REPORT TO

HEALTH INFRASTRUCTURE

ON

HAZARDOUS BUILDING MATERIALS SURVEY

FOR

MOREE HOSPITAL REDEVELOPMENT

AT

MOREE HOSPITAL, ALICE STREET, MOREE, NSW

Date: 23 August 2022
Ref: E35092BTrpt-HAZ

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DOCUMENT REVISION RECORD

Report Reference	Report Status	Report Date
E35092BTrpt-HAZ	Final Report	23 August 2022

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Abbreviations

Asbestos Containing Material	**ACM**
Chain of Custody	**COC**
JK Environments	**JKE**
National Association of Testing Authorities	**NATA**
Personal Protective Equipment	**PPE**
Polychlorinated Biphenyls	**PCB**
Practical Quantitation Limit	**PQL**
Synthetic Mineral Fibre	**SMF**

1 INTRODUCTION

Health Infrastructure ('the client') commissioned JK Environments (JKE) to undertake a hazardous building materials (HAZMAT) survey for the proposed Moree Hospital Redevelopment at Moree Hospital, Alice Street, Moree, NSW ('The Site'). The Site location is shown on Figure 1 and the survey was confined to The Site buildings/structures as shown on Figure 2 attached in the appendices.

This document was prepared specifically for the proposed site development works and should not be considered a HAZMAT management plan or removal control plan.

1.1 Proposed Development Details

It is understood that Moree Hospital is proposed to be redeveloped and includes a mix of demolition, refurbishment, retention and construction of new buildings and structures across the site.

1.2 Scope of Work

The survey was undertaken generally in accordance with a JK proposal (Ref: EP56438BT) of 3 May 2022 and written acceptance from the client of 28 June 2022. The scope of work included the following:

- A detailed inspection of the existing building and structures shown on Figure 2;
- Review of existing HAZMAT register information;
- Sampling of representative materials in accordance with the survey criteria and inspection procedure outlined in Section 4;
- Documentation of inspection finds including sample location, material type, condition, friability, photographic evidence and site location;
- Laboratory analysis of selected representative materials; and
- Preparation of a report presenting the results of the HAZMAT survey and a risk assessment of each HAZMAT identified, and a HAZMAT register per material type (and building), for the site.

2 SITE DESCRIPTION

2.1 Site/Buildings Description

Field work for this investigation was undertaken between 21 July and 3 August 2022. The site description at the time of the field work is outlined below. The site location is shown on Figure 1 and the site layout is shown on Figure 2 in Appendix A.

The site is located to the north of Alice Street and to the south and west of Victoria Terrace, Moree, NSW. A general description of each building/structure included in the survey is outlined below. Reference should be made to the Hazmat register attached in the appendices:

MR01 – Hospital Building

Located in the central north of the site, the Main Hospital Building is a two-storey building with roof top plant room and basement level, constructed with brick and concrete external walls; brick, concrete plasterboard and fibre cement internal walls; fibre cement, concrete and plasterboard ceilings; concrete floors and a metal roof.

MR02 – Administration Building

Located towards the east of the Picone building, the Administration building was a single storey structure constructed with: brick external walls; brick and plasterboard internal walls; plasterboard ceilings; a concrete floor and a metal roof.

MR03 – Picone Building

Located to the south of the Mental Health building, the Picone building was a single storey structure constructed with brick external walls; brick, concrete, fibre cement and plasterboard internal walls; plasterboard and fibre cement ceilings; concrete floors and a tile roof.

MR04 – Mental Health

Located between the hospital and Picone Building and to the east of the Crane and Glennie building, the Mental Health building was a single storey structure constructed with brick external walls; brick, concrete, fibre cement and plasterboard internal walls; plasterboard and fibre cement ceilings; concrete floors and a tile roof.

MR05 – Crane & Glennie

Located in the centre of the site between Mental Health, Picone, Hollingworth Block, and the hospital buildings, the Crane & Glennie Building is a single storey structure constructed with: brick and fibre cement external walls; concrete, fibre cement Masonite and plasterboard internal walls; plasterboard and fibre cement ceilings; concrete floors and a tile roof.

MR06 – Hollingworth Block (Community Health)

Located in the south of the site to the west of the Crane and Glennie Building and the south of the Kitchen, the Hollingworth Block was a single storey structure constructed with: brick external walls; brick, concrete, fibre cement and plasterboard internal walls; plasterboard and fibre cement ceilings; concrete floors and a tile roof.

MR07 – Kitchen

Located to the north of Hollingworth Block in the centre of the site, the Kitchen was a single storey structure constructed with brick external walls; brick, concrete, fibre cement and plasterboard internal walls; plasterboard and fibre cement ceilings; concrete floors and a tile roof.

MR08 – Carport

Located in the north-west of the site, and t the west of the staff quarters, the Carport was a freestanding single storey, timber framed structure with metal walls and roof.

MR09 – Stores Building

Located in the central west of the site, the Stores building was a large freestanding warehouse type structure. The building was constructed with metal external walls and roof; metal, fibre cement Masonite, and plasterboard internal walls; fibre cement, chipboard and plasterboard ceilings; timber and concrete floors.

MR10 – Mortuary

Located to the east of the Engineers Office, the Mortuary was a single storey building constructed with: brick external walls; plasterboard internal walls and ceilings; concrete floors on brick piers and a tiled roof.

MR11 – Engineer's Office

Located to the west of the Mortuary, the Engineers Office was a single storey building constructed with: timber external walls; timber and Masonite internal walls; fibre cement eaves; plasterboard ceilings; concrete and timber floors on piers; with a metal roof.

During the inspection, JKE were informed that this building had recently been refurbished due to fire.

MR12 – Workshop

Located in the south-west of the site, adjacent to the service vehicle entrance, the Workshop was a single storey structure constructed with: metal external walls; metal and fibre cement internal walls; metal roof on a concrete slab floor.

MR14 – AG Health House

Located in the north west corner of the site and to the west of the carport, AG Health House was a freestanding single storey building. AG Health House was constructed with: external brick walls; brick, fibre cement and plasterboard internal walls; plasterboard ceilings; fibre cement eaves; concrete floors and a tile roof.

MR15 – Barbeque Shed

Located to the west of the Carports, the Barbeque Shed constructed with timber framework; and a metal roof over a concrete slab floor.

MR16 – Tennis Shed

Located in the central wets of the site, the Tennis Shed was constructed with: timber walls; and a metal roof on a concrete slab floor.

MR17 – Emergency Generator

Located to the south of the Staff Accommodation building, the Emergency Generator was a steel framed structure with metal walls and roof over a concrete slab floor.

MR18 – Substation

Located to the west of the Kitchen and east of the Emergency Generator, the substation was constructed with brick walls on a concrete slab.

MR19 – Pump House

Located to the east of the Flammable Liquid Store, the Pump House was a single storey freestanding structure. The building was constructed with: timber walls and a metal roof.

MR20 – Flammable Liquid Store

Located to the wets of the Engineers Office, the Flammable Liquid Store was a single storey freestanding structure. The building was constructed with: concrete block walls; and a concrete roof over a concrete slab.

MR21 – High Tank Shed

The high tank shed was located to the north of the Hollingworth Block and comprised a metal walled and roofed structure on a concrete slab and a heavy duty plastic water tank on concrete slab.

MR22 – Bus Port

Located to the immediate south-west of the Engineers Office, the bus port was constructed with: steel framework; and a metal roof over a concrete slab.

MR23 – LPG Tanks

Located to the south-west of the Bus Port, the LPG Tanks comprised a steel framed, metal wire compound on a concrete slab.

MR24 – Maintenance Car Port

Located to the south of the LPG Tanks, the Maintenance Car Port was constructed with: metal support beams and a metal roof.

MR25 – Maintenance Sub Area (Incinerator)

Located to the south of Hollingworth Block, the Maintenance Sub Area is a was a single storey freestanding structure. The building was constructed with brick walls and a metal roof on a concrete slab.

MR26 – Fire Booster Pump Shed

The fire booster shed was located to the north of the Back Flow Shed in the south of the site and was constructed with: fibre cement internal and external walls; fibre cement eaves; a metal roof and concrete floor.

MR27 – Back Flow Shed

The back flow shed was located on the southern boundary of the site to the south of the Fire Booster Pump Shed. The building was a single storey freestanding steel framed structure constructed with metal walls and roof over a concrete slab floor.

MR29 – Aboriginal Shade Shelter

The Aboriginal Shade Shelter is positioned in the centre of the site, to the north of the kiosk, the east of the Crane and Glennie building and the south of the Hospital Building. The shelter was with: timber support beams and a metal roof over a paved floor slab.

MR30 – Staff Shade Shelter

The Staff Shade Shelter was located to the north of the site adjacent to the Kitchen and the chapel (off the hospital building). The shelter was constructed with: timber support beams; and a metal roof over a paved floor slab.

MR31 – Chiller Shed

The chiller shed was located in the north-east of the site and constructed with: brick external walls, fibre cement gable ends and eaves; a metal roof and concrete floors.

MR32 – Bulk Oxygen Vessel

The Bulk Oxygen Vessel was located to the north-east o the hospital building and was constructed with: brick and metal walls on a concrete slab.

Buildings/Structures not included in survey or Not Sighted

- Building MR13 Staff Accommodation was not included in the scope of works for the survey;
- Building MR28 Toy Store was no longer present on the site as it had been demolished. No specific information regarding the removal/demolition was provided to JKE; and
- Building MR33 Renal was not included in the survey as this building was constructed post 31 December 2003.

2.2 Previous Registers

While undertaking the current survey, the January 2022 Asbestos Register Review and Update document by Practical Environmental Solutions (dated January 2022)[1] was provided for the site. This report referenced only 15 of the site buildings as listed in the below table. With the exception of MR13 Staff Accommodation which is not included in the scope of this survey, all items listed in the registers were reinspected (where

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[1] Practical Environmental Solutions (2022). *Moree District Health Service, 35 Alice Street, Moree, NSW, 2400, Asbestos Register Review and Update (Project File 21.3497, dated 28 February 2022).*

identified), and have been included in the HAZMAT registers attached in the appendices. Any items not identified during the survey have also been included in the registers for completeness.

Table 2-1: Summary of Asbestos Findings per Building from Survey

Building/s	Summary of Survey Findings
MR01 - Hospital Building	Friable and bonded asbestos containing materials identified.
MR03 - Picone Building	Friable and bonded asbestos containing materials identified.
MR04 - Mental Health	Bonded asbestos containing materials identified.
MR05 - Crane & Glennie	Bonded asbestos containing materials identified.
MR06 – Hollingworth Block	Bonded asbestos containing materials identified.
MR07 -Kitchen	Friable and bonded asbestos containing materials identified.
MR09 - Stores Building	Bonded asbestos containing materials identified.
MR10 - Mortuary Building	Bonded asbestos containing materials identified.
MR11 - Engineer's Office	Bonded asbestos containing materials identified.
MR12 - Workshop	Bonded asbestos containing materials identified.
MR13 - Staff Accommodation	Friable and bonded asbestos containing materials identified.
MR14 - AG Health House	Bonded asbestos containing materials identified.
MR16 - Tennis Shed	Bonded asbestos containing materials identified.
MR26 - Fire Booster Pump Shed	Bonded asbestos containing materials identified.
MR27 - Back Flow Shed	Bonded asbestos containing materials identified.

Prior to attendance at site, the 2015 asbestos register by Practical Environmental Solutions (dated 4 March 2015)[2] was provided. With the exception of buildings/structures no longer present on the site, buildings/structures not included in the scope of the survey, and items within the buildings/structures included in the 2022 register, all items listed in the 2015 registers were reinspected (where identified) and have been included in the HAZMAT registers attached in the appendices.

Table 2-2: Summary of Previous Surveys

Building/s	Summary of Survey Findings
MR01 - Hospital Building	Friable and bonded asbestos containing materials identified.
MR02 - Administration Building	No suspected asbestos containing material was identified.
MR03 - Picone Building	Friable and bonded asbestos containing materials identified.
MR04 - Mental Health	Bonded asbestos containing materials identified.
MR05 - Crane & Glennie	Friable and bonded asbestos containing materials identified.
MR06 – Hollingworth Block	Friable and bonded asbestos containing materials identified.
MR07 -Kitchen	Friable and bonded asbestos containing materials identified.
MR08 - Car Port	No suspected asbestos containing material was identified.
MR09 - Stores Building	Bonded asbestos containing materials identified.
MR10 - Mortuary Building	Bonded asbestos containing materials identified.
MR11 - Engineer's Office	Bonded asbestos containing materials identified.
MR12 - Workshop	Bonded asbestos containing materials identified.
MR13 - Staff Accommodation	Friable and bonded asbestos containing materials identified.
MR14 - AG Health House	Bonded asbestos containing materials identified.
MR15 - Barbeque Shed	No suspected asbestos containing material was identified.
MR16 - Tennis Shed	Bonded asbestos containing materials identified.
MR17 - Emergency Generator	No suspected asbestos containing material was identified.
MR18 - Sub Station	No suspected asbestos containing material was identified.
MR19 - Pump House	No suspected asbestos containing material was identified.
MR20 - Flammable Liquid Store	No suspected asbestos containing material was identified.
MR21 - High Tank Shed	No suspected asbestos containing material was identified.

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[2] Practical Environmental Solutions (2015). *Asbestos Register of Moree District Health Service (Report Ref: HNELHD_ASB_REG_MOREE_V1.0).*

Building/s	Summary of Survey Findings
MR22 - Bus Port	No suspected asbestos containing material was identified.
MR23 - LPG Tanks	No suspected asbestos containing material was identified.
MR24 - Maintenance Car Port	No suspected asbestos containing material was identified.
MR25 - Maintenance Sub Area (Incinerator)	Friable asbestos containing materials identified.
MR26 - Fire Booster Pump Shed	Bonded asbestos containing materials identified.
MR27 - Back Flow Shed	Bonded asbestos containing materials identified.
MR28 - Toy Store	No suspected asbestos containing material was identified.
MR29 - Aboriginal Shade Shelter	No suspected asbestos containing material was identified.
MR30 - Staff Shade Shelter	No suspected asbestos containing material was identified.
MR31 - Chiller Shed	No suspected asbestos containing material was identified.
MR32 - Bulk Oxygen Vessel	No suspected asbestos containing material was identified.

2.2.1 Sample Results Presented in Previous Reports

It is noted that only 10 samples were analysed as part of the 2022 survey. Sampled items and their results have been tabulated below and positive results are included in the HAZMAT registers attached in the appendices for buildings included in this scope of works. The analytical laboratory report for these samples was attached to the 2022 register.

Table 2-3: Summary of Asbestos Findings per Building (within current scope) from 2022 Survey

Sample No.	Date analysed	Sample description	Asbestos ID in materials
MH01	28/01/2022	Staff Accommodation - Vinyl Floor Tiles to 1st Floor, Room MR1301027	No asbestos detected
MH02	28/01/2022	Staff Accommodation - Vinyl Floor Tiles (white) to 1st Floor, MR130127	No asbestos detected
MH03	28/01/2022	Crane & Glennie - Flat Fibre Cement Sheet, wall linings and partitions Ground Floor south-west staff toilets	No asbestos detected
MH04	28/01/2022	Hollingworth Block - Flat Fibre Cement Sheet, wall, and ceiling lining to Ground Floor MR0600014 Respiratory and Healing clinic spaces	Chrysotile asbestos detected
MH05	28/01/2022	Hospital building - Mastic Adhesive / Joint Sealant, windows External plantroom	Chrysotile asbestos detected
MH06	28/01/2022	Crane & Glennie - Flat Fibre Cement Sheet, fire wall Ground Floor ceiling void.	Chrysotile asbestos detected
MH07	28/01/2022	Administration building - Vinyl Floor Tiles, floor Ground Floor men’s toilet airlock	No asbestos detected
MH08	28/01/2022	Hospital building - Mastic Adhesive / Joint Sealant, in frame Ground Floor metal windows throughout building	Chrysotile asbestos detected
MH09	28/01/2022	AG House - Flat Fibre Cement Sheet, soffit lining External eave and verandah	Chrysotile asbestos detected
MH10	28/01/2022	AG House - Flat Fibre Cement Sheet, wall lining Ground Floor shower room	Chrysotile asbestos detected

Analytical laboratory results from previous surveys were presented as a table in the 2022 report. Where these items were identified This information has been reproduced below and samples items as appropriate included in the HAZMAT registers attached in the appendices.

Table 2-4: Summary of Asbestos Findings per Building (within current scope) from 2015 Survey

Sample No.	Date	Sample description	Asbestos ID in materials
FH4	04/03/2015	Main building – Ground floor, asbestos contaminated dust to fire hydrant, western exit, opposite G1 ward Item not sighted by JKE	Amosite asbestos detected
3	04/03/2015	Fire Booster Pump Shed - Flat Fibre Cement Sheet, wall cladding, external	Chrysotile asbestos detected
4	04/03/2015	Mortuary Building - Flat Fibre Cement Sheet, soffit lining External northern and part eastern and western eave	Chrysotile asbestos detected
6	04/03/2015	Staff Shelter - Corrugated and flat-sheet fragments to grassed footpath around southwest corner Item not sighted during 2022 PES inspection or by JKE	Chrysotile asbestos detected
7	04/03/2015	Mortuary Building - Flat Fibre Cement Sheet, soffit lining, north-east and southern awnings	Chrysotile asbestos detected
8	04/03/2015	Stores Building Block - Flat Fibre Cement Sheet, northern wall lining, entrance corridor	Chrysotile asbestos detected
9	04/03/2015	Stores Building Block - North-east corner – laundry store wall lining Removed in 2013 – No documentation provided	Chrysotile asbestos detected
10	04/03/2015	Hospital grounds, fragments on ground to western side of LPG storage tanks. Item not sighted JKE – Assumed removed	Chrysotile asbestos detected
19	04/03/2015	Hollingworth Block - Flat Fibre Cement Sheet, soffit lining to northern awning	Chrysotile asbestos detected
20	04/03/2015	Hollingworth Block - Flat Fibre Cement Sheet, western wall lining, speech pathology	Chrysotile asbestos detected
21	04/03/2015	Kitchen Block - Metal-encased insulation to pipework, eastern side, area above awning	Amosite asbestos detected
22	04/03/2015	Kitchen Block - Thermal Insulation to pipework, metal-encased insulated pipework, eastern side, area above awning	Amosite asbestos detected
23	04/03/2015	Incinerator - Thermal Insulation to pipework, metal-encased insulated pipework, bin storage - south-east corner	Amosite asbestos detected
24	04/03/2015	Picone Building - Flat Fibre Cement Sheet, awning soffit lining, northwest corner	Chrysotile asbestos detected
25	04/03/2015	Picone Building - Flat Fibre Cement Sheet, awning soffit lining external north-east corner entrance	Chrysotile asbestos detected
26	04/03/2015	Picone Building - Flat Fibre Cement Sheet, ceiling lining, ground floor Room #0032 north-east corner - shower	Chrysotile asbestos detected
27	04/03/2015	Picone Building - Flat Fibre Cement Sheet, ceiling lining and infill panel to northern wall lining, Ground Floor delivery rooms - western end - south-west corner shower	Chrysotile asbestos detected
28	04/03/2015	Picone Building - Woven Product, pipework Ground Floor delivery rooms - western end - wall cavity	Amosite & Chrysotile
30	04/03/2015	Crane and Glennie Building - Flat Fibre Cement Sheet, infill panels beneath windows, southern elevation	Chrysotile asbestos detected
31	04/03/2015	Crane and Glennie Building - Thermal Insulation to pipework, ceiling void, Ground Floor south-west corner - northern bathroom	Amosite asbestos detected
33	04/03/2015	Crane and Glennie Building - Flat Fibre Cement Sheet, wall lining, Ground Floor south-west corner - central laundry	Chrysotile asbestos detected
35	04/03/2015	Crane and Glennie Building - Moulded Fibre Cement, corrugated wall cladding, western wall - east of reception entrance	Chrysotile asbestos detected
42	04/03/2015	Main Hospital Building - Thermal Insulation to pipework, soil contamination Basement walkway east to west - western ground area HNELHD indicated remediation undertaken previously	Chrysotile asbestos detected

Sample No.	Date	Sample description	Asbestos ID in materials
43	04/03/2015	Main Hospital Building - Thermal Insulation to pipework, soil contamination Basement walkway east to west - southern ground area HNELHD indicated remediation undertaken previously	Amosite asbestos detected
44	04/03/2015	Main Hospital Building - Thermal Insulation to pipework, soil contamination Basement walkway east to west - eastern ground area HNELHD indicated remediation undertaken previously	Amosite asbestos detected
45	04/03/2015	Main Hospital Building - Basement, eastern area, doorway, dust contamination HNELHD indicated remediation undertaken previously	Amosite asbestos detected
46	04/03/2015	Main Hospital Building - Basement, eastern area, bottom staircase and platform, dust contamination Area cleaned of amosite asbestos January 2008 by area asbestos team.	Amosite asbestos detected
47	04/03/2015	Main Hospital Building - Thermal Insulation to pipework, basement eastern end Room #B1002 HNELHD indicated remediation undertaken previously	Amosite asbestos detected
48	04/03/2015	Main Hospital Building - Spray-Applied Fire Retardant, beams and debris, throughout ceiling void	Amosite & Chrysotile asbestos detected
49	04/03/2015	Main Hospital Building - Suspected ACM Void Dust, dust, entrance to ceiling space, eastern side, stairwell platform Not sighted by JKE	Amosite asbestos detected
50	04/03/2015	Picone Building - Suspected ACM Void Dust, dust Ground Floor plant room - southern wall - south-west corner - ground area	Amosite asbestos detected
51	04/03/2015	Main Hospital Building - Thermal Insulation to pipework, loose insulation 1st Floor, Room #1050 eastern side - CSSD – electrical cabinet	Amosite asbestos detected
53	04/03/2015	Main Hospital Building – Rooftop - Suspected ACM Void Dust, dust contamination, Rooftop - plant room - southern and northern electrical cabinets HNELHD indicated cabinets removed in 2016	Amosite asbestos detected
54	04/03/2015	Main Hospital Building – Rooftop - Flat Fibre Cement Sheet, wall lining, plant room – wall cladding	Chrysotile asbestos detected
55	04/03/2015	Main Hospital Building – Rooftop - Flat Fibre Cement Sheet, wall lining, plant room	Chrysotile asbestos detected
56	04/03/2015	Main Hospital Building – Rooftop - Mastic Adhesive / Joint Sealant, mastic sealant, plant room - iron roof next to southern wall	Amosite & Chrysotile asbestos detected

It is noted that only sample results positive for asbestos were presented and numerous sample numbers were missing from the data in the previous reports/registers. It is assumed that the results of all missing sample numbers were negative. The missing sample numbers were not included in the report or in the registers provided. Analytical laboratory reports for these samples have not been sighted by JKE.

3 REGULATORY BACKGROUND INFORMATION

All work associated with the inspection and reporting of HAZMAT is generally undertaken in accordance with the following legislation, guidelines and standards:

Table 3-1: Guidelines / Documents

GUIDELINES / REGULATIONS / DOCUMENTS
Asbestos
Code of Practice How to Manage and Control Asbestos in the Workplace, Safe Work NSW, August 2019
Code of Practice How to Safely Remove Asbestos, Safe Work NSW, August 2019
SMF
National Standard for the Safe Use of Synthetic Mineral Fibres [National Occupational Health and Safety Commission:1004 (1990)]
National Code of Practice for the Safe Use of Synthetic Mineral Fibres [National Occupational Health and Safety Commission:2006 (1990)]
Code of Practice for the Safe Use of Synthetic Mineral Fibres, WorkCover: 1993.
Lead
Guide to Lead Paint Management - Part 2: Residential and Commercial Buildings, Australian Standard AS4361.2, 1998
Guide to Hazardous Paint Management, Part 2: Lead Paint in Residential, Public and Commercial Buildings, Australian Standard AS4361.2, 2017
PCBs
Identification of PCB-Containing Capacitors, Australian and New Zealand Environment and Conservation Council (ANZECC), 1997
Ozone Depleting Substances
Ozone Protection and Synthetic Greenhouse Gas Management Act 1989
General
Work Health and Safety Act 2011 (NSW)
Work Health and Safety Regulation 2017 (NSW)

4 ASSESSMENT CRITERIA AND INSPECTION PROCEDURE

The survey included a visual inspection of the buildings/structures, sampling and laboratory analysis as described in the following sections.

4.1 Asbestos Fibre Containing Materials

Representative samples of construction materials identified as potentially containing asbestos were obtained using hand tools by personnel wearing suitable personal protective equipment (PPE). The samples were placed in sealed plastic bags and labelled with a unique job number, sampling location and date. All samples were recorded on the chain of custody (COC) record presented in the appendices.

Following the completion of the field inspection, the samples were forwarded to a National Association of Testing Authorities (NATA) registered laboratory, Envirolab Services Pty Ltd (NATA Accreditation No. 2901), for analysis. The asbestos samples were analysed using stereo and polarising light microscopy methods with dispersion staining techniques.

4.2 Lead Containing Materials

Representative samples of deteriorated paint films and accumulated dust that potentially contain elevated lead concentrations were obtained using hand tools by personnel wearing suitable PPE.

Only significantly deteriorated paint systems that are considered likely to impact on demolition/refurbishment practices or that are considered a health or environmental hazard were sampled and recorded.

The paint flakes obtained included all layers of paint on a particular surface and so are considered to be composites of the materials at each location. The paint flake samples were placed in sealed plastic bags and labelled with a unique job number, sampling location and date. All samples were recorded on the COC record presented in the appendices.

In accordance with the Australian Standard AS4361.2, 2017 *"Guide to Hazardous Paint Management, Part 2: Lead Paint in Residential, Public and Commercial Buildings,* a lead in paint concentration greater than 0.1% w/w is considered to be lead based paint.

Settled dust sampling involved the collection of settled dust from a known surface area by wet wipe. The area should preferably be $0.09m^2$ (which corresponds to an area 30 cm × 30cm) and in any event not less than $0.01m^2$, depending on the amount of dust present. A non-alcoholic moistened wipe is folded to form a firm swab. The swab is placed flat onto the surface in one corner of the area to be sampled and rubbed across the entire area in an 'S' pattern. The wipe is re-folded so that the collected dust is on the inside and is again rubbed across the area at 90° to the first 'S'. The wipe is again folded with the dust inside and placed in the sterile sample container.

The lead concentration per m^2 is calculated using the equation (µg/swab ÷ 0.09) ÷ 1000.

Following the completion of the field inspection, the samples were forwarded to a NATA registered laboratory for analysis. Analysis for lead content is performed using a nitric and hydrochloric acid digest followed by ICP-AES (Inductively Coupled Plasma – Atomic Emission Spectroscopy) quantification methods.

The result, when received from the laboratory, is converted to milligrams, and then divided by the area sampled (in square metres) to give a lead loading expressed in mg/m^2.

4.2.1 Lead Materials Assessment Criteria

As stated above, a lead in paint concentration greater than 0.1% w/w is considered to be lead based paint.

In the absence of current published lead levels in dust, the acceptance level of 8 mg/m^2 for exterior surfaces as published in *Australian Standard AS4361.2, 1998 Guide to Lead Paint Management - Part 2: Residential and Commercial Buildings*, is considered the most appropriate guideline for comparison for lead in ceiling dust, and has been adopted for the assessment.

4.3 Polychlorinated Biphenyls (PCBs) Containing Electrical Equipment

The major use of PCBs in the electrical industry has been inside transformers and capacitors. Transformers may include relatively small transformers inside electrical mains/fuse cabinets. Capacitors containing PCBs were installed in numerous types of fluorescent light fittings during the 1950's, 60's and 70's.

Representative samples of each type of electrical equipment identified within the existing structure were visually examined to assess whether the equipment is insulated with PCBs. Details on the make, type, capacitance, dimensions, date and power were recorded and checked with the ANZECC database of known PCB containing electrical equipment and the results of the review were noted.

4.4 Synthetic Mineral Fibre Containing Materials

Construction materials identified as potentially containing synthetic mineral fibre (SMF) were examined by site personnel and their location was noted. In the event that the materials were suspected to contain asbestos fibres, representative samples were obtained using hand tools by personnel wearing suitable PPE. The material samples were placed in sealed plastic bags and labelled with a unique job number, sampling location and date. All samples were recorded on the COC record presented in the appendices.

Following the completion of the field inspection, the samples were forwarded to a NATA registered laboratory for asbestos fibre analysis. The samples were analysed using stereo and polarising light microscopy methods with dispersion staining techniques.

4.5 Ozone Depleting Substances (ODS)

The major use of ODS has been in refrigerators, air conditioners, fire extinguishers, foam, and aerosol propellants. Production of most ozone depleting substances has been phased out under the Montreal Protocol. In Australia the phase out of the most potent chemicals happened between 1991 and 1995. In

1996 Australia started its phase-out of hydrochlorofluorocarbons (HCFCs), through import controls under the *Ozone Protection and Synthetic Greenhouse Gas Management Act 1989*. R22 was commonly used in residential and commercial refrigeration and air conditioning systems from the 1990s, following the phase out of chlorofluorocarbons (CFCs) in 1995.

As per the scope of the survey, items to be inspected for ODS included records held by each hospital for: refrigerators; air conditioners; fire extinguishers; and any other aerosol propellants onsite.

5 RISK ASSESSMENT

The following sections outline how the risk rating and control measures of a material type have been established. JKE have complied the risk rating and control measures from previous asbestos risk assessments previously undertaken by NSW Health for hospital sites.

5.1 HAZMAT Risk Assessment

Table 5-1: HAZMAT Risk Assessment Algorithm Score Summary

Sample Variable		Score	Example of Score (Hazard Sub)
A	HAZMAT Classification	1	• Non-Friable (bonded) asbestos or SMF • Deteriorated lead based paint system • Lead in accumulated dust • PCB containing electrical equipment • ODS in aerosol propellants
		3	• Friable (asbestos / SMF)
B	Product Type	1	• Asbestos/SMF - Cement bound material and reinforced composites (plastics, resins, roofing felts, vinyl floor tiles, vinyl sheeting, semi-rigid paints or decorative finishes, fibre cement etc.) • Lead in paint, lead in accumulated dust, PCB containing electrical equipment; and ODS in aerosol propellants
		2	• Low-density insulation boards, asbestos textiles, gaskets, ropes and woven textile, fire door core, asbestos membrane
		3	• Thermal insulation / insulation material (e.g. pipe and boiler lagging), sprayed asbestos, loose asbestos, asbestos mattresses and packaging (friable material)
C	Accessibility	0	• No Access (e.g. under floor boards, sealed areas)
		1	• Restricted access: Maintenance/Service personnel
		3	• Limited access: NSW Health staff & maintenance/service personnel
		4	• Full access: All staff and general public
D	Signage / Labelling	0	• Adequate labelling/signage or not reasonably practicable (asbestos items) • No labelling/signage (paint, dust, PCB containing electrical equipment, ODS in aerosol propellants & SMF materials)
		1	• Inadequate or no labelling/signage (asbestos only).
E	Damage / Deterioration (Condition)	0	• Good condition: no visible damage, stable (asbestos, SMF, PCB containing electrical equipment, and ODS in aerosol propellants) • Contained (dust)
		5	• Low damage (i.e. broken edges on fibre cement sheets, vinyl tiles etc.) • Deteriorated paint.
		7	• Medium damage (i.e. numerous damaged areas, fibre cement fragment debris, etc.)
		10	• High damage (i.e. friable asbestos debris, degraded bonded material, etc.). • Leaking PCB electrical equipment & ODS in aerosol propellants.

5.2 Risk Assessment Algorithm

Table 5-2: Risk Rating Based upon Algorithm

Score	Risk Rating	Timeframe to develop and implement short-and-long-term controls
15>	High	Immediate
11-14	Medium	0 to 3 months
6-10	Low	0 to 2 years
<5	Very Low	0 to 5 years

5.3 Control Measures

Table 5-3: Control Measures

Control Number	Control Measure
Asbestos/SMF controls	
C1	Isolate/seal-off area and erect appropriate warning signage in accordance with AS 1319-1994 Safety Signs for the Occupational Environment.
C2	Encapsulate/enclose material in accordance with relevant regulations as outlined in Section 3.
C3	Remove any debris and seal damaged edges with an appropriate sealant such as Emerclad paint or PVA sealant/paint.
C4	Confirm asbestos status via inspection and/or sampling when access is available.
C5	Manage in-situ and incorporate into an Asbestos Management Plan (AMP) for the site.
C6	Remove prior to refurbishment/demolition by appropriately licensed asbestos removal contractor in accordance with the relevant standard/code of practice/guidelines as outlined in Section 3.
C7	Re-inspect material and conditions every five years or sooner if deemed necessary in accordance with relevant regulations as outlined in Section 3.
Lead Based Paint and Lead in Dust Controls	
C8	Stabilisation/abatement by appropriately licensed hazardous materials contractor in accordance with the relevant standard/code of practice/guidelines.
Lead in Dust & ODS in Aerosol Propellant Controls	
C9	Contained/disposal by appropriately licensed hazardous materials contractor in accordance with the relevant standard/code of practice/guidelines.
PCB containing electrical equipment Controls	
C10	Confirm PCB containing when safe to do so (no electrical hazard) or assume to contain PCBs and contain/disposal by appropriately licensed hazardous materials contractor in accordance with the relevant standard/code of practice/guidelines.

Note: Licenced Asbestos Assessor/experienced HAZMAT consultant to determine control measures based on Professional Judgement at time of inspection.

6 RESULTS OF THE INSPECTION

6.1 Summary of HAZMAT Presence per Building

A summary of the presence of each HAZMAT type per building is outlined in the following table:

Table 6-1: Summary of HAZMAT presence per building

Building No. and reference	Friable asbestos	Bonded asbestos	SMF materials	Det. lead based paint	Lead in dust	PCB cont. electrical equipment	ODS in aerosol prop.
MR01 Hospital Building	**Yes**	**Yes**	**Yes**	No	No	**Yes**	No
MR02 Administration Building	No	No	**Yes**	No	No	No	No
MR03 Picone Building	**Yes**	**Yes**	**Yes**	**Yes**	No	**Yes**	No
MR04 Mental Health	**Yes**	**Yes**	**Yes**	No	No	**Yes**	No
MR05 Crane & Glennie	**Yes**	**Yes**	**Yes**	**Yes**	No	**Yes**	No
MR06 Hollingworth Block	**Yes**	**Yes**	**Yes**	**Yes**	No	**Yes**	No
MR07 Kitchen	**Yes**	**Yes**	**Yes**	**Yes**	No	**Yes**	No
MR08 Car Port	No	No	No	**Yes**	No	No	No
MR09 Stores Building	No	**Yes**	**Yes**	No	No	**Yes**	No
MR10 Mortuary Building	**Yes**	**Yes**	**Yes**	**Yes**	No	**Yes**	No
MR11 Engineer's Office	No	**Yes**	No	No	No	No	No
MR12 Workshop	No	**Yes**	**Yes**	No	No	**Yes**	No
MR14 AG Health House	No	**Yes**	**Yes**	No	No	**Yes**	No
MR15 Barbeque Shed	No	No	No	No	No	**Yes**	No
MR16 Tennis Shed	No	**Yes**	No	**Yes**	No	No	No
MR17 Emergency Generator	No	**Yes**	No	No	No	**Yes**	No
MR18 Sub Station	No	No	No	**Yes**	No	No	No
MR19 Pump House	No	No	No	No	No	No	No
MR20 Flammable Liquid Store	No	No	No	No	No	No	No
MR21 High Tank Shed	No	No	No	No	No	No	No
MR22 Bus Port	No	No	No	No	No	No	No

Building No. and reference	Friable asbestos	Bonded asbestos	SMF materials	Det. lead based paint	Lead in dust	PCB cont. electrical equipment	ODS in aerosol prop.
MR23 LPG Tanks	No	No	No	No	No	No	No
MR24 Maintenance Car Port	No	No	No	No	No	No	No
MR25 Maintenance Sub Area (Incinerator)	**Yes**	No	**Yes**	**Yes**	No	**Yes**	No
MR26 Fire Booster Pump Shed	No	**Yes**	No	**Yes**	No	No	No
MR27 Back Flow Shed	No	**Yes**	No	No	No	No	No
MR29 Aboriginal Shade Shelter	No	No	No	No	No	No	No
MR30 Staff Shade Shelter	No	No	No	No	No	No	No
MR31 Chiller Shed	No	No	No	No	No	No	No
MR32 Bulk Oxygen Vessel	No	No	No	No	No	No	No

For specific locations and details of materials inspected and sampled during the inspection, please refer to the HAZMAT register and the laboratory analysis report attached in the appendices.

Recommendations for each HAZMAT type identified at the site are provided in the following sections:

- Asbestos materials – Section 7.1;
- Lead in paint - Section 7.2**;**
- Lead in accumulated dust – Section 7.3**;**
- PCB containing electrical equipment – Section 7.4;
- SMF materials – Section 7.5**;** and
- ODS – Section 7.6.

6.2 Site Access Limitations

Lloyd Matthews of Hunter New England Local Health District (HNELHD) provided access to all buildings and structures included in the survey and as outlined in Section 2.1. However, during the survey access to some areas was restricted due to: occupation by patients, general public, and hospital staff; furniture, fittings and stored materials; height restrictions (high ceilings; low underfloor/crawl space); electrical hazards; mechanical hazards; Covid-19 Clinic operations (east end of MR03); and other building restrictions (i.e., sealed areas, confined spaces, service ducts, cleaners store rooms, etc).

No records or documentation were provided to JKE regarding any asbestos related remedial works undertaken at the site. It is noted that extensive remedial works were indicated to have been undertaken in in the basement of the hospital building, including removal of soil, installation of a geo-fabric layer across the ground surface and spray sealant applied across other exposed surfaces.

It should be noted that quantities of materials are approximate and have been calculated based on professional judgement and assumptions regarding the extent of visible materials and materials extending into or in inaccessible areas. Where asbestos lagged pipework was encountered in roof space, service ducts etc (i.e. in MR01, MR03, MR04, MR05, MR06, MR07 etc), it should be assumed that the lagged pipework extends throughout the building/s (i.e. inaccessible cavities such as floors, walls and ceiling/roof). Where these items have been identified in one section of a building, they should be assumed to extend throughout the building (i.e. the entire hospital building etc).

Representative samples of each material type were obtained during the survey however, it is noted that the hospital has undergone several phases of remedial/refurbishment works with no associated documentation or records provided. If previously unidentified materials (suspected of containing asbestos) are identified during the demolition phase, works should cease and the material should be inspected and classified by an experienced consultant. The area should be isolated and barricaded until the material has been classified as non-hazardous or removed and the area cleared.

Where HAZMAT items were recorded during the previous survey and were not able to be inspected due to access limitations or location identification, these items have been included in the HAZMAT register for completeness using the information (including risk assessment and photographs), from the previous survey. When access becomes available, these items should be reinspected and their HAZMAT status confirmed.

No records were provided to JKE prior to or during the site inspection for: refrigerators; air conditioners; fire extinguishers; and any other aerosol propellants onsite. The HNELHD representative indicated that any ODS had been removed and/or replaced, however no record was provided to confirm this.

6.3 Sample Number Incorrectly Transcribed

The following sample numbers were incorrectly recorded on the chain of custody

- Sample MR02/AS01 was incorrectly recorded as MR01/AS01; and
- Sample MR15/LP01 was incorrectly recorded as MR15/LD01.

These transcription errors were carried through all laboratory documents.

7 COMMENTS AND RECOMMENDATIONS

7.1 Asbestos Materials

Asbestos fibre containing construction materials have been identified within the interior and the exterior of the existing buildings and structures at the site. Both friable and non-friable (bonded), materials were identified as summarised in Section 6.1 and detailed in the HAZMAT register. Any materials presumed to contain asbestos must be treated as such.

An AMP must be prepared for the site to meet the requirements under Clause 429 of the Work Health and Safety Regulation (2017). Prior to demolition or refurbishment work the HAZMAT register and the AMP must be provided as a register to the demolition/building contractor.

Control measures should be implemented immediately for asbestos materials with a medium or high-risk rating and control measure of C1, C2 and/or C3 (refer to Section 5.3), as recorded in the registers. A tabulated summary of the medium and high risk items is outlined in the table below:

Table 7-1: Summary of asbestos containing materials with medium or high-risk rating

Building No. and reference	Location	Material type	Approx. extent	Risk rating
MR01 – Hospital building	Internal, throughout ceiling void, beams and debris (throughout hospital)	Spray-Applied Fire retardant	200lm	High
MR01 – Hospital building	Internal, throughout ceiling void, wrapped pipework	Thermal Insulation to pipework	200lm	High
MR01 – Hospital building	Internal, throughout ceiling void, loose pipe insulation	Thermal Insulation to pipework	20lm	High
MR01 – Hospital building	Internal, ceiling void throughout, loose pipe and beam insulation	Insulation debris	<0.5m^2	High
MR01 – Hospital building	Internal, Room #1050 eastern side - CSSD - electrical cabinet, loose insulation	Thermal Insulation to pipework	<0.5m^2	High
MR03 – Picone Building	Internal, plant room -southern wall - south-west corner - ground area, dust	Suspected ACM Void Dust	<0.5m^2	High
MR03 – Picone Building	Internal, hot water cupboard, lagged pipework	Thermal insulation to pipework	100lm	High
MR05 – Crane & Glennie Building	External, northern wall, lower infill panels	Flat fibre cement sheet	10m^2	Medium
MR05 – Crane & Glennie Building	External, southern elevation, spandrel panels	Flat fibre cement sheet	10m^2	Medium
MR05 – Crane & Glennie Building	External, southern elevation, infill panels	Flat fibre cement sheet	10m^2	Medium
MR07 - Kitchen	External, eastern side, area above awning, metal-encased insulated pipework (white), extending from MR05	Thermal insulation	>100lm	High
MR07 – Kitchen	External, eastern side, area above awning, metal-encased insulated pipework (red), extending from MR05	Thermal insulation	>100lm	High

Building No. and reference	Location	Material type	Approx. extent	Risk rating
MR07 – Kitchen	External, southern wall above awning, metal-encased insulated pipework, extending from MR05	Thermal insulation	>100lm	High
MR07 - Kitchen	Internal, ceiling void throughout, metal-encased insulated pipework and debris	Flat fibre cement sheet	>100lm	Medium
MR09 – Stores Building	External, northern wall ground area	Fibre cement debris	<0.5m^2	Medium

The risk ratings as outlined in the register should be routinely reviewed based on any change in material condition, and control measures implemented in accordance with the timeframes as outlined in Section 5.2 of this report.

As friable asbestos has been identified on site, all works associated with the disturbance and removal of any friable asbestos containing materials must be undertaken by a Licenced *Class A* Asbestos Removalist.

The asbestos removalist must prepare an Asbestos Removal Control Plan for the proposed works. The control plan must include an allowance for asbestos air fibre monitoring during the removal and thorough clean up works upon completion of the removal works.

A clearance inspection must be undertaken on completion of removal works and prior to any other construction activities being undertaken.

All asbestos containing materials (and materials presumed to contain asbestos) must be removed in accordance with the regulations and codes outlined in Section 3 and by an experienced asbestos removal contractor.

7.2 Lead in Paint

Deteriorated paint films containing elevated lead levels were identified in the buildings and structures as summarised in Section 6.1 and detailed in the HAZMAT register attached in the appendices. All identified deteriorated lead containing paint films must be removed/treated in accordance with the regulations and codes outlined in Section 3 and by an experienced hazardous materials removal contractor.

Control measures as outlined in Section 5.3 should be implemented as soon as reasonably practicable for confirmed deteriorated lead containing paint films.

7.3 Lead in Accumulated Dust

Not identified within the scope and limitations of the report.

7.4 PCB Containing Electrical Equipment

Representative samples of each major type of fluorescent light fitting were visually inspected to determine which lights are fitted with PCB containing ballast capacitors.

Light fittings potentially housing a PCB containing metal capacitors were identified in the buildings and structures as summarised in Section 6.1 and detailed in the HAZMAT register attached in the appendices. PCBs are a scheduled waste with strict guidelines regarding transport and handling. PCB work is to be conducted in accordance with the Environmental Protection & Heritage Council's *Polychlorinated Biphenyls Management Plan*, Revised Edition April 2003. This briefly includes:

- Prior to demolition when the power is disconnected, inspect the light fittings;
- Metal PCB containing capacitors are to be removed, placed in plastic lined 200 litre drums and disposed of as PCB Scheduled Waste. Any light fitting that shows signs of oil staining from capacitors is to be disposed of as PCB contaminated;
- Protective clothing including eye protection, PCB resistant gloves and overalls are to be worn;
- Contaminated gloves and disposable coveralls are to be disposed of as PCB contaminated waste; and
- Contractors licenced to transport and handle PCBs must be used for transport and disposal.

If any metal cased capacitors are found during demolition works that were previously unidentified, they should be treated as containing PCBs. Details on storing, conveying and disposing of PCB material or PCB wastes can be found in *Polychlorinated Biphenyls Management Plan*, Environmental Protection & Heritage Council, Revised Edition April 2003.

Control measures as outlined in Section 5.3 should be implemented as soon as reasonably practicable for potential PCB containing metal capacitors.

7.5 SMF Materials

Sources of SMF containing materials were identified in the buildings and structures as summarised in Section 6.1 and detailed in the HAZMAT register attached in the appendices. SMF containing materials must be removed in accordance with the national Standard and code outlined in Section 3 and by an experienced hazardous materials removal contractor.

Control measures as outlined in Section 5.3 should be implemented as soon as reasonably practicable for SMF containing materials.

7.6 Ozone Depleting Substances

Not identified within the scope and limitations of the report.

8 LIMITATIONS

The conclusions developed in this report are based on site conditions which existed at the time of The Site assessment. They are based on investigation of conditions at specific locations, chosen to be as representative as possible under the given circumstances, and visual observations of The Site and vicinity, together with the interpretation of available documents reviewed as described in this report.

Surveys are conducted in a conscientious and professional manner. The nature of the task however, and the likely disproportion between any damage or loss which might arise from the work or reports prepared as a result, and the cost of our services, is such that JKE cannot guarantee that all hazardous building materials have been identified and/or addressed.

Due to the possibility of renovations and additions to the building structures over time, hazardous building materials may have been hidden behind new walls and ceilings. Such areas were inaccessible during the inspection. If any suspect materials are found during further renovation of the buildings, the material should be sent for identification and expert advice sought.

Therefore, while we carry out the work to the best of our ability, we totally exclude any loss or damages which may arise from services we have provided to our client and/or any other associated parties.

Unless specifically noted, the survey did not cover:

- Hidden and/or inaccessible locations such as in or under concrete slabs, wall cavities, hidden storage areas and the like;
- Lift wells and inaccessible/unidentified shafts, cavities and the like;
- Air conditioning, heating, mechanical, electrical or other equipment;
- General exterior ground surfaces and subsurface areas e.g. asbestos in fill/soil;
- Materials dumped, hidden, or otherwise placed in locations which one could not reasonably anticipate;
- Materials other than normal building fabric, materials in laboratories or special purpose facilities and building materials that cannot be reasonably and safely assessed without assistance;
- Areas where access was limited during the time of The Site inspection as outlined in Section 6; and
- Materials other than asbestos, lead, PCBs and SMF are generally outside the scope as identification can require specialised analysis/inspection techniques.

Where other potentially hazardous materials are identified these are normally reported on to the best of the consultant’s ability. Analysis is not normally included and there is no guarantee that all such materials have been identified and/or addressed.

All work conducted and reports produced by JKE are prepared for a particular Client’s objective and are based on a specific scope, conditions and limitations, as agreed upon between JKE and the Client. Information and/or report(s) prepared by JKE may therefore not be suitable for any use other than the intended objective. No parties other than the Client should use any information and/or report(s) without first conferring with JKE.

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If you have any questions concerning the contents of this report please do not hesitate to contact us.

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:

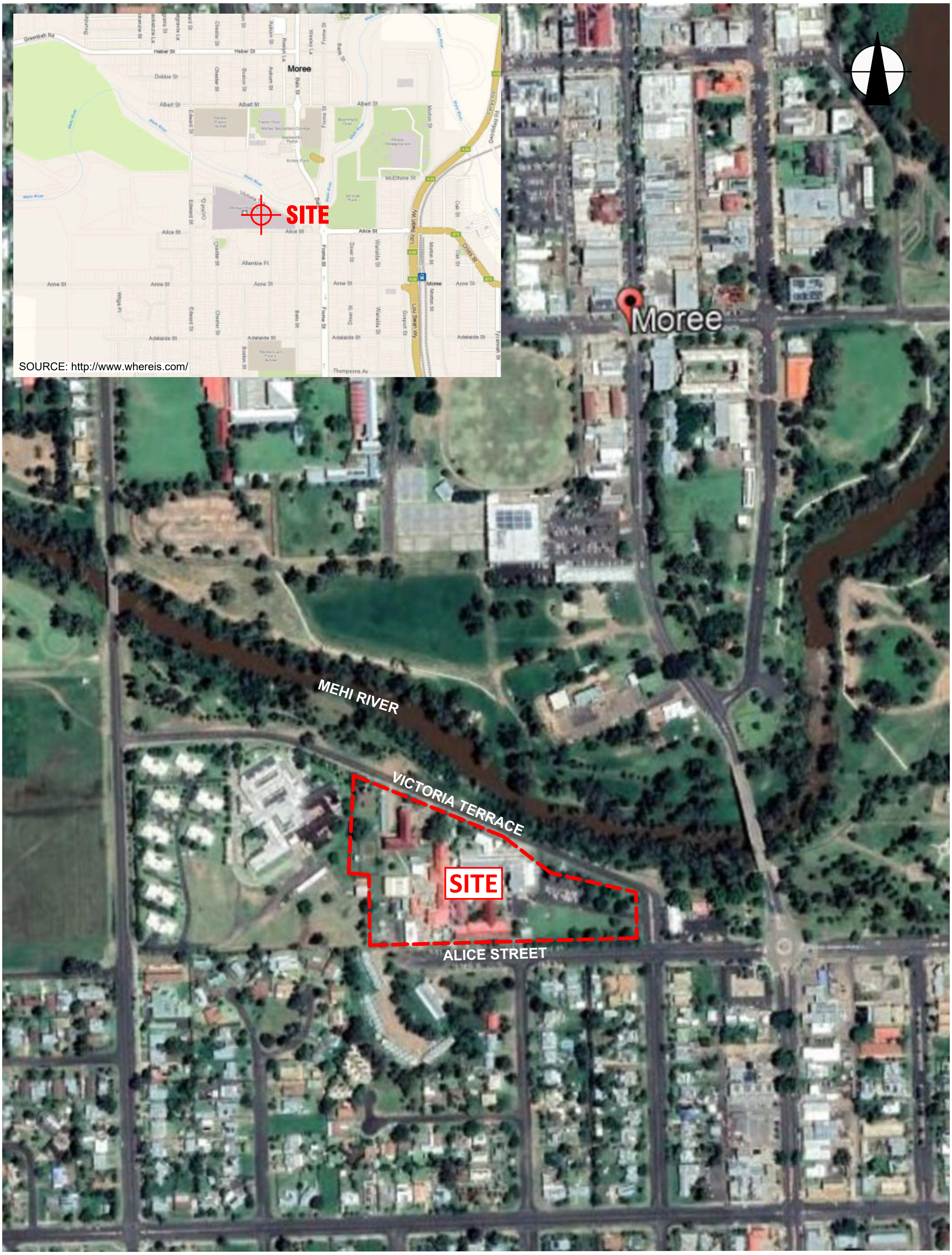
- The defined subject site is increased or sub-divided; or
- Ownership of The Site changes.

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.

Misinterpretation of Site Assessments by Design Professionals
Costly problems can occur when other design professionals develop plans based on misinterpretation of an assessment report. To minimise problems associated with misinterpretations, the environmental consultant / asbestos assessor should be retained to work with appropriate professionals to explain relevant findings and to review the adequacy of plans and specifications relevant to hazardous building materials.

Read Responsibility Clauses Closely
Because an environmental site assessment 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 assessment, and you are encouraged to read them closely. Your consultant will be pleased to give full and frank answers to any questions.

