groundwater bores in the region are listed as water supply bores.

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

2.6.6 Receiving Water Bodies

The closest surface water body is Wilsons River located approximately 525m to the north and approximately 710m to the east of the site at its closest points. The areas nearer to the river appear to be at a similar elevation to the site and the river is considered to be a potential receptor given the regional topography.

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
Fill material – 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. Site-won soils used during earthworks can also become contaminated with hazardous building materials from previous demolition works.	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.
Historical agricultural use – Part of the site the site may have been used for agricultural (grazing) purposes. This could have resulted in contamination across the site via application of pesticides and building/demolition of various structures.	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.
Historical motor mechanics workshop – The easternmost Lot within the site (see Figure 2 in Appendix A) may have been used as a mechanics. Fuels and oils may have been used during this site use.	Heavy metals, TRHs, BTEX, and PAHs.
Use of pesticides – Pesticides may have been used beneath the structures and/or around the site.	Heavy metals and OCPs.
Hazardous Building Material – Hazardous building materials may be present as a result of former building and demolition activities. The approximate areas where former buildings/structures existed and were demolished are indicated on Figure 2 in Appendix A. Asbestos is known to be present in the existing buildings/ structures on site as discussed in Section 2.1. Site-won soils used during earthworks can also become contaminated with hazardous building materials from previous demolition works.	Asbestos, lead and PCBs.

Source / AEC	CoPC
Off-site fuel depot – The site information reviewed indicated that a fuel depot was within approximately 60m of the site and is considered to be a potential source of contamination. Risks that could impact future development of the site would primarily be expected to relate to volatile contaminants in groundwater.	Heavy metals, TRHs, BTEX, and PAHs.
Off-site cattle dip – The site information reviewed indicated that a cattle dip was located within approximately 290m of the site. Dependent on the groundwater flow direction, this may be a potential source of off-site contamination. However, we note that the former cattle dip is a reasonable distance from the site and is unlikely to represent a source of contamination for the site.	Heavy metals (notably arsenic) and OCPs. Once the groundwater flow direction is understood, this AEC may be reassessed.

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	Potential mechanisms for contamination include: • Fill material – importation of impacted material, 'top-down' impacts (e.g. placement of fill, leaching from surficial material etc), or sub-surface release (e.g. impacts from buried material); • Historical agricultural use – 'top-down' and spills (e.g. application of pesticides, refuelling or repairing machinery, and other activities at the ground surface level); • Historical motor mechanics - 'top-down', spills (e.g. leaks through cracks in the pavement), or sub-surface release (e.g. from leaking separator/grease pits or sewer pipework, or possibly even above or underground tanks (USTs/ASTs)); • Use of pesticides – 'top-down' and spills (e.g. during normal use, application and/or improper storage); • Hazardous building materials – 'top-down' (e.g. demolition resulting in surficial impacts in unpaved areas); and • Off-site commercial/agricultural land uses (fuel depot/cattle dip)– 'top-down', spill or sub-surface release. Impacts to the site could occur via migration of contaminated groundwater.
Affected media	Soil and groundwater have been identified as potentially affected media.
Receptor identification	Human receptors include site occupants/users (including adults and primary school aged children), construction workers and intrusive maintenance workers. Off-site human receptors include adjacent land users, groundwater users and recreational water users within Wilsons River. Ecological receptors include terrestrial organisms and plants within unpaved areas (including the proposed landscaped areas), and freshwater ecology in Wilsons River.

Potential exposure pathways	Dermal absorption, ingestion and inhalation of dust (all contaminants) and vapours (volatile TRH, naphthalene and BTEX). 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/direct 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. Potential exposure pathways to groundwater (for human receptors) would be via vapour intrusion, or potential primary/secondary contact with groundwater during construction or if groundwater migrates into the river which could be utilised for recreational purposes. Exposure to ecological receptors could also occur in this water body. Sporadic use of groundwater for drinking purposes may also occur in the region (as suggested by the registered water supply bores in the general vicinity), although it is noted there is a town water supply and there were no water supply bores in the immediate vicinity.
Potential exposure mechanisms	The following have been identified as potential exposure mechanisms for site contamination: • Vapour intrusion into proposed buildings (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; • Contact with groundwater during construction activities; • Migration of groundwater into nearby water bodies, including aquatic ecosystems and recreational water bodies; and • Potential consumption of groundwater, or primary/secondary contact during activities such as irrigation.
Presence of preferential pathways for contaminant movement	The sewer trench (as discussed in Section 2.5), could act as a preferential pathway for contaminant migration. This could occur through fill soil and/or via groundwater/seepage. This would be dependent on the contaminant type and transport mechanisms.

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. Preliminary 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, guide the design of further investigation, and assess whether remediation is required. This information will be considered by the project team in the design and delivery of the project as well as by the consent authority in exercising its planning functions in relation to the approval of the development proposal under Chapter 4, Clause 4.6 of SEPP Resilience and Hazards 2021.

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 further investigation/remediation required and what is this likely to involve?
- What is the preliminary waste classification of the in-situ fill material and natural soils/bedrock sampled and is further sampling/analysis required to confirm the waste classification(s)?
- Is the site suitable for the proposed development, or can the site be made suitable subject to further characterisation and/or remediation?

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 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 depth of 6mBGL (spatial boundary). The final depth could depend on site conditions and will be noted in the DSI. At this stage, the sampling is scheduled to be completed in September 2024 (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 Source-Pathway-Receptor (SPR) linkages.

Where appropriate, data will be assessed against valid statistical parameters to characterise the data population. This will include calculation and application of mean values and/or 95% upper confidence limit (UCL) values for the data set, with regards to the NEPM (2013) framework and other relevant guidelines made under the CLM Act 1997.

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

For the DSI, the following decision rules will be considered:
- If all CoPC (with the exception of asbestos) concentrations are below the SAC, then the data will be compared directly to the SAC without statistical analysis;
- For soil data, if any individual CoPC (with the exception of asbestos) concentration is above the SAC, then statistical analysis will be considered based on the sampling plan. This will include calculation of the 95% upper confidence limit (UCL) value for the data set, with regards to the NEPM (2013) framework and other relevant guidelines made under the CLM Act 1997. The UCL will be considered acceptable where the UCL is below the SAC, the standard deviation of the data is less than 50% of the SAC and none of the individual concentrations are more than 250% of the SAC;
- If asbestos concentrations are encountered above the SAC or in the top 100mm of soil, then asbestos will be deemed a contaminant of concern for remediation purposes; and
- Groundwater data will be compared directly to the SAC and evaluated with regards to valid/complete SPR-linkages.

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 this investigation, the null hypothesis (H_0) is that the 95% UCL for the CoPC is greater than the SAC. The alternative hypothesis (H_A) is that the 95% UCL for the CoPC is less than the SAC. Alternative considerations are made regarding asbestos based on an assessment of multiple lines of evidence.

Potential outcomes include Type I and Type II errors as follows:

- Type I error of determining that the soil is acceptable for the proposed land use when it is not (wrongly rejects true H_0), includes an alpha (α) risk of 0.05; and
- Type II error of determining that the soil is unacceptable for the proposed land use when it is (wrongly accepts false H_0), includes beta (β) risk of 0.2.

UCLs will be considered acceptable where the UCL is below the SAC, the standard deviation of the data is less than 50% of the SAC and none of the individual concentrations are more than 250% of the SAC. However, where statistical analysis is applied in accordance with Step 5 via the calculation of UCL values, the potential for decision errors to occur will also be evaluated using the Combined Risk Value (CRV) method as outlined in Appendix E of the NSW EPA Sampling Design Part 1 – Application (2022)[6] contaminated land guidelines. The CRV method will be used retrospectively to establish whether there is sufficient statistical power in the UCL.

