REPORT TO

HEALTH INFRASTRUCTURE

ON

DETAILED SITE INVESTIGATION (DSI)

FOR

PROPOSED MOREE HOSPITAL REDEVELOPMENT

AT

35 ALICE STREET, MOREE, NSW

Date: 20 September 2023
Ref: E35092UPDrpt2

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Executive Summary

Health Infrastructure ('the client') commissioned JK Environments (JKE) to undertake a Detailed (Stage 2) Site Investigation (DSI) the proposed hospital redevelopment at Moree Hospital, 35 Alice Street, NSW. The investigation was limited to the proposed development footprint which has been defined as 'the site' for the purpose of the investigation. The site location is shown on Figure 1 and the investigation was confined to the site boundaries as shown on Figure 2 attached in Appendix A.

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

JKE has previously undertaken a Preliminary (Stage 1) Site Investigation (PSI) for the proposed hospital development. A summary of relevant information from the PSI is presented in Section 2.

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

The objectives were to: assess the soil and groundwater contamination conditions via implementation of the Sampling Analysis and Quality Plan (SAQP); assess the potential risks posed by contamination to the receptors identified in the Conceptual Site Model (CSM); provide a preliminary waste classification for the in-situ soil; assess whether the site is suitable or can be made suitable (via remediation) for the proposed development, from a contamination viewpoint; and assess whether further intrusive investigation and/or remediation is required.

The DSI included a review of project information, a site inspection, soil sampling from 26 borehole/testpits. The Areas of Environmental Concern (AEC) include: fill material; use of pesticides; hazardous building materials; an incinerator; off-site new diesel generator, old generator, and potential former Underground Storage Tank (UST); off-site electrical substation; off-site Hazchem storage and off-site Ambulance station.

The DSI identified minor occurrences of zinc and nickel in soil above the ecological Site Assessment Criteria (SAC). Sporadic occurrences of bonded Asbestos Containing Materials (ACM) were also encountered in and on soil, although the ACM concentrations were below the Health Screening Level (HSL) SAC. Groundwater was not encountered during the DSI to a depth of 8m and the potential for groundwater to pose an unacceptable risk in the context of the proposed development was assessed to be low.

Based on the DSI data, contamination-related risks were generally assessed to be low. However, data gaps exist due to access constraints and due to the identification of asbestos in soil. These gaps are discussed in detail in Section 8.4 and in our opinion, they can be addressed under the provisions of a Remediation Action Plan (RAP).

Based on the findings of the PSI and DSI, remediation of soil contamination may be required and we consider that the site can be made suitable via relatively straight-forward soil remediation processes such as 'excavation/disposal' and 'cap and contain'. The RAP will include a requirement for a data gap investigation and will also provide contingencies for remediation in the event that the overall data set indicates that remediation is needed.

An Asbestos Management Plan (AMP) will be required for the proposed redevelopment works. An interim AMP must also be developed and implemented until remediation occurs.

We recommend the following:

- Preparation and implementation an interim AMP for asbestos in soil to be implemented until remediation occurs, and preparation and implementation of an AMP during the proposed development earthworks;
- Preparation and implementation of a RAP for the site that provides a robust framework to address the data gaps identified in Section 8.4, prior to proceeding with remediation, and contingencies to remediate the site should the overall dataset confirm that remediation is required; and
- Validation of the site in accordance with the RAP.

At this stage, JKE consider that, provided the above recommendations are addressed, there is no requirement to report any 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).

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**
Above-Ground Storage Tank	**AST**
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**
Environmental Management Plan	**EMP**
Environment Protection Authority	**EPA**
Environmental Site Assessment	**ESA**
Fibre Cement Fragment(s)	**FCF**
Hazardous Building Materials Survey	**HBMS**
Health Investigation Level	**HILs**
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	**PCBs**
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**
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**
United States Environmental Protection Agency	**USEPA**
Underground Storage Tank	**UST**
Virgin Excavated Natural Material	**VENM**
Volatile Organic Compounds	**VOC**
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

Health Infrastructure ('the client') commissioned JK Environments (JKE) to undertake a Detailed (Stage 2) Site Investigation (DSI) the proposed hospital redevelopment at Moree Hospital, 35 Alice Street, NSW. The investigation was limited to the proposed development footprint which has been defined as 'the site' for the purpose of the investigation. The site location is shown on Figure 1 and the investigation was confined to the site boundaries as shown on Figure 2 attached in Appendix A.

This report has been prepared to support the Review of Environmental Factors (REF) for the proposed hospital redevelopment, with regards to Chapter 4 of State Environmental Planning Policy (Resilience and Hazards) 2021[1] (formerly known as SEPP55).

JKE has previously undertaken a Preliminary (Stage 1) Site Investigation (PSI)[2] for the proposed hospital development. A summary of relevant information from the PSI is presented in Section 2.

1.1 Proposed Development Details

The proposed development details have been amended since the preparation of the PSI. JKE understands that the proposed development applicable under the REF includes the demolition of the administration building No2 and other ancillary hospital infrastructure including the helipad, shade shelters, water tanks, car parks etc. A new two-story building is proposed in the south-east section of the site. New car parking and landscaping are also proposed. Excavation details are not confirmed at this stage. We have assumed nominal excavation and/or raising of site surface levels (1m depth or height) to achieve the design surface levels. The building may be supported on piles. The proposed development plans are attached in Appendix B.

1.2 Aims and Objectives

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

The objectives were to:

- Assess the soil and groundwater contamination conditions via implementation of the Sampling Analysis and Quality Plan (SAQP)[3];
- Assess the potential risks posed by contamination to the receptors identified in the Conceptual Site Model (CSM);
- Provide a preliminary waste classification for the in-situ soil;
- Assess whether the site is suitable or can be made suitable (via remediation) for the proposed development, from a contamination viewpoint; and

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

[2] JK Environments, (2022a). *Report to NSW Health Infrastructure on Preliminary (Stage 1) Site Investigation for Proposed Hospital Redevelopment at 35 Alice Street, Moree, NSW*. (Report ref: E35092UPDrpt, dated 18 August 2022) (referred to as PSI)

[3] JK Environments, (2023). *Report to NSW Health Infrastructure on Sampling, Analysis and Quality Plan (SAQP) for Detailed (Stage 2) Site Investigation at Moree Hospital, 35 Alice Street, Moree, NSW*. (Report ref: E35092UPDrpt-SAQP, dated 27 July 2023) (referred to as SAQP)

- Assess whether further intrusive investigation and/or remediation is required.

1.3 Scope of Work

The investigation was undertaken generally in accordance with a JKE proposal (Ref: EP58804UPD Rev1) of 14 July 2023 and written acceptance from the client of 14 July 2023. 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 sampling, analysis and quality plan (SAQP);
- 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)[4], other guidelines made under or with regards to the Contaminated Land Management Act (1997)[5] and SEPP Resilience and Hazards 2021. A list of reference documents/guidelines is included in the appendices.

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

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

2 SITE INFORMATION

2.1 PSI

In 2022 the client commissioned JKE to undertake a PSI for the proposed Moree Hospital redevelopment. The PSI included all land within the wider hospital boundary and was designed to make a preliminary assessment of site contamination. A geotechnical investigation was undertaken in conjunction with the PSI by JK Geotechnics (JKG). The results of the geotechnical investigation were presented in a separate report (Ref: 35092URrpt).

The primary aims of the PSI were to identify any past or present potentially contaminating activities at the site, identify the potential for site contamination, and make a preliminary assessment of the soil and groundwater contamination conditions. The PSI included a review of historical information and sampling from six boreholes and five testpits, which were nominated by the client.

The identified Areas of Environmental Concern (AEC) included: Fill material; Use of pesticides; Hazardous building materials; New diesel generator, old generator building and suspected underground storage tank (UST); Electrical substation; HAZCHEM storage; an Incinerator; and Offsite Ambulance station.

The PSI identified fill at most locations. All of the PSI results were below the SAC. However, in relation to the identified AEC and CoPC, and in review of the CSM, we noted that:

- Fill (i.e. historically imported soil) was identified at most locations, confirming this as a potential source of contamination;
- The fill was found to contain fibre cement fragments (FCF) at one location (TP2 0.3-0.4), confirming impacts from building materials existed. However, the FCF did not contain asbestos in the samples that were analysed under the scope of the PSI. The FCF could be associated with imported fill, or historical building/demolition. Further FCF are likely to be encountered within fill and further assessment of FCF will be needed to confirm whether or not it is asbestos containing material (ACM);
- Traces of pesticides were detected in one sample (BH3 0-0.1m), confirming the use of pesticides, or the potential occurrence of pesticides in fill, as potential sources of contamination;
- Volatile hydrocarbons were not detected;
- The potential point sources of contamination (new diesel generator/old generator building and suspected UST, electrical substation, HAZCHEM storage and incinerator) were not investigated under the scope of the intrusive investigation;
- The investigation was constrained by the client nominated sampling locations. Sampling was limited in the proposed development area due to the existing buildings; and
- The potential for groundwater contamination from onsite and offsite AEC has not been assessed.

Based on the findings of the PSI, JKE was of the opinion that the site can be made suitable for the proposed development. However, the PSI noted that a DSI will be required to establish whether remediation is necessary.

JKE recommend the following:

- Undertake DSI to address the data gaps identified by the PSI. The extent of 'the site' for the DSI should be confirmed by the client as it is noted that not all areas of the hospital are being redeveloped. In JKE

view, it would be reasonable to limit the DSI to broadly capture the proposed development footprint; and

- If the DSI identifies a need for remediation, a Remediation Action Plan (RAP) prepared and implemented.

The PSI sampling locations are shown on the Figures attached in Appendix A and the PSI laboratory results tables are attached Appendix C.

2.2 JKE, HBMS

JKE have previously undertaken a hazardous building materials survey (HBMS)[6] for the proposed Moree Hospital redevelopment. The survey identified both friable and non-friable asbestos in building materials, lead in paint and potential polychlorinated biphenyls (PCB) containing electrical equipment.

2.3 Site Identification

Table 2-1: Site Identification

Current Site Owner (certificate of title):	Health Administration Corporation
Site Address:	58 Victoria Terrace, Moree, NSW (site address commonly referred to as 35 Alice Street, Moree, NSW)
Lot & Deposited Plan:	Part of Lot 11 in DP1113157
Current Land Use:	Hospital and associated facilities
Proposed Land Use:	Continued hospital and associated facilities
Local Government Authority:	Moree Plains Shire Council
Current Zoning:	R1: General Residential
Site Area (m^2) (approx.):	13,100
RL (AHD in m) (approx.):	208
Geographical Location (decimal degrees) (approx.):	Latitude: -29.470680 Longitude: 149.839882
Site Location Plan:	Figure 1
Sample Location Plan:	Figure 2

[6] JK Environments, (2022c). *Report to Health Infrastructure on Hazardous Building Materials Survey for Moree Hospital Redevelopment at Alice Street, Moree, NSW*. (Report ref: E35092BTrpt_Rev1-HAZ, dated 23 January 2023 (referred to as HBMS)

2.4 Site Inspection

The site is located in a predominantly residential and recreational area of Moree and is bound by Victoria Terrace to the north and east, Alice Street to the south and a retirement village to the west.

The regional topography slopes slightly towards the north towards Mehi River. The site topography is consistent with its surrounds and has a gentle slope towards the north at approximately 1°-2°.

A walkover inspection of the site was undertaken by JKE on 6 June 2022 under the scope of the PSI. At the time of the inspection, the site formed part of the Moree District Hospital and Community Health Service Centre. The administration building No2, Crane and Glennie building No5, an ambulance parking bay/patient transfer and helipad were generally located in the central section of the site. An asphaltic concrete car park was located in the east section of the site.

An incinerator and medical waste storage area were located in the south-west section of the site. The west section of the site was occupied by a hardstand driveway, loading dock and parking area. Other areas of the site were paved or grassed. Pertinent features at the site and in the wider hospital and surrounds are shown on Figure 2 in Appendix A.

Parts of the site appeared to have been levelled to account for the slope and accommodate the existing development.

Sensitive environments such as wetlands, ponds, creeks or extensive areas of natural vegetation were not observed on site. Mehi River was located approximately 50m to the north of the site. The river is considered to be a potential receptor.

Landscaped and grassed areas were observed in areas of the site not covered by hardstand/buildings. These areas were mainly located within the eastern, north-western and western areas of the site. Native trees up to approximately 5m high were observed within the east and in other landscaped areas of the site. No obvious indicators of plant stress or dieback were observed.

During the DSI, grass cover in the south-west section of the site was limited and two FCF/suspected ACM were identified and sampled (ref: FCF201 and FCF202). The surface FCF sampling locations are shown on Figure 2 attached. The FCF were analysed and found to contain asbestos. The results and presented and discussed within this report.

2.5 Surrounding Land Use

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

- North – Wider hospital ground, Victoria Terrace and the Mehi River including associated riparian vegetation along the southern banks;
- East – Victoria Terrace with Moree visitor information centre and carpark beyond;
- South – Alice Street with Moree District Ambulance station (NSW Ambulance) and residential properties beyond; and

- West – Wider hospital ground, including an above ground diesel generator and old generator building. A Retirement village (Fairview Retirement Village) was located to the west of the wider hospital property.

JKE considered that the ambulance station, above ground diesel generator and old generator building to be potential off-site source of contamination. Further discussion is provided in Section 3.1.

It is noted that the PSI considered the hospital as a whole. In the context of the site for the DSI, some adjacent areas of the hospital are now deemed to be 'off-site' even though they fall within the wider site boundary. Most notably, these include the following:

- The HAZCHEM store located to the west of the site;
- The diesel AST and old generator building; and
- The electrical substation located just beyond the north-western most corner of the site.

2.6 Underground Services

The 'Before You Dig Australia' (BYDA) plans were reviewed for the investigation 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. Major services were not identified that would be expected to act as preferential pathways for contamination migration. Local services (i.e. those not shown on the BYD plans) exist and could act as preferential pathways for contamination migration.

2.7 Summary of Geology and Hydrogeology

2.7.1 Regional Geology

Regional geological maps indicated that the site is underlain by Marra Creek formation – meander plain facies (dominant silt lithology) and Colluvial sheetwash (dominant clastic sediment lithology), with Marra Creek formation – meander plain facies (dominant clay lithology) located approximately 70m to the north of the site.

The site is not located in an acid sulfate soil (ASS) risk area according to the risk maps prepared by the Department of Land and Water Conservation.

2.7.2 Hydrogeology and Groundwater

Hydrogeological information reviewed for the PSI indicated that the regional aquifer on-site and in the areas immediately surrounding the site includes porous, extensive aquifers of high productivity.

There were a significant number of registered bores within the report buffer of 2,000m. The majority of the bores were registered for monitoring purposes. None of the water supply bores appeared to be located down gradient of the site, between the northern site boundary and Mehi River. There is no abstraction and use of groundwater at the site or in the vicinity, and 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.

Considering the local topography and surrounding land features, JKE anticipate groundwater to flow towards the north towards the Mehi River. However, this was not confirmed within the scope of the PSI.

2.8 Summary of Site History

A time line summary of the historical land uses and activities is presented in the table below. The information presented in the table is based on a weight of evidence assessment of the site history documentation and observations made by JKE during the PSI.

Table 2-2: Summary of Historical Land Uses/Activities

Year(s)	On-site - Potential Land Use / Activities	Off-site - Potential Land Use / Activities
At least 1958 - current	• Hospital grounds; • Demolition of small buildings in the west, north, central and south sections of the site, sometime between approximately 1967 and1985; and • Likely earthworks including filling during construction works between approximately 1958 and 1985.	• Retirement village to the west; • Low density residential to the south; and • Possible UST in operation around the 1970s to the west of the site (within the wider hospital site).

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 the review of site history information. Reference should also be made to the figures attached in the appendices.

A review of the CSM in relation to source, pathway and receptor (SPR) linkages has been undertaken as part of the Tier 1 risk assessment process, as outlined in Section 8.

3.1 Potential Contamination Sources/AEC and CoPC

The potential contamination sources/AEC and 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 has been historically filled to achieve the existing levels. The fill may have been imported from various sources and could be contaminated. Only limited sampling/analysis of the fill occurred during the PSI. The fill depths encountered during the PSI ranged from approximately 0.1m to 0.5mBGL. FCF were encountered in TP2, however asbestos was not detected in the FCF analysed.	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), PCBs and asbestos.
Use of pesticides – Pesticides may have been used beneath the buildings and/or around the site.	Heavy metals, OCPs and PCBs.
Hazardous Building Material – Hazardous building materials may be present in or on soil as a result of former building and demolition activities. These materials may also be present in the existing buildings/structures on site. Signage on the external fibre cement sheeting on some of main hospital building identified that the fibre cement sheeting was an ACM.	Asbestos, lead and PCBs.
Incinerator – An incinerator is located in the south section of the site and as shown on Figure A attached in the appendices. There is a potential for localised impacts from spills/leaks when loading waste into the incinerator or from removing waste ash from the incinerator which could have migrated to the soils in the vicinity, and also from atmospheric fallout from the incinerated waste settling on nearby ground surface. JKE understand that the incinerator will not be demolished as part of the development.	Heavy metals and PAHs.

Source / AEC	CoPC
Off Site New Diesel Generator, Old Generator Building and Suspected UST – An Above ground diesel generator and old generator building are located in the west section of the wider hospital grounds and adjacent to the north-west section of the site, as shown on Figure A attached in the appendices. During the PSI minor areas of staining were observed near the filling port of the AST and around the diesel delivery lines to the new electrical generator. During the PSI the fuel source supply to the old generator presumed to have been decommissioned could not be confirmed. There is a potential for the fuel source to have been stored in a UST or AST within or in close proximity to the old generator building. The SafeWork records reviewed for the PSI make reference to a UST in a defect notice dated 1978, however, further details were not available within the records.	TRHs, BTEX and the PAH compound naphthalene.
Off Site Electrical Substation – An electrical substation is located in the vicinity of the north-western corner of the site, to the east of the new diesel generator as shown on Figure 2 attached in the appendices. There is a potential that PCB containing oils could have leaked from the associated infrastructure and impacted the soil. Although oil staining was not observed during the site inspection, there is considered to be a potential for transformer oil accidental spills/leaks within the transformer unit which could have migrated to the soils to beneath the concrete pad slab via cracks and voids in the slab, and migrated onto the site due to the close proximity.	PCBs and TRHs.
Off Site HAZCHEM Storage – A HAZCHEM storage building located was located in close proximity to the west of the site (see Figure 2). Signage indicated that the building contained flammable liquids. The building was inaccessible at the time of the field work. There is a potential accidental spills/leaks of flammable liquids within and adjacent to the HAZCHEM storage building having impacted the groundwater in the vicinity.	TRHs, BTEX and PAHs.
Off Site Ambulance Station – An ambulance station is located approximately 35m to the south of the south-east section of the site as shown on Figure A attached in the appendices. Although we have no evidence of petroleum hydrocarbon storage infrastructure in this property, it is common for such properties to have USTs. On this basis and due to its upgradient and nearby location to the site, there is a potential for contaminant migration into the east section of the site.	Heavy metals (lead), TRH, BTEX and the PAH compound naphthalene.

Source / AEC	CoPC

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

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

Table 3-2: CSM

Potential mechanism for contamination	The potential mechanisms for contamination are most likely to include 'top-down' impacts and spills. There is a potential for sub-surface releases to have occurred if deep fill is present (or other buried industrial infrastructure) is present, including the potential for a UST in the vicinity of the old generator building. Subsurface release is also possible in the context of groundwater plumes from off-site sources.
Affected media	Soil has been identified as the potentially affected medium. The potential for groundwater impacts is considered to be relatively low. However, to reduce the potential need for remobilisation for secondary phases of investigation, the potential for groundwater contamination is to also be assessed by the DSI. Soil vapour may also require further consideration, however, risks will initially be evaluated via the soil and groundwater 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 the Mehi River. Ecological receptors include terrestrial organisms and plants within unpaved areas (including the proposed landscaped areas), and freshwater ecology in the Mehi River.
Potential exposure pathways	Potential exposure pathways relevant to the human receptors include ingestion, dermal absorption and inhalation of dust (all contaminants) and vapours (volatile TRH, naphthalene and BTEX). Primary and secondary contact with groundwater is also a potential exposure pathway. The potential for exposure would typically be associated with the construction and excavation works, future use of the site, and off-site use of groundwater and recreational waters. 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 mechanisms	The following have been identified as potential exposure mechanisms for site contamination: • Vapour intrusion into the existing or 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; • Migration of groundwater off-site and into nearby water bodies, including aquatic ecosystems and those being used for recreation; and • Migration of groundwater off-site into areas where groundwater has the potential to be utilised as a resource (i.e. for irrigation and/or drinking water).

4 SUMMARY OF SAMPLING, ANALYSIS AND QUALITY PLAN

JKE prepared a stand-alone SAQP for the DSI which is attached in Appendix J. The SAQP and its implementation can be 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 1.2. The Data Quality Assurance/Quality Control (QA/QC) evaluation is summarised in Section 6.1of this DSI and the detailed evaluation is provided in the appendices;
- The SAQP proposed soil sampling from one targeted location (201) and 25 grid-based locations (locations 202 to 226 inclusive). The sampling locations are shown on the attached Figure 2 in Appendix A;
- Soil samples were obtained using a combination of hand tools, drill rig equipped with spiral flight augers (150mm diameter), and an excavator, between 15 and 17 August 2023;
- Four groundwater monitoring wells were installed to a depth of 8mBGL in BH201 (MW201), BH202 (MW202), BH209 (MW209) and BH224 (MW224) during the DSI, as shown on Figures 2. The wells were generally positioned to provide site coverage, but also with consideration of the areas that were not accessible with the drill rig; and
- The monitoring well construction details are documented on the borehole log for BH201, BH202, BH209 and BH224 attached in the Appendices D.

4.1 Deviation to the SAQP

The deviations to the SAQP are outlined below:

- The intent was to place the sampling locations 202 to 226 on a systematic sampling plan with a grid spacing of approximately 24m. However, due to onsite obstructions including buildings, structures, buried services, and client requests not to create disruptions in some areas, sampling locations BH202, BH204, TP209, TP207 and BH209 were slightly moved;
- The intent was to complete soil sampling through the fill soil and into the natural soil. However, due to the potential presence of an underground service beneath a concrete pad at sampling location TP212, sampling was terminated at 0.2mBGL;
- Bulk samples for asbestos quantification could not be obtained during soil sampling from locations BH203 and BH204 due to the low sample volume return on the auger; and
- Groundwater was not encountered during the well installation or attempted development and sampling, to a depth of approximately 8m.

Considering the above deviations from the SAQP, the sampling plan was still considered suitable to make an assessment of potential risks associated with the AEC and CoPC identified in the CSM, and assess whether further investigation and/or remediation is warranted.

4.2 Laboratory Analysis

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

Table 4-1: 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)	331035, 331035-A and 331035-B
Inter-laboratory duplicates	Envirolab Services Pty Ltd VIC, NATA Accreditation Number – 2901 (ISO/IEC 17025 compliance)	39258

5 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.

5.1 Soil

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

5.1.1 Human Health

- Health Investigation Levels (HILs) for a 'public open space, secondary schools and footpaths' exposure scenario (HIL-C). We consider these HILs to be appropriate Tier 1 criteria as the HIL-D (commercial/industrial criteria) do not consider children who are the most sensitive receptors identified in the CSM, HIL-B (residential with limited access to soil) are not protective enough in light of the extent of unpaved areas across the site, and HIL-A (residential with accessible soils) are overly conservative for a hospital land use scenario;
- Health Screening Levels (HSLs) for a 'low-high density residential' exposure scenario (HSL-A & HSL-B). We consider these HSLs are appropriate Tier 1 criteria as HSL-C does not adequately consider the presence of buildings and HSL-D is not protective of children who are the most sensitive receptors identified in the CSM. 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-C criteria. A summary of the asbestos criteria is provided in the table below:

Table 5-1: Details for Asbestos SAC

Guideline	Applicability
Asbestos in Soil	The HSL-C criteria were adopted for the assessment of asbestos in soil. The SAC adopted for asbestos were derived from the NEPM 2013 and are based on the Guidelines for the Assessment, Remediation and Management of Asbestos-Contaminated Sites in Western Australia (2021)[8]. The SAC include the following: • <0.02% w/w bonded asbestos containing material (ACM) in soil; and • <0.001% w/w asbestos fines/fibrous asbestos (AF/FA) in soil. Concentrations for bonded ACM concentrations in soil are based on the following equation which is presented in Schedule B1 of NEPM (2013): $$\text{\% w/w asbestos in soil} = \frac{\text{\% asbestos content x bonded ACM (kg)}}{\text{Soil volume (L) x soil density (kg/L)}}$$

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

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

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

5.1.2 Environment (Ecological – terrestrial ecosystems)

- Ecological Investigation Levels (EILs) and Ecological Screening Levels (ESLs) for an 'urban residential and public open space' (URPOS) exposure scenario. These have only been applied to the top 2m of soil as outlined in NEPM (2013). The criterion for benzo(a)pyrene has been increased from the value presented in NEPM (2013) based on the Canadian Soil Quality Guidelines[9]; and
- EILs for selected metals were calculated based on the most conservative added contaminant limit (ACL) values presented in Schedule B(1) of NEPM (2013) and published ambient background concentration (ABC) values presented in the document titled Trace Element Concentrations in Soils from Rural and Urban Areas of Australia (1995)[10].

5.1.3 Management Limits for Petroleum Hydrocarbons

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

5.1.4 Waste Classification

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

Table 5-2: Waste Categories

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

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

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

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

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

6 RESULTS

6.1 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.

6.2 Subsurface Conditions

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

Table 6-1: Summary of Subsurface Conditions

Profile	Description
Pavement	Concrete pavement ranging in depth from approximately 100mm to 200mm thick was encountered at the surface in BH201 to BH204. Asphaltic concrete pavement approximately 50mm thick was encountered at the surface in BH210 and BH216.
Fill	Fill was encountered at the surface or beneath the pavements in all boreholes/testpits except in TP212 where the tespit was terminated due to the occurrence of a suspected underground service. The fill extended to depths of between approximately 0.1mBGL to 0.9mBGL. Fill depths are shown on Figure 2. The fill typically comprised silty clay, sandy clay and sandy gravel, gravelly sand and gravelly clay with inclusions of gravels, sand and roots. Traces of anthropogenic materials were encountered within the fill at some of the borehole/testpit locations, as summarised below: • Concrete fragments in BH202, BH203, BH204; • Concrete, metal, ceramic slag fragments and coal in BH205; • Brick fragments in TP207; • Concrete, glass, brick, tile, terracotta and FCF/ACM fragments in TP208; • Concrete, brick, metal fragments and ash in BH209; • Concrete and asphalt fragments in BH210 and BH216; • Concrete fragments and ash in TP220; • Concrete and glass fragments in TP221; • Ceramic fragments in TP221; • Concrete fragments in TP223; and • Glass fragments in TP227. Neither staining nor odours were observed in the fill material during the field work.
Natural Soil	Natural silty clay, sandy silt, sand, sandy clay, silty sandy clay or sandy silty clay alluvial soils were encountered beneath the fill and extended to depths to the termination of the boreholes/testpits and to a maximum depth 8.0mBGL in boreholes BH201, BH202 and BH224. Neither staining nor odours were observed in the natural soils during the field work.
Bedrock	Not encountered.
Groundwater	Groundwater seepage was not encountered in the boreholes during drilling. All boreholes remained dry on completion of drilling and a short time after.

6.3 Field Screening

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

Table 6-2: Summary of Field Screening

Aspect	Details
PID Screening of Soil Samples for VOCs	PID soil sample headspace readings are presented in the attached report tables and the COC documents attached in the appendices. The results ranged from 0ppm to 8.5ppm equivalent isobutylene. The sample with the highest PID results (TP220 0-0.1m) was analysed for TRH and BTEX. Overall, the PID readings were considered to be low and were consistent with the observations of no staining or hydrocarbon odours in the soils.
Bulk Screening for Asbestos	The bulk field screening results are summarised in the attached report Table S5. The asbestos in ACM concentration of 0.0123%w/w in the fill sample TP208 (0-0.1m) was below the human health SAC of 0.02%w/w. However, it is noted that the ACM was in the top 10cm of the soil at that location. ACM was not encountered in the remainder of the boreholes/testpits. JKE note that a FCF (suspected ACM) was encountered in the top 10cm during the drilling of BH102 for the additional JKG Geotechnical investigation in July 2023 (JKG project ref: 35092UR2).

6.4 Soil Laboratory Results

The soil laboratory results were assessed against the SAC presented in Section 5.1. Individual SAC are shown in the report tables attached in the appendices. A summary of the results is presented below:

6.4.1 Human Health and Environmental (Ecological) Assessment

Table 6-3: Summary of Soil Laboratory Results – Human Health and Environmental (Ecological)

Analyte	N	Max. (mg/kg)	N> Human Health SAC	N> Ecological SAC	Comments
Arsenic	45	6	0	0	-
Cadmium	45	<PQL	0	NSL	-
Chromium (total)	45	41	0	0	-
Copper	45	66	0	0	-
Lead	45	800	1	0	The lead concentration for the fill sample BH202 (0.1-0.25m) was 800mg/kg and exceeded the human health SAC of 600mg/kg.
Mercury	45	0.5	0	NSL	-
Nickel	45	41	0	2	The nickel concentrations for the natural samples BH202 (0.5-0.95m) and BH202 (3.0-3.45m) were 37mg/kg and 41mg/kg respectively, and exceeded the ecological SAC of 35mg/kg.

Analyte	N	Max. (mg/kg)	N> Human Health SAC	N> Ecological SAC	Comments
Zinc	45	510	0	3	The zinc concentrations for the fill samples BH202 (0.1-0.2m), BH205 (0-0.1m) and BH207 (0-0.1m) ranged from 200mg/kg to 510mg/kg, and exceeded the ecological SAC of 190mg/kg.
Total PAHs	46	9.1	0	NSL	-
Benzo(a)pyrene	46	0.86	NSL	0	-
Carcinogenic PAHs (as BaP TEQ)	46	1.2	0	NSL	-
Naphthalene	46	<PQL	0	NSL	-
DDT+DDE+DDD	40	<PQL	0	NSL	-
DDT	40	<PQL	NSL	0	-
Aldrin and dieldrin	40	<PQL	NSL	NSL	-
Chlordane	40	<PQL	0	NSL	-
Methoxychlor	40	<PQL	0	NSL	-
Endosulfan	40	82	0	NSL	Endosulfan Sulphate was detected in the fill soil sample TP208 (0-0.1m) at a concentration of 82mg/kg which is below the SAC of 340mg/kg.
HCB	40	<PQL	0	NSL	-
Heptachlor	40	<PQL	0	NSL	-
Chlorpyrifos (OPP)	38	<PQL	0	NSL	-
PCBs	38	<PQL	0	NSL	-
TRH F1	46	<PQL	0	0	-
TRH F2	46	55	0	0	-
TRH F3	46	<PQL	0	0	-
TRH F4	46	<PQL	0	0	-
Benzene	46	<PQL	0	0	-
Toluene	46	<PQL	0	0	-

Analyte	N	Max. (mg/kg)	N> Human Health SAC	N> Ecological SAC	Comments
Ethylbenzene	46	<PQL	0	0	-
Xylenes	46	<PQL	0	0	-
Asbestos (in soil) (%w/w)	4	ACM <0.01 AF/FA <0.001	0	NA	Asbestos was not detected in the soil samples analysed at the laboratory.
Asbestos in fibre cement	3	NA	NA	NA	Asbestos was detected in the FCF (sample ref: TP208-FCF1) that was identified in the top 100mm of the fill soil in TP208. Asbestos was detected in the surface FCF (sample ref: FCF201 and FCF202) that was identified on the ground surface in the south section of the site. All FCF were assessed to be bonded ACM.

Notes:

N: Total number (primary, duplicate and lab replicate samples)

NSL: No set limit

NL: Not limiting

6.4.2 Waste Classification Assessment

The laboratory results were assessed against the criteria presented in Section 5.1.4. The results are presented in the report tables attached in the appendices. A summary of the results is presented in the following table:

Table 6-4: Summary of Soil Laboratory Results Compared to CT and SCC Criteria

Analyte	N	N > CT Criteria	N > SCC Criteria	Comments
Arsenic	45	0	0	-
Cadmium	45	0	0	-
Chromium	45	0	0	-
Copper	45	NSL	NSL	-
Lead	45	1	0	The lead concentrations for the fill sample BH202 (0.1-0.25m) was 100mg/kg and exceeded the CT1 criterion of 100mg/kg.
Mercury	45	0	0	-

Analyte	N	N > CT Criteria	N > SCC Criteria	Comments
Nickel	45	1	0	The nickel concentration for the natural sample BH202 (3.0-3.45m) was 41mg/kg and exceeded the CT1 criterion of 40mg/kg.
Zinc	45	NSL	NSL	-
TRH (C_6-C_9)	46	0	0	-
TRH (C_{10}-C_{36})	46	0	0	-
BTEX	46	0	0	-
Total PAHs	46	0	0	-
Benzo(a)pyrene	46	2	0	The benzo(a)pyrene concentrations for the fill samples TP221 (0-0.1m) and the corresponding duplicate sample SDUP208 were up to 0.86mg/kg and exceeded the CT1 criterion of 0.8mg/kg.
OCPs	40	1	0	The OCP concentration for total Endosulfan for the fill sample TP20 (0-0.1m) was 82mg/kg and exceeded the CT1 criterion of 60mg/kg.
OPPs	38	0	0	-
PCBs	38	0	0	-
Asbestos	7	-	-	Asbestos was not detected in the soil samples analysed. Asbestos was detected in FCF/ACM collected from the bulk field screening sample from TP208 (0-0.1m).

N: Total number (primary, duplicate and lab replicate samples)
NSL: No set limit

The samples that reported CT1 exceedances were selected for leachate (TCLP) analysis. The results are summarised below:

Table 6-5: Summary of Soil Laboratory Results Compared to TCLP Criteria

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

N: Total number (primary samples)

6.4.3 Statistical Analysis

6.4.3.1 UCL Calculations

Statistical calculations for the lead fill data obtained for the DSI were undertaken using Open UCL (Beta Ver 3.02)[12]. The UCL output is attached in in the appendices. The results are summarised below:

- The standard deviation (SD) of the lead fill results was 153.6mg/kg and was less than 50% of human health SAC of 600mg/kg;
- JKE has adopted the Students t 95% UCL on the mean lead fill result of 102.6mg/kg. The UCL value was less than human health SAC of 600mg/kg; and
- The highest lead concentration of 800mg/kg for the fill soil sample BH202 (0.1-0.25m) was less than 250% of the human health SAC of 600mg/kg.

6.4.3.2 Combined Risk Value Method (CRV)

CRV calculations were undertaken for the DSI lead fill soil data with reference to Section 7.2 of the NSW EPA Sampling Design Part 1 – Application (2022)[13], 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).

The number of samples (n) required for lead, calculated using the CRV method, is 0.5. An n value less than the number of samples collected implies that the null hypothesis (H_0) that the site is contaminated with lead can be rejected. Or in terms of the SAQP DQOs, we could reject the null hypothesis (H_0) that the 95% UCL for lead is greater than the SAC. There is sufficient statistical power in the UCL and we can accept the alternative hypothesis (H_A - that the 95% UCL concentration for lead is below the SAC) knowing that there is a low probability that a Type I or Type II decision error is being made in relation to lead contamination in fill.

Notwithstanding, the sampling plan was biased to some degree due to access constraints and the sampling plan was not probabilistic as some locations needed to be repositioned. Additionally, the lead concentration in BH202 was much higher than in the other fill samples. Therefore, it is uncertain whether the fill data for lead in BH202 is representative of the associated fill in this area of the site, which comprises a gravelly sand basecourse-type material. This uncertainty has been factored into the conclusions drawn for the DSI.

[12] https://openstatsonline.shinyapps.io/Open_UCL_V503/ visited on 2 February 2023

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

7 PRELIMINARY WASTE CLASSIFICATION ASSESSMENT

Based on the results of the preliminary waste classification assessment, and at the time of reporting, the fill material is assigned a preliminary classification of **General Solid Waste (non-putrescible) containing Special Waste (asbestos)**. Asbestos has predominantly been identified south section of the site (JKE TP208) and the east section of the site (suspected asbestos in JKG BH102). ACM was also identified at the ground surface in the south section of the site. Building/demolition rubble inclusions were identified in the fill in the south section of the site, however the suspected ACM was encountered in JKG BH102 in the east section of the site therefore the impacts from asbestos could be more widespread than what has been identified to date.

In our opinion, it would be reasonable to undertake additional confirmatory waste classification assessment in areas where asbestos has not been identified to date, and in and around the in-ground asbestos finds in an attempt to delineate the extent of asbestos-impacted soils. However, in our experience this exercise is not often successful. In any case, the final waste classification(s) for the fill must be supported by robust data and a robust CSM, and must consider the findings of the PSI and this DSI.

The occurrence of asbestos in fill may also compromise the ability to re-use asbestos-impacted soils on site during earthworks. This uncertainty should be factored in by the project team as the earthworks requirements for the project become better understood.

Based on the scope of work undertaken for this assessment, the majority of the natural soil at the site is likely to meet the definition of **VENM** for off-site disposal or re-use purposes. However, further sampling and analysis will be required to confirm this. Classification of VENM in areas where pesticide, lead and asbestos impacts have been identified in fill will require the overlying fill to be removed as the first step, prior to undertaking the required clearances/validation testing for waste classification purposes.

Further sampling and analysis are required to further assess and confirm the waste classifications prior to off-site disposal of surplus materials from the site.

Prior to off-site disposal of soil to landfill, the landfill must confirm in writing that they can accept the waste under their Environmental Protection Licence agreement with the NSW EPA.

8 DISCUSSION

8.1 Contamination Sources/AEC and Potential for Site Contamination

Based on the scope of work undertaken for this investigation, JKE identified the following potential contamination sources/AEC:

- Fill material;
- Use of pesticides;
- Hazardous building materials;
- An incinerator;
- Off-site new diesel generator, old generator, and potential former UST
- Off-site electrical substation;
- Off-site Hazchem storage; and
- Off-site Ambulance station.

Considering the above, and based on a qualitative assessment of various lines of evidence as discussed throughout this report, JKE is of the opinion that there is a potential for site contamination. The soil data collected for the PSI and DSI is discussed further in the following subsection, as part of the Tier 1 risk assessment. A discussion on potential for groundwater contamination is also provided in Section 8.4.

8.2 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.

8.2.1 Soil

8.2.1.1 Asbestos and Human Health Risks

The asbestos in ACM concentration in the fill profile from TP208 (0-0.1m) was below the human health SAC. Suspected ACM was also identified in the surficial (top 100mm) of JKG geotechnical borehole BH102. ACM fragments (ref: FCF201 and FCF202) were identified on the surface in the south section of the site. The asbestos detections are shown on Figure 3 attached in the appendices.

Based on the current results, it is possible that a complete SPR linkage associated ACM may occur. However, due to the bonded nature of the ACM and the relatively low concentrations reported, we consider that the potential for an unacceptable risk to occur whilst the soil remains undisturbed is relatively low and should remain low subject to the implementation of interim management until remediation takes place.

The source of ACM in fill could be associated with imported fill material or historical onsite building demolition activities within the hospital grounds.

Discovery of further ACM in soil during excavation and construction is considered to be likely. The extent of ACM in soil requires further investigation and consideration during the proposed redevelopment. This can be captured under the provisions of a Remediation Action Plan (RAP) given that large sections of the site are currently inaccessible for intrusive sampling.

An Asbestos Management Plan (AMP) will be required for the proposed redevelopment. An interim AMP must also be developed and implemented until remediation occurs.

8.2.1.2 Lead and Human Health Risks

The lead concentration encountered for the fill soil sample BH202 (0.1-0.25m) was above the human health SAC and is shown on Figure 3 attached in the appendices.

Statistical calculations were run on the entire DSI dataset for lead. The calculated 95% UCL for lead data set was well below the SAC and the lead data set met other statistical decision rules outlined in the SAQP. However, as discussed in Section 4.1, the proposed systematic sampling plan with a grid spacing of approximately 24m was not achievable at a few locations due to obstructions including buildings, structures, buried services, and client requests not to create disruptions in some areas. However, we consider that this should not dismiss the validity of the statistical calculation for lead and in our opinion the DSI has not detected any circular contamination hotspots of greater than 28.5m in diameter (based on the 24m grid spacing), to a 95% confidence limit, within the constraints of the investigation. Notwithstanding, it is noted that sampling has not occurred in the building footprints which has resulted in data gaps.

At this stage, it is our opinion that the lead concentration in BH202 is not a trigger for remediation. However, this will need to be considered further following the data gap investigation which will be captured under the provisions of the RAP.

8.2.1.3 Heavy Metals and Ecological Risks

The nickel concentrations encountered for the natural soil samples BH202 (0.5-0.95m) and BH202 (3.0-3.45m) were above the ecological SAC. The zinc concentrations encountered for the fill soil samples BH202 (0.1-0.25m), BH205 (0-0.1m) and TP207 (0-0.1m) were also above the ecological SAC. The nickel and zinc results above the ecological SAC are shown on Figure 3 attached in the appendices.

The source of zinc is likely considered to be associated with the historically imported fill material. In our opinion, the nickel appears to be a background condition associated with the natural silty clay soils.

JKE consider that the risk posed by nickel and zinc to ecological receptors is negligible and remediation to address ecological risks is not considered necessary based on the following:

- The concentrations were generally only marginally above the adopted SAC;
- A concrete slab is located at sampling location BH202 preventing access to the soil via plantings or terrestrial ecological receptors;
- The adopted nickel and zinc SAC were conservative and the SAC would be expected to increase after adjusting for physiochemical properties (i.e. pH and CEC); and

- The PSI identified that the site is not located in an ecological conservation area and there were no known ecologically sensitive species present.

8.2.1.4 Other CoPC

Elevated concentrations of the remaining CoPC were below the adopted SAC in the soil samples analysed during the PSI and DSI. Although below the human health SAC, it is noted that Endosulfan was detected at a concentration of 82mg/kg in the fill sample TP208 (0-0.1m). Endosulfan was not encountered in any other of the soil samples analysed for the PSI and DSI, including the underling fill sample TP208 (0.4-0.5m) and natural sample TP208 (0.9-1.0m). JKE is of the opinion that the detection of Endosulfan in the fill sample TP208 (0-0.1m) is localised. However, as the source is unknown, further investigation of the area is considered to be warranted to establish if the worst of the impact has been detected. This has been considered in the assessment of data gaps.

8.3 Decision Statements

The decision statements are addressed below:

Are any of the laboratory results above the site assessment criteria?

Yes, see Section 8.2.1 above.

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

There are potential health-based risks associated with asbestos in fill soil.

Is remediation required?

In our opinion a RAP should be developed and implemented. The RAP must provide a framework for the data gap investigation which is to occur following demolition, and also provide contingencies for remediation in the event that the overall data set indicates that remediation is needed.

What is the preliminary waste classification of the fill material and natural soils sampled and is further sampling/analysis required to confirm the waste classification(s)?

See Section 7.

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 proposed developed subject to preparation and implementation of a RAP. We consider that the site can be made suitable via relatively straight-forward remediation processes such as 'excavation/disposal' and 'cap and contain'. The RAP will include a requirement for a data gap investigation prior to proceeding with actual remediation.

8.4 Data Gaps

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

Table 8-1: Data Gap Assessment

Data Gap	Assessment
Soil sampling density below minimum guideline density for asbestos. Inaccessible areas.	ACM was identified in TP208 and on the ground surface in the south section of the site. Building/demolition rubble inclusions were identified in the fill in the south section of the site, and potential ACM was also identified in surficial soils in JKG BH102 in the east section of the site. There is a potential that ACM in fill could be more widespread than what has been identified to date. In accordance with Table 4 of the WA DoH (2021) guidelines, further assessment should be undertaken at a higher sampling given that the occurrence of asbestos is *"Likely"* or *"known"*. This can be addressed by a pre-remediation data gap investigation under the framework of a RAP. The vertical extent of fill at TP212 unbale to be fully assessed during the DSI**.** The administrative building No2 proposed for demolition was inaccessible at the time of the DSI. The above areas should also be investigation post demolition by the pre-remediation data gap investigation under the framework of a RAP.
Potential off-site UST	An old generator building is located adjacent to the north-west section of the site wider hospital grounds, as shown on Figure 2 attached in the appendices. The PSI reported the following *"the fuel source supply to the old generator presumed to have been decommissioned could not be confirmed. There is a potential for the fuel source to have been stored in a UST or AST within or in close proximity to the old generator building. The SafeWork records reviewed for the PSI make reference to a UST in a defect notice dated 1978, however, further details were not available within the records".* During the DSI, JKE intended for the underground services locator subcontractor to undertake a Ground Penetrating Radar (GPR) scan to assess for the presence of a potential UST in the vicinity of the old generator building. However, the underground services locator subcontractor GPR equipment was under repair at the time. No potential UST infrastructure was identified during the DSI. Hydrocarbon odours or staining were not observed in the area and during drilling of BH201 or any of the remainder of the sampling locations. The potential for contamination impacts on site to be unacceptable as a consequence of this old infrastructure is considered to be relatively low and can be managed via the unexpected finds procedure to be included in the RAP.
Groundwater not encountered	Groundwater was not encountered by the DSI. Groundwater monitoring wells were installed to 8mBGL and remained dry during installation, attempted development and attempted sampling. Hydrocarbon odours or stained soils were not encountered during the DSI field work. There are no NEPM HSL SAC for hydrocarbons (TRH/BTEX/naphthalene) where groundwater is located at a depth of greater than 8mBGL. The proposed

Data Gap	Assessment
	development includes a new budling at the surface in the east section of the site. No major excavations or basements are proposed. Based on these factors, hydrocarbon vapour intrusion risks from contaminated groundwater are considered to be low. Groundwater seepage was encountered during drilling at BH6 at approximately 5.5mBGL during the PSI field work in June 2022. We note that the June PSI field works were undertaken a few months after a significant rain event and the August DSI field works were undertaken following a relatively dry period in comparison. It's considered possible that the groundwater levels at the site fluctuate with rain fall. TCLP leachate analysis undertaken during the DSI for lead, nickel, benzo(a)pyrene and OCPs and natural soil results suggests that leachate of the CoPC from the fill to groundwater is unlikely to occur. JKE consider the potential for groundwater contamination to pose a risk to the receptors is low. However, an additional round of groundwater sampling should be attempted from the existing monitoring wells in case groundwater levels fluctuate over time. The requirement for additional groundwater investigation is to be captured under the RAP as a data gap investigation requirement.
OCPs in BH208	The occurrence of Endosulfan in BH208 is not consistent with the remaining soil data. Additional sampling of the soils is to occur in this area under the provisions of the RAP to better characterise the nature and extent of the Endosulfan impacts in soil.

9 CONCLUSIONS AND RECOMMENDATIONS

The DSI included a review of project information, a site inspection, soil sampling from 26 borehole/testpits. The AEC include: fill material; use of pesticides; hazardous building materials; an incinerator; off-site new diesel generator, old generator, and potential former UST; off-site electrical substation; off-site Hazchem storage and off-site Ambulance station.

The DSI identified minor occurrences of zinc and nickel in soil above the ecological SAC. Sporadic occurrences of bonded ACM were also encountered in and on soil, although the ACM concentrations were below the HSL SAC. Groundwater was not encountered during the DSI to a depth of 8m and the potential for groundwater to pose an unacceptable risk in the context of the proposed development was assessed to be low.

Based on the DSI data, contamination-related risks were generally assessed to be low. However, data gaps exist due to access constraints and due to the identification of asbestos in soil. These gaps are discussed in detail in Section 8.4 and in our opinion, they can be addressed under the provisions of a RAP.

Based on the findings of the PSI and DSI, remediation of soil contamination may be required and we consider that the site can be made suitable via relatively straight-forward soil remediation processes such as 'excavation/disposal' and 'cap and contain'. The RAP will include a requirement for a data gap investigation and will also provide contingencies for remediation in the event that the overall data set indicates that remediation is needed.

An Asbestos Management Plan (AMP) will be required for the proposed redevelopment works. An interim AMP must also be developed and implemented until remediation occurs.

We recommend the following:

1. Preparation and implementation an interim AMP for asbestos in soil to be implemented until remediation occurs, and preparation and implementation of an AMP during the proposed development earthworks;
2. Preparation and implementation of a RAP for the site that provides a robust framework to address the data gaps identified in Section 8.4, prior to proceeding with remediation, and contingencies to remediate the site should the overall dataset confirm that remediation is required; and
3. Validation of the site in accordance with the RAP.

At this stage, JKE consider that, provided the above recommendations are addressed, there is no requirement to report any 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)[14].