Appendix A: Report Figures



SOURCE: http://www.whereis.com/

AERIAL IMAGE SOURCE: EARTH.GOOGLE.COM

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

Title:
SITE LOCATION PLAN

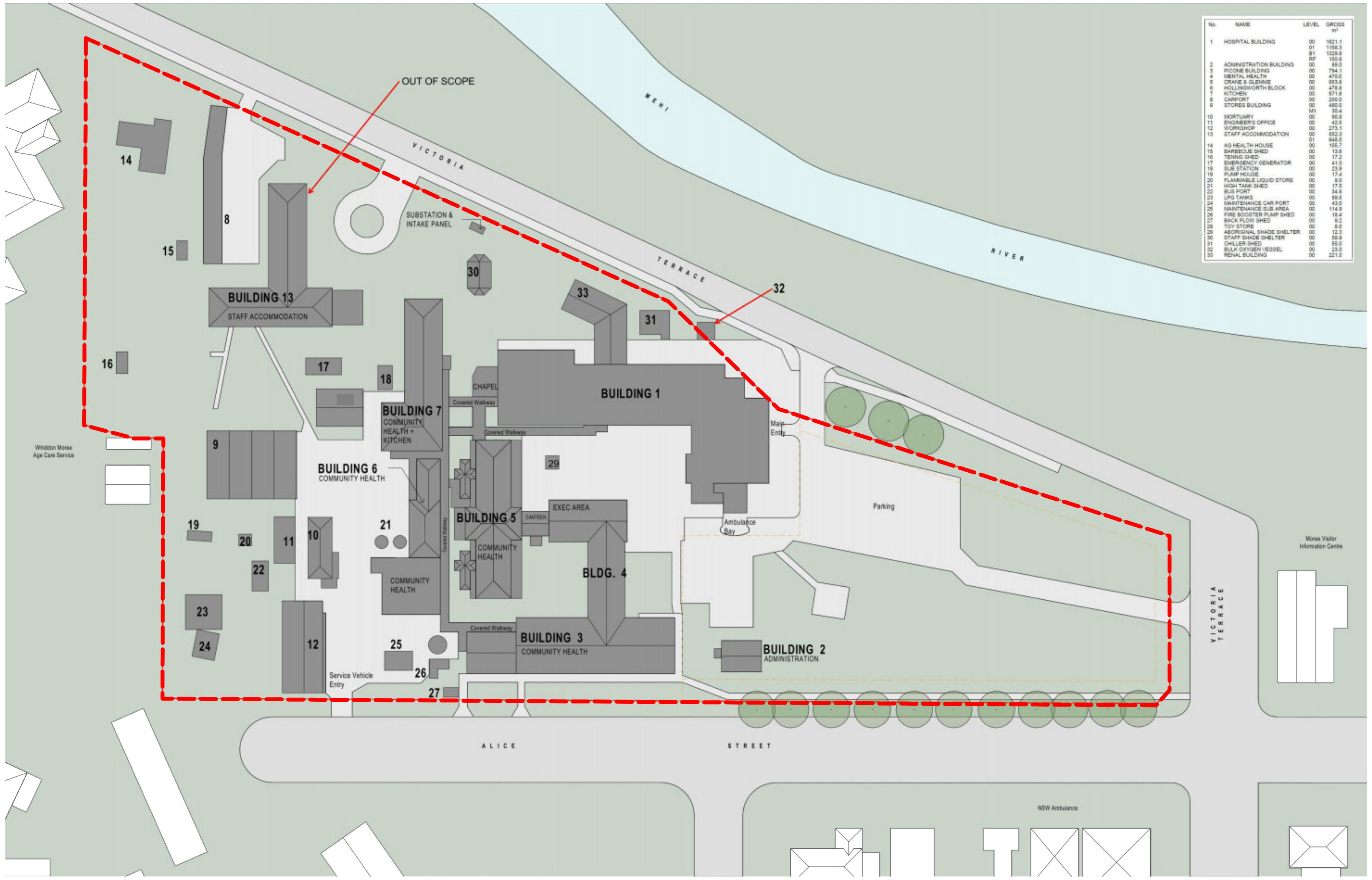
Location:
35 ALICE STREET, MOREE, NSW

Project No:
E35092BT

Figure No:
1

JKEnvironments

PLOT DATE: 18/08/2022 10:23:33 AM DWG FILE: K:\5C EIS JOBS\35000'S\E35092UPD MOREE\CAD\E35092BT.DWG



BUILDINGS/STRUCTURES INCLUDED IN SURVEY

MR01	Hospital Building
MR02	Administration Building
MR03	Picone Building
MR04	Mental Health
MR05	Crane & Glennie
MR06	Hollingworth Block
MR07	Kitchen
MR08	Carport
MR09	Stores Building
MR10	Mortuary
MR11	Engineer's Office
MR12	Workshop
MR14	Ag Health House
MR15	Barbeque Shed
MR16	Tennis Shed
MR17	Emergency Generator
MR18	Substation
MR19	Pump House
MR20	Flammable Liquid Store
MR21	High Tank Shed
MR22	Bus Port
MR23	LPG Tanks
MR24	Maintenance Car Port
MR25	Maintenance Sub Area
MR26	Fire Booster Pump Shed
MR27	Back Flow Shed
MR29	Aboriginal Shade Shelter
MR30	Staff Shade Shelter
MR31	Chiller Shed
MR32	Bulk Oxygen Vessel

BUILDINGS/STRUCTURES NOT INCLUDED IN SURVEY

MR13	Staff Accomodation
MR33	Renal Building

BUILDINGS/STRUCTURES NO LONGER PRESENT/NOT SIGHTED

MR28	Toy Store

LEGEND

▬ ▬ ▬ APPROXIMATE SITE BOUNDARY

0 15 30 45 60 75
SCALE 1:1500 @A3 METRES

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

Title:
SITE LAYOUT PLAN

Location: 35 ALICE STREET, MOREE, NSW

Project No: E35092BT
Figure No: 2

JKEnvironments

PLOT DATE: 18/08/2022 10:25:23 AM DWG FILE: K:\5C EIS JOBS\35000'S\E35092UPD MOREE\CAD\E35092BT.DWG

Appendix B: Hazardous Building Materials Register

MOREE HOSPITAL
Hazardous Building Materials Register - JULY-AUGUST 2022

Location	Material type	Sample ID	Laboratory Result	Approximate Extent	Photograph	Friable / Non-friable	Accessibility	Labelled	Damage / Deterioration	Risk Rating	Control Measures
MR01 - Hospital Building											
ASBESTOS MATERIALS											
Internal, basement – north-eastern pier, loose insulation	Thermal Insulation to pipework	NA - not sighted	HNELHD indicated remediation undertaken of entire basement	-	-	-	-	-	-	-	-
Internal, basement eastern end file storeroom - western wall, pipework	Thermal Insulation to pipework	NA - not sighted	HNELHD indicated remediation undertaken of entire basement	-	-	-	-	-	-	-	-
Internal, east to west walkway of basement area, soil contamination	Thermal Insulation to pipework	NA - not sighted	HNELHD indicated remediation undertaken of entire basement	-	-	-	-	-	-	-	-
Internal, throughout basement area, pipework	Thermal Insulation to pipework	NA - not sighted	HNELHD indicated remediation undertaken of entire basement	-	-	-	-	-	-	-	-
Internal, throughout basement area floor, fragments/ debris	Woven Product	NA - not sighted	HNELHD indicated remediation undertaken of entire basement	-	-	-	-	-	-	-	-
Internal, walkway east to west - floor, fragments	Flat Fibre Cement Sheet	NA - not sighted	HNELHD indicated remediation undertaken of entire basement	-	-	-	-	-	-	-	-
Internal, Opposite G1 ward, western exit, fire hydrant, dust and debris	Suspected ACM Void Dust	NA - not sighted	HNELHD indicated remediation undertaken of entire basement	-	-	-	-	-	-	-	-
Internal, Room #0004, opposite E Ward, ceiling lining	A) Flat Fibre Cement Sheet B) Paint	MR01/AS25	A)Chrysotile asbestos detected: Organic fibres detected: B)No asbestos detected	6m²		Non-friable	Restricted Access	Yes	Good condition	Very low	C5, C6, C7
Internal, Room #0004, opposite E Ward, western wall lining	Flat Fibre Cement Sheet	MR01/AS24	No asbestos detected: Organic fibres detected	-	-	-	-	-	-	-	-
Internal, Room #0005, opposite E Ward, ceiling lining	A) Flat Fibre Cement Sheet B) Paint	MR01/AS26	A)Chrysotile asbestos detected: B)No asbestos detected	6m²		Non-friable	Restricted Access	Yes	Good condition	Very low	C5, C6, C7

Location	Material type	Sample ID	Laboratory Result	Approximate Extent	Photograph	Friable / Non-friable	Accessibility	Labelled	Damage / Deterioration	Risk Rating	Control Measures
MR01 - Hospital Building											
ASBESTOS MATERIALS											
Internal, Room #0068 - photocopy room/mail room, ceiling lining	A) Flat Fibre Cement Sheet B) Paint	MR01/AS21	A)Chrysotile asbestos detected: Organic fibres detected: B)No asbestos detected	4m^2		Non-friable	Restricted Access	Yes	Good condition	Very low	C5, C6, C7
Internal, Room #0073 - milk room, northern wall lining	Flat Fibre Cement Sheet	MR01/AS22	No asbestos detected: Organic fibres detected	-	-	-	-	-	-	-	-
Internal, Room #0073 - milk room -western wall, electrical switchboard	Insulation Panel	MR01/AS23	No asbestos detected: Organic fibres detected	-	-	-	-	-	-	-	-
Internal, throughout ground floor ceiling void, beams and debris throughout	Spray-Applied Fire retardant	Previous register - 48	Chrysotile and amosite asbestos detected	20m^2		Friable	Restricted Access	NA	High Damage	High	C1, C2, C3, C5, C6, C7
Internal, throughout ceiling void, beams and debris (throughout hospital)	Spray-Applied Fire retardant	MR01/AS20	Amosite asbestos detected: Synthetic mineral fibres detected	200lm		Friable	Restricted Access	NA	High Damage	High	C1, C2, C3, C5, C6, C7
Internal, throughout ceiling void, wrapped pipework	Thermal Insulation to pipework	MR01/AS10	Amosite asbestos detected: Organic fibres detected	200lm		Friable	Restricted Access	NA	High Damage	High	C1, C2, C3, C5, C6, C7
Internal, throughout ceiling void, loose pipe insulation	Thermal Insulation to pipework	Same as MR01/AS10	Amosite asbestos detected: Organic fibres detected	20m^2	No photograph	Friable	Restricted Access	NA	High Damage	High	C1, C2, C3, C5, C6, C7

Location	Material type	Sample ID	Laboratory Result	Approximate Extent	Photograph	Friable / Non-friable	Accessibility	Labelled	Damage / Deterioration	Risk Rating	Control Measures
MR01 - Hospital Building											
ASBESTOS MATERIALS											
Internal, ceiling void throughout, loose pipe and beam insulation	Insulation debris	Same as MR01/AS10	Amosite asbestos detected: Organic fibres detected	<0.5m^2	No photograph	Friable	Restricted Access	NA	High Damage	High	C1, C2, C3, C5, C6, C7
Internal, ceiling void throughout, pipework	Woven insulation product	MR01/AS4	No asbestos detected: Organic fibres detected: Synthetic mineral fibres detected	-	-	-	-	-	-	-	-
Internal, eastern end -theatre nurse change rooms - male and female change rooms, ceiling lining	Flat Fibre Cement Sheet	NA - not sighted	HNELHD indicated this area was recently refurbished	-	-	-	-	-	-	-	-
Internal, Room #1007 toilet, ceiling lining	Flat Fibre Cement Sheet	NA - not sighted	HNELHD indicated this area was recently refurbished	-	-	-	-	-	-	-	-
Internal, Room #1010 toilet, ceiling lining	Flat Fibre Cement Sheet	NA - not sighted	HNELHD indicated this area was recently refurbished	-	-	-	-	-	-	-	-
Internal, Room #1016 toilet - main corridor - northern side, ceiling lining	Flat Fibre Cement Sheet	NA - not sighted	HNELHD indicated this area was recently refurbished	-	-	-	-	-	-	-	-
Internal, Room #1019 toilet - main corridor - northern side, ceiling lining	Flat Fibre Cement Sheet	NA - not sighted	HNELHD indicated this area was recently refurbished	-	-	-	-	-	-	-	-
Internal, Room #1050 eastern side -CSSD, ceiling lining	Flat Fibre Cement Sheet	NA - not sighted	HNELHD indicated this area was recently refurbished	-	-	-	-	-	-	-	-
Internal, Room #1050 eastern side - CSSD - electrical cabinet, loose insulation	Thermal Insulation to pipework	Previous register - 51	Amosite asbestos detected	<0.5m^2		Friable	Restricted Access	No	High Damage	High	C1, C2, C5, C6, C7
Internal, Room #1053 - eastern end - main corridor -southern side toilets, ceiling lining	Flat Fibre Cement Sheet	MR01/AS13	A)Chrysotile asbestos detected: Organic fibres detected: B)No asbestos detected	10m^2		Non-friable	Restricted Access	Yes	Good condition	Very low	C5, C6, C7

Location	Material type	Sample ID	Laboratory Result	Approximate Extent	Photograph	Friable / Non-friable	Accessibility	Labelled	Damage / Deterioration	Risk Rating	Control Measures
MR01 - Hospital Building											
ASBESTOS MATERIALS											
Internal, Room #1054 bathroom -main corridor - southern side, ceiling lining and section of eastern wall lining	Flat Fibre Cement Sheet	Same as MR01/AS13	A)Chrysotile asbestos detected: Organic fibres detected: B)No asbestos detected	$30m^2$		Non-friable	Limited access	Yes	Good condition	Very low	C5, C6, C7
Internal, Room #1056 sterilising room - main corridor -southern side, ceiling lining and section of western wall	Flat Fibre Cement Sheet	MR01/AS14	A)Chrysotile asbestos detected: Organic fibres detected: B)No asbestos detected	$20m^2$		Non-friable	Limited access	Yes	Good condition	Very low	C5, C6, C7
Internal, Room #1057 water treatment room - main corridor -southern side, ceiling lining and section of eastern wall lining	Flat Fibre Cement Sheet	Same as MR01/AS14	A)Chrysotile asbestos detected: Organic fibres detected: B)No asbestos detected	$20m^2$		Non-friable	Limited access	Yes	Good condition	Very low	C5, C6, C7
Internal, western end toilet - north-east corner room, wall lining	Flat Fibre Cement Sheet	NA - not sighted	HNELHD indicated this area was recently refurbished	-	-	-	-	-	-	-	-
External, plant room, metal framed windows	Mastic adhesive / joint sealant	Previous regsiter - MH05	Chrysotile asbestos detected	10lm		Friable	Restricted Access	No	Good condition	Low	C5, C6, C7
External, Lift motor room - plant room, Lift parts	Friction Material	NA - mechanical hazard	Assumed to contain asbestos	$<2m^2$		Non-friable	Restricted Access	No	Good condition	Very low	C4, C5, C6, C7

Location	Material type	Sample ID	Laboratory Result	Approximate Extent	Photograph	Friable / Non-friable	Accessibility	Labelled	Damage / Deterioration	Risk Rating	Control Measures
MR01 - Hospital Building											
ASBESTOS MATERIALS											
External, Lift motor room - plant room, electrical control panel	Arc arrestors	NA - electrical hazard	Assumed to contain asbestos	<2m^2		Non-friable	Restricted Access	No	Good condition	Very low	C4, C5, C6, C7
External, Rooftop – electrical cabinets, electrical switchboard	Insulation Panel	NA - not sighted	HNELHD indicated cabinets were replaced in 2016	-	-	-	-	-	-	-	-
External, Rooftop – plant room, wall lining	Flat Fibre Cement Sheet	Previous register - 54 & 55	Chrysotile asbestos detected	20m^2		Non-friable	Restricted Access	Yes	Good condition	Very low	C5, C6, C7
External, Rooftop – plant room, wall lining	A) Flat Fibre Cement Sheet B) Paint	MR01/AS1	A)Chrysotile asbestos detected: B)No asbestos detected	20m^2		Non-friable	Restricted Access	Yes	Good condition	Very low	C5, C6, C7
External, Rooftop – plant room - iron roof next to southern wall, mastic sealant	Mastic Adhesive / Joint Sealant	Previous register - 56	Chrysotile asbestos detected	10lm		Non-friable	Restricted Access	No	Good condition	Very low	C5, C6, C7
External, Rooftop – plant room - iron roof next to southern wall, mastic sealant	Mastic Adhesive / Joint Sealant	MR01/AS5	Chrysotile asbestos detected	10lm		Non-friable	Restricted Access	No	Good condition	Very low	C5, C6, C7
External, Rooftop – plant room -southern and northern electrical cabinets, dust contamination	Suspected ACM Void Dust	NA - not sighted	HNELHD indicated cabinets were replaced in 2016	-	-	-	-	-	-	-	-

Location	Material type	Sample ID	Laboratory Result	Approximate Extent	Photograph	Friable / Non-friable	Accessibility	Labelled	Damage / Deterioration	Risk Rating	Control Measures
MR01 - Hospital Building											
ASBESTOS MATERIALS											
External, Rooftop – south-east corner under water tanks, loose insulation	Thermal Insulation to pipework	NA - not sighted	HNELHD indicated tanks removed and area remediated	-	-	-	-	-	-	-	-
Internal, plant room floor	Dust and debris	MR01/AS2	No asbestos detected: Organic fibres detected: Synthetic mineral fibres detected	-	-	-	-	-	-	-	-
Internal, plant room wall linings	A) Flat Fibre Cement Sheet B) Paint	MR01/AS3	A)Chrysotile asbestos detected: Amosite asbestos detected: B)No asbestos detected	$20m^2$		Non-Friable	Restricted Access	Yes	Good Condition	Very low	C5, C6, C7
Internal, plant room, steam tank	Gaskets and joints	MR01/AS6	No asbestos detected: Synthetic mineral fibres detected	-	-	-	-	-	-	-	-
Internal, metal framed window to fire stairs	Mastic	MR01/AS7	No asbestos detected: Organic fibres detected	-	-	-	-	-	-	-	-
Internal, fire stairs awning lining	Flat Fibre Cement Sheet	MR01/AS8	Chrysotile asbestos detected: Organic fibres detected	$2m^2$		Non-friable	Restricted Access	No	Good condition	Very low	C5, C6, C7
Internal, sterile stock room,wall lining MR010045	Flat Fibre Cement Sheet	MR01/AS9	No asbestos detected: Organic fibres detected	-	-	-	-	-	-	-	-
Internal, all floors, floor covering to main corridors, and stairs	Vinyl sheeting (coloured white) & adhesive	MR01/AS11	No asbestos detected: Organic fibres detected	-	-	-	-	-	-	-	-
External, metal windows ground floor, (throughout building)	Mastic adhesive / joint sealant	Previous register - MH08	Chrysotile asbestos detected	30lm		Friable	Limited access	No	Good condition	Low	C5, C6, C7
External, metal windows in firestairs	Mastic	MR01/AS12	No asbestos detected: Organic fibres detected	-	-	-	-	-	-	-	-

Location	Material type	Sample ID	Laboratory Result	Approximate Extent	Photograph	Friable / Non-friable	Accessibility	Labelled	Damage / Deterioration	Risk Rating	Control Measures
MR01 - Hospital Building											
ASBESTOS MATERIALS											
Internal, floor covering to eastern end of ground floor	Vinyl sheeting (coloured grey) & adhesive	MR01/AS15	No asbestos detected: Synthetic mineral fibres detected	-	-	-	-	-	-	-	-
Internal, basement, western end, redundant pipe	Insulation	MR01/AS16	No asbestos detected: Organic fibres detected	-	-	-	-	-	-	-	-
Internal, basement, western end, pier	Dust and debris	MR01/AS17	No asbestos detected: Organic fibres detected: Synthetic mineral fibres detected	-	-	-	-	-	-	-	-
Internal, basement, western end, redundant pipe, foil wrapped	Insulation	MR01/AS18	No asbestos detected: Synthetic mineral fibres detected	-	-	-	-	-	-	-	-
Internal, basement, western end between concrete slab	White foam & render	MR01/AS19	No asbestos detected: Organic fibres detected	-	-	-	-	-	-	-	-
Internal, basement, eastern end, storage room to roof above entrance	A) Flat Fibre Cement Sheet B) Paint	MR01/AS27	A)Chrysotile asbestos detected: B)No asbestos detected	<0.5m^2		Non-friable	Restricted Access	No	Low Damage	Low	C5, C6, C7
Internal, firedoors throughout	Internal core	NA - visually inspected	All firedoors manufactured '201#'	-	-	-	-	-	-	-	-
External, eave lining to hospital and chapel	Flat Fibre Cement Sheet	NA - Height restriction	Assumed to contain asbestos	10m^2		Non-friable	Restricted Access	No	Good condition	Very low	C5, C6, C7
External, walkway awning linings	Flat Fibre Cement Sheet	Same as MR07/AS13	Chrysotile asbestos detected: Amosite asbestos detected: Crocidolite asbestos detected	200m^2		Non-friable	Restricted Access	No	Good condition	Very low	C5, C6, C7
Internal, ground floor lobby, wall lining to lower sections	Flat Fibre Cement Sheet	MR01/AS28	No asbestos detected: Organic fibres detected	-	-	-	-	-	-	-	-

Location	Material type	Sample ID	Laboratory Result	Approximate Extent	Photograph	Friable / Non-friable	Accessibility	Labelled	Damage / Deterioration	Risk Rating	Control Measures
MR01 - Hospital Building											
SMF MATERIALS											
Internal, roof level plant room (assumed throughout all levels)	Foil wrapped pipework	NA - visually inspected	Assumed to contain SMF	>100lm		Non-Friable	Restricted Access	NA	Good Condition	Very low	C2, C6, C7
Internal, plant room floor	Dust and debris	MR01/AS2	No asbestos detected: Organic fibres detected: Synthetic mineral fibres detected	>0.5m2		Friable	Restricted Access	NA	Medium Damage	Low	C2, C6, C7
Internal, ceiling void throughout, pipework	Woven insulation product	MR01/AS4	No asbestos detected: Organic fibres detected: Synthetic mineral fibres detected	100lm		Friable	Restricted Access	NA	Good Condition	Low	C2, C6, C7
Internal, plant room, steam tank	Gaskets and joints	MR01/AS6	No asbestos detected: Synthetic mineral fibres detected	<0.5m^2		Friable	Restricted Access	NA	Good Condition	Low	C2, C6, C7
Internal, roof space	Insulation batts	NA - visually inspected	Assumed to contain SMF	100m^2		Friable	Restricted Access	NA	Good condition	Low	C2, C6, C7
Internal, floor covering to eastern end of ground floor	Vinyl sheeting (coloured grey) & adhesive	MR01/AS15	No asbestos detected: Synthetic mineral fibres detected	60m^2		Non-friable	Restricted Access	NA	Good condition	Very low	C2, C6, C7

Location	Material type	Sample ID	Laboratory Result	Approximate Extent	Photograph	Friable / Non-friable	Accessibility	Labelled	Damage / Deterioration	Risk Rating	Control Measures
MR01 - Hospital Building											
SMF MATERIALS											
Internal, basement, western end, pier	Dust and debris	MR01/AS17	No asbestos detected: Organic fibres detected: Synthetic mineral fibres detected	<0.5m^2		Friable	Restricted Access	NA	High Damage	High	C1, C2, C3, C6, C7
Internal, basement, western end, redundant pipe, foil wrapped	Insulation	MR01/AS18	No asbestos detected: Synthetic mineral fibres detected	1lm		Friable	Restricted Access	NA	High Damage	High	C1, C2, C3, C6, C7
Internal, basement, western end, stored	Insulation batts	NA - visually inspected	Assumed to contain SMF	10m^2		Friable	Restricted Access	NA	Good condition	Low	C2, C6, C7
Internal, throughout ceiling void, beams and debris	Spray-Applied Fire retardant	MR01/AS20	Amosite asbestos detected: Synthetic mineral fibres detected	200lm		Friable	Restricted Access	NA	High Damage	High	C1, C2, C3, C6, C7
Internal, roof level plant roof	Foil backed insulation (sarking)	NA - visually inspected	Assumed to contain SMF	100m^2		Non-Friable	Restricted Access	NA	Good Condition	Very low	C6, C7
Internal, roof lining	Insulation batts	NA - visually inspected	Assumed to contain SMF	100m^2		Friable	Restricted Access	NA	Good Condition	Low	C6, C7

Location	Material type	Sample ID	Laboratory Result	Approximate Extent	Photograph	Friable / Non-friable	Accessibility	Labelled	Damage / Deterioration	Risk Rating	Control Measures
MR01 - Hospital Building											
SMF MATERIALS											
Internal, first floor, ceiling lining	Acoustic tiles	NA - visually inspected	Assumed to contain SMF	>100lm		Non-Friable	Restricted Access	NA	Good Condition	Very low	C6, C7
Internal, roof level plant room (assumed throughout all levels)	Foil wrapped flexible ductwork	NA - visually inspected	Assumed to contain SMF	>100lm		Non-Friable	Restricted Access	NA	Good Condition	Very low	C6, C7
LEAD IN PAINT											
No deteriorated paint systems were identified within the scpoe of the survey at the time of the inspection.											
LEAD IN ACCUMULATED DUST											
Internal, roof space	Accumulated dust	MR01/LD01	0.156mg/m^2 (less than the adopted criteria of 8mg/m^2)	-	-	-	-	-	-	-	-
PCB CONTAINING ELECTRICAL EQUIPMENT											
Internal, throughout	Single tube fluorescent light fittings	NA - Visually inspected	Of an age indicative of housing PCB containing capacitors	20+ units		NA	Restricted Access	NA	Good Condition	Very low	C10
External	Twin tube fluorescent light fittings	NA - Visually inspected	Of an age indicative of housing PCB containing capacitors	10+ units		NA	Restricted Access	NA	Good Condition	Very low	C10

Location	Material type	Sample ID	Laboratory Result	Approximate Extent	Photograph	Friable / Non-friable	Accessibility	Labelled	Damage / Deterioration	Risk Rating	Control Measures
MR01 - Hospital Building											
PCB CONTAINING ELECTRICAL EQUIPMENT											
Internal, throughout	Twin tube fluorescent light fittings	NA - Visually inspected	Of an age indicative of housing PCB containing capacitors	20+ units		NA	Restricted Access	NA	Good Condition	Very low	C10
ODS in AEROSOL PROPELLANTS											
No ODS in aerosol propellants were identified within the scope of the survey at the time of the inspection.											

MOREE HOSPITAL **Hazardous Building Materials Register - JULY-AUGUST 2022**											
Location	**Material type**	**Sample ID**	**Laboratory Result**	**Approximate Extent**	**Photograph**	**Friable / Non-friable**	**Accessibility**	**Labelled**	**Damage / Deterioration**	**Risk Rating**	**Control Measures**
MR02 - Administration Building											
ASBESTOS MATERIALS											
External, eave linings	Flat fibre cement sheeting	MR01/AS01	No asbestos detected: Organic fibres detected	-	-	-	-	-	-	-	-
External, infill panels above windows	Flat fibre cement sheeting	MR02/AS02	No asbestos detected: Organic fibres detected	-	-	-	-	-	-	-	-
Internal, bathroom wall linings	Flat fibre cement sheeting	MR02/AS03	No asbestos detected: Organic fibres detected	-	-	-	-	-	-	-	-
Internal, floor covering throughout majority of building	Vinyl sheeting (white coloured)	MR02/AS04	No asbestos detected	-	-	-	-	-	-	-	-
SMF MATERIALS											
Internal, roof space, upper surface of ceiling	Insulation batts	NA - Visually inspected	Assumed to contain SMF	160m^2		Friable	Restricted Access	NA	Good Condition	Very low	C3, C6, C7
Internal, roof space, underside of roof	Foil backed insulation (sarking)	NA - Visually inspected	Assumed to contain SMF	200m^2		Non-Friable	Restricted Access	NA	Good Condition	Very low	C3, C6, C7

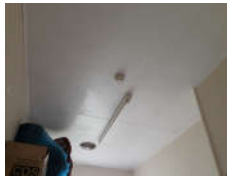
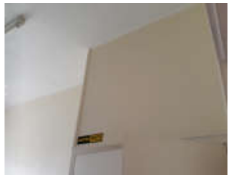
Location	Material type	Sample ID	Laboratory Result	Approximate Extent	Photograph	Friable / Non-friable	Accessibility	Labelled	Damage / Deterioration	Risk Rating	Control Measures
MR02 - Administration Building											
SMF MATERIALS											
Internal, roof space	Hot water unit	NA - Visually inspected	Assumed to contain SMF	1 unit		Friable	Restricted Access	NA	Good Condition	Very low	C5, C6, C7
LEAD IN PAINT											
No deteriorated paint systems were identified within the scpoe of the survey at the time of the inspection.											
LEAD IN ACCUMULATED DUST											
Internal, roof space	Accumulated dust	MR02/LD01	0.033mg/m^2 (less than the adopted criteria of 8mg/m^2)	-	-	-	-	-	-	-	-
PCB CONTAINING ELECTRICAL EQUIPMENT											
No electrical equipment suspected of housing PCB containing capacitors were identified within the scope of the survey at the time of the inspection.											
ODS in AEROSOL PROPELLANTS											
No ODS in aerosol propellants were identified within the scope of the survey at the time of the inspection.											

MOREE HOSPITAL
Hazardous Building Materials Register - JULY-AUGUST 2022

Location	Material type	Sample ID	Laboratory Result	Approximate Extent	Photograph	Friable / Non-friable	Accessibility	Labelled	Damage / Deterioration	Risk Rating	Control Measures
MR03 - Picone Building											
ASBESTOS MATERIALS											
External, eastern elevation, eave soffit lining	Flat Fibre Cement Sheet	MR03/AS18	A)Chrysotile asbestos detected: Amosite asbestos detected: Crocidolite asbestos detected: B)No asbestos detected	12m²		Non-Friable	Restricted Access	Yes	Good condition	Very Low	C5, C6, C7
External, north-east corner entrance, awning soffit lining	Flat Fibre Cement Sheet	Previous register - 25	Chrysotile asbestos detected	12m²		Non-Friable	Restricted Access	Yes	Good condition	Very Low	C5, C6, C7
External, north-east corner entrance, awning soffit lining	Flat Fibre Cement Sheet	MR03/AS19	Chrysotile asbestos detected: Amosite asbestos detected: Crocidolite asbestos detected	12m²		Non-Friable	Restricted Access	Yes	Good condition	Very Low	C5, C6, C7
External, north-west corner, awning soffit lining	Flat Fibre Cement Sheet	Previous register - 24	Chrysotile asbestos detected	10m²		Non-Friable	Restricted Access	Yes	Good condition	Very Low	C5, C6, C7

Location	Material type	Sample ID	Laboratory Result	Approximate Extent	Photograph	Friable / Non-friable	Accessibility	Labelled	Damage / Deterioration	Risk Rating	Control Measures
MR03 - Picone Building											
ASBESTOS MATERIALS											
External, north-west corner, awning soffit lining	Flat Fibre Cement Sheet	MR03/AS20	Chrysotile asbestos detected: Amosite asbestos detected: Crocidolite asbestos detected	10m²		Non-Friable	Restricted Access	Yes	Good condition	Very Low	C5, C6, C7
External, western elevation, infill panels and gable ends	Flat Fibre Cement Sheet	MR03/AS21	Chrysotile asbestos detected	3m²		Non-Friable	Restricted Access	Yes	Good condition	Very Low	C5, C6, C7
Internal, ceiling void, pipework	Thermal Insulation to pipework	NA - height restriction	Assumed to contain asbestos	100lm		Friable	Restricted Access	Yes	Good condition	Low	C4, C5, C6, C7
Internal, delivery rooms -western end - north-east corner shower, infill panel to western wall lining	Flat Fibre Cement Sheet	MR03/AS01	Chrysotile asbestos detected	2m²		Non-Friable	Full access	No	Good condition	Low	C5, C6, C7
Internal, delivery rooms -western end - south-west corner shower, ceiling lining and infill panel to northern wall lining	Flat Fibre Cement Sheet	Previous register - 27	Chrysotile asbestos detected	10m²		Non-Friable	Full access	No	Good condition	Low	C5, C6, C7

Location	Material type	Sample ID	Laboratory Result	Approximate Extent	Photograph	Friable / Non-friable	Accessibility	Labelled	Damage / Deterioration	Risk Rating	Control Measures
MR03 - Picone Building											
ASBESTOS MATERIALS											
Internal, delivery rooms -western end - south-west corner shower, ceiling lining and infill panel to northern wall lining	Flat Fibre Cement Sheet	MR03/AS07	Chrysotile asbestos detected	10m²		Non-Friable	Full access	No	Good condition	Low	C5, C6, C7
Internal, delivery rooms -western end - wall cavity, pipework	Woven Product	Previous register - 28	Amosite & crocidolite asbestos detected	10lm		Friable	No Access	No	Good condition	Very low	C5, C6, C7
Internal, linen store room, ceiling lining	Flat Fibre Cement Sheet	MR03/AS12	Chrysotile asbestos detected: Crocidolite asbestos detected	10m²		Non-Friable	Restricted Access	Yes	Good condition	Very Low	C5, C6, C7
Internal, plant room -southern wall - south-west corner, ceiling lining and stored sheet	Flat Fibre Cement Sheet	MR03/AS25	Chrysotile asbestos detected: Amosite asbestos detected: Crocidolite asbestos detected	10m²		Non-Friable	Restricted Access	Yes	Good condition	Very Low	C5, C6, C7
Internal, corridor sink, wall lining	Tilux sheet	MR03/AS26	Chrysotile asbestos detected	10m²		Non-Friable	Full access	Yes	Good condition	Low	C5, C6, C7

Location	Material type	Sample ID	Laboratory Result	Approximate Extent	Photograph	Friable / Non-friable	Accessibility	Labelled	Damage / Deterioration	Risk Rating	Control Measures
MR03 - Picone Building											
ASBESTOS MATERIALS											
Internal, plant room -southern wall - south-west corner - ground area, dust	Suspected ACM Void Dust	Previous register - 50	Amosite asbestos detected	<0.5m^2	No Photograph	Friable	Restricted Access	NA	High damage	High	C5, C6, C7
Internal, plant room -southern wall - south-west corner-ceiling void, pipework (assumed to be throughout roof space of building)	Thermal Insulation to pipework	Same as MR03/27	Amosite asbestos detected: Synthetic mineral fibres detected	100lm		Friable	Restricted Access	Yes	Good condition	Low	C5, C6, C7
Internal, Room #0011 -eastern kitchen - southern side, ceiling lining	Flat Fibre Cement Sheet	MR03/AS23	Chrysotile asbestos detected	10m^2		Non-Friable	Restricted Access	Yes	Good condition	Very Low	C4, C5, C6, C7
Internal, Room #0015 western kitchen, southern wall lining	Flat Fibre Cement Sheet	MR03/AS13	Chrysotile asbestos detected: Crocidolite asbestos detected	10m^2		Non-Friable	Restricted Access	Yes	Good condition	Very Low	C5, C6, C7
Internal, Room #0018, ceiling lining	Flat Fibre Cement Sheet	MR03/AS11	Chrysotile asbestos detected	10m^2		Non-Friable	Restricted Access	Yes	Good condition	Very Low	C5, C6, C7

Location	Material type	Sample ID	Laboratory Result	Approximate Extent	Photograph	Friable / Non-friable	Accessibility	Labelled	Damage / Deterioration	Risk Rating	Control Measures
MR03 - Picone Building											
ASBESTOS MATERIALS											
Internal, Room #0032 north-east corner - shower, ceiling lining	Flat Fibre Cement Sheet	Previous register - 26	Chrysotile asbestos detected	12m²	No photograph	Non-Friable	Restricted Access	Yes	Good condition	Very Low	C5, C6, C7
Internal, Room #0032 north-east corner - shower, ceiling lining	Flat Fibre Cement Sheet	MR03/AS08	Chrysotile asbestos detected	12m²	No photograph	Non-Friable	Restricted Access	Yes	Good condition	Very Low	C5, C6, C7
Internal, shower and toilets -patients only, ceiling and southern wall lining	Flat Fibre Cement Sheet	MR03/AS15	Chrysotile asbestos detected	20m²		Non-Friable	Restricted Access	Yes	Good condition	Very Low	C5, C6, C7
Internal, western end of building, floor covering	Vinyl sheeting (patterned grey / white) & adhesive	MR03/AS02	No asbestos detected	-	-	-	-	-	-	-	-
Internal, western end, lower wall lining	Vinyl sheeting (patterned cream / white) & adhesive	MR03/AS03	No asbestos detected	-	-	-	-	-	-	-	-
Internal, western end, floor covering	Vinyl sheeting (coloured grey) & adhesive	MR03/AS04	No asbestos detected	-	-	-	-	-	-	-	-
Internal, unisex toilet infill panel	Flat Fibre Cement Sheet	MR03/AS05	No asbestos detected: Organic fibres detected	-	-	-	-	-	-	-	-
Internal, unisex toilet ceiling lining	Flat Fibre Cement Sheet	MR03/AS06	Chrysotile asbestos detected	10m²		Non-Friable	Restricted Access	Yes	Good condition	Very Low	C5, C6, C7

Location	Material type	Sample ID	Laboratory Result	Approximate Extent	Photograph	Friable / Non-friable	Accessibility	Labelled	Damage / Deterioration	Risk Rating	Control Measures
MR03 - Picone Building											
ASBESTOS MATERIALS											
Internal, floor covering to office in Cancer Council quite room	Vinyl sheteing (coloured grey) & adhesive	MR03/AS09	No asbestos detected	-	-	-	-	-	-	-	-
Internal, cancer council laundry room wall linings	Flat Fibre Cement Sheet	MR03/AS10	No asbestos detected: Organic fibres detected	-	-	-	-	-	-	-	-
Internal, enclosed verandah (kids playroom), floor covering	A)Vinyl sheeting (coloured grey) B)Fibrous backing	MR03/AS14	A)No asbestos detected: B)Chrysotile asbestos detected: Organic fibres detected	30m^2		Friable	Restricted Access	No	Good condition	Low	C5, C6, C7
Internal, north-east corner bathroom ceiling linings	Grey fibre cement material	MR03/AS16	Chrysotile asbestos detected	8m^2	No photograph	Non-Friable	Restricted Access	No	Good condition	Very Low	C5, C6, C7
Internal, floor covering throughout	Vinyl sheeting (coloured blue) & adhesive	MR03/AS17	No asbestos detected: Organic fibres detected	-	-	-	-	-	-	-	-
External, covered walkway awnings, eave and soffit linings	Flat Fibre Cement Sheet	MR03/AS22	Chrysotile asbestos detected: Amosite asbestos detected	200m^2		Non-Friable	Restricted Access	Yes	Low Damage	Low	C5, C6, C7
External, tile edging	Flat Fibre Cement Sheet	MR03/AS24	Chrysotile asbestos detected	10m^2		Non-Friable	Restricted Access	Yes	Low Damage	Low	C5, C6, C7
Internal, roof space, metal wrapped pipework	Insulation	MR03/AS28	No asbestos detected: Synthetic mineral fibres detected	-	-	-	-	-	-	-	-

Location	Material type	Sample ID	Laboratory Result	Approximate Extent	Photograph	Friable / Non-friable	Accessibility	Labelled	Damage / Deterioration	Risk Rating	Control Measures
MR03 - Picone Building											
ASBESTOS MATERIALS											
Internal, hot water cupboard, lagged pipework	Thermal Insulation to pipework	MR03/AS27	Amosite asbestos detected: Synthetic mineral fibres detected	100lm		Friable	Limited access	Yes	Medium Damage	High	C1, C2, C3, C5, C6, C7
External, underfloor space	Asbestos containing material	NA - height restriction	Assumed to contain asbestos	1m^2		NA	Restricted Access	No	NA	Very Low	C4, C5, C6, C7
SMF MATERIALS											
Internal, ceiling throughout, sarking	Foil backed insulation	NA - Visually Inspected	Assumed to contain SMF	>200m2		Non-Friable	Restricted Access	NA	Good Condition	Very Low	C6, C7
Internal, roof space, metal wrapped pipework	Insulation	MR03/AS28	No asbestos detected: Synthetic mineral fibres detected	100lm		Friable	Limited access	NA	Good condition	Low	C6, C7
Internal, plant room -southern wall - south-west corner-ceiling void, pipework (assumed to be throughout roof space of building)	Thermal Insulation to pipework	Same as MR03/27	Amosite asbestos detected: Synthetic mineral fibres detected	100lm		Friable	Restricted Access	Yes	Good condition	Low	C1, C2, C3, C5, C6, C7

Location	Material type	Sample ID	Laboratory Result	Approximate Extent	Photograph	Friable / Non-friable	Accessibility	Labelled	Damage / Deterioration	Risk Rating	Control Measures
MR03 - Picone Building											
SMF MATERIALS											
Internal, hot water cupboard, lagged pipework	Thermal Insulation to pipework	MR03/AS27	Amosite asbestos detected: Synthetic mineral fibres detected	100lm		Friable	Limited access	Yes	Medium Damage	Medium	C2, C6, C7
Internal, roof space, air conditioning ductwork	Foill wrapped ductwork	NA - visually inspected	Assumed to contain SMF	200lm		Non-Friable	Restricted Access	NA	Good Condition	Very Low	C6, C7
LEAD IN PAINT											
Internal, bathroom walls	Peeling white paint	MR03/LP01	0.12% (greater than the criteria of 0.1%)	30m^2		NA	Restricted Access	NA	Low Damage	Low	C8
LEAD IN ACCUMULATED DUST											
Internal, roof space	Accumulated dust	MR03/LD01	0.933mg/m^2 (less than the adopted criteria of 8mg/m^2)	-	-	-	-	-	-	-	-

Location	Material type	Sample ID	Laboratory Result	Approximate Extent	Photograph	Friable / Non-friable	Accessibility	Labelled	Damage / Deterioration	Risk Rating	Control Measures
MR03 - Picone Building											
PCB CONTAINING ELECTRICAL EQUIPMENT											
External	Single tube luorescent light fitting	NA - Visually inspected	Of an age indicative of housing PCB containing capacitors	8+ units		NA	Restricted Access	NA	Good Condition	Very low	C10
Internal, throughout	Twin tube fluorescent light fittings	NA - Visually inspected	Of an age indicative of housing PCB containing capacitors	20+ units		NA	Restricted Access	NA	Good Condition	Very low	C10
Internal, bathrooms	Single tube luorescent light fitting	NA - Visually inspected	Of an age indicative of housing PCB containing capacitors	6+ units		NA	Restricted Access	NA	Good Condition	Very low	C10
ODS in AEROSOL PROPELLANTS											
No ODS in aerosol propellants were identified within the scope of the survey at the time of the inspection.											

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Location	Material type	Sample ID	Laboratory Result	Approximate Extent	Photograph	Friable / Non-friable	Accessibility	Labelled	Damage / Deterioration	Risk Rating	Control Measures
MR04 - Mental Health											
ASBESTOS MATERIALS											
External, Kiosk - northern awning, soffit lining	Flat Fibre Cement Sheet	MR04/AS08	Chrysotile asbestos detected: Amosite asbestos detected	10m^2		Non-Friable	Restricted Access	Yes	Good condition	Very low	C5, C6, C7
External, eave linings	Flat Fibre Cement Sheet	Same as MR04/AS08	Chrysotile asbestos detected: Amosite asbestos detected	100m^2		Non-Friable	Restricted Access	Yes	Good condition	Very low	C5, C6, C7
External, underfloor space	Asbestos containing materials	NA - height restriction	Assumed to contain asbestos	NA		NA	Restricted Access	Yes	NA	Low	C4, C5, C6, C7
Internal, Kiosk, ceiling lining	Flat Fibre Cement Sheet	MR04/AS05	Chrysotile asbestos detected: Organic fibres detected	12m^2		Non-Friable	Restricted Access	Yes	Good condition	Very low	C5, C6, C7

Location	Material type	Sample ID	Laboratory Result	Approximate Extent	Photograph	Friable / Non-friable	Accessibility	Labelled	Damage / Deterioration	Risk Rating	Control Measures
MR04 - Mental Health											
ASBESTOS MATERIALS											
Internal, Northern file room, manhole cover	Flat Fibre Cement Sheet	MR04/AS04	No asbestos detected: Organic fibres detected	-	-	-	-	-	-	-	-
Internal, floor covering to meeting room adjacent to kitchenette	Vinyl sheeting (coloured grey)	MR04/AS01	No asbestos detected	-	-	-	-	-	-	-	-
Internal, men's and womens toilets, floor coverings	Vinyl floor tiles (coloured blue)	MR04/AS02	No asbestos detected	-	-	-	-	-	-	-	-
Internal, men's and womens toilets, lower wall linings	Vinyl sheeting (coloured cream)	MR04/AS03	No asbestos detected	-	-	-	-	-	-	-	-
Internal, kiosk, floor covering	Vinyl sheeting (coloured blue)	MR04/AS06	No asbestos detected	-	-	-	-	-	-	-	-
Internal, ceiling void, pipework (assumed to be throughout roof space of building extending from MR03)	Thermal Insulation to pipework	Same as MR03/27	Amosite asbestos detected: Synthetic mineral fibres detected	100lm	No photograph	Friable	Restricted Access	Yes	Good condition	Low	C5, C6, C7
External, tile edging	Flat Fibre Cement Sheet	MR04/AS07	Chrysotile asbestos detected: Amosite asbestos detected	20m^2		Non-Friable	Restricted Access	No	Low Damage	Low	C5, C6, C7
Internal, kitchen floor covering	Vinyl sheeting (coloured blue)	MR04/AS09	No asbestos detected	-	-	-	-	-	-	-	-

Location	Material type	Sample ID	Laboratory Result	Approximate Extent	Photograph	Friable / Non-friable	Accessibility	Labelled	Damage / Deterioration	Risk Rating	Control Measures
MR04 - Mental Health											
SMF MATERIALS											
Internal, roof space, upper surface of ceiling	Insulation batts	NA - Visually inspected	Assumed to contain SMF	300m^2		Friable	Restricted Access	NA	Good Condition	Very low	C5, C6, C7
Internal, roof space, underside of roof	Foil backed insulation (sarking)	NA - Visually inspected	Assumed to contain SMF	350m^2		Non-Friable	Restricted Access	NA	Good Condition	Very low	C5, C6, C7
Internal, roof space	Flexible air conditioning ductwork insulation	NA - Visually inspected	Assumed to contain SMF	200lm		Non-Friable	Restricted Access	NA	Good Condition	Very low	C5, C6, C7
Internal, ceiling void, pipework (assumed to be throughout roof space of building extending from MR03)	Thermal Insulation to pipework	Same as MR03/27	Amosite asbestos detected: Synthetic mineral fibres detected	100lm	No photograph	Friable	Restricted Access	Yes	Good condition	Low	C5, C6, C7
Internal, kiosk, under sink	Hot water unit	NA - Visually inspected	Assumed to contain SMF	1 unit		Friable	Restricted Access	NA	Good Condition	Low	C5, C6, C7

Location	Material type	Sample ID	Laboratory Result	Approximate Extent	Photograph	Friable / Non-friable	Accessibility	Labelled	Damage / Deterioration	Risk Rating	Control Measures
MR04 - Mental Health											
LEAD IN PAINT											
No deteriorated paint systems were identified within the scpoe of the survey at the time of the inspection.											
LEAD IN ACCUMULATED DUST											
Internal, roof space	Accumulated dust	MR04/LD01	0.044mg/m^2 (less than the adopted criteria of 8mg/m^2)	-	-	-	-	-	-	-	-
PCB CONTAINING ELECTRICAL EQUIPMENT											
External, eaves and gable ends	Twin tube fluorescent light fittings	NA - Visually inspected	Of an age indicative of housing PCB containing capacitors	20+ units		NA	Restricted Access	NA	Good Condition	Very low	C10
External, eaves and gable ends	Single tube fluorescent light fittings	NA - Visually inspected	Of an age indicative of housing PCB containing capacitors	20+ units		NA	Restricted Access	NA	Good Condition	Very low	C10
Internal, throughout	Twin tube fluorescent light fittings	NA - Visually inspected	Of an age indicative of housing PCB containing capacitors	10+ units		NA	Restricted Access	NA	Good Condition	Very low	C10
Internal, throughout	Single tube fluorescent light fittings	NA - Visually inspected	Of an age indicative of housing PCB containing capacitors	10+ units		NA	Restricted Access	NA	Good Condition	Very low	C10

Location	Material type	Sample ID	Laboratory Result	Approximate Extent	Photograph	Friable / Non-friable	Accessibility	Labelled	Damage / Deterioration	Risk Rating	Control Measures
MR04 - Mental Health											
ODS in AEROSOL PROPELLANTS											
No ODS in aerosol propellants were identified within the scope of the survey at the time of the inspection.											

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Location	Material type	Sample ID	Laboratory Result	Approximate Extent	Photograph	Friable / Non-friable	Accessibility	Labelled	Damage / Deterioration	Risk Rating	Control Measures
MR05 - Crane & Glennie											
ASBESTOS MATERIALS											
External, northern wall, lower infill panels	Flat Fibre Cement Sheet	MR05/AS15	Chrysotile asbestos detected	10m²		Non-friable	Full access	Yes	Low Damage	Medium	C3, C5, C6, C7
External, north-west corner, upper infill panels	Flat Fibre Cement Sheet	MR05/AS16	Chrysotile asbestos detected	10m²	No photograph	Non-friable	Full access	Yes	Low Damage	Very Low	C5, C6, C7
External, southern elevation, spandrel panels	Flat Fibre Cement Sheet	Previous register - 30	Chrysotile asbestos detected	10m²		Non-friable	Full access	Yes	Low Damage	Medium	C3, C5, C6, C7
External, southern elevation, infill panels	Flat Fibre Cement Sheet	MR05/AS14	Chrysotile asbestos detected: Amosite asbestos detected	10m²		Non-friable	Full access	Yes	Low Damage	Medium	C3, C5, C6, C7
External, south-west wall and exit door, infill panel	Flat Fibre Cement Sheet	MR05/AS12	No asbestos detected: Organic fibres detected	-	-	-	-	-	-	-	-

Location	Material type	Sample ID	Laboratory Result	Approximate Extent	Photograph	Friable / Non-friable	Accessibility	Labelled	Damage / Deterioration	Risk Rating	Control Measures
MR05 - Crane & Glennie											
ASBESTOS MATERIALS											
External, Western area - void area behind reception -northern wall of annex, wall lining	Flat Fibre Cement Sheet	MR05/AS13	Chrysotile asbestos detected: Organic fibres detected	5m²		Non-friable	Limited Access	Yes	Good Condition	Very Low	C5, C6, C7
External, western elevation, metal-encased insulated pipework	Thermal Insulation to pipework	Previous register - refer to 23	Amosite asbestos detected	20lm		Friable	Restricted Access	No	Good Condition	Low	C5, C6, C7
External, western entrance way, "shadowling" wall cladding	Moulded Fibre Cement	Previous register - 35	Chrysotile, Amosite & Crocidolite asbestos detected	5m²		Non-friable	Full access	Yes	Good Condition	Low	C5, C6, C7
External, western wall - east of reception entrance, corrugated wall cladding	Moulded Fibre Cement	MR05/AS17	Chrysotile asbestos detected	4m²		Non-friable	Full access	Yes	Good Condition	Low	C5, C6, C7
Internal, asthma education room -south-west corner office, upper and lower infill panels to windows and doors plus northern wall MR05000020	Flat Fibre Cement Sheet	Same as MR05/AS03	Chrysotile asbestos detected	10m²		Non-friable	Full access	Yes	Good Condition	Very Low	C5, C6, C7

Location	Material type	Sample ID	Laboratory Result	Approximate Extent	Photograph	Friable / Non-friable	Accessibility	Labelled	Damage / Deterioration	Risk Rating	Control Measures
MR05 - Crane & Glennie											
ASBESTOS MATERIALS											
Internal, dietician - southern & western wall and northern lower infill panels, wall lining MR05000019	Flat Fibre Cement Sheet	MR05/AS03	Chrysotile asbestos detected	12m²		Non-friable	Full access	Yes	Good Condition	Low	C5, C6, C7
Internal, north-west corner - exit - doors, infill panels and northern wall MR0500007, MR05000010	Flat Fibre Cement Sheet	MR05/AS24	Chrysotile asbestos detected: Organic fibres detected	6m²		Non-friable	Full access	Yes	Good Condition	Very Low	C5, C6, C7
Internal, north-east corner - exit - upper and lower panels to western windows, infill panels to MR0500003	Flat Fibre Cement Sheet	MR05/AS20	Chrysotile asbestos detected: Organic fibres detected	6m²		Non-friable	Full access	Yes	Good Condition	Low	C5, C6, C7
Internal, Reception officer and tea room - western entrance, ceiling lining to MR05000028	Flat Fibre Cement Sheet	MR05/AS26	Chrysotile asbestos detected: Amosite asbestos detected	20m²	No photograph	Non-friable	Restricted Access	Yes	Good Condition	Low	C5, C6, C7
Internal, Reception officer and tea room - western entrance -southern wall, infill panel to MR05000028	Flat Fibre Cement Sheet	MR05/AS27	No asbestos detected: Organic fibres detected	-	-	-	-	-	-	-	-
Internal, MR0500024, MR0500025 south-west laundry plus adjacent walking frame storage room	Tilux fibre cement sheet	Previous register - 33	Chrysotile asbestos detected	24m²		Non-friable	Restricted Access	Yes	Good Condition	Very Low	C5, C6, C7

Location	Material type	Sample ID	Laboratory Result	Approximate Extent	Photograph	Friable / Non-friable	Accessibility	Labelled	Damage / Deterioration	Risk Rating	Control Measures
MR05 - Crane & Glennie											
ASBESTOS MATERIALS											
Internal, MR0500024, MR0500025 south-west laundry plus adjacent walking frame storage room	Tilux fibre cement sheet	MR05/AS05	Chrysotile asbestos detected	24m²		Non-friable	Restricted Access	Yes	Good Condition	Very Low	C5, C6, C7
Internal, south-west bathroom wall linings MR05000023	Flat Fibre Cement Sheet	MR05/AS06	No asbestos detected: Organic fibres detected	-	-	-	-	-	-	-	-
Internal, south-west corner -northern bathroom, ceiling void	Thermal Insulation to pipework	Previous register - 31	Amosite asbestos detected	8m²	No photograph	Friable	Restricted Access	Yes	Good Condition	Low	C5, C6, C7
Internal, south-west corner, MR05000025 ceiling lining	Flat Fibre Cement Sheet	MR05/AS08	No asbestos detected	-	-	-	-	-	-	-	-
Internal, storeroom north of asthma education room, southern wall lining, MR05000021	Flat Fibre Cement Sheet	MR05/AS07	Chrysotile asbestos detected	8m²		Non-friable	Restricted Access	Yes	Good Condition	Very Low	C5, C6, C7
External porch to western entrance & internal, main kitchen/break room to north of building (MR0500001)	Vinyl sheeting (patterned brown) & fibrous backing	MR05/AS01	A)No asbestos detected: B)Chrysotile asbestos detected: Organic fibres detected			Friable	Limited Access	No	Good Condition	Low	C5, C6, C7
Internal, early intervention and storeroom, floor covering, southern section MR05000018 and MR05000021	Vinyl sheeting (coloured beige)	MR05/AS02	No asbestos detected	-	-	-	-	-	-	-	-

Location	Material type	Sample ID	Laboratory Result	Approximate Extent	Photograph	Friable / Non-friable	Accessibility	Labelled	Damage / Deterioration	Risk Rating	Control Measures
MR05 - Crane & Glennie											
ASBESTOS MATERIALS											
Internal, asthma education room, open plan exercise area and western corridor, flooring covering MR05000017, MR05000020, MR05000022	Vinyl sheeting (coloured blue) & adhesive	MR05/AS04	No asbestos detected	-	-	-	-	-	-	-	-
Internal, south-west section, storage room man hole cover MR05000025	Flat Fibre Cement Sheet	MR05/AS09	Chrysotile asbestos detected: Organic fibres detected	$<0.5m^2$	No photograph	Non-friable	Restricted Access	Yes	Good Condition	Very Low	C5, C6, C7
Internal, timber window, sash, throughout	Rope	MR05/AS10	No asbestos detected: Organic fibres detected	-	-	-	-	-	-	-	-
External, timber windows	Mastic	MR05/AS11	No asbestos detected	-	-	-	-	-	-	-	-
Internal, MR0500005 man hole cover	Flat Fibre Cement Sheet	MR05/AS18	No asbestos detected: Organic fibres detected	-	-	-	-	-	-	-	-
Roof space, metal encased pipework	Brown fibrous matted material	MR05/AS19	No asbestos detected: Organic fibres detected	-	-	-	-	-	-	-	-
Internal, ceiling linings MR05/00004, MR0500005, MR0500006	Flat Fibre Cement Sheet	MR05/AS21	Chrysotile asbestos detected	$20m^2$		Non-friable	Restricted Access	Yes	Good Condition	Very Low	C5, C6, C7
Internal, cleaners store MR05000026 wall infill panel	Flat Fibre Cement Sheet	NA - not sighted	Assumed to contain asbestos	$2m^2$		Non-friable	Restricted Access	No	Good Condition	Very Low	C5, C6, C7

Location	Material type	Sample ID	Laboratory Result	Approximate Extent	Photograph	Friable / Non-friable	Accessibility	Labelled	Damage / Deterioration	Risk Rating	Control Measures
MR05 - Crane & Glennie											
ASBESTOS MATERIALS											
Internal, cleaners store MR05000026 man hole	Flat Fibre Cement Sheet	NA - not sighted	Assumed to contain asbestos	<0.5m^2		Non-friable	Restricted Access	No	Good Condition	Very Low	C5, C6, C7
Internal, ceiling void, fire wall	Flat Fibre Cement Sheet	Previous register MH06	Chrysotile asbestos detected	40m^2		Non-friable	Restricted Access	No	Good Condition	Very Low	C5, C6, C7
Internal, ceiling void, pipework	Thermal Insulation to pipework	NA - not sighted	Assumed to contain asbestos	100lm		Friable	Restricted Access	No	Good Condition	Low	C4, C5, C6, C7
Internal, ACAT / Midwifery western wall linings, MR0500009, MR05000013	Flat Fibre Cement Sheet	MR05/AS22	No asbestos detected: Organic fibres detected	-	-	-	-	-	-	-	-
Internal, wall linings between MR0500009 and MR05000010	Flat Fibre Cement Sheet	MR05/AS23	No asbestos detected: Organic fibres detected	-	-	-	-	-	-	-	-
Internal, reception and tea room, floor covering	Vinyl sheeting (coloured green) & adhesive	MR05/AS25	No asbestos detected: Organic fibres detected	-	-	-	-	-	-	-	-
External, covered walkway awning linings	Flat Fibre Cement Sheet	MR05/AS28	Chrysotile asbestos detected: Amosite asbestos detected	12m^2		Non-Friable	Restricted Access	Yes	Good Condition	Very Low	C5, C6, C7
External, covered walkway, lower infil panels north-west	Flat Fibre Cement Sheet	MR05/AS29	No asbestos detected: Organic fibres detected	-	-	-	-	-	-	-	-

Location	Material type	Sample ID	Laboratory Result	Approximate Extent	Photograph	Friable / Non-friable	Accessibility	Labelled	Damage / Deterioration	Risk Rating	Control Measures
MR05 - Crane & Glennie											
SMF MATERIALS											
Internal, roof space	Foil backed insulation (sarking)	NA - visually inspected	Assumed to contain SMF	60m^2		Non-Friable	Restricted Access	NA	High Damage	Low	C6, C7
Internal, roof space	Flexible foil wrapped flexible ductwork	NA - visually inspected	Assumed to contain SMF	100lm		Non-friable	Restricted Access	NA	Good Condition	Very Low	C6, C7
External, void behind reception, air conditioning unit	Insulation	NA - visually inspected	Assumed to contain SMF	2m^2		Friable	Restricted Access	NA	Low damage	Low	C6, C7
Internal, roof space	Insulation batts	NA - visually inspected	Assumed to contain SMF	60m^2		Friable	Restricted Access	NA	High Damage	High	C2, C6, C7
LEAD IN PAINT											
External, walls, awning and eave linings	Peeling white paint	MR05/LP01	9.1% (greater than the criteria of 0.1%)	300m^2		NA	Limited Access	NA	Low Damage	Low	C8

Location	Material type	Sample ID	Laboratory Result	Approximate Extent	Photograph	Friable / Non-friable	Accessibility	Labelled	Damage / Deterioration	Risk Rating	Control Measures
MR05 - Crane & Glennie											
LEAD IN PAINT											
External, timber trim to windows and doors and metal gutters	Peeling blue paint	MR05/LP02	3.8% (greater than the criteria of 0.1%)	10m^2		NA	Limited Access	NA	Low Damage	Low	C8
LEAD IN ACCUMULATED DUST											
Internal, roof space	Accumulated dust	MR05/LD01	4.222mg/m^2 (less than the adopted criteria of 8mg/m^2)	-	-	-	-	-	-	-	-
PCB CONTAINING ELECTRICAL EQUIPMENT											
Internal, throughout	Twin tube fluorescent light fittings	NA - Visually inspected	Of an age indicative of housing PCB containing capacitors	10+ units		NA	Restricted Access	NA	Good Condition	Very low	C10
ODS in AEROSOL PROPELLANTS											
No ODS in aerosol propellants were identified within the scope of the survey at the time of the inspection.											