Statistical analysis will not apply to asbestos or groundwater data, therefore these data will be assessed based on a multiple lines of evidence and risk-based approach.

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.

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

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 25 grid-based locations (refer to Figure 2a) as shown on the attached Figure 2. This number of locations meets the minimum sampling density for hotspot identification, as outlined in the NSW EPA Sampling Design Part 1 – Application (2022)[7] contaminated land guidelines. Samples will also be obtained from an additional 10 surface locations around the buildings and structures (refer to Figure 2a). Samples will be collected from three locations for salinity analysis (BH5, BH8 and BH19), which forms part of a separate scope of work running in parallel with the DSI. This number of locations meets the minimum sampling density outlined in the initial site investigation for moderately intensive construction outlined in DLWC Salinity Guidelines (2002) based on the site area.
Sampling Plan	The sampling locations will be placed on a systematic plan with a grid spacing of approximately 21m between sampling location. A systematic plan is considered suitable to identify hotspots to a 95% confidence level and calculate UCLs for specific data populations (UCLs will only be applied where appropriate and in accordance with the DQOs). The surface sample locations will be placed on a judgemental sampling plan to target building/structure footprints. This sampling plan is considered suitable to make an assessment of potential risks associated with this AEC and CoPC identified in the CSM (use of pesticides).

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

Aspect	Input
Set-out and Sampling Equipment	Sampling locations will be set out using a hand-held GPS unit (with an accuracy of approximately ±0.2m where adequate satellite coverage is available). In-situ sampling locations will be checked for underground services by an external contractor prior to sampling. Samples will be collected using a combination of: • Drill rig equipped with spiral flight augers (150mm diameter). Soil samples will be obtained from a Standard Penetration Test (SPT) split-spoon sampler, and/or directly from the auger; and/or • Backhoe/excavator. Samples will be obtained from the test pit walls or directly from the bucket by hand. Where sampling occurs 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. Depending on site constraints, we may elect to use a spiral auger attachment (300mm in diameter) in some or all locations. Surface soil samples will be obtained using a hand trowel or pick/shovel.
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 will be placed in glass jars with plastic caps and Teflon seals with minimal headspace. Samples for asbestos analysis will 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 borehole/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; • The condition of fibre cement or any other suspected asbestos materials will be noted on the field records; and

Aspect	Input
	• 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.
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 will be installed in BH5 (MW5) BH7 (MW7) and BH23 (MW23). The wells will be positioned to establish background groundwater conditions at the site. Considering the topography and the location of the nearest down-gradient water body, MW5 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 and/or west. MW7 and MW23 are considered to be in the intermediate to down-gradient areas of the site and are expected to provide an indication of groundwater flowing across (beneath) the site and beyond the down-gradient site boundaries.
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 6mBGL. The wells will generally be 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.
Monitoring Well Development	The monitoring wells will be developed after installation using a submersible electrical pump. During development, the following parameters will be monitored using calibrated field instruments: • 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.

Aspect	Input
	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 approximately two to five days 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. 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 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 25 selected soil samples will be analysed for: heavy metals (arsenic, cadmium, chromium, copper, lead, mercury, nickel and zinc); PAHs; TRH; BTEX; OCPs and OPPs; PCBs; and asbestos (500ml);
- Up to 10 surficial soil samples will be analysed for the above heavy metals, OCPs and OPPs;
- Up to nine selected deeper soil samples will be analysed for: heavy metals (arsenic, cadmium, chromium, copper, lead, mercury, nickel and zinc); PAHs; TRH; and BTEX;
- Up to four representative fibre cement fragments, if found on or in soil, will be analysed for asbestos;
- Up to nine selected samples will be analysed for toxicity characteristic leachate procedure (TCLP) for selected metals and PAHs for preliminary waste classification purposes; and
- Up to three groundwater samples for: heavy metals; TRH/BTEX; PAHs; trace level OCPs; speciated arsenic; pH; and electrical conductivity (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.

Additional analysis will also occur for:

Assessment of Salinity (although this will be reported in a separate document to the DSI):

- Up to nine selected soil/rock samples will be analysed for pH, EC, resistivity (calculated from EC results), sulphate and chloride, and soil texture; and
- Up to six selected soil samples will be analysed for CEC.

Assessment of Groundwater impacts (although this will be reported in a separate document to the DSI):

- Alkalinity (bicarbonate, carbonate, hydroxide and total), acidity, EC, pH, redox potential (Eh) and dissolved oxygen (DO);
- Turbidity, total dissolved solids, total suspended solids, total organic carbon and sodium absorption ratio (SAR);
- Ionic balance, which includes major anions and the cation suite (including hardness);

- Metals including Aluminium, antimony, barium, beryllium, boron, cobalt, iron, lithium, manganese, molybdenum, selenium, silica (dissolved SiO2), silver, strontium, uranium, and vanadium;
- Nutrient suite, including Ammonia, nitrate, total nitrogen, oxidised nitrogen, total phosphorus and reactive phosphorus;
- Faecal coliforms, and Escherichia (E) coli;
- VOCs; and
- and Per- and Polyfluoroalkyl Substances (PFAS) (trace level).

For completeness, although VOCs and PFAS were not listed as CoPC in the PSI CSM, the groundwater data will be included and assessed under the scope of the DSI.

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 'residential with accessible soils' exposure scenario (HIL-A);
- Health Screening Levels (HSLs) for a 'low-high density residential' exposure scenario (HSL-A & HSL-B). HSLs will be 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)[8]; and
- Asbestos will be assessed against the HSL-A 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-A criteria will be adopted for the assessment of asbestos in soil. The SAC adopted for asbestos are derived from the NEPM 2013 and based on the Guidelines for the Assessment, Remediation and Management of Asbestos-Contaminated Sites in Western Australia (2021)[9]. The SAC include the following: • <0.01% 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): $\textbf{\% w/w asbestos in soil} = \frac{\textbf{\% asbestos content x bonded ACM (kg)}}{\text{Soil volume (L) x soil density (kg/L)}}$ 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): $\textbf{\% w/w asbestos in soil} = \frac{\textbf{\% asbestos content x bonded ACM (g)}}{\text{Soil weight (g)}}$

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[8] 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*

[9] 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)

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. The EILs will only be applied to the top 2m of soil as outlined in NEPM (2013). The criterion for benzo(a)pyrene will be increased from the value presented in NEPM (2013) based on the Canadian Soil Quality Guidelines[10];
- ESLs will be adopted based on the soil type; and
- EILs for selected metals will be calculated as a first pass 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)[11]. This method is considered to be adequate for the Tier 1 screening. Where applicable, pH and CEC data may be used to refine the EILs in the event there are SAC exceedances based on the first pass assessment.

5.1.3 Management Limits for Petroleum Hydrocarbons

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

5.1.4 Waste Classification

Data for the waste classification assessment will be assessed in accordance with the Waste Classification Guidelines, Part 1: Classifying Waste (2014)[12] 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.
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

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[10] 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)

[11] 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

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

Category	Description
	• 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)[13]. 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;
- Should groundwater be recorded at depths shallower than 2m, a site-specific assessment (SSA) for the Tier 1 screening of human health risks posed by volatile contaminants in groundwater will be undertaken. 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 2021)[14] 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)[15] 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;
- 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, or with bore water used for irrigation, water supply and/or stock and domestic purposes. These have been deemed as 'recreational' SAC; and
- The recreational guidelines in The PFAS National Environmental Management Plan (NEMP) Version 2.0 2020[16] will be adopted for PFAS in groundwater.

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

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

[15] 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)

[16] Heads of EPAs Australia and New Zealand (HEPA). PFAS National Environmental Management Plan Version 2.0 - January 2020 (referred to as NEMP 2020)

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)[17]. 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.