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

[14] 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)

10 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

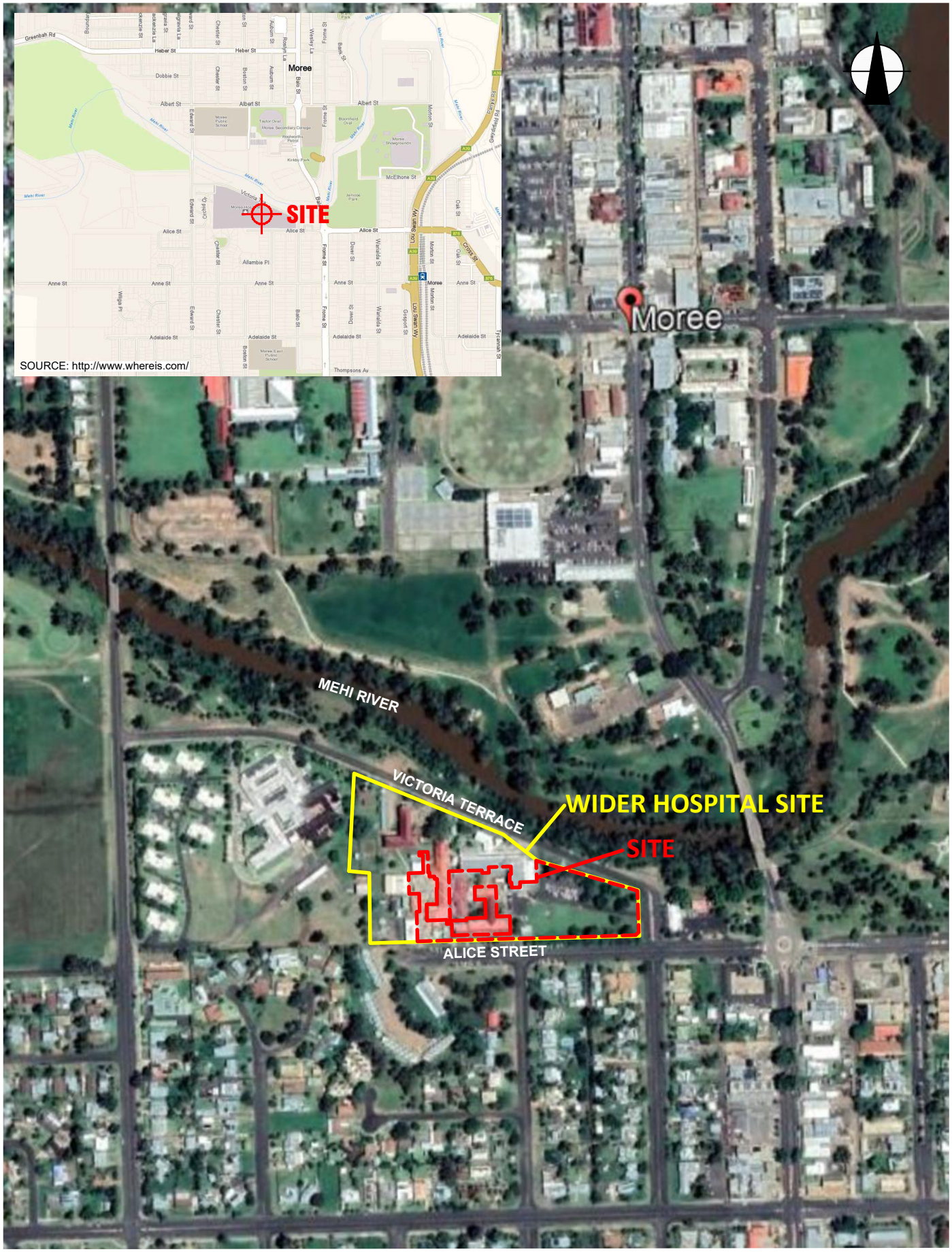
Borehole and test pit logs are prepared by environmental scientists, engineers or geologists based upon interpretation of field conditions and laboratory evaluation of field samples. Logs are normally provided in our reports and these should not be re-drawn for inclusion in site remediation or other 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



AERIAL IMAGE SOURCE: EARTH.GOOGLE.COM

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

Title: **SITE LOCATION PLAN**

Location: MOREE HOSPITAL,
35 ALICE STREET, MOREE, NSW

Project No: E35092UPD

Figure No: 1

JKEnvironments

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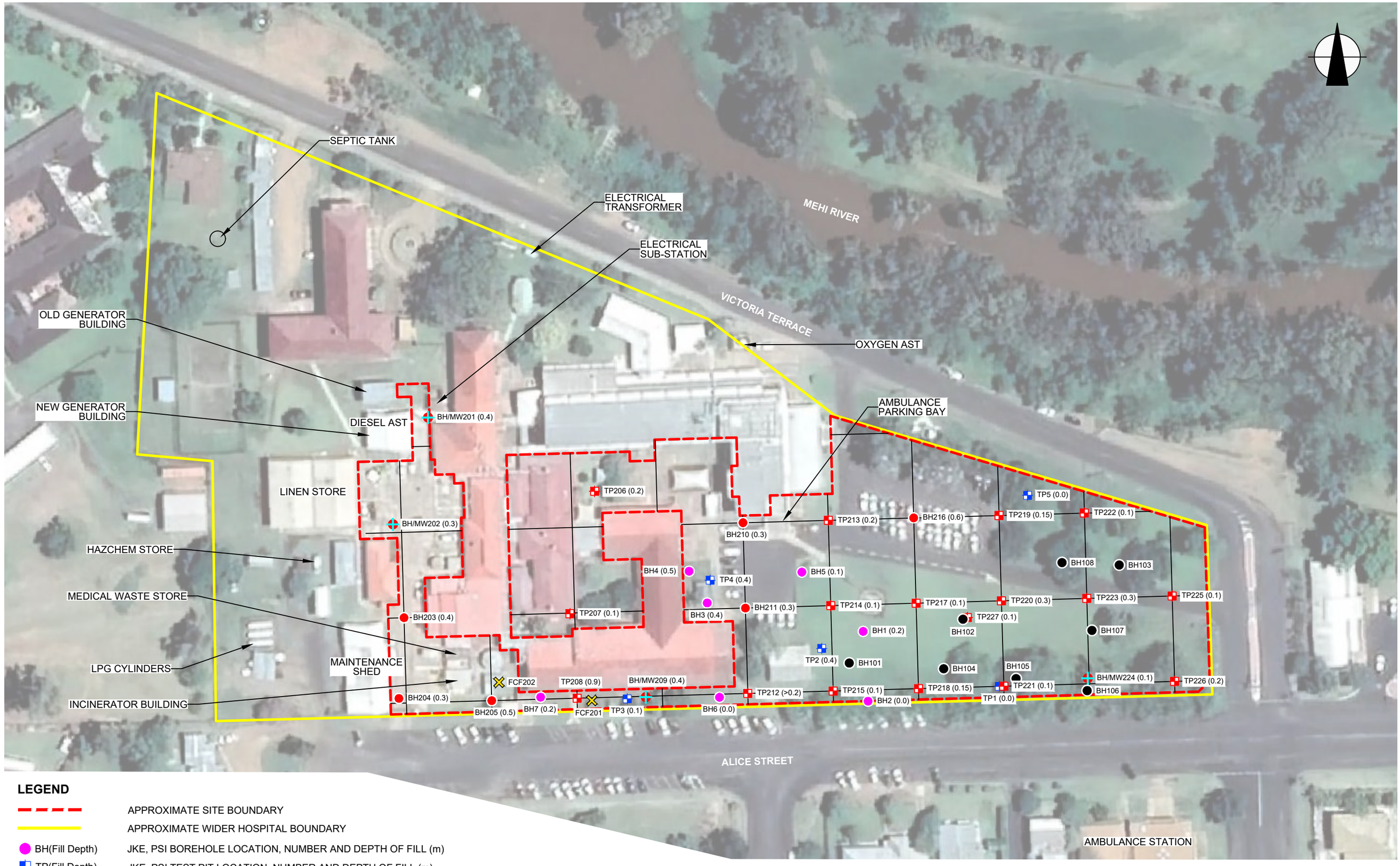

LEGEND

	APPROXIMATE SITE BOUNDARY
	APPROXIMATE WIDER HOSPITAL BOUNDARY
BH(Fill Depth)	JKE, PSI BOREHOLE LOCATION, NUMBER AND DEPTH OF FILL (m)
TP(Fill Depth)	JKE, PSI TEST PIT LOCATION, NUMBER AND DEPTH OF FILL (m)
BH203	JKE, DSI 2023 BOREHOLE LOCATION, NUMBER AND DEPTH OF FILL (m)
BH/MW201	JKE, DSI 2023 BOREHOLE AND GROUNDWATER MONITORING WELL LOCATION, NUMBER AND DEPTH OF FILL (m)
TP206	JKE, DSI 2023 TEST PIT LOCATION, NUMBER AND DEPTH OF FILL (m)
FCF(Surface)	FIBRE CEMENT FRAGMENT LOCATION, NUMBER AND DEPTH (Surface/m) (JKE, DSI 2023)
BH101	JKG BOREHOLE LOCATION AND NUMBER

AERIAL IMAGE SOURCE: EARTH.GOOGLE.COM

0 10 20 30 40 50

SCALE 1:1000 @A3 METRES

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

Title: **SAMPLE LOCATION PLAN**

Location: MOREE HOSPITAL, 35 ALICE STREET, MOREE, NSW

Project No: E35092UPD

Figure No: 2

JKEnvironments

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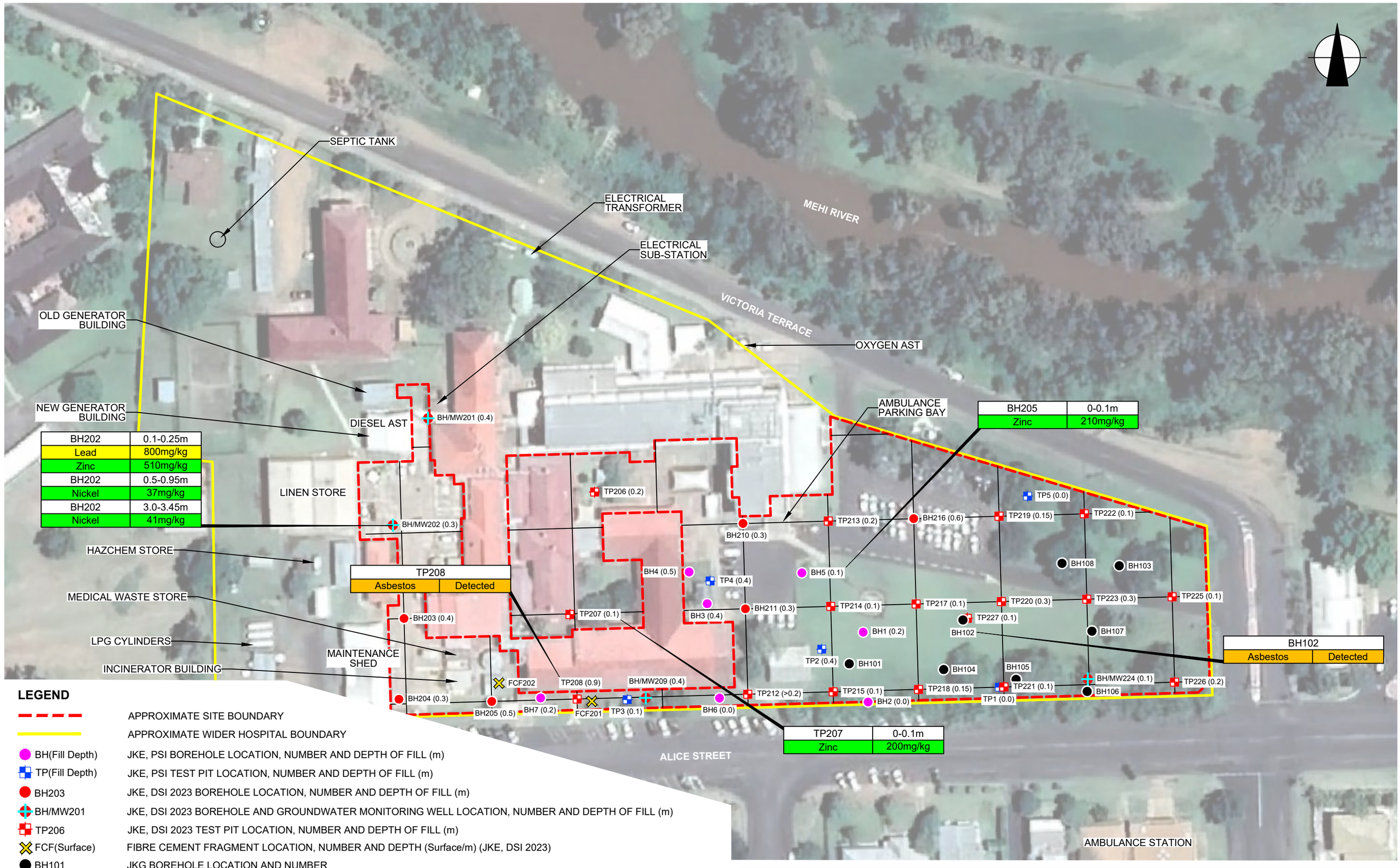

LEGEND

- APPROXIMATE SITE BOUNDARY
- APPROXIMATE WIDER HOSPITAL BOUNDARY
- BH(Fill Depth) — JKE, PSI BOREHOLE LOCATION, NUMBER AND DEPTH OF FILL (m)
- TP(Fill Depth) — JKE, PSI TEST PIT LOCATION, NUMBER AND DEPTH OF FILL (m)
- BH203 — JKE, DSI 2023 BOREHOLE LOCATION, NUMBER AND DEPTH OF FILL (m)
- BH/MW201 — JKE, DSI 2023 BOREHOLE AND GROUNDWATER MONITORING WELL LOCATION, NUMBER AND DEPTH OF FILL (m)
- TP206 — JKE, DSI 2023 TEST PIT LOCATION, NUMBER AND DEPTH OF FILL (m)
- FCF(Surface) — FIBRE CEMENT FRAGMENT LOCATION, NUMBER AND DEPTH (Surface/m) (JKE, DSI 2023)
- BH101 — JKG BOREHOLE LOCATION AND NUMBER

SAMPLE ID	DEPTH (metres)
CHEMICAL	CONCENTRATION

SOIL/SURFACE SAMPLE EXCEEDANCE

- SOIL/SURFACE CONTAMINATION ABOVE SAC FOR HUMAN HEALTH RISK
- SOIL/SURFACE CONTAMINATION ABOVE SAC FOR ECOLOGICAL RISK
- ASBESTOS DETECTED IN FILL

AERIAL IMAGE SOURCE: EARTH.GOOGLE.COM

0 10 20 30 40 50
SCALE 1:1000 @A3 METRES

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

Title: **SAC EXCEEDANCE PLAN**

Location: MOREE HOSPITAL, 35 ALICE STREET, MOREE, NSW

Project No: E35092UPD

Figure No: 3

JKEnvironments

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Appendix B: Proposed Development Plans

MOREE HOSPITAL REDEVELOPMENT

35 Alice St, Moree NSW 2400

SCHEMATIC DESIGN DRAWING LIST	
NUMBER	**SHEET NAME**
00-001	COVER SHEET
01-001	EXISTING SITE PLAN
10-001	PROPOSED SITE PLAN
10-004	PROPOSED EXPANSION STRATEGY
12-001	DEMOLITION SITE PLAN
20-GF-100	GA GROUND FLOOR PLAN - NEW ASB
27-GF-001	FIRE MANAGEMENT PLAN - GROUND FLOOR - NEW ASB
27-L1-002	FIRE MANAGEMENT PLAN - LEVEL 1 - NEW ASB
40-RO-001	ROOF PLAN - NEW ASB
50-001	BUILDING ELEVATIONS AND MATERIALITY - NEW ASB
51-001	BUILDING SECTIONS - NEW ASB

COVER SHEET

Moree Hospital Revelopment

Project Number 10649 | @A1 Sheet Size | Date 09/06/2023 | Drawing Number: MHR-STH-AR-DR-SW-00-001

NSW GOVERNMENT Health Infrastructure

STH SILVER THOMAS HANLEY

DATE: 9/06/2023 5:24:54 PM

EXISTING BUILDINGS	
No.	Name
1	HOSPITAL BUILDING
2	ADMINISTRATION BUILDING
3	PICONE BUILDING
4	MENTAL HEALTH
5	CRANE & GLENNIE
6	HOLLINGWORTH BLOCK
7	KITCHEN
8	CARPORT
9	STORE BUILDING
10	MORTUARY
11	ENGINEER'S OFFICE
12	WORKSHOP
13	STAFF ACCOMODATION
14	AG HEALTH HOUSE
15	BARBECUE SHED
16	MSB
17	EMERGENCY GENERATOR
18	SUB STATION
19	PUMP HOUSE
20	FLAMMABLE LIQUID STORE
21	PORTABLE COLD WATER
22	BUS PORT
23	LPG TANKS
24	MAINTENANCE CAR PORT
25	MAINTENANCE SUB AREA
26	FIRE BOOSTED PUMP SHED
27	BACK FLOW SHED
28	KIOSK
29	ABORIGINAL SHADE SHELTER
30	STAFF SHADE SHELTER
31	CHILLER SHED
32	BULK OXYGEN VESSEL
33	RENAL BUILDING
34	DOCTOR'S ACCOMODATION
35	PARKING
36	HELIPAD
37	FIRE WATER STORAGE
38	SHED

LEGEND

- RETAIN EXISTING **BUILDINGS** (NO WORKS)
- EXISTING **TREES**
- BOUNDARY LINE
- DEMOLITION

DEMOLITION SITE PLAN

Moree Hospital Revelopment

Project Number 10649

1 : 500@A1 Sheet Size

Date 08/06/2023

Drawing Number: MHR-STH-AR-DR-SW-12-001

0 5 10 15 20 25 m

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NSW GOVERNMENT Health Infrastructure

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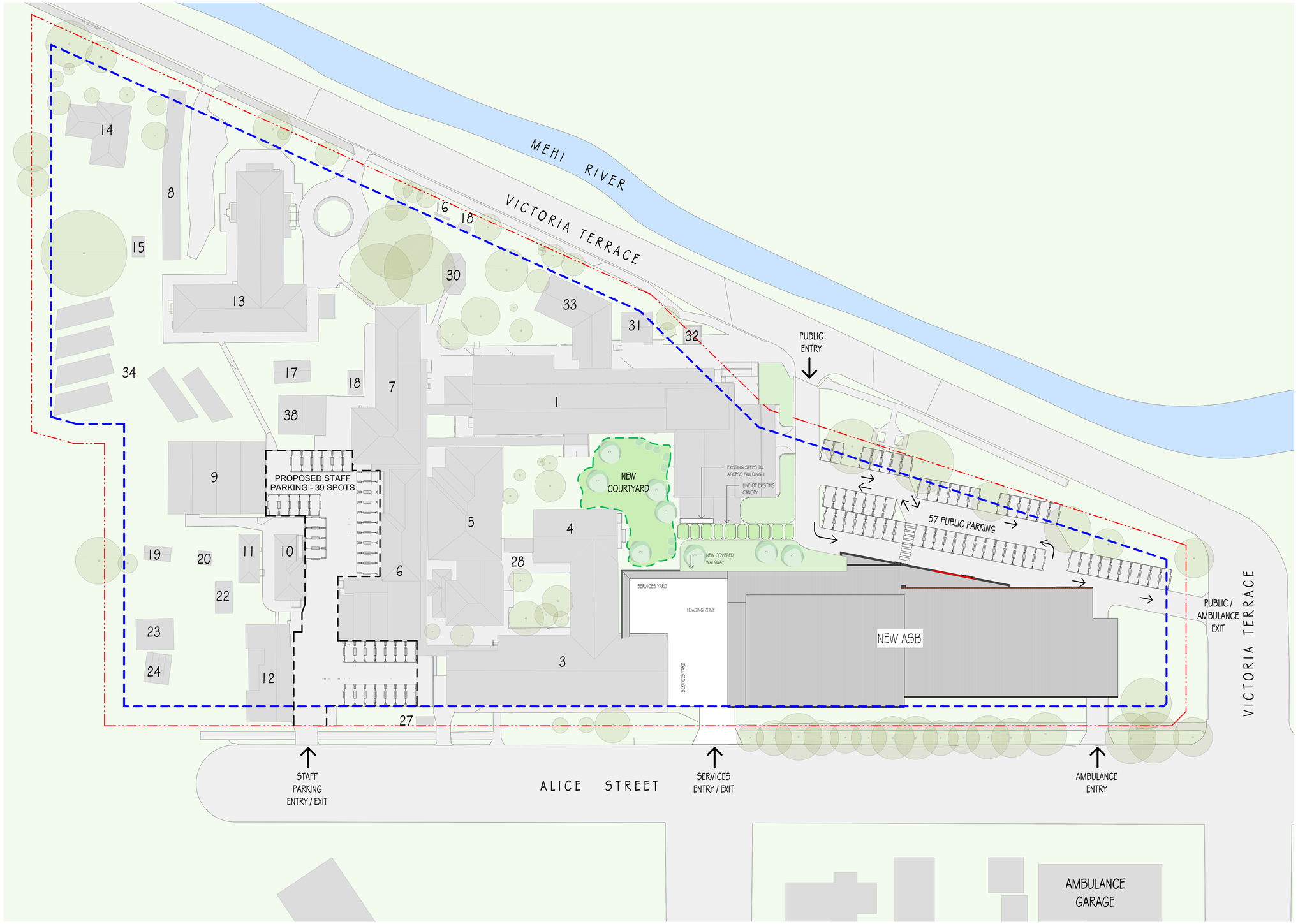

EXISTING BUILDINGS	
No.	Name
1	HOSPITAL BUILDING
2	ADMINISTRATION BUILDING
3	PICONE BUILDING
4	MENTAL HEALTH
5	CRANE & GLENNIE
6	HOLLINGWORTH BLOCK
7	KITCHEN
8	CARPORT
9	STORE BUILDING
10	MORTUARY
11	ENGINEER'S OFFICE
12	WORKSHOP
13	STAFF ACCOMODATION
14	AG HEALTH HOUSE
15	BARBECUE SHED
16	MSB
17	EMERGENCY GENERATOR
18	SUB STATION
19	PUMP HOUSE
20	FLAMMABLE LIQUID STORE
21	PORTABLE COLD WATER
22	BUS PORT
23	LPG TANKS
24	MAINTENANCE CAR PORT
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29	ABORIGINAL SHADE SHELTER
30	STAFF SHADE SHELTER
31	CHILLER SHED
32	BULK OXYGEN VESSEL
33	RENAL BUILDING
34	DOCTOR'S ACCOMODATION
35	PARKING
36	HELIPAD
37	FIRE WATER STORAGE
38	SHED

LEGEND

- RETAIN EXISTING **BUILDINGS** (NO WORKS)
- EXISTING **TREES**
- BOUNDARY LINE
- BOUNDARY 5M OFFSET

PROPOSED SITE PLAN

Moree Hospital Revelopment

Project Number 10649 | 1:500@A1 Sheet Size | Date 08/06/2023 | Drawing Number: MHR-STH-AR-DR-SW-10-001

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NSW GOVERNMENT Health Infrastructure

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Appendix C: Laboratory Results Summary Tables

DSI 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:

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

Waste Classification and TCLP Table:

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

QA/QC Table:

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

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

All data in mg/kg unless stated otherwise			HEAVY METALS								PAHs		ORGANOCHLORINE PESTICIDES (OCPs)							OP PESTICIDES (OPPs)	TOTAL PCBs	ASBESTOS FIBRES
			Arsenic	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Zinc	Total PAHs	Carcinogenic PAHs	HCB	Endosulfan	Methoxychlor	Aldrin & Dieldrin	Chlordane	DDT, DDD & DDE	Heptachlor	Chlorpyrifos		
PQL - Envirolab Services			4	0.4	1	1	1	0.1	1	1	-	0.5	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	100
Site Assessment Criteria (SAC)			300	90	300	17000	600	80	1200	30000	300	3	10	340	400	10	70	400	10	250	1	Detected/Not Detected
Sample Reference	**Sample Depth**	**Sample Description**																				
BH201	0.19-0.4	Fill: Silty Clay	**4**	<0.4	**24**	**22**	**23**	<0.1	**29**	**62**	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	NA
BH201 (lab replicate)	0.19-0.4	Fill: Silty Clay	**4**	<0.4	**24**	**22**	**28**	<0.1	**30**	**69**	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	NA
BH201	0.6-1.0	Silty Clay	**4**	<0.4	**36**	**24**	**10**	<0.1	**33**	**46**	<0.05	<0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BH201	3.1-3.45	Silty Clay	<4	<0.4	**34**	**31**	**11**	<0.1	**34**	**62**	<0.05	<0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BH202	0.1-0.25	Fill: Gravelly Sand	**5**	<0.4	**18**	**29**	**800**	<0.1	**22**	**510**	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	NA
BH202	0.5-0.95	Silty Clay	**4**	<0.4	**41**	**31**	**11**	<0.1	**37**	**57**	<0.05	<0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BH202	3.0-3.45	Silty Clay	<4	<0.4	**39**	**31**	**11**	<0.1	**41**	**51**	<0.05	<0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BH203	0.15-0.25	Fill: Silty Sandy Clay	**5**	<0.4	**22**	**22**	**37**	**0.2**	**22**	**69**	**2**	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	NA
BH204	0.2-0.3	Fill: Silty Clay	**5**	<0.4	**24**	**66**	**19**	<0.1	**21**	**82**	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	NA
BH205	0-0.1	Fill: Silty Clay	**5**	<0.4	**23**	**31**	**54**	**0.4**	**24**	**210**	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	Not Detected
TP206	0-0.1	Fill: Silty Clay	<4	<0.4	**21**	**29**	**52**	<0.1	**20**	**120**	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	NA
TP207	0-0.1	Fill: Silty Clay	**4**	<0.4	**26**	**24**	**63**	<0.1	**22**	**200**	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	NA
TP207 (lab replicate)	0-0.1	Fill: Silty Clay	<4	<0.4	**25**	**23**	**62**	<0.1	**21**	**200**	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	NA
TP208	0-0.1	Fill: Silty Clay	<4	<0.4	**23**	**21**	**15**	<0.1	**21**	**67**	<0.05	<0.5	<0.1	**82**	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	Not Detected
TP208	0.4-0.5	Fill: Silty Clay	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	NA	NA	NA
TP208	0.9-1.0	Silty Clay	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	NA	NA	NA
BH209	0-0.1	Fill: Silty Clay	**4**	<0.4	**32**	**26**	**50**	<0.1	**29**	**81**	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	Not Detected
BH209	0.5-0.95	Silty Clay	<4	<0.4	**32**	**28**	**10**	<0.1	**30**	**49**	<0.05	<0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BH209	4.8-4.95	Sand	<4	<0.4	**10**	**6**	**4**	<0.1	**9**	**15**	<0.05	<0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BH210	0.05-0.2	Fill: Gravelly Sand	<4	<0.4	**11**	**9**	**8**	<0.1	**11**	**22**	**0.2**	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	NA
BH211	0-0.1	Fill: Silty Sand	<4	<0.4	**12**	**10**	**8**	<0.1	**13**	**34**	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	NA
BH212	0-0.1	Fill: Sandy Clay	**5**	<0.4	**22**	**21**	**20**	<0.1	**24**	**55**	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	NA
TP213	0-0.1	Fill: Sandy Clay	**6**	<0.4	**24**	**25**	**9**	<0.1	**29**	**54**	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	NA
TP214	0-0.1	Fill: Silty Clay	**4**	<0.4	**29**	**23**	**11**	<0.1	**26**	**58**	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	NA
TP215	0-0.1	Fill: Silty Clay	**4**	<0.4	**28**	**22**	**15**	<0.1	**26**	**54**	**1.8**	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	NA
TP215 (lab replicate)	0-0.1	Fill: Silty Clay	<4	<0.4	**31**	**25**	**13**	<0.1	**29**	**49**	**0.77**	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	NA
BH216	0.05-0.2	Fill: Gravelly Sand	**4**	<0.4	**12**	**8**	**4**	<0.1	**10**	**19**	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	NA
TP217	0-0.1	Fill: Silty Clay	**4**	<0.4	**28**	**21**	**14**	<0.1	**26**	**60**	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	NA
TP218	0-0.1	Fill: Silty Clay	<4	<0.4	**20**	**16**	**13**	<0.1	**20**	**36**	**3.8**	**0.5**	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	NA
TP219	0-0.1	Fill: Silty Clay	<4	<0.4	**27**	**21**	**14**	<0.1	**26**	**48**	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	NA
TP220	0-0.1	Fill: Silty Clay	<4	<0.4	**20**	**15**	**10**	<0.1	**19**	**41**	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	NA
TP221	0-0.1	Fill: Silty Clay	<4	<0.4	**22**	**20**	**16**	<0.1	**23**	**49**	**8.1**	**1.2**	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	NA
TP222	0-0.1	Fill: Silty Clay	<4	<0.4	**26**	**19**	**12**	<0.1	**25**	**53**	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	NA
TP223	0-0.1	Fill: Silty Clay	<4	<0.4	**24**	**18**	**15**	<0.1	**23**	**54**	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	NA
BH224	0-0.1	Fill: Silty Clay	<4	<0.4	**24**	**22**	**17**	<0.1	**23**	**61**	**5.8**	**0.8**	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	NA
BH224	3.2-3.45	Sand	<4	<0.4	**13**	**8**	**5**	<0.1	**13**	**19**	<0.05	<0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BH224 (lab replicate)	3.2-3.45	Sand	<4	<0.4	**12**	**7**	**4**	<0.1	**12**	**18**	<0.05	<0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TP225	0-0.1	Fill: Silty Clay	**4**	<0.4	**25**	**20**	**15**	<0.1	**24**	**59**	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	NA
TP226	0-0.1	Fill: Silty Clay	<4	<0.4	**29**	**23**	**27**	<0.1	**28**	**53**	**4.6**	**0.7**	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	NA
TP227	0-0.1	Fill: Silty Clay	<4	<0.4	**32**	**29**	**11**	<0.1	**32**	**49**	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	Not Detected
SDUP201	0-0.1	Fill: Silty Clay	**5**	<0.4	**22**	**30**	**55**	**0.5**	**24**	**190**	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	NA	<0.1	<0.1	<0.1	NA
SDUP202	0-0.1	Fill: Silty Clay	<4	<0.4	**28**	**22**	**18**	<0.1	**26**	**80**	**6.6**	**0.9**	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	NA
SDUP202 (lab replicate)	0-0.1	Fill: Silty Clay	NA	NA	NA	NA	NA	NA	NA	NA	**6.7**	**0.9**	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	NA
SDUP205	0-0.1	Fill: Silty Clay	**4**	<0.4	**26**	**22**	**18**	<0.1	**27**	**55**	**4.4**	**0.7**	<0.1	<0.1	<0.1	<0.1	<0.1	NA	<0.1	<0.1	<0.1	NA
SDUP206	0-0.1	Fill: Silty Clay	<4	<0.4	**24**	**17**	**14**	<0.1	**23**	**56**	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	NA
SDUP207	0-0.1	Fill: Silty Clay	<4	<0.4	**20**	**16**	**9**	<0.1	**19**	**42**	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	NA	<0.1	<0.1	<0.1	NA
SDUP207 (lab replicate)	0-0.1	Fill: Silty Clay	<4	<0.4	**20**	**16**	**10**	<0.1	**19**	**44**	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	NA	<0.1	<0.1	<0.1	NA
SDUP208	0-0.1	Fill: Silty Clay	<4	<0.4	**26**	**20**	**16**	<0.1	**25**	**56**	**9.1**	**1.2**	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	NA
FCF201	-	Fibre Cement Fragment	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	Detected
FCF202	-	Fibre Cement Fragment	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	Detected
TP208-FCF1	0-0.1	Fibre Cement Fragment	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	Detected
Total Number of Samples			45	45	45	45	45	45	45	45	46	46	40	40	40	40	40	36	40	38	38	7
Maximum Value			6	<PQL	41	66	800	0.5	41	510	9.1	1.2	<PQL	82	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	Detected
Statistical Analysis on Fill Samples																						
Number of Fill Samples			NC	NC	NC	NC	27	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
Mean Value			NC	NC	NC	NC	51	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
Standard Deviation			NC	NC	NC	NC	153.6	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
% UCL			NC	NC	NC	NC	95	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
UCL Value			NC	NC	NC	NC	102.556	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC

Concentration above the SAC — **VALUE**
Concentration above the PQL — **Bold**
Standard deviation exceeds data assessment criteria — **VALUE**

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**								
BH201	0.19-0.4	Fill: Silty Clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	1.5
BH201 (lab replicate)	0.19-0.4	Fill: Silty Clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	1.5
BH201	0.6-1.0	Silty Clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	2
BH201	3.1-3.45	Silty Clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	3.4
BH202	0.1-0.25	Fill: Gravelly Sand	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	4.2
BH202	0.5-0.95	Silty Clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	4.5
BH202	3.0-3.45	Silty Clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	5.2
BH203	0.15-0.25	Fill: Silty Sandy Clay	0m to <1m	Sand	<25	**55**	<0.2	<0.5	<1	<1	<1	3.8
BH204	0.2-0.3	Fill: Silty Clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	5.3
BH205	0-0.1	Fill: Silty Clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	3.2
TP206	0-0.1	Fill: Silty Clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	2.5
TP207	0-0.1	Fill: Silty Clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	4.1
TP207 (lab replicate)	0-0.1	Fill: Silty Clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	4.1
TP208	0-0.1	Fill: Silty Clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	1.8
BH209	0-0.1	Fill: Silty Clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	3
BH209	0.5-0.95	Silty Clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	2.2
BH209	4.8-4.95	Sand	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	4.5
BH210	0.05-0.2	Fill: Gravelly Sand	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	5.5
BH211	0-0.1	Fill: Silty Sand	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	3.4
BH212	0-0.1	Fill: Sandy Clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	1.3
TP213	0-0.1	Fill: Sandy Clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	0.6
TP214	0-0.1	Fill: Silty Clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	3.2
TP215	0-0.1	Fill: Silty Clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	5.1
TP215 (lab replicate)	0-0.1	Fill: Silty Clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	5.1
BH216	0.05-0.2	Fill: Gravelly Sand	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	4.6
TP217	0-0.1	Fill: Silty Clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	1.8
TP218	0-0.1	Fill: Silty Clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	5.1
TP219	0-0.1	Fill: Silty Clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	2.5
TP220	0-0.1	Fill: Silty Clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	8.5
TP221	0-0.1	Fill: Silty Clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	5.1
TP222	0-0.1	Fill: Silty Clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	3.2
TP223	0-0.1	Fill: Silty Clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	2.8
BH224	0-0.1	Fill: Silty Clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	2.5
BH224	3.2-3.45	Sand	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	7.1
BH224 (lab replicate)	3.2-3.45	Sand	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	7.1
TP225	0-0.1	Fill: Silty Clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	0.2
TP226	0-0.1	Fill: Silty Clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	3.2
TP227	0-0.1	Fill: Silty Clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	6.8
SDUP201	0-0.1	Fill: Silty Clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	NA
SDUP202	0-0.1	Fill: Silty Clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	NA
SDUP202 (lab replicate)	0-0.1	Fill: Silty Clay	0m to <1m	Sand	NA	<50	NA	NA	NA	NA	NA	NA
SDUP205	0-0.1	Fill: Silty Clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	NA
SDUP206	0-0.1	Fill: Silty Clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	NA
SDUP207	0-0.1	Fill: Silty Clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	NA
SDUP207 (lab replicate)	0-0.1	Fill: Silty Clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	NA
SDUP208	0-0.1	Fill: Silty Clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	NA
SDUP208 (lab replicate)	0-0.1	Fill: Silty Clay	0m to <1m	Sand	<25	NA	<0.2	<0.5	<1	<1	<1	NA
Total Number of Samples					46	46	46	46	46	46	46	38
Maximum Value					<PQL	55	<PQL	<PQL	<PQL	<PQL	<PQL	8.5

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
BH201	0.19-0.4	Fill: Silty Clay	0m to <1m	Sand	45	110	0.5	160	55	40	3
BH201 (lab replicate)	0.19-0.4	Fill: Silty Clay	0m to <1m	Sand	45	110	0.5	160	55	40	3
BH201	0.6-1.0	Silty Clay	0m to <1m	Sand	45	110	0.5	160	55	40	3
BH201	3.1-3.45	Silty Clay	0m to <1m	Sand	45	110	0.5	160	55	40	3
BH202	0.1-0.25	Fill: Gravelly Sand	0m to <1m	Sand	45	110	0.5	160	55	40	3
BH202	0.5-0.95	Silty Clay	0m to <1m	Sand	45	110	0.5	160	55	40	3
BH202	3.0-3.45	Silty Clay	0m to <1m	Sand	45	110	0.5	160	55	40	3
BH203	0.15-0.25	Fill: Silty Sandy Clay	0m to <1m	Sand	45	110	0.5	160	55	40	3
BH204	0.2-0.3	Fill: Silty Clay	0m to <1m	Sand	45	110	0.5	160	55	40	3
BH205	0-0.1	Fill: Silty Clay	0m to <1m	Sand	45	110	0.5	160	55	40	3
TP206	0-0.1	Fill: Silty Clay	0m to <1m	Sand	45	110	0.5	160	55	40	3
TP207	0-0.1	Fill: Silty Clay	0m to <1m	Sand	45	110	0.5	160	55	40	3
TP207 (lab replicate)	0-0.1	Fill: Silty Clay	0m to <1m	Sand	45	110	0.5	160	55	40	3
TP208	0-0.1	Fill: Silty Clay	0m to <1m	Sand	45	110	0.5	160	55	40	3
BH209	0-0.1	Fill: Silty Clay	0m to <1m	Sand	45	110	0.5	160	55	40	3
BH209	0.5-0.95	Silty Clay	0m to <1m	Sand	45	110	0.5	160	55	40	3
BH209	4.8-4.95	Sand	0m to <1m	Sand	45	110	0.5	160	55	40	3
BH210	0.05-0.2	Fill: Gravelly Sand	0m to <1m	Sand	45	110	0.5	160	55	40	3
BH211	0-0.1	Fill: Silty Sand	0m to <1m	Sand	45	110	0.5	160	55	40	3
BH212	0-0.1	Fill: Sandy Clay	0m to <1m	Sand	45	110	0.5	160	55	40	3
TP213	0-0.1	Fill: Sandy Clay	0m to <1m	Sand	45	110	0.5	160	55	40	3
TP214	0-0.1	Fill: Silty Clay	0m to <1m	Sand	45	110	0.5	160	55	40	3
TP215	0-0.1	Fill: Silty Clay	0m to <1m	Sand	45	110	0.5	160	55	40	3
TP215 (lab replicate)	0-0.1	Fill: Silty Clay	0m to <1m	Sand	45	110	0.5	160	55	40	3
BH216	0.05-0.2	Fill: Gravelly Sand	0m to <1m	Sand	45	110	0.5	160	55	40	3
TP217	0-0.1	Fill: Silty Clay	0m to <1m	Sand	45	110	0.5	160	55	40	3
TP218	0-0.1	Fill: Silty Clay	0m to <1m	Sand	45	110	0.5	160	55	40	3
TP219	0-0.1	Fill: Silty Clay	0m to <1m	Sand	45	110	0.5	160	55	40	3
TP220	0-0.1	Fill: Silty Clay	0m to <1m	Sand	45	110	0.5	160	55	40	3
TP221	0-0.1	Fill: Silty Clay	0m to <1m	Sand	45	110	0.5	160	55	40	3
TP222	0-0.1	Fill: Silty Clay	0m to <1m	Sand	45	110	0.5	160	55	40	3
TP223	0-0.1	Fill: Silty Clay	0m to <1m	Sand	45	110	0.5	160	55	40	3
BH224	0-0.1	Fill: Silty Clay	0m to <1m	Sand	45	110	0.5	160	55	40	3
BH224	3.2-3.45	Sand	0m to <1m	Sand	45	110	0.5	160	55	40	3
BH224 (lab replicate)	3.2-3.45	Sand	0m to <1m	Sand	45	110	0.5	160	55	40	3
TP225	0-0.1	Fill: Silty Clay	0m to <1m	Sand	45	110	0.5	160	55	40	3
TP226	0-0.1	Fill: Silty Clay	0m to <1m	Sand	45	110	0.5	160	55	40	3
TP227	0-0.1	Fill: Silty Clay	0m to <1m	Sand	45	110	0.5	160	55	40	3
SDUP201	0-0.1	Fill: Silty Clay	0m to <1m	Sand	45	110	0.5	160	55	40	3
SDUP202	0-0.1	Fill: Silty Clay	0m to <1m	Sand	45	110	0.5	160	55	40	3
SDUP202 (lab replicate)	0-0.1	Fill: Silty Clay	0m to <1m	Sand	NA	110	NA	NA	NA	NA	NA
SDUP205	0-0.1	Fill: Silty Clay	0m to <1m	Sand	45	110	0.5	160	55	40	3
SDUP206	0-0.1	Fill: Silty Clay	0m to <1m	Sand	45	110	0.5	160	55	40	3
SDUP207	0-0.1	Fill: Silty Clay	0m to <1m	Sand	45	110	0.5	160	55	40	3
SDUP207 (lab replicate)	0-0.1	Fill: Silty Clay	0m to <1m	Sand	45	110	0.5	160	55	40	3
SDUP208	0-0.1	Fill: Silty Clay	0m to <1m	Sand	45	110	0.5	160	55	40	3
SDUP208 (lab replicate)	0-0.1	Fill: Silty Clay	0m to <1m	Sand	45	NA	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**				
BH201	0.19-0.4	Coarse	<25	<50	<100	<100
BH201 (lab replicate)	0.19-0.4	Coarse	<25	<50	<100	<100
BH201	0.6-1.0	Coarse	<25	<50	<100	<100
BH201	3.1-3.45	Coarse	<25	<50	<100	<100
BH202	0.1-0.25	Coarse	<25	<50	<100	<100
BH202	0.5-0.95	Coarse	<25	<50	<100	<100
BH202	3.0-3.45	Coarse	<25	<50	<100	<100
BH203	0.15-0.25	Coarse	<25	**55**	**200**	<100
BH204	0.2-0.3	Coarse	<25	<50	<100	<100
BH205	0-0.1	Coarse	<25	<50	<100	<100
TP206	0-0.1	Coarse	<25	<50	<100	<100
TP207	0-0.1	Coarse	<25	<50	**120**	<100
TP207 (lab replicate)	0-0.1	Coarse	<25	<50	**120**	<100
TP208	0-0.1	Coarse	<25	<50	<100	<100
BH209	0-0.1	Coarse	<25	<50	<100	<100
BH209	0.5-0.95	Coarse	<25	<50	<100	<100
BH209	4.8-4.95	Coarse	<25	<50	<100	<100
BH210	0.05-0.2	Coarse	<25	<50	<100	<100
BH211	0-0.1	Coarse	<25	<50	<100	<100
BH212	0-0.1	Coarse	<25	<50	<100	<100
TP213	0-0.1	Coarse	<25	<50	<100	<100
TP214	0-0.1	Coarse	<25	<50	<100	<100
TP215	0-0.1	Coarse	<25	<50	<100	<100
TP215 (lab replicate)	0-0.1	Coarse	<25	<50	<100	<100
BH216	0.05-0.2	Coarse	<25	<50	<100	<100
TP217	0-0.1	Coarse	<25	<50	<100	<100
TP218	0-0.1	Coarse	<25	<50	<100	<100
TP219	0-0.1	Coarse	<25	<50	<100	<100
TP220	0-0.1	Coarse	<25	<50	<100	<100
TP221	0-0.1	Coarse	<25	<50	<100	<100
TP222	0-0.1	Coarse	<25	<50	<100	<100
TP223	0-0.1	Coarse	<25	<50	<100	<100
BH224	0-0.1	Coarse	<25	<50	<100	<100
BH224	3.2-3.45	Coarse	<25	<50	<100	<100
BH224 (lab replicate)	3.2-3.45	Coarse	<25	<50	<100	<100
TP225	0-0.1	Coarse	<25	<50	<100	<100
TP226	0-0.1	Coarse	<25	<50	<100	<100
TP227	0-0.1	Coarse	<25	<50	<100	<100
SDUP201	0-0.1	Coarse	<25	<50	<100	<100
SDUP202 (lab	0-0.1	Coarse	<25	<50	<100	<100
SDUP202	0-0.1	Coarse	NA	<50	<100	<100
SDUP205	0-0.1	Coarse	<25	<50	<100	<100
SDUP206	0-0.1	Coarse	<25	<50	<100	<100
SDUP207	0-0.1	Coarse	<25	<50	<100	<100
SDUP207 (lab	0-0.1	Coarse	<25	<50	<100	<100
SDUP208	0-0.1	Coarse	<25	<50	<100	<100
SDUP208 (lab	0-0.1	Coarse	<25	NA	NA	NA
Total Number of Samples			46	46	46	46
Maximum Value			<PQL	55	200	<PQL

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)
BH201	0.19-0.4	Coarse	700	1000	2500	10000
BH201 (lab replicate)	0.19-0.4	Coarse	700	1000	2500	10000
BH201	0.6-1.0	Coarse	700	1000	2500	10000
BH201	3.1-3.45	Coarse	700	1000	2500	10000
BH202	0.1-0.25	Coarse	700	1000	2500	10000
BH202	0.5-0.95	Coarse	700	1000	2500	10000
BH202	3.0-3.45	Coarse	700	1000	2500	10000
BH203	0.15-0.25	Coarse	700	1000	2500	10000
BH204	0.2-0.3	Coarse	700	1000	2500	10000
BH205	0-0.1	Coarse	700	1000	2500	10000
TP206	0-0.1	Coarse	700	1000	2500	10000
TP207	0-0.1	Coarse	700	1000	2500	10000
TP207 (lab replicate)	0-0.1	Coarse	700	1000	2500	10000
TP208	0-0.1	Coarse	700	1000	2500	10000
BH209	0-0.1	Coarse	700	1000	2500	10000
BH209	0.5-0.95	Coarse	700	1000	2500	10000
BH209	4.8-4.95	Coarse	700	1000	2500	10000
BH210	0.05-0.2	Coarse	700	1000	2500	10000
BH211	0-0.1	Coarse	700	1000	2500	10000
BH212	0-0.1	Coarse	700	1000	2500	10000
TP213	0-0.1	Coarse	700	1000	2500	10000
TP214	0-0.1	Coarse	700	1000	2500	10000
TP215	0-0.1	Coarse	700	1000	2500	10000
TP215 (lab replicate)	0-0.1	Coarse	700	1000	2500	10000
BH216	0.05-0.2	Coarse	700	1000	2500	10000
TP217	0-0.1	Coarse	700	1000	2500	10000
TP218	0-0.1	Coarse	700	1000	2500	10000
TP219	0-0.1	Coarse	700	1000	2500	10000
TP220	0-0.1	Coarse	700	1000	2500	10000
TP221	0-0.1	Coarse	700	1000	2500	10000
TP222	0-0.1	Coarse	700	1000	2500	10000
TP223	0-0.1	Coarse	700	1000	2500	10000
BH224	0-0.1	Coarse	700	1000	2500	10000
BH224	3.2-3.45	Coarse	700	1000	2500	10000
BH224 (lab replicate)	3.2-3.45	Coarse	700	1000	2500	10000
TP225	0-0.1	Coarse	700	1000	2500	10000
TP226	0-0.1	Coarse	700	1000	2500	10000
TP227	0-0.1	Coarse	700	1000	2500	10000
SDUP201	0-0.1	Coarse	700	1000	2500	10000
SDUP202 (lab replicate)	0-0.1	Coarse	700	1000	2500	10000
SDUP202	0-0.1	Coarse	NA	1000	2500	10000
SDUP205	0-0.1	Coarse	700	1000	2500	10000
SDUP206	0-0.1	Coarse	700	1000	2500	10000
SDUP207	0-0.1	Coarse	700	1000	2500	10000
SDUP207 (lab replicate)	0-0.1	Coarse	700	1000	2500	10000
SDUP208	0-0.1	Coarse	700	1000	2500	10000
SDUP208 (lab replicate)	0-0.1	Coarse	700	NA	NA	NA
FCF202	-		NA	NA	NA	NA

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		5,100	3,800	5,300	7,400	120	18,000	5,300	15,000	1,900	
Site Use		**RECREATIONAL - DIRECT SOIL CONTACT**									
Sample Reference	**Sample Depth**										
BH201	0.19-0.4	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	**1.5**
BH201 (lan replicate)	0.19-0.4	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	**1.5**
BH201	0.6-1.0	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	**2**
BH201	3.1-3.45	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	**3.4**
BH202	0.1-0.25	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	**4.2**
BH202	0.5-0.95	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	**4.5**
BH202	3.0-3.45	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	**5.2**
BH203	0.15-0.25	<25	**55**	**200**	<100	<0.2	<0.5	<1	<1	<1	**3.8**
BH204	0.2-0.3	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	**5.3**
BH205	0-0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	**3.2**
TP206	0-0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	**2.5**
TP207	0-0.1	<25	<50	**120**	<100	<0.2	<0.5	<1	<1	<1	**4.1**
TP207 (lab replicate)	0-0.1	<25	<50	**120**	<100	<0.2	<0.5	<1	<1	<1	**4.1**
TP208	0-0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	**1.8**
BH209	0-0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	**3**
BH209	0.5-0.95	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	**2.2**
BH209	4.8-4.95	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	**4.5**
BH210	0.05-0.2	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	**5.5**
BH211	0-0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	**3.4**
BH212	0-0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	**1.3**
TP213	0-0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	**0.6**
TP214	0-0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	**3.2**
TP215	0-0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	**5.1**
TP215	0-0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	**5.1**
BH216	0.05-0.2	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	**4.6**
TP217	0-0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	**1.8**
TP218	0-0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	**5.1**
TP219	0-0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	**2.5**
TP220	0-0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	**8.5**
TP221	0-0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	**5.1**
TP222	0-0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	**3.2**
TP223	0-0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	**2.8**
BH224	0-0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	**2.5**
BH224	3.2-3.45	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	**7.1**
BH224 (lab replicate)	3.2-3.45	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	**7.1**
TP225	0-0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	**0.2**
TP226	0-0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	**3.2**
TP227	0-0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	**6.8**
SDUP201	0-0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	NA
SDUP202	0-0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	NA
SDUP202 (lab replicate)	0-0.1	NA	<50	<100	<100	NA	NA	NA	NA	NA	NA
SDUP205	0-0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	NA
SDUP206	0-0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	NA
SDUP207	0-0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	NA
SDUP207 (lab replicate)	0-0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	NA
SDUP208	0-0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	NA
SDUP208 (lab replicate)	0-0.1	<25	NA	NA	NA	<0.2	<0.5	<1	<1	<1	NA
Total Number of Samples		46	46	46	46	46	46	46	46	46	38
Maximum Value		<PQL	55	200	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	8.5

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

TABLE S5
ASBESTOS QUANTIFICATION - FIELD OBSERVATIONS AND LABORATORY RESULTS
HSL-C:Public open space; secondary schools; and footpaths

FIELD DATA															LABORATORY DATA											
Date Sampled	Sample reference	Sample Depth	Visible ACM in top 100mm	Approx. Volume of Soil (L)	Soil Mass (g)	Mass ACM (g)	Mass Asbestos in ACM (g)	[Asbestos from ACM in soil] (%w/w)	Mass ACM <7mm (g)	Mass Asbestos in ACM <7mm (g)	[Asbestos from ACM <7mm in soil] (%w/w)	Mass FA (g)	Mass Asbestos in FA (g)	[Asbestos from FA in soil] (%w/w)	Lab Report Number	Sample 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**					**0.02**			**0.001**			**0.001**											**0.02**	**0.001**
15/08/2023	BH201	0.19-0.4	NA	NA	3,170	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	--	--	--	--	--	--	--	--	--	--	--	--
15/08/2023	BH202	0.1-0.3	NA	NA	5,100	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	--	--	--	--	--	--	--	--	--	--	--	--
16/08/2023	BH203	0.15-0.25	NA	NA	1,870	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	--	--	--	--	--	--	--	--	--	--	--	--
16/08/2023	BH205	0-0.1	No	10	10,480	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	331035	BH205	0-0.1	508.04	No asbestos detected at reporting limit of 0.1g/kg: Organic fibres detected	No asbestos detected	<0.1	No visible asbestos detected	–	–	<0.01	<0.001
16/08/2023	BH205	0.1-0.5	NA	NA	3,600	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	--	--	--	--	--	--	--	--	--	--	--	--
16/08/2023	TP206	0-0.2	No	10	10,220	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	--	--	--	--	--	--	--	--	--	--	--	--
16/08/2023	TP207	0-0.1	No	10	10,360	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	--	--	--	--	--	--	--	--	--	--	--	--
17/08/2023	TP208	0-0.1	Yes	10	11,340	9.3	1.3995	0.0123	No ACM <7mm observed	--	--	No FA observed	--	--	331035	TP208	0-0.1	474.62	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
17/08/2023	TP208	0.4-0.5	NA	10	10,680	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	--	--	--	--	--	--	--	--	--	--	--	--
15/08/2023	BH209	0-0.1	No	10	10,110	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	331035	TP209	0-0.1	511.88	No asbestos detected at reporting limit of 0.1g/kg: Organic fibres detected	No asbestos detected	<0.1	No visible asbestos detected	–	–	<0.01	<0.001
15/08/2023	BH209	0.1-0.4	NA	NA	1,820	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	--	--	--	--	--	--	--	--	--	--	--	--
15/08/2023	BH210	0.05-0.3	No	NA	3,860	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	--	--	--	--	--	--	--	--	--	--	--	--
16/08/2023	BH211	0-0.1	No	10	11,260	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	--	--	--	--	--	--	--	--	--	--	--	--
16/08/2023	BH211	0.1-0.3	NA	NA	2,470	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	--	--	--	--	--	--	--	--	--	--	--	--
17/08/2023	TP212	0-0.1	No	10	11,470	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	--	--	--	--	--	--	--	--	--	--	--	--
17/08/2023	TP213	0-0.1	No	10	11,370	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	--	--	--	--	--	--	--	--	--	--	--	--
17/08/2023	TP214	0-01	No	10	10,250	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	--	--	--	--	--	--	--	--	--	--	--	--
16/08/2023	TP215	0-0.1	No	10	10,940	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	--	--	--	--	--	--	--	--	--	--	--	--
16/08/2023	BH216	0.05-0.6	No	NA	3,350	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	--	--	--	--	--	--	--	--	--	--	--	--
16/08/2023	TP217	0-0.1	No	10	10,880	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	--	--	--	--	--	--	--	--	--	--	--	--
16/08/2023	TP218	0-0.1	No	10	10,720	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	--	--	--	--	--	--	--	--	--	--	--	--
17/08/2023	TP219	0-0.15	No	10	10,630	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	--	--	--	--	--	--	--	--	--	--	--	--
16/08/2023	TP220	0-0.1	No	10	11,470	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	--	--	--	--	--	--	--	--	--	--	--	--
16/08/2023	TP220	0.2-0.3	NA	10	11,160	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	--	--	--	--	--	--	--	--	--	--	--	--
16/08/2023	TP221	0-0.1	No	10	10,900	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	--	--	--	--	--	--	--	--	--	--	--	--
17/08/2023	TP222	0-0.1	No	10	10,130	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	--	--	--	--	--	--	--	--	--	--	--	--
16/08/2023	TP223	0-0.1	No	10	10,930	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	--	--	--	--	--	--	--	--	--	--	--	--
16/08/2023	TP223	0.2-0.3	NA	10	10,570	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	--	--	--	--	--	--	--	--	--	--	--	--
16/08/2023	BH224	0-0.1	No	10	10,260	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	--	--	--	--	--	--	--	--	--	--	--	--
17/08/2023	TP225	0-0.1	No	10	10,490	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	--	--	--	--	--	--	--	--	--	--	--	--
16/08/2023	TP226	0-0.1	No	10	10,600	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	--	--	--	--	--	--	--	--	--	--	--	--
16/08/2023	TP227	0-0.1	No	10	10,550	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	331035	TP227	0-0.1	477.87	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**

JKEnvironments

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	13	28	163	5	122	NSL	NSL	NSL	NSL	NSL	NSL	NSL	NSL	NSL	NSL	NSL
Sample Reference	**Sample Depth**	**Sample Description**	**Soil Texture**																			
BH201	0.19-0.4	Fill: Silty Clay	Fine	NA	NA	NA	**4**	**24**	**22**	**23**	**29**	**62**	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.05
BH201 (lab replicate)	0.19-0.4	Fill: Silty Clay	Fine	NA	NA	NA	**4**	**24**	**22**	**28**	**30**	**69**	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.05
BH201	0.6-1.0	Silty Clay	Fine	NA	NA	NA	**4**	**36**	**24**	**10**	**33**	**46**	<1	NA	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.05
BH201	3.1-3.45	Silty Clay	Fine	NA	NA	NA	<4	**34**	**31**	**11**	**34**	**62**	<1	NA	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.05
BH202	0.1-0.25	Fill: Gravelly Sand	Coarse	NA	NA	NA	**5**	**18**	**29**	**800**	**22**	**510**	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.05
BH202	0.5-0.95	Silty Clay	Fine	NA	NA	NA	**4**	**41**	**31**	**11**	**37**	**57**	<1	NA	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.05
BH202	3.0-3.45	Silty Clay	Fine	NA	NA	NA	<4	**39**	**31**	**11**	**41**	**51**	<1	NA	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.05
BH205	0-0.1	Fill: Silty Clay	Fine	NA	NA	NA	**5**	**23**	**31**	**54**	**24**	**210**	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.05
TP207	0-0.1	Fill: Silty Clay	Fine	NA	NA	NA	**4**	**26**	**24**	**63**	**22**	**200**	<1	<0.1	<25	<50	**120**	<100	<0.2	<0.5	<1	<1	<0.05
TP207 (lab replicate)	0-0.1	Fill: Silty Clay	Fine	NA	NA	NA	<4	**25**	**23**	**62**	**21**	**200**	<1	<0.1	<25	<50	**120**	<100	<0.2	<0.5	<1	<1	<0.05
TP208	0-0.1	Fill: Silty Clay	Fine	NA	NA	NA	<4	**23**	**21**	**15**	**21**	**67**	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.05
BH209	0-0.1	Fill: Silty Clay	Fine	NA	NA	NA	**4**	**32**	**26**	**50**	**29**	**81**	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.05
TP208	0.4-0.5	Fill: Silty Clay	Fine	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.1	NA	NA	NA	NA	NA	NA	NA	NA	NA
TP208	0.9-1.0	Silty Clay	Fine	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.1	NA	NA	NA	NA	NA	NA	NA	NA	NA
BH209	0.5-0.95	Silty Clay	Fine	NA	NA	NA	<4	**32**	**28**	**10**	**30**	**49**	<1	NA	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.05
BH209	4.8-4.95	Sand	Coarse	NA	NA	NA	<4	**10**	**6**	**4**	**9**	**15**	<1	NA	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.05
BH210	0.05-0.2	Fill: Gravelly Sand	Coarse	NA	NA	NA	<4	**11**	**9**	**8**	**11**	**22**	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.05
BH211	0-0.1	Fill: Silty Sand	Fine	NA	NA	NA	<4	**12**	**10**	**8**	**13**	**34**	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.05
BH212	0-0.1	Fill: Sandy Clay	Fine	NA	NA	NA	**5**	**22**	**21**	**20**	**24**	**55**	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.05
TP213	0-0.1	Fill: Sandy Clay	Fine	NA	NA	NA	**6**	**24**	**25**	**9**	**29**	**54**	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.05
TP214	0-0.1	Fill: Silty Clay	Fine	NA	NA	NA	**4**	**29**	**23**	**11**	**26**	**58**	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.05
TP215	0-0.1	Fill: Silty Clay	Fine	NA	NA	NA	**4**	**28**	**22**	**15**	**26**	**54**	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	**0.2**
TP215 (lab replicate)	0-0.1	Fill: Silty Clay	Fine	NA	NA	NA	<4	**31**	**25**	**13**	**29**	**49**	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	**0.1**
BH216	0.05-0.2	Fill: Gravelly Sand	Coarse	NA	NA	NA	**4**	**12**	**8**	**4**	**10**	**19**	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.05
TP217	0-0.1	Fill: Silty Clay	Fine	NA	NA	NA	**4**	**28**	**21**	**14**	**26**	**60**	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.05
TP218	0-0.1	Fill: Silty Clay	Fine	NA	NA	NA	<4	**20**	**16**	**13**	**20**	**36**	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	**0.3**
TP219	0-0.1	Fill: Silty Clay	Fine	NA	NA	NA	<4	**27**	**21**	**14**	**26**	**48**	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.05
TP220	0-0.1	Fill: Silty Clay	Fine	NA	NA	NA	<4	**20**	**15**	**10**	**19**	**41**	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.05
TP221	0-0.1	Fill: Silty Clay	Fine	NA	NA	NA	<4	**22**	**20**	**16**	**23**	**49**	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	**0.83**
TP222	0-0.1	Fill: Silty Clay	Fine	NA	NA	NA	<4	**26**	**19**	**12**	**25**	**53**	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.05
TP223	0-0.1	Fill: Silty Clay	Fine	NA	NA	NA	<4	**24**	**18**	**15**	**23**	**54**	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.05
BH224	0-0.1	Fill: Silty Clay	Fine	NA	NA	NA	<4	**24**	**22**	**17**	**23**	**61**	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	**0.59**
BH224	3.2-3.45	Sand	Coarse	NA	NA	NA	<4	**13**	**8**	**5**	**13**	**19**	<1	NA	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.05
BH224 (lab replicate)	3.2-3.45	Sand	Coarse	NA	NA	NA	<4	**12**	**7**	**4**	**12**	**18**	<1	NA	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.05
TP225	0-0.1	Fill: Silty Clay	Fine	NA	NA	NA	**4**	**25**	**20**	**15**	**24**	**59**	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.05
TP226	0-0.1	Fill: Silty Clay	Fine	NA	NA	NA	<4	**29**	**23**	**27**	**28**	**53**	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	**0.4**
TP227	0-0.1	Fill: Silty Clay	Fine	NA	NA	NA	<4	**32**	**29**	**11**	**32**	**49**	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.05
SDUP201	0-0.1	Fill: Silty Clay	Fine	NA	NA	NA	**5**	**22**	**30**	**55**	**24**	**190**	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.05
SDUP202	0-0.1	Fill: Silty Clay	Fine	NA	NA	NA	<4	**28**	**22**	**18**	**26**	**80**	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	**0.66**
SDUP202 (lab	0-0.1	Fill: Silty Clay	Fine	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.1	NA	<50	<100	<100	NA	NA	NA	NA	**0.65**
SDUP205	0-0.1	Fill: Silty Clay	Fine	NA	NA	NA	**4**	**26**	**22**	**18**	**27**	**55**	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	**0.4**
SDUP206	0-0.1	Fill: Silty Clay	Fine	NA	NA	NA	<4	**24**	**17**	**14**	**23**	**56**	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.05
SDUP207	0-0.1	Fill: Silty Clay	Fine	NA	NA	NA	<4	**20**	**16**	**9**	**19**	**42**	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.05
SDUP207	0-0.1	Fill: Silty Clay	Fine	NA	NA	NA	<4	**20**	**16**	**10**	**19**	**44**	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.05
SDUP208	0-0.1	Fill: Silty Clay	Fine	NA	NA	NA	<4	**26**	**20**	**16**	**25**	**56**	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	**0.86**
SDUP208 (lab	0-0.1	Fill: Silty Clay	Fine	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA	<25	NA	NA	NA	<0.2	<0.5	<1	<1	NA
Total Number of Samples				0	0	0	45	45	45	45	45	45	46	40	46	46	46	46	46	46	46	46	46
Maximum Value				NA	NA	NA	6	41	66	800	41	510	<PQL	<PQL	<PQL	55	200	<PQL	<PQL	<PQL	<PQL	<PQL	0.86