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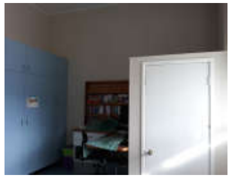
Location	Material type	Sample ID	Laboratory Result	Approximate Extent	Photograph	Friable / Non-friable	Accessibility	Labelled	Damage / Deterioration	Risk Rating	Control Measures
MR06 - Hollingworth Block											
ASBESTOS MATERIALS											
External, eastern and western walkway awning, and soffit linings	Flat Fibre Cement Sheet	MR06/AS01	Chrysotile asbestos detected: Amosite asbestos detected: Crocidolite asbestos detected	100m²		Non-Friable	Restricted access	Yes	Good condition	Very Low	C5, C6, C7
External, eave, soffit lining	Flat Fibre Cement Sheet	MR06/AS05	Chrysotile asbestos detected: Amosite asbestos detected: Crocidolite asbestos detected	80m²		Non-Friable	Restricted access	Yes	Good condition	Very Low	C5, C6, C7
External, northern awning, soffit lining	Flat Fibre Cement Sheet	Previous register - 19	Chrysotile	10m²		Non-Friable	Restricted access	Yes	Good condition	Very Low	C5, C6, C7
External, northern awning, soffit lining	Flat Fibre Cement Sheet	MR06/AS06	Chrysotile asbestos detected: Amosite asbestos detected: Crocidolite asbestos detected	10m²	No photograph	Non-Friable	Restricted access	Yes	Good condition	Very Low	C5, C6, C7

Location	Material type	Sample ID	Laboratory Result	Approximate Extent	Photograph	Friable / Non-friable	Accessibility	Labelled	Damage / Deterioration	Risk Rating	Control Measures
MR06 - Hollingworth Block											
ASBESTOS MATERIALS											
External, north-west corner, awning soffit lining	Flat Fibre Cement Sheet	MR06/AS07	Chrysotile asbestos detected: Amosite asbestos detected: Crocidolite asbestos detected	12m²		Non-Friable	Restricted access	Yes	Good condition	Very Low	C5, C6, C7
External, south-east corner -rendered wall, pipework	Thermal Insulation to pipework	NA - height restriction	Assumed to contain asbestos	NA	No photograph	Friable	Restricted access	NA	NA	Low	C4, C5, C6, C7
External, western side water tower, ground area fragments	Flat Fibre Cement Sheet	NA - not sighted	-	-	-	-	-	-	-	-	-
Internal, Hearing services - ceiling void, pipework lagging (assumed throughout)	Woven Product	NA - height restriction	Assumed to contain asbestos	>100lm	No photograph	Friable	Restricted access	NA	NA	Low	C4, C5, C6, C7
Internal, medical records, northern and southern wall lining	Flat Fibre Cement Sheet	NA - no access	Assumed to contain asbestos	12m²	No photograph	Non-Friable	Restricted access	NA	NA	Very Low	C4, C5, C6, C7
Internal, physiotherapy consultancy room, western wall lining MR060011	Flat Fibre Cement Sheet	MR06/AS10	No asbestos detected: Organic fibres detected	-	-	-	-	-	-	-	-
Internal, physiotherapy office room, eastern wall lining MR060011	Flat Fibre Cement Sheet	MR06/AS11	No asbestos detected: Organic fibres detected	-	-	-	-	-	-	-	-

Location	Material type	Sample ID	Laboratory Result	Approximate Extent	Photograph	Friable / Non-friable	Accessibility	Labelled	Damage / Deterioration	Risk Rating	Control Measures
MR06 - Hollingworth Block											
ASBESTOS MATERIALS											
Internal, physiotherapy treatment room, northern wall lining MR060011	Flat Fibre Cement Sheet	MR06/AS08	Chrysotile asbestos detected: Organic fibres detected	14m²		Non-Friable	Full access	Yes	Good condition	Low	C5, C6, C7
Internal, physiotherapy treatment room - western wall lining MR060011, MR060012	Flat Fibre Cement Sheet	MR06/AS09	Chrysotile asbestos detected: Organic fibres detected	6m²		Non-Friable	Full access	Yes	Good condition	Low	C5, C6, C7
Internal, ceiling linings throughout northern section of building MR060011-MR060022	Flat Fibre Cement Sheet	NA - height restriction	Assumed to contain asbestos	20m^2		Non-Friable	Full access	Yes	Good condition	Low	C4, C5, C6, C7
Internal, speech pathology, internal wall linings, MR060018, MR060019 (party wall with cleaners store)	Flat Fibre Cement Sheet	MR06/AS04	Chrysotile asbestos detected: Organic fibres detected	20m^2	No photograph	Non-Friable	Full access	Yes	Good condition	Low	C5, C6, C7
Internal, speech pathology, western wall lining	Flat Fibre Cement Sheet	Previous register - 20	Chrysotile asbestos detected	6m^2	No photograph	Non-Friable	Full access	Yes	Good condition	Low	C5, C6, C7

Location	Material type	Sample ID	Laboratory Result	Approximate Extent	Photograph	Friable / Non-friable	Accessibility	Labelled	Damage / Deterioration	Risk Rating	Control Measures
MR06 - Hollingworth Block											
ASBESTOS MATERIALS											
Internal, cleaners storage, wall and ceiling linings	Flat Fibre Cement Sheet	Previous register - refer to MH04	Chrysotile	150m^2		Non-Friable	Restricted access	No	Good condition	Very Low	C5, C6, C7
External, timber windows	Mastic	MR06/AS02	No asbestos detected	-	-	-	-	-	-	-	-
Internal, floor covering to speech and respiratory MR060014, MR060015	Vinyl sheeting (coloured grey)	MR06/AS03	No asbestos detected	-	-	-	-	-	-	-	-
Internal, MR0600014 respiratory and healing, wall and ceiling linings	Flat Fibre Cement Sheet	Previous register - MH04	Chrysotile	26m^2		Non-Friable	Full access	No	Good condition	Low	C5, C6, C7
Internal, offices including physiotherapy (MR0600012), Medical Records (MR0600013), wall linings	Flat Fibre Cement Sheet	Previous register - refer to MH04	Chrysotile	100m^2		Non-Friable	Full access	No	Good condition	Low	C5, C6, C7
Internal, south wall lining to hearing and respiratory MR0600014, MR060015	Flat Fibre Cement Sheet	MR06/AS12	Chrysotile asbestos detected: Organic fibres detected	30m^2		Non-Friable	Full access	Yes	Good condition	Low	C5, C6, C7

Location	Material type	Sample ID	Laboratory Result	Approximate Extent	Photograph	Friable / Non-friable	Accessibility	Labelled	Damage / Deterioration	Risk Rating	Control Measures
MR06 - Hollingworth Block											
ASBESTOS MATERIALS											
Internal, east and west wall lining to hearing and respiratory MR0600014, MR060015	Flat Fibre Cement Sheet	MR06/AS13	Chrysotile asbestos detected: Organic fibres detected	30m^2		Non-Friable	Full access	Yes	Good condition	Low	C5, C6, C7
Internal, floor covering to kitchenette near OT MR060007	Vinyl sheeting (coloured blue) & adhesive	MR06/AS14	No asbestos detected	-	-	-	-	-	-	-	-
Internal dental office floor covering MR060004	Vinyl sheeting (coloured grey/white) & adhesive	MR06/AS15	No asbestos detected	-	-	-	-	-	-	-	-
Internal, dental office floor covering MR060002	Vinyl sheeting (coloured brown/pink) & adhesive	MR06/AS16	No asbestos detected: Organic fibres detected	-	-	-	-	-	-	-	-
External, infill panel to covered walkway, southern end outside dental	Flat Fibre Cement Sheet	MR06/AS17	No asbestos detected: Organic fibres detected	-	-	-	-	-	-	-	-
Internal, physiotherapy floor covering MR060011 and MR060012	Vinyl sheeting (coloured blue)	MR06/AS18	No asbestos detected	-	-	-	-	-	-	-	-
External, telstra pit (assume throughout hospital site)	Moulded fibre cement material	MR06/AS19	Chrysotile asbestos detected	Throughout site		Non-Friable	Limited access	NA	Good condition	Very Low	C5, C6, C7
SMF MATERIALS											
Internal, south booth	Insulation boards	NA - visually inspected	Assumed to contain SMF	60m^2		Non-Friable	Restricted Access	NA	Good condition	Very Low	C6, C7

Location	Material type	Sample ID	Laboratory Result	Approximate Extent	Photograph	Friable / Non-friable	Accessibility	Labelled	Damage / Deterioration	Risk Rating	Control Measures
MR06 - Hollingworth Block											
SMF MATERIALS											
Internal, ceiling lining to MR060007	Acoustic tiles	NA - visually inspected	Assumed to contain SMF	$60m^2$		Non-Friable	Restricted Access	NA	Good condition	Very Low	C6, C7
Internal, flexible ductwork	Air conditioning ductwork	NA - visually inspected	Assumed to contain SMF	100lm		Non-Friable	Restricted Access	NA	Good condition	Very Low	C6, C7
Internal, roof space	Foil backed insulation (sarking)	NA - visually inspected	Assumed to contain SMF	$60m^2$		Non-Friable	Restricted Access	NA	Good condition	Very Low	C6, C7
LEAD IN PAINT											
External, timber windows, doors and framework	Peeling white paint	MR06/LP01	0.51% (greater than the criteria of 0.1%)	$30m^2$		NA	Restricted Access	NA	Low Damage	Low	C8
External, rendered brickwork to western garden bad	Peeling pale pink paint	MR06/LP02	1.3% (greater than the criteria of 0.1%)	$10m^2$		NA	Restricted Access	NA	Low Damage	Low	C8

Location	Material type	Sample ID	Laboratory Result	Approximate Extent	Photograph	Friable / Non-friable	Accessibility	Labelled	Damage / Deterioration	Risk Rating	Control Measures
MR06 - Hollingworth Block											
LEAD IN PAINT											
External, brickwork to western covered area	Peeling red paint	MR06/LP03	1.4% (greater than the criteria of 0.1%)	10m^2		NA	Restricted Access	NA	Low Damage	Low	C8
LEAD IN ACCUMULATED DUST											
Internal, roof space	Accumulated dust	MR06/LD01	0.067mg/m^2 (less than the adopted criteria of 8mg/m^2)	-	-	-	-	-	-	-	-
PCB CONTAINING ELECTRICAL EQUIPMENT											
External, throughout	Single tube fluorescent light fittings	NA - Visually inspected	Of an age indicative of housing PCB containing capacitors	10+ units		NA	Restricted Access	NA	Good Condition	Very low	C10
Internal, throughout	Single tube fluorescent light fittings	NA - Visually inspected	Of an age indicative of housing PCB containing capacitors	20+ units		NA	Restricted Access	NA	Good Condition	Very low	C10
Internal, throughout	Twin tube fluorescent light fittings	NA - Visually inspected	Of an age indicative of housing PCB containing capacitors	20+ units		NA	Restricted Access	NA	Good Condition	Very low	C10
ODS in AEROSOL PROPELLANTS											
No ODS in aerosol propellants were identified within the scope of the survey at the time of the inspection.											

MOREE HOSPITAL
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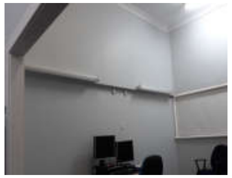
Location	Material type	Sample ID	Laboratory Result	Approximate Extent	Photograph	Friable / Non-friable	Accessibility	Labelled	Damage / Deterioration	Risk Rating	Control Measures
MR07 - Kitchen											
ASBESTOS MATERIALS											
External, all eaves and soffit linings	Flat Fibre Cement Sheet	MR07/AS12	Chrysotile asbestos detected: Amosite asbestos detected: Crocidolite asbestos detected	12m²		Non-Friable	Restricted Access	Yes	Good Condition	Very Low	C5, C6, C7
External, eastern side, area above awning, metal-encased insulated pipework (white), extending from MR05	Thermal Insulation to pipework	Previous register - 22	Amosite asbestos detected	>100lm		Friable	Restricted Access	No	High Damage	High	C1, C2, C3, C5, C6, C7
External, eastern side, area above awning, metal-encased insulated pipework (red), extending from MR05	Thermal Insulation to pipework	Previous register - 23	Amosite asbestos detected	>100lm		Friable	Restricted Access	No	High Damage	High	C1, C2, C3, C5, C6, C7
External, southern wall above awning, metal-encased insulated pipework, extending from MR05	Thermal Insulation to pipework	NA - height restriction	Assumed to contain asbestos	>100lm		Friable	Restricted Access	No	High Damage	High	C4, C5, C6, C7

Location	Material type	Sample ID	Laboratory Result	Approximate Extent	Photograph	Friable / Non-friable	Accessibility	Labelled	Damage / Deterioration	Risk Rating	Control Measures
MR07 - Kitchen											
ASBESTOS MATERIALS											
Internal, ceiling void throughout, pipework and debris	Thermal Insulation to pipework	NA - height restriction	Assumed to contain asbestos	>100lm	No photograph	Friable	Restricted Access	Yes	Medium damage	Medium	C4, C5, C6, C7
Internal, Conference room - eastern entrance awning, soffit lining	Flat Fibre Cement Sheet	MR07/AS03	No asbestos detected: Organic fibres detected	-	-	-	-	-	-	-	-
Internal, Dr G. T Hunter Testimonial Library, wall lining	Flat Fibre Cement Sheet	MR07/AS06	Chrysotile asbestos detected: Organic fibres detected	10m²		Non-Friable	Restricted Access	Yes	Good Condition	Very Low	C5, C6, C7
Internal, Room No 4 - western side, ceiling lining	Flat Fibre Cement Sheet	MR07/AS02	No asbestos detected: Organic fibres detected	-	-	-	-	-	-	-	-
Internal, Room No 4 - western side, electrical switchboard	Insulation Panel	NA - electrical hazard	Assumed to contain asbestos	2m²		Non-Friable	Restricted Access	Yes	Good Condition	Very Low	C4, C5, C6, C7
Internal, staff dining room, northern wall lining	Flat Fibre Cement Sheet	MR07/AS10	Chrysotile asbestos detected: Organic fibres detected	8m²	No photograph	Non-Friable	Restricted Access	Yes	Good Condition	Very Low	C5, C6, C7

Location	Material type	Sample ID	Laboratory Result	Approximate Extent	Photograph	Friable / Non-friable	Accessibility	Labelled	Damage / Deterioration	Risk Rating	Control Measures
MR07 - Kitchen											
ASBESTOS MATERIALS											
Internal, store room and cleaners room, original ceiling	Flat Fibre Cement Sheet	NA - height restriction	Assumed to contain asbestos	$12m^2$		Non-Friable	Restricted Access	Yes	Good Condition	Very Low	C4, C5, C6, C7
External, sash windows	Mastic	MR07/AS01	No asbestos detected	-	-	-	-	-	-	-	-
External, ground surface western side	Fibre cement debris	MR07/AS08	No asbestos detected: Organic fibres detected	-	-	-	-	-	-	-	-
External, under floor space	Asbestos containing material	NA - height restriction	Assumed to contain asbestos	NA		NA	Restricted Access	Yes	NA	Low	C4, C5, C6, C7
External, air conditioning unit	Asbestos containing material	NA - sealed unit	Assumed to contain asbestos	1 unit		NA	Restricted Access	No	Good Condition	Low	C4, C5, C6, C7
Internal, floor covering to MR0700018	Vinyl sheeting (coloured blue) & adhesive	MR07/AS04	No asbestos detected: Organic fibres detected	-	-	-	-	-	-	-	-
Internal, wall and ceiling lining to MR0700017	Flat Fibre Cement Sheet	MR07/AS05	Chrysotile asbestos detected: Organic fibres detected	$30m^2$		Non-Friable	Restricted Access	Yes	Good Condition	Very Low	C5, C6, C7

Location	Material type	Sample ID	Laboratory Result	Approximate Extent	Photograph	Friable / Non-friable	Accessibility	Labelled	Damage / Deterioration	Risk Rating	Control Measures
MR07 - Kitchen											
ASBESTOS MATERIALS											
Internal, original ceiling to MR0700016 above plasterboard	Flat Fibre Cement Sheet	NA - height restriction	Assumed to contain asbestos	$80m^2$		Non-Friable	Restricted Access	NA	Good Condition	Very Low	C4, C5, C6, C7
External, wall lining to eastern entrance MR0700017	Flat Fibre Cement Sheet	MR07/AS07	Chrysotile asbestos detected	$40m^2$		Non-Friable	Restricted Access	Yes	Good Condition	Low	C5, C6, C7
Internal, Dr G. T Hunter Testimonial Library, infill panel	Flat Fibre Cement Sheet	MR07/AS09	No asbestos detected: Organic fibres detected	-	-	-	-	-	-	-	-
Internal, floor covering to staff dining room	Vinyl sheeting (coloured grey) and adhesive	MR07/AS11	No asbestos detected: Organic fibres detected	-	-	-	-	-	-	-	-
External, awning lining to covered walkway	Flat Fibre Cement Sheet	MR07/AS13	Chrysotile asbestos detected: Amosite asbestos detected: Crocidolite asbestos detected	$200m^2$		Non-Friable	Restricted Access	Yes	Good Condition	Very Low	C5, C6, C7
Internal, floor covering to kitchen area (southern end of building)	Vinyl sheeting (coloured blue) & adhesive	MR07/AS14	No asbestos detected	-	-	-	-	-	-	-	-
Internal, northern wall lining to office area (between MR0700015 / MR0700016)	Flat Fibre Cement Sheet	Same as MR07/AS15	Chrysotile asbestos detected: Amosite asbestos detected	$8m^2$		Non-Friable	Restricted Access	Yes	Good Condition	Very Low	C5, C6, C7

Location	Material type	Sample ID	Laboratory Result	Approximate Extent	Photograph	Friable / Non-friable	Accessibility	Labelled	Damage / Deterioration	Risk Rating	Control Measures
MR07 - Kitchen											
ASBESTOS MATERIALS											
Internal, southern wall lining to function room above kitchenette (between MR0700015 / MR0700016)	Flat Fibre Cement Sheet	MR07/AS15	Chrysotile asbestos detected: Amosite asbestos detected	8m^2		Non-Friable	Restricted Access	Yes	Good Condition	Very Low	C5, C6, C7
SMF MATERIALS											
No suspected SMF containing materials were identified within the scope of the survey during the inspection.											
LEAD IN PAINT											
External, timber window and door frames, metal gutters and eave linings	Peeling white paint	MR07/LP01	0.26% (greater than the criteria of 0.1%)	30m^2		NA	Limited Access	NA	Low Damage	Low	C8
External, metal downpipes and air conditioning vent work	Peeling red/brown paint	MR07/LP02	0.49% (greater than the criteria of 0.1%)	10m^2		NA	Limited Access	NA	Low Damage	Low	C8
LEAD IN ACCUMULATED DUST											
Internal, roof space	Accumulated dust	MR07/LD01	0.222mg/m^2 (less than the adopted criteria of 8mg/m^2)	-	-	-	-	-	-	-	-

Location	Material type	Sample ID	Laboratory Result	Approximate Extent	Photograph	Friable / Non-friable	Accessibility	Labelled	Damage / Deterioration	Risk Rating	Control Measures
MR07 - Kitchen											
PCB CONTAINING ELECTRICAL EQUIPMENT											
External	Twin tube fluorescent light fittings	NA - Visually inspected	Of an age indicative of housing PCB containing capacitors	6+ units		NA	Restricted Access	NA	Good Condition	Very low	C10
External	Single tube fluorescent light fittings	NA - Visually inspected	Of an age indicative of housing PCB containing capacitors	4+ units		NA	Restricted Access	NA	Good Condition	Very low	C10
Internal, throughout	Twin tube fluorescent light fittings	NA - Visually inspected	Of an age indicative of housing PCB containing capacitors	20 + units		NA	Restricted Access	NA	Good Condition	Very low	C10
Internal, throughout	Single tube fluorescent light fittings	NA - Visually inspected	Of an age indicative of housing PCB containing capacitors	10+ units		NA	Restricted Access	NA	Good Condition	Very low	C10
ODS in AEROSOL PROPELLANTS											
No ODS in aerosol propellants were identified within the scope of the survey at the time of the inspection.											

<table>
<tr><th colspan="12">MOREE HOSPITAL
Hazardous Building Materials Register - JULY-AUGUST 2022</th></tr>
<tr><th>Location</th><th>Material type</th><th>Sample ID</th><th>Laboratory Result</th><th>Approximate Extent</th><th>Photograph</th><th>Friable / Non-friable</th><th>Accessibility</th><th>Labelled</th><th>Damage / Deterioration</th><th>Risk Rating</th><th>Control Measures</th></tr>
<tr><th colspan="12">MR08 - Carport</th></tr>
<tr><th colspan="12">ASBESTOS MATERIALS</th></tr>
<tr><td colspan="12">No suspected asbestos containing materials were identified within the scope of the survey at the time of the inspection.</td></tr>
<tr><th colspan="12">SMF MATERIALS</th></tr>
<tr><td colspan="12">No suspected SMF materials were identified within the scope of the survey at the time of the inspection.</td></tr>
<tr><th colspan="12">LEAD IN PAINT</th></tr>
<tr><td>External, timber and metal framework</td><td>Peeling white paint</td><td>MR8/LP01</td><td>0.14% (greater than the criteria of 0.1%)</td><td>10m^2</td><td></td><td>NA</td><td>Restricted Access</td><td>NA</td><td>Low Damage</td><td>Low</td><td>C8</td></tr>
<tr><th colspan="12">LEAD IN ACCUMULATED DUST</th></tr>
<tr><td colspan="12">No settled dust was identified within the scope of the survey at the time of the inspection.</td></tr>
<tr><th colspan="12">PCB CONTAINING ELECTRICAL EQUIPMENT</th></tr>
<tr><td colspan="12">No electrical equipment suspected of housing PCB containing capacitors were identified within the scope of the survey at the time of the inspection.</td></tr>
<tr><th colspan="12">ODS in AEROSOL PROPELLANTS</th></tr>
<tr><td colspan="12">No ODS in aerosol propellants were identified within the scope of the survey at the time of the inspection.</td></tr>
</table>

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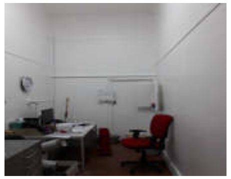
Hazardous Building Materials Register - JULY-AUGUST 2022

Location	Material type	Sample ID	Laboratory Result	Approximate Extent	Photograph	Friable / Non-friable	Accessibility	Labelled	Damage / Deterioration	Risk Rating	Control Measures
MR09 - Stores Building											
ASBESTOS MATERIALS											
External, Eastern receiving bay, soffit lining	Flat Fibre Cement Sheet	Same as MR09/AS01	Chrysotile asbestos detected: Amosite asbestos detected	2m²		Non-friable	Restricted Access	Yes	Good Condition	Very Low	C5, C6, C7
External, northern wall ground area	Fibre cement debris	MR09/AS04	Chrysotile asbestos detected	<0.5m^2		Non-Friable	Restricted Access	Yes	Medium Damage	Medium	C5, C6, C7
Internal, entrance corridor, northern wall lining	Flat Fibre Cement Sheet	MR09/AS03	Chrysotile asbestos detected: Organic fibres detected	20m²		Non-Friable	Restricted Access	Yes	Good Condition	Very Low	C5, C6, C7
Internal, entry, wall lining	Flat Fibre Cement Sheet	Previous register - 8	Chrysotile asbestos detected	15m²		Non-Friable	Restricted Access	Yes	Good Condition	Very Low	C5, C6, C7
Internal, linen store (dirty), wall lining	Flat Fibre Cement Sheet	MR09/AS05	No asbestos detected: Organic fibres detected	-	-	-	-	-	-	-	-

Location	Material type	Sample ID	Laboratory Result	Approximate Extent	Photograph	Friable / Non-friable	Accessibility	Labelled	Damage / Deterioration	Risk Rating	Control Measures
MR09 - Stores Building											
ASBESTOS MATERIALS											
Internal, north-east corner, laundry store, ceiling lining	Flat Fibre Cement Sheet	Same as MR09/AS01	Chrysotile asbestos detected: Amosite asbestos detected	10m²		Non-Friable	Restricted Access	Yes	Good Condition	Very Low	C5, C6, C7
Internal, north-east office, wall lining	Flat Fibre Cement Sheet	MR09/AS02	Chrysotile asbestos detected: Organic fibres detected	10m²		Non-Friable	Restricted Access	Yes	Good Condition	Very Low	C5, C6, C7
Internal, throughout eastern half od building, ceiling lining	Flat Fibre Cement Sheet	MR09/AS01	Chrysotile asbestos detected: Amosite asbestos detected	100m²		Non-Friable	Restricted Access	Yes	Good Condition	Very Low	C5, C6, C7
SMF MATERIALS											
Internal, wall insulation to east walls around roller door to clean store	Insulation batts	NA - visually inspected	Assumed to contain SMF	$10m^2$		Friable	Restricted Access	NA	Good Condition	Very Low	C2, C6, C7
LEAD IN PAINT											
External, awning and eave linings	Peeling white paint	MR09/LP01	<0.005% (less than the criteria of 0.1%)	-	-	-	-	-	-	-	-

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Location	Material type	Sample ID	Laboratory Result	Approximate Extent	Photograph	Friable / Non-friable	Accessibility	Labelled	Damage / Deterioration	Risk Rating	Control Measures
MR09 - Stores Building											
LEAD IN ACCUMULATED DUST											
Internal, roof space	Accumulated dust	MR09/LD01	0.244mg/m^2 (less than the adopted criteria of 8mg/m^2)	-	-	-	-	-	-	-	-
PCB CONTAINING ELECTRICAL EQUIPMENT											
Internal, throughout	Twin tube fluorescent light fittings	NA - Visually inspected	Of an age indicative of housing PCB containing capacitors	10+ units		NA	Restricted Access	NA	Good Condition	Very low	C10
ODS in AEROSOL PROPELLANTS											
No ODS in aerosol propellants were identified within the scope of the survey at the time of the inspection.											

MOREE HOSPITAL
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Location	Material type	Sample ID	Laboratory Result	Approximate Extent	Photograph	Friable / Non-friable	Accessibility	Labelled	Damage / Deterioration	Risk Rating	Control Measures
MR10 - Mortuary											
ASBESTOS MATERIALS											
External, eave, soffit lining	Flat Fibre Cement Sheet	MR10/AS01	Chrysotile asbestos detected: Amosite asbestos detected	30m^2		Non-Friable	Limited Access	No	Good Condition	Low	C5, C6, C7
External, all eaves and soffit lining	Flat Fibre Cement Sheet	Previous register - 7	Chrysotile asbestos detected	30m^2		Non-Friable	Limited Access	No	Good Condition	Low	C5, C6, C7
Internal, eastern wall - distribution cabinet, asbestos	Electrical backing board	NA - removed	-	-	-	-	-	-	-	-	-
Internal, north-east and southern awnings, soffit lining	Flat Fibre Cement Sheet	MR10/AS02	Chrysotile asbestos detected: Amosite asbestos detected	12m^2		Non-Friable	Restricted Access	No	Good Condition	Very Low	C5, C6, C7
External, under floor space	Dust and debris	NA - height restriction	Assumed to contain asbestos	NA		NA	Restricted Access	Yes	NA	Low	C4, C5, C6, C7

Location	Material type	Sample ID	Laboratory Result	Approximate Extent	Photograph	Friable / Non-friable	Accessibility	Labelled	Damage / Deterioration	Risk Rating	Control Measures
MR10 - Mortuary											
ASBESTOS MATERIALS											
Internal, roof space, hot water tank	Internal insulation	NA - visually inspected	Assumed to contain asbestos	1 unit		Friable	Restricted Access	No	Good Condition	Low	C4, C5, C6, C7
SMF MATERIALS											
Internal, roof space	Foil backed insulation (sarking)	NA - visually inspected	Assumed to contain SMF	60m^2		Non-Friable	Restricted Access	NA	High Damage	Low	C5, C6, C7
Internal, roof space	Insulation batts	NA - visually inspected	Assumed to contain SMF	60m^2		Friable	Restricted Access	NA	High Damage	High	C5, C6, C7
LEAD IN PAINT											
External, awning and eave linings	Peeling white paint	MR10/LP01	0.30% (greater than the criteria of 0.1%)	30m^2		NA	Limited Access	NA	Low Damage	Low	C8
External, timber trim to windows and doors	Peeling blue paint	MR10/LP02	0.20% (greater than the criteria of 0.1%)	10m^2		NA	Limited Access	NA	Low Damage	Low	C8

Location	Material type	Sample ID	Laboratory Result	Approximate Extent	Photograph	Friable / Non-friable	Accessibility	Labelled	Damage / Deterioration	Risk Rating	Control Measures
MR10 - Mortuary											
LEAD IN PAINT											
External, metal down pipes and gutters	Peeling red paint	MR10/LP03	0.24% (greater than the criteria of 0.1%)	10m^2		NA	Limited Access	NA	Low Damage	Low	C8
LEAD IN ACCUMULATED DUST											
Internal, roof space	Accumulated dust	MR10/LD01	0.389mg/m^2 (less than the adopted criteria of 8mg/m^2)	-	-	-	-	-	-	-	-
PCB CONTAINING ELECTRICAL EQUIPMENT											
Internal, throughout	Twin tube fluorescent light fittings	NA - Visually inspected	Of an age indicative of housing PCB containing capacitors	6+ units		NA	Restricted Access	NA	Good Condition	Very low	C10
ODS in AEROSOL PROPELLANTS											
No ODS in aerosol propellants were identified within the scope of the survey at the time of the inspection.											

MOREE HOSPITAL
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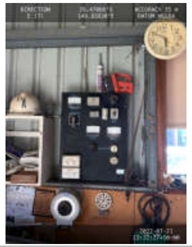
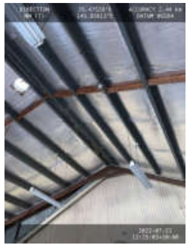
Location	Material type	Sample ID	Laboratory Result	Approximate Extent	Photograph	Friable / Non-friable	Accessibility	Labelled	Damage / Deterioration	Risk Rating	Control Measures
MR11 - Engineers Office											
ASBESTOS MATERIALS											
External, eave, soffit lining	Flat fibre cement sheeting	Previous register - 4	Chrysotile asbestos detected	8m^2		Non-Friable	Restricted Access	No	Good Condition	Very Low	C5, C6, C7
External, northern and part of the eastern and western eaves	Flat fibre cement sheeting	MR11/AS01	Chrysotile asbestos detected: Organic fibres detected	15m^2		Non-Friable	Restricted Access	No	Good Condition	Very Low	C5, C6, C7
Internal, meal room -south-east corner, electrical switchboard	Insulation Panel	HNELHD representative noted panel replaced due to fire									
SMF MATERIALS											
No suspected SMF materials were identified within the scope of the survey at the time of the inspection.											
LEAD IN PAINT											
No deteriorated paint systems were identified within the scpoe of the survey at the time of the inspection.											
LEAD IN ACCUMULATED DUST											
No settled dust was identified within the scope of the survey at the time of the inspection.											

Location	Material type	Sample ID	Laboratory Result	Approximate Extent	Photograph	Friable / Non-friable	Accessibility	Labelled	Damage / Deterioration	Risk Rating	Control Measures
MR11 - Engineers Office											
PCB CONTAINING ELECTRICAL EQUIPMENT											
No electrical equipment suspected of housing PCB containing capacitors were identified within the scope of the survey at the time of the inspection.											
ODS in AEROSOL PROPELLANTS											
No ODS in aerosol propellants were identified within the scope of the survey at the time of the inspection.											

MOREE HOSPITAL
Hazardous Building Materials Register - JULY-AUGUST 2022

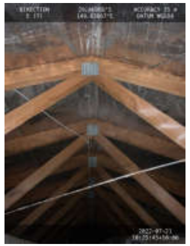
Location	Material type	Sample ID	Laboratory Result	Approximate Extent	Photograph	Friable / Non-friable	Accessibility	Labelled	Damage / Deterioration	Risk Rating	Control Measures
MR12 - Workshop											
ASBESTOS MATERIALS											
Internal, eastern wall, north eastern corner, electrical distribution board	Electrical backing board	NA - electrical hazard	Assumed to contain Asbestos	2 Units		Non-Friable	Restricted Access	No	Good Condition	Very Low	C4, C5, C6, C7
Internal, north western corner, office cladding	Fibre cement sheeting	MR12/AS01	No asbestos detected: Organic fibres detected	-	-	-	-	-	-	-	-
SMF MATERIALS											
Internal, ceiling throughout, sarking	Foil backed insulation	NA - Visually Inspected	Assumed to contain SMF	>100m^2		Non-Friable	Restricted Access	NA	Good Condition	Very Low	C5, C6, C7
LEAD IN PAINT											
No deteriorated paint systems were identified within the scpoe of the survey at the time of the inspection.											

Location	Material type	Sample ID	Laboratory Result	Approximate Extent	Photograph	Friable / Non-friable	Accessibility	Labelled	Damage / Deterioration	Risk Rating	Control Measures
MR12 - Workshop											
LEAD IN ACCUMULATED DUST											
Internal, general surfaces	Accumulated dust	MR12/LD01	4.11mg/m^2 (less than the adopted criteria of 8mg/m^2)	-	-	-	-	-	-	-	-
PCB CONTAINING ELECTRICAL EQUIPMENT											
Internal, throughout	Twin tube fluorescent light fittings	NA - Visually Inspected	Of an age indicative of housing PCB containing capacitors	10+ units		NA	Restricted Access	NA	Good Condition	Very Low	C10
ODS in AEROSOL PROPELLANTS											
No ODS in aerosol propellants were identified within the scope of the survey at the time of the inspection.											

MOREE HOSPITAL
Hazardous Building Materials Register - JULY-AUGUST 2022

Location	Material type	Sample ID	Laboratory Result	Approximate Extent	Photograph	Friable / Non-friable	Accessibility	Labelled	Damage / Deterioration	Risk Rating	Control Measures
MR14 - AG House Buildings											
ASBESTOS MATERIALS											
External, eave and verandah, soffit lining	Flat fibre cement sheeting	Previous register - MH09	Chrysotile asbestos detected	$50m^2$		Non-Friable	Restricted Access	No	Good Condition	Very Low	C5, C6, C7,
External, eaves and verandah, soffit lining	Flat fibre cement sheeting	MR14/AS01	Chrysotile asbestos detected: Organic fibres detected	$50m^2$		Non-Friable	Restricted Access	No	Good Condition	Very Low	C5, C6, C7,
Internal, toilet, wall linings	Flat fibre cement sheeting	MR14/AS03	Chrysotile asbestos detected: Organic fibres detected	$20m^2$		Non-Friable	Restricted Access	No	Good Condition	Very Low	C5, C6, C7,
Internal, shower room, wall linings	Flat fibre cement sheeting	Previous register - refer to MH10	Chrysotile asbestos detected	$10m^2$		Non-Friable	Restricted Access	No	Good Condition	Very Low	C5, C6, C7,

Location	Material type	Sample ID	Laboratory Result	Approximate Extent	Photograph	Friable / Non-friable	Accessibility	Labelled	Damage / Deterioration	Risk Rating	Control Measures
MR14 - AG House Buildings											
ASBESTOS MATERIALS											
Internal, kitchen wall lining (splashback)	Flat fibre cement sheeting	Previous register - refer to MH10	Chrysotile asbestos detected	1m^2		Non-Friable	Restricted Access	No	Good Condition	Very Low	C5, C6, C7,
Internal, laundry walls	Flat fibre cement sheeting	Previous register - refer to MH10	Chrysotile asbestos detected	8m^2		Non-Friable	Restricted Access	No	Good Condition	Very Low	C5, C6, C7,
External, gable end	Flat fibre cement sheeting	NA - height restriction	Assumed to contain asbestos	<2m^2		Non-Friable	Restricted Access	No	Good Condition	Very Low	C4, C5, C6, C7
Internal, kitchen and bathroom, floor covering	Vinyl sheeting (coloured white)	MR14/AS02	No asbestos detected: Organic fibres detected	-	-	-	-	-	-	-	-
SMF MATERIALS											
External, south eastern corner, water boiler	Internal insulation	NA - visually inspected	Assumed to contain SMF	1 Unit		Non-Friable	Restricted Access	NA	Good Condition	Very Low	C5, C6, C7,

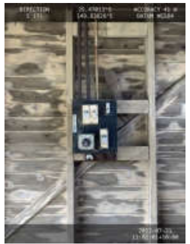
Location	Material type	Sample ID	Laboratory Result	Approximate Extent	Photograph	Friable / Non-friable	Accessibility	Labelled	Damage / Deterioration	Risk Rating	Control Measures
MR14 - AG House Buildings											
SMF MATERIALS											
Internal, ceiling space	Foil backed Insulation	NA - visually inspected	Assumed to contain SMF	>100m^2		Non-Friable	Restricted Access	NA	Good Condition	Very Low	C5, C6, C7,
Internal, ceiling space	SMF batts	NA - visually inspected	Assumed to contain SMF	>100m^2		Non-Friable	Restricted Access	NA	Good Condition	Very Low	C5, C6, C7,
Internal, ceiling space	Flexible ducted AC insulation	NA - visually inspected	Assumed to contain SMF	>100m^2		Non-Friable	Restricted Access	NA	Good Condition	Very Low	C5, C6, C7,
LEAD IN PAINT											
No deteriorated paint systems were identified within the scpoe of the survey at the time of the inspection.											
LEAD IN ACCUMULATED DUST											
Internal, ceiling space	Accumulated dust	MR14/LD01	0.68mg/m^2 (less than the adopted criteria of 8mg/m^2)	-	-	-	-	-	-	-	-

Location	Material type	Sample ID	Laboratory Result	Approximate Extent	Photograph	Friable / Non-friable	Accessibility	Labelled	Damage / Deterioration	Risk Rating	Control Measures
MR14 - AG House Buildings											
PCB CONTAINING ELECTRICAL EQUIPMENT											
Internal, throughout	Twin tube fluorescent light fittings	NA - visually Inspected	Of an age indicative of housing PCB containing capacitors	1 Unit		NA	Restricted Access	NA	Good Condition	Very Low	C10
Internal, throughout	Single tube fluorescent light fittings	NA - visually Inspected	Of an age indicative of housing PCB containing capacitors	5 Units		NA	Restricted Access	NA	Good Condition	Very Low	C10
ODS in AEROSOL PROPELLANTS											
No ODS in aerosol propellants were identified within the scope of the survey at the time of the inspection.											

MOREE HOSPITAL
Hazardous Building Materials Register - JULY-AUGUST 2022

Location	Material type	Sample ID	Laboratory Result	Approximate Extent	Photograph	Friable / Non-friable	Accessibility	Labelled	Damage / Deterioration	Risk Rating	Control Measures
MR15 - Barbeque Shed											
ASBESTOS MATERIALS											
No suspected asbestos containing materials were identified within the scope of the survey at the time of the inspection.											
SMF MATERIALS											
No suspected SMF materials were identified within the scope of the survey at the time of the inspection.											
LEAD IN PAINT											
External, timber beams throughout	Peeling white paint	MR15/LP01	0.01% (less than the criteria of 0.1%)	-	-	-	-	-	-	-	-
LEAD IN ACCUMULATED DUST											
No settled dust was identified within the scope of the survey at the time of the inspection.											
PCB CONTAINING ELECTRICAL EQUIPMENT											
Internal, throughout	Single tube fluorescent light fittings	NA - Visually Inspected	Of an age indicative of housing PCB containing capacitors	2 Units		NA	Limited Access	NA	Good Condition	Very Low	C10
ODS in AEROSOL PROPELLANTS											
No ODS in aerosol propellants were identified within the scope of the survey at the time of the inspection.											

MOREE HOSPITAL
Hazardous Building Materials Register - JULY-AUGUST 2022

Location	Material type	Sample ID	Laboratory Result	Approximate Extent	Photograph	Friable / Non-friable	Accessibility	Labelled	Damage / Deterioration	Risk Rating	Control Measures
MR16 - Tennis Shed											
ASBESTOS MATERIALS											
Internal, eastern wall, electrical distribution board	Electrical backing board	MR16/AS01	Chrysotile asbestos detected	1 Unit		Non-Friable	Restricted Access	No	Good Condition	Very Low	C5, C6, C7,
SMF MATERIALS											
No suspected SMF materials were identified within the scope of the survey at the time of the inspection.											
LEAD IN PAINT											
External, timber walls surrounding	Peeling white paint	MR16/LP01	2.7% (greater than the criteria of 0.1%)	40m^2		NA	Limited Access	NA	Low Damage	Low	C8
LEAD IN ACCUMULATED DUST											
No settled dust was identified within the scope of the survey at the time of the inspection.											

Location	Material type	Sample ID	Laboratory Result	Approximate Extent	Photograph	Friable / Non-friable	Accessibility	Labelled	Damage / Deterioration	Risk Rating	Control Measures
MR16 - Tennis Shed											
PCB CONTAINING ELECTRICAL EQUIPMENT											
No electrical equipment suspected of housing PCB containing capacitors were identified within the scope of the survey at the time of the inspection.											
ODS in AEROSOL PROPELLANTS											
No ODS in aerosol propellants were identified within the scope of the survey at the time of the inspection.											

MOREE HOSPITAL
Hazardous Building Materials Register - JULY-AUGUST 2022

Location	Material type	Sample ID	Laboratory Result	Approximate Extent	Photograph	Friable / Non-friable	Accessibility	Labelled	Damage / Deterioration	Risk Rating	Control Measures
MR17 - Emergency Generator											
ASBESTOS MATERIALS											
Internal, eastern wall, electrical distribution board	Electrical backing board	NA - electrical hazard	Assumed to contain asbestos	1 Unit		Non-Friable	Restricted Access	No	Good Condition	Very Low	C4, C5, C6, C7
SMF MATERIALS											
No suspected SMF materials were identified within the scope of the survey at the time of the inspection.											
LEAD IN PAINT											
No deteriorated paint systems were identified within the scpoe of the survey at the time of the inspection.											
LEAD IN ACCUMULATED DUST											
No settled dust was identified within the scope of the survey at the time of the inspection.											

Location	Material type	Sample ID	Laboratory Result	Approximate Extent	Photograph	Friable / Non-friable	Accessibility	Labelled	Damage / Deterioration	Risk Rating	Control Measures
MR17 - Emergency Generator											
PCB CONTAINING ELECTRICAL EQUIPMENT											
Internal, eastern and western walls	Twin tube fluorscent light fittings	NA - Visually Inspected	Of an age indicative of housing PCB containing capacitors	4 Units		NA	Restricted Access	NA	Good Condition	Very Low	C10
ODS in AEROSOL PROPELLANTS											
No ODS in aerosol propellants were identified within the scope of the survey at the time of the inspection.											

MOREE HOSPITAL
Hazardous Building Materials Register - JULY-AUGUST 2022

Location	Material type	Sample ID	Laboratory Result	Approximate Extent	Photograph	Friable / Non-friable	Accessibility	Labelled	Damage / Deterioration	Risk Rating	Control Measures
MR18 - Sub Station											
ASBESTOS MATERIALS											
No suspected asbestos containing materials were identified within the scope of the survey at the time of the inspection.											
SMF MATERIALS											
No suspected SMF materials were identified within the scope of the survey at the time of the inspection.											
LEAD IN PAINT											
External, southern wall, timber door	Peeling white paint	MR18/LP01	0.38% (greater than the criteria of 0.1%)	$2m^2$		NA	Limited Access	NA	Low Damage	Low	C8
External, eastern wall, timber window	Peeling white paint	Same as MR18/LP01	0.38% (greater than the criteria of 0.1%)	$1m^2$		NA	Limited Access	NA	Low Damage	Low	C8

Location	Material type	Sample ID	Laboratory Result	Approximate Extent	Photograph	Friable / Non-friable	Accessibility	Labelled	Damage / Deterioration	Risk Rating	Control Measures
MR18 - Sub Station											
LEAD IN ACCUMULATED DUST											
No settled dust was identified within the scope of the survey at the time of the inspection.											
PCB CONTAINING ELECTRICAL EQUIPMENT											
No electrical equipment suspected of housing PCB containing capacitors were identified within the scope of the survey at the time of the inspection.											
ODS in AEROSOL PROPELLANTS											
No ODS in aerosol propellants were identified within the scope of the survey at the time of the inspection.											

MOREE HOSPITAL
Hazardous Building Materials Register - JULY-AUGUST 2022

Location	Material type	Sample ID	Laboratory Result	Approximate Extent	Photograph	Friable / Non-friable	Accessibility	Labelled	Damage / Deterioration	Risk Rating	Control Measures
MR19 - Pump House											
ASBESTOS MATERIALS											
No suspected asbestos containing materials were identified within the scope of the survey at the time of the inspection.											
SMF MATERIALS											
No suspected SMF materials were identified within the scope of the survey at the time of the inspection.											
LEAD IN PAINT											
External, walls and gable ends	Peeling white paint	MR19/LP01	0.064% (less than the criteria of 0.1%)	-	-	-	-	-	-	-	-
External, timber framework around door and door	Peeling blue paint	MR19/LP02	0.067% (less than the criteria of 0.1%)	-	-	-	-	-	-	-	-
LEAD IN ACCUMULATED DUST											
No settled dust was identified within the scope of the survey at the time of the inspection.											
PCB CONTAINING ELECTRICAL EQUIPMENT											
No electrical equipment suspected of housing PCB containing capacitors were identified within the scope of the survey at the time of the inspection.											
ODS in AEROSOL PROPELLANTS											
No ODS in aerosol propellants were identified within the scope of the survey at the time of the inspection.											

MOREE HOSPITAL Hazardous Building Materials Register - JULY-AUGUST 2022											
Location	**Material type**	**Sample ID**	**Laboratory Result**	**Approximate Extent**	**Photograph**	**Friable / Non-friable**	**Accessibility**	**Labelled**	**Damage / Deterioration**	**Risk Rating**	**Control Measures**
MR20 - Flammable Liquid Store											
ASBESTOS MATERIALS											
No suspected asbestos containing materials were identified within the scope of the survey at the time of the inspection.											
SMF MATERIALS											
No suspected SMF materials were identified within the scope of the survey at the time of the inspection.											
LEAD IN PAINT											
No deteriorated paint systems were identified within the scpoe of the survey at the time of the inspection.											
LEAD IN ACCUMULATED DUST											
No settled dust was identified within the scope of the survey at the time of the inspection.											
PCB CONTAINING ELECTRICAL EQUIPMENT											
No electrical equipment suspected of housing PCB containing capacitors were identified within the scope of the survey at the time of the inspection.											
ODS in AEROSOL PROPELLANTS											
No ODS in aerosol propellants were identified within the scope of the survey at the time of the inspection.											

MOREE HOSPITAL
Hazardous Building Materials Register - JULY-AUGUST 2022

Location	Material type	Sample ID	Laboratory Result	Approximate Extent	Photograph	Friable / Non-friable	Accessibility	Labelled	Damage / Deterioration	Risk Rating	Control Measures
MR21 - High Tank Shed											
ASBESTOS MATERIALS											
No suspected asbestos containing materials were identified within the scope of the survey at the time of the inspection.											
SMF MATERIALS											
No suspected SMF materials were identified within the scope of the survey at the time of the inspection.											
LEAD IN PAINT											
No deteriorated paint systems were identified within the scpoe of the survey at the time of the inspection.											
LEAD IN ACCUMULATED DUST											
No settled dust was identified within the scope of the survey at the time of the inspection.											
PCB CONTAINING ELECTRICAL EQUIPMENT											
No electrical equipment suspected of housing PCB containing capacitors were identified within the scope of the survey at the time of the inspection.											
ODS in AEROSOL PROPELLANTS											
No ODS in aerosol propellants were identified within the scope of the survey at the time of the inspection.											

MOREE HOSPITAL
Hazardous Building Materials Register - JULY-AUGUST 2022

Location	Material type	Sample ID	Laboratory Result	Approximate Extent	Photograph	Friable / Non-friable	Accessibility	Labelled	Damage / Deterioration	Risk Rating	Control Measures
MR22 - Bus Port											
ASBESTOS MATERIALS											
No suspected asbestos containing materials were identified within the scope of the survey at the time of the inspection.											
SMF MATERIALS											
No suspected SMF materials were identified within the scope of the survey at the time of the inspection.											
LEAD IN PAINT											
No deteriorated paint systems were identified within the scpoe of the survey at the time of the inspection.											
LEAD IN ACCUMULATED DUST											
No settled dust was identified within the scope of the survey at the time of the inspection.											
PCB CONTAINING ELECTRICAL EQUIPMENT											
No electrical equipment suspected of housing PCB containing capacitors were identified within the scope of the survey at the time of the inspection.											
ODS in AEROSOL PROPELLANTS											
No ODS in aerosol propellants were identified within the scope of the survey at the time of the inspection.											

MOREE HOSPITAL
Hazardous Building Materials Register - JULY-AUGUST 2022

Location	Material type	Sample ID	Laboratory Result	Approximate Extent	Photograph	Friable / Non-friable	Accessibility	Labelled	Damage / Deterioration	Risk Rating	Control Measures
MR23 - LPG Tanks											
ASBESTOS MATERIALS											
No suspected asbestos containing materials were identified within the scope of the survey at the time of the inspection.											
SMF MATERIALS											
No suspected SMF materials were identified within the scope of the survey at the time of the inspection.											
LEAD IN PAINT											
No deteriorated paint systems were identified within the scpoe of the survey at the time of the inspection.											
LEAD IN ACCUMULATED DUST											
No settled dust was identified within the scope of the survey at the time of the inspection.											
PCB CONTAINING ELECTRICAL EQUIPMENT											
No electrical equipment suspected of housing PCB containing capacitors were identified within the scope of the survey at the time of the inspection.											
ODS in AEROSOL PROPELLANTS											
No ODS in aerosol propellants were identified within the scope of the survey at the time of the inspection.											

MOREE HOSPITAL
Hazardous Building Materials Register - JULY-AUGUST 2022

Location	Material type	Sample ID	Laboratory Result	Approximate Extent	Photograph	Friable / Non-friable	Accessibility	Labelled	Damage / Deterioration	Risk Rating	Control Measures
MR24 - Maintenance Car Port											
ASBESTOS MATERIALS											
No suspected asbestos containing materials were identified within the scope of the survey at the time of the inspection.											
SMF MATERIALS											
No suspected SMF materials were identified within the scope of the survey at the time of the inspection.											
LEAD IN PAINT											
No deteriorated paint systems were identified within the scpoe of the survey at the time of the inspection.											
LEAD IN ACCUMULATED DUST											
No settled dust was identified within the scope of the survey at the time of the inspection.											
PCB CONTAINING ELECTRICAL EQUIPMENT											
No electrical equipment suspected of housing PCB containing capacitors were identified within the scope of the survey at the time of the inspection.											
ODS in AEROSOL PROPELLANTS											
No ODS in aerosol propellants were identified within the scope of the survey at the time of the inspection.											

MOREE HOSPITAL
Hazardous Building Materials Register - JULY-AUGUST 2022

Location	Material type	Sample ID	Laboratory Result	Approximate Extent	Photograph	Friable / Non-friable	Accessibility	Labelled	Damage / Deterioration	Risk Rating	Control Measures
MR25 - Incinerator											
ASBESTOS MATERIALS											
Internal, bin storage, south-eastern corner, metal-encased pipework	Thermal insulation to pipework	Previous register - 23	Amosite asbestos detected	10lm		Friable	Restricted Access	No	Good Condition	Low	C4, C5, C6, C7,
Internal, incinerator door lining	Rope	MR25/AS01	No asbestos detected: Synthetic mineral fibres detected	-	-	-	-	-	-	-	-
SMF MATERIALS											
Internal, incinerator door lining	Rope	MR25/AS01	No asbestos detected: Synthetic mineral fibres detected	1lm		Friable	Restricted Access	NA	Good Condition	Low	C3, C6, C7
LEAD IN PAINT											
External, walls surrounding	Peeling white paint	MR25/LP01	0.16% (greater than the criteria of 0.1%)	$40m^2$		NA	Restricted Access	No	Low Damage	Low	C8

Location	Material type	Sample ID	Laboratory Result	Approximate Extent	Photograph	Friable / Non-friable	Accessibility	Labelled	Damage / Deterioration	Risk Rating	Control Measures
MR25 - Incinerator											
LEAD IN PAINT											
External, timber and roof	Peeling blue paint	MR25/LP02	0.12% (greater than the criteria of 0.1%)	20m^2		NA	Restricted Access	No	Low Damage	Low	C8
LEAD IN ACCUMULATED DUST											
No settled dust was identified within the scope of the survey at the time of the inspection.											
PCB CONTAINING ELECTRICAL EQUIPMENT											
Internal, throughout	Single tube fluorescent light fittings	NA - visually inspected	Of an age indicative of housing PCB containing capacitors	2 Units		NA	Restricted Access	NA	Good Condition	Very Low	C10
ODS in AEROSOL PROPELLANTS											
No ODS in aerosol propellants were identified within the scope of the survey at the time of the inspection.											