The freshwater guideline values will be adopted for PFAS assessment, as documented in the NEMP 2020.

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[17] 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 REPORTING REQUIREMENTS

A DSI report is to be prepared presenting the results of the investigation, generally in accordance with the NSW EPA Consultants Reporting on Contaminated Land, Contaminated Land Guidelines (2020)[18].

A standalone Salinity and ASS report will be prepared including an assessment of the results and our recommendations. A Salinity Management Plan will also be provided (if required).

A standalone Surface and Groundwater Impact Assessment report will be prepared including an assessment of the results and our recommendations.

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[18] 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.

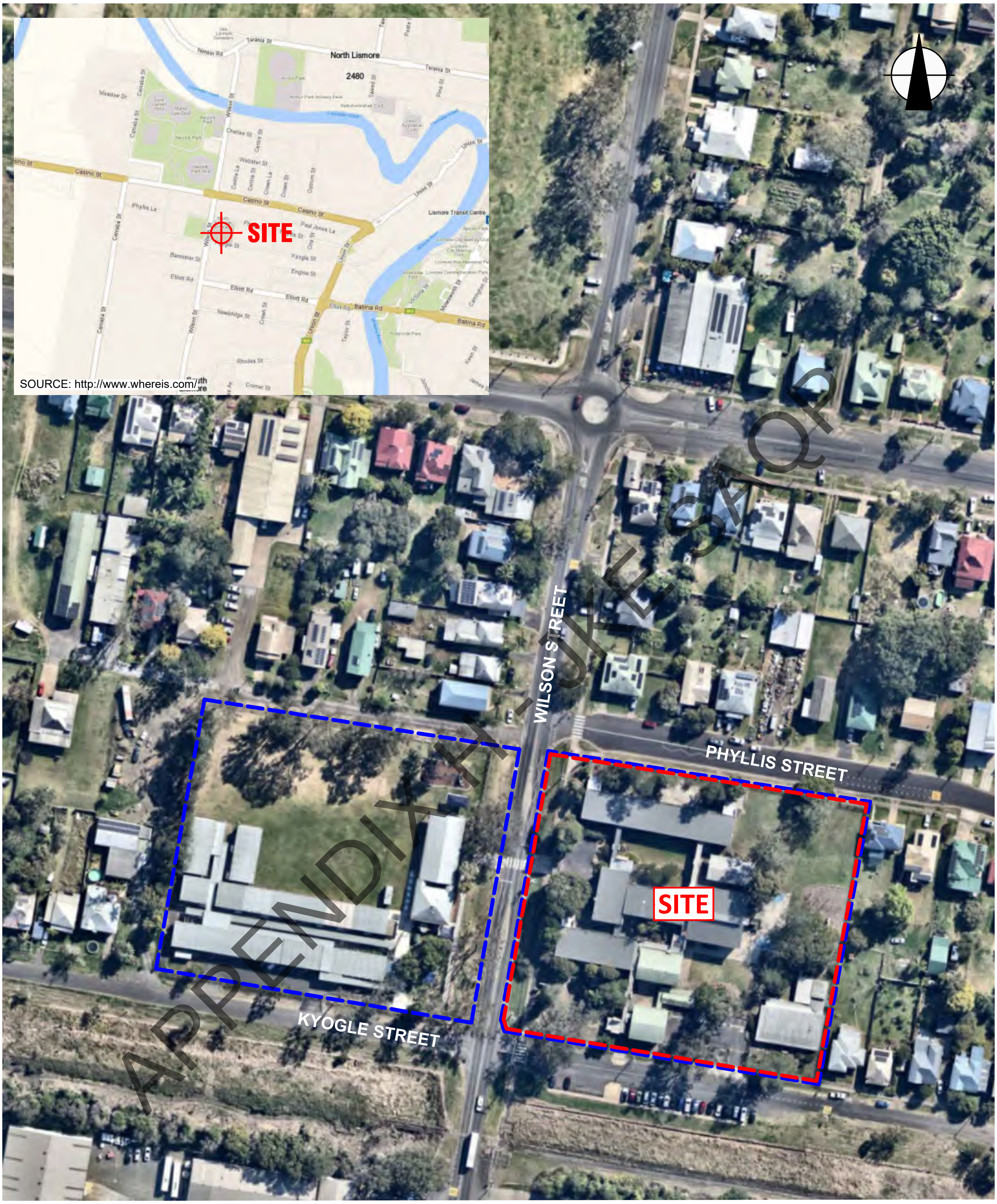
Misinterpretation of Site Investigations by Design Professionals
Costly problems can occur when other design professionals develop plans based on misinterpretation of an investigation report. To minimise problems associated with misinterpretations, the environmental consultant should be retained to work 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 A: Report Figures



LEGEND

- - - - APPROXIMATE PSI SITE BOUNDARY

- - - - APPROXIMATE SITE BOUNDARY

AERIAL IMAGE SOURCE: MAPS.AU.NEARMAP.COM

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

Title:
SITE LOCATION PLAN

Location: 69-79 KYOGLE STREET, LISMORE, NSW

Project No: E36310PTrpt2

Figure No: 1

JKEnvironments

PLOT DATE: 27/08/2024 3:19:14 PM DWG FILE: K:\5C EIS JOBS\36000'S\E36310PT SOUTH LISMORE (SLPS)\CAD\E36310PTRPT2.DWG

LEGEND

🟦 - - -	APPROXIMATE PSI SITE BOUNDARY
🟥 - - -	APPROXIMATE SITE BOUNDARY
- - -	AREAS OF FORMER BUILDINGS/STRUCTURES
● 1	PROPOSED SAMPLING LOCATIONS
● 3	PROPOSED AUGERED BOREHOLE
● 2	PROPOSED CPT PROBE AND SAMPLING LOCATIONS
● 25	PROPOSED SURFACE SAMPLE LOCATIONS

AERIAL IMAGE SOURCE: MAPS.AU.NEARMAP.COM

0 8 16 24 32 40
SCALE 1:800 @A3 METRES

This plan should be read in conjunction with the JK Geotechnics report.