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
BH201	0.19-0.4	Fill: Silty Clay	Fine	NA	NA	NA	100	200	90	1300	35	190	170	180	180	120	1300	5600	65	105	125	45	20
BH201 (lab replicate)	0.19-0.4	Fill: Silty Clay	Fine	NA	NA	NA	100	200	90	1300	35	190	170	180	180	120	1300	5600	65	105	125	45	20
BH201	0.6-1.0	Silty Clay	Fine	NA	NA	NA	100	200	90	1300	35	190	170	--	180	120	1300	5600	65	105	125	45	20
BH201	3.1-3.45	Silty Clay	Fine	NA	NA	NA	100	200	90	1300	35	190	170	--	180	120	1300	5600	65	105	125	45	20
BH202	0.1-0.25	Fill: Gravelly Sand	Coarse	NA	NA	NA	100	200	90	1300	35	190	170	180	180	120	300	2800	50	85	70	105	20
BH202	0.5-0.95	Silty Clay	Fine	NA	NA	NA	100	200	90	1300	35	190	170	--	180	120	1300	5600	65	105	125	45	20
BH202	3.0-3.45	Silty Clay	Fine	NA	NA	NA	100	200	90	1300	35	190	170	--	180	120	1300	5600	65	105	125	45	20
BH203	0.15-0.25	F: Silty Sandy Clay	Coarse	NA	NA	NA	100	200	90	1300	35	190	170	180	180	120	300	2800	50	85	70	105	20
BH204	0.2-0.3	F: Silty Clay	Coarse	NA	NA	NA	100	200	90	1300	35	190	170	180	180	120	300	2800	50	85	70	105	20
BH205	0-0.1	Fill: Silty Clay	Fine	NA	NA	NA	100	200	90	1300	35	190	170	180	180	120	1300	5600	65	105	125	45	20
TP206	0-0.1	Fill: Silty Clay	Coarse	NA	NA	NA	100	200	90	1300	35	190	170	180	180	120	300	2800	50	85	70	105	20
TP207	0-0.1	Fill: Silty Clay	Fine	NA	NA	NA	100	200	90	1300	35	190	170	180	180	120	1300	5600	65	105	125	45	20
TP207 (lab replicate)	0-0.1	Fill: Silty Clay	Fine	NA	NA	NA	100	200	90	1300	35	190	170	180	180	120	1300	5600	65	105	125	45	20
TP208	0-0.1	Fill: Silty Clay	Fine	NA	NA	NA	100	200	90	1300	35	190	170	180	180	120	1300	5600	65	105	125	45	20
TP208	0.4-0.5	Fill: Silty Clay	Fine	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	180	NA	NA	NA	NA	NA	NA	NA	NA	NA
TP208	0.9-1.0	Silty Clay	Fine	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	180	NA	NA	NA	NA	NA	NA	NA	NA	NA
BH209	0-0.1	Fill: Silty Clay	Fine	NA	NA	NA	100	200	90	1300	35	190	170	180	180	120	1300	5600	65	105	125	45	20
BH209	0.5-0.95	Silty Clay	Fine	NA	NA	NA	100	200	90	1300	35	190	170	--	180	120	1300	5600	65	105	125	45	20
BH209	4.8-4.95	Sand	Coarse	NA	NA	NA	100	200	90	1300	35	190	170	--	180	120	300	2800	50	85	70	105	20
BH210	0.05-0.2	Fill: Gravelly Sand	Coarse	NA	NA	NA	100	200	90	1300	35	190	170	180	180	120	300	2800	50	85	70	105	20
BH211	0-0.1	Fill: Silty Sand	Fine	NA	NA	NA	100	200	90	1300	35	190	170	180	180	120	1300	5600	65	105	125	45	20
BH212	0-0.1	Fill: Sandy Clay	Fine	NA	NA	NA	100	200	90	1300	35	190	170	180	180	120	1300	5600	65	105	125	45	20
TP213	0-0.1	Fill: Sandy Clay	Fine	NA	NA	NA	100	200	90	1300	35	190	170	180	180	120	1300	5600	65	105	125	45	20
TP214	0-0.1	Fill: Silty Clay	Fine	NA	NA	NA	100	200	90	1300	35	190	170	180	180	120	1300	5600	65	105	125	45	20
TP215	0-0.1	Fill: Silty Clay	Fine	NA	NA	NA	100	200	90	1300	35	190	170	180	180	120	1300	5600	65	105	125	45	20
TP215 (lab replicate)	0-0.1	Fill: Silty Clay	Fine	NA	NA	NA	100	200	90	1300	35	190	170	180	180	120	1300	5600	65	105	125	45	20
BH216	0.05-0.2	Fill: Gravelly Sand	Coarse	NA	NA	NA	100	200	90	1300	35	190	170	180	180	120	300	2800	50	85	70	105	20
TP217	0-0.1	Fill: Silty Clay	Fine	NA	NA	NA	100	200	90	1300	35	190	170	180	180	120	1300	5600	65	105	125	45	20
TP218	0-0.1	Fill: Silty Clay	Fine	NA	NA	NA	100	200	90	1300	35	190	170	180	180	120	1300	5600	65	105	125	45	20
TP219	0-0.1	Fill: Silty Clay	Fine	NA	NA	NA	100	200	90	1300	35	190	170	180	180	120	1300	5600	65	105	125	45	20
TP220	0-0.1	Fill: Silty Clay	Fine	NA	NA	NA	100	200	90	1300	35	190	170	180	180	120	1300	5600	65	105	125	45	20
TP221	0-0.1	Fill: Silty Clay	Fine	NA	NA	NA	100	200	90	1300	35	190	170	180	180	120	1300	5600	65	105	125	45	20
TP222	0-0.1	Fill: Silty Clay	Fine	NA	NA	NA	100	200	90	1300	35	190	170	180	180	120	1300	5600	65	105	125	45	20
TP223	0-0.1	Fill: Silty Clay	Fine	NA	NA	NA	100	200	90	1300	35	190	170	180	180	120	1300	5600	65	105	125	45	20
BH224	0-0.1	Fill: Silty Clay	Fine	NA	NA	NA	100	200	90	1300	35	190	170	180	180	120	1300	5600	65	105	125	45	20
BH224	3.2-3.45	Sand	Coarse	NA	NA	NA	100	200	90	1300	35	190	170	--	180	120	300	2800	50	85	70	105	20
BH224 (lab replicate)	3.2-3.45	Sand	Coarse	NA	NA	NA	100	200	90	1300	35	190	170	--	180	120	300	2800	50	85	70	105	20
TP225	0-0.1	Fill: Silty Clay	Fine	NA	NA	NA	100	200	90	1300	35	190	170	180	180	120	1300	5600	65	105	125	45	20
TP226	0-0.1	Fill: Silty Clay	Fine	NA	NA	NA	100	200	90	1300	35	190	170	180	180	120	1300	5600	65	105	125	45	20
TP227	0-0.1	Fill: Silty Clay	Fine	NA	NA	NA	100	200	90	1300	35	190	170	180	180	120	1300	5600	65	105	125	45	20
SDUP201	0-0.1	Fill: Silty Clay	Fine	NA	NA	NA	100	200	90	1300	35	190	170	180	180	120	1300	5600	65	105	125	45	20
SDUP202	0-0.1	Fill: Silty Clay	Fine	NA	NA	NA	100	200	90	1300	35	190	170	180	180	120	1300	5600	65	105	125	45	20
SDUP202 (lab replicate)	0-0.1	Fill: Silty Clay	Fine	NA	NA	NA	--	--	--	--	--	--	--	180	--	120	1300	5600	--	--	--	--	20
SDUP205	0-0.1	Fill: Silty Clay	Fine	NA	NA	NA	100	200	90	1300	35	190	170	180	180	120	1300	5600	65	105	125	45	20
SDUP206	0-0.1	Fill: Silty Clay	Fine	NA	NA	NA	100	200	90	1300	35	190	170	180	180	120	1300	5600	65	105	125	45	20
SDUP207	0-0.1	Fill: Silty Clay	Fine	NA	NA	NA	100	200	90	1300	35	190	170	180	180	120	1300	5600	65	105	125	45	20
SDUP207	0-0.1	Fill: Silty Clay	Fine	NA	NA	NA	100	200	90	1300	35	190	170	180	180	120	1300	5600	65	105	125	45	20
SDUP208	0-0.1	Fill: Silty Clay	Fine	NA	NA	NA	100	200	90	1300	35	190	170	180	180	120	1300	5600	65	105	125	45	20
SDUP208 (lab replicate)	0-0.1	Fill: Silty Clay	Fine	NA	NA	NA	--	--	--	--	--	--	170	--	180	--	--	--	65	105	125	45	--

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**																									
BH201	0.19-0.4	Fill: Silty Clay	**4**	<0.4	**24**	**22**	**23**	<0.1	**29**	**62**	<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
BH201 (lab replicate)	0.19-0.4	Fill: Silty Clay	**4**	<0.4	**24**	**22**	**28**	<0.1	**30**	**69**	<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
BH201	0.6-1.0	Silty Clay	**4**	<0.4	**36**	**24**	**10**	<0.1	**33**	**46**	<0.05	<0.05	NA	NA	NA	NA	NA	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<1	NA
BH201	3.1-3.45	Silty Clay	<4	<0.4	**34**	**31**	**11**	<0.1	**34**	**62**	<0.05	<0.05	NA	NA	NA	NA	NA	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<1	NA
BH202	0.1-0.25	Fill: Gravelly Sand	**5**	<0.4	**18**	**29**	**800**	<0.1	**22**	**510**	<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
BH202	0.5-0.95	Silty Clay	**4**	<0.4	**41**	**31**	**11**	<0.1	**37**	**57**	<0.05	<0.05	NA	NA	NA	NA	NA	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<1	NA
BH202	3.0-3.45	Silty Clay	<4	<0.4	**39**	**31**	**11**	<0.1	**41**	**51**	<0.05	<0.05	NA	NA	NA	NA	NA	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<1	NA
BH203	0.15-0.25	Fill: Silty Sandy Clay	**5**	<0.4	**22**	**22**	**37**	**0.2**	**22**	**69**	**2**	**0.07**	<0.1	<0.1	<0.1	<0.1	<0.1	<25	<50	**160**	<100	**160**	<0.2	<0.5	<1	<1	NA
BH204	0.2-0.3	Fill: Silty Clay	**5**	<0.4	**24**	**66**	**19**	<0.1	**21**	**82**	<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
BH205	0-0.1	Fill: Silty Clay	**5**	<0.4	**23**	**31**	**54**	**0.4**	**24**	**210**	<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
TP206	0-0.1	Fill: Silty Clay	<4	<0.4	**21**	**29**	**52**	<0.1	**20**	**120**	<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
TP207	0-0.1	Fill: Silty Clay	**4**	<0.4	**26**	**24**	**63**	<0.1	**22**	**200**	<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
TP207 (lab replicate)	0-0.1	Fill: Silty Clay	<4	<0.4	**25**	**23**	**62**	<0.1	**21**	**200**	<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
TP208	0-0.1	Fill: Silty Clay	<4	<0.4	**23**	**21**	**15**	<0.1	**21**	**67**	<0.05	<0.05	**82**	<0.1	<0.1	<0.1	<0.1	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<1	Not Detected
TP208	0.4-0.5	Fill: Silty Clay	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.1	<0.1	<0.1	<0.1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TP208	0.9-1.0	Silty Clay	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.1	<0.1	<0.1	<0.1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BH209	0-0.1	Fill: Silty Clay	**4**	<0.4	**32**	**26**	**50**	<0.1	**29**	**81**	<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
BH209	0.5-0.95	Silty Clay	<4	<0.4	**32**	**28**	**10**	<0.1	**30**	**49**	<0.05	<0.05	NA	NA	NA	NA	NA	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<1	NA
BH209	4.8-4.95	Sand	<4	<0.4	**10**	**6**	**4**	<0.1	**9**	**15**	<0.05	<0.05	NA	NA	NA	NA	NA	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<1	NA
BH210	0.05-0.2	Fill: Gravelly Sand	<4	<0.4	**11**	**9**	**8**	<0.1	**11**	**22**	**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	NA
BH211	0-0.1	Fill: Silty Sand	<4	<0.4	**12**	**10**	**8**	<0.1	**13**	**34**	<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
BH212	0-0.1	Fill: Sandy Clay	**5**	<0.4	**22**	**21**	**20**	<0.1	**24**	**55**	<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
TP213	0-0.1	Fill: Sandy Clay	**6**	<0.4	**24**	**25**	**9**	<0.1	**29**	**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	NA
TP214	0-0.1	Fill: Silty Clay	**4**	<0.4	**29**	**23**	**11**	<0.1	**26**	**58**	<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
TP215	0-0.1	Fill: Silty Clay	**4**	<0.4	**28**	**22**	**15**	<0.1	**26**	**54**	**1.8**	**0.2**	<0.1	<0.1	<0.1	<0.1	<0.1	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<1	NA
TP215 (lab replicate)	0-0.1	Fill: Silty Clay	<4	<0.4	**31**	**25**	**13**	<0.1	**29**	**49**	**0.77**	**0.1**	<0.1	<0.1	<0.1	<0.1	<0.1	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<1	NA
BH216	0.05-0.2	Fill: Gravelly Sand	**4**	<0.4	**12**	**8**	**4**	<0.1	**10**	**19**	<0.05	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<1	NA
TP217	0-0.1	Fill: Silty Clay	**4**	<0.4	**28**	**21**	**14**	<0.1	**26**	**60**	<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
TP218	0-0.1	Fill: Silty Clay	<4	<0.4	**20**	**16**	**13**	<0.1	**20**	**36**	**3.8**	**0.3**	<0.1	<0.1	<0.1	<0.1	<0.1	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<1	NA
TP219	0-0.1	Fill: Silty Clay	<4	<0.4	**27**	**21**	**14**	<0.1	**26**	**48**	<0.05	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<1	NA
TP220	0-0.1	Fill: Silty Clay	<4	<0.4	**20**	**15**	**10**	<0.1	**19**	**41**	<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
TP221	0-0.1	Fill: Silty Clay	<4	<0.4	**22**	**20**	**16**	<0.1	**23**	**49**	**8.1**	**0.83**	<0.1	<0.1	<0.1	<0.1	<0.1	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<1	NA
TP222	0-0.1	Fill: Silty Clay	<4	<0.4	**26**	**19**	**12**	<0.1	**25**	**53**	<0.05	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<1	NA
TP223	0-0.1	Fill: Silty Clay	<4	<0.4	**24**	**18**	**15**	<0.1	**23**	**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	NA
BH224	0-0.1	Fill: Silty Clay	<4	<0.4	**24**	**22**	**17**	<0.1	**23**	**61**	**5.8**	**0.59**	<0.1	<0.1	<0.1	<0.1	<0.1	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<1	NA
BH224	3.2-3.45	Sand	<4	<0.4	**13**	**8**	**5**	<0.1	**13**	**19**	<0.05	<0.05	NA	NA	NA	NA	NA	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<1	NA
BH224 (lab replicate)	3.2-3.45	Sand	<4	<0.4	**12**	**7**	**4**	<0.1	**12**	**18**	<0.05	<0.05	NA	NA	NA	NA	NA	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<1	NA
TP225	0-0.1	Fill: Silty Clay	**4**	<0.4	**25**	**20**	**15**	<0.1	**24**	**59**	<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
TP226	0-0.1	Fill: Silty Clay	<4	<0.4	**29**	**23**	**27**	<0.1	**28**	**53**	**4.6**	**0.4**	<0.1	<0.1	<0.1	<0.1	<0.1	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<1	NA
TP227	0-0.1	Fill: Silty Clay	<4	<0.4	**32**	**29**	**11**	<0.1	**32**	**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	Not Detected
SDUP201	0-0.1	Fill: Silty Clay	**5**	<0.4	**22**	**30**	**55**	**0.5**	**24**	**190**	<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
SDUP202	0-0.1	Fill: Silty Clay	<4	<0.4	**28**	**22**	**18**	<0.1	**26**	**80**	**6.6**	**0.66**	<0.1	<0.1	<0.1	<0.1	<0.1	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<1	NA
SDUP202 (lab replicat	0-0.1	Fill: Silty Clay	NA	NA	NA	NA	NA	NA	NA	NA	**6.7**	**0.65**	<0.1	<0.1	<0.1	<0.1	<0.1	NA	<50	<100	<100	<50	NA	NA	NA	NA	NA
SDUP205	0-0.1	Fill: Silty Clay	**4**	<0.4	**26**	**22**	**18**	<0.1	**27**	**55**	**4.4**	**0.4**	<0.1	<0.1	<0.1	<0.1	<0.1	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<1	NA
SDUP206	0-0.1	Fill: Silty Clay	<4	<0.4	**24**	**17**	**14**	<0.1	**23**	**56**	<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
SDUP207	0-0.1	Fill: Silty Clay	<4	<0.4	**20**	**16**	**9**	<0.1	**19**	**42**	<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
SDUP207 (lab replicat	0-0.1	Fill: Silty Clay	<4	<0.4	**20**	**16**	**10**	<0.1	**19**	**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	NA
SDUP208	0-0.1	Fill: Silty Clay	<4	<0.4	**26**	**20**	**16**	<0.1	**25**	**56**	**9.1**	**0.86**	<0.1	<0.1	<0.1	<0.1	<0.1	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<1	NA
SDUP208 (lab replicat	0-0.1	Fill: Silty Clay	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<25	NA	NA	NA	NA	<0.2	<0.5	<1	<1	NA
FCF201	-	Fibre cement	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
FCF202	-	Fibre cement	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
TP208-FCF1	0-0.1	Fibre cement	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
Total Number of Samples			45	45	45	45	45	45	45	45	46	46	40	40	40	40	38	46	46	46	46	46	46	46	46	46	7
Maximum Value			6	<PQL	41	66	800	0.5	41	510	9.1	0.86	82	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	160	<PQL	160	<PQL	<PQL	<PQL	<PQL	Detected

Concentration above the CT1 — **VALUE**
Concentration above SCC1 — **VALUE**
Concentration above the SCC2 — **VALUE**
Concentration above PQL — **Bold**

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

			Lead	Nickel	OCP (Endosulfan)	B(a)P
PQL - Envirolab Services			0.03	0.02	0.2	0.001
TCLP1 - General Solid Waste			5	2	3	0.04
TCLP2 - Restricted Solid Waste			20	8	12	0.16
TCLP3 - Hazardous Waste			>20	>8	>12	>0.16
Sample Reference	**Sample Depth**	**Sample Description**				
BH202	0.1-0.25	Fill: Gravelly Sand	**0.55**	NA	NA	NA
BH202	3.0-3.45	Silty sand	NA	<0.02	NA	NA
TP208	0-0.1	Fill: Silty clay	NA	NA	<0.2	NA
TP221	0-0.1	Fill: Silty clay	NA	NA	NA	<0.0001
Total Number of samples			1	1	1	1
Maximum Value			0.55	<PQL	<PQL	<PQL

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

TABLE S9
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	BH205	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
laboratory	SDUP201	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	BH224	0-0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<2	<1	<0.1	<0.1	<0.1	<0.1	0.4	<0.1	1.2	1.2	0.3	0.4	0.8	0.59	0.3	<0.1	0.7
laboratory	SDUP202	0-0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<2	<1	<0.1	<0.1	<0.1	<0.1	0.5	<0.1	1.4	1.4	0.4	0.5	1	0.66	0.4	<0.1	0.5
duplicate	MEAN		nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	0.45	nc	1.3	1.3	0.35	0.45	0.9	0.625	0.35	nc	0.6
	RPD %		nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	22%	nc	15%	15%	29%	22%	22%	11%	29%	nc	33%
Intra	TP226	0-0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<2	<1	<0.1	<0.1	<0.1	<0.1	0.4	<0.1	0.9	0.9	0.3	0.3	0.6	0.4	0.2	<0.1	0.5
laboratory	SDUP205	0-0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<2	<1	<0.1	<0.1	<0.1	<0.1	0.3	<0.1	0.9	0.9	0.2	0.3	0.6	0.4	0.2	<0.1	0.5
duplicate	MEAN		nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	0.35	nc	0.9	0.9	0.25	0.3	0.6	0.4	0.2	nc	0.5
	RPD %		nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	29%	nc	0%	0%	40%	0%	0%	0%	0%	nc	0%
Inter	TP223	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
laboratory	SDUP206	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
Intra	TP220	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
laboratory	SDUP207	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	TP221	0-0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<2	<1	<0.1	<0.1	<0.1	<0.1	0.5	<0.1	1.6	1.6	0.5	0.6	1	0.83	0.4	<0.1	0.8
laboratory	SDUP208	0-0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<2	<1	<0.1	0.1	<0.1	<0.1	0.7	0.1	1.8	1.9	0.5	0.6	1.3	0.86	0.5	0.1	0.6
duplicate	MEAN		nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	0.075	nc	nc	0.6	0.075	1.7	1.75	0.5	0.6	1.15	0.845	0.45	0.075	0.7
	RPD %		nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	67%	nc	nc	33%	67%	12%	17%	0%	0%	26%	4%	22%	67%	29%
Field Blank	TB-S201 16/08/23		<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
Field Rinsate	FR-201 16/08/23	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Trip Spike	TS-S201 16/08/23		-	-	-	-	91%	91%	91%	91%	90%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

			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	BH205	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
laboratory	SDUP201	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	BH224	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
laboratory	SDUP202	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
Intra	TP226	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
laboratory	SDUP205	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	TP223	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
laboratory	SDUP206	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
Intra	TP220	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
laboratory	SDUP207	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	TP221	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
laboratory	SDUP208	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 Blank	TB-S201 16/08/23		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Field Rinsate	FR-201 16/08/23	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Trip Spike	TS-S201 16/08/23		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

			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	BH205	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	5	<0.4	23	31	54	0.4	24	210
laboratory	SDUP201	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	5	<0.4	22	30	55	0.5	24	190
duplicate	MEAN		nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	5	nc	22.5	30.5	54.5	0.45	24	200
	RPD %		nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	0%	nc	4%	3%	2%	22%	0%	10%
Inter	BH224	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	24	22	17	<0.1	23	61
laboratory	SDUP202	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	28	22	18	<0.1	26	80
duplicate	MEAN		nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	26	22	17.5	nc	24.5	70.5
	RPD %		nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	15%	0%	6%	nc	12%	27%
Intra	TP226	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	29	23	27	<0.1	28	53
laboratory	SDUP205	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	26	22	18	<0.1	27	55
duplicate	MEAN		nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	3	nc	27.5	22.5	22.5	nc	27.5	54
	RPD %		nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	67%	nc	11%	4%	40%	nc	4%	4%
Inter	TP223	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	24	18	15	<0.1	23	54
laboratory	SDUP206	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	24	17	14	<0.1	23	56
duplicate	MEAN		nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	24	17.5	14.5	nc	23	55
	RPD %		nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	0%	6%	7%	nc	0%	4%
Intra	TP220	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	20	15	10	<0.1	19	41
laboratory	SDUP207	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	20	16	9	<0.1	19	42
duplicate	MEAN		nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	20	15.5	9.5	nc	19	41.5
	RPD %		nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	0%	6%	11%	nc	0%	2%
Inter	TP221	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	22	20	16	<0.1	23	49
laboratory	SDUP208	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	26	20	16	<0.1	25	56
duplicate	MEAN		nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	24	20	16	nc	24	52.5
	RPD %		nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	17%	0%	0%	nc	8%	13%
Field Blank	TB-S201 16/08/23		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<4	<0.4	3	<1	2	<0.1	<1	2
Field Rinsate	FR-201 16/08/23	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.05	<0.01	<0.01	0.2	<0.03	<0.0005	<0.02	<0.02
Trip Spike	TS-S201 16/08/23		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Result outside of QA/QC acceptance criteria

Rinsate metals results in mg/L

PSI 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 Valu
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:

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

Waste Classification and TCLP Table:

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

QA/QC Table:

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

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

All data in mg/kg unless stated otherwise			HEAVY METALS								PAHs		ORGANOCHLORINE PESTICIDES (OCPs)							OP PESTICIDES (OPPs)	TOTAL PCBs	ASBESTOS FIBRES
			Arsenic	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Zinc	Total PAHs	Carcinogenic PAHs	HCB	Endosulfan	Methoxychlor	Aldrin & Dieldrin	Chlordane	DDT, DDD & DDE	Heptachlor	Chlorpyrifos		
PQL - Envirolab Services			4	0.4	1	1	1	0.1	1	1	-	0.5	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	100
Site Assessment Criteria (SAC)			300	90	300	17000	600	80	1200	30000	300	3	10	340	400	10	70	400	10	250	1	Detected/Not Detected
Sample Reference	**Sample Depth**	**Sample Description**																				
BH201	0.19-0.4	Fill: Silty Clay	**4**	<0.4	**24**	**22**	**23**	<0.1	**29**	**62**	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	NA
BH201 (lab replicate)	0.19-0.4	Fill: Silty Clay	**4**	<0.4	**24**	**22**	**28**	<0.1	**30**	**69**	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	NA
BH201	0.6-1.0	Silty Clay	**4**	<0.4	**36**	**24**	**10**	<0.1	**33**	**46**	<0.05	<0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BH201	3.1-3.45	Silty Clay	<4	<0.4	**34**	**31**	**11**	<0.1	**34**	**62**	<0.05	<0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BH202	0.1-0.25	Fill: Gravelly Sand	**5**	<0.4	**18**	**29**	**800**	<0.1	**22**	**510**	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	NA
BH202	0.5-0.95	Silty Clay	**4**	<0.4	**41**	**31**	**11**	<0.1	**37**	**57**	<0.05	<0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BH202	3.0-3.45	Silty Clay	<4	<0.4	**39**	**31**	**11**	<0.1	**41**	**51**	<0.05	<0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BH203	0.15-0.25	Fill: Silty Sandy Clay	**5**	<0.4	**22**	**22**	**37**	**0.2**	**22**	**69**	**2**	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	NA
BH204	0.2-0.3	Fill: Silty Clay	**5**	<0.4	**24**	**66**	**19**	<0.1	**21**	**82**	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	NA
BH205	0-0.1	Fill: Silty Clay	**5**	<0.4	**23**	**31**	**54**	**0.4**	**24**	**210**	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	Not Detected
TP206	0-0.1	Fill: Silty Clay	<4	<0.4	**21**	**29**	**52**	<0.1	**20**	**120**	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	NA
TP207	0-0.1	Fill: Silty Clay	**4**	<0.4	**26**	**24**	**63**	<0.1	**22**	**200**	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	NA
TP207 (lab replicate)	0-0.1	Fill: Silty Clay	<4	<0.4	**25**	**23**	**62**	<0.1	**21**	**200**	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	NA
TP208	0-0.1	Fill: Silty Clay	<4	<0.4	**23**	**21**	**15**	<0.1	**21**	**67**	<0.05	<0.5	<0.1	**82**	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	Not Detected
TP208	0.4-0.5	Fill: Silty Clay	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	NA	NA	NA
TP208	0.9-1.0	Silty Clay	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	NA	NA	NA
BH209	0-0.1	Fill: Silty Clay	**4**	<0.4	**32**	**26**	**50**	<0.1	**29**	**81**	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	Not Detected
BH209	0.5-0.95	Silty Clay	<4	<0.4	**32**	**28**	**10**	<0.1	**30**	**49**	<0.05	<0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BH209	4.8-4.95	Sand	<4	<0.4	**10**	**6**	**4**	<0.1	**9**	**15**	<0.05	<0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BH210	0.05-0.2	Fill: Gravelly Sand	<4	<0.4	**11**	**9**	**8**	<0.1	**11**	**22**	**0.2**	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	NA
BH211	0-0.1	Fill: Silty Sand	<4	<0.4	**12**	**10**	**8**	<0.1	**13**	**34**	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	NA
BH212	0-0.1	Fill: Sandy Clay	**5**	<0.4	**22**	**21**	**20**	<0.1	**24**	**55**	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	NA
TP213	0-0.1	Fill: Sandy Clay	**6**	<0.4	**24**	**25**	**9**	<0.1	**29**	**54**	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	NA
TP214	0-0.1	Fill: Silty Clay	**4**	<0.4	**29**	**23**	**11**	<0.1	**26**	**58**	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	NA
TP215	0-0.1	Fill: Silty Clay	**4**	<0.4	**28**	**22**	**15**	<0.1	**26**	**54**	**1.8**	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	NA
TP215 (lab replicate)	0-0.1	Fill: Silty Clay	<4	<0.4	**31**	**25**	**13**	<0.1	**29**	**49**	**0.77**	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	NA
BH216	0.05-0.2	Fill: Gravelly Sand	**4**	<0.4	**12**	**8**	**4**	<0.1	**10**	**19**	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	NA
TP217	0-0.1	Fill: Silty Clay	**4**	<0.4	**28**	**21**	**14**	<0.1	**26**	**60**	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	NA
TP218	0-0.1	Fill: Silty Clay	<4	<0.4	**20**	**16**	**13**	<0.1	**20**	**36**	**3.8**	**0.5**	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	NA
TP219	0-0.1	Fill: Silty Clay	<4	<0.4	**27**	**21**	**14**	<0.1	**26**	**48**	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	NA
TP220	0-0.1	Fill: Silty Clay	<4	<0.4	**20**	**15**	**10**	<0.1	**19**	**41**	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	NA
TP221	0-0.1	Fill: Silty Clay	<4	<0.4	**22**	**20**	**16**	<0.1	**23**	**49**	**8.1**	**1.2**	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	NA
TP222	0-0.1	Fill: Silty Clay	<4	<0.4	**26**	**19**	**12**	<0.1	**25**	**53**	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	NA
TP223	0-0.1	Fill: Silty Clay	<4	<0.4	**24**	**18**	**15**	<0.1	**23**	**54**	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	NA
BH224	0-0.1	Fill: Silty Clay	<4	<0.4	**24**	**22**	**17**	<0.1	**23**	**61**	**5.8**	**0.8**	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	NA
BH224	3.2-3.45	Sand	<4	<0.4	**13**	**8**	**5**	<0.1	**13**	**19**	<0.05	<0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BH224 (lab replicate)	3.2-3.45	Sand	<4	<0.4	**12**	**7**	**4**	<0.1	**12**	**18**	<0.05	<0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TP225	0-0.1	Fill: Silty Clay	**4**	<0.4	**25**	**20**	**15**	<0.1	**24**	**59**	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	NA
TP226	0-0.1	Fill: Silty Clay	<4	<0.4	**29**	**23**	**27**	<0.1	**28**	**53**	**4.6**	**0.7**	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	NA
TP227	0-0.1	Fill: Silty Clay	<4	<0.4	**32**	**29**	**11**	<0.1	**32**	**49**	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	Not Detected
SDUP201	0-0.1	Fill: Silty Clay	**5**	<0.4	**22**	**30**	**55**	**0.5**	**24**	**190**	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	NA	<0.1	<0.1	<0.1	NA
SDUP202	0-0.1	Fill: Silty Clay	<4	<0.4	**28**	**22**	**18**	<0.1	**26**	**80**	**6.6**	**0.9**	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	NA
SDUP202 (lab replicate)	0-0.1	Fill: Silty Clay	NA	NA	NA	NA	NA	NA	NA	NA	**6.7**	**0.9**	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	NA
SDUP205	0-0.1	Fill: Silty Clay	**4**	<0.4	**26**	**22**	**18**	<0.1	**27**	**55**	**4.4**	**0.7**	<0.1	<0.1	<0.1	<0.1	<0.1	NA	<0.1	<0.1	<0.1	NA
SDUP206	0-0.1	Fill: Silty Clay	<4	<0.4	**24**	**17**	**14**	<0.1	**23**	**56**	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	NA
SDUP207	0-0.1	Fill: Silty Clay	<4	<0.4	**20**	**16**	**9**	<0.1	**19**	**42**	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	NA	<0.1	<0.1	<0.1	NA
SDUP207 (lab replicate)	0-0.1	Fill: Silty Clay	<4	<0.4	**20**	**16**	**10**	<0.1	**19**	**44**	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	NA	<0.1	<0.1	<0.1	NA
SDUP208	0-0.1	Fill: Silty Clay	<4	<0.4	**26**	**20**	**16**	<0.1	**25**	**56**	**9.1**	**1.2**	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	NA
FCF201	-	Fibre Cement Fragment	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**Detected**
FCF202	-	Fibre Cement Fragment	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**Detected**
TP208-FCF1	0-0.1	Fibre Cement Fragment	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**Detected**
Total Number of Samples			45	45	45	45	45	45	45	45	46	46	40	40	40	40	40	36	40	38	38	7
Maximum Value			6	<PQL	41	66	800	0.5	41	510	9.1	1.2	<PQL	82	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	Detected
Statistical Analysis on Fill Samples																						
Number of Fill Samples			NC	NC	NC	NC	27	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
Mean Value			NC	NC	NC	NC	51	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
Standard Deviation			NC	NC	NC	NC	153.6	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
% UCL			NC	NC	NC	NC	95	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
UCL Value			NC	NC	NC	NC	102.556	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC

Concentration above the SAC — **VALUE**
Asbestos Detected — **DETECTED**
Concentration above the PQL — **Bold**
Standard deviation exceeds data assessment criteria — **VALUE**

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**								
BH201	0.19-0.4	Fill: Silty Clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	1.5
BH201 (lab replicate)	0.19-0.4	Fill: Silty Clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	1.5
BH201	0.6-1.0	Silty Clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	2
BH201	3.1-3.45	Silty Clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	3.4
BH202	0.1-0.25	Fill: Gravelly Sand	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	4.2
BH202	0.5-0.95	Silty Clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	4.5
BH202	3.0-3.45	Silty Clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	5.2
BH203	0.15-0.25	Fill: Silty Sandy Clay	0m to <1m	Sand	<25	**55**	<0.2	<0.5	<1	<1	<1	3.8
BH204	0.2-0.3	Fill: Silty Clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	5.3
BH205	0-0.1	Fill: Silty Clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	3.2
TP206	0-0.1	Fill: Silty Clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	2.5
TP207	0-0.1	Fill: Silty Clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	4.1
TP207 (lab replicate)	0-0.1	Fill: Silty Clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	4.1
TP208	0-0.1	Fill: Silty Clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	1.8
BH209	0-0.1	Fill: Silty Clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	3
BH209	0.5-0.95	Silty Clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	2.2
BH209	4.8-4.95	Sand	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	4.5
BH210	0.05-0.2	Fill: Gravelly Sand	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	5.5
BH211	0-0.1	Fill: Silty Sand	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	3.4
BH212	0-0.1	Fill: Sandy Clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	1.3
TP213	0-0.1	Fill: Sandy Clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	0.6
TP214	0-0.1	Fill: Silty Clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	3.2
TP215	0-0.1	Fill: Silty Clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	5.1
TP215 (lab replicate)	0-0.1	Fill: Silty Clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	5.1
BH216	0.05-0.2	Fill: Gravelly Sand	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	4.6
TP217	0-0.1	Fill: Silty Clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	1.8
TP218	0-0.1	Fill: Silty Clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	5.1
TP219	0-0.1	Fill: Silty Clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	2.5
TP220	0-0.1	Fill: Silty Clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	8.5
TP221	0-0.1	Fill: Silty Clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	5.1
TP222	0-0.1	Fill: Silty Clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	3.2
TP223	0-0.1	Fill: Silty Clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	2.8
BH224	0-0.1	Fill: Silty Clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	2.5
BH224	3.2-3.45	Sand	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	7.1
BH224 (lab replicate)	3.2-3.45	Sand	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	7.1
TP225	0-0.1	Fill: Silty Clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	0.2
TP226	0-0.1	Fill: Silty Clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	3.2
TP227	0-0.1	Fill: Silty Clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	6.8
SDUP201	0-0.1	Fill: Silty Clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	NA
SDUP202	0-0.1	Fill: Silty Clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	NA
SDUP202 (lab replicate)	0-0.1	Fill: Silty Clay	0m to <1m	Sand	NA	<50	NA	NA	NA	NA	NA	NA
SDUP205	0-0.1	Fill: Silty Clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	NA
SDUP206	0-0.1	Fill: Silty Clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	NA
SDUP207	0-0.1	Fill: Silty Clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	NA
SDUP207 (lab replicate)	0-0.1	Fill: Silty Clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	NA
SDUP208	0-0.1	Fill: Silty Clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	NA
SDUP208 (lab replicate)	0-0.1	Fill: Silty Clay	0m to <1m	Sand	<25	NA	<0.2	<0.5	<1	<1	<1	NA
Total Number of Samples					46	46	46	46	46	46	46	38
Maximum Value					<PQL	55	<PQL	<PQL	<PQL	<PQL	<PQL	8.5

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
BH201	0.19-0.4	Fill: Silty Clay	0m to <1m	Sand	45	110	0.5	160	55	40	3
BH201 (lab replicate)	0.19-0.4	Fill: Silty Clay	0m to <1m	Sand	45	110	0.5	160	55	40	3
BH201	0.6-1.0	Silty Clay	0m to <1m	Sand	45	110	0.5	160	55	40	3
BH201	3.1-3.45	Silty Clay	0m to <1m	Sand	45	110	0.5	160	55	40	3
BH202	0.1-0.25	Fill: Gravelly Sand	0m to <1m	Sand	45	110	0.5	160	55	40	3
BH202	0.5-0.95	Silty Clay	0m to <1m	Sand	45	110	0.5	160	55	40	3
BH202	3.0-3.45	Silty Clay	0m to <1m	Sand	45	110	0.5	160	55	40	3
BH203	0.15-0.25	Fill: Silty Sandy Clay	0m to <1m	Sand	45	110	0.5	160	55	40	3
BH204	0.2-0.3	Fill: Silty Clay	0m to <1m	Sand	45	110	0.5	160	55	40	3
BH205	0-0.1	Fill: Silty Clay	0m to <1m	Sand	45	110	0.5	160	55	40	3
TP206	0-0.1	Fill: Silty Clay	0m to <1m	Sand	45	110	0.5	160	55	40	3
TP207	0-0.1	Fill: Silty Clay	0m to <1m	Sand	45	110	0.5	160	55	40	3
TP207 (lab replicate)	0-0.1	Fill: Silty Clay	0m to <1m	Sand	45	110	0.5	160	55	40	3
TP208	0-0.1	Fill: Silty Clay	0m to <1m	Sand	45	110	0.5	160	55	40	3
BH209	0-0.1	Fill: Silty Clay	0m to <1m	Sand	45	110	0.5	160	55	40	3
BH209	0.5-0.95	Silty Clay	0m to <1m	Sand	45	110	0.5	160	55	40	3
BH209	4.8-4.95	Sand	0m to <1m	Sand	45	110	0.5	160	55	40	3
BH210	0.05-0.2	Fill: Gravelly Sand	0m to <1m	Sand	45	110	0.5	160	55	40	3
BH211	0-0.1	Fill: Silty Sand	0m to <1m	Sand	45	110	0.5	160	55	40	3
BH212	0-0.1	Fill: Sandy Clay	0m to <1m	Sand	45	110	0.5	160	55	40	3
TP213	0-0.1	Fill: Sandy Clay	0m to <1m	Sand	45	110	0.5	160	55	40	3
TP214	0-0.1	Fill: Silty Clay	0m to <1m	Sand	45	110	0.5	160	55	40	3
TP215	0-0.1	Fill: Silty Clay	0m to <1m	Sand	45	110	0.5	160	55	40	3
TP215 (lab replicate)	0-0.1	Fill: Silty Clay	0m to <1m	Sand	45	110	0.5	160	55	40	3
BH216	0.05-0.2	Fill: Gravelly Sand	0m to <1m	Sand	45	110	0.5	160	55	40	3
TP217	0-0.1	Fill: Silty Clay	0m to <1m	Sand	45	110	0.5	160	55	40	3
TP218	0-0.1	Fill: Silty Clay	0m to <1m	Sand	45	110	0.5	160	55	40	3
TP219	0-0.1	Fill: Silty Clay	0m to <1m	Sand	45	110	0.5	160	55	40	3
TP220	0-0.1	Fill: Silty Clay	0m to <1m	Sand	45	110	0.5	160	55	40	3
TP221	0-0.1	Fill: Silty Clay	0m to <1m	Sand	45	110	0.5	160	55	40	3
TP222	0-0.1	Fill: Silty Clay	0m to <1m	Sand	45	110	0.5	160	55	40	3
TP223	0-0.1	Fill: Silty Clay	0m to <1m	Sand	45	110	0.5	160	55	40	3
BH224	0-0.1	Fill: Silty Clay	0m to <1m	Sand	45	110	0.5	160	55	40	3
BH224	3.2-3.45	Sand	0m to <1m	Sand	45	110	0.5	160	55	40	3
BH224 (lab replicate)	3.2-3.45	Sand	0m to <1m	Sand	45	110	0.5	160	55	40	3
TP225	0-0.1	Fill: Silty Clay	0m to <1m	Sand	45	110	0.5	160	55	40	3
TP226	0-0.1	Fill: Silty Clay	0m to <1m	Sand	45	110	0.5	160	55	40	3
TP227	0-0.1	Fill: Silty Clay	0m to <1m	Sand	45	110	0.5	160	55	40	3
SDUP201	0-0.1	Fill: Silty Clay	0m to <1m	Sand	45	110	0.5	160	55	40	3
SDUP202	0-0.1	Fill: Silty Clay	0m to <1m	Sand	45	110	0.5	160	55	40	3
SDUP202 (lab replicate)	0-0.1	Fill: Silty Clay	0m to <1m	Sand	NA	110	NA	NA	NA	NA	NA
SDUP205	0-0.1	Fill: Silty Clay	0m to <1m	Sand	45	110	0.5	160	55	40	3
SDUP206	0-0.1	Fill: Silty Clay	0m to <1m	Sand	45	110	0.5	160	55	40	3
SDUP207	0-0.1	Fill: Silty Clay	0m to <1m	Sand	45	110	0.5	160	55	40	3
SDUP207 (lab replicate)	0-0.1	Fill: Silty Clay	0m to <1m	Sand	45	110	0.5	160	55	40	3
SDUP208	0-0.1	Fill: Silty Clay	0m to <1m	Sand	45	110	0.5	160	55	40	3
SDUP208 (lab replicate)	0-0.1	Fill: Silty Clay	0m to <1m	Sand	45	NA	0.5	160	55	40	3

TABLE S3
SOIL LABORATORY RESULTS COMPARED TO MANAGEMENT LIMITS
All data in mg/kg unless stated otherwise

			C_6-C_{10} (F1) plus BTEX	>C_{10}-C_{16} (F2) plus naphthalene	>C_{16}-C_{34} (F3)	>C_{34}-C_{40} (F4)
PQL - Envirolab Services			25	50	100	100
NEPM 2013 Land Use Category			**RESIDENTIAL, PARKLAND & PUBLIC OPEN SPACE**			
Sample Reference	**Sample Depth**	**Soil Texture**				
BH201	0.19-0.4	Coarse	<25	<50	<100	<100
BH201 (lab replicate)	0.19-0.4	Coarse	<25	<50	<100	<100
BH201	0.6-1.0	Coarse	<25	<50	<100	<100
BH201	3.1-3.45	Coarse	<25	<50	<100	<100
BH202	0.1-0.25	Coarse	<25	<50	<100	<100
BH202	0.5-0.95	Coarse	<25	<50	<100	<100
BH202	3.0-3.45	Coarse	<25	<50	<100	<100
BH203	0.15-0.25	Coarse	<25	**55**	**200**	<100
BH204	0.2-0.3	Coarse	<25	<50	<100	<100
BH205	0-0.1	Coarse	<25	<50	<100	<100
TP206	0-0.1	Coarse	<25	<50	<100	<100
TP207	0-0.1	Coarse	<25	<50	**120**	<100
TP207 (lab replicate)	0-0.1	Coarse	<25	<50	**120**	<100
TP208	0-0.1	Coarse	<25	<50	<100	<100
BH209	0-0.1	Coarse	<25	<50	<100	<100
BH209	0.5-0.95	Coarse	<25	<50	<100	<100
BH209	4.8-4.95	Coarse	<25	<50	<100	<100
BH210	0.05-0.2	Coarse	<25	<50	<100	<100
BH211	0-0.1	Coarse	<25	<50	<100	<100
BH212	0-0.1	Coarse	<25	<50	<100	<100
TP213	0-0.1	Coarse	<25	<50	<100	<100
TP214	0-0.1	Coarse	<25	<50	<100	<100
TP215	0-0.1	Coarse	<25	<50	<100	<100
TP215 (lab replicate)	0-0.1	Coarse	<25	<50	<100	<100
BH216	0.05-0.2	Coarse	<25	<50	<100	<100
TP217	0-0.1	Coarse	<25	<50	<100	<100
TP218	0-0.1	Coarse	<25	<50	<100	<100
TP219	0-0.1	Coarse	<25	<50	<100	<100
TP220	0-0.1	Coarse	<25	<50	<100	<100
TP221	0-0.1	Coarse	<25	<50	<100	<100
TP222	0-0.1	Coarse	<25	<50	<100	<100
TP223	0-0.1	Coarse	<25	<50	<100	<100
BH224	0-0.1	Coarse	<25	<50	<100	<100
BH224	3.2-3.45	Coarse	<25	<50	<100	<100
BH224 (lab replicate)	3.2-3.45	Coarse	<25	<50	<100	<100
TP225	0-0.1	Coarse	<25	<50	<100	<100
TP226	0-0.1	Coarse	<25	<50	<100	<100
TP227	0-0.1	Coarse	<25	<50	<100	<100
SDUP201	0-0.1	Coarse	<25	<50	<100	<100
SDUP202 (lab	0-0.1	Coarse	<25	<50	<100	<100
SDUP202	0-0.1	Coarse	NA	<50	<100	<100
SDUP205	0-0.1	Coarse	<25	<50	<100	<100
SDUP206	0-0.1	Coarse	<25	<50	<100	<100
SDUP207	0-0.1	Coarse	<25	<50	<100	<100
SDUP207 (lab	0-0.1	Coarse	<25	<50	<100	<100
SDUP208	0-0.1	Coarse	<25	<50	<100	<100
SDUP208 (lab	0-0.1	Coarse	<25	NA	NA	NA
Total Number of Samples			46	46	46	46
Maximum Value			<PQL	55	200	<PQL

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

MANAGEMENT LIMIT ASSESSMENT CRITERIA

Sample Reference	**Sample Depth**	**Soil Texture**	C_6-C_{10} (F1) plus BTEX	>C_{10}-C_{16} (F2) plus naphthalene	>C_{16}-C_{34} (F3)	>C_{34}-C_{40} (F4)
BH201	0.19-0.4	Coarse	700	1000	2500	10000
BH201 (lab replicate)	0.19-0.4	Coarse	700	1000	2500	10000
BH201	0.6-1.0	Coarse	700	1000	2500	10000
BH201	3.1-3.45	Coarse	700	1000	2500	10000
BH202	0.1-0.25	Coarse	700	1000	2500	10000
BH202	0.5-0.95	Coarse	700	1000	2500	10000
BH202	3.0-3.45	Coarse	700	1000	2500	10000
BH203	0.15-0.25	Coarse	700	1000	2500	10000
BH204	0.2-0.3	Coarse	700	1000	2500	10000
BH205	0-0.1	Coarse	700	1000	2500	10000
TP206	0-0.1	Coarse	700	1000	2500	10000
TP207	0-0.1	Coarse	700	1000	2500	10000
TP207 (lab replicate)	0-0.1	Coarse	700	1000	2500	10000
TP208	0-0.1	Coarse	700	1000	2500	10000
BH209	0-0.1	Coarse	700	1000	2500	10000
BH209	0.5-0.95	Coarse	700	1000	2500	10000
BH209	4.8-4.95	Coarse	700	1000	2500	10000
BH210	0.05-0.2	Coarse	700	1000	2500	10000
BH211	0-0.1	Coarse	700	1000	2500	10000
BH212	0-0.1	Coarse	700	1000	2500	10000
TP213	0-0.1	Coarse	700	1000	2500	10000
TP214	0-0.1	Coarse	700	1000	2500	10000
TP215	0-0.1	Coarse	700	1000	2500	10000
TP215 (lab replicate)	0-0.1	Coarse	700	1000	2500	10000
BH216	0.05-0.2	Coarse	700	1000	2500	10000
TP217	0-0.1	Coarse	700	1000	2500	10000
TP218	0-0.1	Coarse	700	1000	2500	10000
TP219	0-0.1	Coarse	700	1000	2500	10000
TP220	0-0.1	Coarse	700	1000	2500	10000
TP221	0-0.1	Coarse	700	1000	2500	10000
TP222	0-0.1	Coarse	700	1000	2500	10000
TP223	0-0.1	Coarse	700	1000	2500	10000
BH224	0-0.1	Coarse	700	1000	2500	10000
BH224	3.2-3.45	Coarse	700	1000	2500	10000
BH224 (lab replicate)	3.2-3.45	Coarse	700	1000	2500	10000
TP225	0-0.1	Coarse	700	1000	2500	10000
TP226	0-0.1	Coarse	700	1000	2500	10000
TP227	0-0.1	Coarse	700	1000	2500	10000
SDUP201	0-0.1	Coarse	700	1000	2500	10000
SDUP202 (lab replicate)	0-0.1	Coarse	700	1000	2500	10000
SDUP202	0-0.1	Coarse	NA	1000	2500	10000
SDUP205	0-0.1	Coarse	700	1000	2500	10000
SDUP206	0-0.1	Coarse	700	1000	2500	10000
SDUP207	0-0.1	Coarse	700	1000	2500	10000
SDUP207 (lab replicate)	0-0.1	Coarse	700	1000	2500	10000
SDUP208	0-0.1	Coarse	700	1000	2500	10000
SDUP208 (lab replicate)	0-0.1	Coarse	700	NA	NA	NA
FCF202	-		NA	NA	NA	NA

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		5,100	3,800	5,300	7,400	120	18,000	5,300	15,000	1,900	
Site Use		**RECREATIONAL - DIRECT SOIL CONTACT**									
Sample Reference	**Sample Depth**										
BH201	0.19-0.4	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	**1.5**
BH201 (lan replicate)	0.19-0.4	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	**1.5**
BH201	0.6-1.0	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	**2**
BH201	3.1-3.45	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	**3.4**
BH202	0.1-0.25	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	**4.2**
BH202	0.5-0.95	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	**4.5**
BH202	3.0-3.45	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	**5.2**
BH203	0.15-0.25	<25	**55**	**200**	<100	<0.2	<0.5	<1	<1	<1	**3.8**
BH204	0.2-0.3	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	**5.3**
BH205	0-0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	**3.2**
TP206	0-0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	**2.5**
TP207	0-0.1	<25	<50	**120**	<100	<0.2	<0.5	<1	<1	<1	**4.1**
TP207 (lab replicate)	0-0.1	<25	<50	**120**	<100	<0.2	<0.5	<1	<1	<1	**4.1**
TP208	0-0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	**1.8**
BH209	0-0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	**3**
BH209	0.5-0.95	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	**2.2**
BH209	4.8-4.95	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	**4.5**
BH210	0.05-0.2	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	**5.5**
BH211	0-0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	**3.4**
BH212	0-0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	**1.3**
TP213	0-0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	**0.6**
TP214	0-0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	**3.2**
TP215	0-0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	**5.1**
TP215	0-0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	**5.1**
BH216	0.05-0.2	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	**4.6**
TP217	0-0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	**1.8**
TP218	0-0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	**5.1**
TP219	0-0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	**2.5**
TP220	0-0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	**8.5**
TP221	0-0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	**5.1**
TP222	0-0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	**3.2**
TP223	0-0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	**2.8**
BH224	0-0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	**2.5**
BH224	3.2-3.45	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	**7.1**
BH224 (lab replicate)	3.2-3.45	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	**7.1**
TP225	0-0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	**0.2**
TP226	0-0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	**3.2**
TP227	0-0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	**6.8**
SDUP201	0-0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	NA
SDUP202	0-0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	NA
SDUP202 (lab replicate)	0-0.1	NA	<50	<100	<100	NA	NA	NA	NA	NA	NA
SDUP205	0-0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	NA
SDUP206	0-0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	NA
SDUP207	0-0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	NA
SDUP207 (lab replicate)	0-0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	NA
SDUP208	0-0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	NA
SDUP208 (lab replicate)	0-0.1	<25	NA	NA	NA	<0.2	<0.5	<1	<1	<1	NA
Total Number of Samples		46	46	46	46	46	46	46	46	46	38
Maximum Value		<PQL	55	200	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	8.5

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

TABLE S5
ASBESTOS QUANTIFICATION - FIELD OBSERVATIONS AND LABORATORY RESULTS
HSL-C:Public open space; secondary schools; and footpaths

FIELD DATA															LABORATORY DATA										
Date Sampled	Sample reference	Sample Depth	Visible ACM in top 100mm	Approx. Volume of Soil (L)	Soil Mass (g)	Mass ACM (g)	Mass Asbestos in ACM (g)	[Asbestos from ACM in soil] (%w/w)	Mass ACM <7mm (g)	Mass Asbestos in ACM <7mm (g)	[Asbestos from ACM <7mm in soil] (%w/w)	Mass FA (g)	Mass Asbestos in FA (g)	[Asbestos from FA in soil] (%w/w)	Lab Report Number	Sample 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**					**0.02**			**0.001**			**0.001**											**0.02**	**0.001**
15/08/2023	BH201	0.19-0.4	NA	NA	3,170	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	--	--	--	--	--	--	--	--	--	--	--	--
15/08/2023	BH202	0.1-0.3	NA	NA	5,100	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	--	--	--	--	--	--	--	--	--	--	--	--
16/08/2023	BH203	0.15-0.25	NA	NA	1,870	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	--	--	--	--	--	--	--	--	--	--	--	--
16/08/2023	BH205	0-0.1	No	10	10,480	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	--	331035	BH205	0-0.1	508.04	No asbestos detected at reporting limit of 0.1g/kg: Organic fibres detected	No asbestos detected	<0.1	No visible asbestos detected	–	–	<0.01	<0.001
16/08/2023	BH205	0.1-0.5	NA	NA	3,600	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	--	--	--	--	--	--	--	--	--	--	--	--
16/08/2023	TP206	0-0.2	No	10	10,220	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	--	--	--	--	--	--	--	--	--	--	--	--
16/08/2023	TP207	0-0.1	No	10	10,360	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	--	--	--	--	--	--	--	--	--	--	--	--
17/08/2023	TP208	0-0.1	Yes	10	11,340	9.3	1.3995	0.0123	No ACM <7mm observed	--	--	No FA observed	--	--	331035	TP208	0-0.1	474.62	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
17/08/2023	TP208	0.4-0.5	NA	10	10,680	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	--	--	--	--	--	--	--	--	--	--	--	--
15/08/2023	BH209	0-0.1	No	10	10,110	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	331035	TP209	0-0.1	511.88	No asbestos detected at reporting limit of 0.1g/kg: Organic fibres detected	No asbestos detected	<0.1	No visible asbestos detected	–	–	<0.01	<0.001
15/08/2023	BH209	0.1-0.4	NA	NA	1,820	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	--	--	--	--	--	--	--	--	--	--	--	--
15/08/2023	BH210	0.05-0.3	No	NA	3,860	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	--	--	--	--	--	--	--	--	--	--	--	--
16/08/2023	BH211	0-0.1	No	10	11,260	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	--	--	--	--	--	--	--	--	--	--	--	--
16/08/2023	BH211	0.1-0.3	NA	NA	2,470	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	--	--	--	--	--	--	--	--	--	--	--	--
17/08/2023	TP212	0-0.1	No	10	11,470	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	--	--	--	--	--	--	--	--	--	--	--	--
17/08/2023	TP213	0-0.1	No	10	11,370	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	--	--	--	--	--	--	--	--	--	--	--	--
17/08/2023	TP214	0-01	No	10	10,250	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	--	--	--	--	--	--	--	--	--	--	--	--
16/08/2023	TP215	0-0.1	No	10	10,940	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	--	--	--	--	--	--	--	--	--	--	--	--
16/08/2023	BH216	0.05-0.6	No	NA	3,350	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	--	--	--	--	--	--	--	--	--	--	--	--
16/08/2023	TP217	0-0.1	No	10	10,880	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	--	--	--	--	--	--	--	--	--	--	--	--
16/08/2023	TP218	0-0.1	No	10	10,720	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	--	--	--	--	--	--	--	--	--	--	--	--
17/08/2023	TP219	0-0.15	No	10	10,630	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	--	--	--	--	--	--	--	--	--	--	--	--
16/08/2023	TP220	0-0.1	No	10	11,470	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	--	--	--	--	--	--	--	--	--	--	--	--
16/08/2023	TP220	0.2-0.3	NA	10	11,160	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	--	--	--	--	--	--	--	--	--	--	--	--
16/08/2023	TP221	0-0.1	No	10	10,900	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	--	--	--	--	--	--	--	--	--	--	--	--
17/08/2023	TP222	0-0.1	No	10	10,130	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	--	--	--	--	--	--	--	--	--	--	--	--
16/08/2023	TP223	0-0.1	No	10	10,930	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	--	--	--	--	--	--	--	--	--	--	--	--
16/08/2023	TP223	0.2-0.3	NA	10	10,570	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	--	--	--	--	--	--	--	--	--	--	--	--
16/08/2023	BH224	0-0.1	No	10	10,260	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	--	--	--	--	--	--	--	--	--	--	--	--
17/08/2023	TP225	0-0.1	No	10	10,490	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	--	--	--	--	--	--	--	--	--	--	--	--
16/08/2023	TP226	0-0.1	No	10	10,600	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	--	--	--	--	--	--	--	--	--	--	--	--
16/08/2023	TP227	0-0.1	No	10	10,550	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	--	331035	TP227	0-0.1	477.87	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**
Visible ACM in the top 100mm **YES**

