ENVIRONMENTAL INVESTIGATION SERVICES

REPORT

TO

NBRS ARCHITECTURE

ON

STAGE 2 ENVIRONMENTAL SITE ASSESSMENT

FOR

PROPOSED SCHOOL ADDITIONS

AT

CANTERBURY SOUTH PUBLIC SCHOOL, OFF HIGH STREET, CANTERBURY, NSW

SEPTEMBER, 2018 **REPORT REF: E31040KBrpt2**

Postal Address: PO Box 976, North Ryde BC NSW 1670
Tel: 02 9888 5000 • Fax: 9888 5004
EIS is a division of Jeffery and Katauskas Pty Ltd • ABN 17 003 550 801

Document Revision: Draft

Date: 3 September 2018

Prepared by:

Vittal Boggaram
Principal Associate | Environmental Scientist

Reviewed by:

Adrian Kingswell
Principal | Environmental Scientist

TABLE OF CONTENTS

LIST OF IN-TEXT TABLES

APPENDICES

ABBREVIATIONS

AF/FA	Asbestos Fines/Fibrous Asbestos
ABC	Ambient Background Concentrations
ACL	Added Contaminant Limits
ACM	Asbestos Containing Material
ADWG	Australian Drinking Water Guidelines
AEC	Area of Environmental Concern
AHD	Australian Height Datum
ASS	Acid Sulfate Soil
BGL	Below Ground Level
BaP TEQ	Benzo(a)pyrene Toxicity Equivalent Factor
BOM	Bureau of Meteorology
BTEX	Benzene, Toluene, Ethylbenzene, Xylene
CEC	Cation Exchange Capacity
CLM	Contaminated Land Management
CoPC	Contaminant(s) of Potential Concern
COC	Chain of Custody
CSM	Conceptual Site Model
DQI	Data Quality Indicator
DQO	Data Quality Objective
EIL	Ecological Investigation Level
EIS	Environmental Investigation Services
ESL	Ecological Screening Level
EMP	Environmental Management Plan
ENM	Excavated Natural Material
EPA	Environment Protection Authority
FCF	Fibre Cement Fragment
GAI	General Approval of Immobilisation
HIL	Health Investigation Level
HMTV	Hardness Modified Trigger Values
HSL	Health Screening Level
LCS	Lab Control Spike
LNAPL	Light Non-Aqueous Phase Liquid
NATA	National Association of Testing Authorities
NEPM	National Environmental Protection Measure
OCP	Organochlorine Pesticides
OPP	Organophosphate Pesticides
PAH	Polycyclic Aromatic Hydrocarbons
PCB	Polychlorinated Biphenyls
PID	Photo-ionisation Detector
POEO	Protection of the Environment Operations
PQL	Practical Quantitation Limit
QA	Quality Assurance
QC	Quality Control
RAP	Remediation Action Plan
RPD	Relative Percentage Difference
SAC	Site Assessment Criteria

ABBREVIATIONS

SAQP	Sampling, Analysis and Quality Plan
SSA	Site Specific Assessment
SPR	Source, Pathway, Receptor
SCC	Specific Contamination Concentration
SPT	Standard Penetration Test
SWL	Standing Water Level
TB	Trip Blank
TCLP	Toxicity Characteristic Leaching Procedure
TRH	Total Recoverable Hydrocarbons
TS	Trip Spike
UCL	Upper Confidence Limit
USEPA	United States Environmental Protection Agency
UST	Underground Storage Tank
VENM	Virgin Excavated Natural Material
VOC	Volatile Organic Compounds
WHO	World Health Organisation
WHS	Work Health and Safety

Units

L	Litres
mBGL	Metres BGL
m	Metres
mV	Millivolts
ml or mL	Millilitres
meq	Milliequivalents
µS/cm	micro Siemens per Centimetre
µg/L	Micrograms per Litre
mg/kg	Milligrams per Kilogram
mg/L	Milligrams per Litre
ppm	Parts Per Million
%	Percentage

EXECUTIVE SUMMARY

This report presents the findings of a Stage 2 Detailed Environmental Site Assessment (ESA) at at Canterbury South Public School, off High Street, Canterbury, NSW.

The aim of the assessment was to characterise the contamination conditions previously identified at the site by EIS in 2017; assess the risk posed by contamination to the receptors; facilitate the preparation of a Remediation Action Plan (RAP); and provide a preliminary waste classification for the off-site disposal of soil.

The ESA was limited to the proposed development area nominated on the concept plan provided by the client (referred to as "the site" herein). The site area covers approximately 13,240m^2 shown on the concept plan attached in the appendices. The ESA sampling locations are shown on Figure 2. This report has been prepared to support the lodgement of a Development Application (DA) for the proposed development.

The scope of works for the ESA included: review of site information; review of site history information; detailed inspection of accessible areas of the site; preparation of a preliminary Conceptual Site Model (CSM); design and implementation of a Sampling Analysis Quality Plan (SAQP) including soil, groundwater and asbestos sampling; interpretation of the analytical results against the Site Assessment Criteria (SAC); Data Quality Assessment; review of CSM and Tier 1 Risk Assessment; and preparation of this report summarising the results of the ESA.