MOREE HOSPITAL
Hazardous Building Materials Register - JULY-AUGUST 2022

Location	Material type	Sample ID	Laboratory Result	Approximate Extent	Photograph	Friable / Non-friable	Accessibility	Labelled	Damage / Deterioration	Risk Rating	Control Measures
MR26 - Fire Booster Shed											
ASBESTOS MATERIALS											
External, wall cladding	Fibre cement sheeting	MR26/AS02	Chrysotile asbestos detected: Organic fibres detected	30m^2		Non-Friable	Limited Access	No	Good Condition	Low	C5, C6, C7
External, eastern wall, eave soffit lining	Fibre cement sheeting	MR26/AS01	Chrysotile asbestos detected: Organic fibres detected	12m^2		Non-Friable	Restricted Access	No	Good Condition	Very Low	C5, C6, C7
Internal, dividing wall	Fibre reinforced cement	Previous register - 3	Chrysotile asbestos detected	2.5m^2	No photograph	Non-Friable	Restricted Access	No	Good Condition	Very Low	C5, C6, C7

Location	Material type	Sample ID	Laboratory Result	Approximate Extent	Photograph	Friable / Non-friable	Accessibility	Labelled	Damage / Deterioration	Risk Rating	Control Measures
MR26 - Fire Booster Shed											
ASBESTOS MATERIALS											
Internal, central dividing wall, lining	Fibre cement sheeting	Same as MR26/AS01	Chrysotile asbestos detected: Organic fibres detected	$8m^2$		Non-Friable	Restricted Access	No	Good Condition	Very Low	C5, C6, C7
SMF MATERIALS											
No suspected SMF materials were identified within the scope of the survey at the time of the inspection.											
LEAD IN PAINT											
External, walls surrounding	Peeling white paint	MR26/LP01	0.12% (greater than the criteria of 0.1%)	$30m^2$		NA	Limited Access	NA	Low Damage	Low	C8
External, timber gutter and window frames	Peeling blue paint	MR26/LP02	0.18% (greater than the criteria of 0.1%)	$10m^2$		NA	Limited Access	NA	Low Damage	Low	C8
LEAD IN ACCUMULATED DUST											
No accumulated dust identified at the time of the inspection.											

Location	Material type	Sample ID	Laboratory Result	Approximate Extent	Photograph	Friable / Non-friable	Accessibility	Labelled	Damage / Deterioration	Risk Rating	Control Measures
MR26 - Fire Booster Shed											
PCB CONTAINING ELECTRICAL EQUIPMENT											
No electrical equipment suspected of housing PCB containing capacitors identified at the time of the inspection.											
ODS in AEROSOL PROPELLANTS											
No ODS in aerosol propellants were identified within the scope of the survey at the time of the inspection.											

MOREE HOSPITAL
Hazardous Building Materials Register - JULY-AUGUST 2022

Location	Material type	Sample ID	Laboratory Result	Approximate Extent	Photograph	Friable / Non-friable	Accessibility	Labelled	Damage / Deterioration	Risk Rating	Control Measures
MR27 - Back Flow Shed											
ASBESTOS MATERIALS											
External, southern wall, electrical distribution board	Electrical distribution board	NA - electrical hazard	Assumed to contain asbestos	$1m^2$		Non-Friable	Limited Access	No	Good Condition	Low	C4, C5, C6, C7
External, pipework, flange joints	Gasket	MR27/AS01	No asbestos detected: Organic fibres detected	-	-	-	-	-	-	-	-

SMF MATERIALS

No suspected SMF materials were identified within the scope of the survey at the time of the inspection.

LEAD IN PAINT

No deteriorated paint systems were identified within the scpoe of the survey at the time of the inspection.

LEAD IN ACCUMULATED DUST

No settled dust was identified within the scope of the survey at the time of the inspection.

PCB CONTAINING ELECTRICAL EQUIPMENT

No electrical equipment suspected of housing PCB containing capacitors were identified within the scope of the survey at the time of the inspection.

ODS in AEROSOL PROPELLANTS

No ODS in aerosol propellants were identified within the scope of the survey at the time of the inspection.

MOREE HOSPITAL
Hazardous Building Materials Register - JULY-AUGUST 2022

Location	Material type	Sample ID	Laboratory Result	Approximate Extent	Photograph	Friable / Non-friable	Accessibility	Labelled	Damage / Deterioration	Risk Rating	Control Measures
MR29 - Aboriginal Shade Shelter											
ASBESTOS MATERIALS											
No suspected asbestos containing materials were identified within the scope of the survey at the time of the inspection.											
SMF MATERIALS											
No suspected SMF materials were identified within the scope of the survey at the time of the inspection.											
LEAD IN PAINT											
No deteriorated paint systems were identified within the scpoe of the survey at the time of the inspection.											
LEAD IN ACCUMULATED DUST											
No settled dust was identified within the scope of the survey at the time of the inspection.											
PCB CONTAINING ELECTRICAL EQUIPMENT											
No electrical equipment suspected of housing PCB containing capacitors were identified within the scope of the survey at the time of the inspection.											
ODS in AEROSOL PROPELLANTS											
No ODS in aerosol propellants were identified within the scope of the survey at the time of the inspection.											

MOREE HOSPITAL
Hazardous Building Materials Register - JULY-AUGUST 2022

<table>
<tr><th>Location</th><th>Material type</th><th>Sample ID</th><th>Laboratory Result</th><th>Approximate Extent</th><th>Photograph</th><th>Friable / Non-friable</th><th>Accessibility</th><th>Labelled</th><th>Damage / Deterioration</th><th>Risk Rating</th><th>Control Measures</th></tr>
<tr><td colspan="12">MR30 - Staff Shade Shelter</td></tr>
<tr><td colspan="12">ASBESTOS MATERIALS</td></tr>
<tr><td colspan="12">No suspected asbestos containing materials were identified within the scope of the survey at the time of the inspection.</td></tr>
<tr><td colspan="12">SMF MATERIALS</td></tr>
<tr><td colspan="12">No suspected SMF materials were identified within the scope of the survey at the time of the inspection.</td></tr>
<tr><td colspan="12">LEAD IN PAINT</td></tr>
<tr><td colspan="12">No deteriorated paint systems were identified within the scpoe of the survey at the time of the inspection.</td></tr>
<tr><td colspan="12">LEAD IN ACCUMULATED DUST</td></tr>
<tr><td colspan="12">No settled dust was identified within the scope of the survey at the time of the inspection.</td></tr>
<tr><td colspan="12">PCB CONTAINING ELECTRICAL EQUIPMENT</td></tr>
<tr><td colspan="12">No electrical equipment suspected of housing PCB containing capacitors were identified within the scope of the survey at the time of the inspection.</td></tr>
<tr><td colspan="12">ODS in AEROSOL PROPELLANTS</td></tr>
<tr><td colspan="12">No ODS in aerosol propellants were identified within the scope of the survey at the time of the inspection.</td></tr>
</table>

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Location	Material type	Sample ID	Laboratory Result	Approximate Extent	Photograph	Friable / Non-friable	Accessibility	Labelled	Damage / Deterioration	Risk Rating	Control Measures
MR31 - Chiller Shed											
ASBESTOS MATERIALS											
External, northern and southern walls, gable ends	Fibre cement sheeting	MR31/AS01	No asbestos detected: Organic fibres detected	-	-	-	-	-	-	-	-
External, eastern and western walls, eaves	Fibre cement sheeting	Same as MR31/AS01	No asbestos detected: Organic fibres detected	-	-	-	-	-	-	-	-
External, western wall, infill panel	Fibre cement sheeting	Same as MR31/AS01	No asbestos detected: Organic fibres detected	-	-	-	-	-	-	-	-
SMF MATERIALS											
No suspected SMF materials were identified within the scope of the survey at the time of the inspection.											
LEAD IN PAINT											
No deteriorated paint systems were identified within the scpoe of the survey at the time of the inspection.											
LEAD IN ACCUMULATED DUST											
No settled dust was identified within the scope of the survey at the time of the inspection.											
PCB CONTAINING ELECTRICAL EQUIPMENT											
No electrical equipment suspected of housing PCB containing capacitors were identified within the scope of the survey at the time of the inspection.											
ODS in AEROSOL PROPELLANTS											
No ODS in aerosol propellants were identified within the scope of the survey at the time of the inspection.											

MOREE HOSPITAL
Hazardous Building Materials Register - JULY-AUGUST 2022

Location	Material type	Sample ID	Laboratory Result	Approximate Extent	Photograph	Friable / Non-friable	Accessibility	Labelled	Damage / Deterioration	Risk Rating	Control Measures
MR32 - Bulk Oxygen Vessel											
ASBESTOS MATERIALS											
No suspected asbestos containing materials were identified within the scope of the survey at the time of the inspection.											
SMF MATERIALS											
No suspected SMF materials were identified within the scope of the survey at the time of the inspection.											
LEAD IN PAINT											
No deteriorated paint systems were identified within the scpoe of the survey at the time of the inspection.											
LEAD IN ACCUMULATED DUST											
No settled dust was identified within the scope of the survey at the time of the inspection.											
PCB CONTAINING ELECTRICAL EQUIPMENT											
No electrical equipment suspected of housing PCB containing capacitors were identified within the scope of the survey at the time of the inspection.											
ODS in AEROSOL PROPELLANTS											
No ODS in aerosol propellants were identified within the scope of the survey at the time of the inspection.											

Appendix C: Laboratory Report & COC Documents

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 302476

Client Details

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

Sample Details

Your Reference	**E35092BT, Moree**
Number of Samples	150 Material, 11 Swab, 18 Paint, 18 Paint, 4 Paint chip
Date samples received	05/08/2022
Date completed instructions received	05/08/2022

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	12/08/2022
Date of Issue	12/08/2022

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Asbestos Approved By
Analysed by Asbestos Approved Analyst: Wonnie Condos, Lucy Zhu
Authorised by Asbestos Approved Signatory: Lucy Zhu

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

Authorised By

Nancy Zhang, Laboratory Manager

Client Reference: E35092BT, Moree

Asbestos ID - materials						
Our Reference		302476-1	302476-2	302476-3	302476-4	302476-5
Your Reference	UNITS	MR01/AS1	MR01/AS2	MR01/AS3	MR01/AS4	MR01/AS5
Type of sample		Material	Material	Material	Material	Material
Date Sampled		03/08/2022	03/08/2022	03/08/2022	03/08/2022	03/08/2022
Date analysed	-	09/08/2022	09/08/2022	09/08/2022	09/08/2022	09/08/2022
Mass / Dimension of Sample	-	10x5x1mm	80x20x1mm	10x8x2mm	25x15x1mm	40x10x2mm
Sample Description	-	A)Grey fibre cement material B)Paint	Brown fibrous material	A)Beige fibre cement material B)Paint	Brown fibrous material	Black bituminous material
Asbestos ID in materials	-	A)Chrysotile asbestos detected B)No asbestos detected	No asbestos detected Organic fibres detected Synthetic mineral fibres detected	A)Chrysotile asbestos detected Amosite asbestos detected B)No asbestos detected	No asbestos detected Organic fibres detected Synthetic mineral fibres detected	Chrysotile asbestos detected
Trace Analysis	-	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected	[NT]

Asbestos ID - materials						
Our Reference		302476-6	302476-7	302476-8	302476-9	302476-10
Your Reference	UNITS	MR01/AS6	MR01/AS7	MR01/AS8	MR01/AS9	MR01/AS10
Type of sample		Material	Material	Material	Material	Material
Date Sampled		03/08/2022	03/08/2022	03/08/2022	03/08/2022	03/08/2022
Date analysed	-	09/08/2022	09/08/2022	09/08/2022	09/08/2022	09/08/2022
Mass / Dimension of Sample	-	10x8x1mm	5x5x2mm	8x4x1mm	5x5x1mm	5x5x1mm
Sample Description	-	White fibrous material	Grey hardened mastic	Pink fibrous material	Beige fibrous material	White fibrous material
Asbestos ID in materials	-	No asbestos detected Synthetic mineral fibres detected	No asbestos detected Organic fibres detected	Chrysotile asbestos detected Organic fibres detected	No asbestos detected Organic fibres detected	Amosite asbestos detected Organic fibres detected
Trace Analysis	-	No asbestos detected	No asbestos detected	[NT]	No asbestos detected	[NT]

Asbestos ID - materials						
Our Reference		302476-11	302476-12	302476-13	302476-14	302476-15
Your Reference	UNITS	MR01/AS11	MR01/AS12	MR01/AS13	MR01/AS14	MR01/AS15
Type of sample		Material	Material	Material	Material	Material
Date Sampled		03/08/2022	03/08/2022	03/08/2022	03/08/2022	03/08/2022
Date analysed	-	09/08/2022	09/08/2022	09/08/2022	09/08/2022	09/08/2022
Mass / Dimension of Sample	-	40x15x2mm	40x4x2mm	20x15x2mm	5x5x2mm	40x20x3mm
Sample Description	-	White vinyl sheet & adhesive	Black mastic material	A)Beige fibrous material B)Mastic	A)Grey fibre cement material B)Paint	Grey vinyl sheet & adhesive
Asbestos ID in materials	-	No asbestos detected Organic fibres detected	No asbestos detected Organic fibres detected	A)Chrysotile asbestos detected Organic fibres detected B)No asbestos detected	A)Chrysotile asbestos detected Organic fibres detected B)No asbestos detected	No asbestos detected Synthetic mineral fibres detected
Trace Analysis	-	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected

Asbestos ID - materials						
Our Reference		302476-16	302476-17	302476-18	302476-19	302476-20
Your Reference	UNITS	MR01/AS17	MR01/AS18	MR01/AS19	MR01/AS20	MR01/AS21
Type of sample		Material	Material	Material	Material	Material
Date Sampled		03/08/2022	03/08/2022	03/08/2022	03/08/2022	03/08/2022
Date analysed	-	09/08/2022	09/08/2022	09/08/2022	09/08/2022	09/08/2022
Mass / Dimension of Sample	-	60x60x3mm	15x10x1mm	20x15x3mm	80x40x2mm	5x5x1mm
Sample Description	-	Grey sand & debris	Yellow fibrous insulation & paint	White foam & render	Beige fibrous insulation	A)Beige fibrous material B)Paint
Asbestos ID in materials	-	No asbestos detected Organic fibres detected Synthetic mineral fibres detected	No asbestos detected Synthetic mineral fibres detected	No asbestos detected Organic fibres detected	Amosite asbestos detected Synthetic mineral fibres detected	A)Chrysotile asbestos detected Organic fibres detected B)No asbestos detected
Trace Analysis	-	No asbestos detected	No asbestos detected	No asbestos detected	[NT]	No asbestos detected

Asbestos ID - materials						
Our Reference		302476-21	302476-22	302476-23	302476-24	302476-25
Your Reference	UNITS	MR01/AS22	MR01/AS23	MR01/AS24	MR01/AS25	MR01/AS26
Type of sample		Material	Material	Material	Material	Material
Date Sampled		03/08/2022	03/08/2022	03/08/2022	03/08/2022	03/08/2022
Date analysed	-	09/08/2022	09/08/2022	09/08/2022	09/08/2022	09/08/2022
Mass / Dimension of Sample	-	10x10x2mm	3x2x1mm	15x15x3mm	5x5x1mm	2x2x1mm
Sample Description	-	Pink fibre cement material & paint	Brown laminated fibreboard	Pink fibre cement material & paint	A)Grey fibre cement material B)Paint	A)Beige fibre cement material B)Paint
Asbestos ID in materials	-	No asbestos detected Organic fibres detected	No asbestos detected Organic fibres detected	No asbestos detected Organic fibres detected	A)Chrysotile asbestos detected Organic fibres detected B)No asbestos detected	A)Chrysotile asbestos detected B)No asbestos detected
Trace Analysis	-	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected

Asbestos ID - materials						
Our Reference		302476-26	302476-27	302476-29	302476-30	302476-31
Your Reference	UNITS	MR01/AS27	MR01/AS28	MR01/AS01	MR02/AS02	MR02/AS03
Type of sample		Material	Material	Material	Material	Material
Date Sampled		03/08/2022	03/08/2022	02/08/2022	02/08/2022	02/08/2022
Date analysed	-	09/08/2022	09/08/2022	09/08/2022	09/08/2022	09/08/2022
Mass / Dimension of Sample	-	4x4x1mm	20x20x1mm	25x20x2mm	30x30x2mm	15x15x2mm
Sample Description	-	A)Grey fibre cement material B)Paint	Beige fibre cement material & paint	Beige fibre cement material & paint	Beige fibre cement material & paint	Beige fibre cement material & paint
Asbestos ID in materials	-	A)Chrysotile asbestos detected B)No asbestos detected	No asbestos detected Organic fibres detected	No asbestos detected Organic fibres detected	No asbestos detected Organic fibres detected	No asbestos detected Organic fibres detected
Trace Analysis	-	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected

Asbestos ID - materials						
Our Reference	UNITS	302476-32	302476-34	302476-35	302476-36	302476-37
Your Reference		MR02/AS04	MR03/AS01	MR03/AS02	MR03/AS03	MR03/AS04
Type of sample		Material	Material	Material	Material	Material
Date Sampled		02/08/2022	01/08/2022	01/08/2022	01/08/2022	01/08/2022
Date analysed	-	10/08/2022	10/08/2022	10/08/2022	10/08/2022	10/08/2022
Mass / Dimension of Sample	-	45x20x2mm	11x5x5mm	110x22x3mm	30x20x2mm	42x25x2mm
Sample Description	-	White vinyl sheet & adhesive	Grey fibre cement material	White vinyl sheet & adhesive	White vinyl tile & adhesive	Grey vinyl tile & adhesive
Asbestos ID in materials	-	No asbestos detected	Chrysotile asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected
Trace Analysis	-	No asbestos detected	[NT]	No asbestos detected	No asbestos detected	No asbestos detected

Asbestos ID - materials						
Our Reference	UNITS	302476-38	302476-39	302476-40	302476-41	302476-42
Your Reference		MR03/AS05	MR03/AS06	MR03/AS07	MR03/AS08	MR03/AS09
Type of sample		Material	Material	Material	Material	Material
Date Sampled		01/08/2022	01/08/2022	01/08/2022	01/08/2022	01/08/2022
Date analysed	-	10/08/2022	10/08/2022	10/08/2022	10/08/2022	10/08/2022
Mass / Dimension of Sample	-	22x7x2mm	10x8x1mm	10x8x1mm	8x6x1mm	50x28x2mm
Sample Description	-	Pink fibre cement material & paint	Grey fibre cement material	Grey fibre cement material	Grey fibre cement material	Beige vinyl tile & adhesive
Asbestos ID in materials	-	No asbestos detected Organic fibres detected	Chrysotile asbestos detected	Chrysotile asbestos detected	Chrysotile asbestos detected	No asbestos detected
Trace Analysis	-	No asbestos detected	[NT]	[NT]	[NT]	No asbestos detected

Asbestos ID - materials						
Our Reference		302476-43	302476-44	302476-45	302476-46	302476-47
Your Reference	UNITS	MR03/AS10	MR03/AS11	MR03/AS12	MR03/AS13	MR03/AS14
Type of sample		Material	Material	Material	Material	Material
Date Sampled		01/08/2022	01/08/2022	01/08/2022	01/08/2022	01/08/2022
Date analysed	-	10/08/2022	10/08/2022	10/08/2022	10/08/2022	10/08/2022
Mass / Dimension of Sample	-	15x10x4mm	8x6x1mm	5x5x1mm	5x5x1mm	57x25x2mm
Sample Description	-	Beige fibre cement material	Grey fibre cement material	Grey fibre cement material	Grey fibre cement material	A)Beige vinyl sheet B)Fibrous backing
Asbestos ID in materials	-	No asbestos detected Organic fibres detected	Chrysotile asbestos detected	Chrysotile asbestos detected Crocidolite asbestos detected	Chrysotile asbestos detected Crocidolite asbestos detected	A)No asbestos detected B)Chrysotile asbestos detected Organic fibres detected
Trace Analysis	-	No asbestos detected	[NT]	[NT]	[NT]	No asbestos detected

Asbestos ID - materials						
Our Reference		302476-48	302476-49	302476-50	302476-51	302476-52
Your Reference	UNITS	MR03/AS15	MR03/AS16	MR03/AS17	MR03/AS18	MR03/AS19
Type of sample		Material	Material	Material	Material	Material
Date Sampled		01/08/2022	01/08/2022	01/08/2022	01/08/2022	01/08/2022
Date analysed	-	10/08/2022	10/08/2022	10/08/2022	10/08/2022	10/08/2022
Mass / Dimension of Sample	-	5x3x1mm	5x5x1mm	40x35x2mm	50x20x2mm	35x13x5mm
Sample Description	-	Grey fibre cement material	Grey fibre cement material	Blue vinyl tile & adhesive	A)Grey fibre cement material B)Paint	Grey fibre cement material
Asbestos ID in materials	-	Chrysotile asbestos detected	Chrysotile asbestos detected	No asbestos detected Organic fibres detected	A)Chrysotile asbestos detected Amosite asbestos detected Crocidolite asbestos detected B)No asbestos detected	Chrysotile asbestos detected Amosite asbestos detected Crocidolite asbestos detected
Trace Analysis	-	[NT]	[NT]	No asbestos detected	No asbestos detected	[NT]

Asbestos ID - materials						
Our Reference		302476-53	302476-54	302476-55	302476-56	302476-57
Your Reference	UNITS	MR03/AS20	MR03/AS21	MR03/AS22	MR03/AS23	MR03/AS24
Type of sample		Material	Material	Material	Material	Material
Date Sampled		01/08/2022	01/08/2022	01/08/2022	01/08/2022	01/08/2022
Date analysed	-	10/08/2022	10/08/2022	10/08/2022	10/08/2022	10/08/2022
Mass / Dimension of Sample	-	12x7x2mm	13x10x2mm	35x25x5mm	15x11x4mm	10x8x1mm
Sample Description	-	Grey fibre cement material	Grey fibre cement material	Grey fibre cement material	Beige fibre cement material	Grey fibre cement material
Asbestos ID in materials	-	Chrysotile asbestos detected Amosite asbestos detected Crocidolite asbestos detected	Chrysotile asbestos detected	Chrysotile asbestos detected Amosite asbestos detected	Chrysotile asbestos detected	Chrysotile asbestos detected
Trace Analysis	-	[NT]	[NT]	[NT]	[NT]	[NT]

Asbestos ID - materials						
Our Reference		302476-58	302476-59	302476-60	302476-61	302476-64
Your Reference	UNITS	MR03/AS25	MR03/AS28	MR03/AS26	MR03/AS27	MR04/AS01
Type of sample		Material	Material	Material	Material	Material
Date Sampled		01/08/2022	01/08/2022	01/08/2022	01/08/2022	01/08/2022
Date analysed	-	10/08/2022	10/08/2022	10/08/2022	10/08/2022	10/08/2022
Mass / Dimension of Sample	-	25x13x3mm	15x10x2mm	35x22x5mm	50x30x2mm	76x46x2mm
Sample Description	-	Grey fibre cement material	Yellow vitreous fibrous insulation	Beige fibre cement material	White fibrous insulation	Grey vinyl tile & adhesive
Asbestos ID in materials	-	Chrysotile asbestos detected Amosite asbestos detected Crocidolite asbestos detected	No asbestos detected Synthetic mineral fibres detected	Chrysotile asbestos detected	Amosite asbestos detected Synthetic mineral fibres detected	No asbestos detected
Trace Analysis	-	[NT]	No asbestos detected	[NT]	[NT]	No asbestos detected

Asbestos ID - materials						
Our Reference		302476-65	302476-66	302476-67	302476-68	302476-69
Your Reference	UNITS	MR04/AS02	MR04/AS03	MR04/AS04	MR04/AS05	MR04/AS06
Type of sample		Material	Material	Material	Material	Material
Date Sampled		01/08/2022	01/08/2022	01/08/2022	01/08/2022	01/08/2022
Date analysed	-	10/08/2022	10/08/2022	10/08/2022	10/08/2022	10/08/2022
Mass / Dimension of Sample	-	88x38x2mm	83x40x2mm	20x8x5mm	10x10x1mm	85x30x2mm
Sample Description	-	Blue vinyl tile & adhesive	Beige vinyl tile & adhesive	Beige fibre cement material	Beige fibre cement material	Blue vinyl tile & adhesive
Asbestos ID in materials	-	No asbestos detected	No asbestos detected	No asbestos detected Organic fibres detected	Chrysotile asbestos detected Organic fibres detected	No asbestos detected
Trace Analysis	-	No asbestos detected	No asbestos detected	No asbestos detected	[NT]	No asbestos detected

Asbestos ID - materials						
Our Reference		302476-70	302476-71	302476-72	302476-74	302476-75
Your Reference	UNITS	MR04/AS07	MR04/AS08	MR04/AS09	MR05/AS01	MR05/AS02
Type of sample		Material	Material	Material	Material	Material
Date Sampled		01/08/2022	01/08/2022	01/08/2022	01/08/2022	01/08/2022
Date analysed	-	10/08/2022	10/08/2022	10/08/2022	10/08/2022	10/08/2022
Mass / Dimension of Sample	-	55x40x5mm	34x25x5mm	129x78x2mm	45x30x2mm	75x57x2mm
Sample Description	-	Grey fibre cement material	Grey fibre cement material	Blue vinyl tile	A)Beige vinyl tile B)Fibrous backing	Beige vinyl tile
Asbestos ID in materials	-	Chrysotile asbestos detected Amosite asbestos detected	Chrysotile asbestos detected Amosite asbestos detected	No asbestos detected	A)No asbestos detected B)Chrysotile asbestos detected Organic fibres detected	No asbestos detected
Trace Analysis	-	[NT]	[NT]	No asbestos detected	No asbestos detected	No asbestos detected

Asbestos ID - materials						
Our Reference		302476-76	302476-77	302476-78	302476-79	302476-80
Your Reference	UNITS	MR05/AS03	MR05/AS04	MR05/AS05	MR05/AS06	MR05/AS07
Type of sample		Material	Material	Material	Material	Material
Date Sampled		01/08/2022	01/08/2022	01/08/2022	01/08/2022	01/08/2022
Date analysed	-	10/08/2022	10/08/2022	10/08/2022	10/08/2022	10/08/2022
Mass / Dimension of Sample	-	15x10x1mm	55x25x4mm	30x18x5mm	15x8x5mm	5x5x1mm
Sample Description	-	Beige fibre cement material	Blue vinyl tile & adhesive	Grey fibre cement material	Beige fibre cement material	Grey fibre cement material
Asbestos ID in materials	-	Chrysotile asbestos detected	No asbestos detected	Chrysotile asbestos detected	No asbestos detected Organic fibres detected	Chrysotile asbestos detected
Trace Analysis	-	[NT]	No asbestos detected	[NT]	No asbestos detected	[NT]

Asbestos ID - materials						
Our Reference		302476-81	302476-82	302476-83	302476-84	302476-85
Your Reference	UNITS	MR05/AS08	MR05/AS09	MR05/AS10	MR05/AS11	MR05/AS12
Type of sample		Material	Material	Material	Material	Material
Date Sampled		01/08/2022	01/08/2022	01/08/2022	01/08/2022	01/08/2022
Date analysed	-	10/08/2022	10/08/2022	10/08/2022	10/08/2022	10/08/2022
Mass / Dimension of Sample	-	22x12x8mm	20x10x2mm	5x2x1mm	25x20x4mm	23x20x4mm
Sample Description	-	Beige plaster material	Beige fibre cement material	Beige fibrous material	Beige hardened mastic	Beige fibre cement material
Asbestos ID in materials	-	No asbestos detected	Chrysotile asbestos detected Organic fibres detected	No asbestos detected Organic fibres detected	No asbestos detected	No asbestos detected Organic fibres detected
Trace Analysis	-	No asbestos detected	[NT]	No asbestos detected	No asbestos detected	No asbestos detected

Asbestos ID - materials						
Our Reference		302476-86	302476-87	302476-88	302476-89	302476-90
Your Reference	UNITS	MR05/AS13	MR05/AS14	MR05/AS15	MR05/AS16	MR05/AS17
Type of sample		Material	Material	Material	Material	Material
Date Sampled		01/08/2022	01/08/2022	01/08/2022	02/08/2022	02/08/2022
Date analysed	-	10/08/2022	10/08/2022	10/08/2022	10/08/2022	10/08/2022
Mass / Dimension of Sample	-	22x18x2mm	30x30x4mm	13x13x4mm	15x7x3mm	25x13x5mm
Sample Description	-	Beige fibre cement material	Beige fibre cement material	Beige fibre cement material	Grey fibre cement material	Grey fibre cement material
Asbestos ID in materials	-	Chrysotile asbestos detected Organic fibres detected	Chrysotile asbestos detected Amosite asbestos detected	Chrysotile asbestos detected	Chrysotile asbestos detected	Chrysotile asbestos detected
Trace Analysis	-	[NT]	[NT]	[NT]	[NT]	[NT]

Asbestos ID - materials						
Our Reference		302476-91	302476-92	302476-93	302476-94	302476-95
Your Reference	UNITS	MR05/AS18	MR05/AS19	MR05/AS20	MR05/AS21	MR05/AS22
Type of sample		Material	Material	Material	Material	Material
Date Sampled		02/08/2022	02/08/2022	02/08/2022	02/08/2022	02/08/2022
Date analysed	-	10/08/2022	10/08/2022	10/08/2022	10/08/2022	10/08/2022
Mass / Dimension of Sample	-	15x10x5mm	25x16x3mm	12x7x1mm	10x10x1mm	40x20x5mm
Sample Description	-	Beige fibre cement material	Brown fibrous matted material	Beige fibre cement material	Grey fibre cement material	Beige fibre cement material
Asbestos ID in materials	-	No asbestos detected Organic fibres detected	No asbestos detected Organic fibres detected	Chrysotile asbestos detected Organic fibres detected	Chrysotile asbestos detected	No asbestos detected Organic fibres detected
Trace Analysis	-	No asbestos detected	No asbestos detected	[NT]	[NT]	No asbestos detected

Asbestos ID - materials						
Our Reference		302476-96	302476-97	302476-98	302476-99	302476-100
Your Reference	UNITS	MR05/AS23	MR05/AS24	MR05/AS25	MR05/AS26	MR05/AS27
Type of sample		Material	Material	Material	Material	Material
Date Sampled		02/08/2022	02/08/2022	02/08/2022	02/08/2022	02/08/2022
Date analysed	-	11/08/2022	11/08/2022	11/08/2022	11/08/2022	11/08/2022
Mass / Dimension of Sample	-	20x10x2mm	15x8x1mm	53x23x2mm	5x5x1mm	8x5x1mm
Sample Description	-	Beige fibre cement material	Beige fibre cement material	Green vinyl tile & adhesive	Grey fibre cement material	Beige fibre cement material
Asbestos ID in materials	-	No asbestos detected Organic fibres detected	Chrysotile asbestos detected Organic fibres detected	No asbestos detected Organic fibres detected	Chrysotile asbestos detected Amosite asbestos detected	No asbestos detected Organic fibres detected
Trace Analysis	-	No asbestos detected	[NT]	No asbestos detected	[NT]	No asbestos detected

Asbestos ID - materials						
Our Reference		302476-101	302476-105	302476-106	302476-107	302476-108
Your Reference	UNITS	MR05/AS28	MR06/AS01	MR06/AS02	MR06/AS03	MR06/AS04
Type of sample		Material	Material	Material	Material	Material
Date Sampled		02/08/2022	02/08/2022	02/08/2022	02/08/2022	02/08/2022
Date analysed	-	11/08/2022	11/08/2022	11/08/2022	11/08/2022	11/08/2022
Mass / Dimension of Sample	-	8x5x1mm	13x10x1mm	75x20x10mm	30x20x2mm	15x15x1mm
Sample Description	-	Grey fibre cement material	Grey fibre cement material	Beige hardened mastic	Grey vinyl tile & adhesive	Beige fibre cement material
Asbestos ID in materials	-	Chrysotile asbestos detected Amosite asbestos detected	Chrysotile asbestos detected Amosite asbestos detected Crocidolite asbestos detected	No asbestos detected	No asbestos detected	Chrysotile asbestos detected Organic fibres detected
Trace Analysis	-	[NT]	[NT]	No asbestos detected	No asbestos detected	[NT]

Asbestos ID - materials						
Our Reference	UNITS	302476-109	302476-110	302476-111	302476-112	302476-113
Your Reference		MR06/AS05	MR06/AS06	MR06/AS07	MR06/AS08	MR06/AS09
Type of sample		Material	Material	Material	Material	Material
Date Sampled		02/08/2022	02/08/2022	02/08/2022	02/08/2022	02/08/2022
Date analysed	-	11/08/2022	11/08/2022	11/08/2022	11/08/2022	11/08/2022
Mass / Dimension of Sample	-	5x5x1mm	10x6x1mm	7x4x1mm	13x5x1mm	25x20x3mm
Sample Description	-	Grey fibre cement material	Grey fibre cement material	Grey fibre cement material	Beige fibre cement material	Beige fibre cement material
Asbestos ID in materials	-	Chrysotile asbestos detected Amosite asbestos detected Crocidolite asbestos detected	Chrysotile asbestos detected Amosite asbestos detected Crocidolite asbestos detected	Chrysotile asbestos detected Amosite asbestos detected Crocidolite asbestos detected	Chrysotile asbestos detected Organic fibres detected	Chrysotile asbestos detected Organic fibres detected
Trace Analysis	-	[NT]	[NT]	[NT]	[NT]	[NT]

Asbestos ID - materials						
Our Reference	UNITS	302476-114	302476-115	302476-116	302476-117	302476-118
Your Reference		MR06/AS10	MR06/AS11	MR06/AS12	MR06/AS13	MR06/AS14
Type of sample		Material	Material	Material	Material	Material
Date Sampled		02/08/2022	02/08/2022	02/08/2022	02/08/2022	02/08/2022
Date analysed	-	11/08/2022	11/08/2022	11/08/2022	11/08/2022	11/08/2022
Mass / Dimension of Sample	-	28x20x3mm	23x20x3mm	30x11x5mm	40x30x5mm	50x18x3mm
Sample Description	-	Beige fibre cement material	Beige fibre cement material	Beige fibre cement material	Beige fibre cement material	Blue vinyl tile & adhesive
Asbestos ID in materials	-	No asbestos detected Organic fibres detected	No asbestos detected Organic fibres detected	Chrysotile asbestos detected Organic fibres detected	Chrysotile asbestos detected Organic fibres detected	No asbestos detected
Trace Analysis	-	No asbestos detected	No asbestos detected	[NT]	[NT]	No asbestos detected

Asbestos ID - materials						
Our Reference	UNITS	302476-119	302476-120	302476-121	302476-122	302476-123
Your Reference		MR06/AS15	MR06/AS16	MR06/AS17	MR06/AS18	MR06/AS19
Type of sample		Material	Material	Material	Material	Material
Date Sampled		02/08/2022	02/08/2022	02/08/2022	02/08/2022	02/08/2022
Date analysed	-	11/08/2022	11/08/2022	11/08/2022	11/08/2022	11/08/2022
Mass / Dimension of Sample	-	35x25x3mm	50x25x2mm	10x10x2mm	100x55x2mm	15x10x2mm
Sample Description	-	White vinyl tile & adhesive	Pink vinyl tile & adhesive	Beige fibre cement material	Blue vinyl tile	Grey fibre cement material
Asbestos ID in materials	-	No asbestos detected	No asbestos detected Organic fibres detected	No asbestos detected Organic fibres detected	No asbestos detected	Chrysotile asbestos detected
Trace Analysis	-	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected	[NT]

Asbestos ID - materials						
Our Reference		302476-128	302476-129	302476-130	302476-131	302476-132
Your Reference	UNITS	MR07/AS01	MR07/AS02	MR07/AS03	MR07/AS04	MR07/AS05
Type of sample		Material	Material	Material	Material	Material
Date Sampled		02/08/2022	02/08/2022	02/08/2022	02/08/2022	02/08/2022
Date analysed	-	11/08/2022	11/08/2022	11/08/2022	11/08/2022	11/08/2022
Mass / Dimension of Sample	-	35x25x5mm	30x20x2mm	15x10x2mm	39x25x2mm	20x10x2mm
Sample Description	-	Beige hardened mastic	Beige fibre cement material	Beige fibre cement material	Blue vinyl tile & adhesive	Beige fibre cement material
Asbestos ID in materials	-	No asbestos detected	No asbestos detected Organic fibres detected	No asbestos detected Organic fibres detected	No asbestos detected Organic fibres detected	Chrysotile asbestos detected Organic fibres detected
Trace Analysis	-	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected	[NT]

Asbestos ID - materials						
Our Reference		302476-133	302476-134	302476-135	302476-136	302476-137
Your Reference	UNITS	MR07/AS06	MR07/AS07	MR07/AS08	MR07/AS09	MR07/AS10
Type of sample		Material	Material	Material	Material	Material
Date Sampled		02/08/2022	02/08/2022	02/08/2022	02/08/2022	02/08/2022
Date analysed	-	11/08/2022	11/08/2022	11/08/2022	11/08/2022	11/08/2022
Mass / Dimension of Sample	-	20x10x2mm	10x5x1mm	35x20x2mm	20x15x2mm	3x10x3mm
Sample Description	-	Beige fibre cement material	Grey fibre cement material	Beige fibre cement material	Beige fibre cement material	Beige fibre cement material
Asbestos ID in materials	-	Chrysotile asbestos detected Organic fibres detected	Chrysotile asbestos detected	No asbestos detected Organic fibres detected	No asbestos detected Organic fibres detected	Chrysotile asbestos detected Organic fibres detected
Trace Analysis	-	[NT]	[NT]	No asbestos detected	No asbestos detected	[NT]

Client Reference: E35092BT, Moree

Asbestos ID - materials						
Our Reference		302476-138	302476-139	302476-140	302476-141	302476-142
Your Reference	UNITS	MR07/AS11	MR07/AS12	MR07/AS13	MR07/AS14	MR07/AS15
Type of sample		Material	Material	Material	Material	Material
Date Sampled		02/08/2022	02/08/2022	02/08/2022	02/08/2022	02/08/2022
Date analysed	-	11/08/2022	11/08/2022	11/08/2022	11/08/2022	11/08/2022
Mass / Dimension of Sample	-	37x25x2mm	5x4x1mm	10x7x1mm	53x20x2mm	23x20x3mm
Sample Description	-	Grey vinyl tile & adhesive	Grey fibre cement material	Grey fibre cement material	Blue vinyl tile	Pink fibre cement material
Asbestos ID in materials	-	No asbestos detected Organic fibres detected	Chrysotile asbestos detected Amosite asbestos detected Crocidolite asbestos detected	Chrysotile asbestos detected Amosite asbestos detected Crocidolite asbestos detected	No asbestos detected	Chrysotile asbestos detected Amosite asbestos detected
Trace Analysis	-	No asbestos detected	[NT]	[NT]	No asbestos detected	[NT]

Asbestos ID - materials						
Our Reference		302476-147	302476-148	302476-149	302476-150	302476-151
Your Reference	UNITS	MR09/AS01	MR09/AS02	MR09/AS03	MR09/AS04	MR09/AS05
Type of sample		Material	Material	Material	Material	Material
Date Sampled		01/08/2022	01/08/2022	01/08/2022	01/08/2022	01/08/2022
Date analysed	-	11/08/2022	11/08/2022	11/08/2022	11/08/2022	11/08/2022
Mass / Dimension of Sample	-	20x15x5mm	15x10x2mm	30x15x2mm	90x62x5mm	20x10x2mm
Sample Description	-	Beige fibre cement material	Beige fibre cement material	Beige fibre cement material	Grey fibre cement material	Beige fibre cement material
Asbestos ID in materials	-	Chrysotile asbestos detected Amosite asbestos detected	Chrysotile asbestos detected Organic fibres detected	Chrysotile asbestos detected Organic fibres detected	Chrysotile asbestos detected	No asbestos detected Organic fibres detected
Trace Analysis	-	[NT]	[NT]	[NT]	[NT]	No asbestos detected

Asbestos ID - materials						
Our Reference		302476-154	302476-155	302476-160	302476-161	302476-163
Your Reference	UNITS	MR10/AS01	MR10/AS02	MR11/AS01	MR12/AS01	MR14/AS01
Type of sample		Material	Material	Material	Material	Material
Date Sampled		01/08/2022	01/08/2022	28/07/2022	28/07/2022	28/07/2022
Date analysed	-	11/08/2022	11/08/2022	11/08/2022	11/08/2022	11/08/2022
Mass / Dimension of Sample	-	35x15x5mm	35x15x5mm	15x12x2mm	42x13x2mm	25x10x2mm
Sample Description	-	Grey fibre cement material	Grey fibre cement material	Beige fibre cement material	Beige fibre cement material	Beige fibre cement material
Asbestos ID in materials	-	Chrysotile asbestos detected Amosite asbestos detected	Chrysotile asbestos detected Amosite asbestos detected	Chrysotile asbestos detected Organic fibres detected	No asbestos detected Organic fibres detected	Chrysotile asbestos detected Organic fibres detected
Trace Analysis	-	[NT]	[NT]	[NT]	No asbestos detected	[NT]

Asbestos ID - materials						
Our Reference		302476-164	302476-165	302476-168	302476-173	302476-176
Your Reference	UNITS	MR14/AS02	MR14/AS03	MR16/AS01	MR25/AS01	MR26/AS01
Type of sample		Material	Material	Material	Material	Material
Date Sampled		28/07/2022	28/07/2022	28/07/2022	28/07/2022	28/07/2022
Date analysed	-	11/08/2022	11/08/2022	11/08/2022	11/08/2022	11/08/2022
Mass / Dimension of Sample	-	60x25x2mm	30x25x2mm	35x16x10mm	20x15x1mm	15x10x1mm
Sample Description	-	Grey vinyl tile & adhesive	Beige fibre cement material	Brown bituminous material	Yellow vitreous fibrous insulation	Beige fibre cement material
Asbestos ID in materials	-	No asbestos detected Organic fibres detected	Chrysotile asbestos detected Organic fibres detected	Chrysotile asbestos detected	No asbestos detected Synthetic mineral fibres detected	Chrysotile asbestos detected Organic fibres detected
Trace Analysis	-	No asbestos detected	[NT]	[NT]	No asbestos detected	[NT]

Asbestos ID - materials						
Our Reference		302476-177	302476-180	302476-181	302476-182	302476-183
Your Reference	UNITS	MR26/AS02	MR27/AS01	MR31/AS01	MR05/AS29	MR01/AS16
Type of sample		Material	Material	Material	Material	Material
Date Sampled		28/07/2022	28/07/2022	28/07/2022	.	.
Date analysed	-	11/08/2022	11/08/2022	11/08/2022	11/08/2022	11/08/2022
Mass / Dimension of Sample	-	45x25x5mm	40x10x5mm	8x7x3mm	10x10x2mm	10x10x1mm
Sample Description	-	Beige fibre cement material	Black rubbery material	Beige fibre cement material	Beige fibre cement material	White fibrous plaster
Asbestos ID in materials	-	Chrysotile asbestos detected Organic fibres detected	No asbestos detected Organic fibres detected	No asbestos detected Organic fibres detected	No asbestos detected Organic fibres detected	No asbestos detected Organic fibres detected
Trace Analysis	-	[NT]	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected

Lead in swab						
Our Reference		302476-28	302476-33	302476-63	302476-73	302476-104
Your Reference	UNITS	MR01/LD01	MR02/LD01	MR03/LD01	MR04/LD01	MR05/LD01
Type of sample		Swab	Swab	Swab	Swab	Swab
Date Sampled		03/08/2022	02/08/2022	01/08/2022	01/08/2022	02/08/2022
Date prepared	-	10/08/2022	10/08/2022	10/08/2022	10/08/2022	10/08/2022
Date analysed	-	11/08/2022	11/08/2022	11/08/2022	11/08/2022	11/08/2022
Lead in Swabs	µg/swab	14	3	84	4	380

Lead in swab						
Our Reference		302476-127	302476-145	302476-153	302476-159	302476-162
Your Reference	UNITS	MR06/LD01	MR07/LD01	MR09/LD01	MR10/LD01	MR12/LD01
Type of sample		Swab	Swab	Swab	Swab	Swab
Date Sampled		02/08/2022	02/08/2022	01/08/2022	01/08/2022	28/07/2022
Date prepared	-	10/08/2022	10/08/2022	10/08/2022	10/08/2022	10/08/2022
Date analysed	-	11/08/2022	11/08/2022	11/08/2022	11/08/2022	11/08/2022
Lead in Swabs	µg/swab	6	20	22	35	370

Lead in swab		
Our Reference		302476-166
Your Reference	UNITS	MR14/LD01
Type of sample		Swab
Date Sampled		28/07/2022
Date prepared	-	10/08/2022
Date analysed	-	11/08/2022
Lead in Swabs	µg/swab	61

Lead in Paint						
Our Reference		302476-62	302476-102	302476-103	302476-124	302476-125
Your Reference	UNITS	MR03/LP01	MR05/LP01	MR05/LP02	MR06/LP01	MR06/LP02
Type of sample		Paint	Paint	Paint	Paint	Paint
Date Sampled		01/08/2022	02/08/2022	02/08/2022	02/08/2022	02/08/2022
Date prepared	-	11/08/2022	11/08/2022	11/08/2022	11/08/2022	11/08/2022
Date analysed	-	11/08/2022	11/08/2022	11/08/2022	11/08/2022	11/08/2022
Lead in paint	%w/w	0.12	9.1	3.8	0.51	1.3

Lead in Paint						
Our Reference		302476-126	302476-143	302476-144	302476-146	302476-152
Your Reference	UNITS	MR06/LP03	MR07/LP01	MR07/LP02	MR08/LP01	MR09/LP01
Type of sample		Paint	Paint	Paint	Paint	Paint
Date Sampled		02/08/2022	02/08/2022	02/08/2022	28/07/2022	01/08/2022
Date prepared	-	11/08/2022	11/08/2022	11/08/2022	11/08/2022	11/08/2022
Date analysed	-	11/08/2022	11/08/2022	11/08/2022	11/08/2022	11/08/2022
Lead in paint	%w/w	1.4	0.26	0.49	0.14	<0.005

Lead in Paint						
Our Reference		302476-156	302476-157	302476-158	302476-167	302476-169
Your Reference	UNITS	MR10/LP01	MR10/LP02	MR10/LP03	MR15/LD01	MR16/LP01
Type of sample		Paint	Paint	Paint	Paint	Paint
Date Sampled		01/08/2022	01/08/2022	01/08/2022	28/07/2022	28/07/2022
Date prepared	-	11/08/2022	11/08/2022	11/08/2022	12/08/2022	11/08/2022
Date analysed	-	11/08/2022	11/08/2022	11/08/2022	12/08/2022	11/08/2022
Lead in paint	%w/w	0.30	0.20	0.24	0.01	2.7

Lead in Paint						
Our Reference		302476-170	302476-171	302476-172	302476-174	302476-175
Your Reference	UNITS	MR18/LP01	MR19/LP01	MR19/LP02	MR25/LP01	MR25/LP02
Type of sample		Paint	Paint	Paint	Paint chip	Paint chip
Date Sampled		28/07/2022	28/07/2022	28/07/2022	28/07/2022	28/07/2022
Date prepared	-	11/08/2022	11/08/2022	11/08/2022	11/08/2022	11/08/2022
Date analysed	-	11/08/2022	11/08/2022	11/08/2022	11/08/2022	11/08/2022
Lead in paint	%w/w	0.38	0.064	0.067	0.16	0.12

Lead in Paint			
Our Reference		302476-178	302476-179
Your Reference	UNITS	MR26/LP01	MR26/LP02
Type of sample		Paint chip	Paint chip
Date Sampled		28/07/2022	28/07/2022
Date prepared	-	11/08/2022	11/08/2022
Date analysed	-	11/08/2022	11/08/2022
Lead in paint	%w/w	0.12	0.18

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.
Metals-020/021/022	Digestion of Paint chips/scrapings/liquids for Metals determination by ICP-AES/MS and or CV/AAS.
Metals-020/021/022	Digestion of Dust wipes/swabs and /or miscellaneous samples for Metals determination by ICP-AES/MS and/or CV-AAS

Client Reference: E35092BT, Moree

QUALITY CONTROL: Lead in swab					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
Date prepared	-			10/08/2022	[NT]	[NT]	[NT]	[NT]	10/08/2022	[NT]
Date analysed	-			11/08/2022	[NT]	[NT]	[NT]	[NT]	11/08/2022	[NT]
Lead in Swabs	µg/swab	1	Metals-020/021/022	<1	[NT]	[NT]	[NT]	[NT]	106	[NT]

QUALITY CONTROL: Lead in Paint						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
Date prepared	-			10/08/2022	125	11/08/2022	11/08/2022		10/08/2022	[NT]
Date analysed	-			11/08/2022	125	11/08/2022	11/08/2022		11/08/2022	[NT]
Lead in paint	%w/w	0.005	Metals-020/021/022	<0.005	125	1.3	1.3	0	106	[NT]

QUALITY CONTROL: Lead in Paint						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-2	[NT]
Date prepared	-			[NT]	146	11/08/2022	11/08/2022		11/08/2022	[NT]
Date analysed	-			[NT]	146	11/08/2022	11/08/2022		11/08/2022	[NT]
Lead in paint	%w/w	0.005	Metals-020/021/022	[NT]	146	0.14	0.11	24	102	[NT]

QUALITY CONTROL: Lead in Paint						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date prepared	-			[NT]	169	11/08/2022	11/08/2022		[NT]	[NT]
Date analysed	-			[NT]	169	11/08/2022	11/08/2022		[NT]	[NT]
Lead in paint	%w/w	0.005	Metals-020/021/022	[NT]	169	2.7	2.6	4	[NT]	[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.

Measurement Uncertainty estimates are available for most tests upon request.

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

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

Report Comments

Samples 302476-1, 3, 13, 14, 20, 24, 25, 26, 47, 51, 74; The supplied samples were sub-sampled (A & B) in order to accurately report the analytical results representative of the entire sample, as per AS4964-2004.