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	13	28	163	5	122	NSL	NSL	NSL	NSL	NSL	NSL	NSL	NSL	NSL	NSL	NSL
Sample Reference	**Sample Depth**	**Sample Description**	**Soil Texture**																				
BH201	0.19-0.4	Fill: Silty Clay	Fine	NA	NA	NA	**4**	**24**	**22**	**23**	**29**	**62**	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.05
BH201 (lab replicate)	0.19-0.4	Fill: Silty Clay	Fine	NA	NA	NA	**4**	**24**	**22**	**28**	**30**	**69**	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.05
BH201	0.6-1.0	Silty Clay	Fine	NA	NA	NA	**4**	**36**	**24**	**10**	**33**	**46**	<1	NA	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.05
BH201	3.1-3.45	Silty Clay	Fine	NA	NA	NA	<4	**34**	**31**	**11**	**34**	**62**	<1	NA	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.05
BH202	0.1-0.25	Fill: Gravelly Sand	Coarse	NA	NA	NA	**5**	**18**	**29**	**800**	**22**	**510**	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.05
BH202	0.5-0.95	Silty Clay	Fine	NA	NA	NA	**4**	**41**	**31**	**11**	**37**	**57**	<1	NA	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.05
BH202	3.0-3.45	Silty Clay	Fine	NA	NA	NA	<4	**39**	**31**	**11**	**41**	**51**	<1	NA	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.05
BH205	0-0.1	Fill: Silty Clay	Fine	NA	NA	NA	**5**	**23**	**31**	**54**	**24**	**210**	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.05
TP207	0-0.1	Fill: Silty Clay	Fine	NA	NA	NA	**4**	**26**	**24**	**63**	**22**	**200**	<1	<0.1	<25	<50	**120**	<100	<0.2	<0.5	<1	<1	<0.05
TP207 (lab replicate)	0-0.1	Fill: Silty Clay	Fine	NA	NA	NA	<4	**25**	**23**	**62**	**21**	**200**	<1	<0.1	<25	<50	**120**	<100	<0.2	<0.5	<1	<1	<0.05
TP208	0-0.1	Fill: Silty Clay	Fine	NA	NA	NA	<4	**23**	**21**	**15**	**21**	**67**	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.05
BH209	0-0.1	Fill: Silty Clay	Fine	NA	NA	NA	**4**	**32**	**26**	**50**	**29**	**81**	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.05
TP208	0.4-0.5	Fill: Silty Clay	Fine	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.1	NA	NA	NA	NA	NA	NA	NA	NA	NA
TP208	0.9-1.0	Silty Clay	Fine	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.1	NA	NA	NA	NA	NA	NA	NA	NA	NA
BH209	0.5-0.95	Silty Clay	Fine	NA	NA	NA	<4	**32**	**28**	**10**	**30**	**49**	<1	NA	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.05
BH209	4.8-4.95	Sand	Coarse	NA	NA	NA	<4	**10**	**6**	**4**	**9**	**15**	<1	NA	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.05
BH210	0.05-0.2	Fill: Gravelly Sand	Coarse	NA	NA	NA	<4	**11**	**9**	**8**	**11**	**22**	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.05
BH211	0-0.1	Fill: Silty Sand	Fine	NA	NA	NA	<4	**12**	**10**	**8**	**13**	**34**	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.05
BH212	0-0.1	Fill: Sandy Clay	Fine	NA	NA	NA	**5**	**22**	**21**	**20**	**24**	**55**	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.05
TP213	0-0.1	Fill: Sandy Clay	Fine	NA	NA	NA	**6**	**24**	**25**	**9**	**29**	**54**	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.05
TP214	0-0.1	Fill: Silty Clay	Fine	NA	NA	NA	**4**	**29**	**23**	**11**	**26**	**58**	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.05
TP215	0-0.1	Fill: Silty Clay	Fine	NA	NA	NA	**4**	**28**	**22**	**15**	**26**	**54**	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	**0.2**
TP215 (lab replicate)	0-0.1	Fill: Silty Clay	Fine	NA	NA	NA	<4	**31**	**25**	**13**	**29**	**49**	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	**0.1**
BH216	0.05-0.2	Fill: Gravelly Sand	Coarse	NA	NA	NA	**4**	**12**	**8**	**4**	**10**	**19**	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.05
TP217	0-0.1	Fill: Silty Clay	Fine	NA	NA	NA	**4**	**28**	**21**	**14**	**26**	**60**	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.05
TP218	0-0.1	Fill: Silty Clay	Fine	NA	NA	NA	<4	**20**	**16**	**13**	**20**	**36**	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	**0.3**
TP219	0-0.1	Fill: Silty Clay	Fine	NA	NA	NA	<4	**27**	**21**	**14**	**26**	**48**	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.05
TP220	0-0.1	Fill: Silty Clay	Fine	NA	NA	NA	<4	**20**	**15**	**10**	**19**	**41**	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.05
TP221	0-0.1	Fill: Silty Clay	Fine	NA	NA	NA	<4	**22**	**20**	**16**	**23**	**49**	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	**0.83**
TP222	0-0.1	Fill: Silty Clay	Fine	NA	NA	NA	<4	**26**	**19**	**12**	**25**	**53**	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.05
TP223	0-0.1	Fill: Silty Clay	Fine	NA	NA	NA	<4	**24**	**18**	**15**	**23**	**54**	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.05
BH224	0-0.1	Fill: Silty Clay	Fine	NA	NA	NA	<4	**24**	**22**	**17**	**23**	**61**	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	**0.59**
BH224	3.2-3.45	Sand	Coarse	NA	NA	NA	<4	**13**	**8**	**5**	**13**	**19**	<1	NA	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.05
BH224 (lab replicate)	3.2-3.45	Sand	Coarse	NA	NA	NA	<4	**12**	**7**	**4**	**12**	**18**	<1	NA	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.05
TP225	0-0.1	Fill: Silty Clay	Fine	NA	NA	NA	**4**	**25**	**20**	**15**	**24**	**59**	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.05
TP226	0-0.1	Fill: Silty Clay	Fine	NA	NA	NA	<4	**29**	**23**	**27**	**28**	**53**	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	**0.4**
TP227	0-0.1	Fill: Silty Clay	Fine	NA	NA	NA	<4	**32**	**29**	**11**	**32**	**49**	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.05
SDUP201	0-0.1	Fill: Silty Clay	Fine	NA	NA	NA	**5**	**22**	**30**	**55**	**24**	**190**	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.05
SDUP202	0-0.1	Fill: Silty Clay	Fine	NA	NA	NA	<4	**28**	**22**	**18**	**26**	**80**	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	**0.66**
SDUP202 (lab	0-0.1	Fill: Silty Clay	Fine	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.1	NA	<50	<100	<100	NA	NA	NA	NA	**0.65**
SDUP205	0-0.1	Fill: Silty Clay	Fine	NA	NA	NA	**4**	**26**	**22**	**18**	**27**	**55**	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	**0.4**
SDUP206	0-0.1	Fill: Silty Clay	Fine	NA	NA	NA	<4	**24**	**17**	**14**	**23**	**56**	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.05
SDUP207	0-0.1	Fill: Silty Clay	Fine	NA	NA	NA	<4	**20**	**16**	**9**	**19**	**42**	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.05
SDUP207	0-0.1	Fill: Silty Clay	Fine	NA	NA	NA	<4	**20**	**16**	**10**	**19**	**44**	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.05
SDUP208	0-0.1	Fill: Silty Clay	Fine	NA	NA	NA	<4	**26**	**20**	**16**	**25**	**56**	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	**0.86**
SDUP208 (lab	0-0.1	Fill: Silty Clay	Fine	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA	<25	NA	NA	NA	<0.2	<0.5	<1	<1	NA
Total Number of Samples				0	0	0	45	45	45	45	45	45	46	40	46	46	46	46	46	46	46	46	46
Maximum Value				NA	NA	NA	6	41	66	800	41	510	<PQL	<PQL	<PQL	55	200	<PQL	<PQL	<PQL	<PQL	<PQL	0.86

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
BH201	0.19-0.4	Fill: Silty Clay	Fine	NA	NA	NA	100	200	90	1300	35	190	170	180	180	120	1300	5600	65	105	125	45	20
BH201 (lab replicate)	0.19-0.4	Fill: Silty Clay	Fine	NA	NA	NA	100	200	90	1300	35	190	170	180	180	120	1300	5600	65	105	125	45	20
BH201	0.6-1.0	Silty Clay	Fine	NA	NA	NA	100	200	90	1300	35	190	170	--	180	120	1300	5600	65	105	125	45	20
BH201	3.1-3.45	Silty Clay	Fine	NA	NA	NA	100	200	90	1300	35	190	170	--	180	120	1300	5600	65	105	125	45	20
BH202	0.1-0.25	Fill: Gravelly Sand	Coarse	NA	NA	NA	100	200	90	1300	35	190	170	180	180	120	300	2800	50	85	70	105	20
BH202	0.5-0.95	Silty Clay	Fine	NA	NA	NA	100	200	90	1300	35	190	170	--	180	120	1300	5600	65	105	125	45	20
BH202	3.0-3.45	Silty Clay	Fine	NA	NA	NA	100	200	90	1300	35	190	170	--	180	120	1300	5600	65	105	125	45	20
BH203	0.15-0.25	F: Silty Sandy Clay	Coarse	NA	NA	NA	100	200	90	1300	35	190	170	180	180	120	300	2800	50	85	70	105	20
BH204	0.2-0.3	F: Silty Clay	Coarse	NA	NA	NA	100	200	90	1300	35	190	170	180	180	120	300	2800	50	85	70	105	20
BH205	0-0.1	Fill: Silty Clay	Fine	NA	NA	NA	100	200	90	1300	35	190	170	180	180	120	1300	5600	65	105	125	45	20
TP206	0-0.1	Fill: Silty Clay	Coarse	NA	NA	NA	100	200	90	1300	35	190	170	180	180	120	300	2800	50	85	70	105	20
TP207	0-0.1	Fill: Silty Clay	Fine	NA	NA	NA	100	200	90	1300	35	190	170	180	180	120	1300	5600	65	105	125	45	20
TP207 (lab replicate)	0-0.1	Fill: Silty Clay	Fine	NA	NA	NA	100	200	90	1300	35	190	170	180	180	120	1300	5600	65	105	125	45	20
TP208	0-0.1	Fill: Silty Clay	Fine	NA	NA	NA	100	200	90	1300	35	190	170	180	180	120	1300	5600	65	105	125	45	20
TP208	0.4-0.5	Fill: Silty Clay	Fine	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	180	NA	NA	NA	NA	NA	NA	NA	NA	NA
TP208	0.9-1.0	Silty Clay	Fine	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	180	NA	NA	NA	NA	NA	NA	NA	NA	NA
BH209	0-0.1	Fill: Silty Clay	Fine	NA	NA	NA	100	200	90	1300	35	190	170	180	180	120	1300	5600	65	105	125	45	20
BH209	0.5-0.95	Silty Clay	Fine	NA	NA	NA	100	200	90	1300	35	190	170	--	180	120	1300	5600	65	105	125	45	20
BH209	4.8-4.95	Sand	Coarse	NA	NA	NA	100	200	90	1300	35	190	170	--	180	120	300	2800	50	85	70	105	20
BH210	0.05-0.2	Fill: Gravelly Sand	Coarse	NA	NA	NA	100	200	90	1300	35	190	170	180	180	120	300	2800	50	85	70	105	20
BH211	0-0.1	Fill: Silty Sand	Fine	NA	NA	NA	100	200	90	1300	35	190	170	180	180	120	1300	5600	65	105	125	45	20
BH212	0-0.1	Fill: Sandy Clay	Fine	NA	NA	NA	100	200	90	1300	35	190	170	180	180	120	1300	5600	65	105	125	45	20
TP213	0-0.1	Fill: Sandy Clay	Fine	NA	NA	NA	100	200	90	1300	35	190	170	180	180	120	1300	5600	65	105	125	45	20
TP214	0-0.1	Fill: Silty Clay	Fine	NA	NA	NA	100	200	90	1300	35	190	170	180	180	120	1300	5600	65	105	125	45	20
TP215	0-0.1	Fill: Silty Clay	Fine	NA	NA	NA	100	200	90	1300	35	190	170	180	180	120	1300	5600	65	105	125	45	20
TP215 (lab replicate)	0-0.1	Fill: Silty Clay	Fine	NA	NA	NA	100	200	90	1300	35	190	170	180	180	120	1300	5600	65	105	125	45	20
BH216	0.05-0.2	Fill: Gravelly Sand	Coarse	NA	NA	NA	100	200	90	1300	35	190	170	180	180	120	300	2800	50	85	70	105	20
TP217	0-0.1	Fill: Silty Clay	Fine	NA	NA	NA	100	200	90	1300	35	190	170	180	180	120	1300	5600	65	105	125	45	20
TP218	0-0.1	Fill: Silty Clay	Fine	NA	NA	NA	100	200	90	1300	35	190	170	180	180	120	1300	5600	65	105	125	45	20
TP219	0-0.1	Fill: Silty Clay	Fine	NA	NA	NA	100	200	90	1300	35	190	170	180	180	120	1300	5600	65	105	125	45	20
TP220	0-0.1	Fill: Silty Clay	Fine	NA	NA	NA	100	200	90	1300	35	190	170	180	180	120	1300	5600	65	105	125	45	20
TP221	0-0.1	Fill: Silty Clay	Fine	NA	NA	NA	100	200	90	1300	35	190	170	180	180	120	1300	5600	65	105	125	45	20
TP222	0-0.1	Fill: Silty Clay	Fine	NA	NA	NA	100	200	90	1300	35	190	170	180	180	120	1300	5600	65	105	125	45	20
TP223	0-0.1	Fill: Silty Clay	Fine	NA	NA	NA	100	200	90	1300	35	190	170	180	180	120	1300	5600	65	105	125	45	20
BH224	0-0.1	Fill: Silty Clay	Fine	NA	NA	NA	100	200	90	1300	35	190	170	180	180	120	1300	5600	65	105	125	45	20
BH224	3.2-3.45	Sand	Coarse	NA	NA	NA	100	200	90	1300	35	190	170	--	180	120	300	2800	50	85	70	105	20
BH224 (lab replicate)	3.2-3.45	Sand	Coarse	NA	NA	NA	100	200	90	1300	35	190	170	--	180	120	300	2800	50	85	70	105	20
TP225	0-0.1	Fill: Silty Clay	Fine	NA	NA	NA	100	200	90	1300	35	190	170	180	180	120	1300	5600	65	105	125	45	20
TP226	0-0.1	Fill: Silty Clay	Fine	NA	NA	NA	100	200	90	1300	35	190	170	180	180	120	1300	5600	65	105	125	45	20
TP227	0-0.1	Fill: Silty Clay	Fine	NA	NA	NA	100	200	90	1300	35	190	170	180	180	120	1300	5600	65	105	125	45	20
SDUP201	0-0.1	Fill: Silty Clay	Fine	NA	NA	NA	100	200	90	1300	35	190	170	180	180	120	1300	5600	65	105	125	45	20
SDUP202	0-0.1	Fill: Silty Clay	Fine	NA	NA	NA	100	200	90	1300	35	190	170	180	180	120	1300	5600	65	105	125	45	20
SDUP202 (lab replicate)	0-0.1	Fill: Silty Clay	Fine	NA	NA	NA	--	--	--	--	--	--	--	180	--	120	1300	5600	--	--	--	--	20
SDUP205	0-0.1	Fill: Silty Clay	Fine	NA	NA	NA	100	200	90	1300	35	190	170	180	180	120	1300	5600	65	105	125	45	20
SDUP206	0-0.1	Fill: Silty Clay	Fine	NA	NA	NA	100	200	90	1300	35	190	170	180	180	120	1300	5600	65	105	125	45	20
SDUP207	0-0.1	Fill: Silty Clay	Fine	NA	NA	NA	100	200	90	1300	35	190	170	180	180	120	1300	5600	65	105	125	45	20
SDUP207	0-0.1	Fill: Silty Clay	Fine	NA	NA	NA	100	200	90	1300	35	190	170	180	180	120	1300	5600	65	105	125	45	20
SDUP208	0-0.1	Fill: Silty Clay	Fine	NA	NA	NA	100	200	90	1300	35	190	170	180	180	120	1300	5600	65	105	125	45	20
SDUP208 (lab replicate)	0-0.1	Fill: Silty Clay	Fine	NA	NA	NA	--	--	--	--	--	--	170	--	180	--	--	--	65	105	125	45	--

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	50	NSL	100	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**																									
BH201	0.19-0.4	Fill: Silty Clay	**4**	<0.4	**24**	**22**	**23**	<0.1	**29**	**62**	<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
BH201 (lab replicate)	0.19-0.4	Fill: Silty Clay	**4**	<0.4	**24**	**22**	**28**	<0.1	**30**	**69**	<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
BH201	0.6-1.0	Silty Clay	**4**	<0.4	**36**	**24**	**10**	<0.1	**33**	**46**	<0.05	<0.05	NA	NA	NA	NA	NA	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<1	NA
BH201	3.1-3.45	Silty Clay	<4	<0.4	**34**	**31**	**11**	<0.1	**34**	**62**	<0.05	<0.05	NA	NA	NA	NA	NA	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<1	NA
BH202	0.1-0.25	Fill: Gravelly Sand	**5**	<0.4	**18**	**29**	**800**	<0.1	**22**	**510**	<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
BH202	0.5-0.95	Silty Clay	**4**	<0.4	**41**	**31**	**11**	<0.1	**37**	**57**	<0.05	<0.05	NA	NA	NA	NA	NA	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<1	NA
BH202	3.0-3.45	Silty Clay	<4	<0.4	**39**	**31**	**11**	<0.1	**41**	**51**	<0.05	<0.05	NA	NA	NA	NA	NA	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<1	NA
BH203	0.15-0.25	Fill: Silty Sandy Clay	**5**	<0.4	**22**	**22**	**37**	**0.2**	**22**	**69**	**2**	**0.07**	<0.1	<0.1	<0.1	<0.1	<0.1	<25	<50	**160**	<100	**160**	<0.2	<0.5	<1	<1	NA
BH204	0.2-0.3	Fill: Silty Clay	**5**	<0.4	**24**	**66**	**19**	<0.1	**21**	**82**	<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
BH205	0-0.1	Fill: Silty Clay	**5**	<0.4	**23**	**31**	**54**	**0.4**	**24**	**210**	<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
TP206	0-0.1	Fill: Silty Clay	<4	<0.4	**21**	**29**	**52**	<0.1	**20**	**120**	<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
TP207	0-0.1	Fill: Silty Clay	**4**	<0.4	**26**	**24**	**63**	<0.1	**22**	**200**	<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
TP207 (lab replicate)	0-0.1	Fill: Silty Clay	<4	<0.4	**25**	**23**	**62**	<0.1	**21**	**200**	<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
TP208	0-0.1	Fill: Silty Clay	<4	<0.4	**23**	**21**	**15**	<0.1	**21**	**67**	<0.05	<0.05	**82**	<0.1	<0.1	<0.1	<0.1	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<1	Not Detected
TP208	0.4-0.5	Fill: Silty Clay	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.1	<0.1	<0.1	<0.1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TP208	0.9-1.0	Silty Clay	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.1	<0.1	<0.1	<0.1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BH209	0-0.1	Fill: Silty Clay	**4**	<0.4	**32**	**26**	**50**	<0.1	**29**	**81**	<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
BH209	0.5-0.95	Silty Clay	<4	<0.4	**32**	**28**	**10**	<0.1	**30**	**49**	<0.05	<0.05	NA	NA	NA	NA	NA	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<1	NA
BH209	4.8-4.95	Sand	<4	<0.4	**10**	**6**	**4**	<0.1	**9**	**15**	<0.05	<0.05	NA	NA	NA	NA	NA	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<1	NA
BH210	0.05-0.2	Fill: Gravelly Sand	<4	<0.4	**11**	**9**	**8**	<0.1	**11**	**22**	**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	NA
BH211	0-0.1	Fill: Silty Sand	<4	<0.4	**12**	**10**	**8**	<0.1	**13**	**34**	<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
BH212	0-0.1	Fill: Sandy Clay	**5**	<0.4	**22**	**21**	**20**	<0.1	**24**	**55**	<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
TP213	0-0.1	Fill: Sandy Clay	**6**	<0.4	**24**	**25**	**9**	<0.1	**29**	**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	NA
TP214	0-0.1	Fill: Silty Clay	**4**	<0.4	**29**	**23**	**11**	<0.1	**26**	**58**	<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
TP215	0-0.1	Fill: Silty Clay	**4**	<0.4	**28**	**22**	**15**	<0.1	**26**	**54**	**1.8**	**0.2**	<0.1	<0.1	<0.1	<0.1	<0.1	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<1	NA
TP215 (lab replicate)	0-0.1	Fill: Silty Clay	<4	<0.4	**31**	**25**	**13**	<0.1	**29**	**49**	**0.77**	**0.1**	<0.1	<0.1	<0.1	<0.1	<0.1	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<1	NA
BH216	0.05-0.2	Fill: Gravelly Sand	**4**	<0.4	**12**	**8**	**4**	<0.1	**10**	**19**	<0.05	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<1	NA
TP217	0-0.1	Fill: Silty Clay	**4**	<0.4	**28**	**21**	**14**	<0.1	**26**	**60**	<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
TP218	0-0.1	Fill: Silty Clay	<4	<0.4	**20**	**16**	**13**	<0.1	**20**	**36**	**3.8**	**0.3**	<0.1	<0.1	<0.1	<0.1	<0.1	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<1	NA
TP219	0-0.1	Fill: Silty Clay	<4	<0.4	**27**	**21**	**14**	<0.1	**26**	**48**	<0.05	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<1	NA
TP220	0-0.1	Fill: Silty Clay	<4	<0.4	**20**	**15**	**10**	<0.1	**19**	**41**	<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
TP221	0-0.1	Fill: Silty Clay	<4	<0.4	**22**	**20**	**16**	<0.1	**23**	**49**	**8.1**	**0.83**	<0.1	<0.1	<0.1	<0.1	<0.1	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<1	NA
TP222	0-0.1	Fill: Silty Clay	<4	<0.4	**26**	**19**	**12**	<0.1	**25**	**53**	<0.05	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<1	NA
TP223	0-0.1	Fill: Silty Clay	<4	<0.4	**24**	**18**	**15**	<0.1	**23**	**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	NA
BH224	0-0.1	Fill: Silty Clay	<4	<0.4	**24**	**22**	**17**	<0.1	**23**	**61**	**5.8**	**0.59**	<0.1	<0.1	<0.1	<0.1	<0.1	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<1	NA
BH224	3.2-3.45	Sand	<4	<0.4	**13**	**8**	**5**	<0.1	**13**	**19**	<0.05	<0.05	NA	NA	NA	NA	NA	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<1	NA
BH224 (lab replicate)	3.2-3.45	Sand	<4	<0.4	**12**	**7**	**4**	<0.1	**12**	**18**	<0.05	<0.05	NA	NA	NA	NA	NA	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<1	NA
TP225	0-0.1	Fill: Silty Clay	**4**	<0.4	**25**	**20**	**15**	<0.1	**24**	**59**	<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
TP226	0-0.1	Fill: Silty Clay	<4	<0.4	**29**	**23**	**27**	<0.1	**28**	**53**	**4.6**	**0.4**	<0.1	<0.1	<0.1	<0.1	<0.1	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<1	NA
TP227	0-0.1	Fill: Silty Clay	<4	<0.4	**32**	**29**	**11**	<0.1	**32**	**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	Not Detected
SDUP201	0-0.1	Fill: Silty Clay	**5**	<0.4	**22**	**30**	**55**	**0.5**	**24**	**190**	<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
SDUP202	0-0.1	Fill: Silty Clay	<4	<0.4	**28**	**22**	**18**	<0.1	**26**	**80**	**6.6**	**0.66**	<0.1	<0.1	<0.1	<0.1	<0.1	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<1	NA
SDUP202 (lab replicat	0-0.1	Fill: Silty Clay	NA	NA	NA	NA	NA	NA	NA	NA	**6.7**	**0.65**	<0.1	<0.1	<0.1	<0.1	<0.1	NA	<50	<100	<100	<50	NA	NA	NA	NA	NA
SDUP205	0-0.1	Fill: Silty Clay	**4**	<0.4	**26**	**22**	**18**	<0.1	**27**	**55**	**4.4**	**0.4**	<0.1	<0.1	<0.1	<0.1	<0.1	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<1	NA
SDUP206	0-0.1	Fill: Silty Clay	<4	<0.4	**24**	**17**	**14**	<0.1	**23**	**56**	<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
SDUP207	0-0.1	Fill: Silty Clay	<4	<0.4	**20**	**16**	**9**	<0.1	**19**	**42**	<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
SDUP207 (lab replicat	0-0.1	Fill: Silty Clay	<4	<0.4	**20**	**16**	**10**	<0.1	**19**	**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	NA
SDUP208	0-0.1	Fill: Silty Clay	<4	<0.4	**26**	**20**	**16**	<0.1	**25**	**56**	**9.1**	**0.86**	<0.1	<0.1	<0.1	<0.1	<0.1	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<1	NA
SDUP208 (lab replicat	0-0.1	Fill: Silty Clay	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<25	NA	NA	NA	NA	<0.2	<0.5	<1	<1	NA
FCF201	-	Fibre Cement Fragment	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**
FCF202	-	Fibre Cement Fragment	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**
TP208-FCF1	0-0.1	Fibre Cement Fragment	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**
Total Number of Samples			45	45	45	45	45	45	45	45	46	46	40	40	40	40	38	46	46	46	46	46	46	46	46	46	7
Maximum Value			6	<PQL	41	66	800	0.5	41	510	9.1	0.86	82	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	160	<PQL	160	<PQL	<PQL	<PQL	<PQL	Detected

Concentration above the CT1 — **VALUE**
Concentration above SCC1 — **VALUE**
Concentration above the SCC2 — **VALUE**
Asbestos Detected — **DETECTED**
Concentration above PQL — **Bold**

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

			Lead	Nickel	OCP (Endosulfan)	B(a)P
PQL - Envirolab Services			0.03	0.02	0.2	0.001
TCLP1 - General Solid Waste			5	2	3	0.04
TCLP2 - Restricted Solid Waste			20	8	12	0.16
TCLP3 - Hazardous Waste			>20	>8	>12	>0.16
Sample Reference	**Sample Depth**	**Sample Description**				
BH202	0.1-0.25	Fill: Gravelly Sand	**0.55**	NA	NA	NA
BH202	3.0-3.45	Silty sand	NA	<0.02	NA	NA
TP208	0-0.1	Fill: Silty clay	NA	NA	<0.2	NA
TP221	0-0.1	Fill: Silty clay	NA	NA	NA	<0.0001
Total Number of samples			1	1	1	1
Maximum Value			0.55	<PQL	<PQL	<PQL

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

TABLE S9
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 laboratory duplicate	BH205	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
	SDUP201	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
	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 laboratory duplicate	BH224	0-0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<2	<1	<0.1	<0.1	<0.1	<0.1	0.4	<0.1	1.2	1.2	0.3	0.4	0.8	0.59	0.3	<0.1	0.7
	SDUP202	0-0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<2	<1	<0.1	<0.1	<0.1	<0.1	0.5	<0.1	1.4	1.4	0.4	0.5	1	0.66	0.4	<0.1	0.5
	MEAN		nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	0.45	nc	1.3	1.3	0.35	0.45	0.9	0.625	0.35	nc	0.6
	RPD %		nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	22%	nc	15%	15%	29%	22%	22%	11%	29%	nc	33%
Intra laboratory duplicate	TP226	0-0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<2	<1	<0.1	<0.1	<0.1	<0.1	0.4	<0.1	0.9	0.9	0.3	0.3	0.6	0.4	0.2	<0.1	0.5
	SDUP205	0-0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<2	<1	<0.1	<0.1	<0.1	<0.1	0.3	<0.1	0.9	0.9	0.2	0.3	0.6	0.4	0.2	<0.1	0.5
	MEAN		nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	0.35	nc	0.9	0.9	0.25	0.3	0.6	0.4	0.2	nc	0.5
	RPD %		nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	29%	nc	0%	0%	40%	0%	0%	0%	0%	nc	0%
Inter laboratory duplicate	TP223	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
	SDUP206	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
	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
Intra laboratory duplicate	TP220	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
	SDUP207	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
	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 laboratory duplicate	TP221	0-0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<2	<1	<0.1	<0.1	<0.1	<0.1	0.5	<0.1	1.6	1.6	0.5	0.6	1	0.83	0.4	<0.1	0.8
	SDUP208	0-0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<2	<1	<0.1	0.1	<0.1	<0.1	0.7	0.1	1.8	1.9	0.5	0.6	1.3	0.86	0.5	0.1	0.6
	MEAN		nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	0.075	nc	nc	0.6	0.075	1.7	1.75	0.5	0.6	1.15	0.845	0.45	0.075	0.7
	RPD %		nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	67%	nc	nc	33%	67%	12%	17%	0%	0%	26%	4%	22%	67%	29%
Field Blank	TB-S201 16/08/23		<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
Field Rinsate	FR-201 16/08/23	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Trip Spike	TS-S201 16/08/23		-	-	-	-	91%	91%	91%	91%	90%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

			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 laboratory duplicate	BH205	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
	SDUP201	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
	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 laboratory duplicate	BH224	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
	SDUP202	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
	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 laboratory duplicate	TP226	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
	SDUP205	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
	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 laboratory duplicate	TP223	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
	SDUP206	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
	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 laboratory duplicate	TP220	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
	SDUP207	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
	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 laboratory duplicate	TP221	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
	SDUP208	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
	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 Blank	TB-S201 16/08/23		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Field Rinsate	FR-201 16/08/23	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Trip Spike	TS-S201 16/08/23		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

			Azinphos-methyl (Guthio	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 laboratory duplicate	BH205	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	5	<0.4	23	31	54	0.4	24	210
	SDUP201	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	5	<0.4	22	30	55	0.5	24	190
	MEAN		nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	5	nc	22.5	30.5	54.5	0.45	24	200
	RPD %		nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	0%	nc	4%	3%	2%	22%	0%	10%
Inter laboratory duplicate	BH224	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	24	22	17	<0.1	23	61
	SDUP202	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	28	22	18	<0.1	26	80
	MEAN		nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	26	22	17.5	nc	24.5	70.5
	RPD %		nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	15%	0%	6%	nc	12%	27%
Intra laboratory duplicate	TP226	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	29	23	27	<0.1	28	53
	SDUP205	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	26	22	18	<0.1	27	55
	MEAN		nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	3	nc	27.5	22.5	22.5	nc	27.5	54
	RPD %		nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	67%	nc	11%	4%	40%	nc	4%	4%
Inter laboratory duplicate	TP223	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	24	18	15	<0.1	23	54
	SDUP206	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	24	17	14	<0.1	23	56
	MEAN		nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	24	17.5	14.5	nc	23	55
	RPD %		nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	0%	6%	7%	nc	0%	4%
Intra laboratory duplicate	TP220	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	20	15	10	<0.1	19	41
	SDUP207	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	20	16	9	<0.1	19	42
	MEAN		nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	20	15.5	9.5	nc	19	41.5
	RPD %		nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	0%	6%	11%	nc	0%	2%
Inter laboratory duplicate	TP221	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	22	20	16	<0.1	23	49
	SDUP208	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	26	20	16	<0.1	25	56
	MEAN		nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	24	20	16	nc	24	52.5
	RPD %		nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	17%	0%	0%	nc	8%	13%
Field Blank	TB-S201 16/08/23		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<4	<0.4	3	<1	2	<0.1	<1	2
Field Rinsate	FR-201 16/08/23	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.05	<0.01	<0.01	0.2	<0.03	<0.0005	<0.02	<0.02
Trip Spike	TS-S201 16/08/23		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Result outside of QA/QC acceptance criteria (highlighted)

Rinsate metals results in mg/L

Appendix D: Borehole / Test pit Logs

JKEnvironments

ENVIRONMENTAL LOG

Environmental logs are not to be used for geotechnical purposes

Log No. **BH/MW201** **1/3**

Client: HEALTH INFRASTRUCTURE

Project: PROPOSED ALTERATIONS AND ADDITIONS

Location: 35 ALICE STREET, MOREE, NSW

Job No.: E35092UPD **Method:** SPIRAL AUGER **R.L. Surface:** 209.13m

Date: 15/8/23 **Datum:** AHD

Plant Type: JK305 **Logged/Checked by:** A.D./M.D.

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 COMPLE-TION							0			CONCRETE: 190mm.t				
	■		■		■				-	FILL: Silty clay, medium to high plasticity, brown, trace of sand, igneous and quartz gravel.	w≈PL			SCREEN: 3.17kg 0.19-0.4m, NO FCF
							0.5		CH	Silty CLAY: high plasticity, brown, trace of quartz gravel.	w≈PL			ALLUVIAL
	■		■			N = 10 2,5,5	1							
	■		■				1.5							
	■		■			N = 13 5,6,7	2							
							2.5							
	■		■				3							
						N = 20 6,9,11	3.5							

JKEnvironments

ENVIRONMENTAL LOG

Environmental logs are not to be used for geotechnical purposes

Log No. **BH/MW201** **2/3**

Client: HEALTH INFRASTRUCTURE

Project: PROPOSED ALTERATIONS AND ADDITIONS

Location: 35 ALICE STREET, MOREE, NSW

Job No.: E35092UPD **Method:** SPIRAL AUGER **R.L. Surface:** 209.13m

Date: 15/8/23 **Datum:** AHD

Plant Type: JK305 **Logged/Checked by:** A.D./M.D.

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
						N = 12 4,6,6	4 4.5 5							
							5.5		CI-CH	Silty Sandy CLAY: medium to high plasticity, brown, fine to medium grained sand.	w≈PL			
							6 6.5 7							

JKEnvironments

ENVIRONMENTAL LOG

Environmental logs are not to be used for geotechnical purposes

Log No. **BH/MW201** **3/3**

Client: HEALTH INFRASTRUCTURE

Project: PROPOSED ALTERATIONS AND ADDITIONS

Location: 35 ALICE STREET, MOREE, NSW

Job No.: E35092UPD **Method:** SPIRAL AUGER **R.L. Surface:** 209.13m

Date: 15/8/23 **Datum:** AHD

Plant Type: JK305 **Logged/Checked by:** A.D./M.D.

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
										Silty Sandy CLAY: medium to high plasticity, brown, fine to medium grained sand.	w≈PL			
							7.5			Silty CLAY: medium to high plasticity, brown, trace of sandstone gravel.	w<PL			
										Silty Sandy CLAY: medium to high plasticity, light brown, fine to medium grained sand, trace of sandstone gravel.	w≈PL			ALLUVIAL
							8			END OF BOREHOLE AT 8.0m				GROUNDWATER MONITORING WELL INSTALLED TO 8.0m. CLASS 18 MACHINE SLOTTED 50mm DIA. PVC STANDPIPE 8.0m TO 2.0m. CASING 2.0m TO 0m. 2mm SAND FILTER PACK 8.0m TO 1.3m. BENTONITE SEAL 1.3m TO 0.3m. BACKFILLED WITH SAND TO THE SURFACE. COMPLETED WITH A CONCRETED GATIC COVER.
							8.5							
							9							
							9.5							
							10							

JKEnvironments

ENVIRONMENTAL LOG

Environmental logs are not to be used for geotechnical purposes

Log No. **BH/MW202** **1/3**

Client: HEALTH INFRASTRUCTURE

Project: PROPOSED ALTERATIONS AND ADDITIONS

Location: 35 ALICE STREET, MOREE, NSW

Job No.: E35092UPD **Method:** SPIRAL AUGER **R.L. Surface:** 208.91m

Date: 15/8/23 **Datum:** AHD

Plant Type: JK305 **Logged/Checked by:** A.D./M.D.

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 COMPLE-TION							0			CONCRETE: 100mm.t				
									-	FILL: Gravelly sand, fine to medium grained, brown, fine to medium grained, sub-angular igneous gravel, trace of concrete fragments.	M			SCREEN: 5.10kg 0.1-0.3m, NO FCF
									CI-CH	Silty CLAY: medium to high plasticity, brown and grey, trace of quartz gravel.	w≈PL			
						N = 13 5,6,7	0.5								
							1							
						N = 14 5,7,7	1.5							
							2							
							2.5							
						N = 11 4,5,6	3							TRACE OF ASH 3.0-3.5m
							3.5							

JKEnvironments

ENVIRONMENTAL LOG

Environmental logs are not to be used for geotechnical purposes

Log No. **BH/MW202** **2/3**

Client: HEALTH INFRASTRUCTURE

Project: PROPOSED ALTERATIONS AND ADDITIONS

Location: 35 ALICE STREET, MOREE, NSW

Job No.: E35092UPD **Method:** SPIRAL AUGER **R.L. Surface:** 208.91m

Date: 15/8/23 **Datum:** AHD

Plant Type: JK305 **Logged/Checked by:** A.D./M.D.

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
										Silty CLAY: medium to high plasticity, brown and grey, trace of quartz gravel.	w≈PL			
						N = 15 5,7,8	4 4.5 5 5.5 6 6.5 7							

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ENVIRONMENTAL LOG

Environmental logs are not to be used for geotechnical purposes

Log No. **BH/MW202** **3/3**

Client: HEALTH INFRASTRUCTURE

Project: PROPOSED ALTERATIONS AND ADDITIONS

Location: 35 ALICE STREET, MOREE, NSW

Job No.: E35092UPD **Method:** SPIRAL AUGER **R.L. Surface:** 208.91m

Date: 15/8/23 **Datum:** AHD

Plant Type: JK305 **Logged/Checked by:** A.D./M.D.

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
							7.5			Silty CLAY: medium to high plasticity, brown and grey, trace of quartz gravel and sand.	w<PL			
							8			Silty CLAY: medium to high plasticity, brown, trace of sand.	w<PL			
							8.5			END OF BOREHOLE AT 8.0m				GROUNDWATER MONITORING WELL INSTALLED TO 8.0m. CLASS 18 MACHINE SLOTTED 50mm DIA. PVC STANDPIPE 8.0m TO 2.0m. CASING 2.0m TO 0m. 2mm SAND FILTER PACK 8.0m TO 1.3m. BENTONITE SEAL 1.3m TO 0.3m. BACKFILLED WITH SAND TO THE SURFACE. COMPLETED WITH A CONCRETED GATIC COVER.
							9							
							9.5							
							10							

JKEnvironments

ENVIRONMENTAL LOG

Environmental logs are not to be used for geotechnical purposes

Log No. **BH203** **1/1**

Client: HEALTH INFRASTRUCTURE

Project: PROPOSED ALTERATIONS AND ADDITIONS

Location: 35 ALICE STREET, MOREE, NSW

Job No.: E35092UPD **Method:** SPIRAL AUGER **R.L. Surface:** N/A

Date: 16/8/23 **Datum:** -

Plant Type: JK305 **Logged/Checked by:** A.D./M.D.

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 COMPLE-TION	■		■		■		0			CONCRETE: 150mm.t				
	■		■						-	FILL: Silty sandy clay, medium to high plasticity, brown, fine to medium grained sand, with fine to coarse grained igneous gravel, trace of concrete fragments.	w≈PL			SCREEN: 1.87kg 0.15-0.25m, NO FCF
	■		■								w≈PL			INSUFFICIENT RETURN FOR BULK SCREEN
							0.5		CI-CH	FILL: Silty clay, medium to high plasticity, brown and grey, with fine to medium grained sand, trace of igneous gravel.	w≈PL			ALLUVIAL
	■		■				1			Silty CLAY: medium to high plasticity, brown.				
										END OF BOREHOLE AT 1.0m				
							1.5							
							2							
							2.5							
							3							
							3.5							

JKEnvironments

ENVIRONMENTAL LOG

Log No. **BH204** **1/1**

Environmental logs are not to be used for geotechnical purposes

Client: HEALTH INFRASTRUCTURE

Project: PROPOSED ALTERATIONS AND ADDITIONS

Location: 35 ALICE STREET, MOREE, NSW

Job No.: E35092UPD **Method:** SPIRAL AUGER **R.L. Surface:** N/A

Date: 16/8/23 **Datum:** -

Plant Type: JK305 **Logged/Checked by:** A.D./M.D.

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 COMPLE-TION							0			CONCRETE: 200mm.t				
	■		■						-	FILL: Silty clay, medium to high plasticity, brown, with fine to medium grained sand and fine to coarse grained igneous gravel, trace of concrete fragments.	w≈PL			INSUFFICIENT RETURN FOR BULK SCREEN
	■		■			N = 10 4,4,6	0.5		CI-CH	Silty CLAY: medium to high plasticity, brown.	w≈PL			ALLUVIAL
							1			END OF BOREHOLE AT 1.0m				
							1.5							
							2							
							2.5							
							3							
							3.5							

JKEnvironments

ENVIRONMENTAL LOG

Environmental logs are not to be used for geotechnical purposes

Log No. **BH205** **1/1**

SDUP201: 0-0.1

Client: HEALTH INFRASTRUCTURE

Project: PROPOSED ALTERATIONS AND ADDITIONS

Location: 35 ALICE STREET, MOREE, NSW

Job No.: E35092UPD **Method:** SPIRAL AUGER **R.L. Surface:** N/A

Date: 16/8/23 **Datum:** -

Plant Type: JK305 **Logged/Checked by:** A.D./M.D.

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 COMPLE-TION							0			FILL: Silty clay, medium to high plasticity, brown, trace of sand, brick, tile, metal, concrete and glass fragments, ceramic slag, coal and root fibres.	w<PL			GRASS COVER SCREEN: 10.48kg 0-0.1m, NO FCF SCREEN: 3.60kg 0.1-0.5m, NO FCF
						N = 13 4,7,6	0.5		CI-CH	Silty CLAY: medium to high plasticity, brown, trace of root fibres.	w≈PL			ALLUVIAL
							1			END OF BOREHOLE AT 1.0m				
							1.5							
							2							
							2.5							
							3							
							3.5							

JKEnvironments

ENVIRONMENTAL LOG

Environmental logs are not to be used for geotechnical purposes

Log No. **TP206** **1/1**

Client: HEALTH INFRASTRUCTURE

Project: PROPOSED ALTERATIONS AND ADDITIONS

Location: 35 ALICE STREET, MOREE, NSW

Job No.: E35092UPD **Method:** TEST PIT **R.L. Surface:** N/A

Date: 16/8/23 **Datum:** -

Plant Type: **Logged/Checked by:** A.D./M.D.

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 COMPLE-TION	■		■		■		0			FILL: Silty clay, medium to high plasticity, brown, trace of sand, igneous and quartz gravel, concrete fragments and root fibres.	w<PL			GRASS COVER SCREEN: 10.22kg 0-0.2m, NO FCF
									CI-CH	Silty CLAY: medium to high plasticity, brown.	w≈PL			ALLUVIAL
							0.5			END OF TEST PIT AT 0.5m				
							1							
							1.5							
							2							
							2.5							
							3							
							3.5							

JKEnvironments

ENVIRONMENTAL LOG

Environmental logs are not to be used for geotechnical purposes

Log No. TP207 **1/1**

SDUP204: 0-0.1

Client: HEALTH INFRASTRUCTURE

Project: PROPOSED ALTERATIONS AND ADDITIONS

Location: 35 ALICE STREET, MOREE, NSW

Job No.: E35092UPD **Method:** TEST PIT **R.L. Surface:** N/A

Date: 16/8/23 **Datum:** -

Plant Type: 5T EXCAVATOR **Logged/Checked by:** A.D./M.D.

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 COMPLE-TION	■		■		■		0			FILL: Silty clay, medium to high plasticity, brown, trace of sand, igneous gravel, brick fragments and root fibres.	w<PL			GRASS COVER
									CI-CH		w≈PL			SCREEN: 10.36kg 0-0.1m, NO FCF
	■		■							Silty CLAY: medium to high plasticity, brown.				ALLUVIAL
									SP		M			
	■		■							SAND: fine to medium grained, brown and grey, trace of quartz gravel.				
							0.5			END OF TEST PIT AT 0.5m				
							1							
							1.5							
							2							
							2.5							
							3							
							3.5							

JKEnvironments

ENVIRONMENTAL LOG

Environmental logs are not to be used for geotechnical purposes

Log No. **TP208** **1/1**

SDUP204: 0-0.1

Client: HEALTH INFRASTRUCTURE

Project: PROPOSED ALTERATIONS AND ADDITIONS

Location: 35 ALICE STREET, MOREE, NSW

Job No.: E35092UPD **Method:** TEST PIT **R.L. Surface:** N/A

Date: 17/8/23 **Datum:** -

Plant Type: 5T EXCAVATOR **Logged/Checked by:** C.S./M.D.

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 COMPLE-TION	■		■		■		0			FILL: Silty clay, medium plasticity, dark grey, with fine grained sand, trace of glass, bricks, tiles, FCF, terracotta and concrete fragments, and root fibres.	w≈PL			GRASS COVER SCREEN: 11.34kg 0-0.1m, TP208-FCF1
										as above, but high plasticity, trace of fine grained sand.	w≈PL			SCREEN: 10.68kg 0.4-0.5m, NO FCF BURIED TREE TRUNK APPROX. 100mm.t
	■		■		■		0.5							
							1		CH	Silty CLAY: high plasticity,dark grey, trace of fine grained sand.	w≈PL			ALLUVIAL
	■		■				1.5							
										END OF TEST PIT AT 1.6m				
							2							
							2.5							
							3							
							3.5							

JKEnvironments

ENVIRONMENTAL LOG

Environmental logs are not to be used for geotechnical purposes

Log No. **BH/MW209** **1/3**

Client: HEALTH INFRASTRUCTURE

Project: PROPOSED ALTERATIONS AND ADDITIONS

Location: 35 ALICE STREET, MOREE, NSW

Job No.: E35092UPD **Method:** SPIRAL AUGER **R.L. Surface:** 208.71m

Date: 15/8/23 **Datum:** -

Plant Type: JK305 **Logged/Checked by:** A.D./M.D.

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 COMPLE-TION							0			FILL: Silty clay, medium to high plasticity, brown, trace of sand, quartz and ironstone gravel, ash, brick, concrete and metal fragments, and root fibres.	w<PL			GRASS COVER SCREEN: 10.11kg 0-0.1m, NO FCF SCREEN: 1.82kg 0.1-0.4m, NO FCF
						N = 15 5,7,8	0.5		CI-CH	Silty CLAY: medium to high plasticity, brown, trace of quartz gravel.	w≈PL			ALLUVIAL
						N = 18 7,8,10	1							
							1.5							
							2							
						N = 22 9,11,11	2.5							
							3							
							3.5							

JKEnvironments

ENVIRONMENTAL LOG

Environmental logs are not to be used for geotechnical purposes

Log No. **BH/MW209** **2/3**

Client: HEALTH INFRASTRUCTURE

Project: PROPOSED ALTERATIONS AND ADDITIONS

Location: 35 ALICE STREET, MOREE, NSW

Job No.: E35092UPD **Method:** SPIRAL AUGER **R.L. Surface:** 208.71m

Date: 15/8/23 **Datum:** -

Plant Type: JK305 **Logged/Checked by:** A.D./M.D.

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
							4							
						N = 12 4,6,6	4.5							
	■		■				5		SP	SAND: fine to medium grained, brown, trace of clay fines.	M			
							5.5							
							6		CI-CH	Silty CLAY: medium to high plasticity, brown, trace of quartz gravel.	w≈PL			
							6.5							
							7							

JKEnvironments

ENVIRONMENTAL LOG

Environmental logs are not to be used for geotechnical purposes

Log No. **BH/MW209** **3/3**

Client: HEALTH INFRASTRUCTURE

Project: PROPOSED ALTERATIONS AND ADDITIONS

Location: 35 ALICE STREET, MOREE, NSW

Job No.: E35092UPD **Method:** SPIRAL AUGER **R.L. Surface:** 208.71m

Date: 15/8/23 **Datum:** -

Plant Type: JK305 **Logged/Checked by:** A.D./M.D.

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
							7.5			Silty CLAY: medium to high plasticity, brown and grey, trace of sandstone gravel.	w<PL			
							8			END OF BOREHOLE AT 8.0m				GROUNDWATER MONITORING WELL INSTALLED TO 8.0m. CLASS 18 MACHINE SLOTTED 50mm DIA. PVC STANDPIPE 8.0m TO 2.0m. CASING 2.0m TO 0m. 2mm SAND FILTER PACK 8.0m TO 1.6m. BENTONITE SEAL 1.6m TO 0.9m. BACKFILLED WITH SAND TO THE SURFACE. COMPLETED WITH A CONCRETED GATIC COVER.
							8.5							
							9							
							9.5							
							10							

JKEnvironments

ENVIRONMENTAL LOG

Environmental logs are not to be used for geotechnical purposes

Log No. **BH210** **1/1**

Client: HEALTH INFRASTRUCTURE

Project: PROPOSED ALTERATIONS AND ADDITIONS

Location: 35 ALICE STREET, MOREE, NSW

Job No.: E35092UPD **Method:** SPIRAL AUGER **R.L. Surface:** N/A

Date: 16/8/23 **Datum:** -

Plant Type: JK305 **Logged/Checked by:** A.D./M.D.

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 COMPLE-TION	■		■		■		0		-	ASPHALT: 50mm.t FILL: Gravelly sand, fine to medium grained, brown and orange brown, fine to coarse grained igneous gravel, trace of concrete and asphalt fragments, and quartz gravel.	M			SCREEN: 3.86kg 0.05-0.3m, NO FCF
	■		■			N = 17 6,7,10	0.5		CI-CH	Silty CLAY: medium to high plasticity, brown, trace of quartz gravel.	w≈PL			ALLUVIAL
							1			END OF BOREHOLE AT 1.0m				
							1.5							
							2							
							2.5							
							3							
							3.5							

JKEnvironments

ENVIRONMENTAL LOG

Environmental logs are not to be used for geotechnical purposes

Log No. **BH211** **1/1**

SDUP203: 0-0.1

Client: HEALTH INFRASTRUCTURE

Project: PROPOSED ALTERATIONS AND ADDITIONS

Location: 35 ALICE STREET, MOREE, NSW

Job No.: E35092UPD **Method:** SPIRAL AUGER **R.L. Surface:** N/A

Date: 16/8/23 **Datum:** -

Plant Type: JK305 **Logged/Checked by:** A.D./M.D.

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 COMPLE-TION	■		■		■		0			FILL: Silty sand, fine to medium grained, brown, trace of igneous and quartz gravel, clay fines and root fibres.	M			GRASS COVER SCREEN: 11.26kg 0-0.1m, NO FCF
									CI-CH	Silty CLAY: medium to high plasticity, brown, trace of quartz gravel.	w<PL			SCREEN: 2.47kg 0.1-0.3m, NO FCF ALLUVIAL
	■		■			N = 17 5,7,10	0.5							
							1			END OF BOREHOLE AT 1.0m				
							1.5							
							2							
							2.5							
							3							
							3.5							

JKEnvironments

ENVIRONMENTAL LOG

Environmental logs are not to be used for geotechnical purposes

Log No. TP212

1/1

SDUP204: 0-0.1

Client: HEALTH INFRASTRUCTURE

Project: PROPOSED ALTERATIONS AND ADDITIONS

Location: 35 ALICE STREET, MOREE, NSW

Job No.: E35092UPD **Method:** TEST PIT **R.L. Surface:** N/A

Date: 17/8/23 **Datum:** -

Plant Type: 5T EXCAVATOR **Logged/Checked by:** C.S./M.D.

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 COMPLE-TION	■		■		■		0			FILL: Sandy clay, low plasticity, brown grey, red and dark grey, fine to medium grained sand, with coarse grained sand and fine to medium grained rounded igneous gravel, trace of coarse grained rounded igneous gravel, root fibres and ash.	w<PL			GRASS COVER SCREEN: 11.47kg 0-0.2m, NO FCF
							0.5			END OF TEST PIT AT 0.2m				TEST PIT TERMINATED AT 0.2m DUE TO POSSIBLE SERVICE
							1							
							1.5							
							2							
							2.5							
							3							
							3.5							

JKEnvironments

ENVIRONMENTAL LOG

Environmental logs are not to be used for geotechnical purposes

Log No. TP213

1/1

Client: HEALTH INFRASTRUCTURE

Project: PROPOSED ALTERATIONS AND ADDITIONS

Location: 35 ALICE STREET, MOREE, NSW

Job No.: E35092UPD **Method:** TEST PIT **R.L. Surface:** N/A

Date: 17/8/23 **Datum:** -

Plant Type: SHOVEL **Logged/Checked by:** C.S./M.D.

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 COMPLE-TION	■		■		■		0			FILL: Sandy clay, medium plasticity, brown and light grey, fine to medium grained sand, trace of coarse grained, rounded ironstone gravel, and root fibres.				GRASS COVER SCREEN: 11.37kg 0-0.2m, NO FCF
	■		■				0.5		CI	Silty CLAY: medium plasticity, dark brown mottled dark grey, trace of fine grained sand.				BRICK/CONCRETE FRAGMENTS FOUND AT SURFACE NEARBY
										END OF TEST PIT AT 0.7m				
							1							
							1.5							
							2							
							2.5							
							3							
							3.5							

JKEnvironments

ENVIRONMENTAL LOG

Environmental logs are not to be used for geotechnical purposes

Log No. TP214

1/1

Client: HEALTH INFRASTRUCTURE

Project: PROPOSED ALTERATIONS AND ADDITIONS

Location: 35 ALICE STREET, MOREE, NSW

Job No.: E35092UPD **Method:** TEST PIT **R.L. Surface:** N/A

Date: 17/8/23 **Datum:** -

Plant Type: 5T EXCAVATOR **Logged/Checked by:** C.S./M.D.

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 COMPLE-TION	■		■		■		0			FILL: Silty clay, medium plasticity, dark brown, with root fibres, trace of coarse grained igneous gravel.	w<PL			GRASS COVER
									CI-CH	Silty CLAY: medium to high plasticity, dark brown, trace of root fibres.	w<PL			SCREEN: 10.25kg 0-0.1m, NO FCF
	■		■				0.5			as above, but no root fibres.				ALLUVIAL
	■		■											
										END OF TEST PIT AT 0.8m				
							1							
							1.5							
							2							
							2.5							
							3							
							3.5							

JKEnvironments

ENVIRONMENTAL LOG

Environmental logs are not to be used for geotechnical purposes

Log No. **TP215** **1/1**

Client: HEALTH INFRASTRUCTURE

Project: PROPOSED ALTERATIONS AND ADDITIONS

Location: 35 ALICE STREET, MOREE, NSW

Job No.: E35092UPD **Method:** TEST PIT **R.L. Surface:** N/A

Date: 16/8/23 **Datum:** -

Plant Type: 5T EXCAVATOR **Logged/Checked by:** C.S./M.D.

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 COMPLE-TION	■		■		■		0			FILL: Silty clay, medium plasticity, dark brown and grey, trace of fine grained sand, fine grained igneous gravel, concrete, roots and root fibres.	w<PL			GRASS COVER
									CI	Silty CLAY: medium plasticity, dark grey, with roots and fine grained sand.	w<PL			SCREEN: 10.94kg 0-0.1m, NO FCF
	■		■				0.5			as above, but trace of roots.				ALLUVIAL
	■		■							END OF TEST PIT AT 0.8m				
							1							
							1.5							
							2							
							2.5							
							3							
							3.5							

JKEnvironments

ENVIRONMENTAL LOG

Environmental logs are not to be used for geotechnical purposes

Log No. **BH216** **1/1**

Client: HEALTH INFRASTRUCTURE

Project: PROPOSED ALTERATIONS AND ADDITIONS

Location: 35 ALICE STREET, MOREE, NSW

Job No.: E35092UPD **Method:** SPIRAL AUGER **R.L. Surface:** N/A

Date: 16/8/23 **Datum:** -

Plant Type: JK305 **Logged/Checked by:** A.D./M.D.