The CSM identified potential sources of contamination/AEC at the site associated with: fill material; use of pesticides; hazardous building material; and an off-site mechanics business that may pose a risk to human health and the environment. The EIS 2017 investigation identified contamination issues which required additional assessment. In particular the following data gaps were identified:

- Areas beneath the existing buildings were not adequately assessed;
- The minimum density recommended in the NSW EPA Sampling Design Guidelines had not been met; and
- The extent of the asbestos had not been adequately quantified.

The Stage 2 ESA included the following to address the data gaps:

- Soil sampling from additional boreholes drilled at the site;
- Asbestos quantification from fifty (50) sampling locations;
- Groundwater monitoring from three wells installed at the site; and
- Laboratory analysis of selected soil, asbestos and groundwater samples obtained during the assessment.

A review of the assessment results has identified Contaminants of Concern (CoC) which pose a risk to site receptors. The assessment discusses the potential contaminant sources, transport mechanisms/ pathways and impacted media. Based on the findings of the Stage 2 ESA, the CoC are considered to pose a risk to site receptors and will require remediation.

The CoC at this stage, does not trigger EPA notification requirements under the NSW EPA Guidelines on the Duty to Report Contamination under Section 60 of the CLM Act 1997 (2015) provided the recommendations outlined below are addressed.

EIS are of the opinion that the following additional work should be undertaken to assess site suitability for the proposed development:

- Remediation Action Plan (RAP) to address the CoC and risks posed to site receptors; and
- Validation Assessment documenting the remediation works undertaken at the site.

EIS are of the opinion that the risk posed by asbestos should be addressed as a priority considering the sensitive nature of the land use (primary school). As a duty of care, we recommend raking and picking of asbestos from the surface to be undertaken as soon as possible. This should be followed by a surface clearance from an Asbestos Assessor.

The report should be read in conjunction with the limitations presented in the body of the report.

1 INTRODUCTION

Environmental Investigation Services (EIS)[1] was commissioned by NBRS Architecture (client) to carry out a Stage 2 Detailed Environmental Site Assessment (ESA) at Canterbury South Public School, off High Street, Canterbury, NSW (the 'site'). The site location is shown on Figure 1 attached in the appendices.

The aim of the assessment was to characterise the contamination conditions previously identified at the site by EIS; assess the risk posed by contamination to the receptors; facilitate the preparation of a Remediation Action Plan (RAP); and provide a preliminary waste classification for the off-site disposal of soil.

The ESA was limited to the proposed development area nominated on the concept plan provided by the client (referred to as "the site" herein). The site area covers approximately 13,240m^2 shown on the concept plan attached in the appendices. The ESA sampling locations are shown on Figure 2.

This report has been prepared to support the lodgement of a Development Application (DA) for the proposed development.

1.1 Proposed Development

The proposed development includes extensive alterations and additions to the existing school. The works will be staged so that the school can remain open during the development. A concept development plan is attached in the appendices.

1.2 Background

EIS and JK Geotechnics[2] have prepared the following reports for the site:

- EIS (2017a), *'Report to NBRS Architecture on Hazardous Building Materials Assessment for Proposed School Additions at Canterbury South Public School - High Street, Canterbury, NSW'*, Ref: E31040Krpt-HAZ, dated 18 November 2017;
- JK Geotechnics (2017), *'Report to NBRS Architecture on Geotechnical Investigation for Proposed Additions to Canterbury South Public School at High Street, Canterbury, NSW'*, Ref: 31040SBrpt, dated 12 December 2017; and
- EIS (2017b), *'Report to NBRS Architecture on Preliminary Stage 1 Environmental Site Assessment for Proposed School Additions at Canterbury South Public School, High Street, Canterbury, NSW'*, Ref: E31040Krpt, dated 20 December 2017.

There is an existing *Asbestos Management Plan* prepared for the site by Parsons Brinckerhoff (Dated July 2013). Two zones of potential asbestos impacted fill were identified in the central section of the

[1] Environmental consulting division of Jeffery & Katauskas Pty Ltd (J&K)
[2] Geotechnical consulting division of J&K

site and just outside the north-east boundary. The management plan provides procedures that need to be implemented when working in the asbestos zones.

EIS is not aware of any other investigation reports prepared for the site.

1.3 Objectives

The objectives of the ESA were to:

- Identify areas of environmental concern (AEC)/contamination sources and contaminants of potential concern (CoPC) by review of site information;
- Assess soil and groundwater contamination conditions by implementing a sampling, analysis and quality program (SAQP);
- Prepare a conceptual site model (CSM) to identify source, pathway and receptor (SPR) linkages;
- Assess risk posed by contamination to the receptors (Tier 1 risk assessment); and
- Assess site suitability for the proposed development.

1.4 Scope of Work

The scope of work included the following:

- Review of site information, background and site history information;
- Detailed inspection of accessible areas of the site;
- Preparation of a CSM;
- Design and implementation of a SAQP;
- Interpretation of the analytical results against the Site Assessment Criteria (SAC);
- Data Quality Assessment;
- Review of CSM and Tier 1 Risk Assessment; and
- Preparation of this report.

The scope of work was carried out with reference to the National Environmental Protection (Assessment of Site Contamination) Measure 1999 as amended (2013)[3], Contaminated Land Management Act (1997)[4], State Environmental Planning Policy No.55 – Remediation of Land (1998)[5] and other guidelines outlined in the report references.