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SAMPLE RECEIPT ADVICE

Client Details	
Client	JK Environments
Attention	Katrina Taylor

Sample Login Details	
Your reference	E35092BT, Moree
Envirolab Reference	302476
Date Sample Received	05/08/2022
Date Instructions Received	05/08/2022
Date Results Expected to be Reported	12/08/2022

Sample Condition	
Samples received in appropriate condition for analysis	Yes
No. of Samples Provided	150 Material, 12 Swab, 17 Paint, 17 Paint, 4 Paint chip
Turnaround Time Requested	Standard
Temperature on Receipt (°C)	18
Cooling Method	None
Sampling Date Provided	YES

Comments

Nil

Please direct any queries to:

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

Analysis Underway, details on the following page:

Sample ID	Asbestos ID - materials	Lead in swab	Lead in Paint
MR01/AS1	✓		
MR01/AS2	✓		
MR01/AS3	✓		
MR01/AS4	✓		
MR01/AS5	✓		
MR01/AS6	✓		
MR01/AS7	✓		
MR01/AS8	✓		
MR01/AS9	✓		
MR01/AS10	✓		
MR01/AS11	✓		
MR01/AS12	✓		
MR01/AS13	✓		
MR01/AS14	✓		
MR01/AS15	✓		
MR01/AS17	✓		
MR01/AS18	✓		
MR01/AS19	✓		
MR01/AS20	✓		
MR01/AS21	✓		
MR01/AS22	✓		
MR01/AS23	✓		
MR01/AS24	✓		
MR01/AS25	✓		
MR01/AS26	✓		
MR01/AS27	✓		
MR01/AS28	✓		
MR01/LD01		✓	
MR01/AS01	✓		
MR02/AS02	✓		
MR02/AS03	✓		
MR02/AS04	✓		

Sample ID	Asbestos ID - materials	Lead in swab	Lead in Paint
MR02/LD01		✓	
MR03/AS01	✓		
MR03/AS02	✓		
MR03/AS03	✓		
MR03/AS04	✓		
MR03/AS05	✓		
MR03/AS06	✓		
MR03/AS07	✓		
MR03/AS08	✓		
MR03/AS09	✓		
MR03/AS10	✓		
MR03/AS11	✓		
MR03/AS12	✓		
MR03/AS13	✓		
MR03/AS14	✓		
MR03/AS15	✓		
MR03/AS16	✓		
MR03/AS17	✓		
MR03/AS18	✓		
MR03/AS19	✓		
MR03/AS20	✓		
MR03/AS21	✓		
MR03/AS22	✓		
MR03/AS23	✓		
MR03/AS24	✓		
MR03/AS25	✓		
MR03/AS28	✓		
MR03/AS26	✓		
MR03/AS27	✓		
MR03/LP01			✓
MR03/LD01		✓	
MR04/AS01	✓		

Sample ID	Asbestos ID - materials	Lead in swab	Lead in Paint
MR04/AS02	✓		
MR04/AS03	✓		
MR04/AS04	✓		
MR04/AS05	✓		
MR04/AS06	✓		
MR04/AS07	✓		
MR04/AS08	✓		
MR04/AS09	✓		
MR04/LD01		✓	
MR05/AS01	✓		
MR05/AS02	✓		
MR05/AS03	✓		
MR05/AS04	✓		
MR05/AS05	✓		
MR05/AS06	✓		
MR05/AS07	✓		
MR05/AS08	✓		
MR05/AS09	✓		
MR05/AS10	✓		
MR05/AS11	✓		
MR05/AS12	✓		
MR05/AS13	✓		
MR05/AS14	✓		
MR05/AS15	✓		
MR05/AS16	✓		
MR05/AS17	✓		
MR05/AS18	✓		
MR05/AS19	✓		
MR05/AS20	✓		
MR05/AS21	✓		
MR05/AS22	✓		
MR05/AS23	✓		

Sample ID	Asbestos ID - materials	Lead in swab	Lead in Paint
MR05/AS24	✓		
MR05/AS25	✓		
MR05/AS26	✓		
MR05/AS27	✓		
MR05/AS28	✓		
MR05/LP01			✓
MR05/LP02			✓
MR05/LD01		✓	
MR06/AS01	✓		
MR06/AS02	✓		
MR06/AS03	✓		
MR06/AS04	✓		
MR06/AS05	✓		
MR06/AS06	✓		
MR06/AS07	✓		
MR06/AS08	✓		
MR06/AS09	✓		
MR06/AS10	✓		
MR06/AS11	✓		
MR06/AS12	✓		
MR06/AS13	✓		
MR06/AS14	✓		
MR06/AS15	✓		
MR06/AS16	✓		
MR06/AS17	✓		
MR06/AS18	✓		
MR06/AS19	✓		
MR06/LP01			✓
MR06/LP02			✓
MR06/LP03			✓
MR06/LD01		✓	
MR07/AS01	✓		

Sample ID	Asbestos ID - materials	Lead in swab	Lead in Paint
MR07/AS02	✓		
MR07/AS03	✓		
MR07/AS04	✓		
MR07/AS05	✓		
MR07/AS06	✓		
MR07/AS07	✓		
MR07/AS08	✓		
MR07/AS09	✓		
MR07/AS10	✓		
MR07/AS11	✓		
MR07/AS12	✓		
MR07/AS13	✓		
MR07/AS14	✓		
MR07/AS15	✓		
MR07/LP01			✓
MR07/LP02			✓
MR07/LD01		✓	
MR08/LP01			✓
MR09/AS01	✓		
MR09/AS02	✓		
MR09/AS03	✓		
MR09/AS04	✓		
MR09/AS05	✓		
MR09/LP01			✓
MR09/LD01		✓	
MR10/AS01	✓		
MR10/AS02	✓		
MR10/LP01			✓
MR10/LP02			✓
MR10/LP03			✓
MR10/LD01		✓	
MR11/AS01	✓		

Sample ID	Asbestos ID - materials	Lead in swab	Lead in Paint
MR12/AS01	✓		
MR12/LD01		✓	
MR14/AS01	✓		
MR14/AS02	✓		
MR14/AS03	✓		
MR14/LD01		✓	
MR15/LD01			✓
MR16/AS01	✓		
MR16/LP01			✓
MR18/LP01			✓
MR19/LP01			✓
MR19/LP02			✓
MR25/AS01	✓		
MR25/LP01			✓
MR25/LP02			✓
MR26/AS01	✓		
MR26/AS02	✓		
MR26/LP01			✓
MR26/LP02			✓
MR27/AS01	✓		
MR31/AS01	✓		
MR05/AS29	✓		
MR01/AS16	✓		

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: E35092BT

Date Results Required: STANDARD

Page: 1 OF 8

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

Location: Moree

Sampler: EW / KT

Sample Preserved in Esky on Ice

Date Sampled	Lab Ref:	Sample Number	Sample Container	Sample Description	Asbestos	Lead (mg/kg)	Lead (µg/swab)						
					Tests Required								
3/08/2022	1	MR01/AS1	P	Material	X								
3/08/2022	2	MR01/AS2	P	Material	X								
3/08/2022	3	MR01/AS3	P	Material	X								
3/08/2022	4	MR01/AS4	P	Material	X								
3/08/2022	5	MR01/AS5	P	Material	X								
3/08/2022	6	MR01/AS6	P	Material	X								
3/08/2022	7	MR01/AS7	P	Material	X								
3/08/2022	8	MR01/AS8	P	Material	X								
3/08/2022	9	MR01/AS9	P	Material	X								
3/08/2022	10	MR01/AS10	P	Material	X								
3/08/2022	11	MR01/AS11	P	Material	X								
3/08/2022	12	MR01/AS12	P	Material	X								
3/08/2022	13	MR01/AS13	P	Material	X								
3/08/2022	14	MR01/AS14	P	Material	X								
3/08/2022	15	MR01/AS15	P	Material	X								
3/08/2022	NR	MR01/AS16	P	Material	X								
3/08/2022	16	MR01/AS17	P	Material	X								
3/08/2022	17	MR01/AS18	P	Material	X								
3/08/2022	18	MR01/AS19	P	Material	X								
3/08/2022	19	MR01/AS20	P	Material	X								
3/08/2022	20	MR01/AS21	P	Material	X								
3/08/2022	21	MR01/AS22	P	Material	X								
3/08/2022	22	MR01/AS23	P	Material	X								
3/08/2022	23	MR01/AS24	P	Material	X								
3/08/2022	24	MR01/AS25	P	Material	X								

ENVIROLAB
Envirolab Services
12 Ashley St
Chatswood NSW 2067
Ph: (02) 9910 6200
Job No: 302476
Date Received: 05/08/22
Time Received: 1430
Received By: CH
Temp: Cool/[✓ Ambient]
Cooling: Ice/Icepack
Security: Intact/Broken/[✓ None]

Remarks (comments/detection limits required):

PLEASE REPORT LEAD IN PAINT AS mg/kg

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

Relinquished By:	Date:	Time:	Received By:	Date:
KT		1430	christie	05/08/22

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: E35092BT

Date Results Required: STANDARD

Page: 2 OF 8

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

Location: Moree

Sampler: EW / KT

Sample Preserved in Esky on Ice

Tests Required

Date Sampled	Lab Ref:	Sample Number	Sample Container	Sample Description	Asbestos	Lead (mg/kg)	Lead (µg/swab)						
3/08/2022	25	MR01/AS26	P	Material	X								
3/08/2022	26	MR01/AS27	P	Material	X								
3/08/2022	27	MR01/AS28	P	Material	X								
3/08/2022	28	MR01/LD01	P	Dust swab			X						
2/08/2022	29	MR01/AS01	P	Material	X								
2/08/2022	30	MR02/AS02	P	Material	X								
2/08/2022	31	MR02/AS03	P	Material	X								
2/08/2022	32	MR02/AS04	P	Material	X								
2/08/2022	33	MR02/LD01	P	Dust swab			X						
1/08/2022	34	MR03/AS01	P	Material	X								
1/08/2022	35	MR03/AS02	P	Material	X								
1/08/2022	36	MR03/AS03	P	Material	X								
1/08/2022	37	MR03/AS04	P	Material	X								
1/08/2022	38	MR03/AS05	P	Material	X								
1/08/2022	39	MR03/AS06	P	Material	X								
1/08/2022	40	MR03/AS07	P	Material	X								
1/08/2022	41	MR03/AS08	P	Material	X								
1/08/2022	42	MR03/AS09	P	Material	X								
1/08/2022	43	MR03/AS10	P	Material	X								
1/08/2022	44	MR03/AS11	P	Material	X								
1/08/2022	45	MR03/AS12	P	Material	X								
1/08/2022	46	MR03/AS13	P	Material	X								
1/08/2022	47	MR03/AS14	P	Material	X								
1/08/2022	48	MR03/AS15	P	Material	X								
1/08/2022	49	MR03/AS16	P	Material	X								

Remarks (comments/detection limits required):

PLEASE REPORT LEAD IN PAINT AS mg/kg

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

#302476

Relinquished By: KT

Date:

Time: 1430

Received By: christine

Date: 05/08/22

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: E35092BT

Date Results Required: STANDARD

Page: 3 OF 8

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

Location: Moree

Sampler: EW / KT

Sample Preserved in Esky on Ice

Tests Required

Date Sampled	Lab Ref:	Sample Number	Sample Container	Sample Description	Asbestos	Lead (mg/kg)	Lead (µg/swab)						
1/08/2022	50	MR03/AS17	P	Material	X								
1/08/2022	51	MR03/AS18	P	Material	X								
1/08/2022	52	MR03/AS19	P	Material	X								
1/08/2022	53	MR03/AS20	P	Material	X								
1/08/2022	54	MR03/AS21	P	Material	X								
1/08/2022	55	MR03/AS22	P	Material	X								
1/08/2022	56	MR03/AS23	P	Material	X								
1/08/2022	57	MR03/AS24	P	Material	X								
1/08/2022	58,59	MR03/AS25A,B	P	Material	X								
1/08/2022	60	MR03/AS26	P	Material	X								
1/08/2022	61	MR03/AS27	P	Material	X								
1/08/2022	62	MR03/LP01	P	Paint chip		X							
1/08/2022	63	MR03/LD01	P	Dust swab			X						
1/08/2022	64	MR04/AS01	P	Material	X								
1/08/2022	65	MR04/AS02	P	Material	X								
1/08/2022	66	MR04/AS03	P	Material	X								
1/08/2022	67	MR04/AS04	P	Material	X								
1/08/2022	68	MR04/AS05	P	Material	X								
1/08/2022	69	MR04/AS06	P	Material	X								
1/08/2022	70	MR04/AS07	P	Material	X								
1/08/2022	71	MR04/AS08	P	Material	X								
1/08/2022	72	MR04/AS09	P	Material	X								
1/08/2022	73	MR04/LD01	P	Dust swab			X						
1/08/2022	74	MR05/AS01	P	Material	X								
1/08/2022	75	MR05/AS02	P	Material	X								

Remarks (comments/detection limits required):

PLEASE REPORT LEAD IN PAINT AS mg/kg

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

#302476

Relinquished By: KT	Date:	Time: 1430	Received By: Christine	Date: 05/08/22

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: E35092BT Date Results Required: STANDARD Page: 4 OF 8	FROM: JKEnvironments REAR OF 115 WICKS ROAD MACQUARIE PARK, NSW 2113 P: 02-9888 5000 F: 02-9888 5001 Attention: ktaylor@jkenvironments.com.au

Location: Moree

Sampler: EW / KT

Sample Preserved in Esky on Ice

					Tests Required								
Date Sampled	Lab Ref:	Sample Number	Sample Container	Sample Description	Asbestos	Lead (mg/kg)	Lead (µg/swab)						
1/08/2022	76	MR05/AS03	P	Material	X								
1/08/2022	77	MR05/AS04	P	Material	X								
1/08/2022	78	MR05/AS05	P	Material	X								
1/08/2022	79	MR05/AS06	P	Material	X								
1/08/2022	80	MR05/AS07	P	Material	X								
1/08/2022	81	MR05/AS08	P	Material	X								
1/08/2022	82	MR05/AS09	P	Material	X								
1/08/2022	83	MR05/AS10	P	Material	X								
1/08/2022	84	MR05/AS11	P	Material	X								
1/08/2022	85	MR05/AS12	P	Material	X								
1/08/2022	86	MR05/AS13	P	Material	X								
1/08/2022	87	MR05/AS14	P	Material	X								
1/08/2022	88	MR05/AS15	P	Material	X								
2/08/2022	89	MR05/AS16	P	Material	X								
2/08/2022	90	MR05/AS17	P	Material	X								
2/08/2022	91	MR05/AS18	P	Material	X								
2/08/2022	92	MR05/AS19	P	Material	X								
2/08/2022	93	MR05/AS20	P	Material	X								
2/08/2022	94	MR05/AS21	P	Material	X								
2/08/2022	95	MR05/AS22	P	Material	X								
2/08/2022	96	MR05/AS23	P	Material	X								
2/08/2022	97	MR05/AS24	P	Material	X								
2/08/2022	98	MR05/AS25	P	Material	X								
2/08/2022	99	MR05/AS26	P	Material	X								
2/08/2022	100	MR05/AS27	P	Material	X								

Remarks (comments/detection limits required):

PLEASE REPORT LEAD IN PAINT AS mg/kg

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

302476

Relinquished By:	Date:	Time:	Received By:	Date:
KT		1430	Christine	05/08/22

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: E35092BT

Date Results Required: STANDARD

Page: 5 OF 8

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

Location: Moree

Sampler: EW / KT

Sample Preserved in Esky on Ice

Date Sampled	Lab Ref:	Sample Number	Sample Container	Sample Description	Tests Required								
					Asbestos	Lead (mg/kg)	Lead (µg/swab)						
2/08/2022	101	MR05/AS28	P	Material	X								
2/08/2022	102	MR05/LP01	P	Paint chip		X							
2/08/2022	103	MR05/LP02	P	Paint chip		X							
2/08/2022	104	MR05/LD01	P	Dust swab			X						
2/08/2022	105	MR06/AS01	P	Material	X								
2/08/2022	106	MR06/AS02	P	Material	X								
2/08/2022	107	MR06/AS03	P	Material	X								
2/08/2022	108	MR06/AS04	P	Material	X								
2/08/2022	109	MR06/AS05	P	Material	X								
2/08/2022	110	MR06/AS06	P	Material	X								
2/08/2022	111	MR06/AS07	P	Material	X								
2/08/2022	112	MR06/AS08	P	Material	X								
2/08/2022	113	MR06/AS09	P	Material	X								
2/08/2022	114	MR06/AS10	P	Material	X								
2/08/2022	115	MR06/AS11	P	Material	X								
2/08/2022	116	MR06/AS12	P	Material	X								
2/08/2022	117	MR06/AS13	P	Material	X								
2/08/2022	118	MR06/AS14	P	Material	X								
2/08/2022	119	MR06/AS15	P	Material	X								
2/08/2022	120	MR06/AS16	P	Material	X								
2/08/2022	121	MR06/AS17	P	Material	X								
2/08/2022	122	MR06/AS18	P	Material	X								
2/08/2022	123	MR06/AS19	P	Material	X								
2/08/2022	124	MR06/LP01	P	Paint chip		X							
2/08/2022	125	MR06/LP02	P	Paint chip		X							

Remarks (comments/detection limits required):

PLEASE REPORT LEAD IN PAINT AS mg/kg

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

302476

Relinquished By:	Date:	Time:	Received By:	Date:
KT		1430	christine	05/08/22

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: E35092BT

Date Results Required: STANDARD

Page: 6 OF 8

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

Location: Moree

Sampler: EW / KT

Sample Preserved in Esky on Ice

Date Sampled	Lab Ref:	Sample Number	Sample Container	Sample Description	Asbestos	Lead (mg/kg)	Lead (µg/swab)						
					Tests Required								
2/08/2022	126	MR06/LP03	P	Paint chip		X							
2/08/2022	127	MR06/LD01	P	Dust swab			X						
2/08/2022	128	MR07/AS01	P	Material	X								
2/08/2022	129	MR07/AS02	P	Material	X								
2/08/2022	130	MR07/AS03	P	Material	X								
2/08/2022	131	MR07/AS04	P	Material	X								
2/08/2022	132	MR07/AS05	P	Material	X								
2/08/2022	133	MR07/AS06	P	Material	X								
2/08/2022	134	MR07/AS07	P	Material	X								
2/08/2022	135	MR07/AS08	P	Material	X								
2/08/2022	136	MR07/AS09	P	Material	X								
2/08/2022	137	MR07/AS10	P	Material	X								
2/08/2022	138	MR07/AS11	P	Material	X								
2/08/2022	139	MR07/AS12	P	Material	X								
2/08/2022	140	MR07/AS13	P	Material	X								
2/08/2022	141	MR07/AS14	P	Material	X								
2/08/2022	142	MR07/AS15	P	Material	X								
2/08/2022	NR	MR07/AS16	P	Material	X								
2/08/2022	NR	MR07/AS17	P	Material	X								
2/08/2022	143	MR07/LP01	P	Paint chip		X							
2/08/2022	144	MR07/LP02	P	Paint chip		X							
2/08/2022	145	MR07/LD01	P	Dust swab			X						
28/07/2022	146	MR08/LP01	P	Paint chip		X							
1/08/2022	147	MR09/AS01	P	Material	X								
1/08/2022	148	MR09/AS02	P	Material	X								

Remarks (comments/detection limits required):

PLEASE REPORT LEAD IN PAINT AS mg/kg

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

#302476

Relinquished By: KT	Date:	Time: 1430	Received By: Christine	Date: 05/08/22

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: E35092BT

Date Results Required: STANDARD

Page: 7 OF 8

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

Location: Moree

Sampler: EW / KT

Sample Preserved in Esky on Ice

Tests Required

Date Sampled	Lab Ref:	Sample Number	Sample Container	Sample Description	Asbestos	Lead (mg/kg)	Lead (µg/swab)						
1/08/2022	149	MR09/AS03	P	Material	X								
1/08/2022	150	MR09/AS04	P	Material	X								
1/08/2022	151	MR09/AS05	P	Material	X								
1/08/2022	152	MR09/LP01	P	Paint chip		X							
1/08/2022	153	MR09/LD01	P	Dust swab			X						
1/08/2022	154	MR10/AS01	P	Material	X								
1/08/2022	155	MR10/AS02	P	Material	X								
1/08/2022	156	MR10/LP01	P	Paint chip		X							
1/08/2022	157	MR10/LP02	P	Paint chip		X							
1/08/2022	158	MR10/LP03	P	Paint chip		X							
1/08/2022	159	MR10/LD01	P	Dust swab			X						
28/07/2022	160	MR11/AS01	P	Material	X								
28/07/2022	161	MR12/AS01	P	Material	X								
28/07/2022	162	MR12/LD01	P	Dust swab			X						
28/07/2022	163	MR14/AS01	P	Material	X								
28/07/2022	164	MR14/AS02	P	Material	X								
28/07/2022	165	MR14/AS03	P	Material	X								
28/07/2022	166	MR14/LD01	P	Dust swab			X						
28/07/2022	167	MR15/LD01	P	~~Dust swab~~ Ⓟ			X						
28/07/2022	168	MR16/AS01	P	Material	X								
28/07/2022	169	MR16/LP01	P	Paint chip		X							
28/07/2022	170	MR18/LP01	P	Paint chip		X							
28/07/2022	171	MR19/LP01	P	Paint chip		X							
28/07/2022	172	MR19/LP02	P	Paint chip		X							
28/07/2022	173	MR25/AS01	P	Material	X								

Remarks (comments/detection limits required):

PLEASE REPORT LEAD IN PAINT AS mg/kg

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

#302476.

Relinquished By: KT

Date:

Time: 1430

Received By: chy3the

Date: 05/08/22

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: E35092BT

Date Results Required: STANDARD

Page: 8 OF 8

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

Location: Moree

Sampler: EW / KT

Sample Preserved in Esky on Ice

Tests Required

Date Sampled	Lab Ref:	Sample Number	Sample Container	Sample Description	Asbestos	Lead (mg/kg)	Lead (µg/swab)						
28/07/2022	174	MR25/LP01	P	Paint chip		X							
28/07/2022	175	MR25/LP02	P	Paint chip		X							
28/07/2022	176	MR26/AS01	P	Material	X								
28/07/2022	177	MR26/AS02	P	Material	X								
28/07/2022	178	MR26/LP01	P	Paint chip		X							
28/07/2022	179	MR26/LP02	P	Paint chip		X							
28/07/2022	180	MR27/AS01	P	Material	X								
28/07/2022	181	MR31/AS01	P	Material	X								
	182	MR05/29	cH										

Remarks (comments/detection limits required):

PLEASE REPORT LEAD IN PAINT AS mg/kg

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

302476

Relinquished By: KT	Date:	Time: 1430	Received By: Christine	Date: 05/08/22

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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Financial Year 2023/2024
No. SC40059

For and on behalf of
JKE
PO BOX 976
NORTH RYDE BC NSW 1670

DOCUMENT REVISION RECORD

Report Reference	Report Status	Report Date
E35092UPDrpt2	Final Report	20 September 2023

This Report (which includes all attachments and annexures) has been prepared by JKE for the Client, and is intended for the use only by that Client.

This Report has been prepared pursuant to a contract between JKE and the Client and is therefore subject to:
a) JKE's proposal in respect of the work covered by the Report;
b) The limitations defined in the client's brief to JKE; and
c) The terms of contract between JKE and the Client, including terms limiting the liability of JKE.

If the Client, or any person, provides a copy of this Report to any third party, such third party must not rely on this Report, except with the express written consent of JKE which, if given, will be deemed to be upon the same terms, conditions, restrictions and limitations as apply by virtue of (a), (b), and (c) above.

Any third party who seeks to rely on this Report without the express written consent of JKE does so entirely at their own risk and to the fullest extent permitted by law, JKE accepts no liability whatsoever, in respect of any loss or damage suffered by any such third party.

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.

Table of Contents

List of Tables

Attachments

Abbreviations

Asbestos Fines/Fibrous Asbestos	**AF/FA**
Ambient Background Concentrations	**ABC**
Added Contaminant Limits	**ACL**
Asbestos Containing Material	**ACM**
Australian Drinking Water Guidelines	**ADWG**
Area of Environmental Concern	**AEC**
Australian Height Datum	**AHD**
Acid Sulfate Soil	**ASS**
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

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[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.

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[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

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[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): $\textbf{\% w/w asbestos in soil} = \frac{\textbf{\% asbestos content x bonded ACM (kg)}}{\text{Soil volume (L) x soil density (kg/L)}}$

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

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

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): $\textbf{\% w/w asbestos in soil} = \frac{\textbf{\% asbestos content x bonded ACM (g)}}{\text{Soil weight (g)}}$

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.

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

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

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

Category	Description
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.

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[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.

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[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.

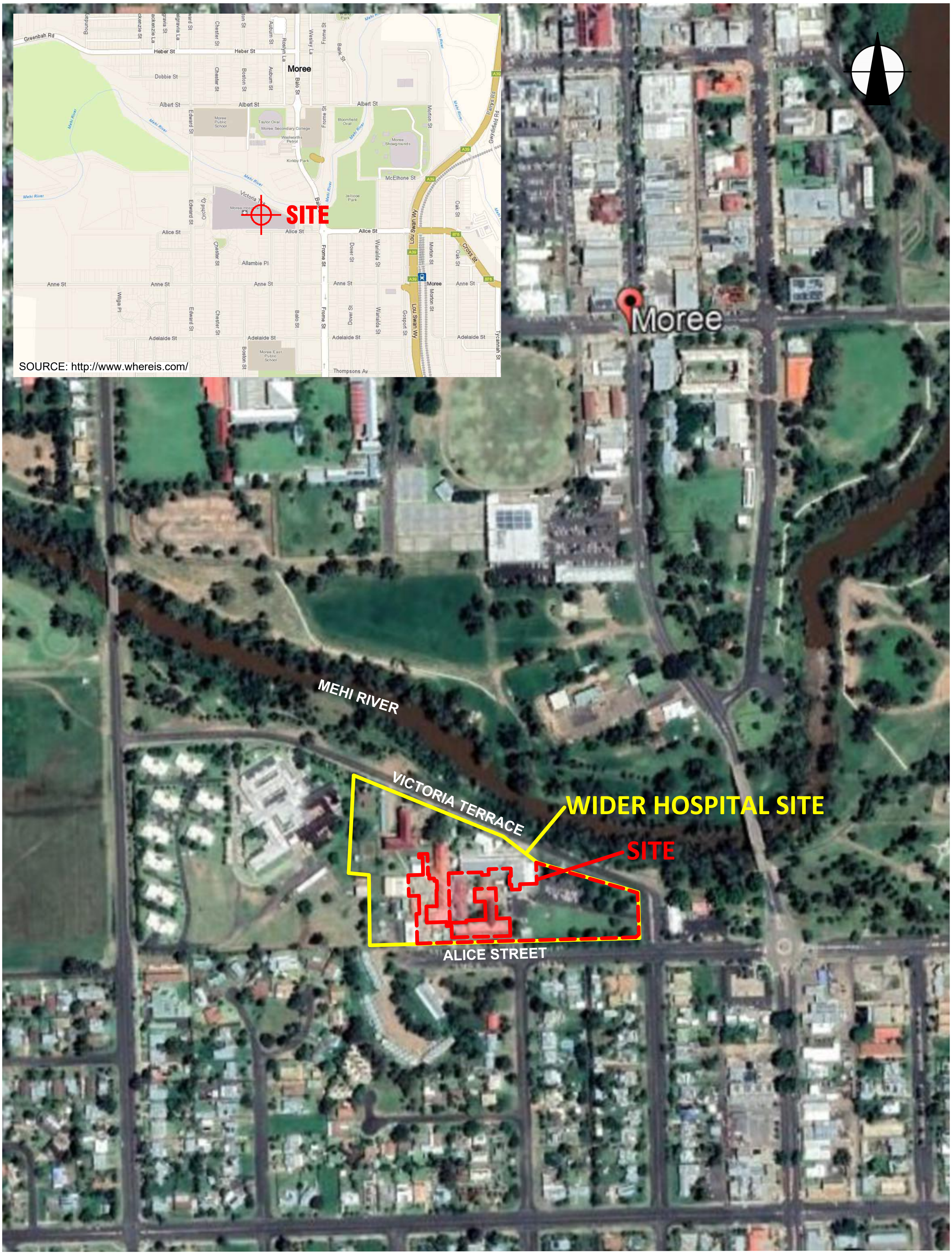
Misinterpretation of Site Investigations by Design Professionals
Costly problems can occur when other design professionals develop plans based on misinterpretation of an investigation report. To minimise problems associated with misinterpretations, the environmental consultant should be retained to work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



SOURCE: http://www.whereis.com/

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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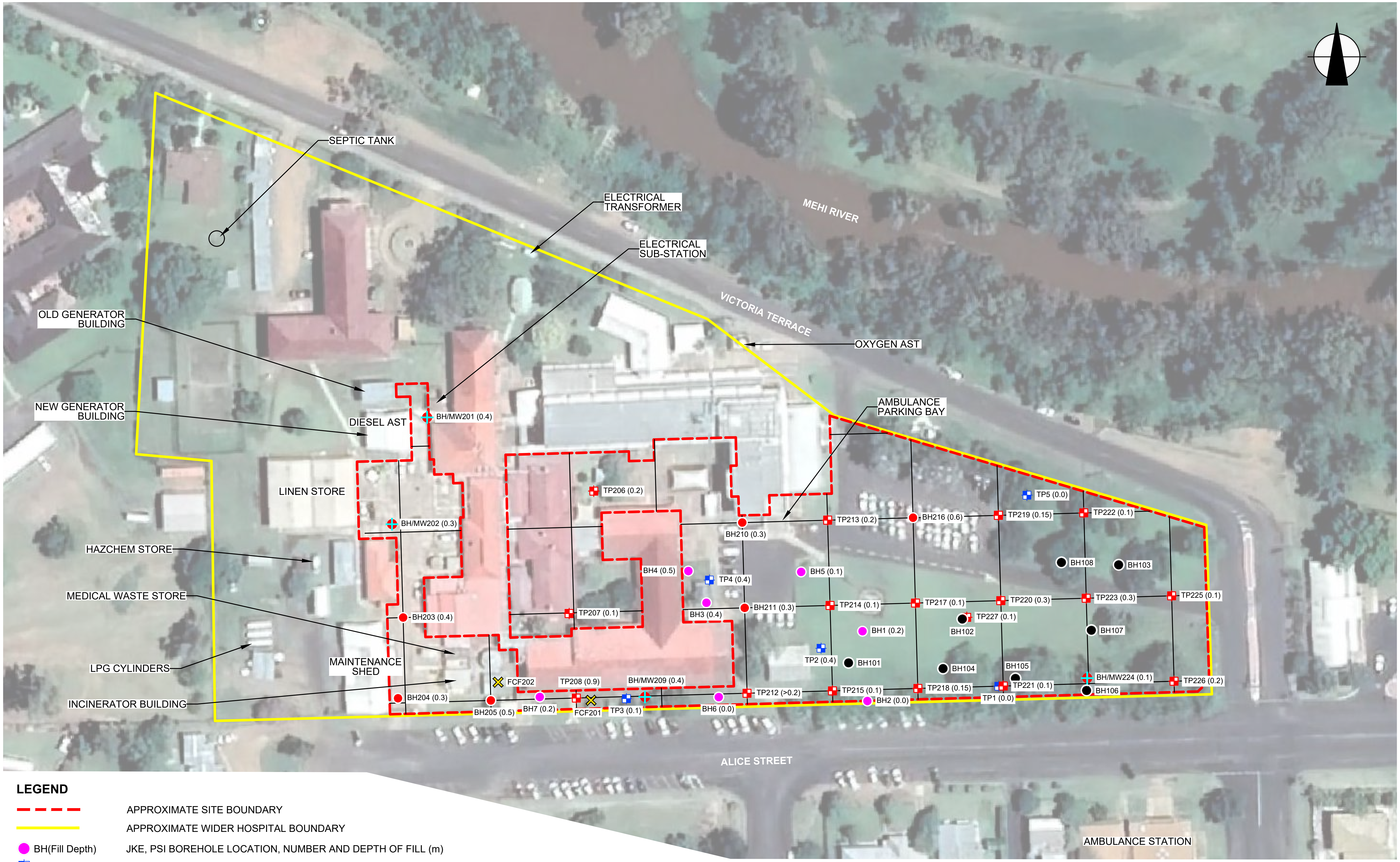


LEGEND

🟥 ─ ─ ─	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**

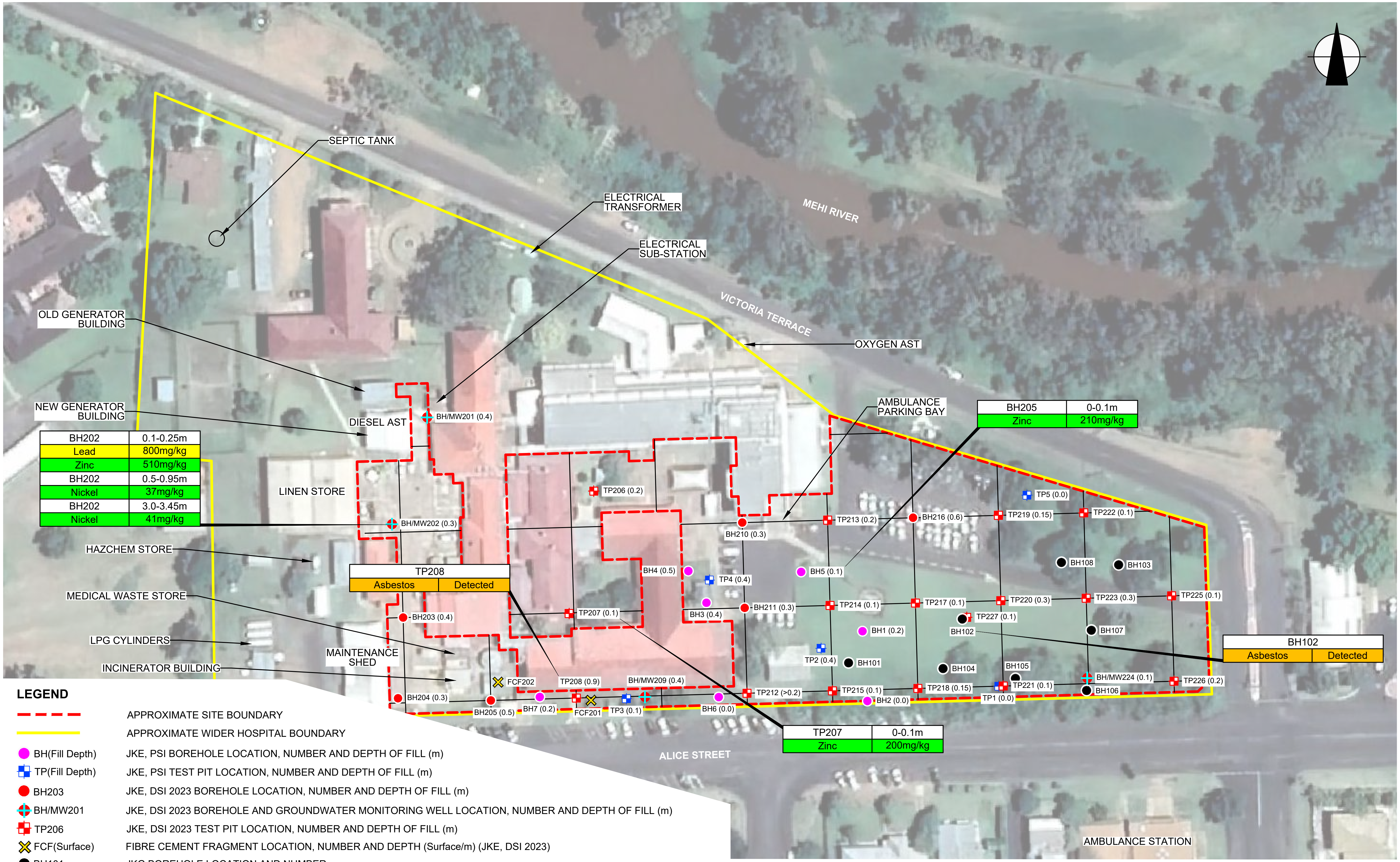
Location: MOREE HOSPITAL,
35 ALICE STREET, MOREE, NSW

Project No: E35092UPD

Figure No: 2

JKEnvironments

PLOT DATE: 13/09/2023 3:09:17 PM DWG FILE: K:\5C EIS JOBS\35000'S\E35092UPD MOREE\CAD\E35092UPD.DWG



BH202	0.1-0.25m
Lead	800mg/kg
Zinc	510mg/kg
BH202	0.5-0.95m
Nickel	37mg/kg
BH202	3.0-3.45m
Nickel	41mg/kg

TP208	
Asbestos	Detected

BH205	0-0.1m
Zinc	210mg/kg

BH102	
Asbestos	Detected

TP207	0-0.1m
Zinc	200mg/kg

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

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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

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

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NSW GOVERNMENT Health Infrastructure

STH
SILVER THOMAS HANLEY

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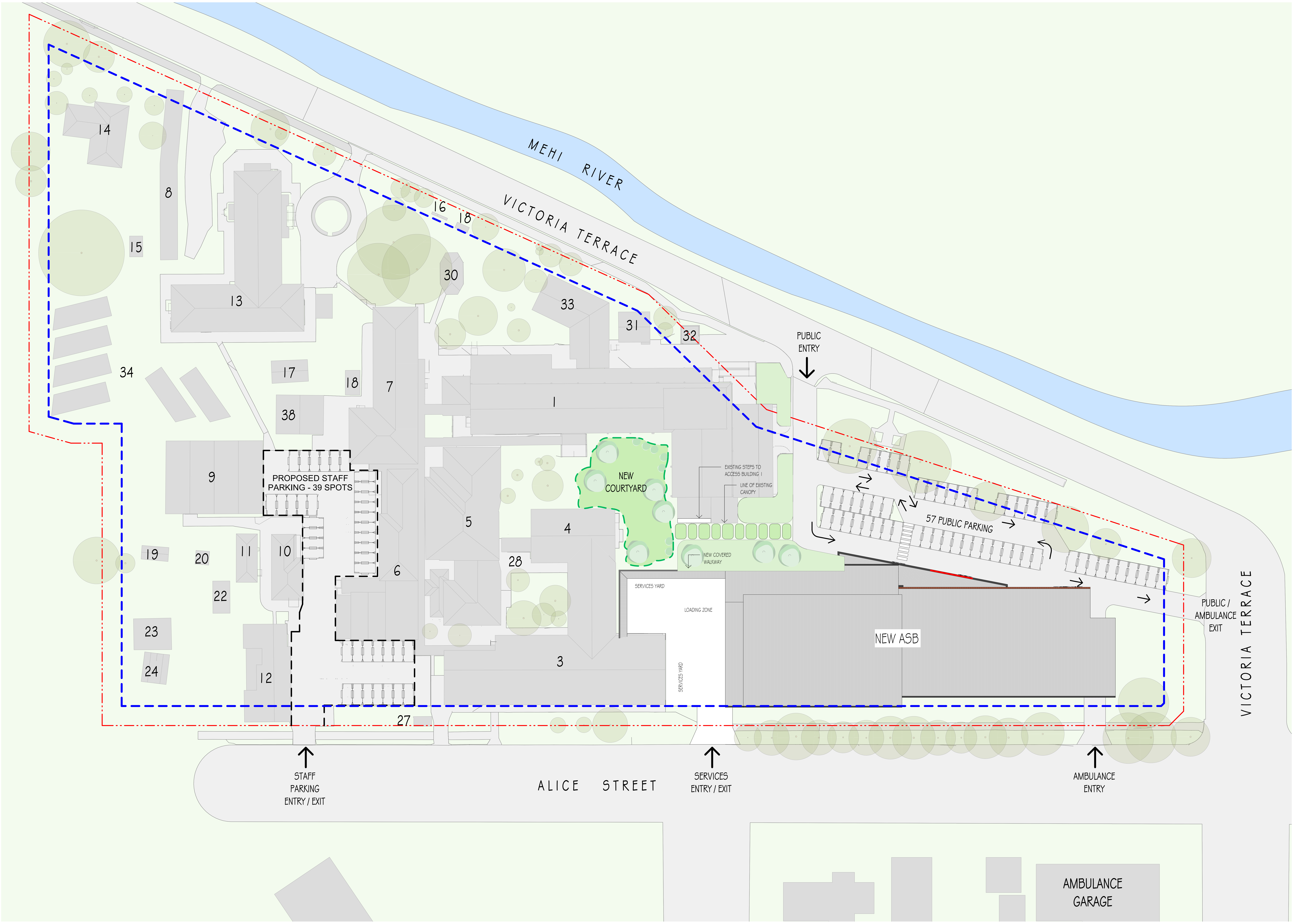

EXISTING BUILDINGS

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
25	MAINTENANCE SUB AREA
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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

0 5 10 15 20 25 m

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NSW GOVERNMENT Health Infrastructure

STH SILVER THOMAS HANLEY

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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)		
			Arsenic	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Zinc	Total PAHs	Carcinogenic PAHs	HCB	Endosulfan	Methoxychlor	Aldrin & Dieldrin	Chlordane	DDT, DDD & DDE	Heptachlor	Chlorpyrifos	TOTAL PCBs	ASBESTOS FIBRES
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**	Standard deviation exceeds data assessment criteria	**VALUE**
Concentration above the PQL	**Bold**		

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**

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 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**
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
	PQL Envirolab SYD		*25*	*50*	*100*	*100*	*0.2*	*0.5*	*1*	*2*	*1*
	PQL Envirolab VIC		*25*	*50*	*100*	*100*	*0.2*	*0.5*	*1.0*	*2.0*	*1.0*
Intra	BH205	0-0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<2	<1
laboratory	SDUP201	0-0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<2	<1
duplicate	MEAN		nc	nc	nc	nc	nc	nc	nc	nc	nc
	RPD %		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
laboratory	SDUP202	0-0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<2	<1
duplicate	MEAN		nc	nc	nc	nc	nc	nc	nc	nc	nc
	RPD %		nc	nc	nc	nc	nc	nc	nc	nc	nc
Intra	TP226	0-0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<2	<1
laboratory	SDUP205	0-0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<2	<1
duplicate	MEAN		nc	nc	nc	nc	nc	nc	nc	nc	nc
	RPD %		nc	nc	nc	nc	nc	nc	nc	nc	nc
Inter	TP223	0-0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<2	<1
laboratory	SDUP206	0-0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<2	<1
duplicate	MEAN		nc	nc	nc	nc	nc	nc	nc	nc	nc
	RPD %		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
laboratory	SDUP207	0-0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<2	<1
duplicate	MEAN		nc	nc	nc	nc	nc	nc	nc	nc	nc
	RPD %		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
laboratory	SDUP208	0-0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<2	<1
duplicate	MEAN		nc	nc	nc	nc	nc	nc	nc	nc	nc
	RPD %		nc	nc	nc	nc	nc	nc	nc	nc	nc
Field	TB-S201		<25	<50	<100	<100	<0.2	<0.5	<1	<2	<1
Blank	16/08/23										
Field	FR-201	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Rinsate	16/08/23										
Trip	TS-S201		-	-	-	-	91%	91%	91%	91%	90%
Spike	16/08/23										

			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		*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		*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	<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	<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
	RPD %		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	0.4	<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	<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	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	22%	nc	15%	15%	29%	22%	22%	11%	29%	nc	33%
Intra	TP226	0-0.1	<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	<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	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	29%	nc	0%	0%	40%	0%	0%	0%	0%	nc	0%
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	<0.2	<0.05	<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	<0.2	<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
	RPD %		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	<0.2	<0.05	<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	<0.2	<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
	RPD %		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	0.5	<0.1	1.6	1.6	0.5	0.6	1	0.83	0.4	<0.1	0.8
laboratory	SDUP208	0-0.1	<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	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	67%	nc	nc	33%	67%	12%	17%	0%	0%	26%	4%	22%	67%	29%
Field	TB-S201		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.05	<0.1	<0.1	<0.1
Blank	16/08/23																
Field	FR-201	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Rinsate	16/08/23																
Trip	TS-S201		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Spike	16/08/23																

			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	TB-S201		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Blank	16/08/23																					
Field	FR-201	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Rinsate	16/08/23																					
Trip	TS-S201		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Spike	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	TB-S201		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<4	<0.4	3	<1	2	<0.1	<1	2
Blank	16/08/23																						
Field	FR-201	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
Rinsate	16/08/23																						
Trip	TS-S201		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Spike	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**	Standard deviation exceeds data assessment criteria	**VALUE**
Asbestos Detected	**DETECTED**		
Concentration above the PQL	**Bold**		

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**
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		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 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	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	TB-S201		<25	<50	<100	<100	<0.2	<0.5	<1	<2	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.05	<0.1	<0.1	<0.1
Blank	16/08/23																									
Field	FR-201	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
Rinsate	16/08/23																									
Trip	TS-S201		-	-	-	-	91%	91%	91%	91%	90%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Spike	16/08/23																									

			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	TB-S201		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Blank	16/08/23																					
Field	FR-201	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Rinsate	16/08/23																					
Trip	TS-S201		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Spike	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	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	TB-S201		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<4	<0.4	3	<1	2	<0.1	<1	2
Blank	16/08/23																						
Field	FR-201	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
Rinsate	16/08/23																						
Trip	TS-S201		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Spike	16/08/23																						

Result outside of QA/QC acceptance criteria 🟨

Rinsate metals results in mg/L

Appendix D: Borehole / Test pit Logs

JKEnvironments

ENVIRONMENTAL LOG

Log No.
BH/MW201
1/3

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:** 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 COMPLETION							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
									CH	Silty CLAY: high plasticity, brown, trace of quartz gravel.	w≈PL			ALLUVIAL
							0.5							
	■		■			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					Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
	ES	ASS	ASB	SAL	DB									
							4							
						N = 12 4,6,6	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							

ENVIRONMENTAL LOG

Log No.
BH/MW201
3/3

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:** 209.13m

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

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

Groundwater Record	SAMPLES					Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
	ES	ASS	ASB	SAL	DB									
								▨		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

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 COMPLETION							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

Log No.
BH/MW202
2/3

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:** 208.91m

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

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

Groundwater Record	SAMPLES ES	ASS	ASB	SAL	DB	Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
								▨		Silty CLAY: medium to high plasticity, brown and grey, trace of quartz gravel.	w≈PL			
							4	▨						
						N = 15 5,7,8	4.5	▨						
							5	▨						
							5.5	▨						
							6	▨						
							6.5	▨						
							7	▨						

JKEnvironments

ENVIRONMENTAL LOG

Log No.
BH/MW202
3/3

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: 208.91m
Date: 15/8/23
Datum: AHD
Plant Type: JK305
Logged/Checked by: A.D./M.D.

Groundwater Record	SAMPLES					Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
	ES	ASS	ASB	SAL	DB									
							7.5			Silty CLAY: medium to high plasticity, brown and grey, trace of quartz gravel and sand.	w<PL			
										Silty CLAY: medium to high plasticity, brown, trace of sand.	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 1.3m. 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

Log No. BH203

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	ASS	ASB	SAL	DB	Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
DRY ON COMPLETION							0			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
	■		■							FILL: Silty clay, medium to high plasticity, brown and grey, with fine to medium grained sand, trace of igneous gravel.	w≈PL			INSUFFICIENT RETURN FOR BULK SCREEN
									CI-CH	Silty CLAY: medium to high plasticity, brown.	w≈PL			ALLUVIAL
							0.5							
	■		■											
							1			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	ASS	ASB	SAL	DB	Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
DRY ON COMPLETION							0			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

Log No. BH205

1/1

Environmental logs are not to be used for geotechnical purposes

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 COMPLETION	■		■		■ ■		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

Log No. TP206

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: 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 COMPLETION	■		■		■		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	ASS	ASB	SAL	DB	Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
DRY ON COMPLETION	■		■		■		0	▨		FILL: Silty clay, medium to high plasticity, brown, trace of sand, igneous gravel, brick fragments and root fibres.	w<PL			GRASS COVER
								▨	CI-CH	Silty CLAY: medium to high plasticity, brown.	w≈PL			SCREEN: 10.36kg 0-0.1m, NO FCF
	■		■					░	SP	SAND: fine to medium grained, brown and grey, trace of quartz gravel.	M			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. 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	ASS	ASB	SAL	DB	Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
DRY ON COMPLETION	■		■		■		0	▨		FILL: Silty clay, medium 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			
	■		■		■		0.5	▨						SCREEN: 10.68kg 0.4-0.5m, NO FCF BURIED TREE TRUNK APPROX. 100mm.t
	■		■				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							

ENVIRONMENTAL LOG

Log No. BH/MW209

1/3

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:** 208.71m

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

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

Groundwater Record	SAMPLES ES ASS ASB SAL DB	Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
DRY ON COMPLETION			0			FILL: Silty clay, medium to high plasticity, 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
					CI-CH	Silty CLAY: medium to high plasticity, brown, trace of quartz gravel.	w≈PL			ALLUVIAL
			0.5							
		N = 15 5,7,8								
			1							
			1.5							
		N = 18 7,8,10								
			2							
			2.5							
			3							
		N = 22 9,11,11								
			3.5							

ENVIRONMENTAL LOG

Log No.
BH/MW209
2/3

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

ENVIRONMENTAL LOG

Log No.
BH/MW209
3/3

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: 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 8.5 9 9.5 10			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.

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ENVIRONMENTAL LOG

Log No. BH210

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	ASS	ASB	SAL	DB	Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
DRY ON COMPLETION							0	■		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
								▨	CI-CH	Silty CLAY: medium to high plasticity, brown, trace of quartz gravel.	w≈PL			ALLUVIAL
	■		■			N = 17 6,7,10	0.5	▨						
							1			END OF BOREHOLE AT 1.0m				
							1.5							
							2							
							2.5							
							3							
							3.5							

ENVIRONMENTAL LOG

Log No. BH211

1/1

SDUP203: 0-0.1

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	 ASS	 ASB	 SAL	 DB	Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
DRY ON COMPLETION	■		■		■		0			FILL: Silty sand, fine to medium grained, brown, trace of 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							

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					Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
	ES	ASS	ASB	SAL	DB									
DRY ON COMPLETION	■		■		■		0	▨		FILL: 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							

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ENVIRONMENTAL LOG

Log No. TP213

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:** 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 COMPLETION	■		■		■		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							

ENVIRONMENTAL LOG

Log No. TP214

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:** 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 COMPLETION	■		■		■		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 ALLUVIAL
	■		■				0.5			as above, but no root fibres.				
	■		■											
							1			END OF TEST PIT AT 0.8m				
							1.5							
							2							
							2.5							
							3							
							3.5							

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ENVIRONMENTAL LOG

Log No. TP215

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:** 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 COMPLETION	■		■		■		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 SCREEN: 10.94kg 0-0.1m, NO FCF
									CI	Silty CLAY: medium plasticity, dark grey, with roots and fine grained sand.	w<PL			ALLUVIAL
	■		■				0.5			as above, but trace of roots.				
	■		■											
										END OF TEST PIT AT 0.8m				
							1							
							1.5							
							2							
							2.5							
							3							
							3.5							

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ENVIRONMENTAL LOG

Log No. BH216
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	ASS	ASB	SAL	DB	Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
DRY ON COMPLETION							0			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							

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ENVIRONMENTAL LOG

Log No. TP217

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

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ENVIRONMENTAL LOG

Log No. TP218

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:** 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	ASS	ASB	SAL	DB	Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
DRY ON COMPLETION	■		■		■		0	▩		FILL: Silty clay, medium plasticity, dark grey and brown, with fine to medium grained sand, fine grained rounded igneous gravel, roots and root fibres.	w<PL			GRASS COVER SCREEN: 10.72kg 0-0.15m, NO FCF
								▨	CI	Silty CLAY: medium plasticity, dark grey, with roots and root fibres.	w<PL			ALLUVIAL
	■		■				0.5	▨		as above, but without roots, trace of root fibres.				
	■		■					▨						
										END OF TEST PIT AT 0.8m				
							1							
							1.5							
							2							
							2.5							
							3							
							3.5							

JKEnvironments

ENVIRONMENTAL LOG

Log No. TP219

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:** 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					Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
	ES	ASS	ASB	SAL	DB									
DRY ON COMPLETION	■		■		■		0			FILL: Silty clay, medium 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 SCREEN: 10.63kg 0-0.15m, NO FCF
									CH	Silty CLAY: high plasticity, dark brown and dark grey, with roots.	w≈PL			ALLUVIAL
	■		■				0.5							
										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. 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					Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
	ES	ASS	ASB	SAL	DB									
DRY ON COMPLETION	■ ■		■ ■		■		0	▨		FILL: Silty clay, medium 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 SCREEN: 11.16kg 0.1-0.3m, NO FCF
	■		■				0.5	▨	CH	Silty CLAY: high plasticity, dark grey, trace of fine grained sand, and roots.	w<PL			ALLUVIAL
	■		■					▨		as above, but without roots, trace of root fibres.				
							1 1.5 2 2.5 3 3.5			END OF TEST PIT AT 0.85m				

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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	ASS	ASB	SAL	DB	Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
DRY ON COMPLETION	■		■		■		0	▩		FILL: Silty clay, medium 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 SCREEN: 10.9kg 0-0.1m, NO FCF
								▨	CI	Silty CLAY: medium plasticity, dark grey brown, with fine grained sand, trace of roots.	w<PL			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							

ENVIRONMENTAL LOG

Log No. TP222

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:** 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 COMPLETION	■		■		■		0	⊠		FILL: Silty clay, medium plasticity, dark brown, with roots and root fibres, trace of ceramic fragments.	w<PL			GRASS COVER SCREEN: 10.13kg 0-0.1m, NO FCF
								▨	CI	Silty CLAY: medium plasticity, dark brown mottled dark grey, with roots.	w<PL			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 COMPLETION	■		■		■		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							

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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	ASS	ASB	SAL	DB	Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
DRY ON COMPLETION	■		■		■		0			FILL: Silty clay, medium to high plasticity, brown, trace of igneous gravel.	w<PL			GRASS COVER SCREEN: 10.26kg 0-0.1m, NO FCF
									CI-CH	Silty CLAY: medium to high plasticity, brown, trace of quartz gravel.	w≈PL			ALLUVIAL
	■		■			N = 20 9,10,10	0.5							
							1							
	■		■			N = 32 13,15,17	1.5							
							2							
							2.5							
						N = 16 6,8,8	3							
	■		■						SP	SAND: fine to medium grained, brown, trace of ironstone and quartz gravel and clay fines.	M			
							3.5							

JKEnvironments

ENVIRONMENTAL LOG

Log No.
BH/MW224
2/3

Environmental logs are not to be used for geotechnical purposes

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					Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
	ES	ASS	ASB	SAL	DB									
							4							
									CI-CH	Silty CLAY: medium to high plasticity, brown, trace of ironstone and quartz gravel.	w<PL			
						N = 13 4,7,6	4.5							
									SP	SAND: fine to medium grained, brown, trace of ironstone and quartz gravel and clay fines.	M			
							5							
							5.5							
							6							
							6.5		CI-CH	Silty CLAY: medium to high plasticity, brown and grey, trace of sandstone gravel.	w<PL			
							7							

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					Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
	ES	ASS	ASB	SAL	DB									
							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							

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ENVIRONMENTAL LOG

Log No. TP225 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:** 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	ASS	ASB	SAL	DB	Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
DRY ON COMPLETION	■		■		■		0	▨		FILL: Silty clay, medium to high plasticity, brown, trace of quartz and ironstone gravel, roots and root fibres.	w≈PL			GRASS COVER SCREEN: 10.49kg 0-0.1m, NO FCF
								▨	CI-CH	Silty CLAY: medium to high plasticity, brown, trace of roots.	w≈PL			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. 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 COMPLETION	■		■		■		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	▨						
	■		■					▨		as above, but without roots, trace of root fibres.				
							1			END OF TEST PIT AT 1.0m				
							1.5							
							2							
							2.5							
							3							
							3.5							

JKEnvironments

ENVIRONMENTAL LOG

Log No. TP227

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:** 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 COMPLETION	■		■		■		0	▩		FILL: Silty clay, medium plasticity, dark grey, with root fibres, trace of glass fragments.	w<PL			GRASS COVER SCREEN: 10.55kg 0-0.1m, NO FCF
	■		■					▨	CI-CH	Silty CLAY: medium to high plasticity, dark grey, trace of roots.	w<PL			ALLUVIAL
	■		■				0.5	▨		as above, but without roots, trace of root fibres.				
										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
ine grained soils (more than 35% of soil excluding oversize fraction is less than 0.075mm)	SILT and CLAY (low to medium plasticity)	ML	Inorganic silt and very fine sand, rock flour, silty or clayey fine sand or silt with low plasticity	None to low	Slow to rapid	Low	Below A line
		CL, CI	Inorganic clay of low to medium plasticity, gravelly clay, sandy clay	Medium to high	None to slow	Medium	Above A line
		OL	Organic silt	Low to medium	Slow	Low	Below A line
	SILT and CLAY (high plasticity)	MH	Inorganic silt	Low to medium	None to slow	Low to medium	Below A line
		CH	Inorganic clay of high plasticity	High to very high	None	High	Above A line
		OH	Organic clay of medium to high plasticity, organic silt	Medium to high	None to very slow	Low to medium	Below A line
	Highly organic soil	Pt	Peat, highly organic soil	–	–	–	–

Laboratory Classification Criteria

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

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

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

NOTES:

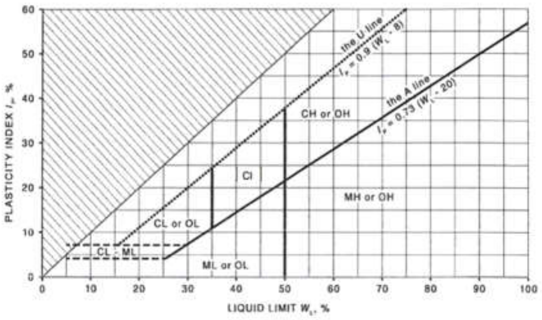
1 For a coarse grained soil with a fines content between 5% and 12%, the soil is given a dual classification comprising the two group symbols separated by a dash; for example, for a poorly graded gravel with between 5% and 12% silt fines, the classification is GP-GM.

2 Where the grading is determined from laboratory tests, it is defined by coefficients of curvature (C_c) and uniformity (C_u) derived from the particle size distribution curve.

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

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

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



LOG SYMBOLS

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

Log Column	Symbol	Definition	Density Index (I_D) Range (%)	SPT 'N' Value Range (Blows/300mm)
Density Index/ Relative Density (Cohesionless Soils)	VL	VERY LOOSE	≤ 15	0 – 4
	L	LOOSE	> 15 and ≤ 35	4 – 10
	MD	MEDIUM DENSE	> 35 and ≤ 65	10 – 30
	D	DENSE	> 65 and ≤ 85	30 – 50
	VD	VERY DENSE	> 85	> 50
	( )	Bracketed symbol indicates estimated density based on ease of drilling or other assessment.		

Log Column	Symbol	Definition
Hand Penetrometer Readings	300 250	Measures reading in kPa of unconfined compressive strength. Numbers indicate individual test results on representative undisturbed material unless noted otherwise.

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

			Guide to Strength	
Term	Abbreviation	Uniaxial Compressive Strength (MPa)	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	UNITS	331035-41	331035-44	331035-46	331035-49	331035-52
Your Reference		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	UNITS	331035-54	331035-58	331035-60	331035-62	331035-65
Your Reference		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	UNITS	331035-8	331035-9	331035-12	331035-14	331035-16
Your Reference		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.