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 COMPLE-TION	■		■		■		0			ASPHALT: 50mm.t				
									-	FILL: Gravelly sand, fine to medium grained, orange brown, fine to coarse grained igneous gravel, trace of concrete and asphalt fragments, and quartz gravel.	M			SCREEN: 3.35kg 0.05-0.6m, NO FCF
							0.5							
	■		■			N = 16 5,8,8			CI-CH	Silty CLAY: medium to high plasticity, brown.	w<PL			ALLUVIAL
							1							
							1.5			END OF BOREHOLE AT 1.5m				
							2							
							2.5							
							3							
							3.5							

JKEnvironments

ENVIRONMENTAL LOG

Environmental logs are not to be used for geotechnical purposes

Log No. TP217

1/1

Client: HEALTH INFRASTRUCTURE

Project: PROPOSED ALTERATIONS AND ADDITIONS

Location: 35 ALICE STREET, MOREE, NSW

Job No.: E35092UPD **Method:** TEST PIT **R.L. Surface:** N/A

Date: 16/8/23 **Datum:** -

Plant Type: 5T EXCAVATOR **Logged/Checked by:** C.S./M.D.

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 COMPLE-TION	■		■		■		0			FILL: Silty clay, medium plasticity, dark grey, with root fibres.	w<PL			GRASS COVER
									CI-CH	Silty CLAY: medium to high plasticity, dark grey, trace of fine grained sand and root fibres.	w<PL			SCREEN: 10.88kg 0-0.1m, NO FCF
	■		■				0.5							ALLUVIAL
	■		■							END OF TEST PIT AT 0.65m				
							1							
							1.5							
							2							
							2.5							
							3							
							3.5							

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ENVIRONMENTAL LOG

Environmental logs are not to be used for geotechnical purposes

Log No. **TP218** **1/1**

Client: HEALTH INFRASTRUCTURE

Project: PROPOSED ALTERATIONS AND ADDITIONS

Location: 35 ALICE STREET, MOREE, NSW

Job No.: E35092UPD **Method:** TEST PIT **R.L. Surface:** N/A

Date: 16/8/23 **Datum:** -

Plant Type: 5T EXCAVATOR **Logged/Checked by:** C.S./M.D.

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 COMPLE-TION	■		■		■		0			FILL: Silty clay, medium plasticity, dark grey and brown, with fine to medium grained sand, fine grained rounded igneous gravel, roots and root fibres.	w<PL			GRASS COVER
									CI	Silty CLAY: medium plasticity, dark grey, with roots and root fibres.	w<PL			SCREEN: 10.72kg 0-0.15m, NO FCF
							0.5			as above, but without roots, trace of root fibres.				ALLUVIAL
										END OF TEST PIT AT 0.8m				
							1							
							1.5							
							2							
							2.5							
							3							
							3.5							

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ENVIRONMENTAL LOG

Environmental logs are not to be used for geotechnical purposes

Log No. **TP219** **1/1**

Client: HEALTH INFRASTRUCTURE

Project: PROPOSED ALTERATIONS AND ADDITIONS

Location: 35 ALICE STREET, MOREE, NSW

Job No.: E35092UPD **Method:** TEST PIT **R.L. Surface:** N/A

Date: 17/8/23 **Datum:** -

Plant Type: 5T EXCAVATOR **Logged/Checked by:** C.S./M.D.

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 COMPLE-TION	■		■		■		0			FILL: Silty clay, medium plasticity, dark brown mottled dark grey, trace of fine grained sand, fine to medium grained rounded igneous gravel, and root fibres.	w≈PL			GRASS COVER
									CH		w≈PL			SCREEN: 10.63kg 0-0.15m, NO FCF
	■		■				0.5			Silty CLAY: high plasticity, dark brown and dark grey, with roots.				ALLUVIAL
										END OF TEST PIT AT 0.65m				
							1							
							1.5							
							2							
							2.5							
							3							
							3.5							

JKEnvironments

ENVIRONMENTAL LOG

Environmental logs are not to be used for geotechnical purposes

Log No. TP220 **1/1**

SDUP207: 0-0.1

Client: HEALTH INFRASTRUCTURE

Project: PROPOSED ALTERATIONS AND ADDITIONS

Location: 35 ALICE STREET, MOREE, NSW

Job No.: E35092UPD **Method:** TEST PIT **R.L. Surface:** N/A

Date: 16/8/23 **Datum:** -

Plant Type: 5T EXCAVATOR **Logged/Checked by:** C.S./M.D.

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 COMPLE-TION	■		■		■		0			FILL: Silty clay, medium plasticity, dark brown and dark grey, with fine to medium grained sand, trace of fine to medium grained rounded igneous gravel, ash, concrete and root fibres.	w<PL			GRASS COVER SCREEN: 11.47kg 0-0.1m, NO FCF
									CH	Silty CLAY: high plasticity, dark grey, trace of fine grained sand, and roots.	w<PL			SCREEN: 11.16kg 0.1-0.3m, NO FCF ALLUVIAL
							0.5			as above, but without roots, trace of root fibres.				
										END OF TEST PIT AT 0.85m				
							1							
							1.5							
							2							
							2.5							
							3							
							3.5							

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ENVIRONMENTAL LOG

Environmental logs are not to be used for geotechnical purposes

Log No. **TP221** **1/1**

SDUP208: 0-0.1

Client: HEALTH INFRASTRUCTURE

Project: PROPOSED ALTERATIONS AND ADDITIONS

Location: 35 ALICE STREET, MOREE, NSW

Job No.: E35092UPD **Method:** TEST PIT **R.L. Surface:** N/A

Date: 16/8/23 **Datum:** -

Plant Type: 5T EXCAVATOR **Logged/Checked by:** C.S./M.D.

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 COMPLE-TION	■		■		■		0			FILL: Silty clay, medium plasticity, dark grey, with fine to medium grained sand, and root fibres, trace of fine grained rounded igneous gravel, glass and concrete fragments.	w<PL			GRASS COVER
									CI		w<PL			SCREEN: 10.9kg 0-0.1m, NO FCF
										Silty CLAY: medium plasticity, dark grey brown, with fine grained sand, trace of roots.				ALLUVIAL
	■		■				0.5			as above, but without roots, trace of root fibres.				
										END OF TEST PIT AT 0.6m				
							1							
							1.5							
							2							
							2.5							
							3							
							3.5							

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ENVIRONMENTAL LOG

Environmental logs are not to be used for geotechnical purposes

Log No. TP222

1/1

Client: HEALTH INFRASTRUCTURE

Project: PROPOSED ALTERATIONS AND ADDITIONS

Location: 35 ALICE STREET, MOREE, NSW

Job No.: E35092UPD **Method:** TEST PIT **R.L. Surface:** N/A

Date: 17/8/23 **Datum:** -

Plant Type: 5T EXCAVATOR **Logged/Checked by:** C.S./M.D.

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 COMPLE-TION	■		■		■		0			FILL: Silty clay, medium plasticity, dark brown, with roots and root fibres trace of ceramic fragments.	w<PL			GRASS COVER
									CI	Silty CLAY: medium plasticity, dark brown mottled dark grey, with roots.	w<PL			SCREEN: 10.13kg 0-0.1m, NO FCF ALLUVIAL
	■		■				0.5							
										END OF TEST PIT AT 0.6m				
							1							
							1.5							
							2							
							2.5							
							3							
							3.5							

JKEnvironments

ENVIRONMENTAL LOG

Environmental logs are not to be used for geotechnical purposes

Log No. **TP223** **1/1**

SDUP206: 0-0.1

Client: HEALTH INFRASTRUCTURE

Project: PROPOSED ALTERATIONS AND ADDITIONS

Location: 35 ALICE STREET, MOREE, NSW

Job No.: E35092UPD **Method:** TEST PIT **R.L. Surface:** N/A

Date: 16/8/23 **Datum:** -

Plant Type: 5T EXCAVATOR **Logged/Checked by:** C.S./M.D.

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 COMPLE-TION	■		■		■		0			FILL: Silty clay, medium to high plasticity, dark brown mottled dark grey, with fine grained sand, and root fibres, trace of fine to medium grained rounded igneous gravel, concrete and roots.	w<PL			GRASS COVER SCREEN: 10.93kg 0-0.1m, NO FCF
									CI	Silty CLAY: medium plasticity, dark grey and brown, trace of fine grained sand, fine grained rounded igneous gravel, and roots.	w<PL			SCREEN: 10.57kg 0.1-0.3m, NO FCF ALLUVIAL
	■		■				0.5			as above, but without tree roots, trace of root fibres.				
										END OF TEST PIT AT 0.8m				
							1							
							1.5							
							2							
							2.5							
							3							
							3.5							

JKEnvironments

ENVIRONMENTAL LOG

Environmental logs are not to be used for geotechnical purposes

Log No. **BH/MW224** **1/3**

SDUP202: 0-0.1

Client: HEALTH INFRASTRUCTURE

Project: PROPOSED ALTERATIONS AND ADDITIONS

Location: 35 ALICE STREET, MOREE, NSW

Job No.: E35092UPD **Method:** SPIRAL AUGER **R.L. Surface:** 208.68m

Date: 16/8/23 **Datum:** -

Plant Type: JK305 **Logged/Checked by:** A.D./M.D.

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 COMPLE-TION	■		■		■		0			FILL: Silty clay, medium to high plasticity, brown, trace of igneous gravel.	w<PL			GRASS COVER
									CI-CH	Silty CLAY: medium to high plasticity, brown, trace of quartz gravel.	w≈PL			SCREEN: 10.26kg 0-0.1m, NO FCF
														ALLUVIAL
	■		■			N = 20 9,10,10	0.5							
							1							
	■		■			N = 32 13,15,17	1.5							
							2							
							2.5							
							3							
	■		■			N = 16 6,8,8			SP	SAND: fine to medium grained, brown, trace of ironstone and quartz gravel and clay fines.	M			
							3.5							

JKEnvironments

ENVIRONMENTAL LOG

Environmental logs are not to be used for geotechnical purposes

Log No. **BH/MW224** **2/3**

SDUP202: 0-0.1

Client: HEALTH INFRASTRUCTURE

Project: PROPOSED ALTERATIONS AND ADDITIONS

Location: 35 ALICE STREET, MOREE, NSW

Job No.: E35092UPD **Method:** SPIRAL AUGER **R.L. Surface:** 208.68m

Date: 16/8/23 **Datum:** -

Plant Type: JK305 **Logged/Checked by:** A.D./M.D.

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
							4							
							4.5		CI-CH	Silty CLAY: medium to high plasticity, brown, trace of ironstone and quartz gravel.	w<PL			
						N = 13 4,7,6	5		SP	SAND: fine to medium grained, brown, trace of ironstone and quartz gravel and clay fines.	M			
							5.5							
							6							
							6.5		CI-CH	Silty CLAY: medium to high plasticity, brown and grey, trace of sandstone gravel.	w<PL			
							7							

JKEnvironments

ENVIRONMENTAL LOG

Environmental logs are not to be used for geotechnical purposes

Log No. **BH/MW224** **3/3**

SDUP202: 0-0.1

Client: HEALTH INFRASTRUCTURE

Project: PROPOSED ALTERATIONS AND ADDITIONS

Location: 35 ALICE STREET, MOREE, NSW

Job No.: E35092UPD **Method:** SPIRAL AUGER **R.L. Surface:** 208.68m

Date: 16/8/23 **Datum:** -

Plant Type: JK305 **Logged/Checked by:** A.D./M.D.

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
							7.5			Silty CLAY: medium to high plasticity, brown and grey, trace of sandstone gravel.	w<PL			
							8			END OF BOREHOLE AT 8.0m				GROUNDWATER MONITORING WELL INSTALLED TO 8.0m. CLASS 18 MACHINE SLOTTED 50mm DIA. PVC STANDPIPE 8.0m TO 2.0m. CASING 2.0m TO 0m. 2mm SAND FILTER PACK 8.0m TO 1.5m. BENTONITE SEAL 1.5m TO 0.6m. BACKFILLED WITH SAND TO THE SURFACE. COMPLETED WITH A CONCRETED GATIC COVER.
							8.5							
							9							
							9.5							
							10							

JKEnvironments

ENVIRONMENTAL LOG

Environmental logs are not to be used for geotechnical purposes

Log No. **TP225** **1/1**

Client: HEALTH INFRASTRUCTURE

Project: PROPOSED ALTERATIONS AND ADDITIONS

Location: 35 ALICE STREET, MOREE, NSW

Job No.: E35092UPD **Method:** TEST PIT **R.L. Surface:** N/A

Date: 17/8/23 **Datum:** -

Plant Type: 5T EXCAVATOR **Logged/Checked by:** A.D./M.D.

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 COMPLE-TION	■		■		■		0			FILL: Silty clay, medium to high plasticity, brown, trace of quartz and ironstone gravel, roots and root fibres.	w≈PL			GRASS COVER
									CI-CH	Silty CLAY: medium to high plasticity, brown, trace of roots.	w≈PL			SCREEN: 10.49kg 0-0.1m, NO FCF
	■		■				0.5							ALLUVIAL
										END OF TEST PIT AT 0.6m				
							1							
							1.5							
							2							
							2.5							
							3							
							3.5							

JKEnvironments

ENVIRONMENTAL LOG

Environmental logs are not to be used for geotechnical purposes

Log No. **TP226** **1/1**

SDUP205: 0-0.1

Client: HEALTH INFRASTRUCTURE

Project: PROPOSED ALTERATIONS AND ADDITIONS

Location: 35 ALICE STREET, MOREE, NSW

Job No.: E35092UPD **Method:** TEST PIT **R.L. Surface:** N/A

Date: 16/8/23 **Datum:** -

Plant Type: 5T EXCAVATOR **Logged/Checked by:** C.S./M.D.

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 COMPLE-TION	■		■		■		0			FILL: Silty clay, medium plasticity, dark grey, with fine grained sand, and root fibres, trace of rounded igneous gravel.	w<PL			GRASS COVER SCREEN: 10.60kg 0-0.1m, NO FCF
									CI	Silty CLAY: medium plasticity, brown, with fine grained sand, and roots.	w<PL			ALLUVIAL
	■		■				0.5							
	■		■				1			as above, but without roots, trace of root fibres.				
										END OF TEST PIT AT 1.0m				
							1.5							
							2							
							2.5							
							3							
							3.5							

JKEnvironments

ENVIRONMENTAL LOG

Environmental logs are not to be used for geotechnical purposes

Log No. TP227

1/1

Client: HEALTH INFRASTRUCTURE

Project: PROPOSED ALTERATIONS AND ADDITIONS

Location: 35 ALICE STREET, MOREE, NSW

Job No.: E35092UPD **Method:** TEST PIT **R.L. Surface:** N/A

Date: 16/8/23 **Datum:** -

Plant Type: 5T EXCAVATOR **Logged/Checked by:** C.S./M.D.

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 COMPLE-TION	■		■		■		0			FILL: Silty clay, medium plasticity, dark grey, with root fibres, trace of glass fragments.	w<PL			GRASS COVER
									CI-CH	Silty CLAY: medium to high plasticity, dark grey, trace of roots.	w<PL			SCREEN: 10.55kg 0-0.1m, NO FCF
							0.5			as above, but without roots, trace of root fibres.				ALLUVIAL
										END OF TEST PIT AT 0.75m				
							1							
							1.5							
							2							
							2.5							
							3							
							3.5							

ENVIRONMENTAL LOGS EXPLANATION NOTES

INTRODUCTION

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

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

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

DESCRIPTION AND CLASSIFICATION METHODS

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

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

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

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

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

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

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

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

INVESTIGATION METHODS

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

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

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

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

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

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

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

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

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

Standard Penetration Tests: Standard Penetration Tests (SPT) are used mainly in non-cohesive soils, but can also be used in cohesive soils, as a means of indicating density or strength and also of obtaining a relatively undisturbed sample. The test procedure is described in Australian Standard 1289.6.3.1–2004 (R2016) *'Methods of Testing Soils for Engineering Purposes, Soil Strength and Consolidation Tests – Determination of the Penetration Resistance of a Soil – Standard Penetration Test (SPT)'*.

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

The test results are reported in the following form:

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

  N = 13
  4, 6, 7

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

  N > 30
  15, 30/40mm

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

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

LOGS

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

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

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

GROUNDWATER

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

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

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

FILL

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

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

LABORATORY TESTING

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

SYMBOL LEGENDS

SOIL


FILL


TOPSOIL


CLAY (CL, CI, CH)


SILT (ML, MH)


SAND (SP, SW)


GRAVEL (GP, GW)


SANDY CLAY (CL, CI, CH)


SILTY CLAY (CL, CI, CH)


CLAYEY SAND (SC)


SILTY SAND (SM)


GRAVELLY CLAY (CL, CI, CH)


CLAYEY GRAVEL (GC)


SANDY SILT (ML, MH)


PEAT AND HIGHLY ORGANIC SOILS (Pt)

ROCK


CONGLOMERATE


SANDSTONE


SHALE/MUDSTONE


SILTSTONE


CLAYSTONE


COAL


LAMINITE


LIMESTONE


PHYLLITE, SCHIST


TUFF


GRANITE, GABBRO


DOLERITE, DIORITE


BASALT, ANDESITE


QUARTZITE

OTHER MATERIALS


BRICKS OR PAVERS


CONCRETE


ASPHALTIC CONCRETE

CLASSIFICATION OF COARSE AND FINE GRAINED SOILS

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

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:

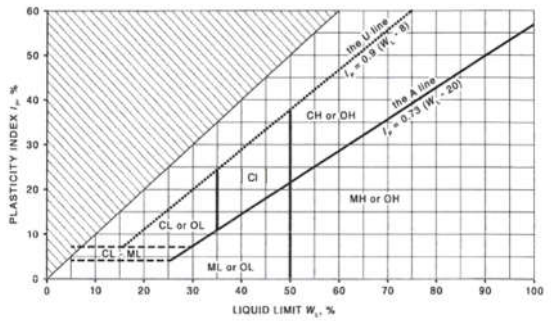
1 For a coarse grained soil with a fines content between 5% and 12%, the soil is given a dual classification comprising the two group symbols separated by a dash; for example, for a poorly graded gravel with between 5% and 12% silt fines, the classification is GP-GM.

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.

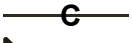
3 Clay soils with liquid limits > 35% and ≤ 50% may be classified as being of medium plasticity.

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.
		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.
Field Tests	N = 17 4, 7, 10	Standard Penetration Test (SPT) performed between depths indicated by lines. Individual figures show blows per 150mm penetration. 'Refusal' refers to apparent hammer refusal within the corresponding 150mm depth increment.
	N_c = 5 7 3R	Solid Cone Penetration Test (SCPT) performed between depths indicated by lines. Individual figures show blows per 150mm penetration for 60° solid cone driven by SPT hammer. 'R' refers to apparent hammer refusal within the corresponding 150mm depth increment.
	VNS = 25 PID = 100	Vane shear reading in kPa of undrained shear strength. Photoionisation detector reading in ppm (soil sample headspace test).
Moisture Condition (Fine Grained Soils)	$w > PL$ $w \approx PL$ $w < PL$ $w \approx LL$ $w > LL$	Moisture content estimated to be greater than plastic limit. Moisture content estimated to be approximately equal to plastic limit. Moisture content estimated to be less than plastic limit. Moisture content estimated to be near liquid limit. Moisture content estimated to be wet of liquid limit.
(Coarse Grained Soils)	D M W	DRY – runs freely through fingers. MOIST – does not run freely but no free water visible on soil surface. WET – free water visible on soil surface.
Strength (Consistency) Cohesive Soils	VS S F St VSt Hd Fr ( )	VERY SOFT – unconfined compressive strength ≤ 25kPa. SOFT – unconfined compressive strength > 25kPa and ≤ 50kPa. FIRM – unconfined compressive strength > 50kPa and ≤ 100kPa. STIFF – unconfined compressive strength > 100kPa and ≤ 200kPa. VERY STIFF – unconfined compressive strength > 200kPa and ≤ 400kPa. HARD – unconfined compressive strength > 400kPa. FRIABLE – strength not attainable, soil crumbles. Bracketed symbol indicates estimated consistency based on tactile examination or other assessment.
Density Index/ Relative Density (Cohesionless Soils)	VL L MD D VD ( )	**Density Index (I_D) Range (%)** / **SPT 'N' Value Range (Blows/300mm)** VERY LOOSE ≤ 15 / 0 – 4 LOOSE > 15 and ≤ 35 / 4 – 10 MEDIUM DENSE > 35 and ≤ 65 / 10 – 30 DENSE > 65 and ≤ 85 / 30 – 50 VERY DENSE > 85 / > 50 Bracketed symbol indicates estimated density based on ease of drilling or other assessment.
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.

Log Column	Symbol	Definition
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 Report(s) & COC Documents

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CERTIFICATE OF ANALYSIS 331035

Client Details

Client	JK Environments
Attention	Mitchell Delaney
Address	PO Box 976, North Ryde BC, NSW, 1670

Sample Details

Your Reference	**E35092UPD Moree**
Number of Samples	84 Soil, 3 Material, 1 Water
Date samples received	21/08/2023
Date completed instructions received	21/08/2023

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	28/08/2023
Date of Issue	28/08/2023

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Asbestos Approved By
Analysed by Asbestos Approved Analyst: Anthony Clark
Authorised by Asbestos Approved Signatory: Lucy Zhu

Results Approved By
Liam Timmins, Organics Supervisor
Loren Bardwell, Development Chemist
Lucy Zhu, Asbestos Supervisor

Authorised By
Nancy Zhang, Laboratory Manager

vTRH(C6-C10)/BTEXN in Soil						
Our Reference		331035-1	331035-2	331035-4	331035-5	331035-6
Your Reference	UNITS	BH201	BH201	BH201	BH202	BH202
Depth		0.19-0.4	0.6-1.0	3.1-3.45	0.1-0.25	0.5-0.95
Date Sampled		15/08/2023	15/08/2023	15/08/2023	15/08/2023	15/08/2023
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	22/08/2023	22/08/2023	22/08/2023	22/08/2023	22/08/2023
Date analysed	-	25/08/2023	25/08/2023	25/08/2023	25/08/2023	25/08/2023
TRH C_6 - C_9	mg/kg	<25	<25	<25	<25	<25
TRH C_6 - C_{10}	mg/kg	<25	<25	<25	<25	<25
vTPH 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	%	92	98	85	97	94

vTRH(C6-C10)/BTEXN in Soil						
Our Reference		331035-8	331035-9	331035-12	331035-14	331035-16
Your Reference	UNITS	BH202	BH203	BH204	BH205	TP206
Depth		3.0-3.45	0.15-0.25	0.2-0.3	0-0.1	0-0.1
Date Sampled		15/08/2023	16/08/2023	16/08/2023	15/08/2023	16/08/2023
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	22/08/2023	22/08/2023	22/08/2023	22/08/2023	22/08/2023
Date analysed	-	25/08/2023	25/08/2023	25/08/2023	28/08/2023	28/08/2023
TRH C_6 - C_9	mg/kg	<25	<25	<25	<25	<25
TRH C_6 - C_{10}	mg/kg	<25	<25	<25	<25	<25
vTPH 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	%	94	96	94	79	96

vTRH(C6-C10)/BTEXN in Soil						
Our Reference		331035-18	331035-21	331035-25	331035-26	331035-29
Your Reference	UNITS	TP207	TP208	BH209	BH209	BH209
Depth		0-0.1	0-0.1	0-0.1	0.5-0.95	4.8-4.95
Date Sampled		16/08/2023	17/08/2023	15/08/2023	15/08/2023	15/08/2023
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	22/08/2023	22/08/2023	22/08/2023	22/08/2023	22/08/2023
Date analysed	-	28/08/2023	28/08/2023	28/08/2023	28/08/2023	28/08/2023
TRH C_6 - C_9	mg/kg	<25	<25	<25	<25	<25
TRH C_6 - C_{10}	mg/kg	<25	<25	<25	<25	<25
vTPH 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	%	93	94	91	95	95

vTRH(C6-C10)/BTEXN in Soil						
Our Reference		331035-30	331035-32	331035-34	331035-35	331035-38
Your Reference	UNITS	BH210	BH211	BH212	TP213	TP214
Depth		0.05-0.2	0-0.1	0-0.1	0-0.1	0-0.1
Date Sampled		16/08/2023	16/08/2023	17/08/2023	17/08/2023	16/08/2023
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	22/08/2023	25/08/2023	22/08/2023	22/08/2023	22/08/2023
Date analysed	-	28/08/2023	28/08/2023	28/08/2023	28/08/2023	28/08/2023
TRH C_6 - C_9	mg/kg	<25	<25	<25	<25	<25
TRH C_6 - C_{10}	mg/kg	<25	<25	<25	<25	<25
vTPH 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	%	100	96	95	89	84

vTRH(C6-C10)/BTEXN in Soil						
Our Reference		331035-41	331035-44	331035-46	331035-49	331035-52
Your Reference	UNITS	TP215	BH216	TP217	TP218	TP219
Depth		0-0.1	0.05-0.2	0-0.1	0-0.1	0-0.1
Date Sampled		16/08/2023	16/08/2023	16/08/2023	16/08/2023	17/08/2023
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	22/08/2023	22/08/2023	22/08/2023	22/08/2023	22/08/2023
Date analysed	-	28/08/2023	28/08/2023	28/08/2023	28/08/2023	28/08/2023
TRH C_6 - C_9	mg/kg	<25	<25	<25	<25	<25
TRH C_6 - C_{10}	mg/kg	<25	<25	<25	<25	<25
vTPH 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	%	99	98	84	95	117

vTRH(C6-C10)/BTEXN in Soil						
Our Reference		331035-54	331035-58	331035-60	331035-62	331035-65
Your Reference	UNITS	TP220	TP221	TP222	TP223	BH224
Depth		0-0.1	0-0.1	0-0.1	0-0.1	0-0.1
Date Sampled		16/08/2023	16/08/2023	17/08/2023	16/08/2023	16/08/2023
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	22/08/2023	22/08/2023	22/08/2023	25/08/2023	22/08/2023
Date analysed	-	28/08/2023	28/08/2023	28/08/2023	28/08/2023	25/08/2023
TRH C_6 - C_9	mg/kg	<25	<25	<25	<25	<25
TRH C_6 - C_{10}	mg/kg	<25	<25	<25	<25	<25
vTPH 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	%	93	100	100	95	92

vTRH(C6-C10)/BTEXN in Soil						
Our Reference		331035-68	331035-69	331035-71	331035-74	331035-77
Your Reference	UNITS	BH224	TP225	TP226	TP227	SDUP201
Depth		3.2-3.45	0-0.1	0-0.1	0-0.1	-
Date Sampled		16/08/2023	17/08/2023	16/08/2023	16/08/2023	15/08/2023
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	22/08/2023	22/08/2023	22/08/2023	22/08/2023	22/08/2023
Date analysed	-	25/08/2023	25/08/2023	25/08/2023	25/08/2023	25/08/2023
TRH C_6 - C_9	mg/kg	<25	<25	<25	<25	<25
TRH C_6 - C_{10}	mg/kg	<25	<25	<25	<25	<25
vTPH 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	%	103	91	101	105	95

vTRH(C6-C10)/BTEXN in Soil					
Our Reference		331035-79	331035-81	331035-86	331035-87
Your Reference	UNITS	SDUP205	SDUP207	TB-S201	TS-S201
Depth		-	-	-	-
Date Sampled		16/08/2023	16/08/2023	16/08/2023	16/08/2023
Type of sample		Soil	Soil	Soil	Soil
Date extracted	-	22/08/2023	22/08/2023	22/08/2023	22/08/2023
Date analysed	-	25/08/2023	25/08/2023	25/08/2023	25/08/2023
TRH C_6 - C_9	mg/kg	<25	<25	<25	[NA]
TRH C_6 - C_{10}	mg/kg	<25	<25	<25	[NA]
vTPH C_6 - C_{10} less BTEX (F1)	mg/kg	<25	<25	<25	[NA]
Benzene	mg/kg	<0.2	<0.2	<0.2	91%
Toluene	mg/kg	<0.5	<0.5	<0.5	91%
Ethylbenzene	mg/kg	<1	<1	<1	91%
m+p-xylene	mg/kg	<2	<2	<2	91%
o-Xylene	mg/kg	<1	<1	<1	90%
Naphthalene	mg/kg	<1	<1	<1	[NA]
Total +ve Xylenes	mg/kg	<1	<1	<1	[NA]
Surrogate aaa-Trifluorotoluene	%	93	94	106	95

svTRH (C10-C40) in Soil						
Our Reference		331035-1	331035-2	331035-4	331035-5	331035-6
Your Reference	UNITS	BH201	BH201	BH201	BH202	BH202
Depth		0.19-0.4	0.6-1.0	3.1-3.45	0.1-0.25	0.5-0.95
Date Sampled		15/08/2023	15/08/2023	15/08/2023	15/08/2023	15/08/2023
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	22/08/2023	22/08/2023	22/08/2023	22/08/2023	22/08/2023
Date analysed	-	25/08/2023	25/08/2023	25/08/2023	25/08/2023	25/08/2023
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	%	74	77	76	73	75

svTRH (C10-C40) in Soil						
Our Reference		331035-8	331035-9	331035-12	331035-14	331035-16
Your Reference	UNITS	BH202	BH203	BH204	BH205	TP206
Depth		3.0-3.45	0.15-0.25	0.2-0.3	0-0.1	0-0.1
Date Sampled		15/08/2023	16/08/2023	16/08/2023	15/08/2023	16/08/2023
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	22/08/2023	22/08/2023	22/08/2023	22/08/2023	22/08/2023
Date analysed	-	25/08/2023	26/08/2023	26/08/2023	26/08/2023	26/08/2023
TRH C_{10} - C_{14}	mg/kg	<50	<50	<50	<50	<50
TRH C_{15} - C_{28}	mg/kg	<100	160	<100	<100	<100
TRH C_{29} - C_{36}	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (C10-C36)	mg/kg	<50	160	<50	<50	<50
TRH >C_{10} -C_{16}	mg/kg	<50	55	<50	<50	<50
TRH >C_{10} - C_{16} less Naphthalene (F2)	mg/kg	<50	55	<50	<50	<50
TRH >C_{16} -C_{34}	mg/kg	<100	200	<100	<100	<100
TRH >C_{34} -C_{40}	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	260	<50	<50	<50
Surrogate o-Terphenyl	%	77	85	77	77	80

svTRH (C10-C40) in Soil						
Our Reference		331035-18	331035-21	331035-25	331035-26	331035-29
Your Reference	UNITS	TP207	TP208	BH209	BH209	BH209
Depth		0-0.1	0-0.1	0-0.1	0.5-0.95	4.8-4.95
Date Sampled		16/08/2023	17/08/2023	15/08/2023	15/08/2023	15/08/2023
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	22/08/2023	22/08/2023	22/08/2023	22/08/2023	22/08/2023
Date analysed	-	26/08/2023	26/08/2023	26/08/2023	26/08/2023	26/08/2023
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	120	<100	<100	<100	<100
TRH >C_{34} -C_{40}	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	120	<50	<50	<50	<50
Surrogate o-Terphenyl	%	77	75	74	75	72

svTRH (C10-C40) in Soil						
Our Reference		331035-30	331035-32	331035-34	331035-35	331035-38
Your Reference	UNITS	BH210	BH211	BH212	TP213	TP214
Depth		0.05-0.2	0-0.1	0-0.1	0-0.1	0-0.1
Date Sampled		16/08/2023	16/08/2023	17/08/2023	17/08/2023	16/08/2023
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	22/08/2023	22/08/2023	22/08/2023	22/08/2023	22/08/2023
Date analysed	-	26/08/2023	26/08/2023	26/08/2023	26/08/2023	26/08/2023
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	%	73	77	74	75	75

svTRH (C10-C40) in Soil						
Our Reference		331035-41	331035-44	331035-46	331035-49	331035-52
Your Reference	UNITS	TP215	BH216	TP217	TP218	TP219
Depth		0-0.1	0.05-0.2	0-0.1	0-0.1	0-0.1
Date Sampled		16/08/2023	16/08/2023	16/08/2023	16/08/2023	17/08/2023
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	22/08/2023	22/08/2023	22/08/2023	22/08/2023	22/08/2023
Date analysed	-	26/08/2023	26/08/2023	26/08/2023	26/08/2023	26/08/2023
TRH C_{10} - C_{14}	mg/kg	<50	<50	<50	<50	<50
TRH C_{15} - C_{28}	mg/kg	<100	<100	<100	<100	<100
TRH C_{29} - C_{36}	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (C10-C36)	mg/kg	<50	<50	<50	<50	<50
TRH >C_{10} -C_{16}	mg/kg	<50	<50	<50	<50	<50
TRH >C_{10} - C_{16} less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH >C_{16} -C_{34}	mg/kg	<100	<100	<100	<100	<100
TRH >C_{34} -C_{40}	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	<50	<50	<50
Surrogate o-Terphenyl	%	76	73	79	80	82

svTRH (C10-C40) in Soil						
Our Reference		331035-54	331035-58	331035-60	331035-62	331035-65
Your Reference	UNITS	TP220	TP221	TP222	TP223	BH224
Depth		0-0.1	0-0.1	0-0.1	0-0.1	0-0.1
Date Sampled		16/08/2023	16/08/2023	17/08/2023	16/08/2023	16/08/2023
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	22/08/2023	22/08/2023	22/08/2023	22/08/2023	22/08/2023
Date analysed	-	26/08/2023	26/08/2023	26/08/2023	26/08/2023	26/08/2023
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	%	101	75	75	75	75

svTRH (C10-C40) in Soil						
Our Reference		331035-68	331035-69	331035-71	331035-74	331035-77
Your Reference	UNITS	BH224	TP225	TP226	TP227	SDUP201
Depth		3.2-3.45	0-0.1	0-0.1	0-0.1	-
Date Sampled		16/08/2023	17/08/2023	16/08/2023	16/08/2023	15/08/2023
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	22/08/2023	22/08/2023	22/08/2023	22/08/2023	22/08/2023
Date analysed	-	26/08/2023	26/08/2023	26/08/2023	26/08/2023	26/08/2023
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	%	73	75	73	77	77

svTRH (C10-C40) in Soil				
Our Reference		331035-79	331035-81	331035-86
Your Reference	UNITS	SDUP205	SDUP207	TB-S201
Depth		-	-	-
Date Sampled		16/08/2023	16/08/2023	16/08/2023
Type of sample		Soil	Soil	Soil
Date extracted	-	22/08/2023	22/08/2023	22/08/2023
Date analysed	-	26/08/2023	26/08/2023	26/08/2023
TRH C_{10} - C_{14}	mg/kg	<50	<50	<50
TRH C_{15} - C_{28}	mg/kg	<100	<100	<100
TRH C_{29} - C_{36}	mg/kg	<100	<100	<100
Total +ve TRH (C10-C36)	mg/kg	<50	<50	<50
TRH >C_{10} -C_{16}	mg/kg	<50	<50	<50
TRH >C_{10} - C_{16} less Naphthalene (F2)	mg/kg	<50	<50	<50
TRH >C_{16} -C_{34}	mg/kg	<100	<100	<100
TRH >C_{34} -C_{40}	mg/kg	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	<50
Surrogate o-Terphenyl	%	75	74	104

PAHs in Soil						
Our Reference		331035-1	331035-2	331035-4	331035-5	331035-6
Your Reference	UNITS	BH201	BH201	BH201	BH202	BH202
Depth		0.19-0.4	0.6-1.0	3.1-3.45	0.1-0.25	0.5-0.95
Date Sampled		15/08/2023	15/08/2023	15/08/2023	15/08/2023	15/08/2023
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	22/08/2023	22/08/2023	22/08/2023	22/08/2023	22/08/2023
Date analysed	-	25/08/2023	25/08/2023	25/08/2023	25/08/2023	25/08/2023
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PAH's	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Surrogate p-Terphenyl-d14	%	80	85	84	82	85

PAHs in Soil						
Our Reference		331035-8	331035-9	331035-12	331035-14	331035-16
Your Reference	UNITS	BH202	BH203	BH204	BH205	TP206
Depth		3.0-3.45	0.15-0.25	0.2-0.3	0-0.1	0-0.1
Date Sampled		15/08/2023	16/08/2023	16/08/2023	15/08/2023	16/08/2023
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	22/08/2023	22/08/2023	22/08/2023	22/08/2023	22/08/2023
Date analysed	-	25/08/2023	25/08/2023	25/08/2023	25/08/2023	25/08/2023
Naphthalene	mg/kg	<0.1	0.4	<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	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	0.2	<0.1	<0.1	<0.1
Pyrene	mg/kg	<0.1	0.2	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	0.2	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	0.2	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	0.07	<0.05	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PAH's	mg/kg	<0.05	2.0	<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	%	84	80	76	83	80

PAHs in Soil						
Our Reference		331035-18	331035-21	331035-25	331035-26	331035-29
Your Reference	UNITS	TP207	TP208	BH209	BH209	BH209
Depth		0-0.1	0-0.1	0-0.1	0.5-0.95	4.8-4.95
Date Sampled		16/08/2023	17/08/2023	15/08/2023	15/08/2023	15/08/2023
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	22/08/2023	22/08/2023	22/08/2023	22/08/2023	22/08/2023
Date analysed	-	25/08/2023	25/08/2023	25/08/2023	25/08/2023	25/08/2023
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PAH's	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Surrogate p-Terphenyl-d14	%	82	81	80	82	77

PAHs in Soil						
Our Reference		331035-30	331035-32	331035-34	331035-35	331035-38
Your Reference	UNITS	BH210	BH211	BH212	TP213	TP214
Depth		0.05-0.2	0-0.1	0-0.1	0-0.1	0-0.1
Date Sampled		16/08/2023	16/08/2023	17/08/2023	17/08/2023	16/08/2023
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	22/08/2023	22/08/2023	22/08/2023	22/08/2023	22/08/2023
Date analysed	-	25/08/2023	25/08/2023	25/08/2023	25/08/2023	25/08/2023
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	0.2	<0.1	<0.1	<0.1	<0.1
Total +ve PAH's	mg/kg	0.2	<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	%	80	82	83	81	85

PAHs in Soil						
Our Reference		331035-41	331035-44	331035-46	331035-49	331035-52
Your Reference	UNITS	TP215	BH216	TP217	TP218	TP219
Depth		0-0.1	0.05-0.2	0-0.1	0-0.1	0-0.1
Date Sampled		16/08/2023	16/08/2023	16/08/2023	16/08/2023	17/08/2023
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	22/08/2023	22/08/2023	22/08/2023	22/08/2023	22/08/2023
Date analysed	-	25/08/2023	25/08/2023	25/08/2023	25/08/2023	25/08/2023
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	0.4	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	0.1	<0.1
Fluoranthene	mg/kg	0.4	<0.1	<0.1	0.8	<0.1
Pyrene	mg/kg	0.4	<0.1	<0.1	0.8	<0.1
Benzo(a)anthracene	mg/kg	0.1	<0.1	<0.1	0.2	<0.1
Chrysene	mg/kg	0.1	<0.1	<0.1	0.2	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	0.2	<0.2	<0.2	0.4	<0.2
Benzo(a)pyrene	mg/kg	0.2	<0.05	<0.05	0.3	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	<0.1	<0.1	0.2	<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	0.3	<0.1
Total +ve PAH's	mg/kg	1.8	<0.05	<0.05	3.8	<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	%	86	83	84	85	84

PAHs in Soil						
Our Reference		331035-54	331035-58	331035-60	331035-62	331035-65
Your Reference	UNITS	TP220	TP221	TP222	TP223	BH224
Depth		0-0.1	0-0.1	0-0.1	0-0.1	0-0.1
Date Sampled		16/08/2023	16/08/2023	17/08/2023	16/08/2023	16/08/2023
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	22/08/2023	22/08/2023	22/08/2023	22/08/2023	22/08/2023
Date analysed	-	25/08/2023	25/08/2023	25/08/2023	25/08/2023	25/08/2023
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	0.4
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	1.6	<0.1	<0.1	1.2
Pyrene	mg/kg	<0.1	1.6	<0.1	<0.1	1.2
Benzo(a)anthracene	mg/kg	<0.1	0.5	<0.1	<0.1	0.3
Chrysene	mg/kg	<0.1	0.6	<0.1	<0.1	0.4
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	1	<0.2	<0.2	0.8
Benzo(a)pyrene	mg/kg	<0.05	0.83	<0.05	<0.05	0.59
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	0.4	<0.1	<0.1	0.3
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	0.8	<0.1	<0.1	0.7
Total +ve PAH's	mg/kg	<0.05	8.1	<0.05	<0.05	5.8
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	1.1	<0.5	<0.5	0.7
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	1.1	<0.5	<0.5	0.8
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	1.2	<0.5	<0.5	0.8
Surrogate p-Terphenyl-d14	%	81	84	82	83	84

PAHs in Soil						
Our Reference		331035-68	331035-69	331035-71	331035-74	331035-77
Your Reference	UNITS	BH224	TP225	TP226	TP227	SDUP201
Depth		3.2-3.45	0-0.1	0-0.1	0-0.1	-
Date Sampled		16/08/2023	17/08/2023	16/08/2023	16/08/2023	15/08/2023
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	22/08/2023	22/08/2023	22/08/2023	22/08/2023	22/08/2023
Date analysed	-	25/08/2023	25/08/2023	25/08/2023	25/08/2023	25/08/2023
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	<0.1	<0.1	0.9	<0.1	<0.1
Pyrene	mg/kg	<0.1	<0.1	0.9	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	0.3	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	0.3	<0.1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2	0.6	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05	0.4	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	0.2	<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	0.5	<0.1	<0.1
Total +ve PAH's	mg/kg	<0.05	<0.05	4.6	<0.05	<0.05
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	0.6	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	0.6	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	0.7	<0.5	<0.5
Surrogate p-Terphenyl-d14	%	81	85	75	80	74

PAHs in Soil				
Our Reference		331035-79	331035-81	331035-86
Your Reference	UNITS	SDUP205	SDUP207	TB-S201
Depth		-	-	-
Date Sampled		16/08/2023	16/08/2023	16/08/2023
Type of sample		Soil	Soil	Soil
Date extracted	-	22/08/2023	22/08/2023	22/08/2023
Date analysed	-	25/08/2023	25/08/2023	25/08/2023
Naphthalene	mg/kg	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	0.3	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	0.9	<0.1	<0.1
Pyrene	mg/kg	0.9	<0.1	<0.1
Benzo(a)anthracene	mg/kg	0.2	<0.1	<0.1
Chrysene	mg/kg	0.3	<0.1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	0.6	<0.2	<0.2
Benzo(a)pyrene	mg/kg	0.4	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	0.2	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	0.5	<0.1	<0.1
Total +ve PAH's	mg/kg	4.4	<0.05	<0.05
Benzo(a)pyrene TEQ calc (zero)	mg/kg	0.6	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	0.6	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	0.7	<0.5	<0.5
Surrogate p-Terphenyl-d14	%	80	79	80

Organochlorine Pesticides in soil						
Our Reference		331035-1	331035-5	331035-9	331035-12	331035-14
Your Reference	UNITS	BH201	BH202	BH203	BH204	BH205
Depth		0.19-0.4	0.1-0.25	0.15-0.25	0.2-0.3	0-0.1
Date Sampled		15/08/2023	15/08/2023	16/08/2023	16/08/2023	15/08/2023
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	22/08/2023	22/08/2023	22/08/2023	22/08/2023	22/08/2023
Date analysed	-	25/08/2023	25/08/2023	25/08/2023	25/08/2023	25/08/2023
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
HCB	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Mirex	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve DDT+DDD+DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	106	103	101	112	111

Organochlorine Pesticides in soil						
Our Reference		331035-16	331035-18	331035-21	331035-25	331035-30
Your Reference	UNITS	TP206	TP207	TP208	BH209	BH210
Depth		0-0.1	0-0.1	0-0.1	0-0.1	0.05-0.2
Date Sampled		16/08/2023	16/08/2023	17/08/2023	15/08/2023	16/08/2023
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	22/08/2023	22/08/2023	22/08/2023	22/08/2023	22/08/2023
Date analysed	-	25/08/2023	25/08/2023	25/08/2023	25/08/2023	25/08/2023
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	82	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Mirex	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve DDT+DDD+DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	109	114	112	104	104

Organochlorine Pesticides in soil						
Our Reference		331035-32	331035-34	331035-35	331035-38	331035-41
Your Reference	UNITS	BH211	BH212	TP213	TP214	TP215
Depth		0-0.1	0-0.1	0-0.1	0-0.1	0-0.1
Date Sampled		16/08/2023	17/08/2023	17/08/2023	16/08/2023	16/08/2023
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	22/08/2023	22/08/2023	22/08/2023	22/08/2023	22/08/2023
Date analysed	-	25/08/2023	25/08/2023	25/08/2023	25/08/2023	25/08/2023
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
HCB	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Mirex	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve DDT+DDD+DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	104	110	104	110	112

Organochlorine Pesticides in soil						
Our Reference		331035-44	331035-46	331035-49	331035-52	331035-54
Your Reference	UNITS	BH216	TP217	TP218	TP219	TP220
Depth		0.05-0.2	0-0.1	0-0.1	0-0.1	0-0.1
Date Sampled		16/08/2023	16/08/2023	16/08/2023	17/08/2023	16/08/2023
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	22/08/2023	22/08/2023	22/08/2023	22/08/2023	22/08/2023
Date analysed	-	25/08/2023	25/08/2023	25/08/2023	25/08/2023	25/08/2023
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
HCB	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Mirex	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve DDT+DDD+DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	108	108	109	103	107

Organochlorine Pesticides in soil						
Our Reference		331035-58	331035-60	331035-62	331035-65	331035-69
Your Reference	UNITS	TP221	TP222	TP223	BH224	TP225
Depth		0-0.1	0-0.1	0-0.1	0-0.1	0-0.1
Date Sampled		16/08/2023	17/08/2023	16/08/2023	16/08/2023	17/08/2023
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	22/08/2023	22/08/2023	22/08/2023	22/08/2023	22/08/2023
Date analysed	-	25/08/2023	25/08/2023	25/08/2023	25/08/2023	25/08/2023
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
HCB	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Mirex	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve DDT+DDD+DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	103	109	108	102	101

Organochlorine Pesticides in soil						
Our Reference		331035-71	331035-74	331035-77	331035-79	331035-81
Your Reference	UNITS	TP226	TP227	SDUP201	SDUP205	SDUP207
Depth		0-0.1	0-0.1	-	-	-
Date Sampled		16/08/2023	16/08/2023	15/08/2023	16/08/2023	16/08/2023
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	22/08/2023	22/08/2023	22/08/2023	22/08/2023	22/08/2023
Date analysed	-	25/08/2023	25/08/2023	25/08/2023	25/08/2023	25/08/2023
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
HCB	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Mirex	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve DDT+DDD+DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	109	106	100	100	101

Organophosphorus Pesticides in Soil						
Our Reference		331035-1	331035-5	331035-9	331035-12	331035-14
Your Reference	UNITS	BH201	BH202	BH203	BH204	BH205
Depth		0.19-0.4	0.1-0.25	0.15-0.25	0.2-0.3	0-0.1
Date Sampled		15/08/2023	15/08/2023	16/08/2023	16/08/2023	15/08/2023
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	22/08/2023	22/08/2023	22/08/2023	22/08/2023	22/08/2023
Date analysed	-	25/08/2023	25/08/2023	25/08/2023	25/08/2023	25/08/2023
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 TCMX	%	106	103	101	112	111

Organophosphorus Pesticides in Soil						
Our Reference		331035-16	331035-18	331035-21	331035-25	331035-30
Your Reference	UNITS	TP206	TP207	TP208	BH209	BH210
Depth		0-0.1	0-0.1	0-0.1	0-0.1	0.05-0.2
Date Sampled		16/08/2023	16/08/2023	17/08/2023	15/08/2023	16/08/2023
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	22/08/2023	22/08/2023	22/08/2023	22/08/2023	22/08/2023
Date analysed	-	25/08/2023	25/08/2023	25/08/2023	25/08/2023	25/08/2023
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 TCMX	%	109	114	112	104	104

Organophosphorus Pesticides in Soil						
Our Reference		331035-32	331035-34	331035-35	331035-38	331035-41
Your Reference	UNITS	BH211	BH212	TP213	TP214	TP215
Depth		0-0.1	0-0.1	0-0.1	0-0.1	0-0.1
Date Sampled		16/08/2023	17/08/2023	17/08/2023	16/08/2023	16/08/2023
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	22/08/2023	22/08/2023	22/08/2023	22/08/2023	22/08/2023
Date analysed	-	25/08/2023	25/08/2023	25/08/2023	25/08/2023	25/08/2023
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 TCMX	%	104	110	104	110	112

Organophosphorus Pesticides in Soil						
Our Reference		331035-44	331035-46	331035-49	331035-52	331035-54
Your Reference	UNITS	BH216	TP217	TP218	TP219	TP220
Depth		0.05-0.2	0-0.1	0-0.1	0-0.1	0-0.1
Date Sampled		16/08/2023	16/08/2023	16/08/2023	17/08/2023	16/08/2023
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	22/08/2023	22/08/2023	22/08/2023	22/08/2023	22/08/2023
Date analysed	-	25/08/2023	25/08/2023	25/08/2023	25/08/2023	25/08/2023
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 TCMX	%	108	108	109	103	107

Organophosphorus Pesticides in Soil						
Our Reference		331035-58	331035-60	331035-62	331035-65	331035-69
Your Reference	UNITS	TP221	TP222	TP223	BH224	TP225
Depth		0-0.1	0-0.1	0-0.1	0-0.1	0-0.1
Date Sampled		16/08/2023	17/08/2023	16/08/2023	16/08/2023	17/08/2023
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	22/08/2023	22/08/2023	22/08/2023	22/08/2023	22/08/2023
Date analysed	-	25/08/2023	25/08/2023	25/08/2023	25/08/2023	25/08/2023
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 TCMX	%	103	109	108	102	101

Organophosphorus Pesticides in Soil						
Our Reference		331035-71	331035-74	331035-77	331035-79	331035-81
Your Reference	UNITS	TP226	TP227	SDUP201	SDUP205	SDUP207
Depth		0-0.1	0-0.1	-	-	-
Date Sampled		16/08/2023	16/08/2023	15/08/2023	16/08/2023	16/08/2023
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	22/08/2023	22/08/2023	22/08/2023	22/08/2023	22/08/2023
Date analysed	-	25/08/2023	25/08/2023	25/08/2023	25/08/2023	25/08/2023
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 TCMX	%	109	106	100	100	101

PCBs in Soil						
Our Reference		331035-1	331035-5	331035-9	331035-12	331035-14
Your Reference	UNITS	BH201	BH202	BH203	BH204	BH205
Depth		0.19-0.4	0.1-0.25	0.15-0.25	0.2-0.3	0-0.1
Date Sampled		15/08/2023	15/08/2023	16/08/2023	16/08/2023	15/08/2023
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	22/08/2023	22/08/2023	22/08/2023	22/08/2023	22/08/2023
Date analysed	-	25/08/2023	25/08/2023	25/08/2023	25/08/2023	25/08/2023
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 TCMX	%	106	103	101	112	111

PCBs in Soil						
Our Reference		331035-16	331035-18	331035-21	331035-25	331035-30
Your Reference	UNITS	TP206	TP207	TP208	BH209	BH210
Depth		0-0.1	0-0.1	0-0.1	0-0.1	0.05-0.2
Date Sampled		16/08/2023	16/08/2023	17/08/2023	15/08/2023	16/08/2023
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	22/08/2023	22/08/2023	22/08/2023	22/08/2023	22/08/2023
Date analysed	-	25/08/2023	25/08/2023	25/08/2023	25/08/2023	25/08/2023
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 TCMX	%	109	114	112	104	104

PCBs in Soil						
Our Reference		331035-32	331035-34	331035-35	331035-38	331035-41
Your Reference	UNITS	BH211	BH212	TP213	TP214	TP215
Depth		0-0.1	0-0.1	0-0.1	0-0.1	0-0.1
Date Sampled		16/08/2023	17/08/2023	17/08/2023	16/08/2023	16/08/2023
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	22/08/2023	22/08/2023	22/08/2023	22/08/2023	22/08/2023
Date analysed	-	25/08/2023	25/08/2023	25/08/2023	25/08/2023	25/08/2023
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 TCMX	%	104	110	104	110	112

PCBs in Soil						
Our Reference		331035-44	331035-46	331035-49	331035-52	331035-54
Your Reference	UNITS	BH216	TP217	TP218	TP219	TP220
Depth		0.05-0.2	0-0.1	0-0.1	0-0.1	0-0.1
Date Sampled		16/08/2023	16/08/2023	16/08/2023	17/08/2023	16/08/2023
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	22/08/2023	22/08/2023	22/08/2023	22/08/2023	22/08/2023
Date analysed	-	25/08/2023	25/08/2023	25/08/2023	25/08/2023	25/08/2023
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 TCMX	%	108	108	109	103	107

PCBs in Soil						
Our Reference		331035-58	331035-60	331035-62	331035-65	331035-69
Your Reference	UNITS	TP221	TP222	TP223	BH224	TP225
Depth		0-0.1	0-0.1	0-0.1	0-0.1	0-0.1
Date Sampled		16/08/2023	17/08/2023	16/08/2023	16/08/2023	17/08/2023
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	22/08/2023	22/08/2023	22/08/2023	22/08/2023	22/08/2023
Date analysed	-	25/08/2023	25/08/2023	25/08/2023	25/08/2023	25/08/2023
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 TCMX	%	103	109	108	102	101

PCBs in Soil						
Our Reference		331035-71	331035-74	331035-77	331035-79	331035-81
Your Reference	UNITS	TP226	TP227	SDUP201	SDUP205	SDUP207
Depth		0-0.1	0-0.1	-	-	-
Date Sampled		16/08/2023	16/08/2023	15/08/2023	16/08/2023	16/08/2023
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	22/08/2023	22/08/2023	22/08/2023	22/08/2023	22/08/2023
Date analysed	-	25/08/2023	25/08/2023	25/08/2023	25/08/2023	25/08/2023
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 TCMX	%	109	106	100	100	101

Acid Extractable metals in soil						
Our Reference		331035-1	331035-2	331035-4	331035-5	331035-6
Your Reference	UNITS	BH201	BH201	BH201	BH202	BH202
Depth		0.19-0.4	0.6-1.0	3.1-3.45	0.1-0.25	0.5-0.95
Date Sampled		15/08/2023	15/08/2023	15/08/2023	15/08/2023	15/08/2023
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	22/08/2023	22/08/2023	22/08/2023	22/08/2023	22/08/2023
Date analysed	-	23/08/2023	23/08/2023	23/08/2023	23/08/2023	23/08/2023
Arsenic	mg/kg	4	4	<4	5	4
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	24	36	34	18	41
Copper	mg/kg	22	24	31	29	31
Lead	mg/kg	23	10	11	800	11
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	29	33	34	22	37
Zinc	mg/kg	62	46	62	510	57

Acid Extractable metals in soil						
Our Reference		331035-8	331035-9	331035-12	331035-14	331035-16
Your Reference	UNITS	BH202	BH203	BH204	BH205	TP206
Depth		3.0-3.45	0.15-0.25	0.2-0.3	0-0.1	0-0.1
Date Sampled		15/08/2023	16/08/2023	16/08/2023	15/08/2023	16/08/2023
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	22/08/2023	22/08/2023	22/08/2023	22/08/2023	22/08/2023
Date analysed	-	23/08/2023	23/08/2023	23/08/2023	23/08/2023	23/08/2023
Arsenic	mg/kg	<4	5	5	5	<4
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	39	22	24	23	21
Copper	mg/kg	31	22	66	31	29
Lead	mg/kg	11	37	19	54	52
Mercury	mg/kg	<0.1	0.2	<0.1	0.4	<0.1
Nickel	mg/kg	41	22	21	24	20
Zinc	mg/kg	51	69	82	210	120