---

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

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

[5] *State Environmental Planning Policy No. 55 – Remediation of Land 1998* (NSW) (referred to as SEPP55)

2 SITE DESCRIPTION

2.1 Site Identification

Table 2-1: Site Identification

Site Address:	High Street, Canterbury, NSW 2193
Lot & Deposited Plan:	Part of Lot 1 DP123147, Lot 2 DP194469, Lots A & B DP312359, Lots 4 to 8 DP8350
Current Land Use:	Canterbury South Public School
Proposed Land Use:	Ongoing use as a Public School
Local Government Authority:	Canterbury-Bankstown
Zoning:	R3 – Medium density residential R4 – High density residential
Wider Property Area (m^2):	17,920 (1.79 hectares)
Development Site Area (m^2):	13,240 (1.32 hectares)
RL (AHD in m) (approx.):	11-26
Geographical Location (decimal degrees) (approx.):	Latitude: -33.91785 Longitude: 151.116007
Site Location Plan:	Figure 1
Sample Layout Plan:	Figure 2

2.2 Site Location and Regional Setting

The site is located in a predominantly residential area of Canterbury. The site is bounded by High Street to the north and north-west, Napier Street to the south-west and France Street to the north-east. The site is located to the immediate north of Pat O'Connor Reserve which forms part of Lot 1 DP123147. Cup and Saucer Creek is located approximately 100m to the south of the site. Cooks River is located approximately 400m to the north-east of the site.

2.3 Topography

The site is located within a region of gently undulating terrain. The site itself slopes down towards the north-west and south-east at a general gradient of approximately 3°. Further to the south-west of the existing school buildings, the slope gradient increases to between 8 and 10° and falls towards Cup and Saucer Creek.

2.4 Site Inspection

A walkover inspection of the site was undertaken by EIS on 11 July 2018. The inspection was limited to accessible areas of the site and immediate surrounds. Selected site photographs are attached in the appendices.

A summary of the other inspection findings are outlined in the following subsections:

2.4.1 Land Use Details

The site was occupied by a primary school with single storey buildings, demountable, playgrounds and undercover areas. The north section of the site included an asphaltic concrete paved car park. A paved basket ball court was located near the west site boundary.

2.4.2 Buildings, Structures and Roads

The site consisted of twelve permanent brick and concrete buildings and one semi-permanent demountable classroom. The main administration building (Block J) was constructed in 1936 with the remaining buildings constructed between 1976 and 2010. Several of the older permanent buildings contained previously identified bonded asbestos materials in the form of fibre cement sheeting.

The site contained an asphaltic concrete car park located in the north-east corner with access onto France Street and several concrete pathways between the buildings. No visible staining or extensive damage was identified.

2.4.3 Boundary Conditions, Soil Stability and Erosion

The north boundary along High Street was marked by a small brick retaining wall approximately 0.9m high. The western, southern and eastern boundaries were marked by a tall metal fence approximately 2m high. The walls and fencing appeared to be in good condition. No areas of obvious erosion or soil instability were identified.

2.4.4 Visible or Olfactory Indicators of Contamination

Several fibre cement fragments (FCF) were identified in the southern corner of the site adjacent to the demountable classroom. Representative fragments were collected for analysis (see Section 9).

2.4.5 Presence of Drums/Chemicals, Waste and Fill Material

The northern boundary along High Street was approximately 0.5m to 0.9m above the road level and retained by a brick wall. This area may have been historically filled to achieve existing levels.

2.4.6 Drainage and Services

The surface runoff was assumed to follow the general gradient of the site towards to the south-east and north-west. Several drainage pits were located across the site and were presumed to be connected to local stormwater. No major underground services were identified at the site that could provide a potential pathway for contamination.

2.4.7 Sensitive Environments

The site is located to the immediate north of Pat O'Connor Reserve which forms part of Lot 1 DP123147. Cup and Saucer Creek is located approximately 100m to the south of the site. The park and creek are considered to be sensitive environments.

2.4.8 Landscaped Areas and Visible Signs of Plant Stress

Several brick lined garden beds were located throughout the site with native and exotic species of shrubs and flowering plants. Several medium to large native trees were scattered across the site. No visual signs of dieback or stress were noted during the site inspection.

2.5 Surrounding Land Use

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

- North – High Street, low density residences beyond;
- South – Napier Street, Pat O'Connor Reserve beyond;
- East – France Street, low to medium density residences beyond; and
- West – High Street, low density residences beyond.

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

2.6 Underground Services

The 'Dial Before You Dig' (DBYD) plans were reviewed for the assessment 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.

2.7 Interview with Site Personnel

A discussion with the school Principal was undertaken during the inspection. No new information pertaining to contamination was noted.

2.8 Section 10.7 Zoning Information

The S10.7 (2 and 5) zoning certificates were reviewed for Lot 1 DP124147 as part of the EIS 2017b assessment. A summary of the relevant information is outlined below:

- The site is not located in an area of ecological significance;
- The site is not deemed to be: significantly contaminated; subject to a management order; subject of an approved voluntary management proposal; or subject to an on-going management order under the provisions of the CLM Act 1997;
- The site is not subject to a Site Audit Statement (SAS);
- The site is not located within an Acid Sulfate Soil (ASS) risk area; and
- The site is not located in a heritage conservation area.