Title: **PROPOSED INVESTIGATION LOCATION PLAN**

Location: 69-79 KYOGLE STREET, LISMORE, NSW

Report No: E36310PT / 36310BT

Figure No: 2a

JKGeotechnics JKEnvironments

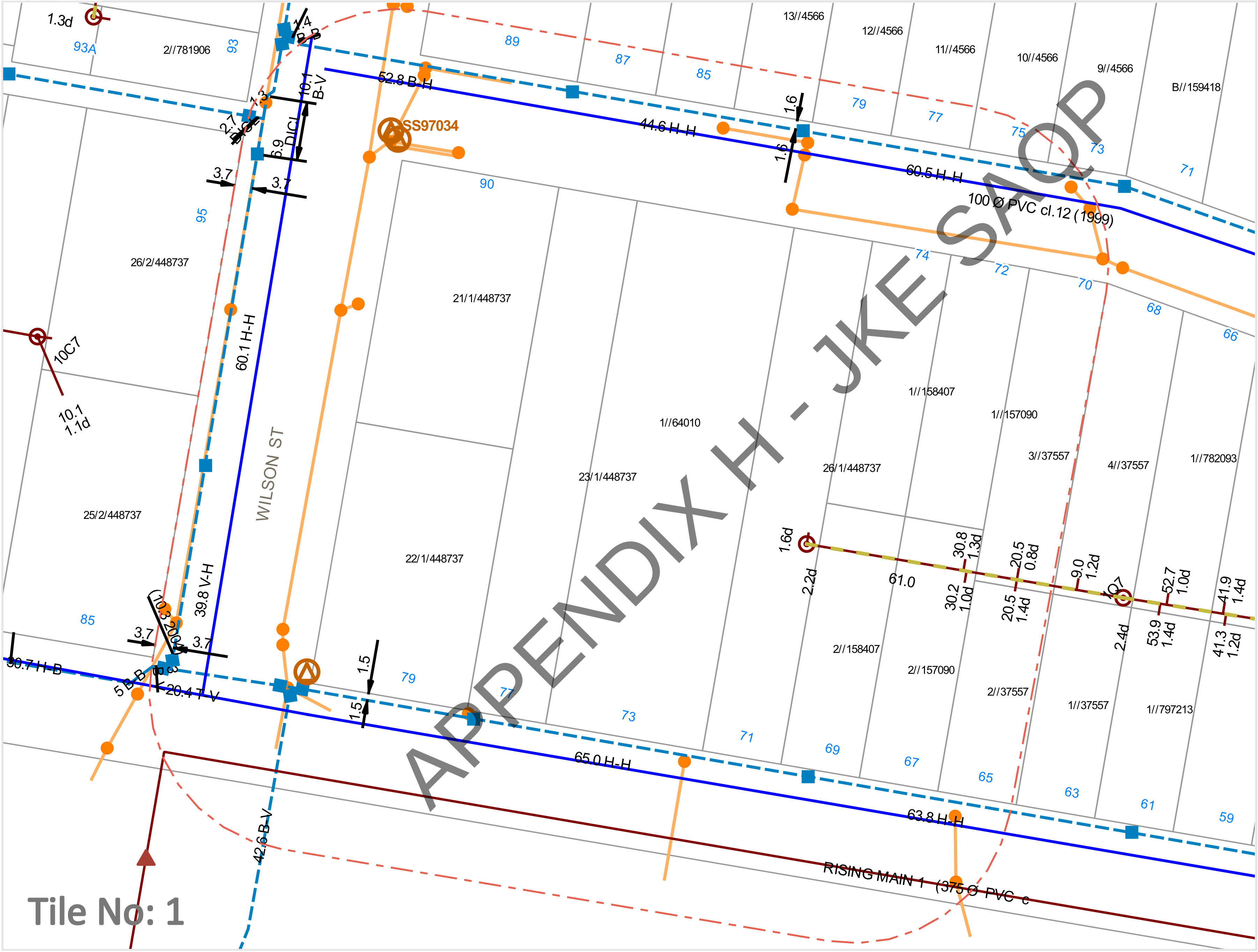
PLOT DATE: 27/08/2024 3:19:26 PM DWG FILE: K:\5C EIS JOBS\36000'S\E36310PT SOUTH LISMORE (SLPS)\CAD\E36310PT-BT.DWG

Appendix B: BYD Services Plans

lismore city council

Sequence No: 243703233
Job No: 37430452
Location: 69-79 Kyogle Street, South Lismore, NSW 2480

DIAL BEFORE YOU DIG www.1100.com.au
The Essential First Step.



Legend
- 🟥 Gas Pipeline
- ○ Optical Fibre Pits
- — Optical Fibre Pipes
- △ Survey Marks
- ● Abandoned Sewer Points
- - - Abandoned Sewer Lines
- ◎ Manholes
- ▲ Sewerage Valves
- — Sewerage Pipes
- — Abandoned Water Pipes
- ■ Water Valves and Hydrants
- — Water Storage Tanks
- - - Water Pipes
- — Water Connections
- - - Rous Pipelines
- ○ Stormwater End Structures
- ● Stormwater Pits
- - - Stormwater IAD
- — Stormwater Conduits
- — Stormwater Easement
- ☐ Property Boundaries

N

Scale: 1:1000
Expires: 20 Sep 2024

Appendix C: 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)**[19]** methods and those described in *Environmental Sampling and Analysis, A Practical Guide,* (1991)**[20]**. 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 handing 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;

---

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

[20] 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

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)

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

JKEnvironments

Client:	TSA Management	**Job No.:**	E36310PT
Project:	Proposed School Development	**Well No.:**	MW12
Location:	Lismore South Public School, 69 Kyogle Street, South Lismore, NSW	**Depth (m):**	6M

WELL FINISH

☑ **Gatic Cover** ☐ **Standpipe** ☐ **Other (describe)**

WELL PURGE DETAILS:

Method:	Bailer	**SWL – Before:**	5.30m
Date:	15/10/2024	**Time – Before:**	9.03am
Undertaken By:	VR	**Total Vol Removed:**	/
Pump Program No:		**PID (ppm):**	0.0

PURGING / SAMPLING MEASUREMENTS

Time (min)	SWL (m)	Vol (L)	Notes	Temp (°C)	DO (mg/L)	EC (µS/cm)	pH	Eh (mV)
9.03am	5.62m		Bailer.					

* limited water available in well for sampling, not enough volume to use a peri pump / WQM so sampling carried out with a bailer.

Comments: Odours (~~YES~~ / [✓ NO]), **NAPL/PSH** (~~YES~~ / [✓ NO]), **Sheen** (~~YES~~ / [✓ NO]), **Steady State Achieved** (~~YES~~ / [✓ NO])

Sampling Containers Used: 1 **x glass amber,** (500ml) **x BTEX vials, x HNO3 plastic, x H2SO4 plastic, x unpreserved plastic**

YSI used: /

Tested By: Victoria Reain

Date Tested: 15/10/24

Checked By: KT

Date: 4.11.24

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

JKEnvironments

Client:	TSA Management	Job No.:	E36310PT
Project:	Proposed School Development	Well No.:	MW11
Location:	Lismore South Public School, 69 Kyogle Street, South Lismore, NSW	Depth (m):	6M

WELL FINISH

☒ Gatic Cover ☐ Standpipe ☐ Other (describe)

WELL PURGE DETAILS:

Method:		SWL – Before:	Dry at 5.67m
Date:	15/10/2024	Time – Before:	8.51am
Undertaken By:	VR	Total Vol Removed:	—
Pump Program No:		PID (ppm):	0.1

PURGING / SAMPLING MEASUREMENTS

Time (min)	SWL (m)	Vol (L)	Notes	Temp (°C)	DO (mg/L)	EC (µS/cm)	pH	Eh (mV)

Dry - No Samples collected.

Comments: Odours (YES / NO), NAPL/PSH (YES / NO), Sheen (YES / NO), Steady State Achieved (YES / NO)

Sampling Containers Used: x glass amber, x BTEX vials, x HNO3 plastic, x H2SO4 plastic, x unpreserved plastic

YSI used:

Tested By: Victoria Reain
Date Tested: 15/10/24
Checked By: KT
Date: 4.11.24

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

JKEnvironments

Client:	TSA Management	**Job No.:**	E36310PT
Project:	Proposed School Development	**Well No.:**	MW23
Location:	Lismore South Public School, 69 Kyogle Street, South Lismore, NSW	**Depth (m):**	6M

WELL FINISH

✓	**Gatic Cover**		**Standpipe**		**Other (describe)**

WELL PURGE DETAILS:

Method:		**SWL – Before:**	Dry at 5.81m
Date:	15/10/2024	**Time – Before:**	8.42am
Undertaken By:	VR	**Total Vol Removed:**	–
Pump Program No:		**PID (ppm):**	0.2

PURGING / SAMPLING MEASUREMENTS

Time (min)	SWL (m)	Vol (L)	Notes	Temp (°C)	DO (mg/L)	EC (µS/cm)	pH	Eh (mV)

Dry - No Samples collected.