Acid Extractable metals in soil						
Our Reference		331035-18	331035-21	331035-25	331035-26	331035-29
Your Reference	UNITS	TP207	TP208	BH209	BH209	BH209
Depth		0-0.1	0-0.1	0-0.1	0.5-0.95	4.8-4.95
Date Sampled		16/08/2023	17/08/2023	15/08/2023	15/08/2023	15/08/2023
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	22/08/2023	22/08/2023	22/08/2023	22/08/2023	22/08/2023
Date analysed	-	23/08/2023	23/08/2023	23/08/2023	23/08/2023	23/08/2023
Arsenic	mg/kg	4	<4	4	<4	<4
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	26	23	32	32	10
Copper	mg/kg	24	21	26	28	6
Lead	mg/kg	63	15	50	10	4
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	22	21	29	30	9
Zinc	mg/kg	200	67	81	49	15

Acid Extractable metals in soil						
Our Reference		331035-30	331035-32	331035-34	331035-35	331035-38
Your Reference	UNITS	BH210	BH211	BH212	TP213	TP214
Depth		0.05-0.2	0-0.1	0-0.1	0-0.1	0-0.1
Date Sampled		16/08/2023	16/08/2023	17/08/2023	17/08/2023	16/08/2023
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	22/08/2023	22/08/2023	22/08/2023	22/08/2023	22/08/2023
Date analysed	-	23/08/2023	23/08/2023	23/08/2023	23/08/2023	23/08/2023
Arsenic	mg/kg	<4	<4	5	6	4
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	11	12	22	24	29
Copper	mg/kg	9	10	21	25	23
Lead	mg/kg	8	8	20	9	11
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	11	13	24	29	26
Zinc	mg/kg	22	34	55	54	58

Acid Extractable metals in soil						
Our Reference		331035-41	331035-44	331035-46	331035-49	331035-52
Your Reference	UNITS	TP215	BH216	TP217	TP218	TP219
Depth		0-0.1	0.05-0.2	0-0.1	0-0.1	0-0.1
Date Sampled		16/08/2023	16/08/2023	16/08/2023	16/08/2023	17/08/2023
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	22/08/2023	22/08/2023	22/08/2023	22/08/2023	22/08/2023
Date analysed	-	23/08/2023	23/08/2023	23/08/2023	23/08/2023	23/08/2023
Arsenic	mg/kg	4	4	4	<4	<4
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	28	12	28	20	27
Copper	mg/kg	22	8	21	16	21
Lead	mg/kg	15	4	14	13	14
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	26	10	26	20	26
Zinc	mg/kg	54	19	60	36	48

Acid Extractable metals in soil						
Our Reference		331035-54	331035-58	331035-60	331035-62	331035-65
Your Reference	UNITS	TP220	TP221	TP222	TP223	BH224
Depth		0-0.1	0-0.1	0-0.1	0-0.1	0-0.1
Date Sampled		16/08/2023	16/08/2023	17/08/2023	16/08/2023	16/08/2023
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	22/08/2023	22/08/2023	22/08/2023	22/08/2023	22/08/2023
Date analysed	-	23/08/2023	23/08/2023	23/08/2023	23/08/2023	23/08/2023
Arsenic	mg/kg	<4	<4	<4	<4	<4
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	20	22	26	24	24
Copper	mg/kg	15	20	19	18	22
Lead	mg/kg	10	16	12	15	17
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	19	23	25	23	23
Zinc	mg/kg	41	49	53	54	61

Acid Extractable metals in soil						
Our Reference		331035-68	331035-69	331035-71	331035-74	331035-77
Your Reference	UNITS	BH224	TP225	TP226	TP227	SDUP201
Depth		3.2-3.45	0-0.1	0-0.1	0-0.1	-
Date Sampled		16/08/2023	17/08/2023	16/08/2023	16/08/2023	15/08/2023
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	22/08/2023	22/08/2023	22/08/2023	22/08/2023	22/08/2023
Date analysed	-	23/08/2023	23/08/2023	23/08/2023	23/08/2023	23/08/2023
Arsenic	mg/kg	<4	4	<4	<4	5
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	13	25	29	32	22
Copper	mg/kg	8	20	23	29	30
Lead	mg/kg	5	15	27	11	55
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	0.5
Nickel	mg/kg	13	24	28	32	24
Zinc	mg/kg	19	59	53	49	190

Acid Extractable metals in soil				
Our Reference		331035-79	331035-81	331035-86
Your Reference	UNITS	SDUP205	SDUP207	TB-S201
Depth		-	-	-
Date Sampled		16/08/2023	16/08/2023	16/08/2023
Type of sample		Soil	Soil	Soil
Date prepared	-	22/08/2023	22/08/2023	22/08/2023
Date analysed	-	23/08/2023	23/08/2023	23/08/2023
Arsenic	mg/kg	4	<4	<4
Cadmium	mg/kg	<0.4	<0.4	<0.4
Chromium	mg/kg	26	20	3
Copper	mg/kg	22	16	<1
Lead	mg/kg	18	9	2
Mercury	mg/kg	<0.1	<0.1	<0.1
Nickel	mg/kg	27	19	<1
Zinc	mg/kg	55	42	2

Moisture						
Our Reference		331035-1	331035-2	331035-4	331035-5	331035-6
Your Reference	UNITS	BH201	BH201	BH201	BH202	BH202
Depth		0.19-0.4	0.6-1.0	3.1-3.45	0.1-0.25	0.5-0.95
Date Sampled		15/08/2023	15/08/2023	15/08/2023	15/08/2023	15/08/2023
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	22/08/2023	22/08/2023	22/08/2023	22/08/2023	22/08/2023
Date analysed	-	23/08/2023	23/08/2023	23/08/2023	23/08/2023	23/08/2023
Moisture	%	18	21	22	16	25

Moisture						
Our Reference		331035-8	331035-9	331035-12	331035-14	331035-16
Your Reference	UNITS	BH202	BH203	BH204	BH205	TP206
Depth		3.0-3.45	0.15-0.25	0.2-0.3	0-0.1	0-0.1
Date Sampled		15/08/2023	16/08/2023	16/08/2023	15/08/2023	16/08/2023
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	22/08/2023	22/08/2023	22/08/2023	22/08/2023	22/08/2023
Date analysed	-	23/08/2023	23/08/2023	23/08/2023	23/08/2023	23/08/2023
Moisture	%	26	21	20	29	23

Moisture						
Our Reference		331035-18	331035-21	331035-25	331035-26	331035-29
Your Reference	UNITS	TP207	TP208	BH209	BH209	BH209
Depth		0-0.1	0-0.1	0-0.1	0.5-0.95	4.8-4.95
Date Sampled		16/08/2023	17/08/2023	15/08/2023	15/08/2023	15/08/2023
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	22/08/2023	22/08/2023	22/08/2023	22/08/2023	22/08/2023
Date analysed	-	23/08/2023	23/08/2023	23/08/2023	23/08/2023	23/08/2023
Moisture	%	24	11	23	20	7.8

Moisture						
Our Reference		331035-30	331035-32	331035-34	331035-35	331035-38
Your Reference	UNITS	BH210	BH211	BH212	TP213	TP214
Depth		0.05-0.2	0-0.1	0-0.1	0-0.1	0-0.1
Date Sampled		16/08/2023	16/08/2023	17/08/2023	17/08/2023	16/08/2023
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	22/08/2023	22/08/2023	22/08/2023	22/08/2023	22/08/2023
Date analysed	-	23/08/2023	23/08/2023	23/08/2023	23/08/2023	23/08/2023
Moisture	%	4.9	11	11	13	23

Moisture						
Our Reference		331035-41	331035-44	331035-46	331035-49	331035-52
Your Reference	UNITS	TP215	BH216	TP217	TP218	TP219
Depth		0-0.1	0.05-0.2	0-0.1	0-0.1	0-0.1
Date Sampled		16/08/2023	16/08/2023	16/08/2023	16/08/2023	17/08/2023
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	22/08/2023	22/08/2023	22/08/2023	22/08/2023	22/08/2023
Date analysed	-	23/08/2023	23/08/2023	23/08/2023	23/08/2023	23/08/2023
Moisture	%	17	7.1	33	12	18

Moisture						
Our Reference		331035-54	331035-58	331035-60	331035-62	331035-65
Your Reference	UNITS	TP220	TP221	TP222	TP223	BH224
Depth		0-0.1	0-0.1	0-0.1	0-0.1	0-0.1
Date Sampled		16/08/2023	16/08/2023	17/08/2023	16/08/2023	16/08/2023
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	22/08/2023	22/08/2023	22/08/2023	22/08/2023	22/08/2023
Date analysed	-	23/08/2023	23/08/2023	23/08/2023	23/08/2023	23/08/2023
Moisture	%	16	13	16	17	13

Moisture						
Our Reference		331035-68	331035-69	331035-71	331035-74	331035-77
Your Reference	UNITS	BH224	TP225	TP226	TP227	SDUP201
Depth		3.2-3.45	0-0.1	0-0.1	0-0.1	-
Date Sampled		16/08/2023	17/08/2023	16/08/2023	16/08/2023	15/08/2023
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	22/08/2023	22/08/2023	22/08/2023	22/08/2023	22/08/2023
Date analysed	-	23/08/2023	23/08/2023	23/08/2023	23/08/2023	23/08/2023
Moisture	%	6.0	22	19	11	27

Moisture				
Our Reference		331035-79	331035-81	331035-86
Your Reference	UNITS	SDUP205	SDUP207	TB-S201
Depth		-	-	-
Date Sampled		16/08/2023	16/08/2023	16/08/2023
Type of sample		Soil	Soil	Soil
Date prepared	-	22/08/2023	22/08/2023	22/08/2023
Date analysed	-	23/08/2023	23/08/2023	23/08/2023
Moisture	%	15	15	2.1

Asbestos ID - soils NEPM - ASB-001					
Our Reference		331035-14	331035-21	331035-25	331035-74
Your Reference	UNITS	BH205	TP208	BH209	TP227
Depth		0-0.1	0-0.1	0-0.1	0-0.1
Date Sampled		15/08/2023	17/08/2023	15/08/2023	16/08/2023
Type of sample		Soil	Soil	Soil	Soil
Date analysed	-	25/08/2023	25/08/2023	25/08/2023	25/08/2023
Sample mass tested	g	508.04	474.62	511.88	477.87
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 ID - materials				
Our Reference		331035-83	331035-84	331035-85
Your Reference	UNITS	FCF201	FCF202	TP208-FCF1
Depth		-	-	0-0.1
Date Sampled		15/08/2023	15/08/2023	17/08/2023
Type of sample		Material	Material	Material
Date analysed	-	23/08/2023	23/08/2023	23/08/2023
Mass / Dimension of Sample	-	11.47g	10.27g	9.33g
Sample Description	-	Grey fibre cement material	Grey fibre cement material	Grey fibre cement material
Asbestos ID in materials	-	Chrysotile asbestos detected	Chrysotile asbestos detected Amosite asbestos detected	Chrysotile asbestos detected Amosite asbestos detected
Trace Analysis	-	[NT]	[NT]	[NT]

Metals in Waters - Acid extractable		
Our Reference		331035-88
Your Reference	UNITS	FR-201
Depth		-
Date Sampled		16/08/2023
Type of sample		Water
Date prepared	-	24/08/2023
Date analysed	-	24/08/2023
Arsenic - Total	mg/L	<0.05
Cadmium - Total	mg/L	<0.01
Chromium - Total	mg/L	<0.01
Copper - Total	mg/L	0.2
Lead - Total	mg/L	<0.03
Mercury - Total	mg/L	<0.0005
Nickel - Total	mg/L	<0.02
Zinc - Total	mg/L	<0.02

Method ID	Methodology Summary
ASB-001	Asbestos ID - Qualitative identification of asbestos in bulk samples using Polarised Light Microscopy and Dispersion Staining Techniques including Synthetic Mineral Fibre and Organic Fibre as per Australian Standard 4964-2004.
ASB-001	Asbestos ID - Identification of asbestos in soil samples using Polarised Light Microscopy and Dispersion Staining Techniques. Minimum 500mL soil sample was analysed as recommended by "National Environment Protection (Assessment of site contamination) Measure, Schedule B1 and "The Guidelines from the Assessment, Remediation and Management of Asbestos-Contaminated Sites in Western Australia - May 2009" with a reporting limit of 0.1g/kg (0.01% w/w) as per Australian Standard AS4964-2004. Results reported denoted with * are outside our scope of NATA accreditation. **NOTE** #1 Total Asbestos g/kg was analysed and reported as per Australian Standard AS4964 (This is the sum of ACM >7mm, <7mm and FA/AF) **NOTE** #2 The screening level of 0.001% w/w asbestos in soil for FA and AF only applies where the FA and AF are able to be quantified by gravimetric procedures. This screening level is not applicable to free fibres. Estimation = Estimated asbestos weight Results reported with "--" is equivalent to no visible asbestos identified using Polarised Light microscopy and Dispersion Staining Techniques.
Inorg-008	Moisture content determined by heating at 105+/-5 °C for a minimum of 12 hours.
Metals-020	Determination of various metals by ICP-AES.
Metals-021	Determination of Mercury by Cold Vapour AAS.
Org-020	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis.
Org-020	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis. Note, the Total +ve TRH PQL is reflective of the lowest individual PQL and is therefore "Total +ve TRH" is simply a sum of the positive individual TRH fractions (>C10-C40).
Org-021	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-ECD.

Method ID	Methodology Summary
Org-021	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-ECD. 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 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-10	331035-5
Date extracted	-			25/08/2023	1	22/08/2023	22/08/2023		22/08/2023	22/08/2023
Date analysed	-			28/08/2023	1	25/08/2023	25/08/2023		25/08/2023	25/08/2023
TRH C_6 - C_9	mg/kg	25	Org-023	<25	1	<25	<25	0	110	90
TRH C_6 - C_{10}	mg/kg	25	Org-023	<25	1	<25	<25	0	110	90
Benzene	mg/kg	0.2	Org-023	<0.2	1	<0.2	<0.2	0	106	86
Toluene	mg/kg	0.5	Org-023	<0.5	1	<0.5	<0.5	0	106	86
Ethylbenzene	mg/kg	1	Org-023	<1	1	<1	<1	0	106	87
m+p-xylene	mg/kg	2	Org-023	<2	1	<2	<2	0	116	96
o-Xylene	mg/kg	1	Org-023	<1	1	<1	<1	0	110	91
Naphthalene	mg/kg	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-023	96	1	92	97	5	97	82

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-11	331035-44
Date extracted	-			[NT]	18	22/08/2023	22/08/2023		25/08/2023	22/08/2023
Date analysed	-			[NT]	18	28/08/2023	28/08/2023		28/08/2023	28/08/2023
TRH C_6 - C_9	mg/kg	25	Org-023	[NT]	18	<25	<25	0	99	111
TRH C_6 - C_{10}	mg/kg	25	Org-023	[NT]	18	<25	<25	0	99	111
Benzene	mg/kg	0.2	Org-023	[NT]	18	<0.2	<0.2	0	91	101
Toluene	mg/kg	0.5	Org-023	[NT]	18	<0.5	<0.5	0	91	101
Ethylbenzene	mg/kg	1	Org-023	[NT]	18	<1	<1	0	99	111
m+p-xylene	mg/kg	2	Org-023	[NT]	18	<2	<2	0	108	121
o-Xylene	mg/kg	1	Org-023	[NT]	18	<1	<1	0	102	116
Naphthalene	mg/kg	1	Org-023	[NT]	18	<1	<1	0	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-023	[NT]	18	93	94	1	98	94

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-12	331035-79
Date extracted	-			[NT]	41	22/08/2023	22/08/2023		22/08/2023	22/08/2023
Date analysed	-			[NT]	41	28/08/2023	28/08/2023		25/08/2023	28/08/2023
TRH C_6 - C_9	mg/kg	25	Org-023	[NT]	41	<25	<25	0	106	99
TRH C_6 - C_{10}	mg/kg	25	Org-023	[NT]	41	<25	<25	0	106	99
Benzene	mg/kg	0.2	Org-023	[NT]	41	<0.2	<0.2	0	110	78
Toluene	mg/kg	0.5	Org-023	[NT]	41	<0.5	<0.5	0	106	114
Ethylbenzene	mg/kg	1	Org-023	[NT]	41	<1	<1	0	107	98
m+p-xylene	mg/kg	2	Org-023	[NT]	41	<2	<2	0	104	110
o-Xylene	mg/kg	1	Org-023	[NT]	41	<1	<1	0	108	98
Naphthalene	mg/kg	1	Org-023	[NT]	41	<1	<1	0	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-023	[NT]	41	99	96	3	97	135

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]	68	22/08/2023	22/08/2023		[NT]	[NT]
Date analysed	-			[NT]	68	25/08/2023	25/08/2023		[NT]	[NT]
TRH C_6 - C_9	mg/kg	25	Org-023	[NT]	68	<25	<25	0	[NT]	[NT]
TRH C_6 - C_{10}	mg/kg	25	Org-023	[NT]	68	<25	<25	0	[NT]	[NT]
Benzene	mg/kg	0.2	Org-023	[NT]	68	<0.2	<0.2	0	[NT]	[NT]
Toluene	mg/kg	0.5	Org-023	[NT]	68	<0.5	<0.5	0	[NT]	[NT]
Ethylbenzene	mg/kg	1	Org-023	[NT]	68	<1	<1	0	[NT]	[NT]
m+p-xylene	mg/kg	2	Org-023	[NT]	68	<2	<2	0	[NT]	[NT]
o-Xylene	mg/kg	1	Org-023	[NT]	68	<1	<1	0	[NT]	[NT]
Naphthalene	mg/kg	1	Org-023	[NT]	68	<1	<1	0	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-023	[NT]	68	103	93	10	[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]	81	22/08/2023	22/08/2023		[NT]	[NT]
Date analysed	-			[NT]	81	25/08/2023	25/08/2023		[NT]	[NT]
TRH C_6 - C_9	mg/kg	25	Org-023	[NT]	81	<25	<25	0	[NT]	[NT]
TRH C_6 - C_{10}	mg/kg	25	Org-023	[NT]	81	<25	<25	0	[NT]	[NT]
Benzene	mg/kg	0.2	Org-023	[NT]	81	<0.2	<0.2	0	[NT]	[NT]
Toluene	mg/kg	0.5	Org-023	[NT]	81	<0.5	<0.5	0	[NT]	[NT]
Ethylbenzene	mg/kg	1	Org-023	[NT]	81	<1	<1	0	[NT]	[NT]
m+p-xylene	mg/kg	2	Org-023	[NT]	81	<2	<2	0	[NT]	[NT]
o-Xylene	mg/kg	1	Org-023	[NT]	81	<1	<1	0	[NT]	[NT]
Naphthalene	mg/kg	1	Org-023	[NT]	81	<1	<1	0	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-023	[NT]	81	94	87	8	[NT]	[NT]

QUALITY CONTROL: svTRH (C10-C40) in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-10	331035-5
Date extracted	-			22/08/2023	1	22/08/2023	22/08/2023		22/08/2023	22/08/2023
Date analysed	-			26/08/2023	1	25/08/2023	25/08/2023		25/08/2023	25/08/2023
TRH C_{10} - C_{14}	mg/kg	50	Org-020	<50	1	<50	<50	0	98	99
TRH C_{15} - C_{28}	mg/kg	100	Org-020	<100	1	<100	<100	0	93	105
TRH C_{29} - C_{36}	mg/kg	100	Org-020	<100	1	<100	<100	0	129	100
TRH >C_{10} -C_{16}	mg/kg	50	Org-020	<50	1	<50	<50	0	98	99
TRH >C_{16} -C_{34}	mg/kg	100	Org-020	<100	1	<100	<100	0	93	105
TRH >C_{34} -C_{40}	mg/kg	100	Org-020	<100	1	<100	<100	0	129	100
Surrogate o-Terphenyl	%		Org-020	80	1	74	77	4	107	75

QUALITY CONTROL: svTRH (C10-C40) in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-11	331035-44
Date extracted	-			[NT]	18	22/08/2023	22/08/2023		22/08/2023	22/08/2023
Date analysed	-			[NT]	18	26/08/2023	26/08/2023		26/08/2023	26/08/2023
TRH C_{10} - C_{14}	mg/kg	50	Org-020	[NT]	18	<50	<50	0	101	93
TRH C_{15} - C_{28}	mg/kg	100	Org-020	[NT]	18	<100	<100	0	97	99
TRH C_{29} - C_{36}	mg/kg	100	Org-020	[NT]	18	<100	<100	0	86	94
TRH >C_{10} -C_{16}	mg/kg	50	Org-020	[NT]	18	<50	<50	0	101	93
TRH >C_{16} -C_{34}	mg/kg	100	Org-020	[NT]	18	120	120	0	97	99
TRH >C_{34} -C_{40}	mg/kg	100	Org-020	[NT]	18	<100	<100	0	86	94
Surrogate o-Terphenyl	%		Org-020	[NT]	18	77	77	0	107	74

QUALITY CONTROL: svTRH (C10-C40) in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-12	331035-79
Date extracted	-			[NT]	41	22/08/2023	22/08/2023		22/08/2023	22/08/2023
Date analysed	-			[NT]	41	26/08/2023	26/08/2023		26/08/2023	26/08/2023
TRH C_{10} - C_{14}	mg/kg	50	Org-020	[NT]	41	<50	<50	0	103	118
TRH C_{15} - C_{28}	mg/kg	100	Org-020	[NT]	41	<100	<100	0	98	96
TRH C_{29} - C_{36}	mg/kg	100	Org-020	[NT]	41	<100	<100	0	100	133
TRH >C_{10} -C_{16}	mg/kg	50	Org-020	[NT]	41	<50	<50	0	103	118
TRH >C_{16} -C_{34}	mg/kg	100	Org-020	[NT]	41	<100	<100	0	98	96
TRH >C_{34} -C_{40}	mg/kg	100	Org-020	[NT]	41	<100	<100	0	100	133
Surrogate o-Terphenyl	%		Org-020	[NT]	41	76	75	1	116	99

QUALITY CONTROL: svTRH (C10-C40) in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	68	22/08/2023	22/08/2023		[NT]	[NT]
Date analysed	-			[NT]	68	26/08/2023	26/08/2023		[NT]	[NT]
TRH C_{10} - C_{14}	mg/kg	50	Org-020	[NT]	68	<50	<50	0	[NT]	[NT]
TRH C_{15} - C_{28}	mg/kg	100	Org-020	[NT]	68	<100	<100	0	[NT]	[NT]
TRH C_{29} - C_{36}	mg/kg	100	Org-020	[NT]	68	<100	<100	0	[NT]	[NT]
TRH >C_{10} -C_{16}	mg/kg	50	Org-020	[NT]	68	<50	<50	0	[NT]	[NT]
TRH >C_{16} -C_{34}	mg/kg	100	Org-020	[NT]	68	<100	<100	0	[NT]	[NT]
TRH >C_{34} -C_{40}	mg/kg	100	Org-020	[NT]	68	<100	<100	0	[NT]	[NT]
Surrogate o-Terphenyl	%		Org-020	[NT]	68	73	73	0	[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]	81	22/08/2023	22/08/2023		[NT]	[NT]
Date analysed	-			[NT]	81	26/08/2023	26/08/2023		[NT]	[NT]
TRH C_{10} - C_{14}	mg/kg	50	Org-020	[NT]	81	<50	<50	0	[NT]	[NT]
TRH C_{15} - C_{28}	mg/kg	100	Org-020	[NT]	81	<100	<100	0	[NT]	[NT]
TRH C_{29} - C_{36}	mg/kg	100	Org-020	[NT]	81	<100	<100	0	[NT]	[NT]
TRH >C_{10} -C_{16}	mg/kg	50	Org-020	[NT]	81	<50	<50	0	[NT]	[NT]
TRH >C_{16} -C_{34}	mg/kg	100	Org-020	[NT]	81	<100	<100	0	[NT]	[NT]
TRH >C_{34} -C_{40}	mg/kg	100	Org-020	[NT]	81	<100	<100	0	[NT]	[NT]
Surrogate o-Terphenyl	%		Org-020	[NT]	81	74	74	0	[NT]	[NT]

QUALITY CONTROL: PAHs in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-10	331035-5
Date extracted	-			22/08/2023	1	22/08/2023	22/08/2023		22/08/2023	22/08/2023
Date analysed	-			25/08/2023	1	25/08/2023	25/08/2023		25/08/2023	25/08/2023
Naphthalene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	90	86
Acenaphthylene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Acenaphthene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	91	85
Fluorene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	82	80
Phenanthrene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	77	78
Anthracene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Fluoranthene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	88	83
Pyrene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	93	88
Benzo(a)anthracene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Chrysene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	79	72
Benzo(b,j+k)fluoranthene	mg/kg	0.2	Org-022/025	<0.2	1	<0.2	<0.2	0	[NT]	[NT]
Benzo(a)pyrene	mg/kg	0.05	Org-022/025	<0.05	1	<0.05	<0.05	0	90	63
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-022/025	81	1	80	86	7	82	80

QUALITY CONTROL: PAHs in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-11	331035-44
Date extracted	-			[NT]	18	22/08/2023	22/08/2023		22/08/2023	22/08/2023
Date analysed	-			[NT]	18	25/08/2023	25/08/2023		25/08/2023	25/08/2023
Naphthalene	mg/kg	0.1	Org-022/025	[NT]	18	<0.1	<0.1	0	88	88
Acenaphthylene	mg/kg	0.1	Org-022/025	[NT]	18	<0.1	<0.1	0	[NT]	[NT]
Acenaphthene	mg/kg	0.1	Org-022/025	[NT]	18	<0.1	<0.1	0	91	87
Fluorene	mg/kg	0.1	Org-022/025	[NT]	18	<0.1	<0.1	0	88	78
Phenanthrene	mg/kg	0.1	Org-022/025	[NT]	18	<0.1	<0.1	0	84	81
Anthracene	mg/kg	0.1	Org-022/025	[NT]	18	<0.1	<0.1	0	[NT]	[NT]
Fluoranthene	mg/kg	0.1	Org-022/025	[NT]	18	<0.1	<0.1	0	88	88
Pyrene	mg/kg	0.1	Org-022/025	[NT]	18	<0.1	<0.1	0	95	91
Benzo(a)anthracene	mg/kg	0.1	Org-022/025	[NT]	18	<0.1	<0.1	0	[NT]	[NT]
Chrysene	mg/kg	0.1	Org-022/025	[NT]	18	<0.1	<0.1	0	77	75
Benzo(b,j+k)fluoranthene	mg/kg	0.2	Org-022/025	[NT]	18	<0.2	<0.2	0	[NT]	[NT]
Benzo(a)pyrene	mg/kg	0.05	Org-022/025	[NT]	18	<0.05	<0.05	0	90	94
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-022/025	[NT]	18	<0.1	<0.1	0	[NT]	[NT]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-022/025	[NT]	18	<0.1	<0.1	0	[NT]	[NT]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-022/025	[NT]	18	<0.1	<0.1	0	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-022/025	[NT]	18	82	82	0	82	84

QUALITY CONTROL: PAHs in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-12	331035-79
Date extracted	-			[NT]	41	22/08/2023	22/08/2023		22/08/2023	22/08/2023
Date analysed	-			[NT]	41	25/08/2023	25/08/2023		25/08/2023	25/08/2023
Naphthalene	mg/kg	0.1	Org-022/025	[NT]	41	<0.1	<0.1	0	98	100
Acenaphthylene	mg/kg	0.1	Org-022/025	[NT]	41	<0.1	<0.1	0	[NT]	[NT]
Acenaphthene	mg/kg	0.1	Org-022/025	[NT]	41	<0.1	<0.1	0	93	101
Fluorene	mg/kg	0.1	Org-022/025	[NT]	41	<0.1	<0.1	0	88	98
Phenanthrene	mg/kg	0.1	Org-022/025	[NT]	41	0.1	<0.1	0	90	98
Anthracene	mg/kg	0.1	Org-022/025	[NT]	41	<0.1	<0.1	0	[NT]	[NT]
Fluoranthene	mg/kg	0.1	Org-022/025	[NT]	41	0.4	0.2	67	88	94
Pyrene	mg/kg	0.1	Org-022/025	[NT]	41	0.4	0.3	29	93	97
Benzo(a)anthracene	mg/kg	0.1	Org-022/025	[NT]	41	0.1	<0.1	0	[NT]	[NT]
Chrysene	mg/kg	0.1	Org-022/025	[NT]	41	0.1	<0.1	0	75	90
Benzo(b,j+k)fluoranthene	mg/kg	0.2	Org-022/025	[NT]	41	0.2	<0.2	0	[NT]	[NT]
Benzo(a)pyrene	mg/kg	0.05	Org-022/025	[NT]	41	0.2	0.1	67	94	98
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-022/025	[NT]	41	0.1	<0.1	0	[NT]	[NT]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-022/025	[NT]	41	<0.1	<0.1	0	[NT]	[NT]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-022/025	[NT]	41	0.2	0.1	67	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-022/025	[NT]	41	86	84	2	82	94

QUALITY CONTROL: PAHs in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	68	22/08/2023	22/08/2023		[NT]	[NT]
Date analysed	-			[NT]	68	25/08/2023	25/08/2023		[NT]	[NT]
Naphthalene	mg/kg	0.1	Org-022/025	[NT]	68	<0.1	<0.1	0	[NT]	[NT]
Acenaphthylene	mg/kg	0.1	Org-022/025	[NT]	68	<0.1	<0.1	0	[NT]	[NT]
Acenaphthene	mg/kg	0.1	Org-022/025	[NT]	68	<0.1	<0.1	0	[NT]	[NT]
Fluorene	mg/kg	0.1	Org-022/025	[NT]	68	<0.1	<0.1	0	[NT]	[NT]
Phenanthrene	mg/kg	0.1	Org-022/025	[NT]	68	<0.1	<0.1	0	[NT]	[NT]
Anthracene	mg/kg	0.1	Org-022/025	[NT]	68	<0.1	<0.1	0	[NT]	[NT]
Fluoranthene	mg/kg	0.1	Org-022/025	[NT]	68	<0.1	<0.1	0	[NT]	[NT]
Pyrene	mg/kg	0.1	Org-022/025	[NT]	68	<0.1	<0.1	0	[NT]	[NT]
Benzo(a)anthracene	mg/kg	0.1	Org-022/025	[NT]	68	<0.1	<0.1	0	[NT]	[NT]
Chrysene	mg/kg	0.1	Org-022/025	[NT]	68	<0.1	<0.1	0	[NT]	[NT]
Benzo(b,j+k)fluoranthene	mg/kg	0.2	Org-022/025	[NT]	68	<0.2	<0.2	0	[NT]	[NT]
Benzo(a)pyrene	mg/kg	0.05	Org-022/025	[NT]	68	<0.05	<0.05	0	[NT]	[NT]
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-022/025	[NT]	68	<0.1	<0.1	0	[NT]	[NT]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-022/025	[NT]	68	<0.1	<0.1	0	[NT]	[NT]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-022/025	[NT]	68	<0.1	<0.1	0	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-022/025	[NT]	68	81	81	0	[NT]	[NT]

QUALITY CONTROL: PAHs in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	81	22/08/2023	22/08/2023		[NT]	[NT]
Date analysed	-			[NT]	81	25/08/2023	25/08/2023		[NT]	[NT]
Naphthalene	mg/kg	0.1	Org-022/025	[NT]	81	<0.1	<0.1	0	[NT]	[NT]
Acenaphthylene	mg/kg	0.1	Org-022/025	[NT]	81	<0.1	<0.1	0	[NT]	[NT]
Acenaphthene	mg/kg	0.1	Org-022/025	[NT]	81	<0.1	<0.1	0	[NT]	[NT]
Fluorene	mg/kg	0.1	Org-022/025	[NT]	81	<0.1	<0.1	0	[NT]	[NT]
Phenanthrene	mg/kg	0.1	Org-022/025	[NT]	81	<0.1	<0.1	0	[NT]	[NT]
Anthracene	mg/kg	0.1	Org-022/025	[NT]	81	<0.1	<0.1	0	[NT]	[NT]
Fluoranthene	mg/kg	0.1	Org-022/025	[NT]	81	<0.1	<0.1	0	[NT]	[NT]
Pyrene	mg/kg	0.1	Org-022/025	[NT]	81	<0.1	<0.1	0	[NT]	[NT]
Benzo(a)anthracene	mg/kg	0.1	Org-022/025	[NT]	81	<0.1	<0.1	0	[NT]	[NT]
Chrysene	mg/kg	0.1	Org-022/025	[NT]	81	<0.1	<0.1	0	[NT]	[NT]
Benzo(b,j+k)fluoranthene	mg/kg	0.2	Org-022/025	[NT]	81	<0.2	<0.2	0	[NT]	[NT]
Benzo(a)pyrene	mg/kg	0.05	Org-022/025	[NT]	81	<0.05	<0.05	0	[NT]	[NT]
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-022/025	[NT]	81	<0.1	<0.1	0	[NT]	[NT]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-022/025	[NT]	81	<0.1	<0.1	0	[NT]	[NT]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-022/025	[NT]	81	<0.1	<0.1	0	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-022/025	[NT]	81	79	79	0	[NT]	[NT]

QUALITY CONTROL: Organochlorine Pesticides in soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-10	331035-5
Date extracted	-			22/08/2023	1	22/08/2023	22/08/2023		22/08/2023	22/08/2023
Date analysed	-			25/08/2023	1	25/08/2023	25/08/2023		25/08/2023	25/08/2023
alpha-BHC	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	98	94
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	98	94
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	101	101
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	93	91
Heptachlor Epoxide	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	92	88
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	98	101
Dieldrin	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	102	102
Endrin	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	80	86
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	84	84
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	129	136
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 TCMX	%		Org-022/025	103	1	106	107	1	108	103

QUALITY CONTROL: Organochlorine Pesticides in soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-11	331035-44
Date extracted	-			[NT]	18	22/08/2023	22/08/2023		22/08/2023	22/08/2023
Date analysed	-			[NT]	18	25/08/2023	25/08/2023		25/08/2023	25/08/2023
alpha-BHC	mg/kg	0.1	Org-022/025	[NT]	18	<0.1	<0.1	0	102	96
HCB	mg/kg	0.1	Org-022/025	[NT]	18	<0.1	<0.1	0	[NT]	[NT]
beta-BHC	mg/kg	0.1	Org-022/025	[NT]	18	<0.1	<0.1	0	102	94
gamma-BHC	mg/kg	0.1	Org-022/025	[NT]	18	<0.1	<0.1	0	[NT]	[NT]
Heptachlor	mg/kg	0.1	Org-022/025	[NT]	18	<0.1	<0.1	0	101	97
delta-BHC	mg/kg	0.1	Org-022/025	[NT]	18	<0.1	<0.1	0	[NT]	[NT]
Aldrin	mg/kg	0.1	Org-022/025	[NT]	18	<0.1	<0.1	0	95	93
Heptachlor Epoxide	mg/kg	0.1	Org-022/025	[NT]	18	<0.1	<0.1	0	92	90
gamma-Chlordane	mg/kg	0.1	Org-022/025	[NT]	18	<0.1	<0.1	0	[NT]	[NT]
alpha-chlordane	mg/kg	0.1	Org-022/025	[NT]	18	<0.1	<0.1	0	[NT]	[NT]
Endosulfan I	mg/kg	0.1	Org-022/025	[NT]	18	<0.1	<0.1	0	[NT]	[NT]
pp-DDE	mg/kg	0.1	Org-022/025	[NT]	18	<0.1	<0.1	0	98	101
Dieldrin	mg/kg	0.1	Org-022/025	[NT]	18	<0.1	<0.1	0	104	104
Endrin	mg/kg	0.1	Org-022/025	[NT]	18	<0.1	<0.1	0	92	94
Endosulfan II	mg/kg	0.1	Org-022/025	[NT]	18	<0.1	<0.1	0	[NT]	[NT]
pp-DDD	mg/kg	0.1	Org-022/025	[NT]	18	<0.1	<0.1	0	82	86
Endrin Aldehyde	mg/kg	0.1	Org-022/025	[NT]	18	<0.1	<0.1	0	[NT]	[NT]
pp-DDT	mg/kg	0.1	Org-022/025	[NT]	18	<0.1	<0.1	0	[NT]	[NT]
Endosulfan Sulphate	mg/kg	0.1	Org-022/025	[NT]	18	<0.1	<0.1	0	131	119
Methoxychlor	mg/kg	0.1	Org-022/025	[NT]	18	<0.1	<0.1	0	[NT]	[NT]
Mirex	mg/kg	0.1	Org-022/025	[NT]	18	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-022/025	[NT]	18	114	113	1	110	103

QUALITY CONTROL: Organochlorine Pesticides in soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-12	331035-79
Date extracted	-			[NT]	41	22/08/2023	22/08/2023		22/08/2023	22/08/2023
Date analysed	-			[NT]	41	25/08/2023	25/08/2023		25/08/2023	25/08/2023
alpha-BHC	mg/kg	0.1	Org-022/025	[NT]	41	<0.1	<0.1	0	98	104
HCB	mg/kg	0.1	Org-022/025	[NT]	41	<0.1	<0.1	0	[NT]	[NT]
beta-BHC	mg/kg	0.1	Org-022/025	[NT]	41	<0.1	<0.1	0	98	101
gamma-BHC	mg/kg	0.1	Org-022/025	[NT]	41	<0.1	<0.1	0	[NT]	[NT]
Heptachlor	mg/kg	0.1	Org-022/025	[NT]	41	<0.1	<0.1	0	91	111
delta-BHC	mg/kg	0.1	Org-022/025	[NT]	41	<0.1	<0.1	0	[NT]	[NT]
Aldrin	mg/kg	0.1	Org-022/025	[NT]	41	<0.1	<0.1	0	88	100
Heptachlor Epoxide	mg/kg	0.1	Org-022/025	[NT]	41	<0.1	<0.1	0	88	95
gamma-Chlordane	mg/kg	0.1	Org-022/025	[NT]	41	<0.1	<0.1	0	[NT]	[NT]
alpha-chlordane	mg/kg	0.1	Org-022/025	[NT]	41	<0.1	<0.1	0	[NT]	[NT]
Endosulfan I	mg/kg	0.1	Org-022/025	[NT]	41	<0.1	<0.1	0	[NT]	[NT]
pp-DDE	mg/kg	0.1	Org-022/025	[NT]	41	<0.1	<0.1	0	96	107
Dieldrin	mg/kg	0.1	Org-022/025	[NT]	41	<0.1	<0.1	0	105	113
Endrin	mg/kg	0.1	Org-022/025	[NT]	41	<0.1	<0.1	0	88	100
Endosulfan II	mg/kg	0.1	Org-022/025	[NT]	41	<0.1	<0.1	0	[NT]	[NT]
pp-DDD	mg/kg	0.1	Org-022/025	[NT]	41	<0.1	<0.1	0	83	75
Endrin Aldehyde	mg/kg	0.1	Org-022/025	[NT]	41	<0.1	<0.1	0	[NT]	[NT]
pp-DDT	mg/kg	0.1	Org-022/025	[NT]	41	<0.1	<0.1	0	[NT]	[NT]
Endosulfan Sulphate	mg/kg	0.1	Org-022/025	[NT]	41	<0.1	<0.1	0	104	127
Methoxychlor	mg/kg	0.1	Org-022/025	[NT]	41	<0.1	<0.1	0	[NT]	[NT]
Mirex	mg/kg	0.1	Org-022/025	[NT]	41	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-022/025	[NT]	41	112	111	1	108	110

QUALITY CONTROL: Organochlorine Pesticides in soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	81	22/08/2023	22/08/2023		[NT]	[NT]
Date analysed	-			[NT]	81	25/08/2023	25/08/2023		[NT]	[NT]
alpha-BHC	mg/kg	0.1	Org-022/025	[NT]	81	<0.1	<0.1	0	[NT]	[NT]
HCB	mg/kg	0.1	Org-022/025	[NT]	81	<0.1	<0.1	0	[NT]	[NT]
beta-BHC	mg/kg	0.1	Org-022/025	[NT]	81	<0.1	<0.1	0	[NT]	[NT]
gamma-BHC	mg/kg	0.1	Org-022/025	[NT]	81	<0.1	<0.1	0	[NT]	[NT]
Heptachlor	mg/kg	0.1	Org-022/025	[NT]	81	<0.1	<0.1	0	[NT]	[NT]
delta-BHC	mg/kg	0.1	Org-022/025	[NT]	81	<0.1	<0.1	0	[NT]	[NT]
Aldrin	mg/kg	0.1	Org-022/025	[NT]	81	<0.1	<0.1	0	[NT]	[NT]
Heptachlor Epoxide	mg/kg	0.1	Org-022/025	[NT]	81	<0.1	<0.1	0	[NT]	[NT]
gamma-Chlordane	mg/kg	0.1	Org-022/025	[NT]	81	<0.1	<0.1	0	[NT]	[NT]
alpha-chlordane	mg/kg	0.1	Org-022/025	[NT]	81	<0.1	<0.1	0	[NT]	[NT]
Endosulfan I	mg/kg	0.1	Org-022/025	[NT]	81	<0.1	<0.1	0	[NT]	[NT]
pp-DDE	mg/kg	0.1	Org-022/025	[NT]	81	<0.1	<0.1	0	[NT]	[NT]
Dieldrin	mg/kg	0.1	Org-022/025	[NT]	81	<0.1	<0.1	0	[NT]	[NT]
Endrin	mg/kg	0.1	Org-022/025	[NT]	81	<0.1	<0.1	0	[NT]	[NT]
Endosulfan II	mg/kg	0.1	Org-022/025	[NT]	81	<0.1	<0.1	0	[NT]	[NT]
pp-DDD	mg/kg	0.1	Org-022/025	[NT]	81	<0.1	<0.1	0	[NT]	[NT]
Endrin Aldehyde	mg/kg	0.1	Org-022/025	[NT]	81	<0.1	<0.1	0	[NT]	[NT]
pp-DDT	mg/kg	0.1	Org-022/025	[NT]	81	<0.1	<0.1	0	[NT]	[NT]
Endosulfan Sulphate	mg/kg	0.1	Org-022/025	[NT]	81	<0.1	<0.1	0	[NT]	[NT]
Methoxychlor	mg/kg	0.1	Org-022/025	[NT]	81	<0.1	<0.1	0	[NT]	[NT]
Mirex	mg/kg	0.1	Org-022/025	[NT]	81	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-022/025	[NT]	81	101	103	2	[NT]	[NT]

QUALITY CONTROL: Organophosphorus Pesticides in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-10	331035-5
Date extracted	-			22/08/2023	1	22/08/2023	22/08/2023		22/08/2023	22/08/2023
Date analysed	-			25/08/2023	1	25/08/2023	25/08/2023		25/08/2023	25/08/2023
Dichlorvos	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	117	117
Mevinphos	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Phorate	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Dimethoate	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Diazinon	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Disulfoton	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Chlorpyrifos-methyl	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Parathion-Methyl	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Ronnel	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	91	89
Fenitrothion	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	115	117
Malathion	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	95	99
Chlorpyriphos	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	90	90
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	107	105
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	78	82
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 TCMX	%		Org-022/025	103	1	106	107	1	108	103

QUALITY CONTROL: Organophosphorus Pesticides in Soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-11	331035-44
Date extracted	-			[NT]	18	22/08/2023	22/08/2023		22/08/2023	22/08/2023
Date analysed	-			[NT]	18	25/08/2023	25/08/2023		25/08/2023	25/08/2023
Dichlorvos	mg/kg	0.1	Org-022/025	[NT]	18	<0.1	<0.1	0	133	127
Mevinphos	mg/kg	0.1	Org-022/025	[NT]	18	<0.1	<0.1	0	[NT]	[NT]
Phorate	mg/kg	0.1	Org-022/025	[NT]	18	<0.1	<0.1	0	[NT]	[NT]
Dimethoate	mg/kg	0.1	Org-022/025	[NT]	18	<0.1	<0.1	0	[NT]	[NT]
Diazinon	mg/kg	0.1	Org-022/025	[NT]	18	<0.1	<0.1	0	[NT]	[NT]
Disulfoton	mg/kg	0.1	Org-022/025	[NT]	18	<0.1	<0.1	0	[NT]	[NT]
Chlorpyrifos-methyl	mg/kg	0.1	Org-022/025	[NT]	18	<0.1	<0.1	0	[NT]	[NT]
Parathion-Methyl	mg/kg	0.1	Org-022/025	[NT]	18	<0.1	<0.1	0	[NT]	[NT]
Ronnel	mg/kg	0.1	Org-022/025	[NT]	18	<0.1	<0.1	0	93	91
Fenitrothion	mg/kg	0.1	Org-022/025	[NT]	18	<0.1	<0.1	0	128	132
Malathion	mg/kg	0.1	Org-022/025	[NT]	18	<0.1	<0.1	0	105	105
Chlorpyriphos	mg/kg	0.1	Org-022/025	[NT]	18	<0.1	<0.1	0	92	90
Fenthion	mg/kg	0.1	Org-022/025	[NT]	18	<0.1	<0.1	0	[NT]	[NT]
Parathion	mg/kg	0.1	Org-022/025	[NT]	18	<0.1	<0.1	0	113	117
Bromophos-ethyl	mg/kg	0.1	Org-022/025	[NT]	18	<0.1	<0.1	0	[NT]	[NT]
Methidathion	mg/kg	0.1	Org-022/025	[NT]	18	<0.1	<0.1	0	[NT]	[NT]
Fenamiphos	mg/kg	0.1	Org-022/025	[NT]	18	<0.1	<0.1	0	[NT]	[NT]
Ethion	mg/kg	0.1	Org-022/025	[NT]	18	<0.1	<0.1	0	82	88
Phosalone	mg/kg	0.1	Org-022/025	[NT]	18	<0.1	<0.1	0	[NT]	[NT]
Azinphos-methyl (Guthion)	mg/kg	0.1	Org-022/025	[NT]	18	<0.1	<0.1	0	[NT]	[NT]
Coumaphos	mg/kg	0.1	Org-022/025	[NT]	18	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-022/025	[NT]	18	114	113	1	110	103

QUALITY CONTROL: Organophosphorus Pesticides in Soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-12	331035-79
Date extracted	-			[NT]	41	22/08/2023	22/08/2023		22/08/2023	22/08/2023
Date analysed	-			[NT]	41	25/08/2023	25/08/2023		25/08/2023	25/08/2023
Dichlorvos	mg/kg	0.1	Org-022/025	[NT]	41	<0.1	<0.1	0	124	90
Mevinphos	mg/kg	0.1	Org-022/025	[NT]	41	<0.1	<0.1	0	[NT]	[NT]
Phorate	mg/kg	0.1	Org-022/025	[NT]	41	<0.1	<0.1	0	[NT]	[NT]
Dimethoate	mg/kg	0.1	Org-022/025	[NT]	41	<0.1	<0.1	0	[NT]	[NT]
Diazinon	mg/kg	0.1	Org-022/025	[NT]	41	<0.1	<0.1	0	[NT]	[NT]
Disulfoton	mg/kg	0.1	Org-022/025	[NT]	41	<0.1	<0.1	0	[NT]	[NT]
Chlorpyrifos-methyl	mg/kg	0.1	Org-022/025	[NT]	41	<0.1	<0.1	0	[NT]	[NT]
Parathion-Methyl	mg/kg	0.1	Org-022/025	[NT]	41	<0.1	<0.1	0	[NT]	[NT]
Ronnel	mg/kg	0.1	Org-022/025	[NT]	41	<0.1	<0.1	0	93	97
Fenitrothion	mg/kg	0.1	Org-022/025	[NT]	41	<0.1	<0.1	0	122	88
Malathion	mg/kg	0.1	Org-022/025	[NT]	41	<0.1	<0.1	0	95	82
Chlorpyriphos	mg/kg	0.1	Org-022/025	[NT]	41	<0.1	<0.1	0	87	96
Fenthion	mg/kg	0.1	Org-022/025	[NT]	41	<0.1	<0.1	0	[NT]	[NT]
Parathion	mg/kg	0.1	Org-022/025	[NT]	41	<0.1	<0.1	0	115	83
Bromophos-ethyl	mg/kg	0.1	Org-022/025	[NT]	41	<0.1	<0.1	0	[NT]	[NT]
Methidathion	mg/kg	0.1	Org-022/025	[NT]	41	<0.1	<0.1	0	[NT]	[NT]
Fenamiphos	mg/kg	0.1	Org-022/025	[NT]	41	<0.1	<0.1	0	[NT]	[NT]
Ethion	mg/kg	0.1	Org-022/025	[NT]	41	<0.1	<0.1	0	82	78
Phosalone	mg/kg	0.1	Org-022/025	[NT]	41	<0.1	<0.1	0	[NT]	[NT]
Azinphos-methyl (Guthion)	mg/kg	0.1	Org-022/025	[NT]	41	<0.1	<0.1	0	[NT]	[NT]
Coumaphos	mg/kg	0.1	Org-022/025	[NT]	41	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-022/025	[NT]	41	112	111	1	106	110

QUALITY CONTROL: Organophosphorus Pesticides in Soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	81	22/08/2023	22/08/2023		[NT]	[NT]
Date analysed	-			[NT]	81	25/08/2023	25/08/2023		[NT]	[NT]
Dichlorvos	mg/kg	0.1	Org-022/025	[NT]	81	<0.1	<0.1	0	[NT]	[NT]
Mevinphos	mg/kg	0.1	Org-022/025	[NT]	81	<0.1	<0.1	0	[NT]	[NT]
Phorate	mg/kg	0.1	Org-022/025	[NT]	81	<0.1	<0.1	0	[NT]	[NT]
Dimethoate	mg/kg	0.1	Org-022/025	[NT]	81	<0.1	<0.1	0	[NT]	[NT]
Diazinon	mg/kg	0.1	Org-022/025	[NT]	81	<0.1	<0.1	0	[NT]	[NT]
Disulfoton	mg/kg	0.1	Org-022/025	[NT]	81	<0.1	<0.1	0	[NT]	[NT]
Chlorpyrifos-methyl	mg/kg	0.1	Org-022/025	[NT]	81	<0.1	<0.1	0	[NT]	[NT]
Parathion-Methyl	mg/kg	0.1	Org-022/025	[NT]	81	<0.1	<0.1	0	[NT]	[NT]
Ronnel	mg/kg	0.1	Org-022/025	[NT]	81	<0.1	<0.1	0	[NT]	[NT]
Fenitrothion	mg/kg	0.1	Org-022/025	[NT]	81	<0.1	<0.1	0	[NT]	[NT]
Malathion	mg/kg	0.1	Org-022/025	[NT]	81	<0.1	<0.1	0	[NT]	[NT]
Chlorpyriphos	mg/kg	0.1	Org-022/025	[NT]	81	<0.1	<0.1	0	[NT]	[NT]
Fenthion	mg/kg	0.1	Org-022/025	[NT]	81	<0.1	<0.1	0	[NT]	[NT]
Parathion	mg/kg	0.1	Org-022/025	[NT]	81	<0.1	<0.1	0	[NT]	[NT]
Bromophos-ethyl	mg/kg	0.1	Org-022/025	[NT]	81	<0.1	<0.1	0	[NT]	[NT]
Methidathion	mg/kg	0.1	Org-022/025	[NT]	81	<0.1	<0.1	0	[NT]	[NT]
Fenamiphos	mg/kg	0.1	Org-022/025	[NT]	81	<0.1	<0.1	0	[NT]	[NT]
Ethion	mg/kg	0.1	Org-022/025	[NT]	81	<0.1	<0.1	0	[NT]	[NT]
Phosalone	mg/kg	0.1	Org-022/025	[NT]	81	<0.1	<0.1	0	[NT]	[NT]
Azinphos-methyl (Guthion)	mg/kg	0.1	Org-022/025	[NT]	81	<0.1	<0.1	0	[NT]	[NT]
Coumaphos	mg/kg	0.1	Org-022/025	[NT]	81	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-022/025	[NT]	81	101	103	2	[NT]	[NT]

QUALITY CONTROL: PCBs in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-10	331035-5
Date extracted	-			22/08/2023	1	22/08/2023	22/08/2023		22/08/2023	22/08/2023
Date analysed	-			25/08/2023	1	25/08/2023	25/08/2023		25/08/2023	25/08/2023
Aroclor 1016	mg/kg	0.1	Org-021	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1221	mg/kg	0.1	Org-021	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1232	mg/kg	0.1	Org-021	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1242	mg/kg	0.1	Org-021	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1248	mg/kg	0.1	Org-021	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1254	mg/kg	0.1	Org-021	<0.1	1	<0.1	<0.1	0	97	90
Aroclor 1260	mg/kg	0.1	Org-021	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-021	103	1	106	107	1	108	103

QUALITY CONTROL: PCBs in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-11	331035-44
Date extracted	-			[NT]	18	22/08/2023	22/08/2023		22/08/2023	22/08/2023
Date analysed	-			[NT]	18	25/08/2023	25/08/2023		25/08/2023	25/08/2023
Aroclor 1016	mg/kg	0.1	Org-021	[NT]	18	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1221	mg/kg	0.1	Org-021	[NT]	18	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1232	mg/kg	0.1	Org-021	[NT]	18	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1242	mg/kg	0.1	Org-021	[NT]	18	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1248	mg/kg	0.1	Org-021	[NT]	18	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1254	mg/kg	0.1	Org-021	[NT]	18	<0.1	<0.1	0	98	90
Aroclor 1260	mg/kg	0.1	Org-021	[NT]	18	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-021	[NT]	18	114	113	1	110	103

QUALITY CONTROL: PCBs in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-12	331035-79
Date extracted	-			[NT]	41	22/08/2023	22/08/2023		22/08/2023	22/08/2023
Date analysed	-			[NT]	41	25/08/2023	25/08/2023		25/08/2023	25/08/2023
Aroclor 1016	mg/kg	0.1	Org-021	[NT]	41	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1221	mg/kg	0.1	Org-021	[NT]	41	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1232	mg/kg	0.1	Org-021	[NT]	41	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1242	mg/kg	0.1	Org-021	[NT]	41	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1248	mg/kg	0.1	Org-021	[NT]	41	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1254	mg/kg	0.1	Org-021	[NT]	41	<0.1	<0.1	0	95	109
Aroclor 1260	mg/kg	0.1	Org-021	[NT]	41	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-021	[NT]	41	112	111	1	106	110

QUALITY CONTROL: PCBs in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	81	22/08/2023	22/08/2023		[NT]	[NT]
Date analysed	-			[NT]	81	25/08/2023	25/08/2023		[NT]	[NT]
Aroclor 1016	mg/kg	0.1	Org-021	[NT]	81	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1221	mg/kg	0.1	Org-021	[NT]	81	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1232	mg/kg	0.1	Org-021	[NT]	81	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1242	mg/kg	0.1	Org-021	[NT]	81	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1248	mg/kg	0.1	Org-021	[NT]	81	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1254	mg/kg	0.1	Org-021	[NT]	81	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1260	mg/kg	0.1	Org-021	[NT]	81	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-021	[NT]	81	101	103	2	[NT]	[NT]

QUALITY CONTROL: Acid Extractable metals in soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-10	331035-5
Date prepared	-			22/08/2023	1	22/08/2023	22/08/2023		22/08/2023	22/08/2023
Date analysed	-			23/08/2023	1	23/08/2023	23/08/2023		23/08/2023	23/08/2023
Arsenic	mg/kg	4	Metals-020	<4	1	4	4	0	104	97
Cadmium	mg/kg	0.4	Metals-020	<0.4	1	<0.4	<0.4	0	98	89
Chromium	mg/kg	1	Metals-020	<1	1	24	24	0	123	94
Copper	mg/kg	1	Metals-020	<1	1	22	22	0	104	101
Lead	mg/kg	1	Metals-020	<1	1	23	28	20	115	#
Mercury	mg/kg	0.1	Metals-021	<0.1	1	<0.1	<0.1	0	112	108
Nickel	mg/kg	1	Metals-020	<1	1	29	30	3	97	86
Zinc	mg/kg	1	Metals-020	<1	1	62	69	11	102	#

QUALITY CONTROL: Acid Extractable metals in soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-11	331035-44
Date prepared	-			[NT]	18	22/08/2023	22/08/2023		22/08/2023	22/08/2023
Date analysed	-			[NT]	18	23/08/2023	23/08/2023		23/08/2023	23/08/2023
Arsenic	mg/kg	4	Metals-020	[NT]	18	4	<4	0	105	97
Cadmium	mg/kg	0.4	Metals-020	[NT]	18	<0.4	<0.4	0	99	94
Chromium	mg/kg	1	Metals-020	[NT]	18	26	25	4	111	93
Copper	mg/kg	1	Metals-020	[NT]	18	24	23	4	103	99
Lead	mg/kg	1	Metals-020	[NT]	18	63	62	2	110	93
Mercury	mg/kg	0.1	Metals-021	[NT]	18	<0.1	<0.1	0	109	107
Nickel	mg/kg	1	Metals-020	[NT]	18	22	21	5	98	92
Zinc	mg/kg	1	Metals-020	[NT]	18	200	200	0	103	85

QUALITY CONTROL: Acid Extractable metals in soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date prepared	-			[NT]	41	22/08/2023	22/08/2023		[NT]	[NT]
Date analysed	-			[NT]	41	23/08/2023	23/08/2023		[NT]	[NT]
Arsenic	mg/kg	4	Metals-020	[NT]	41	4	<4	0	[NT]	[NT]
Cadmium	mg/kg	0.4	Metals-020	[NT]	41	<0.4	<0.4	0	[NT]	[NT]
Chromium	mg/kg	1	Metals-020	[NT]	41	28	31	10	[NT]	[NT]
Copper	mg/kg	1	Metals-020	[NT]	41	22	25	13	[NT]	[NT]
Lead	mg/kg	1	Metals-020	[NT]	41	15	13	14	[NT]	[NT]
Mercury	mg/kg	0.1	Metals-021	[NT]	41	<0.1	<0.1	0	[NT]	[NT]
Nickel	mg/kg	1	Metals-020	[NT]	41	26	29	11	[NT]	[NT]
Zinc	mg/kg	1	Metals-020	[NT]	41	54	49	10	[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]	68	22/08/2023	22/08/2023		[NT]	[NT]
Date analysed	-			[NT]	68	23/08/2023	23/08/2023		[NT]	[NT]
Arsenic	mg/kg	4	Metals-020	[NT]	68	<4	<4	0	[NT]	[NT]
Cadmium	mg/kg	0.4	Metals-020	[NT]	68	<0.4	<0.4	0	[NT]	[NT]
Chromium	mg/kg	1	Metals-020	[NT]	68	13	12	8	[NT]	[NT]
Copper	mg/kg	1	Metals-020	[NT]	68	8	7	13	[NT]	[NT]
Lead	mg/kg	1	Metals-020	[NT]	68	5	4	22	[NT]	[NT]
Mercury	mg/kg	0.1	Metals-021	[NT]	68	<0.1	<0.1	0	[NT]	[NT]
Nickel	mg/kg	1	Metals-020	[NT]	68	13	12	8	[NT]	[NT]
Zinc	mg/kg	1	Metals-020	[NT]	68	19	18	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]	81	22/08/2023	22/08/2023		[NT]	[NT]
Date analysed	-			[NT]	81	23/08/2023	23/08/2023		[NT]	[NT]
Arsenic	mg/kg	4	Metals-020	[NT]	81	<4	<4	0	[NT]	[NT]
Cadmium	mg/kg	0.4	Metals-020	[NT]	81	<0.4	<0.4	0	[NT]	[NT]
Chromium	mg/kg	1	Metals-020	[NT]	81	20	20	0	[NT]	[NT]
Copper	mg/kg	1	Metals-020	[NT]	81	16	16	0	[NT]	[NT]
Lead	mg/kg	1	Metals-020	[NT]	81	9	10	11	[NT]	[NT]
Mercury	mg/kg	0.1	Metals-021	[NT]	81	<0.1	<0.1	0	[NT]	[NT]
Nickel	mg/kg	1	Metals-020	[NT]	81	19	19	0	[NT]	[NT]
Zinc	mg/kg	1	Metals-020	[NT]	81	42	44	5	[NT]	[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	-			24/08/2023	[NT]	[NT]	[NT]	[NT]	24/08/2023	[NT]
Date analysed	-			24/08/2023	[NT]	[NT]	[NT]	[NT]	24/08/2023	[NT]
Arsenic - Total	mg/L	0.05	Metals-020	<0.05	[NT]	[NT]	[NT]	[NT]	103	[NT]
Cadmium - Total	mg/L	0.01	Metals-020	<0.01	[NT]	[NT]	[NT]	[NT]	96	[NT]
Chromium - Total	mg/L	0.01	Metals-020	<0.01	[NT]	[NT]	[NT]	[NT]	96	[NT]
Copper - Total	mg/L	0.01	Metals-020	<0.01	[NT]	[NT]	[NT]	[NT]	96	[NT]
Lead - Total	mg/L	0.03	Metals-020	<0.03	[NT]	[NT]	[NT]	[NT]	98	[NT]
Mercury - Total	mg/L	0.0005	Metals-021	<0.0005	[NT]	[NT]	[NT]	[NT]	93	[NT]
Nickel - Total	mg/L	0.02	Metals-020	<0.02	[NT]	[NT]	[NT]	[NT]	98	[NT]
Zinc - Total	mg/L	0.02	Metals-020	<0.02	[NT]	[NT]	[NT]	[NT]	99	[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

8 metals in soil - # Percent recovery is not applicable due to the high concentration of the element/s in the sample/s. However an acceptable recovery was obtained for the LCS.