3 PREVIOUS INVESTIGATIONS

As part of the assessment, EIS have reviewed the following reports prepared for the site:

3.1 Hazardous Building Materials Assessment, EIS 2017a

3.1.1 Objectives and Scope of Works

EIS was commissioned to completed a Hazardous Building Materials Assessment of the existing buildings for the proposed school additions. The scope of work included: detailed inspection of the existing building and structures; sampling of representative materials; 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 hazardous building materials assessment.

3.1.2 Results

3.1.2.1 Asbestos Materials

Asbestos fibre containing construction materials have been identified within the interior and the exterior of the existing building and structures at the site. All asbestos materials were considered to be non-friable. Any materials presumed to contain asbestos must be treated as such.

3.1.2.2 Lead Paint

Not identified within the scope and limitations of the report.

3.1.2.3 Lead in Accumulated Dust

Elevated levels of lead (significantly above the guideline level of 8 mg/m^2) were identified at the site. In consideration of the age and former use of the site, all dust within ceiling cavities and voids throughout the building is considered to contain potentially hazardous levels of lead.

3.1.2.4 PCB Containing Electrical Equipment

Light fittings potentially housing a PCB containing metal capacitor were identified throughout the site. PCBs are a scheduled waste with strict guidelines regarding transport and handling.

3.1.2.5 SMF Materials

Sources of SMF containing materials are present as insulation material within the roof void of the building. These SMF materials were in a stable condition at the time of the site inspection.

3.1.3 Conclusions and Recommendations

The report included procedures and guidelines to be followed for the safe removal of the hazardous materials detected in the buildings. Reference should be made to the report for additional information.

3.2 Geotechnical Investigation, JK 2017

3.2.1 Objectives and Scope of Works

JK Geotechnics was commissioned to complete a geotechnical investigation for the proposed school additions. The scope of work included: drilling ten boreholes (BH1 to BH10) in accessible areas of the site to depths ranging from approximately 1.3mBGL to 2.8mBGL; dynamic cone penetration (DCP) testing at the borehole locations; groundwater observations during drilling; laboratory testing of selected samples for geotechnical parameters; and preparation of a report presenting the results of the investigation.

3.2.2 Results

Reference should be made to the JK report for a summary of the results.

3.3 Stage 1 Environmental Site Assessment, EIS 2017b

3.3.1 Objectives and Scope of Works

EIS was commissioned to complete a preliminary Stage 1 ESA for the proposed development. The scope of work included: provide an appraisal of the past site use(s) based on a review of historical records; assess the current site conditions and use via a site walkover inspection; identify potential contamination sources/ AEC and CoPC; assess the soil contamination conditions via implementation of a preliminary sampling and analysis program; prepare a CSM; assess the potential risks posed by contamination to the receptors identified in the CSM (Tier 1 assessment); provide a preliminary waste classification for off-site disposal of soil; assess whether further intrusive investigation and/or remediation is required; and assess the potential for acid sulfate soil (ASS) at the site.

The ESA included a desktop site history assessment and soil sampling from ten geotechnical boreholes. The historical assessment identified the following potential sources of contamination/ AEC: fill; use of pesticides; hazardous building materials; and an off-site former mechanics.

3.3.2 Results

Contaminants encountered during the investigation included:

- One elevated concentration of TRH C_{10}-C_{16} (F2) was detected above the Health Screening Levels (HSL) in one soil sample;
- Elevated concentrations of zinc, TRH C_{10}-C_{16} (F2) and C_{16}-C_{34} (F3) were detected above the Ecological guidelines in one soil sample; and
- The site inspection identified several Fibre Cement Fragments (FCF) in the southern section. One representative sample was collected (HLF1) and analysed which contained asbestos.

3.3.3 Conclusions and Recommendations

The report concluded that it was technically feasible for the site to be made suitable for the proposed development provided that the following recommendations were implemented to address the data gaps and to manage the risks:

- Undertake a Stage 2 ESA to address the data gaps identified in the report. Including additional boreholes for soil sampling, groundwater monitoring and an asbestos quantification assessment to adequately characterise the risk;
- Update the Asbestos Management Plan to take into account the findings of this investigation and any future investigations;
- After the detailed Stage 2 ESA has been prepared, a RAP should be prepared to outline remedial measures for the site (when detailed proposed development plans become available); and
- Prepare a Validation Assessment (VA) report on completion of remediation.

4 GEOLOGY AND HYDROGEOLOGY

4.1 Geology

A review of the regional geological information completed as part of the EIS 2017b ESA indicated that the site is underlain by Ashfield Shale of the Wianamatta Group, which typically consists of black to dark grey shale and laminite and by Quaternary aged deposits of peaty quartz sand, silt, and clay with ferruginous and humic cementation in places and common shell layers (eastern section of the site).

4.2 Acid Sulfate Soil (ASS) Risk and Planning

A review of the ASS risk map prepared by Department of Land and Water Conservation (1997[6]) indicates that the site is not located in an ASS risk area.