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
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:

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

Analysis Underway, details on the following page:

Sample ID	vTRH(C6-C10)/BTEXN in Soil	svTRH (C10-C40) in Soil	PAHs in Soil	Organochlorine Pesticides in soil	Organophosphorus Pesticides in Soil	PCBs in Soil	Acid Extractable metalsin soil	Asbestos ID - soils NEPM - ASB-001	Asbestos ID - materials	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	✓	✓	✓	✓	✓	✓	✓				

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											✓

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: 331635
Date Received: 21/8/2023
Time Received: 1530
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
P - Plastic Bag

Relinquished By: MD

Date: 21.8.23

Time: ~~2:00pm~~

Received By: Nancy

Date: 21/8/23

1530pm Zhang 1530

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: 2 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	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: lw
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 lw

Received By: Nancy Zhang

Date: 21/8/2023 15:30

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: 3 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						
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: 1530
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
P - Plastic Bag

Relinquished By: MD	**Date:** 21.8.23	**Time:** ~~2:00pm~~	**Received By:** Nancy	**Date:** 21/08/2023

1530

Zhang

1530

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: 4 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

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: 331035
Date Received: 21/8/23
Time Received: 1530
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 Zhang	Date: 21/8/2023

1530

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
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-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:

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					✓

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					✓

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
Categories:	Additional

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

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

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: 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

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-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 aforementioned testing. Otherwise testing will proceed as per the COC and hence invoiced accordingly.

Please direct any queries to:

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

Analysis Underway, details on the following page:

Sample ID	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			✓

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			✓

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

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.

Ref: 331035-B
TAT: 2day
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

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

Hi 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

㉑

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

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

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

Importance: High

Ref: 331035-AB.
TAT: 2 day
Due: ~~14~~ 15/09/2023
MT.

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 ㉒ (0.4-0.5) and TP208 ㉓ (0.9-1.0) 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
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: 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

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

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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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		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
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	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
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		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
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: 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	**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	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: 331035
Date Received: 21/8/23
Time Received: 1530
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 Zhang	Date: 21/8/2023 15:30

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

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

Contaminated Land ● Trade Waste ● OHS ● Drinking Water ● Air Quality ● Asbesto
Methamphetamines & Other Drug Residue ● Acid Sulphate
Emerging Contaminants ● Fo

ENVIROLAB SERVICES

Related Parties mpl LABTEC

JAS-ANZ

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Reminder: **We have recently updated our prices on 1 August 2023. Please reach out to our Business Deve**

Please consider the environment before printing this email.

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

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This e-mail message has been scanned for Viruses

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%.

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

I. Surrogate Spikes

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

J. Duplicates

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

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

Appendix G: Data (QA/QC) Evaluation

Data (QA/QC) Evaluation

A. INTRODUCTION

This Data (QA/QC) Evaluation forms part of the validation process for the DQOs documented in 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`

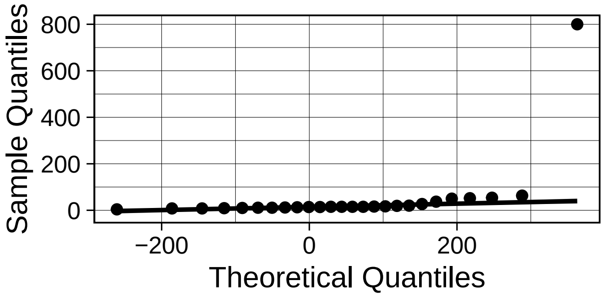
We encourage the reporting of bugs, issues, new ideas and contributions. If you want to report a bug, issue or have an idea to add to Open UCL you can email **openstatsonline@gmail.com**. Or if you are on github you can also use this link to post an issue on the Open UCL Repository.

23

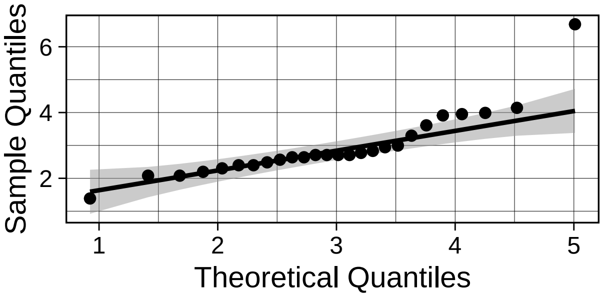
Descriptive Stats	
n	26
min	4
max	800
range	796
mean	51.115
gm	19.427
median	15
standard deviation (sd)	153.588
standard error of mean (sem)	30.121
coeficient of variation (cv)	3.005
skewness	5.01
Log Transformed	
Log min	1.386
Log max	6.685
Log mean	2.967
Log sd	1.006
Normality Tests	
Shapiro-Wilks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

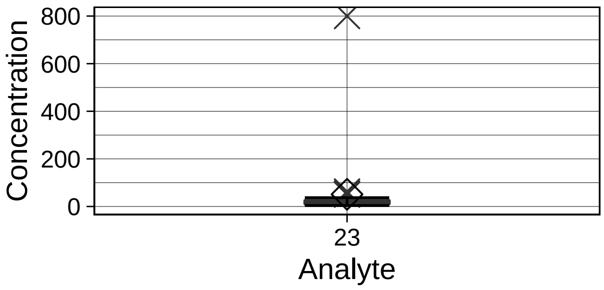
Q−Q Plot Raw Data



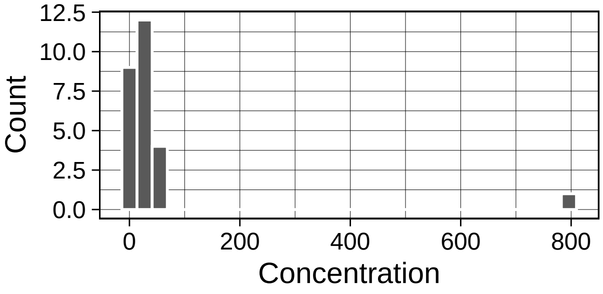
Q−Q Plot Log Data



Box & Whisker Plot



Histogram Plot



Appendix I: Guidelines and Reference Documents

Acid Sulfate Soils Management Advisory Committee (ASSMAC), (1998). Acid Sulfate Soils Manual

Australian and New Zealand Environment Conservation Council (ANZECC), (2000). Australian and New Zealand Guidelines for Fresh and Marine Water Quality

Canadian Council of Ministers of the Environment, (1999). Canadian soil quality guidelines for the protection of environmental and human health: Benzo(a)Pyrene (1997)

CRC Care, (2011). Technical Report No. 10 – Health screening levels for hydrocarbons in soil and groundwater Part 1: Technical development document

Contaminated Land Management Act 1997 (NSW)

Department of Land and Water Conservation, (1997). 1:25,000 Acid Sulfate Soil Risk Map Series

Managing Land Contamination, Planning Guidelines SEPP55 – Remediation of Land (1998)

National Health and Medical Research Council (NHMRC), (2021). National Water Quality Management Strategy, Australian Drinking Water Guidelines 2011

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

NSW EPA, (2014). Waste Classification Guidelines - Part 1: Classifying Waste

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

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

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

NSW EPA, (2022). *Sampling design part 1 - application*, Contaminated Land Guidelines

National Environment Protection Council (NEPC), (2013). National Environmental Protection (Assessment of Site Contamination) Measure 1999 as amended (2013)

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

Protection of the Environment Operations Act 1997 (NSW)

State Environmental Planning Policy (Resilience and Hazards) 2021 (NSW)

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

Western Australia Department of Health, (2021). Guidelines for the Assessment, Remediation and Management of Asbestos-Contaminated Sites in Western Australia

Appendix J: JKE DSI 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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Financial Year 2023/2024
No. SC40059

For and on behalf of
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DOCUMENT REVISION RECORD

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

This Report (which includes all attachments and annexures) has been prepared by JKE for the Client, and is intended for the use only by that Client.

This Report has been prepared pursuant to a contract between JKE and the Client and is therefore subject to:

a) JKE's proposal in respect of the work covered by the Report;
b) The limitations defined in the client's brief to JKE; and
c) The terms of contract between JKE and the Client, including terms limiting the liability of JKE.

If the Client, or any person, provides a copy of this Report to any third party, such third party must not rely on this Report, except with the express written consent of JKE which, if given, will be deemed to be upon the same terms, conditions, restrictions and limitations as apply by virtue of (a), (b), and (c) above.

Any third party who seeks to rely on this Report without the express written consent of JKE does so entirely at their own risk and to the fullest extent permitted by law, JKE accepts no liability whatsoever, in respect of any loss or damage suffered by any such third party.

Table of Contents

List of Tables

Attachments

Abbreviations

Asbestos Fines/Fibrous Asbestos	**AF/FA**
Ambient Background Concentrations	**ABC**
Added Contaminant Limits	**ACL**
Asbestos Containing Material	**ACM**
Australian Drinking Water Guidelines	**ADWG**
Area of Environmental Concern	**AEC**
Australian Height Datum	**AHD**
Acid Sulfate Soil	**ASS**
Before You Dig	**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**
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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

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[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.

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[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.

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[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. Targeted Sampling Location 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. Grid-based Sampling Locations 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.

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[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).
Decontamination 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.
Decontamination 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].

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[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.

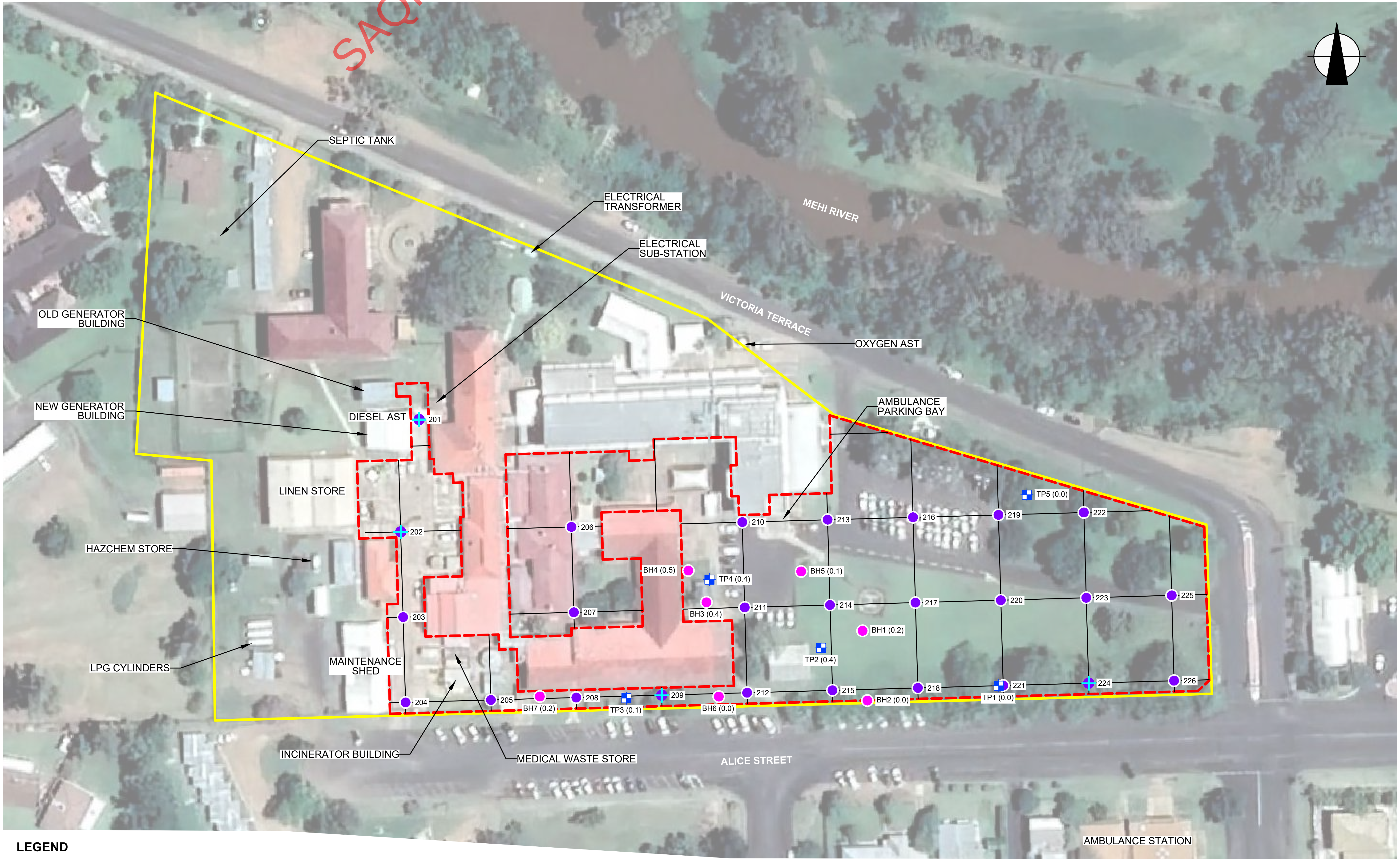
Misinterpretation of Reports by Design Professionals:
Costly problems can occur when design professionals develop plans based on misinterpretation of the report. To minimise problems associated with misinterpretations, the environmental consultant should be retained to work with appropriate professionals 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



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

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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;

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[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%.

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

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:

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

Appendix C: Guidelines and Reference Documents

Australian and New Zealand Environment Conservation Council (ANZECC), (2000). Australian and New Zealand Guidelines for Fresh and Marine Water Quality

Canadian Council of Ministers of the Environment, (1999). Canadian soil quality guidelines for the protection of environmental and human health: Benzo(a)Pyrene (1997)

CRC Care, (2011). Technical Report No. 10 – Health screening levels for hydrocarbons in soil and groundwater Part 1: Technical development document

Contaminated Land Management Act 1997 (NSW)

Department of Land and Water Conservation, (1997). 1:25,000 Acid Sulfate Soil Risk Map Series

Managing Land Contamination, Planning Guidelines SEPP55 – Remediation of Land (1998)

National Health and Medical Research Council (NHMRC), (2018). National Water Quality Management Strategy, Australian Drinking Water Guidelines 2011

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

NSW EPA, (2014). Waste Classification Guidelines - Part 1: Classifying Waste

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

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

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

NSW EPA, (2022). Sampling Design Part 1 - Application Guidelines

National Environment Protection Council (NEPC), (2013). National Environmental Protection (Assessment of Site Contamination) Measure 1999 as amended (2013)

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

Protection of the Environment Operations Act 1997 (NSW)

State Environmental Planning Policy (Resilience and Hazards) 2021 (NSW)

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

Western Australia Department of Health, (2021). Guidelines for the Assessment, Remediation and Management of Asbestos-Contaminated Sites in Western Australia

REPORT TO

HEALTH INFRASTRUCTURE

ON

REMEDIATION ACTION PLAN

FOR

PROPOSED MOREE HOSPITAL REDEVELOPMENT

AT

35 ALICE STREET, MOREE, NSW

Date: 3 November 2023
Ref: E35092UPDrpt3-RAP

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Financial Year 2023/2024
No. SC40059

For and on behalf of
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DOCUMENT REVISION RECORD

Report Reference	Report Status	Report Date
E35092UPDrpt3-RAP	Draft Report	19 October 2023
E35092UPDrpt3-RAP	Final Report	3 November 2023

This Report (which includes all attachments and annexures) has been prepared by JKE for the Client, and is intended for the use only by that Client.

This Report has been prepared pursuant to a contract between JKE and the Client and is therefore subject to:

a) JKE's proposal in respect of the work covered by the Report;
b) The limitations defined in the client's brief to JKE; and
c) The terms of contract between JKE and the Client, including terms limiting the liability of JKE.

If the Client, or any person, provides a copy of this Report to any third party, such third party must not rely on this Report, except with the express written consent of JKE which, if given, will be deemed to be upon the same terms, conditions, restrictions and limitations as apply by virtue of (a), (b), and (c) above.

Any third party who seeks to rely on this Report without the express written consent of JKE does so entirely at their own risk and to the fullest extent permitted by law, JKE accepts no liability whatsoever, in respect of any loss or damage suffered by any such third party.

Executive Summary

Health Infrastructure ('the client') commissioned JK Environments (JKE) to prepare a Remediation Action Plan (RAP) for the proposed Moree Hospital Redevelopment at 35 Alice Street, Moree, NSW. The site location is shown on Figure 1 and the RAP applies to the land within the nominated site boundaries as shown on Figure 2 in Appendix A. The site is limited to the proposed development area based on consultation with the client and the client's representatives.

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 completed a Preliminary Site Investigation (PSI), a Detailed Site Investigation (DSI) and a Hazardous Building Materials Survey (HBMS) for the proposed hospital development. The investigations identified sporadic occurrences of bonded/non-friable Asbestos Containing materials (ACM) on the ground surface and in fill, however, the asbestos concentrations in fill were below the human health Site Assessment Criteria (SAC). Preparation of a RAP was recommended to further assess the extent of ACM and other data gaps identified in the DSI, and to provide contingencies for remediating the site. Key information from the PSI, DSI and HBMS is summarised in Section 2 and throughout this report where relevant.

The goal of the remediation is to render the site suitable for the proposed development from a contamination viewpoint. The primary aim of the remediation at the site is to reduce the human health and environmental risks posed by site contamination to an acceptable level. The objectives of the RAP are to:

- Provide a framework for further investigation of the site, to be implemented when access is available;
- Provide a methodology/contingency plan to remediate and validate the site based on the information available at the date of this report;
- Outline site management procedures to be implemented during remediation work; and
- Provide an unexpected finds protocol to be implemented during the development works.

Prior to the commencement of remediation, and following establishment of a contractor works area and demolition of the required buildings, an investigation is to occur to further characterise the soil and groundwater conditions to assess the requirement for remediation. The additional pre-remediation investigation requirements are outlined in Section 5. If the pre-remediation investigation identifies contamination and confirms there is a need for remediation, the remediation contingencies outlined in Section 8 of this RAP will be triggered and a Remedial Works Plan (RWP) is to be prepared to provide specific details of the remedial works involved.

Based on the available data and the Conceptual Site Model (CSM), the contingency remediation strategies provided in Section 8 include 'excavation and off-site disposal' and 'cap and contain'.

An interim Asbestos Management Plan (AMP) must be prepared and implemented by the hospital so that potential human-health risks from asbestos remain low and acceptable during continued use of the hospital. The outcome of the pre-remediation investigation and any remediation/validation must be evaluated to establish the validity of the interim AMP and then need for any revision or update to the plan post-construction.

JKE is of the opinion that the site can be made suitable for the proposed development via remediation, should the pre-remediation investigation confirm that remediation is required. Site validation reporting is to occur as specified in this RAP to document that the procedures have been followed and to demonstrate that the site is suitable for the proposed development.

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

Table of Contents

List of Tables

Attachments

Abbreviations

Above Ground Storage Tank	**AST**
Acute Services Building	**ASB**
Asbestos Fines/Fibrous Asbestos	**AF/FA**
Asbestos Containing Material	**ACM**
Asbestos Management Plan	**AMP**
Asbestos Removal Control Plan	**ARCP**
Area of Environmental Concern	**AEC**
Australian Height Datum	**AHD**
Acid Sulfate Soil	**ASS**
Below Ground Level	**BGL**
Benzo(a)pyrene Toxicity Equivalent Factor	**BaP TEQ**
Benzene, Toluene, Ethylbenzene, Xylene	**BTEX**
Contaminated Land Management	**CLM**
Contaminant(s) of Potential Concern	**CoPC**
Construction Environmental Management Plan	**CEMP**
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**
Excavated Natural Material	**ENM**
Environment Protection Authority	**EPA**
Environment Protection Licence	**EPL**
Fibre Cement Fragment	**FCF**
Ground Penetrating Radar	**GPR**
Hazardous Building Material Survey	**HBMS**
Health Investigation Level	**HIL**
Health Screening Level	**HSL**
International Organisation of Standardisation	**ISO**
JK Environments	**JKE**
Lab Control Spike	**LCS**
Map Grid of Australia	**MGA**
National Association of Testing Authorities	**NATA**
National Environmental Protection Measure	**NEPM**
Organochlorine Pesticides	**OCP**
Organophosphate Pesticides	**OPP**
Polycyclic Aromatic Hydrocarbons	**PAH**
Polychlorinated Biphenyls	**PCB**
Photo-ionisation Detector	**PID**
Protection of the Environment Operations	**POEO**
Practical Quantitation Limit	**PQL**
Quality Assurance	**QA**
Quality Control	**QC**
Remediation Action Plan	**RAP**
Remediation Works Plan	**RWP**
Review of Environmental Factors	**REF**
Relative Percentage Difference	**RPD**
Site Assessment Criteria	**SAC**
Sampling, Analysis and Quality Plan	**SAQP**
Salinity Management Plan	**SMP**

Source, Pathway, Receptor	**SPR**
Standing Water Level	**SWL**
Toxicity Characteristic Leaching Procedure	**TCLP**
Total Recoverable Hydrocarbons	**TRH**
Trip Spike	**TS**
Upper Confidence Limit	**UCL**
Underground Storage Tank	**UST**
Validation Assessment Criteria	**VAC**
Virgin Excavated Natural Material	**VENM**
Work Health and Safety	**WHS**

Units

Metres BGL	**mBGL**
Metres	**m**
Millilitres	**ml or mL**
Milligrams per Kilogram	**mg/kg**
Decibels	**dBA**
Percentage	**%**
Percentage weight for weight	**%w/w**

1 INTRODUCTION

Health Infrastructure ('the client') commissioned JK Environments (JKE) to prepare a Remediation Action Plan (RAP) for the proposed Moree Hospital Redevelopment at 35 Alice Street, Moree, NSW. The site location is shown on Figure 1 and the RAP applies to the land within the nominated site boundaries as shown on Figure 2 in Appendix A. The site is limited to the proposed development area based on consultation with the client and the client's representatives.

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 completed a Preliminary Site Investigation (PSI)[2], a Detailed Site Investigation (DSI)[3] and a Hazardous Building Materials Survey[4] for the proposed hospital development. The investigations identified sporadic occurrences of bonded/non-friable Asbestos Containing materials (ACM) on the ground surface and in fill, however, the asbestos concentrations in fill were below the human health Site Assessment Criteria (SAC). Preparation of a RAP was recommended to further assess the extent of ACM and other data gaps identified in the DSI, and to provide contingencies for remediating the site. Key information from the PSI, DSI and HBMS is summarised in Section 2 and throughout this report where relevant.

1.1 Proposed Development Details

JKE understands that the proposed development includes:

- Demolition of the administration building No2 and other ancillary hospital infrastructure including the incinerator, medical waste storage, helipad, shade shelters, water tanks, car parks etc. We also understand that the Glennie building No5 located in the central section of the site may also be demolished;
- A new two-level building situated over the south-eastern section of the site. The building will be utilised as an Acute Services Building (ASB), and will comprise a steel frame structure with either a floor slab suspended between pad or pile footings or a stiffened raft slab. A subfloor section is proposed, with bulk excavations to an approximate depth of 0.6m Below Ground Level (BGL) required. Due to the hospital being located in a flood plain, a flood wall is proposed, with a fill embankment with paved surface to the cover the wall;
- A new public carpark immediately to the north of the new ASB;
- A new loading bay is proposed to the west of the ASB, along with an ambulance entry on the eastern part of the southern side of the ASB; and

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

[2] JKE, (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] JKE, (2023b). *Report to NSW Health Infrastructure on Detailed Site Investigation for Proposed Moree Hospital Redevelopment at 35 Alice Street, Moree, NSW. (Report ref: E35092UPDrpt2, dated 20 September 2023)* (referred to as DSI)

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

- Landscaping works will be conducted around the proposed new structures, including footpaths, new seating, external paved areas and new plants. Some tree removal will also occur, predominantly in the eastern area of the site.

It is understood that the development will be staged in order to minimise disruption to the hospital operations.

Selected proposed development plans are attached in Appendix B.

1.2 Remediation Goal, Aims and Objectives

The goal of the remediation is to render the site suitable for the proposed development from a contamination viewpoint. The primary aim of the remediation at the site is to reduce the human health and environmental risks posed by site contamination to an acceptable level.

The objectives of the RAP are to:
- Provide a framework for further investigation of the site, to be implemented when access is available;
- Provide a methodology/contingency plan to remediate and validate the site based on the information available at the date of this report;
- Outline site management procedures to be implemented during remediation work; and
- Provide an unexpected finds protocol to be implemented during the development works.

1.3 Scope of Work

The RAP was prepared 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 a review of the PSI, DSI, HBMS and the Conceptual Site Model (CSM), review of the proposed development details, consultation with the client/client's representatives, and preparation of the RAP.

The RAP was prepared with reference to the National Environmental Protection (Assessment of Site Contamination) Measure 1999 as amended (2013)[5], SEPP Resilience and Hazards 2021 Resilience and Hazards 2021 and other guidelines made under or with regards to the Contaminated Land Management Act (1997)[6], including the Consultants Reporting on Contaminated Land (2020)[7] guidelines.

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

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

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

[7] NSW EPA, (2020). *Consultants reporting on contaminated land, Contaminated Land Guidelines.* (referred to as Consultants Reporting Guidelines)

2 SITE INFORMATION

2.1 Summary of JKE Previous Reports

2.1.1 PSI

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 geotechnical report must be read in conjunction with this RAP.

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 test pits, 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 potential fuel Underground Storage Tank (UST); electrical substation; HAZCHEM storage; an Incinerator; and an offsite ambulance station. The locations of these AEC are shown on Figure 2 in Appendix A.

All of the PSI results were below the SAC. However, in relation to the identified AEC and contaminants of potential concern (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;
- 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 C and the PSI laboratory results tables are also attached Appendix C.

2.1.2 DSI

The DSI was limited to the proposed development footprint which was defined as 'the site' for the purpose of the investigation. It is noted that the DSI site area varies slightly compared to the site area defined for the RAP. Notably, the westernmost extent of the DSI area no longer forms part of the proposed development and is not defined as the site for the purpose of the RAP.

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 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 investigation included a review of historical information presented in the PSI and soil sampling from 26 boreholes or testpits, and attempted groundwater sampling from four groundwater monitoring wells. The AEC identified in the DSI included: fill material; use of pesticides; hazardous building materials; an incinerator; off-site new diesel generator, old generator and potential former UST; an off-site electrical substation; off-site HAZCHEM storage and an off-site ambulance station. The location of these AEC are shown on Figure 2 in Appendix A.

The PSI and DSI identified: zinc and nickel concentrations in the soil above the ecological SAC; and ACM in fill in and on the soil, although ACM concentrations were below the human health SAC.

Based on the findings of the PSI and DSI, JKE indicated that remediation of soil contamination may be required. We stated that "*relatively straight-froward soil remediation processes such as 'excavation/disposal' and 'cap and contain'*" may be suitable remedial approached should remediation be necessary.

JKE recommend the following:

- *"Preparation and implementation of an interim Asbestos Management Plan (AMP) for asbestos in soil to be implemented until remediation occurs, and preparation and implementation of an AMP during the proposed development works;*

- *Preparation and implementation of a Remediation Action Plan (RAP) for the site that provides a robust framework to address the data gaps identified in [the DSI], 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.*

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

2.1.3 Hazardous Building Material Survey

JKE has previously undertaken a HBMS 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.

2.2 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 Area:	Moree Plains Shire Council
Current Zoning:	R1: General Residential
Site Area (m^2) (approx.):	11,700
RL (AHD in m) (approx.):	208
Geographical Location (decimal degrees) (approx.):	Latitude: -29.470680 Longitude: 149.839882

2.3 Site Location, Topography and Regional Setting

The site is located generally in the south-eastern portion of the wider hospital grounds. The site is located in a predominantly residential and recreational area of Moree and is bound by Alice Street to the south, Victoria Terrace to the east and north-east, and the wider hospital grounds to the north-west and west.

The regional topography slopes slightly towards the north towards the Mehir River, which is located approximately 35m to the north of the eastern section of the site. The site topography is consistent with its surrounds and has a gentle slope towards the north at approximately 1°-2°.

2.4 Summary of Site Inspection

A walkover inspection of the DSI site area was undertaken by JKE on 15 August 2023 under the scope of the DSI. 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 north-east east section of the site.

An incinerator and medical waste storage area were located in the south-west section of the site. Other areas of the site were paved or grassed. Pertinent features (including the DSI identified AEC) at the site and in the wider hospital and surrounds are shown on Figure 2 in Appendix A.

During the DSI, grass cover in the south 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 the DSI Figure 2 attached in the Appendix C. The FCF were analysed and were found to contain asbestos.

Landscaped and grassed areas were observed in areas of the site not covered by hardstand/buildings. These areas were mainly located within the east and south sections 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.

Sensitive environments such as wetlands, ponds, creeks or extensive areas of natural vegetation were not observed on site. Mehi River was located approximately 35m to 50m to the north of the site. The river is considered to be a potential receptor.

Signage on the external fibre cement sheeting on some of main hospital building identified that the fibre cement sheeting was an ACM.

2.5 Summary of Geology, Soils and Hydrogeology

2.5.1 Regional and On-site Geology

Regional geological information reviewed for the DSI indicated that the site is underlain is underlain by Marra Creek Formation – meander plain facies (dominant silty 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 PSI and DSI boreholes and test pits generally encountered fill ranging in depths from approximately 0.1-0.9mBGL. It should be noted, however, that the vertical extent of fill was unable to be confirmed in TP212 as the test pit had to be terminated in the fill due to the potential of an underground irrigation pipe being present. Natural alluvium silty clays and sands were encountered beneath the fill material. The silty clays extended to the termination depth of most of the boreholes and test pits. Bedrock and groundwater were not encountered during the DSI. A copy of the borehole and testpit logs from the PSI and DSI are attached in Appendix C.

2.5.2 Hydrogeology and Receiving Water Bodies

Hydrogeological information reviewed for the PSI and DSI indicated that the regional aquifer on-site and in 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 2km of the site. 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 35-50m north of the site).

There were 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.

Groundwater was not encountered during the DSI, including boreholes BH201, BH202, BH209 and BH224 which were terminated at 8mBGL and converted to groundwater monitoring wells. However, groundwater seepage was previously 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. JKE is of the opinion that the groundwater levels at the site fluctuate with rain fall.

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

3 REVIEW OF CONCEPTUAL SITE MODEL

NEPM (2013) defines a CSM as a representation of site related information regarding contamination sources, receptors and exposure pathways between those sources and receptors. The CSM for the site is presented in the following sub-sections and is based on a review of information and the results from the PSI/DSI.

3.1 Summary of Contamination (Site Characterisation)

The primary potential contamination-related risks at the site are associated with historical importation of fill (soil), and historical demolition of former buildings containing potentially containing hazardous building materials including asbestos.

As discussed previously, the PSI and DSI generally encountered fill ranging in depths from approximately 0.1mBGL to 0.9mBGL, however the vertical extent of fill was unbale to be confirmed at TP212 due to a suspected underground service. 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 (e.g. 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.

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 during additional JKG Geotechnical investigation in July 2023 (JKG project ref: 35092UR2). 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 Appendix C.

The lead above the SAC and the nickel and zinc above the SAC were assessed not to pose an unacceptable risk during the DSI and do not require remediation at this stage.

Overall, the PSI/DSI did not identify an immediate trigger for remediation. However, additional data is required and the requirements for this data collection form part of this RAP. The overall dataset will be reassessed in order to establish whether the remedial actions/contingencies in this RAP need to be implemented. The pre-remediation investigation requirements are outlined in Section 5.

3.2 Review of CSM

The table below includes a review of the CSM and this CSM has been used to design the remediation strategy. The CSM will require further review as additional pre-remediation site data becomes available.

Table 3-1: CSM Review

Contaminant source(s) and contaminants of potential concern	Further detailed site characterisation is required to confirm if remediation is necessary. The remedial strategy/contingency provided in this RAP is based on the possibility that the soil is contaminated with bonded ACM. The primary CoPC requiring further characterisation in soil is asbestos (bonded ACM). The following CoPC will also be considered in areas that were previously inaccessible for sampling, and/or to address other data gaps: 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) and Polychlorinated Biphenyls (PCBs). The CoPC in groundwater include: TRHs; BTEX and naphthalene (BTEXN); PAHs; and heavy metals.
Affected media	Soil/fill has been identified as the potentially affected medium requiring further assessment to confirm if remediation is necessary. The potential for groundwater remediation is considered low, however this will also need to be further assessed by a pre-remediation investigation.
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, 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.
Exposure pathways	Potential exposure pathways relevant to the human receptors include ingestion, dermal absorption and inhalation of dust (all CoPC) and vapours (volatile TRHs and BTEXN). Primary and secondary contact with groundwater is also a potential exposure pathway. The potential for exposure would typically be associated with 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.
Evaluation of data gaps	Additional data is required following prior to and following demolition to assess if remediation is required and attempt to delineate and characterise the nature and extent of contamination. The primary data gaps include: • Due to the identification of asbestos, the DSI sampling density did not meeting the Guidelines for the Assessment, Remediation and Management of Asbestos-

	Contaminated Sites in Western Australia (2021)[8] (endorsed by NEPM). The DSI identified ACM in fill and therefore 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"*; • Due to the presence of buildings and existing active hospital use sampling was unable to be undertaken in some areas; • The vertical extent of fill was unbale to be fully assessed at TP212 due to the presence of an underground service; • Endosulfan (an OCP) was encountered in surficial fill sample at BH208. Although the concentration was below the SAC the result is not consistent with the remaining soil data. Additional sampling of the soils is to occur in this area; and • The groundwater monitoring wells installed for the DSI were dry. Groundwater sampling should be attempted again from the existing monitoring wells in case groundwater levels fluctuate over time. An investigation framework is provided in Section 5 to address these gaps.

3.3 Remediation Extent

The requirement for remediation and the remediation extent is to be further assessed by the pre-remediation investigation outlined in Section 5.

However, based on the PSI, DSI and review of the CSM, this RAP has been prepared on the basis that:

- ACM is present in the surficial soil (top 100mm) and in fill sporadically across site. The reported concentrations to date do not exceed the HSLs and have not triggered a need for remediation. However, the potential for asbestos contamination exists and the RAP includes a strategy/contingency to be implemented in the event that asbestos contamination is encountered;
- Risks from ACM will be mitigated in accordance with the statutory requirements during the on-going hospital use and also during construction;
- The pre-remediation investigation (Section 5) will ultimately inform whether remediation occurs, and will inform the extent of remediation and facilitate re-evaluation and re-design (where necessary) of the preferred remedial strategies; and
- Groundwater contamination risks have not and will not be identified.

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[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)

4 INTERIM SITE CONTAMINATION MANAGEMENT

Due to the detection of ACM in the fill soil and on the surface of the site, an AMP is required under the Work Health and Safety Regulation 2017 (NSW)[9].

An interim AMP must be prepared and implemented by the hospital so that potential human-health risks from asbestos remain low and acceptable during continued use of the hospital. The outcome of the pre-remediation investigation and any remediation/validation must be evaluated to establish the validity of the interim AMP and then need for any revision or update to the plan post-construction.

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[9] NSW Government, (2017). *Work Health and Safety Regulation 2017 (NSW).* (referred to as WHS Regulation 2017)

5 PRE-REMEDIATION DATA GAP INVESTIGATION REQUIREMENTS

A construction-phase AMP must be prepared by a suitably qualified consultant prior to the commencement of any demolition activities or soil disturbance.

Prior to the commencement of remediation, and following establishment of a contractor works area and demolition of the required buildings, an investigation is to occur to further characterise the soil and groundwater conditions and facilitate a more comprehensive and complete assessment of the risks driving the potential for remediation.

The primary objectives of this investigation are to: assess the requirement for remediation; confirm the extent of soil remediation; confirm the contaminants of concern being remediated; confirm whether the assessment of groundwater contamination risks remains valid; and facilitate the preparation of a Remedial Works Plan (RWP) for the proposed development where necessary. If it is more appropriate to align with the development staging, a separate RWP can be prepared for each stage.

A SAQP is to be prepared for the investigation following consultation with the client and project manager. The investigation is to include the following (as a minimum):

- Soil sampling from the 26 sampling locations shown on Figure 2 attached in Appendix A. The locations have been selected to address the following:
    - To complete the grid-based (probabilistic) sampling plan proposed by the DSI and meet the minimum sampling density outlined in the NSW EPA Sampling Design Part 1 – Application (2022)[10] with an increased grid-based (probabilistic) sampling plan proposed in the south-east section of the site proposed to meet the WA DoH 2021 guidelines for sites where there is a "*known*" or "*Likely*" asbestos impacts;
    - The grid-based sampling plan will also target the areas beneath the buildings once demolished (sampling locations 302, 303 and 312) and beneath the incinerator once demolished (sampling location 301); and
    - A targeted sampling location (326) is to be placed adjacent to the former DSI test pit location TP212 to further assess the extent and potential for contamination at previous sampling location where the vertical extent of fill was unable to assessed due to the presence of underground services.
- Soil sampling is be undertaken though the vertical extent of the fill and at least 0.5m into the underlying natural soil;
- Field asbestos quantification of bulk (10L) samples as specified in NEPM (2013) is required at all sampling locations. Soil sampling for laboratory analysis is proposed for sampling locations 301, 304, 307, 310, 313, 312 and 326;
- Attempt to sample groundwater from monitoring wells MW201, MW202, MW209 and MW224 shown on Figure 2 attached in Appendix A, if groundwater is present in the wells;
- Further assessment of groundwater directional flow at the site by way of survey and preparation of a groundwater contour plan, if groundwater is present in the wells;

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

- Analysis of one sample per distinct fill profile for soil samples from locations 301, 302, 303, 312 and 326 for: heavy metals (arsenic, cadmium, chromium, copper, lead, mercury, nickel and zinc); TRH/BTEX; PAHs; OCP/OPP and PCBs;
- Analysis one sample per distinct fill profile and one from the underlying natural soil profile at each of the following locations for OCPs: 304; 307; and 310;
- Analysis of any FCF identified in/on soil for asbestos;
- Where groundwater is encountered, analysis for the groundwater sampling locations is to include: heavy metals (arsenic, cadmium, chromium, copper, lead, mercury, nickel and zinc); TRH/BTEXN and PAHs; and
- Appropriate quality assurance/quality control (QA/QC) analysis in accordance with NEPM (2013) requirements, including inter- and intra-laboratory duplicates, trip blanks, trip spikes and rinsate samples.

Soil sampling from the proposed sampling locations is preferably to be undertaken from test pits. However, underground services may limit the potential use of an excavator for test pit soil sampling unless the contractors can accurately pinpoint all underground services and/or if disconnection/removal of underground services is necessary to facilitate the proposed development works. If this is the case, borehole sampling is to be adopted (boreholes must be drilled using augers no narrower than 150mm in diameter, and preferably using a much wider diameter auger to facilitate adequate field asbestos quantification). Geotechnical advice must be sought regarding procedures for backfilling of test pits so that unfavourable ground conditions such as potential soft spots etc are not created.

On completion of the pre-remediation data gap investigation, a report is to be prepared in accordance with Consultants Reporting Guidelines. The report will need to confirm if remediation is required or not. Should remediation be required, a RWP is to be prepared.

In the event that the remedial approach differs to the strategies/contingencies outlined in this RAP, the client’s expert planner must assess whether there is a need for any additional planning approvals or modifications to the REF.

6 REMEDIATION OPTIONS

6.1 Soil Remediation

The NSW EPA follows the hierarchy set out in NEPM 2013 for the remediation of contaminated sites. The preferred order for soil remediation and management is as follows:

1. On-site treatment of soil so that the contaminant is either destroyed or the associated hazard is reduced to an acceptable level;
2. Off-site treatment of excavated material so that the contaminant is either destroyed or the associated hazard is reduced to an acceptable level, after which the soil is returned to the site;

Or if the above are not practicable:

3. Consolidation and isolation of the soil by on-site containment within a properly designed barrier; and
4. Removal of contaminated material to an approved site or facility, followed where necessary by replacement with clean material; or
5. Where the assessment indicates that remediation would have no net environmental benefit or would have a net adverse environmental effect, implementation of an appropriate management strategy.

For simplicity herein, the above hierarchy are respectively referred to as Option 1, Option 2, Option 3 etc.

The NEPM 2013 and the WA DoH 2021 guidelines prefer the following asbestos remediation hierarchy:

1. Minimisation of public risk;
2. Minimisation of contaminated soil disturbance; and
3. Minimisation of contaminated material/soil moved to landfill.

The NSW EPA Contaminated Land Management Guidelines for the NSW Site Auditor Scheme (3rd Edition) (2017)[11] provides the following additional requirements to be taken into consideration:

- Remediation should not proceed in the event that it is likely to cause a greater adverse effect than leaving the site undisturbed; and
- Where there are large quantities of soil with low levels of contamination, alternative strategies should be considered or developed.

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[11] NSW EPA, (2017). *Contaminated land Management, Guidelines for the NSW Site Auditor Scheme (3rd ed.).* (referred to as Site Auditor Guidelines 2017)

6.2 Soil Remediation Options Assessment

The table below discusses and assesses a range of soil remediation options:

Table 6-1: Consideration of Remediation Options

Option	Discussion	Assessment/Applicability
<u>**Option 1**</u> **On-site treatment of contaminated soil**	On-site treatment can provide a mechanism to reuse the processed material, and in some instances, avoid the need for large scale earthworks. Treatment options are contaminant-specific and can include bio-remediation, soil washing, air sparging and soil vapour extraction, thermal desorption and physical removal of bonded ACM fragments from surface soil. Depending on the treatment option, licences may be necessary for specific individual waste streams due to the potential for air pollution and the formation of harmful by-products during incineration processes. Licences for re-use of treated material/waste may also be required.	According the NSW EPA position statement[12] on the WA DoH 2021, physical removal of ACM is not a remedial approach to 'clean' asbestos contaminated soils or stockpiles for reuse. Removal of surface ACM via picking might be a valid approach for surficial ACM impacts, where the surface ACM has been attributed to onsite building demotion impacts and ACM is not present within the fill soil.
<u>**Option 2**</u> **Off-site treatment of contaminated soil**	Contaminated soils are excavated, transported to an approved/licensed treatment facility, treated to remove/stabilise the contaminants then returned to the subject site, transported to an alternative site or disposed to an approved landfill facility. This option is also contaminant-specific. The cost per tonne for transport to and from the site and for treatment is considered to be relatively high. The material would also have to be assessed in terms of suitability for reuse as part of the proposed development works under the waste and resource recovery regulatory framework.	Treatment of fill with ACM impacts is not viable remediation option as noted above.
<u>**Option 3**</u> **Consolidation and isolation of impacted soil by cap and containment**	This would include the consolidation of contaminated soil within an appropriately designed cell, or capping contaminated soils in-situ beneath appropriate clean capping materials (such as pavement and/or clean soil) to reduce the potential for future exposure. The capping and/or containment must be appropriate for the specific contaminants of concern. A Long-Term Environmental Management Plan (LTEMP) would be required and an LTEMP would need to be publicly notified and made to be legally enforceable (e.g. via listings in the Section 10.7 planning certificate and on the land title).	This option is suitable should the pre-remediation data investigation encounter ACM at concentrations greater than the HSL-based SAC, and provided that sufficiently robust capping solutions are implemented. This option is sustainable as it minimises waste disposal to landfill. This option is not preferred if contaminated fill quantities are small, where the costs for construction of the capping system are higher than the

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[12] NSW EPA https://www.epa.nsw.gov.au/your-environment/contaminated-land/other-contamination-issues/managing-asbestos-in-and-on-land/position-statement-wa-managment-of-asbestos-sites Visited 17 April 2023

Option	Discussion	Assessment/Applicability
		landfill disposal fees or where the site owner does not want to manage the capped contamination under a LTEMP.
Option 4 **Removal of contaminated material to an appropriate facility and reinstatement with clean material**	Contaminated soils would be classified in accordance with NSW EPA guidelines for waste disposal, excavated and disposed of off-site to a licensed landfill. The material would have to meet the requirements for landfill disposal. Landfill gate fees (which may be significant) would apply in addition to transport costs.	Applicable where excavations are necessary as part of the proposed development, and surplus materials require off-site disposal. Applicable for isolated minor areas of contamination. Not applicable for contamination beneath buildings that are not being demolished. Not the preferred option if contaminated fill quantities are significant and large and disposal costs are substantial, to the extent that remediation becomes unviable.
Option 5 **Implementation of management strategy**	Contaminated soils would be managed in such a way to reduce risks to the receptors. This may include monitoring of the conditions over time so that there is an on-going minimisation of risk, potentially involving capping systems and management procedures to be implemented likely under the framework of a LTEMP/AMP.	The implementation of a management strategy to restrict access and potential exposure to contaminated soils is a suitable remediation option. A LTEMP/AMP would be required, which should include WHS and PPE requirements for potential future disturbance of soils in these areas.

6.3 Rationale for the Preferred Option for Soil Remediation

Where remediation is confirmed to be necessary following the completion of the works outlined in Section 5 of this RAP, we anticipate that remediation Option 3 and/or Options 4/5 will be preferred. We have documented the associated strategies as contingencies at this stage, within Section 8.

Following completion of the pre-remediation data gap investigation, and if contamination is encountered, the contingency remediation options outlined in Section 8 must be assessed and integrated into the RWP.

6.4 Roles and Responsibilities

Table 6-2: Roles and Responsibilities

Role	Responsibility
Client and Project Manager	The client and their nominated representatives. The client/project manager is required to appoint the project team for the remediation and must provide all investigation reports including this RAP to the remediation contractor, determining authority and any other relevant parties involved in the project. The project manager is required to review all documents prepared for the project and manage the implementation of the procedures outlined in this RAP. The project manager is to take reasonable steps so that the remediation contractor and others have understood the RAP and will implement it in its totality. The project manager will review the RAP and other documents and will update the parties involved of any changes to the development or remediation sequence (in consultation with the validation consultant). Further details are outlined in the sections below.
Remediation Contractor	To be appointed. The remediation contractor is required to review all documents prepared for the project, apply for any relevant removal licences or permits and implement the remediation requirements outlined in this RAP. The remediation contractor is required to collect all necessary documentation associated with the remediation activities and forward this documentation onto the validation consultant, client and project manager as they become available. Further details are outlined in the sections below.
Validation Consultant	To be appointed. The validation consultant[13] provides consulting advice and validation services in relation to the remediation. This includes carrying out the pre-remediation investigations, preparing the RWP if necessary and preparing the site validation report. The validation consultant is required to review any deviation to this RAP or in the event of unexpected finds if and when encountered during the site work. The validation consultant is required to liaise with the client, project manager and remediation contractor on all matters pertaining to the site contamination, remediation and validation. The validation consultant must have a Licensed Asbestos Assessor (LAA) on staff so that any asbestos impacted fill can be appropriately managed under the purview of the site validation assessment.

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[13] The consultant must be a certified practitioner (specialising in site contamination), under one of the NSW EPA endorsed certification schemes

6.5 Pre-commencement

The project team is to have a pre-commencement meeting to discuss the sequence of remediation, and the remediation and validation tasks. The site management plan for remediation works (see Section 9) must be reviewed by project manager and remediation contractor, and appropriate steps are to be taken to ensure the adequate implementation of the plan.

6.6 Summary of Remediation, Validation and Associated Tasks

The following general sequence of works is anticipated:

- Site establishment;
- Demolition/removal of structures;
- Completion of pre-remediation investigation sampling/analysis and associated reporting; and
- Remediation (and validation) of the site via the preferred remediation options and validation of this process, as required.

6.6.1 Construction-Phase AMP

As indicated in Section 5, a construction-phase AMP is to be prepared and implemented during the proposed construction and remediation works.

6.6.2 Site Establishment

The remediation contractor is to establish on site as required to facilitate the remediation. Consideration must be given to the work sequence and extent of remediation/excavation so that the site establishment (e.g. site sheds, fencing, access points etc) does not inhibit the remediation works.

The validation consultant must be advised if any soil, gravel or engineering materials (e.g. DGB, roadbase etc) are to be imported for the site establishment works. These must be validated by the validation consultant in accordance with Section 7 of this RAP to confirm they are suitable to be imported to site.

6.6.3 Demolition/Removal of Structures and Surface ACM Clearance

Demolition of buildings/structures is to occur with regards to the findings of the HBMS and must be undertaken in accordance with the relevant codes, standards, guidelines and regulations. All structures and materials are to be removed from the site and clearance certificates are to be provided for the removal of all hazardous materials.

Following demolition works an ‘emu pick’ of the demolition areas for any visible surface fragments of FCF/ACM should be undertaken by a licensed Class B asbestos contractor.

On completion of the pick, a SafeWork NSW LAA or competent person is to undertake a surface clearance inspection for ACM and prepare a clearance certificate.

6.6.4 Remediation

The following must be implemented:

- Completion of the pre-remediation data gap investigation (outlined in Section 5). Any requirements for remediation as a result of the investigation findings are to be implemented in accordance with the RAP and RWP (a RWP can be prepared for separate stages of the proposed development where appropriate);
- Validation of soil waste transported from the site (outlined in Section 6.7.1);
- Validation of material imported to the site (outlined in Section 7.2); and
- Preparation and implementation of a LTEMP/AMP (outlined in Section 7.4).

6.7 Remediation Documentation

The remediation contractor must retain all documentation associated with the remediation, including but not limited to:

- Waste disposal dockets;
- Asbestos management documentation, including all relevant notifications, licences, clearance certificates and air monitoring reports (additional details in this regard are to be outlined in the AMP);
- Survey information relating to capped areas as applicable;
- Photographs of remediation works, including evidence of installed restricted access signage;
- Waste tracking documentation (see below and the example waste tracking form in Appendix D);
- Imported materials documentation (see below and the example imported material tracking form in Appendix D); and
- Any other documentation specified in a RWP.

Copies of these documents must be forwarded to the project manager and the validation consultant for assessment and inclusion in the validation report.

6.7.1 Waste

All waste removed from the site is to be appropriately classified, tracked and managed in accordance with the relevant guidelines and regulations. The remediation contractor is to maintain adequate records and retain all documentation for waste disposal activities including:

- A summary register (in Microsoft Excel format) including details such as waste disposal dates, waste materials descriptions, disposal locations (i.e. facility details) and reconciliation of this information with the associated waste classification documentation and the waste disposal docket numbers;
- Waste tracking records and transport certificates (where waste is required to be tracked/transported in accordance with the regulations); and
- Disposal dockets for the waste (i.e. weighbridge dockets for each load).

Any soil waste classification documentation is to be prepared in accordance with the reporting requirements specified by the NSW EPA as outlined in the Consultants Reporting Guidelines and the NSW EPA Waste Classification Guidelines (2014). The documentation must be reviewed by the validation consultant (if the documentation is prepared by others) prior to the waste leaving the site.

A review of the disposal facility's Environment Protection Licence (EPL) issued under the Protection of the Environment Operations (POEO) Act (1997)[14] is to be undertaken to assess whether the facility is appropriately licensed to receive the waste.

The above information is to be provided to the validation consultant for inclusion in the validation report. The register must be set up at the beginning of the project and provided to the validation consultant regularly (i.e. weekly) so the details can be checked and any rectification of the record keeping process can occur in a timely manner.

A soil volume analysis must be undertaken and reconciled with the actual quantities shown on the soil disposal dockets. This information is to be reviewed by the validation consultant on completion of the works and an assessment of the quantities of soil disposed off-site (e.g. comparison with the estimated and actual volumes).

6.7.2 Imported Materials

The remediation contractor is to maintain, for the duration of the project, an imported material register. This must include a register (in Microsoft Excel format) with details of each imported material type, supplier details, summary record of where the imported materials were placed on site, and importation docket numbers and a tally of quantities (separated for each import stream). Dockets for imported materials are to be provided electronically so these can be reconciled with the register.

Examples of imported materials for this project may include but would not be limited to: site preparation materials (e.g. DGB, 40/70, material to create the piling platform etc); and landscaping materials such as topsoil garden mixes, mulches etc.

The above information is to be provided to the validation consultant for inclusion in the validation report. The register be set up at the beginning of the project and provided to the validation consultant regularly (i.e. weekly) so the details can be checked and any rectification of the record keeping process can occur in a timely manner.

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[14] NSW Government, (1997)). *Protection of Environment Operations Act.* (referred to as POEO Act 1997)

7 VALIDATION PLAN

Validation is necessary to demonstrate that remedial measures described in the RAP (and RWP where applicable) have been successful and that the site is suitable for the intended land use. The sampling program for the validation is outlined in Section 7.1.

Additional validation sampling may be required based on the outcome of the pre-remediation data gap investigation and/or observations made during remediation, however, that would be reflected in the RWP where necessary.

7.1 Validation Inspections and Sampling

The following relates to the validation requirements for imported materials validation only. Validation requirements relating to the remediation contingencies are discussed in Section 8 and will be confirmed in the RWP as required.

A minimum of three samples from each imported material type must be collected and analysed for heavy metals (arsenic, cadmium, chromium, copper, lead, mercury, nickel and zinc), TRHs, BTEX, PAHs, OCP/OPPs, PCBs and asbestos (500ml NEPM 2013 analysis). Additional analysis may be required depending on the material type and/or history of the material/source site, at the validation consultant's discretion.

Material is to be inspected upon importation by the validation consultant to confirm it is free of visible/olfactory indicators of contamination and is consistent with documentation. Photographic documentation and an inspection log are to be maintained. A minimum of one inspection must occur for each imported material type from each different source.

Where applicable, documentation must be supplied to the validation consultant to confirm the material has been classified with reference to a relevant Resource Recovery Order/Exemption.

The Validation Assessment Criteria (VAC) for imported materials are outlined in Section 7.2 below.

7.2 Validation Assessment Criteria and Data Assessment

The VAC to be adopted for the validation assessment are outlined in the table below:

Table 7-1: Validation Assessment Criteria (VAC)

Validation Aspect	VAC
Imported materials	Material imported as general fill must only be VENM or ENM. VENM is defined in the Protection of the Environment Operations Act (1997)[15] as material: • That has been excavated or quarried from areas that are not contaminated with manufactured chemicals, or with process residues, as a result of industrial, commercial mining or agricultural activities; • That does not contain sulfidic ores or other waste; and

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[15] Protection of Environment Operations Act 1997 (NSW) (POEO Act 1997)

Validation Aspect	VAC
	• 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. ENM and recycled materials are to meet the criteria of the relevant exemption/order under which they are produced. Analytical results for VENM and other imported materials will need to be consistent with expectations for those materials. For VENM, it is expected that: - Heavy metal concentrations are to be less than the most conservative Added Contaminant Limit (ACL) concentrations for an URPOS exposure setting presented in Schedule B1 of the NEPM 2013, except for lead which should be nominally less than 100mg/kg. We note the lead ACL is 1,100mg/kg and this concentration is not deemed to be representative of VENM; and - Organic compounds are to be less than the laboratory PQLs and asbestos to be absent. All materials imported onto the site must also be adequately assessed as being appropriate for the final use of the site. A risk-based assessment approach is to be adopted with regards to the tier 1 screening criteria presented in Schedule B1 of NEPM 2013. Aesthetics: all imported materials are to be free of staining and odours. Imported landscaping materials must be visually free of any anthropogenic materials such as plastic, metal, slag etc.

Data will be assessed as above or below the VAC.

For imported materials, further assessment of risk can be considered in relation to site specific circumstances/application and available documentation for each material type, although such assessment and importation/use of materials on site should not be contrary to waste exemptions/orders or waste definitions.

7.3 Overarching Validation Sampling, Analysis and Quality Plan (SAQP)

Data Quality Objectives (DQOs) and Data Quality Indicators (DQIs) should be clearly outlined and assessed as part of the validation process. A framework for the DQO and DQI process is outlined below and are to be reflected in the validation report.

DQOs have been broadly established for the validation with regards to the seven-step process outlined NEPM (2013). The seven steps include the following which are detailed further in the following subsections:

- State the problem;
- Identify the decisions/goal of the study;
- Identify information inputs;
- Define the study boundary;
- Develop the analytical approach/decision rule;
- Specify the performance/acceptance criteria; and

- Optimise the design for obtaining the data.