Comments: Odours (YES / NO), NAPL/PSH (YES / NO), Sheen (YES / NO), Steady State Achieved (YES / NO)

Sampling Containers Used: x glass amber, x BTEX vials, x HNO3 plastic, x H2SO4 plastic, x unpreserved plastic

YSI used:

Tested By: Victoria Reain	**Remarks:**
Date Tested: 15/10/24	- Steady state conditions
Checked By: KT	- difference in the pH less than 0.2 units, difference in conductivity less than 10% 10% and SWL stable/not in drawdown
Date: 4.11.24	

JKEnvironments

PID FIELD CALIBRATION FORM

Client: TSA management
Project: Proposed School Development.
Location:
Lismore South Public School, 69 Kyogle Street, South Lismore, NSW
Job Number: E36310PT

PID

Make: Honeywell	Model: miniRAE lite	Unit: PID3	Date of last factory calibration: 14/08/24
Date of calibration: 20|09|2024		Name of Calibrator: VR	
Calibration gas: Iso-butylene		Calibration Gas Concentration: 100.0 ppm	
Measured reading: 100.2 ppm		Error in measured reading: ± ppm	
Measured reading Acceptable ([✓ Yes]/~~No~~):			

PID

Make: RAE	Model: MiniRAE Lite	Unit: PID 2	Date of last factory calibration: 18/07/2024
Date of calibration: 30/09/2024		Name of Calibrator: VR	
Calibration gas: Iso-butylene		Calibration Gas Concentration: 100.0 ppm	
Measured reading: 100.2 ppm		Error in measured reading: ± ppm	
Measured reading Acceptable ([✓ Yes]/~~No~~):			

PID

Make: Honeywell	Model: MiniRAE Lite	Unit: PID 3	Date of last factory calibration: 14/08/24
Date of calibration: 30/09/2024		Name of Calibrator: LR	
Calibration gas: Iso-butylene		Calibration Gas Concentration: 100.0 ppm	
Measured reading: 100. 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):			

JKEnvironments

Client:	TSA Management	**Job No.:**	E36310PT
Project:	Proposed School Development	**Well No.:**	MW11
Location:	Lismore South Public School, 69 Kyogle Street, South Lismore, NSW	**Depth (m):**	6m

WELL FINISH DETAILS

Gatic Cover ☒ Standpipe ☐ Other (describe) ☐

WELL DEVELOPMENT DETAILS

Method:		**SWL – Before (m):**	Dry at 5.82m
Date:	25/9/24	**Time – Before:**	7.20am
Undertaken By:	VR	**SWL – After (m):**	/
Total Vol. Removed:	/	**Time – After:**	/
PID Reading (ppm):	0.3		

Comments:

DEVELOPMENT MEASUREMENTS

Volume Removed (L)	Temp (°C)	DO (mg/L)	EC (µS/cm)	pH	Eh (mV)
Dry at 5.82m	/	/	/	/	/

Comments: Odours (YES / NO), NAPL/PSH (YES / NO), Sheen (YES / NO), Steady State Achieved (YES / NO)

YSI Used:

Tested By:	VR
Date Tested:	25.9.24
Checked By:	KT
Date:	4.11.24

Remarks:
- Steady state conditions
- Difference in the pH less than 0.2 units, difference in the conductiveity less than 10% and SWL stable/not in drawdown
- Minimum 3 monitoring well volumes purged, unless well purged until it is effectively dry

JKEnvironments

Client:	TSA Management	**Job No.:**	E36310PT
Project:	Proposed School Development	**Well No.:**	MW2
Location:	Lismore South Public School, 69 Kyogle Street, South Lismore, NSW	**Depth (m):**	6m

WELL FINISH DETAILS

Gatic Cover ☒ Standpipe ☐ Other (describe) ☐

WELL DEVELOPMENT DETAILS

Method:		**SWL – Before (m):**	Dry at 5.90m
Date:	25/9/24	**Time – Before:**	7.24am
Undertaken By:	VR	**SWL – After (m):**	/
Total Vol. Removed:	/	**Time – After:**	/
PID Reading (ppm):	1.5		

Comments:

DEVELOPMENT MEASUREMENTS

Volume Removed (L)	Temp (°C)	DO (mg/L)	EC (µS/cm)	pH	Eh (mV)
Dry at 5.63m	/	/	/	/	/

Comments: Odours (YES / NO), NAPL/PSH (YES / NO), Sheen (YES / NO), Steady State Achieved (YES / NO)

YSI Used:

Tested By:	VR	**Remarks:** - Steady state conditions - Difference in the pH less than 0.2 units, difference in the conductiveity 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:	25.9.24	
Checked By:	KT	
Date:	4.11.24	

JKEnvironments

Client:	TSA Management	**Job No.:**	E36310PT
Project:	Proposed School Development	**Well No.:**	MW23
Location:	Lismore South Public School, 69 Kyogle Street, South Lismore, NSW	**Depth (m):**	6m

WELL FINISH DETAILS

Gatic Cover ☒ Standpipe ☐ Other (describe) ☐

WELL DEVELOPMENT DETAILS

Method:		**SWL – Before (m):**	Dry at 5.90m
Date:	25/9/24	**Time – Before:**	7.28am
Undertaken By:	VR	**SWL – After (m):**	/
Total Vol. Removed:	/	**Time – After:**	/
PID Reading (ppm):	5.9		

Comments:

DEVELOPMENT MEASUREMENTS

Volume Removed (L)	Temp (°C)	DO (mg/L)	EC (µS/cm)	pH	Eh (mV)
Dry at 5.90m	/	/	/	/	/

Comments:Odours (YES / NO), NAPL/PSH (YES / NO), Sheen (YES / NO), Steady State Achieved (YES / NO)

YSI Used:

Tested By:	VR
Date Tested:	25.9.24
Checked By:	KT
Date:	4-11-24

Remarks:
- Steady state conditions
- Difference in the pH less than 0.2 units, difference in the conductiveity less than 10% and SWL stable/not in drawdown
- Minimum 3 monitoring well volumes purged, unless well purged until it is effectively dry

Appendix I: UCL Calculation Sheets

FILL DATA USED FOR CALCULATION OF 95% UCL
All data in mg/kg unless stated otherwise