The ASS information presented in the Lotsearch report was reviewed as part of the EIS 2017b ESA. The review indicated that the site is located within a Class 5 ASS risk area. Works in Class 5 area that could pose an environmental risk in terms of ASS include works within 500m of adjacent Class 1,2,3,4 land which are likely to lower the water table below 1m AHD on the adjacent land.

We have assessed the risk posed to the environment by ASS to the development as relatively low for the following reasons:

- The ASS risk map prepared by the Department of Land and Water Conservation indicates that the site is located within an area of no known occurrence of ASS;
- The JK Geotechnics boreholes indicate the site is underlain by a residual soil profile over sandstone bedrock. ASS are not usually associated with residual soil profiles; and
- The site is located at approximately 11-26m AHD. ASS are not usually associated with soil horizons above 5m AHD.

4.3 Hydrogeology

A review of the hydrogeological information completed as part of the EIS 2017b ESA indicated eleven (11) registered groundwater bores within a buffer of 2,000m of the site. In summary:

- The nearest registered bore was located approximately 682m from the site. This was utilised for domestic purposes;
- The majority of the bores were registered for monitoring purposes; and
- The drillers log information from the closest registered bores typically identified fill and/or clay soil to depths of 1.0-6.0m, underlain by sandstone or shale bedrock. Standing water levels (SWLs) in the bores were between 6-7mBGL.

The information reviewed indicates that the subsurface conditions are likely to consist of residual soils overlying relatively shallow bedrock. The potential for viable groundwater abstraction and use of

---

[6] Department of Land and Water Conservation, (1997). *1:25,000 Acid Sulfate Soil Risk Map (Series 9130S3, Ed 2).*

groundwater under these conditions is considered to be low. Use of groundwater is not proposed as part of the development.

Considering the local topography and surrounding land features, EIS would generally expect groundwater to flow towards Cup and Saucer Creek.

4.4 Receiving Water Bodies

The site location and regional topography indicates that excess surface water flows have the potential to enter the Cup and Saucer Creek located approximately 100m to the south of the site. This water body is a potential receptor.

5 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 11.

5.1 Potential Contamination Sources/AEC and CoPC

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

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

Source / AEC	CoPC
Fill material - The site appears to have been historically filled to achieve the existing levels (primarily the eastern section of the site). The fill may have been imported from various sources and could be contaminated.	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 OPPs
Hazardous Building Material – Hazardous building materials may be present as a result of former building and demolition activities (in particular the southern and western sections of the site). These materials may also be present in the existing buildings/ structures on site.	Asbestos, lead and PCBs
Off-site area 1 – An old mechanics business was located approximately 50m up gradient from the site.	Heavy metals (lead), TRH and BTEX

5.2 Review of EIS 2017b CSM

The EIS 2017b assessment identified the following Contaminants of Concern (CoC) at the site:

Table 5-2: Review of EIS 2017b CSM

CoC	Receptor and Exposure Pathway	Discussion and Risk Rating
Asbestos in FCF	Human Receptors: Inhalation of airborne asbestos fibres	The investigation detected FCF containing asbestos. The FCF was assessed to be in good conditions and could not be broken by hand pressure and the material was considered to be 'non-friable'. The risk posed by this CoC was considered to be low - moderate and would require remediation and/or management.
C_{10}-C_{16} (F2)	Human Receptors: Inhalation	A minor elevation of C_{10}-C_{16} (F2) above the HSL-A criteria was detected in sample BH8 (0-0.2m). The data suggested that this was an isolated occurrence and could be an anomaly associated with plant oils generated by trees in the area. The risk posed by this CoC to on-site human receptors was considered to be relatively low.
Zinc, C_{10}-C_{16} (F2) and C_{16}-C_{34} (F3)	Environmental Receptors: Direct exposure to plants and animals	These CoC were above the ecological criteria and could pose a risk to environmental receptors. However, the risk was considered to be low as the results were only marginally elevated and confined to one borehole.

5.3 Receptors and Exposure Pathways

5.3.1 Potential Receptors

The assessment has identified the following potential receptors in the event that complete exposure pathways are present at the site:

5.3.1.1 Human Receptors

- On-site occupants and visitors (including adults and children);
- Off-site residents adjacent to the site (including adults and children);
- Workers undertaking maintenance of services/ infrastructure (adults);
- Construction workers (adults); and
- On-site and off-site users of groundwater for beneficial use. However, considering the site location, it is unlikely groundwater will be used at the site.

5.3.1.2 Environmental Receptors

- Terrestrial organisms and plants within unpaved areas (including the landscaped areas); and
- Soil and groundwater environments beneath the site and their associated ecosystems.

5.3.1.3 Buildings and structures

- On-site buildings coming into contact with contaminated soil and groundwater.

5.3.2 Potential Exposure Pathways

Potential exposure pathways relevant to the human receptors include: ingestion; dermal absorption; and inhalation of dust (all contaminants) and vapours (HGG, volatile TRH, naphthalene and BTEX). The potential for exposure would typically be associated with the construction and excavation works, and on-going/future use of the site. Potential exposure pathways for ecological receptors include primary contact and ingestion.

Exposure during future site use could occur via direct contact with soil in unpaved areas such as gardens, inhalation of airborne asbestos fibres during soil disturbance, or inhalation of vapours within enclosed spaces such as service pits, confined spaces, buildings and basements.