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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SAMPLE RECEIPT ADVICE

Client Details

Client	JK Environments
Attention	Mitchell Delaney

Sample Login Details

Your reference	E35092UPD Moree
Envirolab Reference	331035
Date Sample Received	21/08/2023
Date Instructions Received	21/08/2023
Date Results Expected to be Reported	28/08/2023

Sample Condition

Samples received in appropriate condition for analysis	Yes
No. of Samples Provided	84 Soil, 3 Material, 1 Water
Turnaround Time Requested	Standard
Temperature on Receipt (°C)	14
Cooling Method	Ice Pack
Sampling Date Provided	YES

Comments

Nil

Please direct any queries to:

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Analysis Underway, details on the following page:

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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	Metals in Waters -Acid extractable	On Hold
BH201-0.19-0.4	✓	✓	✓	✓	✓	✓	✓				
BH201-0.6-1.0	✓	✓	✓				✓				
BH201-1.6-1.95											✓
BH201-3.1-3.45	✓	✓	✓				✓				
BH202-0.1-0.25	✓	✓	✓	✓	✓	✓	✓				
BH202-0.5-0.95	✓	✓	✓				✓				
BH202-1.5-1.95											✓
BH202-3.0-3.45	✓	✓	✓				✓				
BH203-0.15-0.25	✓	✓	✓	✓	✓	✓	✓				
BH203-0.3-0.4											✓
BH203-0.8-1.0											✓
BH204-0.2-0.3	✓	✓	✓	✓	✓	✓	✓				
BH204-0.5-0.95											✓
BH205-0-0.1	✓	✓	✓	✓	✓	✓	✓	✓			
BH205-0.5-0.95											✓
TP206-0-0.1	✓	✓	✓	✓	✓	✓	✓				
TP206-0.3-0.4											✓
TP207-0-0.1	✓	✓	✓	✓	✓	✓	✓				
TP207-0.2-0.3											✓
TP207-0.4-0.5											✓
TP208-0-0.1	✓	✓	✓	✓	✓	✓	✓	✓			
TP208-0.4-0.5											✓
TP208-0.9-1.0											✓
TP208-1.4-1.5											✓
BH209-0-0.1	✓	✓	✓	✓	✓	✓	✓	✓			
BH209-0.5-0.95	✓	✓	✓				✓				
BH209-1.5-1.95											✓
BH209-3.0-3.45											✓
BH209-4.8-4.95	✓	✓	✓				✓				
BH210-0.05-0.2	✓	✓	✓	✓	✓	✓	✓				
BH210-0.5-0.95											✓
BH211-0-0.1	✓	✓	✓	✓	✓	✓	✓				

Envirolab Services Pty Ltd
ABN 37 112 535 645
12 Ashley St Chatswood NSW 2067
ph 02 9910 6200 fax 02 9910 6201
customerservice@envirolab.com.au
www.envirolab.com.au

Sample ID	vTRH(C6-C10)/BTEXN in Soil	svTRH (C10-C40) in Soil	PAHs in Soil	Organochlorine Pesticides in soil	Organophosphorus Pesticides in Soil	PCBs in Soil	Acid Extractable metalsin soil	Asbestos ID - soils NEPM - ASB-001	Asbestos ID - materials	Metals in Waters -Acid extractable	On Hold
BH211-0.5-0.95											✓
BH212-0-0.1	✓	✓	✓	✓	✓	✓	✓				
TP213-0-0.1	✓	✓	✓	✓	✓	✓	✓				
TP213-0.3-0.4											✓
TP213-0.5-0.6											✓
TP214-0-0.1	✓	✓	✓	✓	✓	✓	✓				
TP214-0.4-0.5											✓
TP214-0.7-0.8											✓
TP215-0-0.1	✓	✓	✓	✓	✓	✓	✓				
TP215-0.4-0.5											✓
TP215-0.7-0.8											✓
BH216-0.05-0.2	✓	✓	✓	✓	✓	✓	✓				
BH216-0.6-0.95											✓
TP217-0-0.1	✓	✓	✓	✓	✓	✓	✓				
TP217-0.3-0.4											✓
TP217-0.55-0.65											✓
TP218-0-0.1	✓	✓	✓	✓	✓	✓	✓				
TP218-0.4-0.5											✓
TP218-0.7-0.8											✓
TP219-0-0.1	✓	✓	✓	✓	✓	✓	✓				
TP219-0.4-0.5											✓
TP220-0-0.1	✓	✓	✓	✓	✓	✓	✓				
TP220-0.2-0.3											✓
TP220-0.4-0.5											✓
TP220-0.75-0.85											✓
TP221-0-0.1	✓	✓	✓	✓	✓	✓	✓				
TP221-0.5-0.6											✓
TP222-0-0.1	✓	✓	✓	✓	✓	✓	✓				
TP222-0.4-0.5											✓
TP223-0-0.1	✓	✓	✓	✓	✓	✓	✓				
TP223-0.2-0.3											✓
TP223-0.7-0.8											✓

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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	Metals in Waters -Acid extractable	On Hold
BH224-0-0.1	✓	✓	✓	✓	✓	✓	✓				
BH224-0.5-0.95											✓
BH224-1.5-1.95											✓
BH224-3.2-3.45	✓	✓	✓				✓				
TP225-0-0.1	✓	✓	✓	✓	✓	✓	✓				
TP225-0.4-0.6											✓
TP226-0-0.1	✓	✓	✓	✓	✓	✓	✓				
TP226-0.4-0.5											✓
TP226-0.8-1.0											✓
TP227-0-0.1	✓	✓	✓	✓	✓	✓	✓	✓			
TP227-0.2-0.3											✓
TP227-0.65-0.75											✓
SDUP201	✓	✓	✓	✓	✓	✓	✓				
SDUP202											✓
SDUP205	✓	✓	✓	✓	✓	✓	✓				
SDUP206											✓
SDUP207	✓	✓	✓	✓	✓	✓	✓				
SDUP208											✓
FCF201									✓		
FCF202									✓		
TP208-FCF1-0-0.1									✓		
TB-S201	✓	✓	✓				✓				
TS-S201	✓										
FR-201										✓	

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: E35092UPD

Date Results Required: STANDARD

Page: 1 of 4

FROM:
JKEnvironments
REAR OF 115 WICKS ROAD
MACQUARIE PARK, NSW 2113
P: 02-9888 5000 F: 02-9888 5001
Attention: Mitchell Delaney
mdelaney@jkenvironments.com.au

Location: Moree
Sampler: AD/CS

Sample Preserved in Esky on Ice

Tests Required

Date Sampled	Lab Ref:	Sample Number	Depth (m)	Sample Container	PID	Sample Description	Combo 6aNEPM	Combo 6	Combo 6a	Combo 3	Asbestos (detection)	BTEX							
15/08/2023	1	BH201	0.19-0.4	G, A	1.5	F: Silty Clay		X											
15/08/2023	2	BH201	0.6-1.0	G, A	2	Silty Clay				X									
15/08/2023	3	BH201	1.6-1.95	G, A	4	Silty Clay													
15/08/2023	4	BH201	3.1-3.45	G, A	3.4	Silty Clay				X									
15/08/2023	5	BH202	0.1-0.25	G, A	4.2	F: Gravelly Sand		X											
15/08/2023	6	BH202	0.5-0.95	G, A	4.5	Silty Clay				X									
15/08/2023	7	BH202	1.5-1.95	G, A	3.2	Silty Clay													
15/08/2023	8	BH202	3.0-3.45	G, A	5.2	Silty Clay				X									
16/08/2023	9	BH203	0.15-0.25	G, A	3.8	F: Silty Sandy Clay		X											
16/08/2023	10	BH203	0.3-0.4	G, A	3.9	F: Silty Clay													
16/08/2023	11	BH203	0.8-1.0	G, A	7.3	Silty Clay													
16/08/2023	12	BH204	0.2-0.3	G, A	5.3	F: Silty Clay		X											
16/08/2023	13	BH204	0.5-0.95	G, A	4.3	Silty Clay													
15/08/2023	14	BH205	0-0.1	G, A	3.2	F: Silty Clay	X												
15/08/2023	15	BH205	0.5-0.95	G, A	4.4	Silty Clay													
16/08/2023	16	TP206	0-0.1	G, A	2.5	F: Silty Clay		X											
16/08/2023	17	TP206	0.3-0.4	G, A	3.7	Silty Clay													
16/08/2023	18	TP207	0-0.1	A	4.1	F: Silty Clay		X											
16/08/2023	19	TP207	0.2-0.3	G, A	3.7	Silty Clay													
16/08/2023	20	TP207	0.4-0.5	G, A	3	Sand													
17/08/2023	21	TP208	0-0.1	G, A	1.8	F: Silty Clay	X												
17/08/2023	22	TP208	0.4-0.5	G, A	1.4	F: Silty Clay													
17/08/2023	23	TP208	0.9-1.0	G, A	2.4	Silty Clay													
17/08/2023	24	TP208	1.4-1.5	G, A	2.8	Silty Clay													
15/08/2023	25	BH209	0-0.1	G, A	3	F: Silty Clay	X												

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

Job No: 331035
Date Received: 21/8/2023
Time Received: 15:36
Received By: [illegible]
Temp: Cool/Ambient
Cooling: Ice/Icepack
Security: Intact/Broken/None

Remarks (comments/detection limits required):

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

Relinquished By: MD	Date: 21.8.23	Time: 2:00pm	Received By: Nancy	Date: 21/8/23

15:30pm Zhang 15:30

SAMPLE AND CHAIN OF CUSTODY FORM

TO:		FROM:
ENVIROLAB SERVICES PTY LTD	JKE Job Number: E35092UPD	JKEnvironments
12 ASHLEY STREET		REAR OF 115 WICKS ROAD
CHATSWOOD NSW 2067		MACQUARIE PARK, NSW 2113
P: (02) 99106200	Date Results Required: STANDARD	P: 02-9888 5000 F: 02-9888 5001
F: (02) 99106201		Attention: Mitchell Delaney
Attention: Aileen	Page: 2 of 4	mdelaney@jkenvironments.com.au

Location:	Moree	Sample Preserved In Esky on Ice
Sampler:	AD/CS	Tests Required

Date Sampled	Lab Ref:	Sample Number	Depth (m)	Sample Container	PID	Sample Description	Combo 6aNEPM	Combo 6	Combo 6a	Combo 3	Asbestos (detection)	BTEX						
15/08/2023	26	BH209	0.5-0.95	G, A	2.2	Silty Clay				X								
15/08/2023	27	BH209	1.5-1.95	G, A	5.8	Silty Clay												
15/08/2023	28	BH209	3.0-3.45	G, A	6.1	Silty Clay												
15/08/2023	29	BH209	4.8-4.95	G, A	4.5	Sand				X								
16/08/2023	30	BH210	0.05-0.2	G, A	5.5	F: Gravelly Sand		X										
16/08/2023	31	BH210	0.5-0.95	G, A	4.5	Silty Clay												
16/08/2023	32	BH211	0-0.1	G, A	3.4	F: Silty Sand		X										
16/08/2023	33	BH211	0.5-0.95	G, A	8.5	Silty Clay												
17/08/2023	34	BH212	0-0.1	G, A	1.3	F: Sandy Clay		X										
17/08/2023	35	TP213	0-0.1	G, A	0.6	F: Sandy Clay		X										
17/08/2023	36	TP213	0.3-0.4	G, A	0.8	Silty Clay												
17/08/2023	37	TP213	0.5-0.6	G, A	1.2	Silty Clay												
16/08/2023	38	TP214	0-0.1	G, A	3.2	F: Silty Clay		X										
16/08/2023	39	TP214	0.4-0.5	G, A	7.6	Silty Clay												
16/08/2023	40	TP214	0.7-0.8	G, A	5.3	Silty Clay												
16/08/2023	41	TP215	0-0.1	G, A	5.1	F: Silty Clay		X										
16/08/2023	42	TP215	0.4-0.5	G, A	5.3	Silty Clay												
16/08/2023	43	TP215	0.7-0.8	G, A	7.9	Silty Clay												
16/08/2023	44	BH216	0.05-0.2	G, A	4.6	F: Gravelly Sand		X										
16/08/2023	45	BH216	0.6-0.95	G, A	3.5	Silty Clay												
16/08/2023	46	TP217	0-0.1	G, A	1.8	F: Silty Clay		X										
16/08/2023	47	TP217	0.3-0.4	G, A	4.6	Silty Clay												
16/08/2023	48	TP217	0.55-0.65	G, A	2.3	Silty Clay												
16/08/2023	49	TP218	0-0.1	G, A	5.1	F: Silty Clay		X										
16/08/2023	50	TP218	0.4-0.5	G, A	6.8	Silty Clay												

ENVIROLAB

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

Job No: 331035
Date Received: 21/8/2023
Time Received: 15:30
Received By: [illegible]
Temp: Cool/Ambient
Cooling: Ice/Icepack
Security: Intact/Broken/None

Remarks (comments/detection limits required):	Sample Containers: G - 250mg Glass Jar A - Ziplock Asbestos Bag P - Plastic Bag

Relinquished By: MD	Date: 21.8.23	Time: ~~2:00pm~~ 15:30	Received By: Nancy Zhang	Date: 21/8/2023 15:30

SAMPLE AND CHAIN OF CUSTODY FORM

TO:		FROM:
ENVIROLAB SERVICES PTY LTD 12 ASHLEY STREET CHATSWOOD NSW 2067 P: (02) 99106200 F: (02) 99106201 Attention: Aileen	JKE Job Number: E35092UPD Date Results Required: STANDARD Page: 3 of 4	JKEnvironments REAR OF 115 WICKS ROAD MACQUARIE PARK, NSW 2113 P: 02-9888 5000 F: 02-9888 5001 Attention: Mitchell Delaney mdelaney@jkenvironments.com.au

Location:	Moree	Sample Preserved in Esky on Ice
Sampler:	AD/CS	Tests Required

Date Sampled	Lab Ref:	Sample Number	Depth (m)	Sample Container	PID	Sample Description	Combo 6aNEPM	Combo 6	Combo 6a	Combo 3	Asbestos (detection)	BTEX						
16/08/2023	51	TP218	0.7-0.8	G, A	6.4	Silty Clay												
17/08/2023	52	TP219	0-0.1	G, A	2.5	F: Silty Clay		X										
17/08/2023	53	TP219	0.4-0.5	G, A	2.6	Silty Clay												
16/08/2023	54	TP220	0-0.1	G, A	8.5	F: Silty Clay		X										
16/08/2023	55	TP220	0.2-0.3	G, A	4.7	F: Silty Clay												
16/08/2023	56	TP220	0.4-0.5	G, A	5.1	Silty Clay												
16/08/2023	57	TP220	0.75-0.85	G, A	6	Silty Clay												
16/08/2023	58	TP221	0-0.1	G, A	5.1	F: Silty Clay		X										
16/08/2023	59	TP221	0.5-0.6	G, A	4.8	Silty Clay												
17/08/2023	60	TP222	0-0.1	G, A	3.2	F: Silty Clay		X										
17/08/2023	61	TP222	0.4-0.5	G, A	2.7	Silty Clay												
16/08/2023	62	TP223	0-0.1	G, A	2.8	F: Silty Clay		X										
16/08/2023	63	TP223	0.2-0.3	G, A	3.1	F: Silty Clay												
16/08/2023	64	TP223	0.7-0.8	G, A	2.3	Silty Clay												
16/08/2023	65	BH224	0-0.1	G, A	2.5	F: Silty Clay		X										
16/08/2023	66	BH224	0.5-0.95	G, A	3.5	Silty Clay												
16/08/2023	67	BH224	1.5-1.95	G, A	7	Silty Clay												
16/08/2023	68	BH224	3.2-3.45	G, A	7.1	Sand				X								
17/08/2023	69	TP225	0-0.1	G, A	0.2	F: Silty Clay		X										
17/08/2023	70	TP225	0.4-0.6	G, A	1	Silty Clay												
16/08/2023	71	TP226	0-0.1	G, A	3.2	F: Silty Clay		X										
16/08/2023	72	TP226	0.4-0.5	G, A	4.5	Silty Clay												
16/08/2023	73	TP226	0.8-1.0	G, A	5.4	Silty Clay												
16/08/2023	74	TP227	0-0.1	G, A	6.8	F: Silty Clay	X											
16/08/2023	75	TP227	0.2-0.3	G, A	4.9	Silty Clay												
16/08/2023	76	TP227	0.65-0.75	G, A	4.4	Silty Clay												

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

Job No: 331035
Date Received: 21/8/23
Time Received: 15:30
Received By: [illegible]
Temp: Cool/Ambient
Cooling: Ice/Icepack
Security: Intact/Broken/None

Remarks (comments/detection limits required):

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

Relinquished By: MD	Date: 21.8.23	Time: 2:00pm 15:30	Received By: Nancy Zhang	Date: 21/08/2023 15:30

SAMPLE AND CHAIN OF CUSTODY FORM

TO:		FROM:
ENVIROLAB SERVICES PTY LTD 12 ASHLEY STREET CHATSWOOD NSW 2067 P: (02) 99106200 F: (02) 99106201 Attention: Aileen	JKE Job Number: E35092UPD Date Results Required: STANDARD Page: 4 of 4	JKEnvironments REAR OF 115 WICKS ROAD MACQUARIE PARK, NSW 2113 P: 02-9888 5000 F: 02-9888 5001 Attention: Mitchell Delaney mdelaney@jkenvironments.com.au

Location:	Moree	Sample Preserved in Esky on Ice
Sampler:	AD/CS	Tests Required

Date Sampled	Lab Ref:	Sample Number	Depth (m)	Sample Container	PID	Sample Description	Combo 6aNEPM	Combo 6	Combo 6a	Combo 3	Asbestos (detection)	BTEX	Heavy metals					
15/08/2023	77	SDUP201	-	G	-	Soil Duplicate		X										
16/08/2023	78	SDUP202	-	G	-	Soil Duplicate		X										
16/08/2023	79	SDUP205	-	G	-	Soil Duplicate		X										
16/08/2023	80	SDUP206	-	G	-	Soil Duplicate		X										
16/08/2023	81	SDUP207	-	G	-	Soil Duplicate		X										
16/08/2023	82	SDUP208	-	G	-	Soil Duplicate		X										
15/08/2023	83	FCF201	-	A	-	Fragment					X							
15/08/2023	84	FCF202	-	A	-	Fragment					X							
17/08/2023	85	TP208-FCF1	0-0.1	A	-	Fragment					X							
16/08/2023	86	TB-S201	-	G	-	Trip Blank				X								
16/08/2023	87	TS-S201	-	V	-	Trip Spike						X						
16/08/2023	88	FR-201	-	#	-	Field Rinsate							X					

ENVIROLAB

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

Job No: 351035

Date Received: 21/8/23

Time Received: 15:30

Received By: JS

Temp: Cool/Ambient

Cooling: Ice/Icepack

Security: Intact/Broken/None

Remarks (comments/detection limits required):	Sample Containers: G - 250mg Glass Jar A - Ziplock Asbestos Bag #1x HNO3			
Relinquished By: MD	Date: 21.8.23	Time: 2:00pm	Received By: Nancy	Date: 21/8/2023 15:30

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 331035-A

Client Details

Client	JK Environments
Attention	Mitchell Delaney
Address	PO Box 976, North Ryde BC, NSW, 1670

Sample Details

Your Reference	**E35092UPD Moree**
Number of Samples	additional analysis
Date samples received	21/08/2023
Date completed instructions received	06/09/2023

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	08/09/2023
Date of Issue	08/09/2023

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

Results Approved By
Liam Timmins, Organics Supervisor
Loren Bardwell, Development Chemist

Authorised By
Nancy Zhang, Laboratory Manager

TCLP Preparation - Acid				
Our Reference		331035-A-5	331035-A-8	331035-A-58
Your Reference	UNITS	BH202	BH202	TP221
Depth		0.1-0.25	3.0-3.45	0-0.1
Date Sampled		15/08/2023	15/08/2023	16/08/2023
Type of sample		Soil	Soil	Soil
pH of soil for fluid# determ.	pH units	9.1	9.2	8.9
pH of soil TCLP (after HCl)	pH units	1.7	1.7	1.7
Extraction fluid used		1	1	1
pH of final Leachate	pH units	5.6	4.9	5.0

PAHs in TCLP (USEPA 1311)		
Our Reference		331035-A-58
Your Reference	UNITS	TP221
Depth		0-0.1
Date Sampled		16/08/2023
Type of sample		Soil
Date extracted	-	08/09/2023
Date analysed	-	08/09/2023
Naphthalene in TCLP	mg/L	<0.0001
Acenaphthylene in TCLP	mg/L	<0.0001
Acenaphthene in TCLP	mg/L	<0.0001
Fluorene in TCLP	mg/L	<0.0001
Phenanthrene in TCLP	mg/L	<0.0001
Anthracene in TCLP	mg/L	<0.0001
Fluoranthene in TCLP	mg/L	<0.0001
Pyrene in TCLP	mg/L	<0.0001
Benzo(a)anthracene in TCLP	mg/L	<0.0001
Chrysene in TCLP	mg/L	<0.0001
Benzo(bjk)fluoranthene in TCLP	mg/L	<0.0002
Benzo(a)pyrene in TCLP	mg/L	<0.0001
Indeno(1,2,3-c,d)pyrene - TCLP	mg/L	<0.0001
Dibenzo(a,h)anthracene in TCLP	mg/L	<0.0001
Benzo(g,h,i)perylene in TCLP	mg/L	<0.0001
Total +ve PAH's	mg/L	NIL (+)VE
Surrogate p-Terphenyl-d14	%	113

Metals from Leaching Fluid pH 2.9 or 5			
Our Reference		331035-A-5	331035-A-8
Your Reference	UNITS	BH202	BH202
Depth		0.1-0.25	3.0-3.45
Date Sampled		15/08/2023	15/08/2023
Type of sample		Soil	Soil
Date extracted	-	08/09/2023	08/09/2023
Date analysed	-	08/09/2023	08/09/2023
Lead	mg/L	0.55	[NA]
Nickel	mg/L	[NA]	<0.02

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.
Org-022/025	Leachates are extracted with Dichloromethane and analysed by GC-MS/GC-MSMS.

QUALITY CONTROL: PAHs in TCLP (USEPA 1311)					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date extracted	-			08/09/2023	[NT]	[NT]	[NT]	[NT]	08/09/2023	[NT]
Date analysed	-			08/09/2023	[NT]	[NT]	[NT]	[NT]	08/09/2023	[NT]
Naphthalene in TCLP	mg/L	0.0001	Org-022/025	<0.0001	[NT]	[NT]	[NT]	[NT]	61	[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]	61	[NT]
Fluorene in TCLP	mg/L	0.0001	Org-022/025	<0.0001	[NT]	[NT]	[NT]	[NT]	63	[NT]
Phenanthrene in TCLP	mg/L	0.0001	Org-022/025	<0.0001	[NT]	[NT]	[NT]	[NT]	61	[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]	65	[NT]
Pyrene in TCLP	mg/L	0.0001	Org-022/025	<0.0001	[NT]	[NT]	[NT]	[NT]	64	[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]	60	[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]	65	[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	99	[NT]	[NT]	[NT]	[NT]	85	[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	-			08/09/2023	[NT]	[NT]	[NT]	[NT]	08/09/2023	[NT]
Date analysed	-			08/09/2023	[NT]	[NT]	[NT]	[NT]	08/09/2023	[NT]
Lead	mg/L	0.03	Metals-020	<0.03	[NT]	[NT]	[NT]	[NT]	90	[NT]
Nickel	mg/L	0.02	Metals-020	<0.02	[NT]	[NT]	[NT]	[NT]	91	[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
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customerservice@envirolab.com.au
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SAMPLE RECEIPT ADVICE

Client Details

Client	JK Environments
Attention	Mitchell Delaney

Sample Login Details

Your reference	E35092UPD Moree
Envirolab Reference	331035-A
Date Sample Received	21/08/2023
Date Instructions Received	06/09/2023
Date Results Expected to be Reported	08/09/2023

Sample Condition

Samples received in appropriate condition for analysis	Yes
No. of Samples Provided	additional analysis
Turnaround Time Requested	2 days
Temperature on Receipt (°C)	14
Cooling Method	Ice Pack
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:

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Sample ID	TCLP Preparation - Acid	PAHs in TCLP (USEPA 1311)	Lead	Nickel	On Hold
BH201-0.19-0.4					✓
BH201-0.6-1.0					✓
BH201-1.6-1.95					✓
BH201-3.1-3.45					✓
BH202-0.1-0.25	✓		✓		
BH202-0.5-0.95					✓
BH202-1.5-1.95					✓
BH202-3.0-3.45	✓			✓	
BH203-0.15-0.25					✓
BH203-0.3-0.4					✓
BH203-0.8-1.0					✓
BH204-0.2-0.3					✓
BH204-0.5-0.95					✓
BH205-0-0.1					✓
BH205-0.5-0.95					✓
TP206-0-0.1					✓
TP206-0.3-0.4					✓
TP207-0-0.1					✓
TP207-0.2-0.3					✓
TP207-0.4-0.5					✓
TP208-0-0.1					✓
TP208-0.4-0.5					✓
TP208-0.9-1.0					✓
TP208-1.4-1.5					✓
BH209-0-0.1					✓
BH209-0.5-0.95					✓
BH209-1.5-1.95					✓
BH209-3.0-3.45					✓
BH209-4.8-4.95					✓
BH210-0.05-0.2					✓
BH210-0.5-0.95					✓
BH211-0-0.1					✓

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Sample ID	TCLP Preparation - Acid	PAHs in TCLP (USEPA 1311)	Lead	Nickel	On Hold
BH211-0.5-0.95					✓
BH212-0-0.1					✓
TP213-0-0.1					✓
TP213-0.3-0.4					✓
TP213-0.5-0.6					✓
TP214-0-0.1					✓
TP214-0.4-0.5					✓
TP214-0.7-0.8					✓
TP215-0-0.1					✓
TP215-0.4-0.5					✓
TP215-0.7-0.8					✓
BH216-0.05-0.2					✓
BH216-0.6-0.95					✓
TP217-0-0.1					✓
TP217-0.3-0.4					✓
TP217-0.55-0.65					✓
TP218-0-0.1					✓
TP218-0.4-0.5					✓
TP218-0.7-0.8					✓
TP219-0-0.1					✓
TP219-0.4-0.5					✓
TP220-0-0.1					✓
TP220-0.2-0.3					✓
TP220-0.4-0.5					✓
TP220-0.75-0.85					✓
TP221-0-0.1	✓	✓			
TP221-0.5-0.6					✓
TP222-0-0.1					✓
TP222-0.4-0.5					✓
TP223-0-0.1					✓
TP223-0.2-0.3					✓
TP223-0.7-0.8					✓

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Sample ID	TCLP Preparation - Acid	PAHs in TCLP (USEPA 1311)	Lead	Nickel	On Hold
BH224-0-0.1					✓
BH224-0.5-0.95					✓
BH224-1.5-1.95					✓
BH224-3.2-3.45					✓
TP225-0-0.1					✓
TP225-0.4-0.6					✓
TP226-0-0.1					✓
TP226-0.4-0.5					✓
TP226-0.8-1.0					✓
TP227-0-0.1					✓
TP227-0.2-0.3					✓
TP227-0.65-0.75					✓
SDUP201					✓
SDUP202					✓
SDUP205					✓
SDUP206					✓
SDUP207					✓
SDUP208					✓
FCF201					✓
FCF202					✓
TP208-FCF1-0-0.1					✓
TB-S201					✓
TS-S201					✓
FR-201					✓

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.

Ming To

From: Mitchell Delaney <MDelaney@jkenvironments.com.au>
Sent: Wednesday, 6 September 2023 12:04 PM
To: Nick Sarlamis
Cc: Samplereceipt
Subject: RE: Results for Registration 331035 E35092UPD Moree

Ref: 331035-A
TAT: 2 day
Due: 08/09/2023
MT

Categories: Additional

Hi Nick and all,

Can I please have the following additional TCLP done on a 48h TA.

BH202 (5)	0.1-0.25	TCLP Lead
BH202 (8)	3.0-3.45	TCLP Nickel
TP221 (58)	0-0.1	TCLP BaP

Many thanks!

Regards
Mitchell Delaney
Senior Associate | Environmental Scientist

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Brisbane Office
Level 1, 470 St Pauls Terrace
FORTITUDE VALLEY QLD 4006
Sunshine Coast Office
8 Innovation Parkway
BIRTINYA QLD 4575

JKEnvironments

From: Nick Sarlamis <NSarlamis@envirolab.com.au>
Sent: Monday, 28 August 2023 5:29 PM
To: Mitchell Delaney <MDelaney@jkenvironments.com.au>
Subject: Results for Registration 331035 E35092UPD Moree

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

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CERTIFICATE OF ANALYSIS 331035-B

Client Details

Client	JK Environments
Attention	Mitchell Delaney
Address	PO Box 976, North Ryde BC, NSW, 1670

Sample Details

Your Reference	**E35092UPD Moree**
Number of Samples	additional analysis
Date samples received	21/08/2023
Date completed instructions received	13/09/2023

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	15/09/2023
Date of Issue	15/09/2023

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Results Approved By
Dragana Tomas, Senior Chemist
Greta Petzold, Operation Manager
Liam Timmins, Organics Supervisor

Authorised By
Nancy Zhang, Laboratory Manager

Organochlorine Pesticides in soil			
Our Reference		331035-B-22	331035-B-23
Your Reference	UNITS	TP208	TP208
Depth		0.4-0.5	0.9-1.0
Date Sampled		17/08/2023	17/08/2023
Type of sample		Soil	Soil
Date extracted	-	14/09/2023	14/09/2023
Date analysed	-	14/09/2023	14/09/2023
alpha-BHC	mg/kg	<0.1	<0.1
HCB	mg/kg	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1
Mirex	mg/kg	<0.1	<0.1
Total +ve DDT+DDD+DDE	mg/kg	<0.1	<0.1
Surrogate TCMX	%	96	94

Moisture			
Our Reference		331035-B-22	331035-B-23
Your Reference	UNITS	TP208	TP208
Depth		0.4-0.5	0.9-1.0
Date Sampled		17/08/2023	17/08/2023
Type of sample		Soil	Soil
Date prepared	-	14/09/2023	14/09/2023
Date analysed	-	15/09/2023	15/09/2023
Moisture	%	21	24

OC Pesticides in TCLP		
Our Reference		331035-B-21
Your Reference	UNITS	TP208
Depth		0-0.1
Date Sampled		17/08/2023
Type of sample		Soil
pH of soil for fluid# determ.	pH units	8.5
pH of soil TCLP (after HCl)	pH units	1.9
Extraction fluid used		1
pH of final Leachate	pH units	5.0
Date extracted	-	15/09/2023
Date analysed	-	15/09/2023
alpha-BHC	µg/L	<0.2
HCB	µg/L	<0.2
beta-BHC	µg/L	<0.2
gamma-BHC	µg/L	<0.2
Heptachlor	µg/L	<0.2
delta-BHC	µg/L	<0.2
Aldrin	µg/L	<0.2
Heptachlor Epoxide	µg/L	<0.2
gamma-Chlordane	µg/L	<0.2
alpha-Chlordane	µg/L	<0.2
Endosulfan I	µg/L	<0.2
pp-DDE	µg/L	<0.2
Dieldrin	µg/L	<0.2
Endrin	µg/L	<0.2
Endosulfan II	µg/L	<0.2
pp-DDD	µg/L	<0.2
Endrin Aldehyde	µg/L	<0.2
pp-DDT	µg/L	<0.2
Endosulfan Sulphate	µg/L	<0.2
Methoxychlor	µg/L	<0.2
Mirex	ug/L	<0.2
Surrogate TCMX	%	88

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.
Inorg-008	Moisture content determined by heating at 105+/-5 °C for a minimum of 12 hours.
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.

QUALITY CONTROL: Organochlorine Pesticides in soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
Date extracted	-			14/09/2023	[NT]	[NT]	[NT]	[NT]	14/09/2023	[NT]
Date analysed	-			14/09/2023	[NT]	[NT]	[NT]	[NT]	14/09/2023	[NT]
alpha-BHC	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	94	[NT]
HCB	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
beta-BHC	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	92	[NT]
gamma-BHC	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Heptachlor	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	92	[NT]
delta-BHC	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aldrin	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	91	[NT]
Heptachlor Epoxide	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	87	[NT]
gamma-Chlordane	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
alpha-chlordane	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Endosulfan I	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
pp-DDE	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	95	[NT]
Dieldrin	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	99	[NT]
Endrin	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	82	[NT]
Endosulfan II	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
pp-DDD	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	87	[NT]
Endrin Aldehyde	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
pp-DDT	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Endosulfan Sulphate	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	122	[NT]
Methoxychlor	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Mirex	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate TCMX	%		Org-022/025	96	[NT]	[NT]	[NT]	[NT]	92	[NT]

QUALITY CONTROL: OC Pesticides in TCLP						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date extracted	-			15/09/2023	[NT]	[NT]	[NT]	[NT]	15/09/2023	[NT]
Date analysed	-			15/09/2023	[NT]	[NT]	[NT]	[NT]	15/09/2023	[NT]
alpha-BHC	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	87	[NT]
HCB	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
beta-BHC	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	85	[NT]
gamma-BHC	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Heptachlor	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	84	[NT]
delta-BHC	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aldrin	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	84	[NT]
Heptachlor Epoxide	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	61	[NT]
gamma-Chlordane	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
alpha-Chlordane	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Endosulfan I	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
pp-DDE	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	90	[NT]
Dieldrin	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	93	[NT]
Endrin	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	87	[NT]
Endosulfan II	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
pp-DDD	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	75	[NT]
Endrin Aldehyde	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
pp-DDT	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Endosulfan Sulphate	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	85	[NT]
Methoxychlor	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Mirex	ug/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate TCMX	%		Org-022/025	92	[NT]	[NT]	[NT]	[NT]	99	[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
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	Mitchell Delaney

Sample Login Details

Your reference	E35092UPD Moree
Envirolab Reference	331035-B
Date Sample Received	21/08/2023
Date Instructions Received	13/09/2023
Date Results Expected to be Reported	15/09/2023

Sample Condition

Samples received in appropriate condition for analysis	Holding time exceedance
No. of Samples Provided	additional analysis
Turnaround Time Requested	2 days
Temperature on Receipt (°C)	14
Cooling Method	Ice Pack
Sampling Date Provided	YES

Comments

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
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Sample ID	Organochlorine Pesticides in soil	OC Pesticides in TCLP	On Hold
BH201-0.19-0.4			✓
BH201-0.6-1.0			✓
BH201-1.6-1.95			✓
BH201-3.1-3.45			✓
BH202-0.1-0.25			✓
BH202-0.5-0.95			✓
BH202-1.5-1.95			✓
BH202-3.0-3.45			✓
BH203-0.15-0.25			✓
BH203-0.3-0.4			✓
BH203-0.8-1.0			✓
BH204-0.2-0.3			✓
BH204-0.5-0.95			✓
BH205-0-0.1			✓
BH205-0.5-0.95			✓
TP206-0-0.1			✓
TP206-0.3-0.4			✓
TP207-0-0.1			✓
TP207-0.2-0.3			✓
TP207-0.4-0.5			✓
TP208-0-0.1		✓	
TP208-0.4-0.5	✓		
TP208-0.9-1.0	✓		
TP208-1.4-1.5			✓
BH209-0-0.1			✓
BH209-0.5-0.95			✓
BH209-1.5-1.95			✓
BH209-3.0-3.45			✓
BH209-4.8-4.95			✓
BH210-0.05-0.2			✓
BH210-0.5-0.95			✓
BH211-0-0.1			✓

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customerservice@envirolab.com.au
www.envirolab.com.au

Sample ID	Organochlorine Pesticides in soil	OC Pesticides in TCLP	On Hold
BH211-0.5-0.95			✓
BH212-0-0.1			✓
TP213-0-0.1			✓
TP213-0.3-0.4			✓
TP213-0.5-0.6			✓
TP214-0-0.1			✓
TP214-0.4-0.5			✓
TP214-0.7-0.8			✓
TP215-0-0.1			✓
TP215-0.4-0.5			✓
TP215-0.7-0.8			✓
BH216-0.05-0.2			✓
BH216-0.6-0.95			✓
TP217-0-0.1			✓
TP217-0.3-0.4			✓
TP217-0.55-0.65			✓
TP218-0-0.1			✓
TP218-0.4-0.5			✓
TP218-0.7-0.8			✓
TP219-0-0.1			✓
TP219-0.4-0.5			✓
TP220-0-0.1			✓
TP220-0.2-0.3			✓
TP220-0.4-0.5			✓
TP220-0.75-0.85			✓
TP221-0-0.1			✓
TP221-0.5-0.6			✓
TP222-0-0.1			✓
TP222-0.4-0.5			✓
TP223-0-0.1			✓
TP223-0.2-0.3			✓
TP223-0.7-0.8			✓

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Sample ID	Organochlorine Pesticides in soil	OC Pesticides in TCLP	On Hold
BH224-0-0.1			✓
BH224-0.5-0.95			✓
BH224-1.5-1.95			✓
BH224-3.2-3.45			✓
TP225-0-0.1			✓
TP225-0.4-0.6			✓
TP226-0-0.1			✓
TP226-0.4-0.5			✓
TP226-0.8-1.0			✓
TP227-0-0.1			✓
TP227-0.2-0.3			✓
TP227-0.65-0.75			✓
SDUP201			✓
SDUP202			✓
SDUP205			✓
SDUP206			✓
SDUP207			✓
SDUP208			✓
FCF201			✓
FCF202			✓
TP208-FCF1-0-0.1			✓
TB-S201			✓
TS-S201			✓
FR-201			✓

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.

Ming To

From: Mitchell Delaney <MDelaney@jkenvironments.com.au>
Sent: Wednesday, 13 September 2023 12:22 PM
To: Ming To; Nick Sarlamis; Samplereceipt
Subject: RE: Results for Registration 331035 E35092UPD Moree

Ref: 331035-B
TAT: 2 day
Due: 15/09/2023
MT

Hi Ming,

All on 48h TA will be fine.

Thanks.

Regards
Mitchell Delaney
Senior Associate | Environmental Scientist

T: +617 3012 6339
D: 0405 140 181
E: MDelaney@jkenvironments.com.au
www.jkenvironments.com.au

Brisbane Office
Level 1, 470 St Pauls Terrace
FORTITUDE VALLEY QLD 4006
Sunshine Coast Office
8 Innovation Parkway
BIRTINYA QLD 4575

JKEnvironments

From: Ming To <MTo@envirolab.com.au>
Sent: Wednesday, 13 September 2023 12:20 PM
To: Mitchell Delaney <MDelaney@jkenvironments.com.au>; Nick Sarlamis <NSarlamis@envirolab.com.au>; Samplereceipt <Samplereceipt@envirolab.com.au>
Subject: RE: Results for Registration 331035 E35092UPD Moree

Hi Mitchell,

I will get this organised for you as well. We will report this sample in separate report for the different turnaround.

Kind Regards,

Ming To | Customer Service | Envirolab Services

Great Science. Great Service.

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

Follow us on: LinkedIn | Facebook | Twitter

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

Ming To

From: Mitchell Delaney <MDelaney@jkenvironments.com.au>
Sent: Wednesday, 13 September 2023 12:16 PM
To: Nick Sarlamis; Samplereceipt
Subject: FW: Results for Registration 331035 E35092UPD Moree

Importance: High

Sorry can I also add TCLP analysis for OCP to the sample TP208 (0-0.1). (21)

48h TA on all please.

Regards
Mitchell Delaney
Senior Associate | Environmental Scientist

T: +617 3012 6339
D: 0405 140 181
E: MDelaney@jkenvironments.com.au
www.jkenvironments.com.au

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BIRTINYA QLD 4575

JKEnvironments

From: Mitchell Delaney
Sent: Wednesday, 13 September 2023 11:58 AM
To: 'Nick Sarlamis' <NSarlamis@envirolab.com.au>; Samplereceipt <Samplereceipt@envirolab.com.au>
Subject: RE: Results for Registration 331035 E35092UPD Moree
Importance: High

Hi,

Can I please schedule analysis of the samples TP208 (0.4-0.5) and TP208 (0.9-1.0) for OCPs on a 24h TA.

Cheers.

From: Nick Sarlamis <NSarlamis@envirolab.com.au>
Sent: Monday, 28 August 2023 5:29 PM
To: Mitchell Delaney <MDelaney@jkenvironments.com.au>
Subject: Results for Registration 331035 E35092UPD Moree

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

Ming To

From: Mitchell Delaney <MDelaney@jkenvironments.com.au>
Sent: Wednesday, 13 September 2023 11:58 AM
To: Nick Sarlamis; Samplereceipt
Subject: RE: Results for Registration 331035 E35092UPD Moree

Ref: 331035-AB
TAT: 2 day
Due: 14/09/2023
15 MZ

Importance: High

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

Hi,

Can I please schedule analysis of the samples TP208 (0.4-0.5) (22) and TP208 (0.9-1.0) (23) for OCPs on a 24h TA.

Cheers.

Regards
Mitchell Delaney
Senior Associate | Environmental Scientist

T: +617 3012 6339
D: 0405 140 181
E: MDelaney@jkenvironments.com.au
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8 Innovation Parkway
BIRTINYA QLD 4575

JKEnvironments

From: Nick Sarlamis <NSarlamis@envirolab.com.au>
Sent: Monday, 28 August 2023 5:29 PM
To: Mitchell Delaney <MDelaney@jkenvironments.com.au>
Subject: Results for Registration 331035 E35092UPD Moree

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

How did we do? Send Feedback

Kind Regards,

Nick Sarlamis | Assistant Operations Manager | Envirolab Services

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ph 03 9763 2500 fax 03 9763 2633
melbourne@envirolab.com.au
www.envirolab.com.au

CERTIFICATE OF ANALYSIS 39258

Client Details

Client	JK Environments
Attention	Mitch Delaney
Address	PO Box 976, North Ryde BC, NSW, 1670

Sample Details

Your Reference	**E35092UPD**
Number of Samples	3 Soil
Date samples received	24/08/2023
Date completed instructions received	24/08/2023

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	30/08/2023
Date of Issue	30/08/2023

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

Results Approved By
Chris De Luca, Assistant Lab Manager
Suk Lee, Organic Supervisor
Tara White, Metals Team Leader
Tianna Milburn, Senior Chemist

Authorised By
Pamela Adams, Laboratory Manager

vTRH(C6-C10)/BTEXN in Soil				
Our Reference		39258-1	39258-2	39258-3
Your Reference	UNITS	SDUP202	SDUP206	SDUP208
Date Sampled		16/08/2023	16/08/2023	16/08/2023
Type of sample		Soil	Soil	Soil
Date extracted	-	25/08/2023	25/08/2023	25/08/2023
Date analysed	-	25/08/2023	25/08/2023	25/08/2023
vTRH C_6 - C_9	mg/kg	<25	<25	<25
vTRH C_6 - C_{10}	mg/kg	<25	<25	<25
TRH C_6 - C_{10} less BTEX (F1)	mg/kg	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1
Naphthalene	mg/kg	<1	<1	<1
Total BTEX	mg/kg	<1	<1	<1
Total +ve Xylenes	mg/kg	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	124	126	129

TRH Soil C10-C40 NEPM				
Our Reference	UNITS	39258-1	39258-2	39258-3
Your Reference		SDUP202	SDUP206	SDUP208
Date Sampled		16/08/2023	16/08/2023	16/08/2023
Type of sample		Soil	Soil	Soil
Date extracted	-	25/08/2023	25/08/2023	25/08/2023
Date analysed	-	26/08/2023	26/08/2023	26/08/2023
TRH C_{10} - C_{14}	mg/kg	<50	<50	<50
TRH C_{15} - C_{28}	mg/kg	<100	<100	<100
TRH C_{29} - C_{36}	mg/kg	<100	<100	<100
Total +ve TRH (C10-C36)	mg/kg	<50	<50	<50
TRH >C_{10} -C_{16}	mg/kg	<50	<50	<50
TRH >C_{10} - C_{16} less Naphthalene (F2)	mg/kg	<50	<50	<50
TRH >C_{16} -C_{34}	mg/kg	<100	<100	<100
TRH >C_{34} -C_{40}	mg/kg	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	<50
Surrogate o-Terphenyl	%	93	90	90

PAHs in Soil				
Our Reference	UNITS	39258-1	39258-2	39258-3
Your Reference		SDUP202	SDUP206	SDUP208
Date Sampled		16/08/2023	16/08/2023	16/08/2023
Type of sample		Soil	Soil	Soil
Date extracted	-	25/08/2023	25/08/2023	25/08/2023
Date analysed	-	26/08/2023	26/08/2023	26/08/2023
Naphthalene	mg/kg	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	0.5	<0.1	0.7
Anthracene	mg/kg	<0.1	<0.1	0.1
Fluoranthene	mg/kg	1.4	<0.1	1.8
Pyrene	mg/kg	1.4	<0.1	1.9
Benzo(a)anthracene	mg/kg	0.4	<0.1	0.5
Chrysene	mg/kg	0.5	<0.1	0.6
Benzo(b,j&k)fluoranthene	mg/kg	1	<0.2	1.3
Benzo(a)pyrene	mg/kg	0.66	<0.05	0.86
Indeno(1,2,3-c,d)pyrene	mg/kg	0.4	<0.1	0.5
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	0.1
Benzo(g,h,i)perylene	mg/kg	0.5	<0.1	0.6
Total +ve PAH's	mg/kg	6.6	<0.05	9.1
Benzo(a)pyrene TEQ calc (Zero)	mg/kg	0.8	<0.5	1.2
Benzo(a)pyrene TEQ calc (Half)	mg/kg	0.9	<0.5	1.2
Benzo(a)pyrene TEQ calc (PQL)	mg/kg	0.9	<0.5	1.2
Surrogate p-Terphenyl-d_{14}	%	102	98	98

OCP in Soil				
Our Reference		39258-1	39258-2	39258-3
Your Reference	UNITS	SDUP202	SDUP206	SDUP208
Date Sampled		16/08/2023	16/08/2023	16/08/2023
Type of sample		Soil	Soil	Soil
Date extracted	-	25/08/2023	25/08/2023	25/08/2023
Date analysed	-	26/08/2023	26/08/2023	26/08/2023
alpha-BHC	mg/kg	<0.1	<0.1	<0.1
Hexachlorobenzene	mg/kg	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1
Total +ve reported Aldrin + Dieldrin	mg/kg	<0.1	<0.1	<0.1
Total +ve reported DDT+DDD+DDE	mg/kg	<0.1	<0.1	<0.1
Surrogate 2-chlorophenol-d4	%	96	92	92

OP in Soil				
Our Reference		39258-1	39258-2	39258-3
Your Reference	UNITS	SDUP202	SDUP206	SDUP208
Date Sampled		16/08/2023	16/08/2023	16/08/2023
Type of sample		Soil	Soil	Soil
Date extracted	-	25/08/2023	25/08/2023	25/08/2023
Date analysed	-	26/08/2023	26/08/2023	26/08/2023
Azinphos-methyl	mg/kg	<0.1	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1	<0.1
Chlorpyrifos	mg/kg	<0.1	<0.1	<0.1
Chlorpyrifos-methyl	mg/kg	<0.1	<0.1	<0.1
Diazinon	mg/kg	<0.1	<0.1	<0.1
Dichlorovos	mg/kg	<0.1	<0.1	<0.1
Dimethoate	mg/kg	<0.1	<0.1	<0.1
Ethion	mg/kg	<0.1	<0.1	<0.1
Fenitrothion	mg/kg	<0.1	<0.1	<0.1
Malathion	mg/kg	<0.1	<0.1	<0.1
Parathion	mg/kg	<0.1	<0.1	<0.1
Ronnel	mg/kg	<0.1	<0.1	<0.1
Coumaphos	mg/kg	<0.1	<0.1	<0.1
Disulfoton	mg/kg	<0.1	<0.1	<0.1
Fenamiphos	mg/kg	<0.1	<0.1	<0.1
Fenthion	mg/kg	<0.1	<0.1	<0.1
Methidathion	mg/kg	<0.1	<0.1	<0.1
Mevinphos	mg/kg	<0.1	<0.1	<0.1
Methyl Parathion	mg/kg	<0.1	<0.1	<0.1
Phorate	mg/kg	<0.1	<0.1	<0.1
Phosalone	mg/kg	<0.1	<0.1	<0.1
Surrogate 2-chlorophenol-d4	%	96	92	92

PCBs in Soil				
Our Reference	UNITS	39258-1	39258-2	39258-3
Your Reference		SDUP202	SDUP206	SDUP208
Date Sampled		16/08/2023	16/08/2023	16/08/2023
Type of sample		Soil	Soil	Soil
Date extracted	-	25/08/2023	25/08/2023	25/08/2023
Date analysed	-	26/08/2023	26/08/2023	26/08/2023
Aroclor 1016	mg/kg	<0.1	<0.1	<0.1
Aroclor 1221	mg/kg	<0.1	<0.1	<0.1
Aroclor 1232	mg/kg	<0.1	<0.1	<0.1
Aroclor 1242	mg/kg	<0.1	<0.1	<0.1
Aroclor 1248	mg/kg	<0.1	<0.1	<0.1
Aroclor 1254	mg/kg	<0.1	<0.1	<0.1
Aroclor 1260	mg/kg	<0.1	<0.1	<0.1
Total +ve PCBs (1016-1260)	mg/kg	<0.1	<0.1	<0.1
Surrogate 2-fluorobiphenyl	%	104	98	100

Acid Extractable metals in soil				
Our Reference		39258-1	39258-2	39258-3
Your Reference	UNITS	SDUP202	SDUP206	SDUP208
Date Sampled		16/08/2023	16/08/2023	16/08/2023
Type of sample		Soil	Soil	Soil
Date digested	-	26/08/2023	26/08/2023	26/08/2023
Date analysed	-	28/08/2023	28/08/2023	28/08/2023
Arsenic	mg/kg	<4	<4	<4
Cadmium	mg/kg	<0.4	<0.4	<0.4
Chromium	mg/kg	28	24	26
Copper	mg/kg	22	17	20
Lead	mg/kg	18	14	16
Mercury	mg/kg	<0.1	<0.1	<0.1
Nickel	mg/kg	26	23	25
Zinc	mg/kg	80	56	56

Moisture				
Our Reference		39258-1	39258-2	39258-3
Your Reference	UNITS	SDUP202	SDUP206	SDUP208
Date Sampled		16/08/2023	16/08/2023	16/08/2023
Type of sample		Soil	Soil	Soil
Date prepared	-	25/08/2023	25/08/2023	25/08/2023
Date analysed	-	26/08/2023	26/08/2023	26/08/2023
Moisture	%	18	18	12

Method ID	Methodology Summary
Inorg-008	Moisture content determined by heating at 105°C for a minimum of 12 hours.
Metals-020 ICP-AES	Determination of various metals by ICP-AES.
Metals-021 CV-AAS	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	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-ECD or GC-MS. 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	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS.
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, For OCs the Total +ve reported DDD+DDE+DDT PQL is reflective of the lowest individual PQL and is therefore simply a sum of the positive individually report DDD+DDE+DDT.