			Carcinogenic PAHs	Lead	Nickel	B(a)P
PQL - Envirolab Services			0.5	1	1	0.05
Sample Reference	**Sample Depth**	**Sample Description**				
BH1	0-0.1	F: Silty Sand	**0.9**	**11**	**11**	**0.57**
BH2	0.05-0.2	F: Silty Sandy Gravel	<0.5	**30**	**24**	**0.05**
TP3	0-0.1	F: Silty Sand	<0.5	**11**	**5**	<0.05
TP3	0.5-0.6	F: Sand	<0.5	**2**	<1	**0.06**
TP4	0-0.1	F: Silty Sand	<0.5	**27**	**11**	**0.1**
TP4	0.4-0.5	F: Silty Clay	**0.7**	**39**	**20**	**0.4**
TP4	0.5-0.6	F: Silty Gravel	**0.6**	**12**	**5**	**0.4**
TP5	0-0.1	F: Silty Sand	<0.5	**9**	**12**	<0.05
TP6	0-0.1	F: Silty Sand	<0.5	**20**	**8**	**0.2**
BH7	0-0.1	F: Silty Clay	<0.5	**15**	**10**	**0.07**
TP8	0-0.1	F: Silty Sandy Clay	**0.9**	**26**	**9**	**0.65**
TP8	0.4-0.5	F: Silty Gravelly Clay	<0.5	**5**	**18**	<0.05
BH9	0-0.1	Fill: Silty Sand	<0.5	**13**	**4**	<0.05
TP10	0-0.1	F: Silty Sand	**2.2**	**14**	**8**	**1.6**
TP10	0.4-0.5	F: Silty Sandy Clay	**1.3**	**9**	**20**	**0.91**
BH11 / SDUP1	0.0-0.1	Fill: Silty Sand	<0.5	**12**	**9**	**0.1**
BH12	0-0.2	F: Silty Clay	<0.5	**11**	**4**	<0.05
BH13	0-0.1	F: Silty Clay	**1**	**26**	**10**	**0.65**
TP14	0-0.1	F: Silty Sand	<0.5	**25**	**9**	<0.05
BH15	0-0.1	F: Silty Sandy Gravel	<0.5	**9**	**8**	<0.05
TP16	0-0.1	F: Silty Sand	<0.5	**11**	**14**	<0.05
TP16	0.4-0.5	F: Silty Clay	**3.5**	**37**	**22**	**2.5**
TP17	0-0.1	F: Silty Sand	<0.5	**13**	**11**	**0.1**
TP17	0.3-0.4	F: Silty Sandy Clay	**1.3**	**30**	**25**	**0.86**
TP18	0-0.1	F: Silty Clayey Sand	<0.5	**14**	**11**	**0.07**
TP18	0.4-0.5	F: Silty Clay	<0.5	**14**	**18**	**0.2**
BH19 / SDUP3	0-0.1	F: Silty Sand	<0.5	**10**	**6**	<0.05
BH20	0-0.1	F: Silty Clay	<0.5	**10**	**5**	<0.05
BH20	0.3-0.4	F: Silty Gravel	<0.5	**11**	**9**	<0.05
BH21 / SDUP4	0-0.1	F: Silty Sand	<0.5	**9.3**	**9.3**	<0.05
TP22	0-0.1	F: Silty Sand	<0.5	**10**	**5**	<0.05
TP22	0.3-0.4	F: Silty Sandy Clay	**0.6**	**38**	**16**	**0.4**
BH23 / SDUP2	0-0.1	F: Silty Sand	<0.5	**26**	**6**	**0.08**
TP24	0-0.1	F: Silty Sand	<0.5	**14**	**7**	<0.05
TP24	0.3-0.4	F: Silty Gavelly Clay	<0.5	**3**	**5**	<0.05
BH25	0-0.1	F: Silty Clay	<0.5	**8**	**24**	**0.1**
BH25	0.3-0.4	F: Gravelly Clay	<0.5	**15**	**55**	**0.1**
BH25	0.4-0.5	F: Sandy Clay	**0.7**	**440**	**29**	**0.5**
SS26	0-0.1	F: Sandy Gravel	NA	**15**	**7**	NA
SS27	0-0.1	F: Silty Clay	NA	**8**	**13**	NA
SS28	0-0.1	F: Silty Sand	NA	**16**	**11**	NA
SS29	0-0.1	F: Silty Sand	NA	**16**	**14**	NA
SS30	0-0.1	F: Silty Sand	NA	**17**	**11**	NA
SS31	0-0.1	F: Silty Sand	NA	**12**	**14**	NA
SS32	0-0.1	F: Silty Sand	NA	**9**	**10**	NA
SS33	0-0.1	F: Silty Clay	NA	**10**	**8**	NA
SS34	0-0.1	F: Silty Sand	NA	**7**	**6**	NA
SS35	0-0.1	F: Silty Clay	NA	**22**	**19**	NA
Total Number of Samples			38	48	48	38
Maximum Value			3.5	440	55	2.5

1	**UCL Statistics for Uncensored Full Data Sets**			
2				
3	User Selected Options			
4	Date/Time of Computation	ProUCL 5.15/11/2024 8:15:01 AM		
5	From File	WorkSheet_a.xls		
6	Full Precision	OFF		
7	Confidence Coefficient	95%		
8	Number of Bootstrap Operations	2000		
9				
10				
11	CPAH			
12				
13	**General Statistics**			
14	Total Number of Observations	38	Number of Distinct Observations	8
15			Number of Missing Observations	0
16	Minimum	0.5	Mean	0.716
17	Maximum	3.5	Median	0.5
18	SD	0.571	Std. Error of Mean	0.0927
19	Coefficient of Variation	0.798	Skewness	3.83
20				
21	**Normal GOF Test**			
22	Shapiro Wilk Test Statistic	0.45	**Shapiro Wilk GOF Test**	
23	5% Shapiro Wilk Critical Value	0.938	Data Not Normal at 5% Significance Level	
24	Lilliefors Test Statistic	0.358	**Lilliefors GOF Test**	
25	5% Lilliefors Critical Value	0.142	Data Not Normal at 5% Significance Level	
26	**Data Not Normal at 5% Significance Level**			
27				
28	**Assuming Normal Distribution**			
29	**95% Normal UCL**		**95% UCLs (Adjusted for Skewness)**	
30	95% Student's-t UCL	0.872	95% Adjusted-CLT UCL (Chen-1995)	0.93
31			95% Modified-t UCL (Johnson-1978)	0.882
32				
33	**Gamma GOF Test**			
34	A-D Test Statistic	7.41	**Anderson-Darling Gamma GOF Test**	
35	5% A-D Critical Value	0.753	Data Not Gamma Distributed at 5% Significance Level	
36	K-S Test Statistic	0.392	**Kolmogorov-Smirnov Gamma GOF Test**	
37	5% K-S Critical Value	0.144	Data Not Gamma Distributed at 5% Significance Level	
38	**Data Not Gamma Distributed at 5% Significance Level**			
39				
40	**Gamma Statistics**			
41	k hat (MLE)	3.684	k star (bias corrected MLE)	3.411
42	Theta hat (MLE)	0.194	Theta star (bias corrected MLE)	0.21
43	nu hat (MLE)	280	nu star (bias corrected)	259.2
44	MLE Mean (bias corrected)	0.716	MLE Sd (bias corrected)	0.388
45			Approximate Chi Square Value (0.05)	222.9
46	Adjusted Level of Significance	0.0434	Adjusted Chi Square Value	221.6
47				
48	**Assuming Gamma Distribution**			
49	95% Approximate Gamma UCL (use when n>=50))	0.832	95% Adjusted Gamma UCL (use when n<50)	0.837
50				
51	**Lognormal GOF Test**			
52	Shapiro Wilk Test Statistic	0.569	**Shapiro Wilk Lognormal GOF Test**	
53	5% Shapiro Wilk Critical Value	0.938	Data Not Lognormal at 5% Significance Level	
54	Lilliefors Test Statistic	0.396	**Lilliefors Lognormal GOF Test**	
55	5% Lilliefors Critical Value	0.142	Data Not Lognormal at 5% Significance Level	
56	**Data Not Lognormal at 5% Significance Level**			
57				

	A	B	C	D	E	F	G	H	I	J	K	L
58	**Lognormal Statistics**											
59	Minimum of Logged Data					-0.693	Mean of logged Data					-0.476
60	Maximum of Logged Data					1.253	SD of logged Data					0.45
61												
62	**Assuming Lognormal Distribution**											
63	95% H-UCL					0.79	90% Chebyshev (MVUE) UCL					0.841
64	95% Chebyshev (MVUE) UCL					0.912	97.5% Chebyshev (MVUE) UCL					1.01
65	99% Chebyshev (MVUE) UCL					1.202						
66												
67	**Nonparametric Distribution Free UCL Statistics**											
68	**Data do not follow a Discernible Distribution (0.05)**											
69												
70	**Nonparametric Distribution Free UCLs**											
71	95% CLT UCL					0.868	95% Jackknife UCL					0.872
72	95% Standard Bootstrap UCL					0.863	95% Bootstrap-t UCL					1.092
73	95% Hall's Bootstrap UCL					1.456	95% Percentile Bootstrap UCL					0.874
74	95% BCA Bootstrap UCL					0.947						
75	90% Chebyshev(Mean, Sd) UCL					0.994	95% Chebyshev(Mean, Sd) UCL					1.12
76	97.5% Chebyshev(Mean, Sd) UCL					1.294	99% Chebyshev(Mean, Sd) UCL					1.638
77												
78	**Suggested UCL to Use**											
79	95% Student's-t UCL					0.872	or 95% Modified-t UCL					0.882
80												
81	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.											
82	Recommendations are based upon data size, data distribution, and skewness.											
83	These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).											
84	However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.											
85												