5.3.3 Potential Transport Mechanisms

The transport and migration of contamination is dependent on factors such as:

- The site location;
- Site surface type and condition;
- Geological conditions;
- Climatic conditions;
- Groundwater flow velocity and direction including during dewatering activities;
- Underground services and backfill soils; and
- Other transport mechanisms.

Potential transport mechanisms at the site for the nominated CoPC include the following:

- Surface run-off entering soils and migrating below the site;
- Surface spills/ leaks of chemicals via cracks in paving/ stormwater/ sewer lines during historical land uses;
- Lateral or vertical transport of contaminants through soil or into/ along backfill of service trenches or other preferential pathways;
- Leaching of soil contaminants to groundwater;
- Migration of contaminants via movement of shallow groundwater; and
- Lateral and/or vertical migration of volatile organic compounds.

6 DATA QUALITY OBJECTIVES

Data Quality Objectives (DQOs) were developed to define the type and quality of data required to achieve the project objectives outlined in Section 1.3. The DQOs were prepared with reference to the process outlined in Schedule B2 of NEPM (2013) and the Guidelines for the NSW Site Auditor Scheme, 3rd Edition (2017)[7]. The seven-step DQO approach for this project is outlined in the following sub-sections.

The DQO process is validated in part by the Data Quality Assurance/Quality Control (QA/QC) Evaluation. The Data (QA/QC) Evaluation is summarised in Section 9.3 and the detailed evaluation is provided in the appendices.

6.1 Step 1 - State the Problem

The CSM identified potential sources of contamination/AEC at the site that may pose a risk to human health and the environment. The EIS 2017b investigation identified CoC and contamination issues which required additional assessment. In particular the following data gaps were identified:

- Areas beneath the existing buildings should be assessed;
- The minimum density recommended in the NSW EPA Sampling Design Guidelines should be met; and
- The extent of the asbestos has not been adequately quantified.

Investigation data is required to assess the contamination status of the site, assess the risks posed by the contaminants in the context of the proposed development/intended land use, and assess whether remediation is required.

6.2 Step 2 - Identify the Decisions

The objectives of the assessment are outlined in Section 1.3. The decisions to be made reflect these objectives and are as follows:

- Did the site inspection, or does the historical information identify potential contamination sources/AEC at the site?
- Are any results above the SAC?
- Do potential risks associated with contamination exist, and if so, what are they?
- Is remediation required?
- Is the site characterisation sufficient to provide adequate confidence in the above decisions?
- Is the site suitable for the proposed development, or can the site be made suitable subject to further characterisation and/or remediation?

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

6.3 Step 3 - Identify Information Inputs

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

- Existing relevant environmental data from previous reports;
- Site information, including site observations and site history documentation;
- Sampling of potentially affected media, including soil, FCF 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, FCF and groundwater for the CoPC identified in the CSM; and
- Field and laboratory QA/QC data.

6.4 Step 4 - Define the Study Boundary

The sampling was confined to the site boundaries as shown in Figure 2 (spatial boundary). The sampling was completed between 11 July and 25 July 2018 (temporal boundary). The assessment of potential risk to adjacent land users has been made based on data collected within the site boundary.

6.5 Step 5 - Develop the Decision Rule

6.5.1 Tier 1 Screening Criteria

The laboratory data will be assessed against relevant Tier 1 screening criteria (referred to as SAC), as outlined in Section 8. Exceedances of the SAC do not necessarily indicate a requirement for remediation or a risk to human health and/or the environment. Exceedances are considered in the context of the CSM and valid SPR-linkages.

Where appropriate, data are assessed against valid statistical parameters to characterise the data population. This may include calculation and application of mean values and/or 95% upper confidence limit (UCL) values for the data set, with regards to the NEPM (2013) framework and other relevant guidelines made under the CLM Act 1997. UCLs are 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.

6.5.2 Field and Laboratory QA/QC

Field QA/QC included analysis of inter-laboratory duplicates, intra-laboratory duplicates, trip spike, trip blank and rinsate samples. Further details regarding the sampling and analysis undertaken, and the acceptable limits adopted, is provided in the Data Quality (QA/QC) Evaluation in the appendices.

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

In the event that acceptable limits are not met by the laboratory analysis, other lines of evidence are reviewed (e.g. field observations of samples, preservation, handling etc) and, where required, consultation with the laboratory is undertaken in an effort to establish the cause of the non-conformance. Where uncertainty exists, EIS typically adopt the most conservative concentration reported (or in some cases, consider the data from the affected sample as an estimate).

6.5.3 Appropriateness of Practical Quantitation Limits (PQLs)

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

6.6 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 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 assessment, the null hypothesis has been adopted which is that, there is considered to be a complete SPR linkage for the CoPC identified in the CSM unless this linkage can be proven not to (or unlikely to) exist. The null hypothesis has been adopted for this assessment.

6.7 Step 7 - Optimise the Design for Obtaining Data

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

The sampling plan and methodology are outlined in the following sub-sections.