DQIs are to be assessed based on field and laboratory considerations for precision, accuracy, representativeness, completeness and comparability.

7.3.1 Step 1 - State the Problem

Validation data is required to demonstrate that the remediation is successful and that the site is suitable for the proposed land use described in Section 1.1. This validation plan largely addresses the imported materials validation component. Specific plans relating to the remedial contingencies will be provided in the RWP, as required.

7.3.2 Step 2 - Identify the Decisions of the Study

The remediation goal, aims and objectives are defined in Section 1.2. The decisions to be made reflect these objectives and are as follows:

- Was the remediation undertaken in accordance with this RAP, or subsequent RWP?
- If there were any deviations, what were these and how do they impact the outcome of the validation?
- Are any of the validation results above the VAC?
- Is the site suitable for the proposed development from a contamination viewpoint?

7.3.3 Step 3 - Identify Information Inputs

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

- Existing relevant data from previous reports;
- Site information, including site observations and inspections;
- Pre-remediation investigation data;
- Survey data;
- Laboratory analysis of soils where applicable; and
- Field and laboratory QA/QC data.

7.3.4 Step 4 - Define the Study Boundary

The remediation and validation will be confined to the site boundaries as shown in Figure 2 in appendix A. The extent of remediation will be further assessed by the pre-remediation investigation outlined in Section 5.

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

7.3.5.1 VAC

The validation data will be collected and assessed in accordance with Section 7.1. Data will be assessed as above or below the VAC.

7.3.5.2 Field and Laboratory QA/QC

Appropriate QA/QC samples are to be obtained during the validation (where applicable) and analysed for the same suite of contaminants as the primary samples. As a minimum, QA/QC sampling should include duplicates (5% inter-laboratory and 5% intra-laboratory) and trip blanks. Rinsate samples should be obtained if re-usable sampling equipment is utilised. Trip spikes must also be obtained during the imported materials validation, or if the remediation contaminants of concern are volatile.

DQIs for field and laboratory QA/QC samples are defined below:

Field Duplicates

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

Trip Blanks and Rinsates

Acceptable targets for trip blank samples will be less than the PQL for organic analytes. Metals will be considered on a case-by-case basis with regards to the reference material used as the blank medium.

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, the validation consultant is to adopt the most conservative concentration reported.

7.3.5.3 Appropriateness of PQLs

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

7.3.6 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 is to 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. Validation data for imported materials will be assessed as above or below the VAC, therefore statistical analysis and quantitative hypothesis testing is not proposed.

7.3.7 Step 7 - Optimise the Design for Obtaining Data

The design is to be optimised via the collection of validation data to demonstrate the success of the key aspects of the remediation.

7.3.8 Sampling Plan

The proposed sampling plan for the validation of imported materials is described in Section 7.1. Specific validation sampling associated with the implementation of remedial contingencies will be document in the RWP.

7.4 Validation Report and LTEMP/AMP

As part of the site validation process, a site validation report will be prepared by the validation consultant. The report will present the results of the validation assessment and will be prepared in accordance with the Consultants Reporting Guidelines. Even if the remedial contingencies are not triggered, validation is still required to document overall compliance with this RAP and for imported materials.

Regarding long-term management of the site, if contamination is not identified and does not require remediation via the implementation of the ‘cap and contain’ contingency, then a long-term AMP will still be required to manage the low concentrations of asbestos (bonded ACM) found in soil at the site. This is a requirement under Clause 429 of the WHS Regulation 2017.

If contamination is identified above the human health-based criteria applicable to the site, and if the contaminated soil is remediated via the implementation of the ‘cap and contain’ contingency, then a LTEMP will be prepared as part of the validation process. The LTEMP will be prepared in accordance with the Consultants Reporting Guidelines and the NSW EPA Practice Note, Preparing Environmental Management Plans for Contaminated Land (2022)[16]. The LTEMP must clearly state:

- Its objectives;
- Who is responsible for implementing it;
- The time frames for completing the actions it specifies, and who will undertake those actions;
- Its key stakeholders, and how they have been engaged in developing it;
- A mechanism for monitoring its implementation; and
- Where it will be recorded and how the public will be made aware of it.

Another key requirement of the LTEMP is that it legally enforceable and is publicly notified.

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[16] NSW EPA, (2022). Practice Note: *Preparing Environmental Management Plans for Contaminated Land*

8 CONTINGENCY PLAN

A review of the proposed development and remediation works has indicated that the greatest risks that may affect the success of the remediation/validation approach documented in this RAP include:

- The identification contamination during the pre-remediation data gap investigation, that triggers a need to implement the remediation contingencies for ‘excavation and off-site disposal’ and/or ‘cap and contain’;
- Unexpected finds during soil disturbance; and
- Validation failure of imported materials.

A contingency discussion for each of the above aspects is provided below.

8.1 Contingency Soil Remediation Options

8.1.1 Excavation of Impacted Soil and Off-site Disposal

The pre-remediation data gap investigation results must be utilised to inform a revision of the CSM and the identification of the extent of remediation. Where the project team (including the client) agrees that the excavation and off-site disposal remedial contingency is the preferred option, a RWP is to be prepared to document the specific works involved.

The excavation and off-site disposal contingency remediation approach would require:

- Contaminated soils to be classified in accordance with NSW EPA guidelines for waste disposal;
- A waste classification letter to be prepared;
- The remediation area to be delineated and for appropriate measures to be undertaken to mitigate WHS risks during excavation works and address any stability issues from an engineering perspective;
- Contaminated soil to be excavated and disposed of off-site to a licensed landfill; and
- For the resulting excavation to be validated by sampling and analysis to confirm contamination does not remain at the base and walls of the excavation.

8.1.2 Consolidation and Isolation of Impacted Soil by Cap and Containment

If consolidation and capping the contaminated soil is preferred and is assessed to be applicable in conjunction with and/or as an alternative to off-site disposal of soil according to the NSW EPA and NEPM 2013 remediation hierarchy, the rationale for this must be outlined in the RWP and it must be recognised that the contamination will be managed under a LTEMP. This remediation option would also be applicable by default where contamination cannot be removed from the site for physical or practical reasons (e.g. if the contamination extends beneath buildings that are to remain, or where there are tree protection zones etc).

In the event this contingency is triggered, a RWP must be prepared by the validation consultant outlining the remedial methodology and validation requirements.

The cap and contain contingency remediation approach would require:

- Details for the earthworks, including geotechnical requirements (including but not limited to compaction capping layers, batter requirements, and consideration of root-affected/organic content in root-affected soils to be excavated), and materials management practices to minimise the potential for cross contamination with the remediation areas;
- Careful execution of the earthworks and consolidation of impacted soils;
- Consideration of any structural requirements or other constraints for the development, including but not limited to piling through the capped material, flooding etc;
- Survey plans including survey coordinates showing the horizontal extent of the capped material. Preferably the contaminated soils should be capped beneath the proposed hardstand areas wherever possible, rather than in landscaped areas;
- A barrier system is to be installed over the capered material, including a hi visibility marker layer (e.g. geofabric) and potentially a physical barrier (e.g. geogrid) in accessible soil areas.
- Clean layers are to be installed over the capped material and barrier system. The materials used for the clean layers must validated by the validation consultant;
- The project team must discuss the capping requirements so that the cap is robust and fit for purpose. Generally, JKE would accept concrete hardstand capping directly over the marker layer for paved areas, at least 0.5m of clean soil capping over the marker layer for landscaped areas, and all new services to be installed in trenches lined with a marker layer and backfilled with clean material. Alternative capping thicknesses (e.g. a reduced depth of capping) could be considered where 0.5m of clean soil capping is not practicable. However, a robust rational for implementing such an approach needs to be documented in the RWP; and
- The thickness of the clean capping layer above the barrier system must be confirmed via survey of relative levels (RLs) prior and post installed of the clean capping layer. The horizontal extent of the marker layers must also be documented by survey.

For capping in tree zones and landscaped areas, advice must be sought from an expert (e.g. an arborist) to confirm suitability of geofabric/marker layer(s) and capping materials.

8.2 Unexpected Finds

Residual hazards that may exist at the site would generally be expected to be detectable through visual or olfactory means. At this site, these types of hazards may include odorous or stained hydrocarbon impacted soils, underground infrastructure such as tanks, or suspected friable asbestos etc. The procedure to be followed in the event of an unexpected find is presented below:

- In the event of an unexpected find, all work in the immediate vicinity must cease and the remediation contractor must contact the validation consultant and the client/project manager;
- Temporary barricades should be erected to isolate the area from access to workers;
- The validation consultant is to attend the site, adequately characterise the potential contamination and provide advice in relation to site management and remediation. Where contamination is identified, a RWP must be prepared in consultation with the project stakeholders and any relevant approvals must be sought; and

- Contamination must be remediated and validated in accordance with the advice provided, and the results must be included in the validation report.

8.3 Importation Failure for VENM or other Imported Materials

Where material to be imported onto the site does not meet the importation VAC, the material should not be imported. Alternative material must be sourced that meets the importation requirements.

9 SITE MANAGEMENT PLAN FOR REMEDIATION WORKS

The information outlined in this section of the RAP is for the remediation work only. The client and contractors must make reference to the REF for specific site management requirements for the overall development of the site.

9.1 Interim Site Management/Asbestos Management Plan

As discussed in Section 4, an interim AMP must be prepared and implemented so that potential human-health risks from asbestos remain low and acceptable until further investigation and potential remediation occurs. The interim AMP will need to be updated to a LTEMP (or long term AMP) based on the results of the pre-remediation data gap investigation. Refer back to Section 7.4 for further information in this regard.

A construction-phase AMP must also be prepared and implemented as noted previously.

9.2 Project Contacts

Emergency procedures and contact telephone numbers should be displayed in a prominent position at the site entrance gate and within the main site working areas. The contact details of key project personnel are summarised in the following table:

Table 9-1: Project Contacts

Role	Company	Contact Details
Principal Contractor's Project Manager	To be appointed	-
Remediation Contractor	To be appointed	-
Validation Consultant	To be appointed	-
Certifier	To be appointed	-
NSW EPA	Pollution Line	131 555
Emergency Services	Ambulance, Police, Fire	000

9.3 Security

Appropriate fencing must be installed as required to secure the site and to isolate the remediation areas. Warning signs should be erected, which outline the PPE required for remediation work.

9.4 Timing and Sequencing of Remediation Works

The anticipated sequence of remediation works is outlined in Section 6.6. This must be reflected in the REF and be acceptable to the determining authority so that the remediation can occur as outlined in these steps.

9.5 Site Soil and Water Management Plan

The remediation contractor must prepare a detailed soil and water management plan prior to the commencement of site works and this should consider the requirements of the construction-phase AMP. Silt fences must be used to control the surface water runoff at all appropriate locations of the site and appropriate measures are to be implemented to manage soil/water disturbance to the satisfaction of the regulator/consent authority. Reference should be made to the REF for further details.

All stockpiled materials are to be placed within an erosion containment boundary with silt fences and sandbags employed to limit sediment movement. The containment area should be located away from drainage lines/low-points, gutters, stormwater pits and inlets and the site boundary. No liquid waste or runoff should be discharged to the stormwater or sewerage system without the approval of the appropriate authorities.

No stockpiles of soil or other materials shall be placed on footpaths.

Vehicle access to the site shall be stabilised to prevent the tracking of sediment onto the roads and footpath. Soil, earth, mud or similar materials must be removed from the roadway by sweeping, shovelling, or a means other than washing, on a daily basis or as required. Soil washings from wheels shall be collected and disposed of in a manner that does not pollute waters.

9.6 Noise and Vibration Control Plan

The guidelines for minimisation of noise on construction sites outlined in AS-2460 (2002)[17] should be adopted. Other measures specified in the REF should also be complied with. Noise producing machinery and equipment should only be operated between the hours approved by the determining authority (refer to REF).

All practicable measures should be taken to reduce the generation of noise and vibration to within acceptable limits. In the event that short-term noisy operations are necessary, and where these are likely to affect residences, notifications should be provided to the relevant authorities and the residents by the project manager, specifying the expected duration of the noisy works.

9.7 Dust Control Plan

All practicable measures should be taken to reduce dust emanating from the site. Factors that contribute to dust production are:

- Wind over a cleared surface;

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[17] Australian Standard, (2002). *AS2460: Acoustics - Measurement of the Reverberation Time in Rooms.*

- Wind over stockpiled material; and
- Movement of machinery in unpaved areas.

Visible dust should not be present at the site boundary. Measures to minimise the potential for dust generation include:

- Use of water sprays on unsealed or exposed soil surfaces;
- Covering of stockpiled materials and excavation faces (particularly during periods of site inactivity and/or during windy conditions) or alternatively the erection of hessian fences around stockpiled soil or large exposed areas of soil;
- Establishment of dust screens consisting of a 2m high shade cloth or similar material secured to a chain wire fence;
- Maintenance of dust control measures to keep the facilities in good operating condition;
- Stopping work during strong winds;
- Loading or unloading of dry soil as close as possible to stockpiles to prevent spreading of loose material around the development area; and
- Geofabric/geotextile could be placed over exposed soils in the event that excavation is staged.

If stockpiles are to remain on-site or soil remains exposed for a period of longer than several days, dust monitoring should be undertaken at the site. If excessive dust is generated all site activities should cease until either wind conditions are more acceptable or a revised method of excavation/remediation is developed. Reference is also to be made to the construction-phase AMP in this regard.

Dust is also produced during the transfer of material to and from the site. All material should be covered during transport and should be properly disposed of on delivery. No material is to be left in an exposed, un-monitored condition.

All equipment and machinery should be brushed or washed down before leaving the site to limit dust and sediment movement off-site. In the event of prolonged rain and lack of paved areas all vehicles should be washed down prior to exit from the site, and any soil or dirt on the wheels of the vehicles removed. Water used to clean the vehicles should be collected and tested prior to appropriate disposal under the relevant waste classification guidelines.

9.8 Dewatering

Dewatering is not expected to be required under the scope of remediation and is therefore not applicable under the RAP.

Groundwater must not be pumped to sewer or stormwater without obtaining prior approval from the relevant authorities.

9.9 Air Monitoring

Reference is to be made to the construction-phase AMP for details regarding asbestos air fibre monitoring. Air monitoring must only be carried out by personnel registered and accredited by NATA (National Association of Testing Authorities). Filter analysis must only be carried out within a NATA certified laboratory. The monitoring results must conform to the requirements of the NOHSC Guidance note on the Membrane Filter Method for Estimating Airborne Asbestos Fibres 2nd Edition [NOHSC:3003 (2005)].

A monitoring program will be used to assess whether the control procedures being applied are satisfactory and that criteria for airborne asbestos fibre levels are not being exceeded. The following levels will be used as action criteria during the air monitoring:

- <0.01 Fibres/ml: Work procedures deemed to be successful;
- 0.01 to 0.02 Fibres/ml: Inspection of the site and review of procedures; and
- >0.02 Fibres/ml: Stop work, inspection of the site, review of procedures, clean-up, rectification works where required and notify the relevant regulator.

9.10 Odour Control Plan

All activities undertaken at the site should be completed in a manner that minimises emissions of smoke, fumes and vapour into the atmosphere and any odours arising from the works or stockpiled material should be controlled. Control measures may include:

- Maintenance of construction equipment so that exhaust emissions comply with the Clean Air Regulations issued under the POEO Act 1997;
- Demolition materials and other combustible waste should not be burnt on site;
- The spraying of a suitable proprietary product to suppress any odours that may be generated by excavated materials; and
- Use of protective covers (e.g. builder’s plastic).

All practicable measures should be taken to reduce fugitive emissions emanating from the site so that associated odours do not constitute a nuisance and that the ambient air quality is not adversely impacted.

The following odour management plan should be implemented to limit the exposure of site personnel and surrounding residents to unpleasant odours:

- Excavation and stockpiling of material should be scheduled during periods with low winds if possible;
- A suitable proprietary product could be sprayed on material during excavation and following stockpiling to reduce odours (subject to an appropriate assessment of the product by the validation consultant);
- All complaints from workers and neighbours should be logged and a response provided. Work should be rescheduled as necessary to minimise odour problems;
- The site foreman should consider the following odour control measures as outlined in NEPM:
    - reduce the exposed surface of the odorous materials;
    - time excavation activities to reduce off-site nuisance (particularly during strong winds); and
    - cover exposed excavation faces overnight or during periods of low excavation activity.

- If continued complaints are received, alternative odour management strategies should be considered and implemented.

9.11 Work Health and Safety (WHS) Plan

A site specific WHS plan should be prepared by the remediation contractor for all work to be undertaken at the site. The WHS plan should meet all the requirements outlined in SafeWork NSW WHS regulations.

As a minimum requirement, personnel must wear appropriate protective clothing, including long sleeve shirts, long trousers, steel cap boots and hard hats. Additional asbestos-related PPE will be required for works where asbestos may be encountered and this will be specified in the construction-phase AMP. Washroom and lunchroom facilities must also be provided to allow workers to remove potential contamination from their hands and clothing prior to eating or drinking.

9.12 Waste Management

Prior to commencement of remedial works and excavation for the proposed development, the remediation contractor should develop a waste management or recycling plan to minimise the amount of waste produced from the site.

9.13 Incident Management Contingency

The validation consultant must be contacted if any unexpected contamination-related conditions are encountered at the site. This should enable the scope of remedial/validation works to be adjusted as required. Similarly, if any incident occurs at the site, the validation consultant should be advised to assess potential impacts on contamination conditions and the remediation/validation timetable.

9.14 Hours of Operation

Hours of operation should be between those approved by the determining authority under the development approval process.

9.15 Community Consultation

The remediation contractor should provide details for managing community consultation and complaints under their Construction Environmental Management Plan (CEMP) or similar document ed procedure.

10 CONCLUSION

Investigations at the site by JKE have identified that ACM is present in the south and east section of the site and remediation may be required to address human health risks. The asbestos concentrations identified in soil to date have not exceeded the HSL-based assessment criteria.

Prior to the commencement of remediation, and following establishment of a contractor works area and demolition of the required buildings, an investigation is to occur to further characterise the soil and groundwater conditions to assess the requirement for remediation. The additional pre-remediation investigation requirements are outlined in Section 5. If the pre-remediation investigation identifies contamination and confirms there is a need for remediation, the remediation contingencies outlined in Section 8 of this RAP will be triggered and an RWP is to be prepared to provide specific details of the remedial works involved.

Based on the available data and the CSM, the contingency remediation strategies provided in Section 8 include 'excavation and off-site disposal' and 'cap and contain'.

JKE is of the opinion that the site can be made suitable for the proposed development via remediation, should the pre-remediation investigation confirm that remediation is required. Site validation reporting is to occur as specified in this RAP to document that the procedures have been followed and to demonstrate that the site is suitable for the proposed development.

The RAP has met the objectives outlined in Section 1.2.

10.1 Regulatory Requirements

The regulatory requirements applicable for the remediation are discussed in the following table:

Table 10-1: Regulatory Requirement

Guideline / Legislation / Policy	Applicability
SEPP Resilience and Hazards 2021	The client's planning expert has advised if remediation works are required, they would *"likely be classified as Category 1 Remediation under Clause 4.8 of State Environmental Planning Policy (Resilience and Hazards) 2021 as the works would be undertaken in an area that is identified as a 'place of Aboriginal cultural significance' under the Moree Local Environmental Plan 2011 which would constitute an area for conservation or heritage conservation. Category 1 Remediation would require development consent from Moree Plains Shire Council requiring the preparation of a development application and associated Statement of Environmental Effects".* Under Section 4.14 of SEPP Resilience and Hazards 2021, a notice of completion of remediation work is to be given to council within 30 days of completion of the work regardless of whether the remediation is classed as Category 1 or Category 2 remediation work. The notice of completion of remediation works must be in accordance with Section 4.15 of SEPP Resilience and Hazards 2021.
POEO Act 1997	Section 143 of the POEO Act 1997 states that if waste is transported to a place that cannot lawfully be used as a waste facility for that waste, then the transporter and owner of the

Guideline / Legislation / Policy	Applicability
	waste are each guilty of an offence. The transporter and owner of the waste have a duty to ensure that the waste is disposed of in an appropriate manner. Appropriate waste tracking is required for all waste that is disposed off-site. Activities should be carried out in a manner which does not result in the pollution of waters.
POEO (Waste) Regulation 2014	Waste must be classified and disposed of lawfully in accordance with the regulation. Part 7 of the POEO Waste Regulation 2014 set outs the requirements for the transportation and management of asbestos waste and Clause 79 of the POEO Waste Regulation requires waste transporters to provide information to the NSW EPA regarding the movement of any load in NSW of more than 10 square meters of asbestos sheeting, or 100 kilograms of asbestos waste. To fulfil these legal obligations, asbestos waste transporters must use WasteLocate.
Work Health and Safety Regulation (2017)	Sites with asbestos become a 'workplace' when work is carried out there and require a register and AMP. This would apply to the demolition activities in the event that the hazardous building materials survey identifies asbestos in the structures, or in the event of an unexpected find in fill. Appropriate SafeWork NSW notification will be required for licensed (e.g. Class A or Class B) asbestos removal works or handling. The asbestos identified in soil to date was non-friable and therefore could be removed by a Class B licensed contractor.
NSW EPA Guidelines on the Duty to Report Contamination under Section 60 of the CLM Act 1997	The requirement to notify the EPA should be assessed as part of the site validation process.

11 LIMITATIONS

The report limitations are outlined below:

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

Important Information About This Report

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

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

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

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

JKE will not accept any responsibility whatsoever for situations where one or more of the above factors have changed since completion of the 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.

Assessment Limitations

Although information provided by a site assessment can reduce exposure to the risk of the presence of contamination, no environmental site assessment 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.

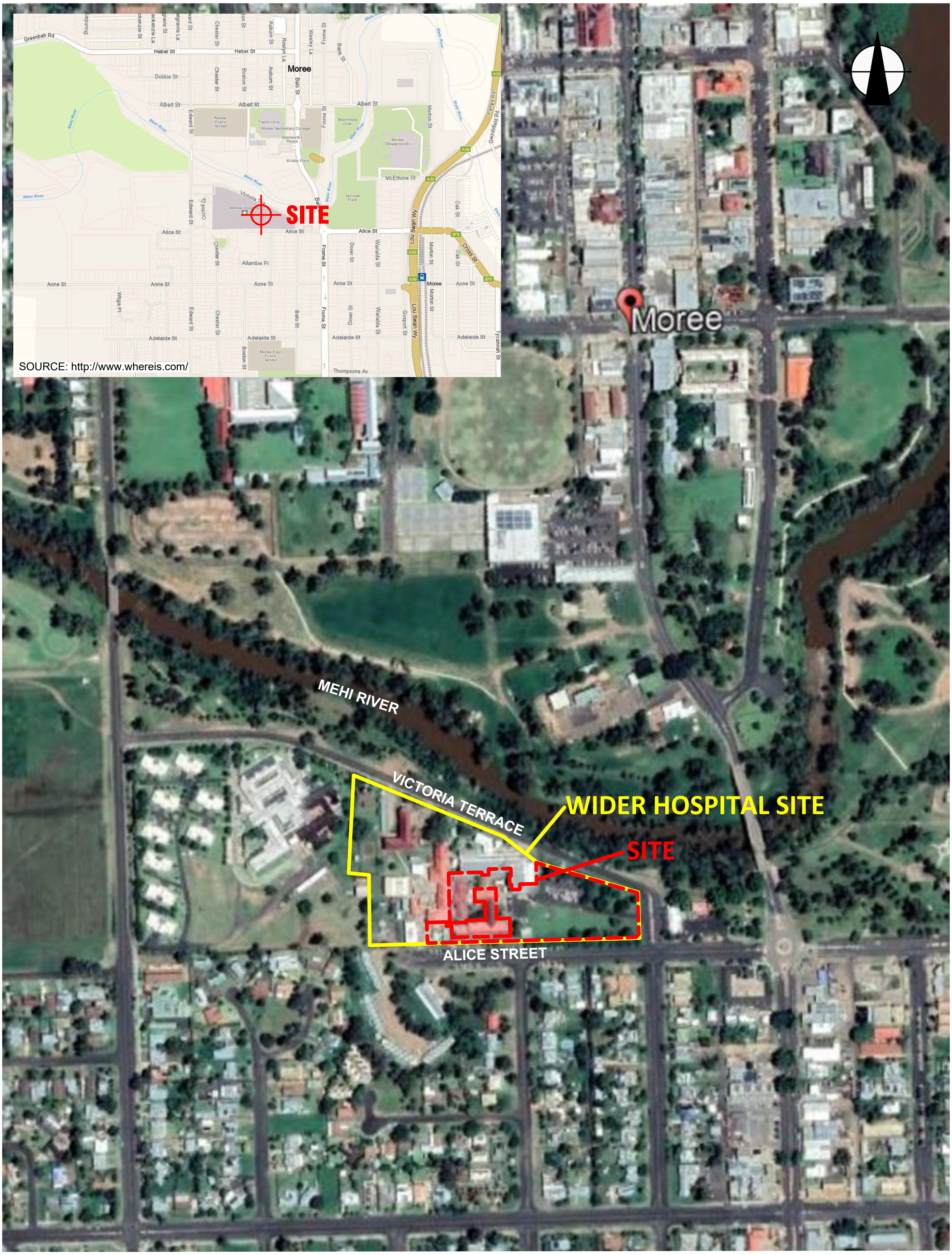
Misinterpretation of Site Assessments by Design Professionals
Costly problems can occur when other design professionals develop plans based on misinterpretation of an assessment report. To minimise problems associated with misinterpretations, the environmental consultant should be retained to work with 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 Assessment 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 assessment 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 assessment 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 assessment, and you are encouraged to read them closely. Your consultant will be pleased to give full and frank answers to any questions.

Appendix A: Report Figures



SOURCE: http://www.whereis.com/

AERIAL IMAGE SOURCE: EARTH.GOOGLE.COM

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

Title:

SITE LOCATION PLAN

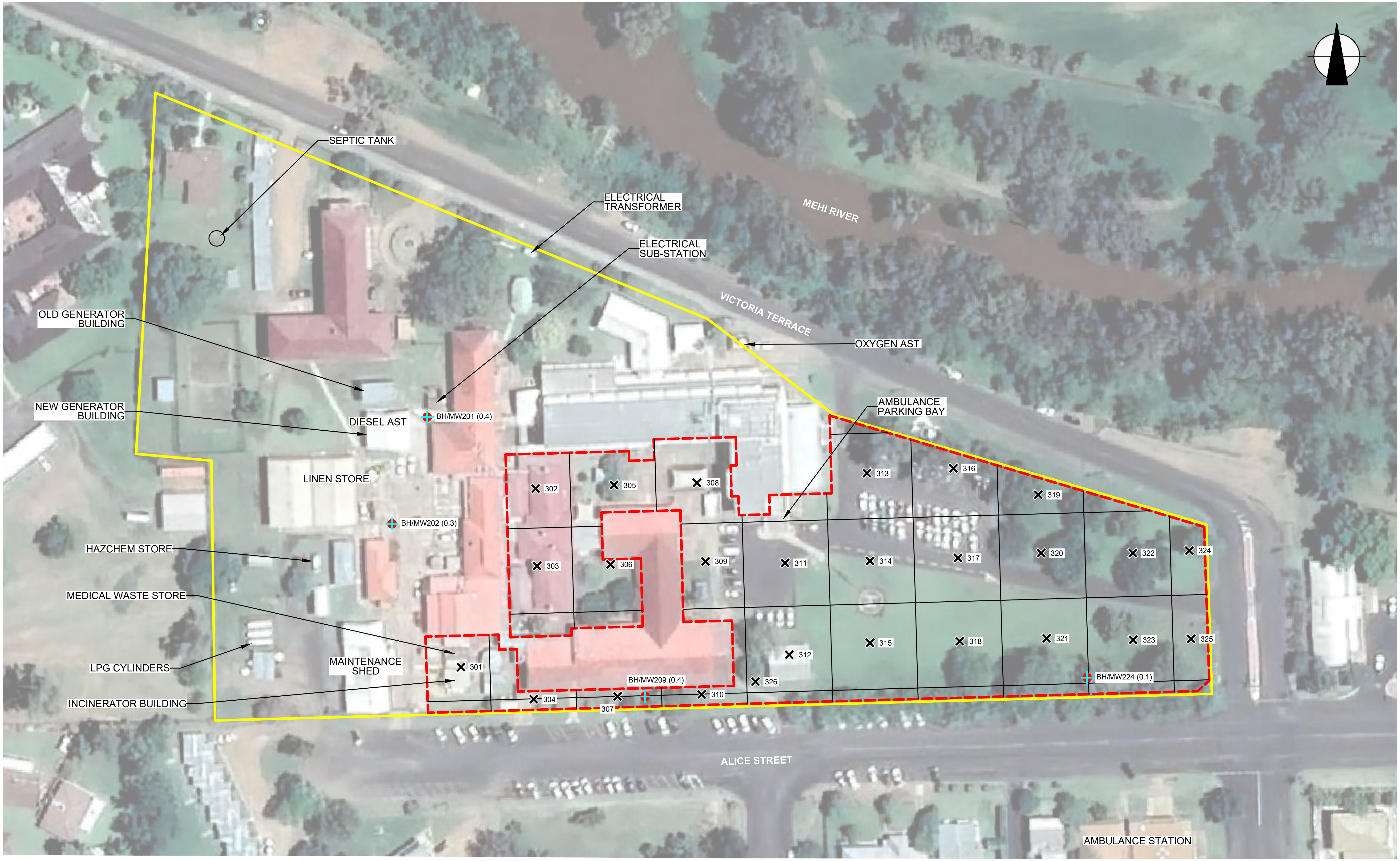
Location: MOREE HOSPITAL,
35 ALICE STREET, MOREE, NSW

Project No: E35092UPD

Figure No: 1

JKEnvironments

PLOT DATE: 1/11/2023 1:25:55 PM DWG FILE: K:\5C EIS JOBS\35000'S\E35092UPD MOREE\CAD\E35092UPD.DWG



LEGEND

🟥	APPROXIMATE SITE BOUNDARY
🟨	APPROXIMATE WIDER HOSPITAL BOUNDARY
⊕ BH/MW201	JKE, DSI 2023 BOREHOLE AND GROUNDWATER MONITORING WELL LOCATION, NUMBER AND DEPTH OF FILL (m)
✕ 301	PROPOSED SOIL SAMPLE 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: **PRE-REMEDIATION INVESTIGATION LOCATION PLAN**

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

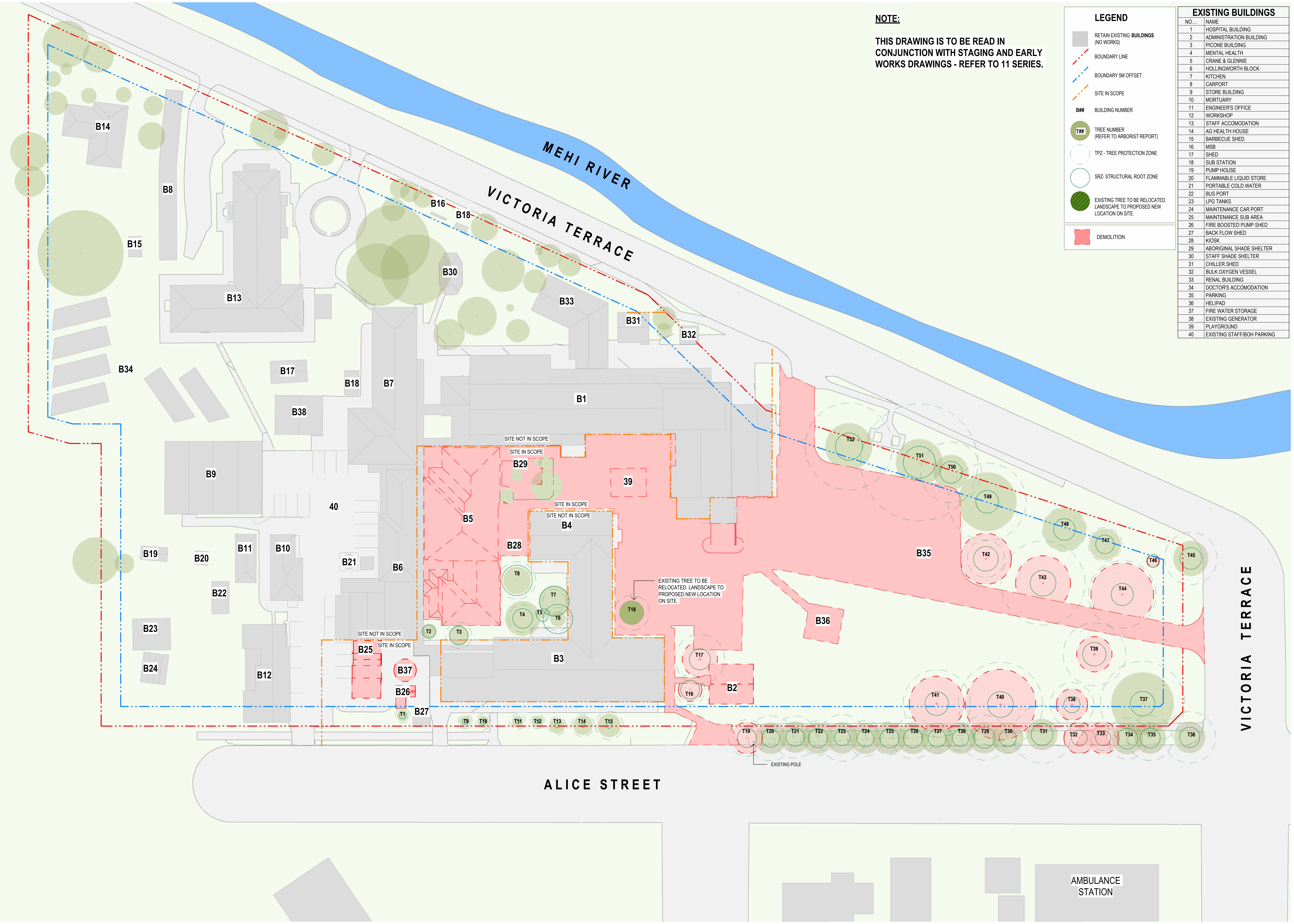
Project No: E35092UPD

Figure No: 2

JKEnvironments

PLOT DATE: 1/11/2023 1:26:13 PM DWG FILE: K:\5C EIS JOBS\35000'S\E35092UPD MOREE\CAD\E35092UPD.DWG

Appendix B: Selected Proposed Development Plans



NOTE:

THIS DRAWING IS TO BE READ IN CONJUNCTION WITH STAGING AND EARLY WORKS DRAWINGS - REFER TO 11 SERIES.

LEGEND

▨	RETAIN EXISTING **BUILDINGS** (NO WORKS)
─ · ─	BOUNDARY LINE
─ · ─	BOUNDARY 5M OFFSET
─ · ─	SITE IN SCOPE
B##	BUILDING NUMBER
T##	TREE NUMBER (REFER TO ARBORIST REPORT)
○	TPZ - TREE PROTECTION ZONE
○	SRZ- STRUCTURAL ROOT ZONE
●	EXISTING TREE TO BE RELOCATED. LANDSCAPE TO PROPOSED NEW LOCATION ON SITE.
🟥	DEMOLITION

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	SHED
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	EXISTING GENERATOR
39	PLAYGROUND
40	EXISTING STAFF/BOH PARKING

WORK IN PROGRESS

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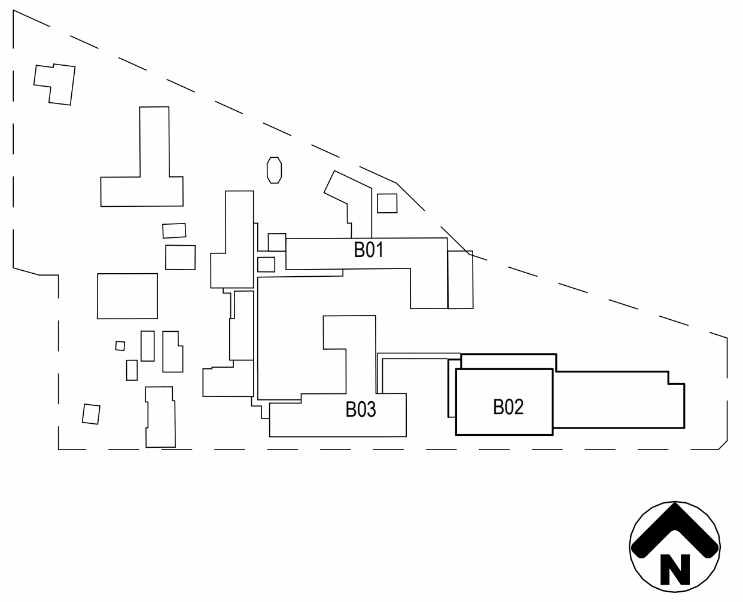
KEY PLAN



REV	DESCRIPTION	DRN	DATE
A	ISSUED FOR TENDER	NM	13/10/2023

GENERAL NOTES

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PRINCIPAL

NSW GOVERNMENT | Health Infrastructure

ISSUED FOR INFORMATION

PROJECT

MOREE HOSPITAL REDEVELOPMENT

35 Alice St, Moree NSW 2400

DRAWING TITLE

MANDATORY OPTION - DEMO PLAN

SCALE
1 : 500 @ A1

DRAWN BY
Author

CHECKED
Checker

DOCUMENT NUMBER
MHR-STH-AR-DR-SW-13XX01

REVISION
A

INTERNAL REFERENCE ONLY: STH PROJECT NO: 10649 | STH SHT NO: 13XX01

Autodesk Docs://10649.00_Moree Hospital Redevelopment/MHR-STH-AR-MO-B02-00-XX-01.rvt

LEGEND

▨	RETAIN EXISTING **BUILDINGS** (NO WORKS)
	BOUNDARY LINE
	BOUNDARY 5M OFFSET
	SITE IN SCOPE
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35	PARKING
36	HELIPAD
37	FIRE WATER STORAGE
38	EXISTING GENERATOR
39	PLAYGROUND
40	EXISTING STAFF/BOH PARKING

NEW BUILDING

NO.	NAME
2	ACUTE SERVICES BUILDING

NEW EXTERNAL SERVICES

N.	NAME
LD1	FIRE PUMP ROOM
LD2	HYD PUMP ROOM
LD3	MECH ANCILLARY PLANT
A	GENERATOR
B	COLD WATER TANK
C	FIRE WATER TANK
D	COMBINED BOOSTER
E	TEMPORARY GENERATOR STAND
F	SUBSTATION
G	CHILLER

WORK IN PROGRESS

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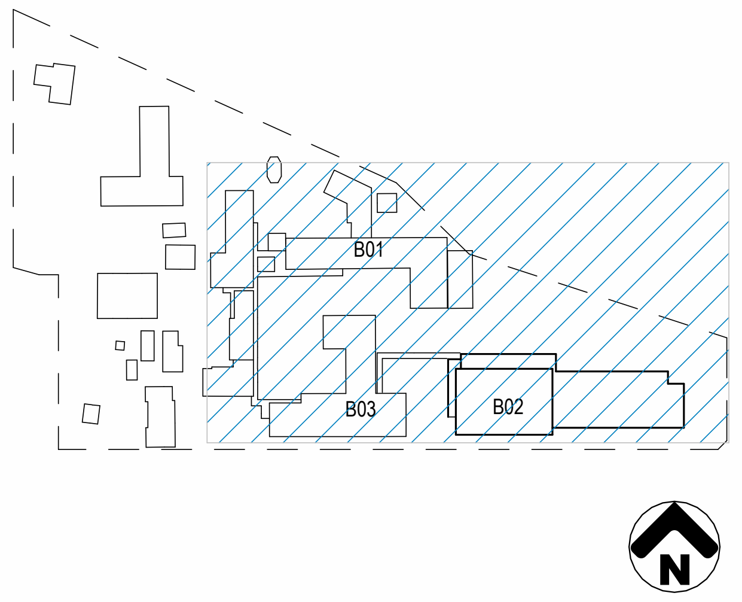
KEY PLAN



REV	DESCRIPTION	DRN	DATE
A	ISSUED FOR TENDER	NM	13/10/2023

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PRINCIPAL
NSW GOVERNMENT | Health Infrastructure

ISSUED FOR INFORMATION

PROJECT

MOREE HOSPITAL REDEVELOPMENT

35 Alice St, Moree NSW 2400

DRAWING TITLE

MANDATORY OPTION - PROPOSED SITE PLAN

SCALE	DRAWN BY	CHECKED
1 : 500 @ A1	Author	Checker

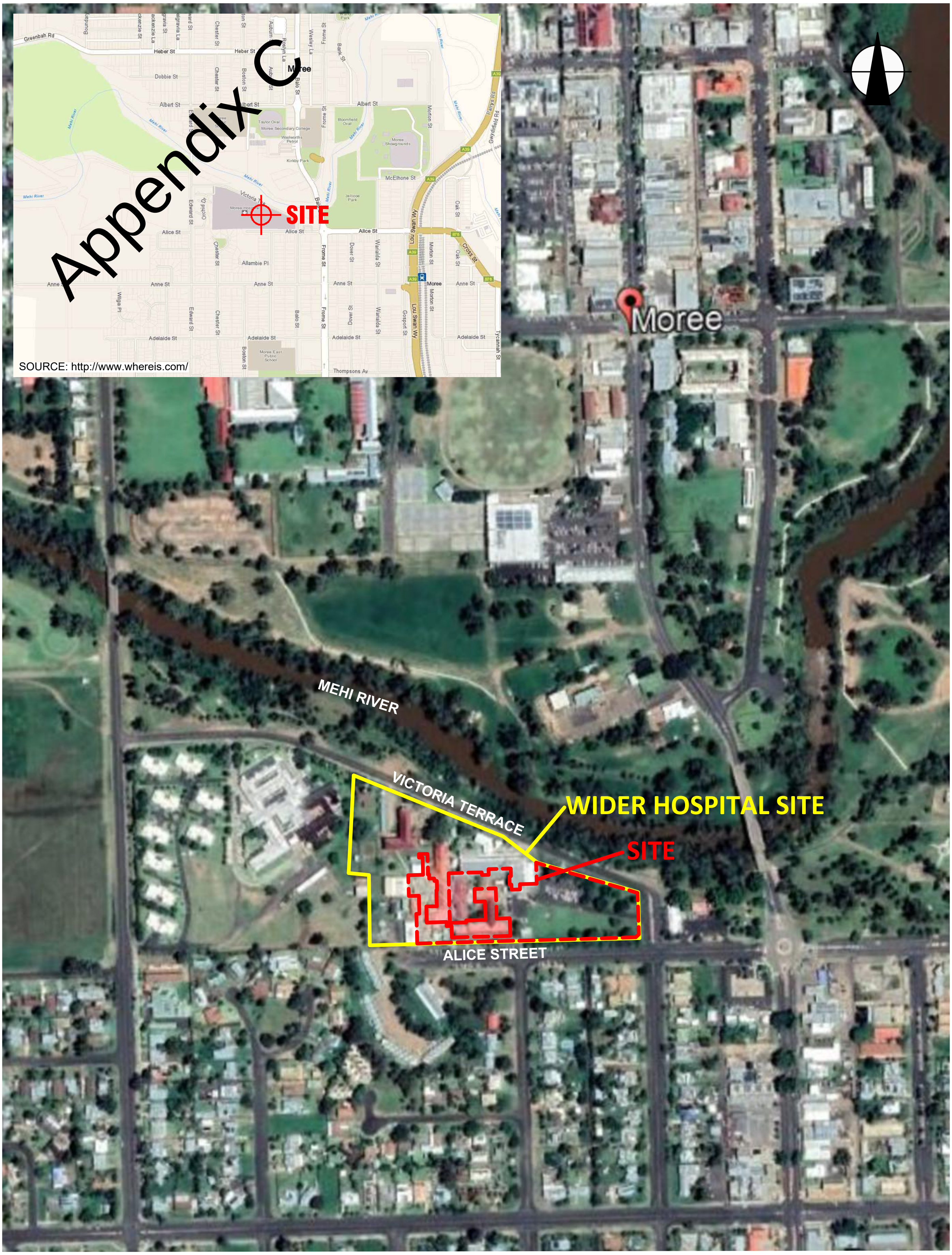
DOCUMENT NUMBER	REVISION
MHR-STH-AR-DR-SW-13XX02	A

INTERNAL REFERENCE ONLY: STH PROJECT NO: 10649 | STH SHT NO: 13XX02

Autodesk Docs://10649.00_Moree Hospital Redevelopment/MHR-STH-AR-MO-B02-00-XX-01.rvt

Appendix C: JKE PSI and DSI Figures and Summary Data Tables

Appendix C



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

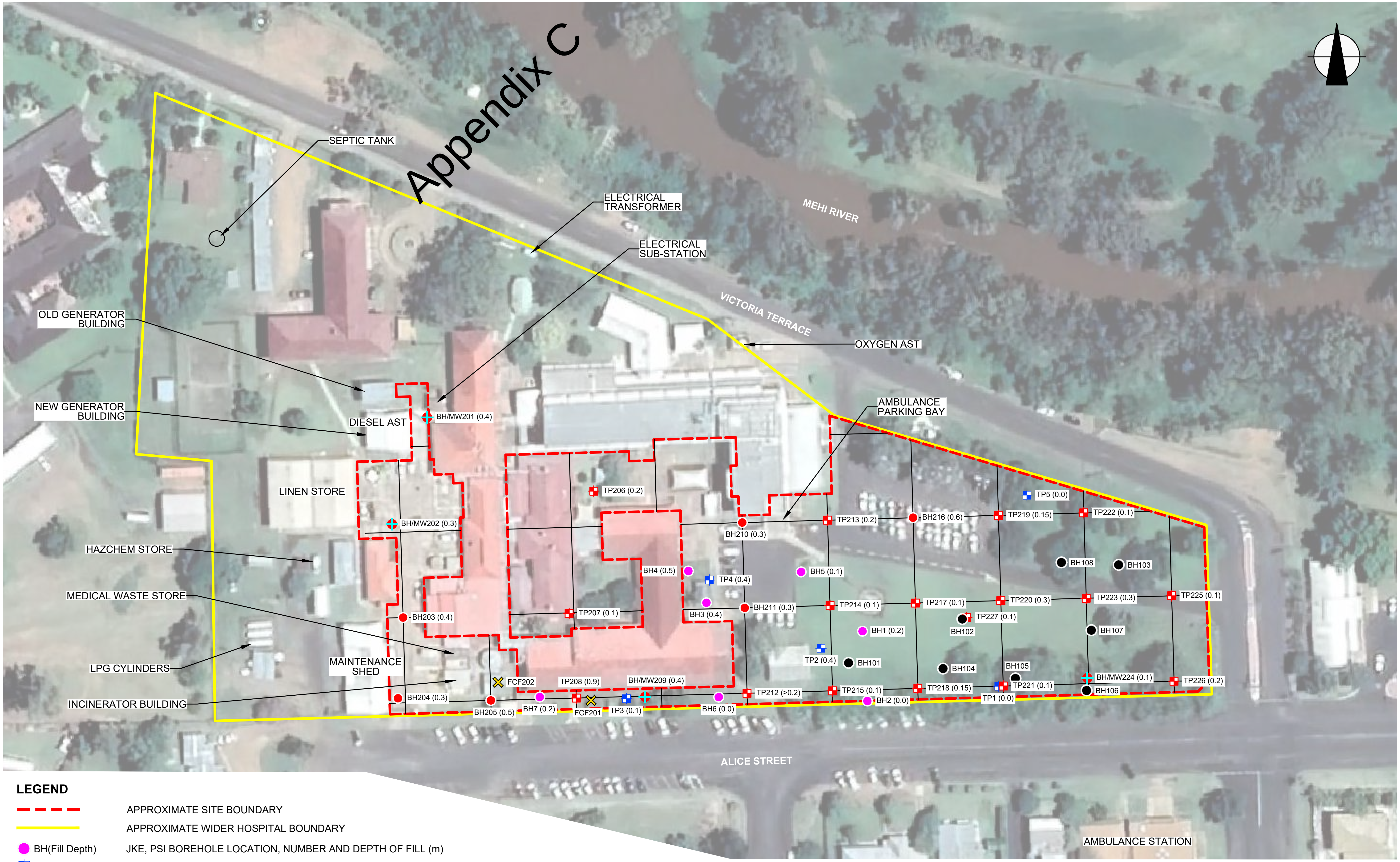
Project No: E35092UPD

Figure No: 1

JKEnvironments

PLOT DATE: 13/09/2023 3:09:00 PM DWG FILE: K:\5C EIS JOBS\35000'S\E35092UPD MOREE\CAD\E35092UPD.DWG

Appendix C



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

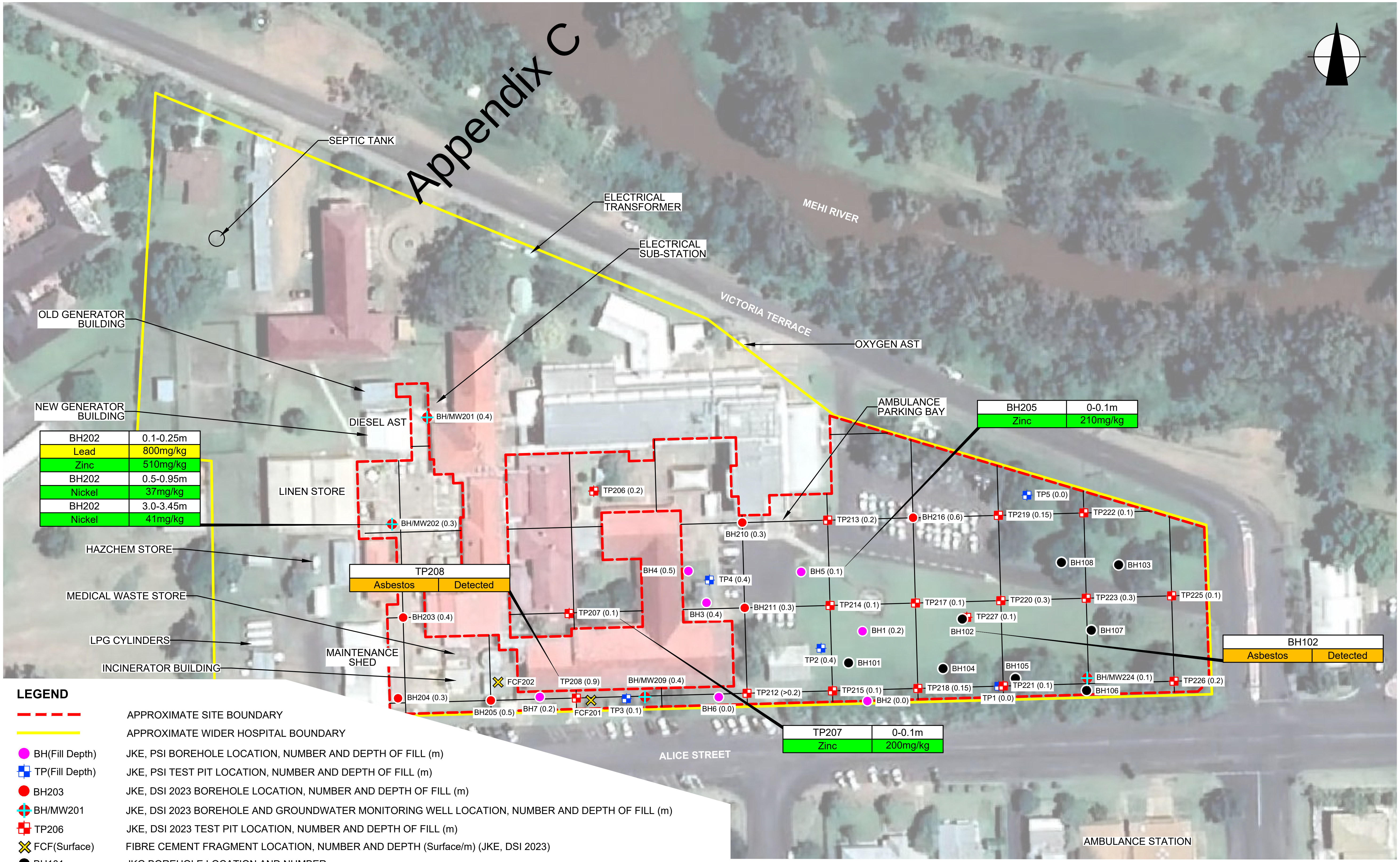
Project No: E35092UPD

Figure No: 2

JKEnvironments

PLOT DATE: 13/09/2023 3:09:17 PM DWG FILE: K:\5C EIS JOBS\35000'S\E35092UPD MOREE\CAD\E35092UPD.DWG

Appendix C



BH202	0.1-0.25m
Lead	800mg/kg
Zinc	510mg/kg
BH202	0.5-0.95m
Nickel	37mg/kg
BH202	3.0-3.45m
Nickel	41mg/kg

BH205	0-0.1m
Zinc	210mg/kg

TP208	
Asbestos	Detected

BH102	
Asbestos	Detected

TP207	0-0.1m
Zinc	200mg/kg

LEGEND

🟥 — — —	APPROXIMATE SITE BOUNDARY
🟨 ———	APPROXIMATE WIDER HOSPITAL BOUNDARY
● BH(Fill Depth)	JKE, PSI BOREHOLE LOCATION, NUMBER AND DEPTH OF FILL (m)
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▣ 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)	SOIL/SURFACE SAMPLE EXCEEDANCE
CHEMICAL	CONCENTRATION	

🟨	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

PLOT DATE: 13/09/2023 3:09:28 PM DWG FILE: K:\5C EIS JOBS\35000'S\E35092UPD MOREE\CAD\E35092UPD.DWG

PSI Tables and Borehole/Testpit Logs

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**																				
TP1	0-0.1	Silty Clay	<4	<0.4	**26**	**24**	**12**	<0.1	**24**	**47**	**1.5**	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	NA
TP1 (lab replicate)	0-0.1	Silty Clay	<4	<0.4	**25**	**24**	**11**	<0.1	**23**	**44**	**1.5**	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	NA
TP2	0-0.1	Fill: Sandy Clay	**4**	<0.4	**15**	**14**	**6**	<0.1	**15**	**29**	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	Not Detected
TP2	0.3-0.4	Fill: Sandy Gravel	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	Not Detected
TP3	0-0.1	Fill: Silty Clay	<4	<0.4	**25**	**22**	**21**	<0.1	**23**	**58**	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	Not Detected
TP4	0-0.1	Fill: Silty Clay	**5**	<0.4	**26**	**26**	**21**	<0.1	**24**	**53**	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	Not Detected
TP5	0-0.1	Silty Clay	<4	<0.4	**24**	**22**	**12**	<0.1	**25**	**44**	**0.05**	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	Not Detected
BH1	0-0.2	Fill: Sandy Clay	<4	<0.4	**18**	**16**	**7**	<0.1	**16**	**36**	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	Not Detected
BH2	0-0.2	Fill: Silty Clay	<4	<0.4	**22**	**19**	**10**	<0.1	**21**	**36**	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	NA
BH3	0-0.1	Fill: Silty Clay	<4	<0.4	**22**	**24**	**11**	<0.1	**21**	**45**	<0.05	<0.5	<0.1	<0.1	<0.1	**0.3**	<0.1	<0.1	<0.1	<0.1	<0.1	Not Detected
BH3 (lab replicate)	0-0.1	Fill: Silty Clay	<4	<0.4	**22**	**23**	**12**	<0.1	**20**	**47**	<0.05	<0.5	<0.1	<0.1	<0.1	**0.3**	<0.1	<0.1	<0.1	<0.1	<0.1	NA
BH4	0-0.1	Fill: Silty Clay	<4	<0.4	**25**	**23**	**15**	<0.1	**23**	**51**	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	Not Detected
BH5	0-0.1	Fill: Silty Clay	<4	<0.4	**19**	**18**	**8**	<0.1	**19**	**36**	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	Not Detected
BH6	0-0.2	Fill: Silty Clay	<4	<0.4	**22**	**19**	**48**	<0.1	**21**	**76**	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	Not Detected
BH7	0-0.1	Fill: Silty Clay	<4	<0.4	**20**	**22**	**18**	<0.1	**22**	**64**	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	Not Detected
SDUP3	-	Fill: Silty Clay	<4	<0.4	**21**	**19**	**10**	<0.1	**19**	**48**	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	NA
SDUP4	-	Fill: Silty Clay	**4**	<0.4	**24**	**120**	**28**	<0.1	**23**	**81**	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	NA
SDUP4 (lab replicate)	-	Fill: Silty Clay	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.1	NA	NA
FCF1-TP2	0.3-0.4	Fibre Cement Fragment	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	Not Detected
FCF2-TP2	0.3-.4	Fibre Cement Fragment	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.1	NA	Not Detected
Total Number of Samples			16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	18	16	13
Maximum Value			5	<PQL	26	120	48	<PQL	25	81	1.5	<PQL	<PQL	<PQL	<PQL	0.3	<PQL	<PQL	<PQL	<PQL	<PQL	Not Detected