Method ID	Methodology Summary
Org-022/025	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS/GC-MSMS. 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. 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	-			25/08/2023	3	25/08/2023	25/08/2023		25/08/2023	[NT]
Date analysed	-			25/08/2023	3	25/08/2023	25/08/2023		25/08/2023	[NT]
vTRH C_6 - C_9	mg/kg	25	Org-023	<25	3	<25	<25	0	99	[NT]
vTRH C_6 - C_{10}	mg/kg	25	Org-023	<25	3	<25	<25	0	99	[NT]
Benzene	mg/kg	0.2	Org-023	<0.2	3	<0.2	<0.2	0	89	[NT]
Toluene	mg/kg	0.5	Org-023	<0.5	3	<0.5	<0.5	0	95	[NT]
Ethylbenzene	mg/kg	1	Org-023	<1	3	<1	<1	0	100	[NT]
m+p-xylene	mg/kg	2	Org-023	<2	3	<2	<2	0	106	[NT]
o-Xylene	mg/kg	1	Org-023	<1	3	<1	<1	0	97	[NT]
Naphthalene	mg/kg	1	Org-023	<1	3	<1	<1	0	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-023	104	3	129	127	2	106	[NT]

QUALITY CONTROL: TRH Soil C10-C40 NEPM						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
Date extracted	-			25/08/2023	1	25/08/2023	25/08/2023		25/08/2023	[NT]
Date analysed	-			25/08/2023	1	26/08/2023	26/08/2023		25/08/2023	[NT]
TRH C_{10} - C_{14}	mg/kg	50	Org-020	<50	1	<50	<50	0	89	[NT]
TRH C_{15} - C_{28}	mg/kg	100	Org-020	<100	1	<100	<100	0	101	[NT]
TRH C_{29} - C_{36}	mg/kg	100	Org-020	<100	1	<100	<100	0	107	[NT]
TRH >C_{10} -C_{16}	mg/kg	50	Org-020	<50	1	<50	<50	0	89	[NT]
TRH >C_{16} -C_{34}	mg/kg	100	Org-020	<100	1	<100	<100	0	101	[NT]
TRH >C_{34} -C_{40}	mg/kg	100	Org-020	<100	1	<100	<100	0	107	[NT]
Surrogate o-Terphenyl	%		Org-020	90	1	93	91	2	76	[NT]

QUALITY CONTROL: PAHs in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
Date extracted	-			25/08/2023	1	25/08/2023	25/08/2023		25/08/2023	[NT]
Date analysed	-			26/08/2023	1	26/08/2023	26/08/2023		26/08/2023	[NT]
Naphthalene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	90	[NT]
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	96	[NT]
Fluorene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	98	[NT]
Phenanthrene	mg/kg	0.1	Org-022/025	<0.1	1	0.5	0.5	0	100	[NT]
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	1.4	0	100	[NT]
Pyrene	mg/kg	0.1	Org-022/025	<0.1	1	1.4	1.4	0	106	[NT]
Benzo(a)anthracene	mg/kg	0.1	Org-022/025	<0.1	1	0.4	0.4	0	[NT]	[NT]
Chrysene	mg/kg	0.1	Org-022/025	<0.1	1	0.5	0.5	0	96	[NT]
Benzo(b,j&k)fluoranthene	mg/kg	0.2	Org-022/025	<0.2	1	1	1	0	[NT]	[NT]
Benzo(a)pyrene	mg/kg	0.05	Org-022/025	<0.05	1	0.66	0.65	2	98	[NT]
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-022/025	<0.1	1	0.4	0.4	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-d_{14}	%		Org-022/025	96	1	102	98	4	96	[NT]

QUALITY CONTROL: OCP in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
Date extracted	-			25/08/2023	1	25/08/2023	25/08/2023		25/08/2023	[NT]
Date analysed	-			26/08/2023	1	26/08/2023	26/08/2023		26/08/2023	[NT]
alpha-BHC	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	90	[NT]
Hexachlorobenzene	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	80	[NT]
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	64	[NT]
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	94	[NT]
Heptachlor Epoxide	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	90	[NT]
gamma-Chlordane	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	92	[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	98	[NT]
Dieldrin	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	94	[NT]
Endrin	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
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	128	[NT]
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	60	[NT]
Methoxychlor	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Surrogate 2-chlorophenol-d4	%		Org-022/025	92	1	96	92	4	92	[NT]

QUALITY CONTROL: OP in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	39258-2
Date extracted	-			25/08/2023	1	25/08/2023	25/08/2023		25/08/2023	25/08/2023
Date analysed	-			26/08/2023	1	26/08/2023	26/08/2023		26/08/2023	26/08/2023
Azinphos-methyl	mg/kg	0.1	Org-022	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Bromophos-ethyl	mg/kg	0.1	Org-022	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Chlorpyrifos	mg/kg	0.1	Org-022	<0.1	1	<0.1	<0.1	0	90	94
Chlorpyrifos-methyl	mg/kg	0.1	Org-022	<0.1	1	<0.1	<0.1	0	82	82
Diazinon	mg/kg	0.1	Org-022	<0.1	1	<0.1	<0.1	0	88	91
Dichlorovos	mg/kg	0.1	Org-022	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Dimethoate	mg/kg	0.1	Org-022	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Ethion	mg/kg	0.1	Org-022	<0.1	1	<0.1	<0.1	0	86	90
Fenitrothion	mg/kg	0.1	Org-022	<0.1	1	<0.1	<0.1	0	84	85
Malathion	mg/kg	0.1	Org-022	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Parathion	mg/kg	0.1	Org-022	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Ronnel	mg/kg	0.1	Org-022	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Coumaphos	mg/kg	0.1	Org-022	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Disulfoton	mg/kg	0.1	Org-022	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Fenamiphos	mg/kg	0.1	Org-022	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Fenthion	mg/kg	0.1	Org-022	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Methidathion	mg/kg	0.1	Org-022	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Mevinphos	mg/kg	0.1	Org-022	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Methyl Parathion	mg/kg	0.1	Org-022	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Phorate	mg/kg	0.1	Org-022	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Phosalone	mg/kg	0.1	Org-022	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Surrogate 2-chlorophenol-d4	%		Org-022/025	92	1	96	92	4	92	92

QUALITY CONTROL: PCBs in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	39258-2
Date extracted	-			25/08/2023	1	25/08/2023	25/08/2023		25/08/2023	25/08/2023
Date analysed	-			26/08/2023	1	26/08/2023	26/08/2023		26/08/2023	26/08/2023
Aroclor 1016	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1221	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1232	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1242	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1248	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1254	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	89	93
Aroclor 1260	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Surrogate 2-fluorobiphenyl	%		Org-022/025	98	1	104	98	6	98	100

QUALITY CONTROL: Acid Extractable metals in soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
Date digested	-			26/08/2023	[NT]	[NT]	[NT]	[NT]	26/08/2023	[NT]
Date analysed	-			28/08/2023	[NT]	[NT]	[NT]	[NT]	28/08/2023	[NT]
Arsenic	mg/kg	4	Metals-020 ICP-AES	<4	[NT]	[NT]	[NT]	[NT]	104	[NT]
Cadmium	mg/kg	0.4	Metals-020 ICP-AES	<0.4	[NT]	[NT]	[NT]	[NT]	103	[NT]
Chromium	mg/kg	1	Metals-020 ICP-AES	<1	[NT]	[NT]	[NT]	[NT]	102	[NT]
Copper	mg/kg	1	Metals-020 ICP-AES	<1	[NT]	[NT]	[NT]	[NT]	98	[NT]
Lead	mg/kg	1	Metals-020 ICP-AES	<1	[NT]	[NT]	[NT]	[NT]	101	[NT]
Mercury	mg/kg	0.1	Metals-021 CV-AAS	<0.1	[NT]	[NT]	[NT]	[NT]	100	[NT]
Nickel	mg/kg	1	Metals-020 ICP-AES	<1	[NT]	[NT]	[NT]	[NT]	102	[NT]
Zinc	mg/kg	1	Metals-020 ICP-AES	<1	[NT]	[NT]	[NT]	[NT]	104	[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
ABN 37 112 535 645 - 002
25 Research Drive Croydon South VIC 3136
ph 03 9763 2500 fax 03 9763 2633
melbourne@envirolab.com.au
www.envirolab.com.au

SAMPLE RECEIPT ADVICE

Client Details

Client	JK Environments
Attention	Mitch Delaney

Sample Login Details

Your reference	E35092UPD
Envirolab Reference	39258
Date Sample Received	24/08/2023
Date Instructions Received	24/08/2023
Date Results Expected to be Reported	30/08/2023

Sample Condition

Samples received in appropriate condition for analysis	Yes
No. of Samples Provided	3 Soil
Turnaround Time Requested	Standard
Temperature on Receipt (°C)	16.4
Cooling Method	Ice Pack
Sampling Date Provided	YES

Comments

Sample jars labelled
SDUP302
SDUP306
SDUP308

Please direct any queries to:

Pamela Adams	Chris De Luca
Phone: 03 9763 2500	**Phone: 03 9763 2500**
Fax: 03 9763 2633	**Fax: 03 9763 2633**
Email: padams@envirolab.com.au	**Email: cdeluca@envirolab.com.au**

Analysis Underway, details on the following page:

Envirolab Services Pty Ltd
ABN 37 112 535 645 - 002
25 Research Drive Croydon South VIC 3136
ph 03 9763 2500 fax 03 9763 2633
melbourne@envirolab.com.au
www.envirolab.com.au

Sample ID	vTRH(C6-C10)/BTEXN in Soil	TRH Soil C10-C40 NEPM	PAHs in Soil	OCP in Soil	OP in Soil	PCBsin Soil	Acid Extractable metalsin soil
SDUP202	✓	✓	✓	✓	✓	✓	✓
SDUP206	✓	✓	✓	✓	✓	✓	✓
SDUP208	✓	✓	✓	✓	✓	✓	✓

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.

SAMPLE AND CHAIN OF CUSTODY FORM

TO:		FROM:
ENVIROLAB SERVICES PTY LTD 12 ASHLEY STREET CHATSWOOD NSW 2067 P: (02) 99106200 F: (02) 99106201 Attention: Aileen	JKE Job Number: E35092UPD Date Results Required: STANDARD Page: 4 of 4	JKEnvironments REAR OF 115 WICKS ROAD MACQUARIE PARK, NSW 2113 P: 02-9888 5000 F: 02-9888 5001 Attention: Mitchell Delaney mdelaney@jkenvironments.com.au

Location: Moree
Sampler: AD/CS
Sample Preserved in Esky on Ice
Tests Required

	Date Sampled	Lab Ref:	Sample Number	Depth (m)	Sample Container	PID	Sample Description	Combo 6aNEPM	Combo 6	Combo 6a	Combo 3	Asbestos (detection)	BTEX	Heavy metals					
	15/08/2023	77	SDUP201	-	G	-	Soil Duplicate		X										
1	16/08/2023	78	SDUP202	-	G	-	Soil Duplicate		X										
	16/08/2023	79	SDUP205	-	G	-	Soil Duplicate		X										
2	16/08/2023	80	SDUP206	-	G	-	Soil Duplicate		X										
	16/08/2023	81	SDUP207	-	G	-	Soil Duplicate		X										
3	16/08/2023	82	SDUP208	-	G	-	Soil Duplicate		X										
	15/08/2023	83	FCF201	-	A	-	Fragment					X							
	15/08/2023	84	FCF202	-	A	-	Fragment					X							
	17/08/2023	85	TP208-FCF1	0-0.1	A	-	Fragment					X							
	16/08/2023	86	TB-S201	-	G	-	Trip Blank				X								
	16/08/2023	87	TS-S201	-	V	-	Trip Spike						X						
	16/08/2023	88	FR-201	-	#	-	Field Rinsate							X					

ENVIROLAB
Envirolab Services
25 Research Drive
Croydon South VIC 3136
Ph: (03) 9763 2500
Job No: 39258
Date Received: 24/8/23
Time Received: 12:05pm
Received By: AG
Temp: Cool/Ambient 16.4°C
Cooling: Ice/Icepack
Security: Intact/Broken/None

ENVIROLAB
Envirolab Services
12 Ashley St
Chatswood NSW 2067
Ph: (02) 9910 6200
Job No: 339135
Date Received: 21/8/23
Time Received: 15:30
Received By:
Temp: Cool/Ambient
Cooling: Ice/Icepack
Security: Intact/Broken/None

Remarks (comments/detection limits required):

Sample Containers:
G - 250mg Glass Jar A - Ziplock Asbestos Bag
#1x HNO3

Relinquished By: MD	Date: 21.8.23	Time: 2:00pm	Received By: Nancy	Date: 21/8/2023

Relinquished by: Christine Ho
ECS SYD
23/8/23 1200

15:30

Login

From: Geoff Weir
Sent: Tuesday, 22 August 2023 7:57 AM
To: Login
Subject: FW: ECOC for E35092UPD Moree - 331035
Attachments: E35092UPD Moree Soil COC md FINAL.xlsx

Importance: High

Morning.

Samples 78, 80 82 need to be sent to ELS VIC pls.

Kind Regards,

Geoff Weir | Senior Customer Service & Purchasing | Envirolab Services
(Tuesday to Friday 7am to 3pm)

Great Science. Great Service.

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

From: Alexis Diodati <ADiodati@jkenvironments.com.au>
Sent: Monday, August 21, 2023 4:24 PM
To: Samplereceipt <Samplereceipt@envirolab.com.au>
Cc: Mitchell Delaney <MDelaney@jkenvironments.com.au>
Subject: FW: ECOC for E35092UPD Moree
Importance: High

Hi team,

See attached for updated COC, please send SDUP202, SDUP206 and SDUP208 to Envirolab VIC as interlab duplicates.

Thank you

Regards
Alexis Diodati
Environmental Scientist

T: +612 9888 5000
D: 0424 578 006
E: ADiodati@jkenvironments.com.au
www.jkenvironments.com.au

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

JKEnvironments

From: Alexis Diodati
Sent: Monday, 21 August 2023 2:05 PM
To: samplereceipt@envirolab.com.au
Subject: ECOC for E35092UPD Moree

COPY

Hi team,

Please see attached COC for samples being sent to the lab this afternoon.

Thank you

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)[15] methods and those described in *Environmental Sampling and Analysis, A Practical Guide,* (1991)[16]. 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;

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

[16] 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%.

$$\frac{\text{(Spike Sample Result – Sample Result) x 100}}{\text{Concentration of Spike Added}}$$

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 Section 6.1 of this report. Checks were made to assess the data in terms of precision, accuracy, representativeness, comparability and completeness. These 'PARCC' parameters are referred to collectively as DQIs and are defined in the Report Explanatory Notes attached in the report appendices.

1. Field and Laboratory Considerations

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

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

2. Field QA/QC Samples and Analysis

The results for the field QA/QC samples are detailed in the laboratory summary tables (Table S1 to Table S9 inclusive) attached to the investigation report and are discussed in the subsequent sections of this Data (QA/QC) Evaluation report. A summary of the field QA/QC samples collected and analysed for this investigation is provided in the following table:

Sample Type	Number Analysed	Frequency (of Sample Type)
Intra-laboratory duplicate (soil)	3	Approximately 8.8% of primary samples
Inter-laboratory duplicate (soil)	3	As above
Trip spikes (soil_	1	One for the investigation to demonstrate adequacy of preservation, storage and transport methods
Trip blanks (soil)	1	One for the investigation to demonstrate adequacy of storage and transport methods
Rinsate (soil SPT)	1	One for the investigation to demonstrate adequacy of decontamination methods

3. Data Assessment Criteria

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

Field Duplicates

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

Field/Trip Blanks and Rinsates

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

Trip Spikes

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

Laboratory QA/QC

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

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

RPDs

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

Laboratory Control Samples (LCS) and Matrix Spikes

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

Surrogate Spikes

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

Method Blanks

- All results less than PQL.

B. DATA EVALUATION

1. Sample Collection, Storage, Transport and Analysis

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

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

JKE note that the temperature on receipt of soil samples was reported to be up to 16.4°C. JKE understand that the temperature is measured at the laboratory using an infrared temperature probe by scanning the outside of the sample container (i.e. one sample jar/container at the time of registering the samples). This procedure is not considered to be robust as there is a potential for the outside of the jar to warm to ambient temperature, or at least to increase from that of the internal contents, relatively quickly. On this basis, JKE is of the opinion that the temperatures reported on the Sample Receipts are unlikely to be reliable or representative of the overall batch. This is further supported by the trip spike recovery results (discussed further below) which reported adequate recovery in the range of 90% to 91%.

Whilst it could be argued that 10% loss of volatiles may have led to these contaminants being under-reported (i.e. the lower end of the trip spike recovery was 90%), it is noted that all BTEX results and volatile TRHs (F1 and F2) were below or very close to the PQLs and even a nominal 15% increase of TRH/BTEX concentrations in these samples would not result in exceedance of the SAC.

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

Review of the project data also indicated that:

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

2. Laboratory PQLs

Appropriate PQLs were adopted for the analysis and all PQLs were below the SAC.

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 SDUP208/TP221 (0-0.1m);
- Elevated RPDs were reported for PAH compound benzo(a)anthracene, arsenic and lead in SDUP205/TP226 (0-0.1m); and
- An elevated RPD was reported for PAH compound benzo(g,h,i)perylene in SDUP202/TH224 (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.

The soil trip blank analysis results were all less than the PQLs with the exception of chromium, lead and zinc with reported concentrations of 3mg/kg, 2mg/kg and 2mg/kg, respectively. Low level metals concentrations are typical in washed sand which is utilised as blank material. In JKE's experience, the concentrations reported were consistent with background concentrations in a sand matrix and were not indicative of cross-contamination. On this basis, cross contamination between samples that may have significance for data validity did not occur.

Rinsates

All results were below the PQL, with the exception of copper which was detected above the laboratory PQL. In JKE opinion detectable concentrations are not uncommon in potable water utilised as a reinstate liquid due to potable water being commonly supplied in copper pipework.

Trip Spikes

The results ranged from 90% to 91% 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: Lab report No. 331035: metals precent recovery was not possible due to the inhomogeneous nature of the element/s in the sample/s. However, an acceptable recovery was obtained for the LCS. This was a minor non-conformance in the context of the overall dataset and is not considered to compromise the accuracy of the analytical data.

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.

Appendix H: Lead UCL Calculations

Lead Fill Results for UCL Calculation

Sample Reference	Sample Depth	Sample Description	Lead in mg/Kg
BH201	0.19-0.4	F: Silty Clay	**23**
BH202	0.1-0.25	F: Gravelly Sand	**800**
BH203	0.15-0.25	F: Silty Sandy Clay	**37**
BH204	0.2-0.3	F: Silty Clay	**19**
BH205	0-0.1	F: Silty Clay	**54**
TP206	0-0.1	F: Silty Clay	**52**
TP207	0-0.1	F: Silty Clay	**63**
TP208	0-0.1	F: Silty Clay	**15**
BH209	0-0.1	F: Silty Clay	**50**
BH210	0.05-0.2	F: Gravelly Sand	**8**
BH211	0-0.1	F: Silty Sand	**8**
BH212	0-0.1	F: Sandy Clay	**20**
TP213	0-0.1	F: Sandy Clay	**9**
TP214	0-0.1	F: Silty Clay	**11**
TP215	0-0.1	F: Silty Clay	**15**
BH216	0.05-0.2	F: Gravelly Sand	**4**
TP217	0-0.1	F: Silty Clay	**14**
TP218	0-0.1	F: Silty Clay	**13**
TP219	0-0.1	F: Silty Clay	**14**
TP220	0-0.1	F: Silty Clay	**10**
TP221	0-0.1	F: Silty Clay	**16**
TP222	0-0.1	F: Silty Clay	**12**
TP223	0-0.1	F: Silty Clay	**15**
BH224	0-0.1	F: Silty Clay	**17**
TP225	0-0.1	F: Silty Clay	**15**
TP226	0-0.1	F: Silty Clay	**27**
TP227	0-0.1	F: Silty Clay	**11**
Total Number of Samples			27
Maximum Value			800

Open UCL Report Rev8.1 (Open UCL Beta Ver 3.02)

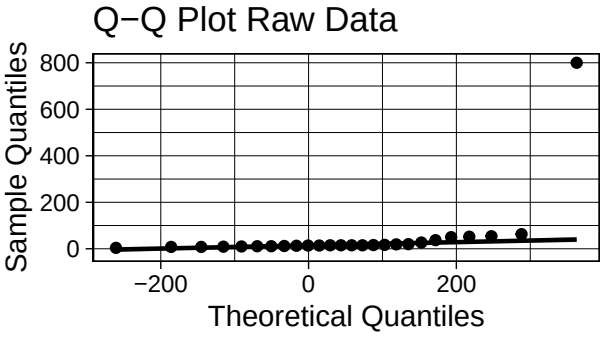
```
Report Date & Time:  2023-09-06 19:53:45

Data File Name:  Raw lead results for stats.xlsx

Report Title:  Lead Fill Soil Data UCL Calculations
```

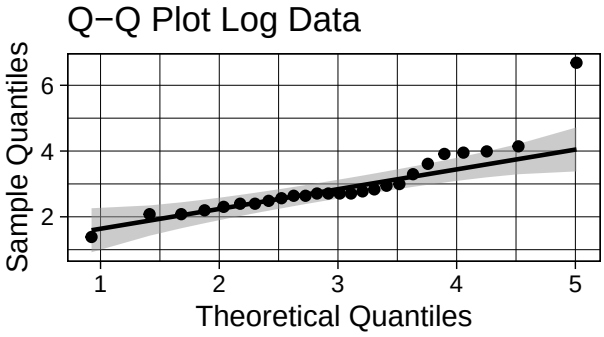

We encourage the reporting of bugs, issues, new ideas and contributions. If you want to report a bug, issue or have an idea to add to Open UCL you can email **openstatsonline@gmail.com**. Or if you are on github you can also use this link to post an issue on the Open UCL Repository.

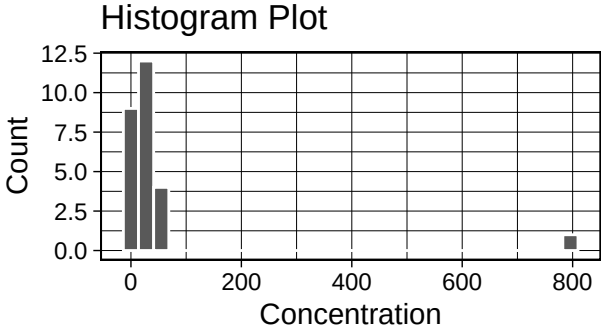
23

Descriptive Stats	
n	26
min	4
max	800
range	796
mean	51.115
gm	19.427
median	15
standard deviation (sd)	153.588
standard error of mean (sem)	30.121
coeficient of variation (cv)	3.005
skewness	5.01
Log Transformed	
Log min	1.386
Log max	6.685
Log mean	2.967
Log sd	1.006
Normality Tests	
Shapiro-Wilks Value (raw)	0.272
Shapiro-Wilks p (raw)	0
Shapiro-Wilks Value (log)	0.809
Shapiro-Wilks p (log)	0

Upper Conf Limits	
Confidence Level (%)	95
Students t UCL	102.566
Lands HUCL	53.203
Zou UCL	52.352
Tchebichef (Chebyshev) UCL	182.41
Other Results	
CV High	TRUE
Normality Raw Data	FALSE
Normality Log Data	FALSE
Critical t (95%) 2 Sided	2.06
Margin of Error (MoE)	62.036
Z	303.745
Max Probable Error (MPE%)	121.364
Relative Standard Deviation (%RSD)	300.473







Appendix I: Guidelines and Reference Documents

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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

Appendix J: JKE DSI SAQP

SAQP

REPORT TO

NSW HEALTH INFRASTRUCTURE

ON

SAMPLING, ANALYSIS AND QUALITY PLAN (SAQP)

FOR

DETAILED (STAGE 2) SITE INVESTIGATION

AT

35 ALICE STREET, MOREE, NSW

Date: 27 July 2023
Ref: E335092UPD-SAQP

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DOCUMENT REVISION RECORD

Report Reference	Report Status	Report Date
E35092UPD-SAQP	Draft Report	21 July 2023

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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	**BYD**
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**
Disruption Notice	**DN**
Data Quality Indicator	**DQI**
Data Quality Objective	**DQO**
Detailed (Stage 2) Site Investigation	**DSI**
Ecological Investigation Level	**EIL**
Environmental Site Assessment	**ESA**
Ecological Screening Level	**ESL**
Environment Protection Authority	**EPA**
Ecological Screening Level	**ESL**
Fibre Cement Fragment(s)	**FCF**
Health Investigation Level	**HILs**
Health Screening Level	**HSL**
International Organisation of Standardisation	**ISO**
JK Environments	**JKE**
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 Acid Sulfate Soils	**PASS**
Polychlorinated Biphenyls	**PCBs**
Per-and Polyfluoroalkyl Substances	**PFAS**
Photo-ionisation Detector	**PID**
Preliminary Site Investigation	**PSI**
Protection of the Environment Operations	**POEO**
Practical Quantitation Limit	**PQL**
Quality Assurance	**QA**
Quality Control	**QC**
Remediation Action Plan	**RAP**
Review of Environmental Factors	**REF**
Relative Percentage Difference	**RPD**
Site Assessment Criteria	**SAC**
Sampling, Analysis and Quality Plan	**SAQP**
Source, Pathway, Receptor	**SPR**

Standard Penetration Test	**SPT**
Standing Water Level	**SWL**
Targeted Detailed Site Investigation	**TDSI**
Trip Blank	**TB**
Total Recoverable Hydrocarbons	**TRH**
Trip Spike	**TS**
Upper Confidence Limit	**UCL**
Volatile Organic Compounds	**VOC**
World Health Organisation	**WHO**
Work Health and Safety	**WHS**

Units

Metres BGL	**mBGL**
Milimetre	**mm**
Metres	**m**
Millivolts	**mV**
Millilitres	**ml or mL**

1 INTRODUCTION

NSW Health Infrastructure ('the client') commissioned JK Environments (JKE) to prepare a Sampling, Analysis and Quality Plan (SAQP) for the Detailed (Stage 2) Site Investigation (DSI) associated with the proposed hospital redevelopment at Moree Hospital, 35 Alice Street, NSW. The DSI will be limited to the proposed development area which is referred to herein as 'the site'. The site location and site boundary are shown on Figure A, attached in the appendices.

JKE was previously engaged to undertake a desktop Preliminary (Stage 1) Site Investigation (PSI)[1] for the proposed development. A summary of relevant information from the PSI is presented in Section 2.

1.1 Proposed Development Details

The proposed development details have been amended since the preparation of the PSI. JKE understand that the proposed development applicable under the Review of Environmental Factors (REF) includes the demolition of the administration building No2, Crane and Glennie building No5 and other ancillary hospital infrastructure including the helipad, shade shelters, water tanks, car parks etc. A new two-story building is proposed in the south-east section of the site. New car parking and landscaping are also proposed. Excavation details are not known at this stage. We have assumed nominal excavation and/or raising of site surface levels (1m depth or height) to achieve the design surface levels.

1.2 Aim and Objectives

The primary aim of the DSI is to characterise the soil and groundwater contamination conditions in order to assess site risks in relation to contamination and establish whether remediation is required. A secondary aim is 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;
- Assess the potential risks posed by contamination to the receptors identified in the Conceptual Site Model (CSM);
- Provide a preliminary waste classification for the in-situ soil; and
- Assess whether the site is suitable or can be made suitable (via remediation) 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 was prepared in accordance with a JKE proposal (Ref: EP58804UPD Rev1) of 14 July 2023 and written acceptance from the client of 14 July 2023. The scope of work included a review of the PSI and

[1] JK Environments, (2022). *Report to Health Infrastructure on Preliminary (Stage 1) Site Investigation for Proposed Moree Hospital Redevelopment at 35 Alice Street, Moree, NSW*. (Report ref: E35092UPDrpt, dated 18 August 2022) (referred to as PSI)

preparation of an SAQP for the proposed DSI with regards to the National Environmental Protection (Assessment of Site Contamination) Measure 1999 as amended (2013)[2] and other guidelines made under or with regards to the Contaminated Land Management Act (1997)[3]. A list of reference documents/guidelines is included in the appendices.

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

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

2 SITE INFORMATION

2.1 JKE PSI

In mid-2022 the client commissioned JKE to undertake a PSI for the proposed Moree Hospital redevelopment. The purpose of the PSI was to make a preliminary assessment of site contamination. The PSI was prepared for the entire hospital grounds, referred to "*wider site boundary*" in Figure A. as A geotechnical investigation was undertaken in conjunction with this PSI by JK Geotechnics (JKG). The results of the geotechnical investigation were presented in a separate report (Ref: 35092URrpt).

The primary aims of the PSI were to identify any past or present potentially contaminating activities at the site, identify the potential for site contamination, and make a preliminary assessment of the soil contamination conditions. The PSI included a review of historical information and sampling from six boreholes and five testpits, which were nominated by the client.

The identified Areas of Concern (AEC) included: fill material; use of pesticides; hazardous building materials; electrical transformer; a new diesel generator, an old generator building and suspected underground storage tank (UST); electrical substation; HAZCHEM storage; an incinerator and offsite Ambulance station.

The PSI identified fill (i.e. historically imported or placed soils) at most locations. Fibre Cement Fragments (FCF) were encountered in TP2, however asbestos was not detected in the FCF that were analysed.

Based on the findings of the PSI, JKE was of the opinion that the site can be made suitable for the proposed development. However, the PSI noted that a DSI will be required to establish whether remediation is necessary.

JKE recommended the following:

- Undertake DSI to address the data gaps identified by the PSI. The extent of 'the site' for the DSI should be confirmed by the client as not all areas of the hospital are being redeveloped. In JKE's view, it was considered reasonable to limit the DSI to broadly capture the proposed development footprint;
- If the DSI identifies a need for remediation, a Remediation Action Plan (RAP) is to be prepared and implemented.

Relevant information from the PSI has been considered and documented throughout the SAQP.

2.2 Site Identification

Table 2-1: Site Identification

Current Site Owner (certificate of title):	Health Administration Corporation
Site Address:	58 Victoria Terrace, Moree, NSW (site address commonly referred to as 35 Alice Street, Moree, NSW)
Lot & Deposited Plan:	Part of Lot 11 in DP1113157
Current Land Use:	Hospital and associated facilities
Proposed Land Use:	Continued hospital and associated facilities
Local Government Authority:	Moree Plains Shire Council
Current Zoning:	R1: General Residential
Site Area (m^2) (approx.):	13,100
RL (AHD in m) (approx.):	208
Geographical Location (decimal degrees) (approx.):	Latitude: -29.470680 Longitude: 149.839882

2.3 Site Description Summary

The site is located in a predominantly residential and recreational area of Moree and is bound by Victoria Terrace to the north and east, Alice Street to the south and a retirement village to the west.

The regional topography slopes slightly towards the north towards Mehi River. The site topography is consistent with its surrounds and has a gentle slope towards the north at approximately 1°-2°.

A walkover inspection of the site was undertaken by JKE on 6 June 2022 under the scope of the PSI. At the time of the inspection, the site formed part of the Moree District Hospital and Community Health Service Centre. The administration building No2, Crane and Glennie building No5, an ambulance parking bay/patient transfer and helipad were generally located in the central section of the site. An asphaltic concrete car park was located in the east section of the site. An incinerator and medical waste storage area were located in the south-west section of the site. The west section of the site was occupied by a hardstand driveway, loading dock and parking area. Other areas of the site were paved or grassed.

Parts of the site appeared to have been levelled to account for the slope and accommodate the existing development.

Sensitive environments such as wetlands, ponds, creeks or extensive areas of natural vegetation were not observed on site. Mehi River was located approximately 50m to the north of the site. The river is considered to be a potential receptor.

Landscaped and grassed areas were observed in areas of the site not covered by hardstand/buildings. These areas were mainly located within the eastern, north-western and western areas of the site. Native trees up to approximately 5m high were observed within the east and in other landscaped areas of the site. No obvious indicators of plant stress or dieback were observed.

2.4 Surrounding Land Use

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

- North – Wider hospital ground, Victoria Terrace and the Mehi River including associated riparian vegetation along the southern banks;
- East – Victoria Terrace with Moree visitor information centre and carpark beyond;
- South – Alice Street with Moree District Ambulance station (NSW Ambulance) and residential properties beyond; and
- West – Wider hospital ground, including an above ground diesel generator and old generator building. A Retirement village (Fairview Retirement Village) was located to the west of the wider hospital property.

JKE considered that the ambulance station, above ground diesel generator and old generator building to be potential off-site source of contamination. Further discussion is provided in Section 3.1.

It is noted that the PSI considered the hospital as a whole. In the context of the site for the DSI, some adjacent areas of the hospital are now deemed to be 'off-site' even though they fall within the wider site boundary. Most notably, these include the following:

- The HAZCHEM store located to the west of the site;
- The diesel AST and old generator building; and
- The electrical substation located just beyond the north-western most corner of the site.

2.5 Underground Services

The 'Before You Dig' (BYD) plans were reviewed for the investigation 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. Major services were not identified that would be expected to act as preferential pathways for contamination migration. Local services (i.e. those not shown on the BYD plans) exist and could act as preferential pathways for contamination migration.

2.6 Summary of Geology and Hydrogeology

2.6.1 Regional Geology

Regional geological maps indicated that the site is underlain by Marra Creek formation – meander plain facies (dominant silt lithology) and Colluvial sheetwash (dominant clastic sediment lithology), with Marra Creek formation – meander plain facies (dominant clay lithology) located approximately 70m to the north of the site.

The site is not located in an acid sulfate soil (ASS) risk area according to the risk maps prepared by the Department of Land and Water Conservation.

2.7 Hydrogeology and Groundwater

Hydrogeological information reviewed for the PSI indicated that the regional aquifer on-site and in the areas immediately surrounding the site includes porous, extensive aquifers of high productivity.

There were a significant number of registered bores within the report buffer of 2,000m. The majority of the bores were registered for monitoring purposes. None of the water supply bores appeared to be located down gradient of the site, between the northern site boundary and Mehi River located approximately 30m to the north of the site. There is no abstraction and use of groundwater at the site or in the vicinity, and 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.

Considering the local topography and surrounding land features, JKE anticipate groundwater to flow towards the north towards the Mehi River. However, this was not confirmed within the scope of the PSI.

2.8 Summary of Site History

A time line summary of the historical land uses and activities is presented in the table below. The information presented in the table is based on a weight of evidence assessment of the site history documentation and observations made by JKE during the PSI.

Table 2-2: Summary of Historical Land Uses/Activities

Year(s)	On-site - Potential Land Use / Activities	Off-site - Potential Land Use / Activities
At least 1958 - current	• Hospital grounds; • Demolition of small buildings in the west, north, central and south sections of the site, sometime between approximately 1967 and1985; and • Likely earthworks including filling during construction works between approximately 1958 and 1985.	• Retirement village to the west; • Low density residential to the south; and • Possible UST in operation around the 1970s to the west of the site (within the wider site).

3 SUMMARY OF CONCEPTUAL SITE MODEL

3.1 Potential Contamination Sources/AEC and CoPC

The potential contamination sources/AEC and Contaminations 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 has been historically filled to achieve the existing levels. The fill may have been imported from various sources and could be contaminated. Only limited sampling/analysis of the fill occurred during the PSI. The fill depths encountered during the PSI ranged from approximately 0.1m to 0.5mBGL. FCF were encountered in TP2, however asbestos was not detected in the FCF analysed.	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.
Use of pesticides – Pesticides may have been used beneath the buildings and/or around the site.	Heavy metals, OCPs and PCBs.
Hazardous Building Material – Hazardous building materials may be present in or on soil as a result of former building and demolition activities. These materials may also be present in the existing buildings/structures on site. Signage on the external fibre cement sheeting on some of main hospital building identified that the fibre cement sheeting was an ACM.	Asbestos, lead and PCBs.
Incinerator – An incinerator is located in the south section of the site and as shown on Figure A attached in the appendices. There is a potential for localised impacts from spills/leaks when loading waste into the incinerator or from removing waste ash from the incinerator which could have migrated to the soils in the vicinity, and also from atmospheric fallout from the incinerated waste settling on nearby ground surface. JKE understand that the incinerator will not be demolished as part of the development.	Heavy metals and PAHs.
Off Site New Diesel Generator, Old Generator Building and Suspected UST – An Above ground diesel generator and old generator building are located in the west section of the wider hospital grounds and adjacent to the north-west section of the site, as shown on Figure A attached in the appendices. During the PSI minor areas of staining were observed near the filling port of the above Storage Tanks (AST) and around the diesel delivery lines to the new electrical generator.	TRHs, BTEX and the PAH compound naphthalene.

Source / AEC	CoPC
During the PSI the fuel source supply to the old generator presumed to have been decommissioned could not be confirmed. There is a potential for the fuel source to have been stored in a UST or AST within or in close proximity to the old generator building. The SafeWork records reviewed for the PSI make reference to a UST in a defect notice dated 1978, however, further details were not available within the records.	
Off Site Electrical Substation – An electrical substation is located in the vicinity of the north-western corner of the site, to the east of the new diesel generator as shown on Figure 2 attached in the appendices. There is a potential that PCB containing oils could have leaked from the associated infrastructure and impacted the soil. Although oil staining was not observed during the site inspection, there is considered to be a potential for transformer oil accidental spills/leaks within the transformer unit which could have migrated to the soils to beneath the concrete pad slab via cracks and voids in the slab, and migrated onto the site due to the close proximity.	PCBs and TRHs.
Off Site HAZCHEM Storage – A HAZCHEM storage building located was located in close proximity to the west of the site (see Figure 2). Signage indicated that the building contained flammable liquids. The building was inaccessible at the time of the field work. There is a potential accidental spills/leaks of flammable liquids within and adjacent to the HAZCHEM storage building having impacted the groundwater in the vicinity.	TRHs, BTEX and PAHs.
Off Site Ambulance Station – An ambulance station is located approximately 35m to the south of the south-east section of the site as shown on Figure A attached in the appendices. Although we have no evidence of petroleum hydrocarbon storage infrastructure in this property, it is common for such properties to have USTs. On this basis and due to its upgradient and nearby location to the site, there is a potential for contaminant migration into the east section of the site.	Heavy metals (lead), TRH, BTEX and the PAH compound naphthalene.

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

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

Table 3-2: CSM

Potential mechanism for contamination	The potential mechanisms for contamination are most likely to include 'top-down' impacts and spills. There is a potential for sub-surface releases to have occurred if deep fill is present (or other buried industrial infrastructure) is present, including the potential for a UST in the vicinity of the old generator building. Subsurface release is also possible in the context of groundwater plumes from off-site sources.
Affected media	Soil has been identified as the potentially affected medium. The potential for groundwater impacts is considered to be relatively low. However, to reduce the potential need for remobilisation for secondary phases of investigation, the potential for groundwater contamination is to also be assessed by the DSI. Soil vapour may also require further consideration, however, risks will initially be evaluated via the soil and groundwater 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 the Mehi River. Ecological receptors include terrestrial organisms and plants within unpaved areas (including the proposed landscaped areas), and freshwater ecology in the Mehi River.
Potential exposure pathways	Potential exposure pathways relevant to the human receptors include ingestion, dermal absorption and inhalation of dust (all contaminants) and vapours (volatile TRH, naphthalene and BTEX). Primary and secondary contact with groundwater is also a potential exposure pathway. The potential for exposure would typically be associated with the construction and excavation works, future use of the site, and off-site use of groundwater and recreational waters. 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 mechanisms	The following have been identified as potential exposure mechanisms for site contamination: • Vapour intrusion into the existing or 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; • Migration of groundwater off-site and into nearby water bodies, including aquatic ecosystems and those being used for recreation; and • Migration of groundwater off-site into areas where groundwater has the potential to be utilised as a resource (i.e. for irrigation and/or drinking water).

4 SAMPLING, ANALYSIS AND QUALITY PLAN

4.1 Data Quality Objectives (DQO)

Data Quality Objectives (DQOs) were 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.

4.1.1 Step 1 - State the Problem

The PSI identified potential sources of contamination/AEC at the site that may pose a risk to human health and the environment. Further investigation data is required to characterise the site, assess the risks posed by the contaminants in the context of the proposed development/intended land use, and assess whether remediation is required. This information will be considered by the project team in the design and delivery of the project as well as by the consent/determining 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.

4.1.2 Step 2 - Identify the Decisions of the Study

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

- Are any of the laboratory results above the site assessment criteria?
- Do potential risks associated with contamination exist, and if so, what are they?
- Is remediation required?
- What is the preliminary waste classification of the fill material and natural soils 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 site information from the PSI, including site observations, site history documentation, analytical data;
- Sampling of potentially affected media, including soil and groundwater;
- Observations of sub-surface variables such as soil type, photo-ionisation detector (PID) concentrations, odours and staining, and groundwater physiochemical parameters;
- Laboratory analysis of soils, fibre cement (if found in soil) and groundwater 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 on Figure A and will be limited vertically to a maximum nominated depth of 8mBGL (spatial boundary) at boreholes where groundwater monitoring wells are be installed. At this stage, the DSI sampling is proposed to be completed during August 2023 (temporal boundary).

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

The laboratory data will be assessed against relevant Tier 1 screening criteria (referred to as SAC), as outlined below for each media. 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 and receptor (SPR) linkages.

For this investigation, the following decision rules will apply:

- 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 undertaken. 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.

4.1.5.1 Tier 1 Screening Criteria for Soil

4.1.5.1.1 Human Health

Soil data will be compared to relevant Tier 1 screening criteria in accordance with NEPM (2013). Health Investigation Level (HILs) will be based on land use Type C. JKE consider the HIL-C criteria to be appropriate as the NEPM (2013) indicates that the use of commercial/industrial (land use Type D) criteria for hospitals is not appropriate given these criteria do not consider more sensitive receptors such as children. Health Screening Levels (HSL) for asbestos will also be based on land use Type C.

Whilst we acknowledge that the HIL-C criteria are based on a lesser exposure time than is factored into the HIL-D criteria (2hrs/day versus 8hrs/day), the HIL-C criteria are more conservative (i.e. the criteria are lower) than HIL-D and are considered to be appropriate in the context of this development and for the purpose of a Tier 1 risk assessment.

Soil HSLs for assessing hydrocarbon risks from vapour intrusion will be based on land use Type A/B and will be derived conservatively using a sand soil type and a depth interval of 0-1m for the initial data screening. These may be adjusted for depth and soil type where deemed appropriate.

HSLs for direct soil contact will be adopted based on the values presented in the CRC Care Technical Report No. 10 – Health screening levels for hydrocarbons in soil and groundwater Part 1: Technical development document (2011)[4]. Management limits for petroleum hydrocarbons (as presented in Schedule B1 of NEPM 2013) will also be considered following evaluation of human health and ecological risks, and risks to groundwater.

4.1.5.1.2 Environment (Ecological – terrestrial ecosystems)

Regarding the ecological screening criteria, the Ecological Investigation Levels (EIL) will be derived using the Ambient Background Concentration (ABC) from the document titled Trace Element Concentrations in Soils from Rural and Urban Areas of Australia (1995)[5] and using site specific physiochemical data for soil pH, clay content and Cation Exchange Capacity (CEC) to select the Added Contaminant Limit (ACL) values in Schedule B(1) of NEPM (2013). NEPM (2013) recommends that ecological SAC are applied to the top 2m of soil.

4.1.5.2 Tier 1 Screening Criteria for 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)[6]. Environmental values identified during the PSI included aquatic ecosystems, human uses (i.e. groundwater users and recreational water users) and human-health risks in non-use scenarios (vapour intrusion).

The HSL-A/B criteria will be applied for assessing vapour intrusion risks from groundwater. HSLs will be calculated based on the soil type and the observed depth to groundwater at the time of the DSI fieldwork. Where the NEPM 2013 HSL derivation assumptions don't apply (i.e. groundwater shallower than 2m, or where there is not at least 2m of soil above the observed groundwater level), site-specific criteria will be adopted and these will be outlined in the DSI report where required.

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)[7]. The 99% trigger values are to be utilised, where required, to account for bioaccumulation. Low and moderate reliability trigger values are also to be adopted for some contaminants where high-reliability trigger values do not exist.

[4] 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*

[5] 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

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

[7] 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)

4.1.5.3 Quality Assurance/Quality Control (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 applicable CoPC) and rinsate (for applicable CoPC) samples (one for each medium sampled to assess the adequacy of field practices).

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

4.1.5.4 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 will be 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 (and other considerations for asbestos or groundwater) are greater than the SAC. The alternative hypothesis (H_A) is that the 95% UCL for the CoPC (and other considerations for asbestos and groundwater) are less than the SAC.

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.

Statistical analysis will not apply to asbestos or groundwater data, therefore these data will be assessed based on a multiple lines of evidence and a 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.

Field/Trip Blanks and Rinsates

Acceptable targets for trip blank samples will be less than the PQL.

Trip Spikes

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

Laboratory QA/QC

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

A summary of the typical limits is provided below:

RPDs

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

Laboratory Control Samples (LCS) and Matrix Spikes

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

Surrogate Spikes

- 60-140% recovery acceptable for general organics.

Method Blanks

- All results less than PQL.

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

4.1.7 Step 7 - Optimise the Design for Obtaining Data

The most resource-effective design will be used in an optimum manner to achieve the objectives. For this investigation, the design will be 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 to be adopted for the DSI is outlined in the table below:

Table 4-1: Soil Sampling Plan and Methodology

Aspect	Input
Sampling Density	Samples for the investigation will be collected from a total of 26 locations (201 to 226 inclusive). The proposed sample locations are shown on Figure A attached in Appendix A. <u>Targeted Sampling Location</u> Sampling location 201 has been selected to target potential site contamination associated with offsite diesel generator AST and potential former AST/UST associated with the offsite old generator building. This location has only been moved slightly off the proposed grid-based sampling plan. It is noted that this location is also in the vicinity of the electrical substation. <u>Grid-based Sampling Locations</u> The sampling plan has been designed to meet the minimum sampling density outlined in the NSW EPA Sampling Design Part 1 – Application (2022)[8]. Based on the site area of 13,100m^2, 25 grid-based sampling locations are proposed on a square grid spacing of approximately 24m (locations 202 to 226 inclusive). Based on the above density, the calculated circular hotspot diameter that can be detected to a 95% confidence level is approximately 28.5m (K value of 0.59).
Sampling Plan	The primary sampling locations will be placed on a systematic plan with a grid spacing of approximately 24m between sampling locations. 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 were appropriate and in accordance with the DQOs). Soil sample collection will be limited to depths of approximately 0.5m into natural soils unless staining or odours are encountered which may trigger deeper sampling into the natural ground.
Set-out and Sampling Equipment	Sampling locations will be set out using hand held GPS unit (with an accuracy of approximately ±0.5m). 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 hand tools, drill rig equipped with spiral flight augers (150mm diameter) and an excavator. Hand tools are generally to be used to collected sampling locations within building footprints or in areas with access constraints. Soil samples will be obtained from a Standard Penetration Test (SPT) split-spoon sampler, directly from the auger, from the walls of testpits or from the excavator bucket.
Sample Collection and Field QA/QC	The locations are to be logged to an appropriate standard in accordance with NEPM (2013) and all samples will be documented on the logs.

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

Aspect	Input
	Soil samples for contamination are to be collected from the fill and natural profiles based on field observations, and approximately 0.5m into the natural soil profile. Samples for contamination analysis are to be placed in glass jars with plastic caps and Teflon seals with minimal headspace. Samples for asbestos analysis will be placed in zip-lock plastic bags. During sampling, soil at selected depths will be split into primary and duplicate samples for field QA/QC analysis. The splitting procedure will include alternate filling of the jars with soil.
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 are maintained on file by JKE and are to be included in the report. The field screening for asbestos quantification from the sampling locations will include the following: • A bulk sample will be collected from fill at 1m intervals, or from each distinct fill profile to the extent possible; • Each bulk 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. Alternatively, due to the cohesive nature of the soils, the samples may be placed on a contrasting support (blue tarpaulin) and inspected for the presence of fibre cement. Any soil clumps/nodules are to be disaggregated; • The condition of fibre cement or any other suspected asbestos materials will be noted on the field records; and • If observed, any fragments of fibre cement in the 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).
Decontami-nation and Sample Preservation	Sampling personnel will use disposable nitrile gloves during sampling activities. Re-usable sampling equipment will be decontaminated using a potable water/decon solution (with rags and scrubbing brush), followed by a rinse with potable water. Soil samples will be preserved by immediate storage in an insulated sample container with ice. On completion of the fieldwork, the contamination 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 is outlined in the table below:

Table 4-2: Groundwater Sampling Plan and Methodology

Aspect	Input
Sampling Plan	Three groundwater wells will be installed for the DSI at sampling locations 201, 202, 209 and 224 shown on Figure A attached in Appendix A. The wells will be positioned to provide general site coverage. The locations of the monitoring wells have been selected to provide a baseline indication of groundwater flow across the site and are considered to be reasonably positioned to make an initial assessment of potential gross groundwater contamination issues from 'off site' sources.

Aspect	Input
Monitoring Well Installation Procedure	The monitoring well construction details will be documented on the corresponding borehole log. The wells will be installed to a maximum depth of approximately 8mBGL and generally constructed as follows: • 50mm diameter Class 18 PVC (machine slotted screen) installed in the lower section of the well to intersect groundwater; • 50mm diameter Class 18 PVC casing installed in the upper section of the well (screw fixed); • A 2mm sand filter pack around the screen section for groundwater infiltration; • A hydrated bentonite seal/plug on top of the sand pack to seal the well; and • A gatic cover installed at the surface with a concrete plug to limit the inflow of surface water. The proposed well construction is considered to be appropriate for screening purposes to assess general aquifer conditions with regards to the recommended monitoring well installation requirements in Schedule B2 of NEPM 2013. The installation depths and screen intervals may vary depending on observations (i.e. water strike) during drilling.
Monitoring Well Development	Prior to development, the monitoring wells will be checked for the presence of Light Non-Aqueous Phase Liquids (LNAPL) using a new disposable bailer and the water level will be measured using an electronic dip meter. The monitoring well head space will also be checked for VOCs using a calibrated PID unit. The monitoring wells will be developed using a submersible electrical pump with single-use tubing. A calibrated water quality meter will be used to measure pH, EC, DO, Eh and temperature. Development will occur until either the well is pumped dry or until steady state conditions are achieved. Groundwater removed from the wells during development will be left in jerry cans on site. For the DSI, steady state conditions are defined as the pH measurements over a one-minute time interval varying by less than 0.2 units, the difference in EC over the same period varying by less than 10%, and the Standing Water Level (SWL) not being in drawdown. The monitoring wells will be allowed to recharge for approximately 2-3 days prior to sampling.
Groundwater Sampling	Prior to sampling, the monitoring wells will be checked for the presence of LNAPL using an inter-phase probe electronic dip meter and a new disposable bailer. The monitoring well head space will also be checked for VOCs using a calibrated PID unit. Samples will be obtained using a peristaltic pump, after purging to achieve steady state conditions. Where steady state conditions cannot be achieved, the wells will be sampled whilst the SWL is in drawdown. Groundwater samples will be obtained directly from the single use tubing and placed in the sample containers. Duplicate samples are to be obtained by alternate filling of sample containers. This technique will be adopted to minimise disturbance of the samples and loss of volatile contaminants associated with mixing of liquids in secondary containers, etc. Groundwater removed from the wells during sampling will be transported to JKE in jerry cans and stored in holding drums prior to collection by a licensed waste water contractor for off-site disposal.
Decontami-nation and Sample Preservation	During development (and sampling), the pump will be flushed between monitoring wells with potable water (single-use tubing will be used for each well). The pump tubing will be discarded after each sampling event and replaced.

Aspect	Input
	The samples will be preserved with reference to the analytical requirements and placed in an insulated container with ice. 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 Disruption Notice

JKE are to prepared a Disruption Notice (DN) for review by the client and appropriate hospital personnel. The DN will provide further details on the proposed sampling locations, sampling methodologies, sampling equipment and reinstatement following sampling.

At this stage, the DSI sampling is proposed to be completed during August 2023.

4.5 Laboratory Analysis and Analytical Rationale

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

Table 4-3: Laboratory Details

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

An allowance has been made for the following analysis:

- Up to 25 selected fill/natural soil samples will be analysed for: heavy metals (arsenic, cadmium, chromium, copper, lead, mercury, nickel and zinc); PAHs; TRHs; BTEX; OCPs and OPPs; and PCBs;
- Up to 10 selected deeper fill/natural soil samples will be analysed for: heavy metals (arsenic, cadmium, chromium, copper, lead, mercury, nickel and zinc); PAHs; TRH and BTEX;
- Up to five selected fill soil samples will be analysed for asbestos 500ml. The analysis will be reserved for sampling locations/fill soils where suspected Asbestos Containing Materials (ACM) are encountered, or where there are other indicators such as building/demolition waste inclusions in the fill;
- Up to three selected fibre cement fragments, if found on or in soil, will be analysed for asbestos;
- Up to three selected fill/natural soil samples will be analysed for: pH; cation exchange capacity (CEC); and clay content (%);
- A nominal allowance for TCLP leachability analysis for PAHs and selected metals has been included to provide a preliminary waste classification for the off-site disposal of soil in accordance with NSW EPA *Waste Classification Guidelines - Part 1: Classifying Waste* (2014);

- Up to four groundwater samples will be analysed for the following: heavy metals; TRH/BTEX; low level PAHs; pH; EC. The DSI has not included analysis of PCBs and pesticides in groundwater as these contaminants (should they be present) are expected only to impact soils. This will be further evaluated based on the DSI soil results; and
- Collection and analysis of QA/QC samples (including intra- and inter-laboratory duplicates, trip blank/spike and rinsate blanks).

The soil analysis will generally be targeted to fill samples. Deeper samples may be analysed based on the results of the fill soils, or if other indicators such as staining or odours are encountered. A staged approach to soil sample analysis will be undertaken to allow for targeting areas based on the results of the initial analysis.

4.6 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)[9].

[9] NSW EPA, (2020). *Consultants Reporting on Contaminated Land, Contaminated Land Guidelines*

5 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 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 assessment. If the subject site is sold, ownership of the assessment report should be transferred by JKE to the new site owners who will be informed of the conditions and limitations under which the assessment was undertaken. No person should apply an assessment 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 assessment 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 assessments 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 assessment 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 an investigation can reduce exposure to the risk of the presence of contamination, no investigation can eliminate the risk. Even a rigorous professional assessment 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 Reports by Design Professionals:
Costly problems can occur when design professionals develop plans based on misinterpretation of the 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 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 assessment. 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 assessment. 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 report 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:
As the 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 report, and you are encouraged to read them closely.

Appendix A: Figures

SAQP

SEPTIC TANK
ELECTRICAL TRANSFORMER
ELECTRICAL SUB-STATION
MEHI RIVER
VICTORIA TERRACE
OXYGEN AST
OLD GENERATOR BUILDING
NEW GENERATOR BUILDING
DIESEL AST
201
AMBULANCE PARKING BAY
LINEN STORE
TP5 (0.0)
202
206
210
213
216
219
222
HAZCHEM STORE
BH4 (0.5)
TP4 (0.4)
BH5 (0.1)
203
207
BH3 (0.4)
211
214
217
220
223
225
BH1 (0.2)
LPG CYLINDERS
MAINTENANCE SHED
TP2 (0.4)
204
205
208
209
212
215
218
221
224
226
BH7 (0.2)
TP3 (0.1)
BH6 (0.0)
BH2 (0.0)
TP1 (0.0)
INCINERATOR BUILDING
MEDICAL WASTE STORE
ALICE STREET
AMBULANCE STATION

LEGEND

	APPROXIMATE SITE BOUNDARY
	APPROXIMATE WIDER SITE BOUNDARY
BH(Fill Depth)	PSI BOREHOLE LOCATION, NUMBER AND DEPTH OF FILL (m)
TP(Fill Depth)	PSI TEST PIT LOCATION, NUMBER AND DEPTH OF FILL (m)
202	PROPOSED DSI SAMPLE LOCATION
201	PROPOSED DSI GROUNDWATER MONITORING WELL LOCATION

AERIAL IMAGE SOURCE: EARTH.GOOGLE.COM

0 10 20 30 40 50

SCALE 1:1000 @A3 METRES

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

Title: **PROPOSED DSI SAMPLE LOCATION PLAN**

Location: MOREE HOSPITAL, 35 ALICE STREET, MOREE, NSW

Project No: E35092UPD

Figure No: A

JKEnvironments

PLOT DATE: 27/07/2023 2:42:31 PM DWG FILE: K:\5C EIS JOBS\35000'S\E35092UPD MOREE\CAD\E35092UPD.DWG

Appendix B: 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)[10] methods and those described in *Environmental Sampling and Analysis, A Practical Guide,* (1991)[11]. 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;

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

[11] Keith., H, (1991). *Environmental Sampling and Analysis, A Practical Guide*

- All blank data reported;
- 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%.

$$\frac{\text{(Spike Sample Result – Sample Result) x 100}}{\text{Concentration of Spike Added}}$$

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 C: Guidelines and Reference Documents

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