7 FIELDWORK METHODOLOGY

7.1 Soil Investigation

The soil sampling plan and methodology adopted for this assessment is outlined in the table below:

Table 7-1: Soil Sampling Plan and Methodology

Aspect	Input
Sampling Density	The sampling density for asbestos in soil included sampling at twice the minimum sampling density recommended in the Guidelines for the Assessment, Remediation and Management of Asbestos-Contaminated Sites in Western Australia (2009)[8] (endorsed in NEPM 2013). This density met the investigation regime outlined in Table 1 of the WA DoH (2009) guidelines. Samples for this assessment were collected from fifty (50) locations as shown on Figure 2 attached in the appendices. Samples for EIS 2017b were obtained from ten (10) locations (see Figure 2). A total of sixty (60) sampling locations have been completed at the site. Based on the site area of 13,240m^2 (1.32 hectares), this number of locations corresponded to a sampling density of approximately one sample per 220m^2. Samples were obtained from sixty (60) locations as shown on the attached Figure 2. This number of locations met the minimum sampling density for hotspot identification, as outlined in the NSW EPA Contaminated Sites Sampling Design Guidelines (1995)[9].
Sampling Plan	The sampling locations were placed on a systematic plan with a grid spacing of approximately 25m between sampling location. A systematic plan was considered suitable to identify hotspots to a 95% confidence level and calculate UCLs for specific data populations (UCLs were only applied where appropriate and in accordance with the DQOs).
Set-out and Sampling Equipment	Sampling locations were set out using a tape measure and hand-held GPS unit (with an accuracy of ± 4m). In-situ sampling locations were cleared for underground services by an external contractor prior to sampling. Samples were collected using a combination of hand auger and drill rig equipped with spiral flight augers. Soil samples were obtained from a Standard Penetration Test (SPT) split-spoon sampler, or directly from the auger when conditions did not allow use of the SPT sampler.
Sample Collection and Field QA/QC	Soil sampling program was completed between 11 July and 25 July 2018. Soil samples were collected from the fill and natural profiles based on field observations. The sample depths are shown on the logs attached in the appendices. Samples were placed in glass jars with plastic caps and teflon seals with minimal headspace. Samples for asbestos analysis were placed in zip-lock plastic bags. During sampling, soil at selected depths was split into primary and duplicate samples for field QA/QC analysis.

[8] Western Australian (WA) Department of Health (DoH), (2009). Guidelines for the Assessment, Remediation and Management of Asbestos-Contaminated Sites in Western Australia. (referred to as WA DoH 2009)

[9] NSW EPA, (1995), *Contaminated Sites Sampling Design Guidelines.* (referred to as EPA Sampling Design Guidelines 1995)

Aspect	Input
Field Screening	A portable Photoionisation Detector (PID) fitted with a 10.6mV lamp was used to screen the samples for the presence of volatile organic compounds (VOCs). PID screening for VOCs was undertaken on soil samples using the soil sample headspace method. VOC data was obtained from partly filled zip-lock plastic bags following equilibration of the headspace gases. PID calibration records are maintained on file by EIS. The field screening for asbestos quantification included the following: • A representative 10L sample was collected from fill at 1m intervals, or from each distinct fill profile. The bulk sample intervals are shown on the attached borehole logs; • Each 10L sample was weighed using an electronic scale. The weight of the sample was recorded on the borehole logs; • Due to the cohesive nature of the soils, each sample was subsequently placed on a contrasting support (blue tarpaulin) and inspected for the presence of fibre cement. Any soil clumps/nodules were disaggregated; • The condition of fibre cement or any other suspected asbestos materials was noted on the field records; and • If observed, any fragments of fibre cement in the 10L sample were collected, placed in a zip-lock bag and assigned a unique identifier. Calculations for asbestos content were undertaken based on the requirements outlined in Schedule B1 of NEPM (2013), as summarised in Section 8.1. A calibration/check of the accuracy of the scale used for weighing the fibre cement fragments was undertaken using a set of calibration weights. Calibration/check records are maintained on file by EIS. The scale used to weigh the 10L samples was not calibrated, however this is not considered significant as this method of providing a weight for the bulk sample is considered to be considerably more accurate than applying a nominal soil density conversion.
De-contamination and Sample Preservation	Sampling personnel used disposable nitrile gloves during sampling activities. Re-usable sampling equipment was decontaminated. Soil samples were preserved by immediate storage in an insulated sample container with ice in accordance with the SSP. On completion of the fieldwork, the samples were stored temporarily in fridges in the EIS warehouse before being delivered in the insulated sample container to a NATA registered laboratory for analysis under standard chain of custody (COC) procedures.
Laboratory Analysis	Selected soil samples were analysed for a range of CoPC as outlined in the Report Tables attached in the appendices. All primary samples and field QA/QC samples including (intra-laboratory duplicate, trip blank and field rinsate samples) were analysed by Envirolab Services Pty Ltd NSW, NATA Accreditation Number – 2901 (ISO/IEC 17025 compliance). The reports are attached in the appendices and include: 196637; and 196637-A.

Aspect	Input
	Inter-laboratory duplicate sample was analysed by Envirolab Services Pty Ltd VIC, NATA Accreditation Number – 2901 (ISO/IEC 17025 compliance). The reports are attached in the appendices and include: 14301.