	A	B	C	D	E	F	G	H	I	J	K	L
1	UCL Statistics for Uncensored Full Data Sets											
2												
3	User Selected Options											
4	Date/Time of Computation			ProUCL 5.15/11/2024 8:02:47 AM								
5	From File			WorkSheet.xls								
6	Full Precision			OFF								
7	Confidence Coefficient			95%								
8	Number of Bootstrap Operations			2000								
9												
10												
11	Lead											
12												
13	General Statistics											
14	Total Number of Observations					48	Number of Distinct Observations					24
15							Number of Missing Observations					0
16	Minimum					2	Mean					24.19
17	Maximum					440	Median					13
18	SD					61.91	Std. Error of Mean					8.936
19	Coefficient of Variation					2.56	Skewness					6.717
20												
21	Normal GOF Test											
22	Shapiro Wilk Test Statistic					0.248	Shapiro Wilk GOF Test					
23	5% Shapiro Wilk Critical Value					0.947	Data Not Normal at 5% Significance Level					
24	Lilliefors Test Statistic					0.385	Lilliefors GOF Test					
25	5% Lilliefors Critical Value					0.127	Data Not Normal at 5% Significance Level					
26	Data Not Normal at 5% Significance Level											
27												
28	Assuming Normal Distribution											
29	95% Normal UCL						95% UCLs (Adjusted for Skewness)					
30	95% Student's-t UCL					39.18	95% Adjusted-CLT UCL (Chen-1995)					48.14
31							95% Modified-t UCL (Johnson-1978)					40.63
32												
33	Gamma GOF Test											
34	A-D Test Statistic					5.288	Anderson-Darling Gamma GOF Test					
35	5% A-D Critical Value					0.777	Data Not Gamma Distributed at 5% Significance Level					
36	K-S Test Statistic					0.253	Kolmogorov-Smirnov Gamma GOF Test					
37	5% K-S Critical Value					0.131	Data Not Gamma Distributed at 5% Significance Level					
38	Data Not Gamma Distributed at 5% Significance Level											
39												
40	Gamma Statistics											
41	k hat (MLE)					1.062	k star (bias corrected MLE)					1.009
42	Theta hat (MLE)					22.78	Theta star (bias corrected MLE)					23.97
43	nu hat (MLE)					101.9	nu star (bias corrected)					96.88
44	MLE Mean (bias corrected)					24.19	MLE Sd (bias corrected)					24.08
45							Approximate Chi Square Value (0.05)					75.17
46	Adjusted Level of Significance					0.045	Adjusted Chi Square Value					74.58
47												
48	Assuming Gamma Distribution											
49	95% Approximate Gamma UCL (use when n>=50))					31.17	95% Adjusted Gamma UCL (use when n<50)					31.42
50												
51	Lognormal GOF Test											
52	Shapiro Wilk Test Statistic					0.868	Shapiro Wilk Lognormal GOF Test					
53	5% Shapiro Wilk Critical Value					0.947	Data Not Lognormal at 5% Significance Level					
54	Lilliefors Test Statistic					0.156	Lilliefors Lognormal GOF Test					
55	5% Lilliefors Critical Value					0.127	Data Not Lognormal at 5% Significance Level					
56	Data Not Lognormal at 5% Significance Level											
57												

	A	B	C	D	E	F	G	H	I	J	K	L
58	Lognormal Statistics											
59					Minimum of Logged Data	0.693					Mean of logged Data	2.646
60					Maximum of Logged Data	6.087					SD of logged Data	0.774
61												
62	Assuming Lognormal Distribution											
63					95% H-UCL	24.13					90% Chebyshev (MVUE) UCL	25.91
64					95% Chebyshev (MVUE) UCL	29.1					97.5% Chebyshev (MVUE) UCL	33.53
65					99% Chebyshev (MVUE) UCL	42.22						
66												
67	Nonparametric Distribution Free UCL Statistics											
68	Data do not follow a Discernible Distribution (0.05)											
69												
70	Nonparametric Distribution Free UCLs											
71					95% CLT UCL	38.89					95% Jackknife UCL	39.18
72					95% Standard Bootstrap UCL	38.83					95% Bootstrap-t UCL	106.6
73					95% Hall's Bootstrap UCL	96.12					95% Percentile Bootstrap UCL	41.48
74					95% BCA Bootstrap UCL	52.46						
75					90% Chebyshev(Mean, Sd) UCL	51					95% Chebyshev(Mean, Sd) UCL	63.14
76					97.5% Chebyshev(Mean, Sd) UCL	80					99% Chebyshev(Mean, Sd) UCL	113.1
77												
78	Suggested UCL to Use											
79					95% Chebyshev (Mean, Sd) UCL	63.14						
80												
81	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.											
82	Recommendations are based upon data size, data distribution, and skewness.											
83	These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).											
84	However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.											
85												

	A	B	C	D	E	F	G	H	I	J	K	L
1	**UCL Statistics for Uncensored Full Data Sets**											
2												
3	User Selected Options											
4	Date/Time of Computation			ProUCL 5.15/11/2024 8:27:02 AM								
5	From File			WorkSheet_b.xls								
6	Full Precision			OFF								
7	Confidence Coefficient			95%								
8	Number of Bootstrap Operations			2000								
9												
10												
11	Nickel											
12												
13	**General Statistics**											
14	Total Number of Observations					48	Number of Distinct Observations					22
15							Number of Missing Observations					0
16	Minimum					1	Mean					12.42
17	Maximum					55	Median					10
18	SD					8.922	Std. Error of Mean					1.288
19	Coefficient of Variation					0.718	Skewness					2.589
20												
21	**Normal GOF Test**											
22	Shapiro Wilk Test Statistic					0.788	**Shapiro Wilk GOF Test**					
23	5% Shapiro Wilk Critical Value					0.947	Data Not Normal at 5% Significance Level					
24	Lilliefors Test Statistic					0.209	**Lilliefors GOF Test**					
25	5% Lilliefors Critical Value					0.127	Data Not Normal at 5% Significance Level					
26	**Data Not Normal at 5% Significance Level**											
27												
28	**Assuming Normal Distribution**											
29	**95% Normal UCL**						**95% UCLs (Adjusted for Skewness)**					
30	95% Student's-t UCL					14.58	95% Adjusted-CLT UCL (Chen-1995)					15.06
31							95% Modified-t UCL (Johnson-1978)					14.66
32												
33	**Gamma GOF Test**											
34	A-D Test Statistic					0.61	**Anderson-Darling Gamma GOF Test**					
35	5% A-D Critical Value					0.758	Detected data appear Gamma Distributed at 5% Significance Level					
36	K-S Test Statistic					0.139	**Kolmogorov-Smirnov Gamma GOF Test**					
37	5% K-S Critical Value					0.129	Data Not Gamma Distributed at 5% Significance Level					
38	**Detected data follow Appr. Gamma Distribution at 5% Significance Level**											
39												
40	**Gamma Statistics**											
41	k hat (MLE)					2.623	k star (bias corrected MLE)					2.473
42	Theta hat (MLE)					4.736	Theta star (bias corrected MLE)					5.023
43	nu hat (MLE)					251.8	nu star (bias corrected)					237.4
44	MLE Mean (bias corrected)					12.42	MLE Sd (bias corrected)					7.899
45							Approximate Chi Square Value (0.05)					202.8
46	Adjusted Level of Significance					0.045	Adjusted Chi Square Value					201.8
47												
48	**Assuming Gamma Distribution**											
49	95% Approximate Gamma UCL (use when n>=50)					14.55	95% Adjusted Gamma UCL (use when n<50)					14.62
50												
51	**Lognormal GOF Test**											
52	Shapiro Wilk Test Statistic					0.967	**Shapiro Wilk Lognormal GOF Test**					
53	5% Shapiro Wilk Critical Value					0.947	Data appear Lognormal at 5% Significance Level					
54	Lilliefors Test Statistic					0.0971	**Lilliefors Lognormal GOF Test**					
55	5% Lilliefors Critical Value					0.127	Data appear Lognormal at 5% Significance Level					
56	**Data appear Lognormal at 5% Significance Level**											
57												