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

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**								
TP1	0-0.1	Silty Clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	0
TP1 (lab replicate)	0-0.1	Silty Clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	0
TP2	0-0.1	Fill: Sandy Clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	0
TP3	0-0.1	Fill: Sandy Gravel	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	0
TP4	0-0.1	Fill: Silty Clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	0
TP5	0-0.1	Fill: Silty Clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	0
BH1	0-0.2	Silty Clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	0
BH2	0-0.2	Fill: Sandy Clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	0
BH2	1.0-1.2	Silty Clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	5.4
BH3	0-0.1	Fill: Silty Clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	0
BH3 (lab replicate)	0-0.1	Fill: Silty Clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	0
BH4	0-0.1	Fill: Silty Clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	0
BH5	0-0.1	Fill: Silty Clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	0
BH6	0-0.2	Fill: Silty Clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	0
BH7	0-0.1	Fill: Silty Clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	0
SDUP3	-	Fill: Silty Clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	0
SDUP4	-	Fill: Silty Clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	0
Total Number of Samples					17	17	17	17	17	17	17	17
Maximum Value					<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	5.4

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

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

HSL SOIL ASSESSMENT CRITERIA

Sample Reference	**Sample Depth**	**Sample Description**	**Depth Category**	**Soil Category**	C_6-C_{10} (F1)	>C_{10}-C_{16} (F2)	Benzene	Toluene	Ethylbenzene	Xylenes	Naphthalene
TP1	0-0.1	Silty Clay	0m to <1m	Sand	45	110	0.5	160	55	40	3
TP1 (lab replicate)	0-0.1	Silty Clay	0m to <1m	Sand	45	110	0.5	160	55	40	3
TP2	0-0.1	Fill: Sandy Clay	0m to <1m	Sand	45	110	0.5	160	55	40	3
TP3	0-0.1	Fill: Sandy Gravel	0m to <1m	Sand	45	110	0.5	160	55	40	3
TP4	0-0.1	Fill: Silty Clay	0m to <1m	Sand	45	110	0.5	160	55	40	3
TP5	0-0.1	Fill: Silty Clay	0m to <1m	Sand	45	110	0.5	160	55	40	3
BH1	0-0.2	Silty Clay	0m to <1m	Sand	45	110	0.5	160	55	40	3
BH2	0-0.2	Fill: Sandy Clay	0m to <1m	Sand	45	110	0.5	160	55	40	3
BH2	1.0-1.2	Fill: Silty Clay	0m to <1m	Sand	45	110	0.5	160	55	40	3
BH3	0-0.1	Fill: Silty Clay	0m to <1m	Sand	45	110	0.5	160	55	40	3
BH3 (lab replicate)	0-0.1	Fill: Silty Clay	0m to <1m	Sand	45	110	0.5	160	55	40	3
BH4	0-0.1	Fill: Silty Clay	0m to <1m	Sand	45	110	0.5	160	55	40	3
BH5	0-0.1	Fill: Silty Clay	0m to <1m	Sand	45	110	0.5	160	55	40	3
BH6	0-0.2	Fill: Silty Clay	0m to <1m	Sand	45	110	0.5	160	55	40	3
BH7	0-0.1	Fill: Silty Clay	0m to <1m	Sand	45	110	0.5	160	55	40	3
SDUP3	-	Fill: Silty Clay	0m to <1m	Sand	45	110	0.5	160	55	40	3
SDUP4	-	Fill: Silty Clay	0m to <1m	Sand	45	110	0.5	160	55	40	3

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

			C_6-C_{10} (F1) plus BTEX	$>C_{10}$-C_{16} (F2) plus 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**				
TP1	0-0.1	Coarse	<25	<50	<100	<100
TP1 (lab replicate)	0-0.1	Coarse	<25	<50	<100	<100
TP2	0-0.1	Coarse	<25	<50	<100	<100
TP3	0-0.1	Coarse	<25	<50	<100	<100
TP4	0-0.1	Coarse	<25	<50	<100	<100
TP5	0-0.1	Coarse	<25	<50	<100	<100
BH1	0-0.2	Coarse	<25	<50	<100	<100
BH2	0-0.2	Coarse	<25	<50	<100	<100
BH2	1.0-1.2	Coarse	<25	<50	<100	<100
BH3	0-0.1	Coarse	<25	<50	<100	<100
BH3 (lab replicate)	0-0.1	Coarse	<25	<50	<100	<100
BH4	0-0.1	Coarse	<25	<50	<100	<100
BH5	0-0.1	Coarse	<25	<50	<100	<100
BH6	0-0.2	Coarse	<25	<50	<100	<100
BH7	0-0.1	Coarse	<25	<50	<100	<100
SDUP3	-	Coarse	<25	<50	<100	<100
SDUP4	-	Coarse	<25	<50	<100	<100
Total Number of Samples			17	17	17	17
Maximum Value			<PQL	<PQL	<PQL	<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)
TP1	0-0.1	Coarse	700	1000	2500	10000
TP1 (lab replicate)	0-0.1	Coarse	700	1000	2500	10000
TP2	0-0.1	Coarse	700	1000	2500	10000
TP3	0-0.1	Coarse	700	1000	2500	10000
TP4	0-0.1	Coarse	700	1000	2500	10000
TP5	0-0.1	Coarse	700	1000	2500	10000
BH1	0-0.2	Coarse	700	1000	2500	10000
BH2	0-0.2	Coarse	700	1000	2500	10000
BH2	1.0-1.2	Coarse	700	1000	2500	10000
BH3	0-0.1	Coarse	700	1000	2500	10000
BH3 (lab replicate)	0-0.1	Coarse	700	1000	2500	10000
BH4	0-0.1	Coarse	700	1000	2500	10000
BH5	0-0.1	Coarse	700	1000	2500	10000
BH6	0-0.2	Coarse	700	1000	2500	10000
BH7	0-0.1	Coarse	700	1000	2500	10000
SDUP3	-	Coarse	700	1000	2500	10000
SDUP4	-	Coarse	700	1000	2500	10000

TABLE S4
SOIL LABORATORY RESULTS COMPARED T0 DIRECT CONTACT CRITERIA
All data in mg/kg unless stated otherwise

Analyte		C_6-C_{10}	>C_{10}-C_{16}	>C_{16}-C_{34}	>C_{34}-C_{40}	Benzene	Toluene	Ethylbenzene	Xylenes	Naphthalene	PID
PQL - Envirolab Services		25	50	100	100	0.2	0.5	1	1	1	
CRC 2011 -Direct contact Criteria		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**										
TP1	0-0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	0
TP1 (lab replicate)	0-0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	0
TP2	0-0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	0
TP3	0-0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	0
TP4	0-0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	0
TP5	0-0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	0
BH1	0-0.2	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	0
BH2	0-0.2	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	0
BH2	1.0-1.2	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	**5.4**
BH3	0-0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	0
BH3 (lab replicate)	0-0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	0
BH4	0-0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	0
BH5	0-0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	0
BH6	0-0.2	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	0
BH7	0-0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	0
SDUP3	-	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	0
SDUP4	-	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	0
Total Number of Samples		17	17	17	17	17	17	17	17	17	17
Maximum Value		<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	5.4

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 Estimatio n %(w/w)
SAC			**No**					**0.02**			**0.001**			**0.001**											**0.02**	**0.001**
6/06/2022	TP1	0-0.1	No	10	10,710	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	--	--	--	--	--	--	--	--	--	--	--	--
6/06/2022	TP1	0.1-1.0	No	10	10,710	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	--	--	--	--	--	--	--	--	--	--	--	--
6/06/2022	TP2	0-0.1	No	10	11.950	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	297817	TP2	0-0.1	782.38	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
6/06/2022	TP2	0.1-0.4	No	10	10,820	No ACM observed*	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	297817	TP2	0.3-0.4	779.04	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
6/06/2022	TP2	0.4-0.6	No	10	10,570	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	--	--	--	--	--	--	--	--	--	--	--	--
6/06/2022	TP3	0-0.1	No	10	10,670	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	297817	TP3	0-0.1	696.14	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
6/06/2022	TP4	0-0.1	No	10	10,270	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	297817	TP4	0-0.1	625.02	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
6/06/2022	TP4	0.1-0.4	No	10	11,020	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	--	--	--	--	--	--	--	--	--	--	--	--
6/06/2022	TP5	0-0.1	No	10	10,660	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	297817	TP5	0-0.1	594.05	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
6/06/2022	BH1	0-0.2	No	10	10,210	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	297817	BH1	0-0.2	649.44	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
6/06/2022	BH2	0-0.2	No	10	10,870	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	--	--	--	--	--	--	--	--	--	--	--	--
7/06/2022	BH3	0-0.1	No	10	10,190	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	297817	BH3	0-0.1	727.27	No asbestos detected at reporting limit of 0.1g/kg: Organic fibres detected	No asbestos detected	<0.1	No visible asbestos detected	--	--	<0.01	<0.001
7/06/2022	BH3	0.1-0.4	No	NA	4,150	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	--	--	--	--	--	--	--	--	--	--	--	--
7/06/2022	BH4	0-0.1	No	10	10,150	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	297817	BH4	0-0.1	588.28	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
7/06/2022	BH4	0.1-0.5	No	NA	6,110	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	--	--	--	--	--	--	--	--	--	--	--	--
7/06/2022	BH5	0-0.1	No	10	11,080	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	297817	BH5	0-0.1	709.28	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
7/06/2022	BH6	0-0.2	No	10	10,720	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	297817	BH6	0-0.2	531.75	No asbestos detected at reporting limit of 0.1g/kg: Organic fibres detected	No asbestos detected	<0.1	No visible asbestos detected	--	--	<0.01	<0.001
7/06/2022	BH7	0-0.1	No	10	10,010	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	297817	BH7	0-0.1	697.42	No asbestos detected at reporting limit of 0.1g/kg: Organic fibres detected	No asbestos detected	<0.1	No visible asbestos detected	--	--	<0.01	<0.001
7/06/2022	BH7	0.1-0.2	No	NA	3,600	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Concentration above the SAC **VALUE**
* Fibre cement fragments were encountered in fill in TP2, however laboratory analysis did not identify asbestos fibres in the fragments (refer to Table S1).

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**																				
TP1	0-0.1	Silty Clay	Fine	NA	NA	NA	<4	**26**	**24**	**12**	**24**	**47**	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	**0.2**
TP1 (lab replicate)	0-0.1	Silty Clay	Fine	NA	NA	NA	<4	**25**	**24**	**11**	**23**	**44**	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	**0.2**
TP2	0-0.1	Fill: Sandy Clay	Fine	NA	NA	NA	**4**	**15**	**14**	**6**	**15**	**29**	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.05
TP3	0-0.1	Fill: Sandy Gravel	Coarse	NA	NA	NA	<4	**25**	**22**	**21**	**23**	**58**	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.05
TP4	0-0.1	Fill: Silty Clay	Fine	NA	NA	NA	**5**	**26**	**26**	**21**	**24**	**53**	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.05
TP5	0-0.1	Fill: Silty Clay	Fine	NA	NA	NA	<4	**24**	**22**	**12**	**25**	**44**	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	**0.05**
BH1	0-0.2	Silty Clay	Fine	NA	NA	NA	<4	**18**	**16**	**7**	**16**	**36**	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.05
BH2	0-0.2	Fill: Sandy Clay	Fine	NA	NA	NA	<4	**22**	**19**	**10**	**21**	**36**	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.05
BH2	1.0-1.2	Silty Clay	Fine	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA	<25	<50	<100	<100	<0.2	<0.5	<1	<1	NA
BH3	0-0.1	Fill: Silty Clay	Fine	NA	NA	NA	<4	**22**	**24**	**11**	**21**	**45**	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.05
BH3 (lab replicate)	0-0.1	Fill: Silty Clay	Fine	NA	NA	NA	<4	**22**	**23**	**12**	**20**	**47**	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.05
BH4	0-0.1	Fill: Silty Clay	Fine	NA	NA	NA	<4	**25**	**23**	**15**	**23**	**51**	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.05
BH5	0-0.1	Fill: Silty Clay	Fine	NA	NA	NA	<4	**19**	**18**	**8**	**19**	**36**	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.05
BH6	0-0.2	Fill: Silty Clay	Fine	NA	NA	NA	<4	**22**	**19**	**48**	**21**	**76**	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.05
BH7	0-0.1	Fill: Silty Clay	Fine	NA	NA	NA	<4	**20**	**22**	**18**	**22**	**64**	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.05
SDUP3	-	Fill: Silty Clay	Fine	NA	NA	NA	<4	**21**	**19**	**10**	**19**	**48**	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.05
SDUP4	-	Fill: Silty Clay	Fine	**8.2**	**20**	**39**	**4**	**24**	**120**	**28**	**23**	**81**	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.05
Total Number of Samples				1	1	1	16	16	16	16	16	16	17	16	17	17	17	17	17	17	17	17	16
Maximum Value				8.2	20	39	5	26	120	48	25	81	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	0.2

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
TP1	0-0.1	Silty Clay	Fine	NA	NA	NA	100	200	90	1300	35	190	170	180	180	120	1300	5600	65	105	125	45	20
TP1 (lab replicate)	0-0.1	Silty Clay	Fine	NA	NA	NA	100	200	90	1300	35	190	170	180	180	120	1300	5600	65	105	125	45	20
TP2	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
TP3	0-0.1	Fill: Sandy Gravel	Coarse	NA	NA	NA	100	200	90	1300	35	190	170	180	180	120	300	2800	50	85	70	105	20
TP4	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
TP5	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
BH1	0-0.2	Silty Clay	Fine	NA	NA	NA	100	200	90	1300	35	190	170	180	180	120	1300	5600	65	105	125	45	20
BH2	0-0.2	Fill: Sandy Clay	Fine	NA	NA	NA	100	200	90	1300	35	190	170	180	180	120	1300	5600	65	105	125	45	20
BH2	1.0-1.2	Silty Clay	Fine	NA	NA	NA	--	--	--	--	--	--	170	--	180	120	1300	5600	65	105	125	45	--
BH3	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
BH3 (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
BH4	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
BH5	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
BH6	0-0.2	Fill: Silty Clay	Fine	NA	NA	NA	100	200	90	1300	35	190	170	180	180	120	1300	5600	65	105	125	45	20
BH7	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
SDUP3	-	Fill: Silty Clay	Fine	NA	NA	NA	100	200	90	1300	35	190	170	180	180	120	1300	5600	65	105	125	45	20
SDUP4	-	Fill: Silty Clay	Fine	8.2	20	39	100	410	240	1300	280	820	170	180	180	120	1300	5600	65	105	125	45	20

TABLE S7

SOIL LABORATORY RESULTS COMPARED TO WASTE CLASSIFICATION GUIDELINES

All data in mg/kg unless stated otherwise

			HEAVY METALS								PAHs		OC/OP PESTICIDES				Total PCBs	TRH					BTEX COMPOUNDS				ASBESTOS FIBRES
			Arsenic	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Zinc	Total PAHs	B(a)P	Total Endosulfans	Chloropyrifos	Total Moderately Harmful	Total Scheduled		C_6-C_9	C_{10}-C_{14}	C_{15}-C_{28}	C_{29}-C_{36}	Total C_{10}-C_{36}	Benzene	Toluene	Ethyl benzene	Total Xylenes	
PQL - Envirolab Services			4	0.4	1	1	1	0.1	1	1	-	0.05	0.1	0.1	0.1	0.1	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**																									
TP1	0-0.1	Silty Clay	<4	<0.4	**26**	**24**	**12**	<0.1	**24**	**47**	**1.5**	**0.2**	<0.1	<0.1	<0.1	<0.1	<0.1	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<1	NA
TP1 (lab replicate)	0-0.1	Silty Clay	<4	<0.4	**25**	**24**	**11**	<0.1	**23**	**44**	**1.5**	**0.2**	<0.1	<0.1	<0.1	<0.1	<0.1	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<1	NA
TP2	0-0.1	Fill: Sandy Clay	**4**	<0.4	**15**	**14**	**6**	<0.1	**15**	**29**	<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
TP2	0.3-0.4	Fill: Sandy Gravel	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	Not Detected
TP3	0-0.1	Fill: Silty Clay	<4	<0.4	**25**	**22**	**21**	<0.1	**23**	**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	Not Detected
TP4	0-0.1	Fill: Silty Clay	**5**	<0.4	**26**	**26**	**21**	<0.1	**24**	**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	Not Detected
TP5	0-0.1	Silty Clay	<4	<0.4	**24**	**22**	**12**	<0.1	**25**	**44**	**0.05**	**0.05**	<0.1	<0.1	<0.1	<0.1	<0.1	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<1	Not Detected
BH1	0-0.2	Fill: Sandy Clay	<4	<0.4	**18**	**16**	**7**	<0.1	**16**	**36**	<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
BH2	0-0.2	Fill: Silty Clay	<4	<0.4	**22**	**19**	**10**	<0.1	**21**	**36**	<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
BH2	1.0-1.2	Silty Clay	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<1	NA
BH3	0-0.1	Fill: Silty Clay	<4	<0.4	**22**	**24**	**11**	<0.1	**21**	**45**	<0.05	<0.05	<0.1	<0.1	<0.1	**0.3**	<0.1	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<1	Not Detected
BH3 (lab replicate)	0-0.1	Fill: Silty Clay	<4	<0.4	**22**	**23**	**12**	<0.1	**20**	**47**	<0.05	<0.05	<0.1	<0.1	<0.1	**0.3**	<0.1	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<1	NA
BH4	0-0.1	Fill: Silty Clay	<4	<0.4	**25**	**23**	**15**	<0.1	**23**	**51**	<0.05	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<1	Not Detected
BH5	0-0.1	Fill: Silty Clay	<4	<0.4	**19**	**18**	**8**	<0.1	**19**	**36**	<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
BH6	0-0.2	Fill: Silty Clay	<4	<0.4	**22**	**19**	**48**	<0.1	**21**	**76**	<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
BH7	0-0.1	Fill: Silty Clay	<4	<0.4	**20**	**22**	**18**	<0.1	**22**	**64**	<0.05	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<1	Not Detected
SDUP3	-	Fill: Silty Clay	<4	<0.4	**21**	**19**	**10**	<0.1	**19**	**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
SDUP4	-	Fill: Silty Clay	**4**	<0.4	**24**	**120**	**28**	<0.1	**23**	**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	NA
SDUP4 (lab replicate)	-	Fill: Silty Clay	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.1	<0.1	<0.1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Number of Samples			16	16	16	16	16	16	16	16	16	16	16	17	17	17	16	17	17	17	17	17	17	17	17	17	11
Maximum Value			5	<PQL	26	120	48	<PQL	25	81	1.5	0.2	<PQL	<PQL	<PQL	0.3	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	Not Detected

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

TABLE S8
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	BH5	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
	SDUP3	-	<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	BH7	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
	SDUP4	-	<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
Field Blank	TB-S1 6-7/06/2022	-	NA	NA	NA	NA	<0.2	<0.5	<1	<2	<1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Trip Spike	TS-S1 6-7/06/2022		-	-	-	-	97%	97%	97%	97%	97%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Field Rinsate	FR-S1-SPT 7/06/22	µg/L	NA	NA	NA	NA	<1	<1	<1	<2	<1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

			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	BH5	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
	SDUP3	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<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	BH7	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
	SDUP4	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<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-S1 6-7/06/2022	-	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Trip Spike	TS-S1 6-7/06/2022		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Field Rinsate	FR-S1-SPT 7/06/22	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

			Azinphos-methyl (Guthion)	Bromophos-ethyl	Chlorpyriphos	Chlorpyriphos-methyl	Diazinon	Dichlorvos	Dimethoate	Ethion	Fenitrothion	Malathion	Parathion	Ronnel	Total PCBS
	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*
	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*
Intra laboratory duplicate	BH5	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
	SDUP3	-	<0.1	<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
	RPD %		nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc
Inter laboratory duplicate	BH7	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
	SDUP4	-	<0.1	<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
	RPD %		nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc
Field Blank	TB-S1 6-7/06/2022	-	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Trip Spike	TS-S1 6-7/06/2022		-	-	-	-	-	-	-	-	-	-	-	-	-
Field Rinsate	FR-S1-SPT 7/06/22	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

			Arsenic	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Zinc
	PQL Envirolab SYD		*4*	*0.4*	*1*	*1*	*1*	*0.1*	*1*	*1*
	PQL Envirolab VIC		*4.0*	*0.4*	*1.0*	*1.0*	*1.0*	*0.1*	*1.0*	*1.0*
Intra laboratory duplicate	BH5	0-0.1	<4	<0.4	19	18	8	<0.1	19	36
	SDUP3	-	<4	<0.4	21	19	10	<0.1	19	48
	MEAN		nc	nc	20	18.5	9	nc	19	42
	RPD %		nc	nc	10%	5%	22%	nc	0%	29%
Inter laboratory duplicate	BH7	0-0.1	<4	<0.4	20	22	18	<0.1	22	64
	SDUP4	-	4	<0.4	24	120	28	<0.1	23	81
	MEAN		3	nc	22	71	23	nc	22.5	72.5
	RPD %		67%	nc	18%	138%	43%	nc	4%	23%
Field Blank	TB-S1 6-7/06/2022	-	NA	NA	NA	NA	NA	NA	NA	NA
Trip Spike	TS-S1 6-7/06/2022		-	-	-	-	-	-	-	-
Field Rinsate	FR-S1-SPT 7/06/22	µg/L	NA	NA	NA	NA	NA	NA	NA	NA

Result outside of QA/QC acceptance criteria 🟨

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BOREHOLE LOG

Borehole No.
1
1/1

Client: HI
Project: PROPOSED ALTERATIONS AND ADDITIONS
Location: 35 ALICE STREET, MOREE, NSW

Job No.: 35092UR **Method:** SPIRAL AUGER **R.L. Surface:** ≈ 209.0m
Date: 6/6/22 **Datum:** AHD
Plant Type: TS350 **Logged/Checked by:** R.G.S./P.R.

Groundwater Record	SAMPLES ES	SAMPLES U50	SAMPLES DB	SAMPLES DS	Field Tests	Depth (m)	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
DRY ON COMPLETION	■		■			0		FILL: Sandy clay, low plasticity, dark brown, fine to coarse grained sand, with fine to coarse grained gravel, and roots.				SCREEN: 10.21kg 0-0.2m NO FCF
	■						CH	Silty CLAY: high plasticity, dark grey brown.	w>PL	Hd		ALLUVIAL
									w<PL			
	■			■	N = 25 7,10,15	1					>600	
						2						
				■	N = 20 10,11,9						>600	
						3						
				■	N = 18 7,8,10	4	ML	Sandy SILT: low plasticity, brown, fine grained sand.	w<PL	Hd		
						5						
				■	N = 25 7,14,11		SP	SAND: fine to coarse grained, brown, trace of silt and clay fines.	D	D-VD		
						6		END OF BOREHOLE AT 5.95m				
						7						

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BOREHOLE LOG

Borehole No.
2
1/1

Client: HI

Project: PROPOSED ALTERATIONS AND ADDITIONS

Location: 35 ALICE STREET, MOREE, NSW

Job No.: 35092UR **Method:** SPIRAL AUGER **R.L. Surface:** ≈ 208.5m

Date: 6/6/22 **Datum:** AHD

Plant Type: TS350 **Logged/Checked by:** R.G.S./P.R.

Groundwater Record	SAMPLES ES	SAMPLES U50	SAMPLES DB	SAMPLES DS	Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
DRY ON COMPLETION	■		■			0			TOPSOIL: Silty clay, low plasticity, dark brown, with roots.	w>PL			SCREEN: 10.81kg 0-0.2m NO FCF
								CH	Silty CLAY: high plasticity, dark grey brown.	w<PL	Hd		ALLUVIAL
	■			■	N = 28 5,12,16	1						>600	
						2							
				■	N = 20 10,9,11				as above, but trace of fine grained sand.			>600	
						3							
				■	N = 33 10,14,19	4						>600	
						5							
				■	N = 28 4,12,16				as above, but grey.				
						6			END OF BOREHOLE AT 5.95m				
						7							

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BOREHOLE LOG

Borehole No.
3
1/1

Client: HI
Project: PROPOSED ALTERATIONS AND ADDITIONS
Location: 35 ALICE STREET, MOREE, NSW

Job No.: 35092UR **Method:** SPIRAL AUGER **R.L. Surface:** ≈ 208.8m
Date: 7/6/22 **Datum:** AHD
Plant Type: TS350 **Logged/Checked by:** R.G.S./P.R.

Groundwater Record	SAMPLES ES	SAMPLES U50	SAMPLES DB	SAMPLES DS	Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
DRY ON COMPLETION	■ ■		■			0	▨		FILL: Silty clay, medium plasticity, dark brown, trace of fine to medium grained gravel.	w>PL			GRASS COVER TOP 100mm ROOT AFFECTED SCREEN: 10.19kg 0-0.1m NO FCF
			■			1	▨	CH	Silty CLAY: high plasticity, dark grey brown.	w>PL	VSt	210	SCREEN: 4.15kg 0.1-0.4 NO FCF ALLUVIAL
	■			■	N = 18 5,7,11	2	▨				VSt- Hd	500	
				■	N = 20 8,9,11	3	▨					450	
				■	N = 18 8,8,10	4 5	▨					380 410	
				■	N = 24 12,12,12	6	▨	SP	SAND: fine to coarse grained, brown, trace of fine to medium grained, sub-rounded, gravel, and silt and clay fines.	M	MD		
						7			END OF BOREHOLE AT 6.45m				

BOREHOLE LOG

Borehole No.
4
1/1

Client: HI
Project: PROPOSED ALTERATIONS AND ADDITIONS
Location: 35 ALICE STREET, MOREE, NSW

Job No.: 35092UR **Method:** SPIRAL AUGER **R.L. Surface:** ≈ 208.8m
Date: 7/6/22 **Datum:** AHD
Plant Type: TS350 **Logged/Checked by:** R.G.S./P.R.

Groundwater Record	SAMPLES ES	SAMPLES U50	SAMPLES DB	SAMPLES DS	Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
DRY ON COMPLETION	■ ■		■			0	▩		FILL: Silty clay, medium plasticity, dark brown, trace of fine to medium grained gravel.	w>PL			GRASS COVER TOP 100mm ROOT AFFECTED
							▨	CI-CH	Silty CLAY: medium to high plasticity, dark grey brown.	w<PL	Hd		SCREEN: 10.15kg 0-0.1m NO FCF SCREEN: 6.11kg 0.1-0.5m NO FCF ALLUVIAL
	■			■	N = 34 11,15,19	1	▨					>600	
						2	▨						
				■	N = 42 11,15,27		▨					>600	
						3	▨						
				■	N = 22 8,9,13	4	▨		as above, but with fine grained sand.			460	
						5	▨						
				■	N = 18 10,9,9		⁘	SP	SAND: fine to medium grained, brown, trace of silt fines.	M	MD		
						6			END OF BOREHOLE AT 5.95m				
						7							

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BOREHOLE LOG

Borehole No.
5
1/1

SDUP3: 0-0.1m

Client: HI

Project: PROPOSED ALTERATIONS AND ADDITIONS

Location: 35 ALICE STREET, MOREE, NSW

Job No.: 35092UR **Method:** SPIRAL AUGER **R.L. Surface:** ≈ 208.8m

Date: 7/6/22 **Datum:** AHD

Plant Type: TS350 **Logged/Checked by:** R.G.S./P.R.

Groundwater Record	SAMPLES ES	U50	DB	DS	Field Tests	Depth (m)	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
DRY ON COMPLETION	■		■			0		FILL: Silty clay, medium plasticity, dark brown, with fine to medium grained sand, and roots.	w>PL		250	SCREEN: 11.08kg 0-0.1m NO FCF
							CH	Silty CLAY: high plasticity, dark grey brown.	w<PL	Hd		ALLUVIAL
	■											
				■	N = 34 13,17,17	1					>600	
						2						
				■	N = 41 12,17,24						>600	
						3						
				■	N = 18 6,7,11	4	CL-CI	Sandy silty CLAY: low to medium plasticity, brown, fine to medium grained sand, with fine to medium grained sand lenses			>600	
						5						
				■	N = 22 14,11,11		SP	SAND: fine to coarse grained, brown, with fine to medium grained, sub-rounded, gravel, and clay fines.	M	MD		
						6		END OF BOREHOLE AT 5.95m				
						7						

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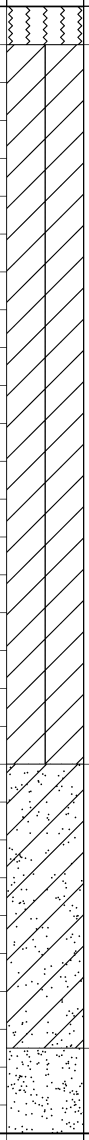
BOREHOLE LOG

Borehole No.
6
1/1

Client: HI
Project: PROPOSED ALTERATIONS AND ADDITIONS
Location: 35 ALICE STREET, MOREE, NSW

Job No.: 35092UR **Method:** SPIRAL AUGER **R.L. Surface:** ≈ 208.8m
Date: 7/6/22 **Datum:** AHD
Plant Type: TS350 **Logged/Checked by:** R.G.S./P.R.



Groundwater Record	SAMPLES ES	SAMPLES U50	SAMPLES DB	SAMPLES DS	Field Tests	Depth (m)	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
	■		■			0		TOPSOIL: Silty clay, medium plasticity, brown, with roots.	w>PL			SCREEN: 10.72kg 0-0.2m NO FCF
							CH	Silty CLAY: high plasticity, dark grey brown.	w>PL	Hd		ALLUVIAL
	■			■	N = 32 7,13,19	1					>600	
						2						
				■	N = 41 11,17,24						>600	
						3						
				■	N = 14 7,7,7	4	CI	Sandy CLAY: medium plasticity, brown, fine to medium grained sand.		VSt	350	
						5						
▶				■	N = 26 6,13,13		SP	SAND: fine to coarse grained, brown, trace of clay fines.	M	MD		
						6		END OF BOREHOLE AT 5.95m	W			
						7						

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BOREHOLE LOG

Borehole No.
7
1/1

SDUP4: 0-0.1m

Client: HI
Project: PROPOSED ALTERATIONS AND ADDITIONS
Location: 35 ALICE STREET, MOREE, NSW

Job No.: 35092UR
Method: SPIRAL AUGER
R.L. Surface: ≈ 208.8m
Date: 7/6/22
Datum: AHD
Plant Type: TS350
Logged/Checked by: R.G.S./P.R.

Groundwater Record	SAMPLES ES	SAMPLES U50	SAMPLES DB	SAMPLES DS	Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
DRY ON COMPLETION	■		■			0			FILL: Silty clay, medium plasticity, dark brown, trace of fine to coarse grained gravel, and roots.	w>PL			SCREEN: 10.01kg 0-0.1m NO FCF
	■		■					CI	Silty CLAY: medium plasticity, dark grey brown.	w>PL	Hd		SCREEN: 3.6kg 0.1-0.2m NO FCF
	■												ALLUVIAL
	■			■	N = 25 8,12,13	1						>600	
						2							
				■	N = 26 5,12,14							>600	
						3							
				■	N = 28 12,12,16	4						>600	
						5							
				■	N = 20 10,10,10			SP	SAND: fine to coarse grained, brown, trace of fine to medium grained, sub-rounded, gravel, and clay fines.	D	MD		
						6			END OF BOREHOLE AT 5.95m				
						7							

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TEST PIT LOG

Test Pit No.
TP1
1/1

Client: HI
Project: PROPOSED ALTERATIONS AND ADDITIONS
Location: 35 ALICE STREET, MOREE, NSW

Job No.: E35092UPD **Method:** 5T EXCAVATOR **R.L. Surface:** ≈ 208.5m
Date: 6/6/22 **Datum:** AHD
Plant Type: - **Logged/Checked by:** H.W./M.D.

Groundwater Record	SAMPLES				Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
	ES	U50	DB	DS									
DRY ON COMPLETION	■ ■ ■		■ ■ ■			0	▨	CI-CH	Silty CLAY: medium to high plasticity, dark brown, trace of quartz gravel and roots.	w≈PL w<PL			GRASS COVER ALLUVIAL SCREEN: 10.71kg 0-0.1m NO FCF SCREEN: 10.71kg 0.1-1.0m NO FCF
						1			END OF TEST PIT AT 1.0m				
						2							
						3							
						4							
						5							
						6							
						7							

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TEST PIT LOG

Test Pit No.
TP2
1/1

SDUP1: 0-0.1m

Client: HI
Project: PROPOSED ALTERATIONS AND ADDITIONS
Location: 35 ALICE STREET, MOREE, NSW

Job No.: E35092UPD **Method:** 5T EXCAVATOR **R.L. Surface:** ≈ 208.9m
Date: 6/6/22 **Datum:** AHD
Plant Type: - **Logged/Checked by:** H.W./M.D.

Groundwater Record	SAMPLES ES U50 DB DS	Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
DRY ON COMPLETION			0			FILL: Sandy clay, low to medium plasticity, fine to medium grained sand, trace of igneous and ironstone gravel and root fibres.	w≈PL			GRASS COVER SCREEN: 11.95kg 0-0.1m NO FCF SCREEN: 10.82kg 0.1-0.4m FCF1 AND FCF2 IN TP WALL AT 0.3m DEPTH
						FILL: Sandy gravel, fine to medium grained, brown, igneous gravel, rounded, fine to medium grained sand.	M			SCREEN: 10.57kg 0.4-0.6m NO FCF
					CI-CH	Silty CLAY: medium to high plasticity, dark brown, trace of root fibres.				
			1			END OF TEST PIT AT 1.0m				
			2							
			3							
			4							
			5							
			6							
			7							

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TEST PIT LOG

Test Pit No.
TP3
1/1

Client: HI
Project: PROPOSED ALTERATIONS AND ADDITIONS
Location: 35 ALICE STREET, MOREE, NSW

Job No.: E35092UPD **Method:** 5T EXCAVATOR **R.L. Surface:** ≈ 208.7m
Date: 6/6/22 **Datum:** AHD
Plant Type: - **Logged/Checked by:** H.W./M.D.

Groundwater Record	SAMPLES ES	SAMPLES U50	SAMPLES DB	SAMPLES DS	Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
DRY ON COMPLETION	■		■			0	▨		FILL: Silty clay, medium to high plasticity, brown, trace of ironstone gravel, sand and root fibres.	w>PL			GRASS COVER SCREEN: 10.67kg 0-0.1m NO FCF TERRACOTTA PIPE AT 0.1m
	■ ■		■ ■				▨	CI-CH	Silty CLAY: medium to high plasticity, dark brown, trace of root fibres and fine grained sand.	w<PL			ALLUVIAL
						1			END OF TEST PIT AT 1.0m				
						2							
						3							
						4							
						5							
						6							
						7							

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TEST PIT LOG

Test Pit No.
TP4
1/1

Client: HI
Project: PROPOSED ALTERATIONS AND ADDITIONS
Location: 35 ALICE STREET, MOREE, NSW

Job No.: E35092UPD **Method:** 5T EXCAVATOR **R.L. Surface:** ≈ 208.7m
Date: 6/6/22 **Datum:** AHD
Plant Type: - **Logged/Checked by:** H.W./M.D.

Groundwater Record	SAMPLES ES	SAMPLES U50	SAMPLES DB	SAMPLES DS	Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
DRY ON COMPLETION	■		■			0	▩		FILL: Silty clay, medium to high plasticity, dark brown, trace of sand, ironstone and quartz gravel, concrete and terracotta pipe fragments.	w≈PL			GRASS COVER SCREEN: 10.27kg 0-0.1m NO FCF
	■		■				▨	CI-CH	Silty CLAY: medium to high plasticity, dark brown, trace of root fibres and ash.	w≈PL			SCREEN: 11.02kg 0.1-0.4m NO FCF ALLUVIAL
						1			END OF TEST PIT AT 1.0m				
						2							
						3							
						4							
						5							
						6							
						7							

JKGeotechnics

TEST PIT LOG

Test Pit No.
TP5
1/1
SDUP2: 0-0.1m

Client: HI
Project: PROPOSED ALTERATIONS AND ADDITIONS
Location: 35 ALICE STREET, MOREE, NSW

Job No.: E35092UPD **Method:** 5T EXCAVATOR **R.L. Surface:** ≈ 208.6m
Date: 6/6/22 **Datum:** AHD
Plant Type: - **Logged/Checked by:** H.W./M.D.

Groundwater Record	SAMPLES ES	SAMPLES U50	SAMPLES DB	SAMPLES DS	Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
DRY ON COMPLETION	■		■			0	▨	CI-CH	Silty CLAY: medium to high plasticity, dark brown, trace of ironstone and quartz gravel and roots.	w≈PL			GRASS COVER ALLUVIAL SCREEN: 10.66kg 0-0.1m NO FCF
	■		■				▨	CL-CI	Silty Sandy CLAY: low to medium plasticity, yellow brown, fine grained sand.	w<PL			
	■		■			1			END OF TEST PIT AT 1.0m				
						2							
						3							
						4							
						5							
						6							
						7							

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	

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

Laboratory Classification Criteria

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

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

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

NOTES:

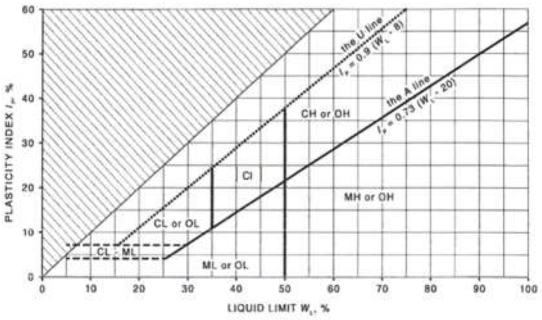
1 For a coarse grained soil with a fines content between 5% and 12%, the soil is given a dual classification comprising the two group symbols separated by a dash; for example, for a poorly graded gravel with between 5% and 12% silt fines, the classification is GP-GM.

2 Where the grading is determined from laboratory tests, it is defined by coefficients of curvature (C_c) and uniformity (C_u) derived from the particle size distribution curve.

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

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

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



LOG SYMBOLS

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

			Guide to Strength	
Term	Abbreviation	Uniaxial Compressive Strength (MPa)	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.

DSI Tables and Borehole/Testpit Logs

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

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**

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 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**
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		<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
	16/08/23																									
Field Rinsate	FR-201	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
	16/08/23																									
Trip Spike	TS-S201		-	-	-	-	91%	91%	91%	91%	90%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	16/08/23																									

			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		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	16/08/23																					
Field Rinsate	FR-201	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	16/08/23																					
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 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		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<4	<0.4	3	<1	2	<0.1	<1	2
	16/08/23																						
Field Rinsate	FR-201	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
	16/08/23																						
Trip Spike	TS-S201		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	16/08/23																						

Result outside of QA/QC acceptance criteria 🟨

Rinsate metals results in mg/L

ENVIRONMENTAL LOG

Log No.
BH/MW201
1/3

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:** 209.13m
Date: 15/8/23 **Datum:** AHD
Plant Type: JK305 **Logged/Checked by:** A.D./M.D.

Groundwater Record	SAMPLES ES	ASS	ASB	SAL	DB	Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
DRY ON 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
									CH	Silty CLAY: high plasticity, brown, trace of quartz gravel.	w≈PL			ALLUVIAL
	■		■			N = 10 2,5,5	0.5							
							1							
	■		■			N = 13 5,6,7	1.5							
							2							
							2.5							
	■		■			N = 20 6,9,11	3							
							3.5							

JKEnvironments

ENVIRONMENTAL LOG

Log No.
BH/MW201
2/3

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: 209.13m
Date: 15/8/23
Datum: AHD
Plant Type: JK305
Logged/Checked by: A.D./M.D.

Groundwater Record	SAMPLES					Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
	ES	ASS	ASB	SAL	DB									
							4							
						N = 12 4,6,6	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

Log No.
BH/MW201
3/3

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:** 209.13m

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

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

Groundwater Record	SAMPLES					Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
	ES	ASS	ASB	SAL	DB									
								▨		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							

ENVIRONMENTAL LOG

Log No.
BH/MW202
1/3

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:** 208.91m
Date: 15/8/23 **Datum:** AHD
Plant Type: JK305 **Logged/Checked by:** A.D./M.D.

Groundwater Record	SAMPLES ES	ASS	ASB	SAL	DB	Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
DRY ON COMPLETION							0			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

Log No.
BH/MW202
2/3

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:** 208.91m

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

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

Groundwater Record	SAMPLES					Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
	ES	ASS	ASB	SAL	DB									
										Silty CLAY: medium to high plasticity, brown and grey, trace of quartz gravel.	w≈PL			
							4							
						N = 15 5,7,8	4.5							
							5							
							5.5							
							6							
							6.5							
							7							

ENVIRONMENTAL LOG

Log No.
BH/MW202
3/3

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: 208.91m
Date: 15/8/23
Datum: AHD
Plant Type: JK305
Logged/Checked by: A.D./M.D.

Groundwater Record	SAMPLES ES	ASS	ASB	SAL	DB	Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
							7.5			Silty CLAY: medium to high plasticity, brown and grey, trace of quartz gravel and sand.	w<PL			
										Silty CLAY: medium to high plasticity, brown, trace of sand.	w<PL			
							8 8.5 9 9.5 10			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.

JKEnvironments

ENVIRONMENTAL LOG

Log No. BH203

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	ASS	ASB	SAL	DB	Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
DRY ON COMPLETION							0			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
	■		■							FILL: Silty clay, medium to high plasticity, brown and grey, with fine to medium grained sand, trace of igneous gravel.	w≈PL			INSUFFICIENT RETURN FOR BULK SCREEN
	■		■				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							

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	ASS	ASB	SAL	DB	Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
DRY ON COMPLETION							0			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
									CI-CH	Silty CLAY: medium to high plasticity, brown.	w≈PL			ALLUVIAL
	■		■			N = 10 4,4,6	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.
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 COMPLETION	■		■		■		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

Log No. TP206

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: 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	ASS	ASB	SAL	DB	Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
DRY ON COMPLETION	■		■		■		0	▩		FILL: Silty clay, medium to high plasticity, 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 1 1.5 2 2.5 3 3.5			END OF TEST PIT AT 0.5m				

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	ASS	ASB	SAL	DB	Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
DRY ON COMPLETION	■		■		■		0	▩		FILL: Silty clay, medium to high plasticity, brown, trace of sand, igneous gravel, brick fragments and root fibres.	w<PL			GRASS COVER SCREEN: 10.36kg 0-0.1m, NO FCF
	■		■					▨	CI-CH	Silty CLAY: medium to high plasticity, brown.	w≈PL			ALLUVIAL
	■		■					░	SP	SAND: fine to medium grained, brown and grey, trace of quartz gravel.	M			
							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	ASS	ASB	SAL	DB	Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
DRY ON COMPLETION	■		■		■		0	▦		FILL: Silty clay, medium 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			
	■		■		■		0.5	▦						SCREEN: 10.68kg 0.4-0.5m, NO FCF BURIED TREE TRUNK APPROX. 100mm.t
	■		■				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

Log No.
BH/MW209
1/3

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:** 208.71m
Date: 15/8/23 **Datum:** -
Plant Type: JK305 **Logged/Checked by:** A.D./M.D.

Groundwater Record	SAMPLES ES	ASS	ASB	SAL	DB	Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
DRY ON COMPLETION	■		■		■		0			FILL: Silty clay, medium to high plasticity, 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
									CI-CH	Silty CLAY: medium to high plasticity, brown, trace of quartz gravel.	w≈PL			ALLUVIAL
	■		■			N = 15 5,7,8	0.5							
							1							
	■		■			N = 18 7,8,10	1.5							
							2							
							2.5							
	■		■			N = 22 9,11,11	3							
							3.5							

ENVIRONMENTAL LOG

Log No.
BH/MW209
2/3

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:** 208.71m
Date: 15/8/23 **Datum:** -
Plant Type: JK305 **Logged/Checked by:** A.D./M.D.

Groundwater Record	SAMPLES ES	ASS	ASB	SAL	DB	Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
							4	▨						
						N = 12 4,6,6	4.5	▨						
	■		■					░	SP	SAND: fine to medium grained, brown, trace of clay fines.	M			
							5	░						
							5.5	░						
								▨	CI-CH	Silty CLAY: medium to high plasticity, brown, trace of quartz gravel.	w≈PL			
							6	▨						
							6.5	▨						
							7							

ENVIRONMENTAL LOG

Log No.
BH/MW209
3/3

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: 208.71m
Date: 15/8/23
Datum: -
Plant Type: JK305
Logged/Checked by: A.D./M.D.

Groundwater Record	SAMPLES					Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
	ES	ASS	ASB	SAL	DB									
							7.5	▨		Silty CLAY: medium to high plasticity, brown and grey, trace of sandstone gravel.	w<PL			
							8 8.5 9 9.5 10			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.

ENVIRONMENTAL LOG

Log No. BH210
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	ASS	ASB	SAL	DB	Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
DRY ON COMPLETION							0	■		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
								▨	CI-CH	Silty CLAY: medium to high plasticity, brown, trace of quartz gravel.	w≈PL			ALLUVIAL
	■		■			N = 17 6,7,10	0.5	▨						
							1			END OF BOREHOLE AT 1.0m				
							1.5							
							2							
							2.5							
							3							
							3.5							

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	Field Tests	Depth (m)	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
DRY ON COMPLETION		0		FILL: Silty sand, fine to medium grained, brown, trace of igneous and quartz gravel, clay fines and root fibres.	M			GRASS COVER SCREEN: 11.26kg 0-0.1m, NO FCF SCREEN: 2.47kg 0.1-0.3m, NO FCF
	N = 17 5,7,10	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						

SAMPLES: ES, ASS, ASB, SAL, DB

Graphic Log

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ENVIRONMENTAL LOG

Log No. **TP212**

1/1

Environmental logs are not to be used for geotechnical purposes

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					Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
	ES	ASS	ASB	SAL	DB									
DRY ON COMPLETION	■		■		■		0	▨		FILL: 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							

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ENVIRONMENTAL LOG

Log No. TP213

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:** 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					Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
	ES	ASS	ASB	SAL	DB									
DRY ON COMPLETION	■		■		■		0	▩		FILL: 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
							1 1.5 2 2.5 3 3.5			END OF TEST PIT AT 0.7m				

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ENVIRONMENTAL LOG

Log No. TP214

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

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ENVIRONMENTAL LOG

Log No. TP215
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:** 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 COMPLETION	■		■		■		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 SCREEN: 10.94kg 0-0.1m, NO FCF
								▨	CI	Silty CLAY: medium plasticity, dark grey, with roots and fine grained sand.	w<PL			ALLUVIAL
	■		■				0.5	▨		as above, but trace of roots.				
	■		■					▨						
							1			END OF TEST PIT AT 0.8m				
							1.5							
							2							
							2.5							
							3							
							3.5							

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ENVIRONMENTAL LOG

Log No. BH216

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 COMPLETION							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							

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ENVIRONMENTAL LOG

Log No. TP217

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:** 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					Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
	ES	ASS	ASB	SAL	DB									
DRY ON COMPLETION	■		■		■		0	▩		FILL: Silty clay, medium plasticity, dark grey, with root fibres.	w<PL			GRASS COVER
	■ ■		■ ■				0.5	▨	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 ALLUVIAL
							1 1.5 2 2.5 3 3.5			END OF TEST PIT AT 0.65m				

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ENVIRONMENTAL LOG

Log No. TP218

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:** 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 COMPLETION	■		■		■		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 SCREEN: 10.72kg 0-0.15m, NO FCF
								▨	CI	Silty CLAY: medium plasticity, dark grey, with roots and root fibres.	w<PL			ALLUVIAL
	■		■				0.5	▨		as above, but without roots, trace of root fibres.				
	■		■					▨						
										END OF TEST PIT AT 0.8m				

ENVIRONMENTAL LOG

Log No. TP219

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:** 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 COMPLETION	■		■		■		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 SCREEN: 10.63kg 0-0.15m, NO FCF
	■		■				0.5	▨	CH	Silty CLAY: high plasticity, dark brown and dark grey, with roots.	w≈PL			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. 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 COMPLETION							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 SCREEN: 11.16kg 0.1-0.3m, NO FCF
							0.5		CH	Silty CLAY: high plasticity, dark grey, trace of fine grained sand, and roots.	w<PL			ALLUVIAL
										as above, but without roots, trace of root fibres.				
							1			END OF TEST PIT AT 0.85m				
							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 COMPLETION	■		■		■		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 SCREEN: 10.9kg 0-0.1m, NO FCF
								▨	CI	Silty CLAY: medium plasticity, dark grey brown, with fine grained sand, trace of roots.	w<PL			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

Log No. TP222
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: 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 COMPLETION	■		■		■		0	▨		FILL: Silty clay, medium plasticity, dark brown, with roots and root fibres, trace of ceramic fragments.	w<PL			GRASS COVER SCREEN: 10.13kg 0-0.1m, NO FCF
								▨	CI	Silty CLAY: medium plasticity, dark brown mottled dark grey, with roots.	w<PL			ALLUVIAL
	■		■				0.5	▨						
										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. 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 ASS ASB SAL DB	Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
DRY ON COMPLETION			0			FILL: Silty clay, medium to high plasticity, dark brown 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							

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 COMPLETION	■		■		■		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							
						N = 16 6,8,8	3							
	■		■						SP	SAND: fine to medium grained, brown, trace of ironstone and quartz gravel and clay fines.	M			
							3.5							

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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					Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
	ES	ASS	ASB	SAL	DB									
							4							
									CI-CH	Silty CLAY: medium to high plasticity, brown, trace of ironstone and quartz gravel.	w<PL			
						N = 13 4,7,6	4.5							
									SP	SAND: fine to medium grained, brown, trace of ironstone and quartz gravel and clay fines.	M			
							5							
							5.5							
							6							
							6.5		CI-CH	Silty CLAY: medium to high plasticity, brown and grey, trace of sandstone gravel.	w<PL			
							7							

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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					Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
	ES	ASS	ASB	SAL	DB									
							7.5	▨		Silty CLAY: medium to high plasticity, brown and grey, trace of sandstone gravel.	w<PL			
							8 8.5 9 9.5 10			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.

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ENVIRONMENTAL LOG

Log No. TP225

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

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	ASS	ASB	SAL	DB	Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
DRY ON COMPLETION	■		■		■		0	▨		FILL: Silty clay, medium 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	▧						
	■		■					▧		as above, but without roots, trace of root fibres.				
							1			END OF TEST PIT AT 1.0m				
							1.5							
							2							
							2.5							
							3							
							3.5							

JKEnvironments

ENVIRONMENTAL LOG

Log No. TP227
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:** 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 COMPLETION	■		■		■		0	▩		FILL: Silty clay, medium plasticity, dark grey, with root fibres, trace of glass fragments.	w<PL			GRASS COVER SCREEN: 10.55kg 0-0.1m, NO FCF
								▨	CI-CH	Silty CLAY: medium to high plasticity, dark grey, trace of roots.	w<PL			ALLUVIAL
	■		■					▨						
							0.5	▨		as above, but without roots, trace of root fibres.				
	■		■					▨						
										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
ine grained soils (more than 35% of soil excluding oversize fraction is less than 0.075mm)	SILT and CLAY (low to medium plasticity)	ML	Inorganic silt and very fine sand, rock flour, silty or clayey fine sand or silt with low plasticity	None to low	Slow to rapid	Low	Below A line
		CL, CI	Inorganic clay of low to medium plasticity, gravelly clay, sandy clay	Medium to high	None to slow	Medium	Above A line
		OL	Organic silt	Low to medium	Slow	Low	Below A line
	SILT and CLAY (high plasticity)	MH	Inorganic silt	Low to medium	None to slow	Low to medium	Below A line
		CH	Inorganic clay of high plasticity	High to very high	None	High	Above A line
		OH	Organic clay of medium to high plasticity, organic silt	Medium to high	None to very slow	Low to medium	Below A line
	Highly organic soil	Pt	Peat, highly organic soil	–	–	–	–

Laboratory **Classification** Criteria

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

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

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

NOTES:

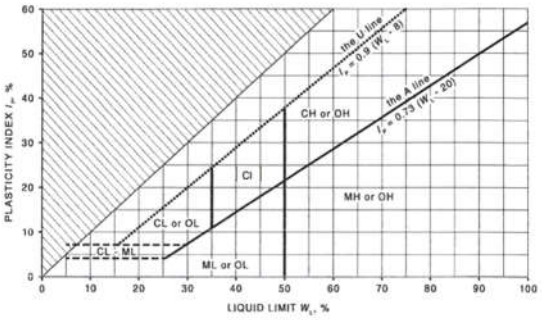
1 For a coarse grained soil with a fines content between 5% and 12%, the soil is given a dual classification comprising the two group symbols separated by a dash; for example, for a poorly graded gravel with between 5% and 12% silt fines, the classification is GP-GM.

2 Where the grading is determined from laboratory tests, it is defined by coefficients of curvature (C_c) and uniformity (C_u) derived from the particle size distribution curve.

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

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

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



LOG SYMBOLS

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

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

Appendix D: Waste/Materials Tracking Template

Imported Materials Register

Supplier	Date	Docket/Invoice #	Product Type	Quantity (specify m3 or tonnes)	Area where Material was Placed

Exported (Waste) Materials Register

Load	Date	Material Type / Classification	Site Area where Waste was Generated	Waste Classification Report Reference	Disposal Facility	Tipping Receipt/Docket Number	Tracking Number (where relevant)	Tonnage

Appendix E: Guidelines and Reference Documents

Contaminated Land Management Act 1997 (NSW)

Environmental Planning and Assessment Act 1979 (NSW)

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

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

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

National Environment Protection Council (NEPC), (2013). National Environmental Protection (Assessment of Site Contamination) Measure 1999 as amended (2013)

Protection of the Environment Operations Act 1997 (NSW)

State Environmental Planning Policy (Resilience and Hazards) 2021

Work Health and Safety Regulation 2017 (NSW)

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