	A	B	C	D	E	F	G	H	I	J	K	L
58	Lognormal Statistics											
59	Minimum of Logged Data					0	Mean of logged Data					2.317
60	Maximum of Logged Data					4.007	SD of logged Data					0.66
61												
62	Assuming Lognormal Distribution											
63	95% H-UCL					15.3	90% Chebyshev (MVUE) UCL					16.43
64	95% Chebyshev (MVUE) UCL					18.19	97.5% Chebyshev (MVUE) UCL					20.64
65	99% Chebyshev (MVUE) UCL					25.44						
66												
67	Nonparametric Distribution Free UCL Statistics											
68	Data appear to follow a Discernible Distribution at 5% Significance Level											
69												
70	Nonparametric Distribution Free UCLs											
71	95% CLT UCL					14.54	95% Jackknife UCL					14.58
72	95% Standard Bootstrap UCL					14.48	95% Bootstrap-t UCL					15.35
73	95% Hall's Bootstrap UCL					16.45	95% Percentile Bootstrap UCL					14.69
74	95% BCA Bootstrap UCL					15.3						
75	90% Chebyshev(Mean, Sd) UCL					16.29	95% Chebyshev(Mean, Sd) UCL					18.04
76	97.5% Chebyshev(Mean, Sd) UCL					20.47	99% Chebyshev(Mean, Sd) UCL					25.24
77												
78	Suggested UCL to Use											
79	95% Adjusted Gamma UCL					14.62						
80												
81	When a data set follows an approximate (e.g., normal) distribution passing one of the GOF test											
82	When applicable, it is suggested to use a UCL based upon a distribution (e.g., gamma) passing both GOF tests in ProUCL											
83												
84	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.											
85	Recommendations are based upon data size, data distribution, and skewness.											
86	These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).											
87	However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.											
88												

	A	B	C	D	E	F	G	H	I	J	K	L
1	UCL Statistics for Uncensored Full Data Sets											
2												
3			User Selected Options									
4			Date/Time of Computation	ProUCL 5.15/11/2024 8:33:33 AM								
5			From File	WorkSheet.xls								
6			Full Precision	OFF								
7			Confidence Coefficient	95%								
8			Number of Bootstrap Operations	2000								
9												
10												
11	BaP											
12												
13	**General Statistics**											
14					Total Number of Observations	38					Number of Distinct Observations	14
15											Number of Missing Observations	0
16					Minimum	0.05					Mean	0.301
17					Maximum	2.5					Median	0.075
18					SD	0.494					Std. Error of Mean	0.0802
19					Coefficient of Variation	1.644					Skewness	3.075
20												
21	**Normal GOF Test**											
22					Shapiro Wilk Test Statistic	0.58	**Shapiro Wilk GOF Test**					
23					5% Shapiro Wilk Critical Value	0.938	Data Not Normal at 5% Significance Level					
24					Lilliefors Test Statistic	0.315	**Lilliefors GOF Test**					
25					5% Lilliefors Critical Value	0.142	Data Not Normal at 5% Significance Level					
26	**Data Not Normal at 5% Significance Level**											
27												
28	**Assuming Normal Distribution**											
29	**95% Normal UCL**						**95% UCLs (Adjusted for Skewness)**					
30					95% Student's-t UCL	0.436					95% Adjusted-CLT UCL (Chen-1995)	0.475
31											95% Modified-t UCL (Johnson-1978)	0.442
32												
33	**Gamma GOF Test**											
34					A-D Test Statistic	3.822	**Anderson-Darling Gamma GOF Test**					
35					5% A-D Critical Value	0.791	Data Not Gamma Distributed at 5% Significance Level					
36					K-S Test Statistic	0.305	**Kolmogorov-Smirnov Gamma GOF Test**					
37					5% K-S Critical Value	0.149	Data Not Gamma Distributed at 5% Significance Level					
38	**Data Not Gamma Distributed at 5% Significance Level**											
39												
40	**Gamma Statistics**											
41					k hat (MLE)	0.728					k star (bias corrected MLE)	0.688
42					Theta hat (MLE)	0.413					Theta star (bias corrected MLE)	0.437
43					nu hat (MLE)	55.35					nu star (bias corrected)	52.31
44					MLE Mean (bias corrected)	0.301					MLE Sd (bias corrected)	0.362
45											Approximate Chi Square Value (0.05)	36.7
46					Adjusted Level of Significance	0.0434					Adjusted Chi Square Value	36.16
47												
48	**Assuming Gamma Distribution**											
49					95% Approximate Gamma UCL (use when n>=50))	0.428					95% Adjusted Gamma UCL (use when n<50)	0.435
50												
51	**Lognormal GOF Test**											
52					Shapiro Wilk Test Statistic	0.79	**Shapiro Wilk Lognormal GOF Test**					
53					5% Shapiro Wilk Critical Value	0.938	Data Not Lognormal at 5% Significance Level					
54					Lilliefors Test Statistic	0.249	**Lilliefors Lognormal GOF Test**					
55					5% Lilliefors Critical Value	0.142	Data Not Lognormal at 5% Significance Level					
56	**Data Not Lognormal at 5% Significance Level**											
57												

	A	B	C	D	E	F	G	H	I	J	K	L
58	**Lognormal Statistics**											
59	Minimum of Logged Data					-2.996	Mean of logged Data					-2.028
60	Maximum of Logged Data					0.916	SD of logged Data					1.189
61												
62	**Assuming Lognormal Distribution**											
63	95% H-UCL					0.445	90% Chebyshev (MVUE) UCL					0.441
64	95% Chebyshev (MVUE) UCL					0.523	97.5% Chebyshev (MVUE) UCL					0.637
65	99% Chebyshev (MVUE) UCL					0.862						
66												
67	**Nonparametric Distribution Free UCL Statistics**											
68	**Data do not follow a Discernible Distribution (0.05)**											
69												
70	**Nonparametric Distribution Free UCLs**											
71	95% CLT UCL					0.432	95% Jackknife UCL					0.436
72	95% Standard Bootstrap UCL					0.431	95% Bootstrap-t UCL					0.525
73	95% Hall's Bootstrap UCL					0.986	95% Percentile Bootstrap UCL					0.44
74	95% BCA Bootstrap UCL					0.492						
75	90% Chebyshev(Mean, Sd) UCL					0.541	95% Chebyshev(Mean, Sd) UCL					0.65
76	97.5% Chebyshev(Mean, Sd) UCL					0.801	99% Chebyshev(Mean, Sd) UCL					1.098
77												
78	**Suggested UCL to Use**											
79	95% Chebyshev (Mean, Sd) UCL					0.65						
80												
81	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.											
82	Recommendations are based upon data size, data distribution, and skewness.											
83	These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).											
84	However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.											
85												

Appendix J: 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

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Contaminated Land Management Act 1997 (NSW)

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NSW EPA, (2014). Waste Classification Guidelines - Part 1: Classifying Waste

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

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

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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

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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