7.2 Groundwater Investigation

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

Table 7-2: Groundwater Sampling Plan and Methodology

Aspect	Input
Sampling Plan	Groundwater monitoring wells were installed in BH101 (MW101), BH142 (MW142) and BH143 (MW143). The wells were positioned to gain a snap-shot of the groundwater conditions. Considering the topography and the location of the nearest down-gradient water body, MW101 was considered to be in the up-gradient area of the site and would be expected to provide an indication of groundwater flowing onto the site from the north and west. MW142 and MW143 was considered to be in the intermediate to down-gradient area of the site and would be expected to provide an indication of groundwater flowing across (beneath) the site and beyond the down-gradient site boundary.
Monitoring Well Installation Procedure	The monitoring well construction details are documented on the appropriate borehole logs attached in the appendices. The monitoring wells were installed to depths of approximately 6m below ground level (BGL). The wells were generally constructed as follows: • 50mm diameter Class 18 PVC (machine slotted screen) was installed in the lower section of the well to intersect groundwater; • 50mm diameter Class 18 PVC casing was installed in the upper section of the well (screw fixed); • A 2mm sand filter pack was used around the screen section for groundwater infiltration; • A hydrated bentonite seal/plug was used on top of the sand pack to seal the well; and • A gatic cover was installed at the surface with a concrete plug to limit the inflow of surface water. Considering that the CSM did not identify any on-site sources that could impact the deeper aquifers, the investigation depth of 6mBGL was considered adequate for the Stage 2 ESA.
Monitoring Well Development	The monitoring wells were developed on 18 July 2018 using a submersible electrical pump. Due to the hydrogeological conditions, groundwater inflow into the wells was relatively low, therefore the wells were pumped until they were effectively dry. During development, the following parameters were monitored using calibrated field instruments: • Standing water level (SWL) using an electronic dip meter; and • pH, temperature, electrical conductivity (EC), dissolved oxygen (DO) and redox potential (Eh) using a YSI Multi-probe water quality meter.

Aspect	Input
	The field monitoring records are attached in the appendices.
Groundwater Sampling	The monitoring wells were allowed to recharge for approximately six days after development. Groundwater samples were obtained on 25 July 2018. Prior to sampling, the monitoring wells were checked for the presence of Light Non-Aqueous Phase Liquids (LNAPLs) using an inter-phase probe electronic dip meter. The monitoring well head space was checked for VOCs using a calibrated PID unit. The samples were obtained using a peristaltic pump. During sampling, the following parameters were monitored using calibrated field instruments: • SWL using an electronic dip meter; and • pH, temperature, EC, DO and Eh using a YSI Multi-probe water quality meter. Steady state conditions were considered to have been achieved when the difference in the pH measurements was less than 0.2 units and the difference in conductivity was less than 10%. Steady state conditions could not be achieved in MW142 and MW143 due to slow recharge conditions. Groundwater samples were obtained directly from the single use PVC tubing and placed in the sample containers. Duplicate samples were obtained by alternate filling of sample containers. This technique was adopted to minimise disturbance of the samples and loss of volatile contaminants associated with mixing of liquids in secondary containers, etc. Groundwater removed from the wells during development and sampling was transported to EIS in jerry cans and stored in holding drums prior to collection by a licensed waste water contractor for off-site disposal. The field monitoring record and calibration data are attached in the appendices.
Decontaminant and Sample Preservation	During development, the pump and hose were flushed between monitoring wells with potable water followed by a pulse of demineralised water. Single-use tubing was used during sampling for each well. The tubing was discarded after each sampling event and replaced therefore no decontamination procedure was considered necessary. The samples were preserved with reference to the analytical requirements and placed in an insulated container with ice. On completion of the fieldwork, the samples were temporarily stored in a fridge at the EIS office, before being delivered in the insulated sample container to a NATA registered laboratory for analysis under standard COC procedures.
Laboratory Analysis	Selected groundwater samples were analysed for a range of CoPC as outlined in the Report Tables attached in the appendices. All primary samples and field QA/QC samples including (intra-laboratory duplicate, trip blank and trip spikes) were analysed by Envirolab Services Pty Ltd NSW, NATA Accreditation

Aspect	Input
	Number – 2901 (ISO/IEC 17025 compliance). The reports are attached in the appendices and include: 197018. Inter-laboratory duplicate sample was analysed by Envirolab Services Pty Ltd VIC, NATA Accreditation Number – 2901 (ISO/IEC 17025 compliance). The reports are attached in the appendices and include: 14327.

7.3 FCF Investigation

FCF detected at the surface during sampling were placed in zip-lock bags and assigned a unique identifier. The sample locations were recorded on Figure 3 attached in the appendices. On completion of the fieldwork, the FCF samples were temporarily stored in a fridge at the EIS office, before being delivered in the insulated sample container to a NATA registered laboratory for analysis under standard COC procedures.

8 SITE ASSESSMENT CRITERIA

The Site Assessment Criteria (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.

8.1 Soil Criteria

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

8.1.1 Human Health

- Health Investigation Levels (HILs) for 'Residential A with garden/accessible soils including preschools' exposure scenario (HIL-A);
- Health Screening Levels (HSLs) for a 'low-high density residential' exposure scenario (HSL-A & HSL-B). HSLs were calculated based on the soil type and the depth of the sample from the existing ground surface as the proposed building floor level is expected to be constructed approximately at the existing grade. Although HSLs are not intended to be applied to bedrock, the bedrock results were assessed against the HSLs derived using the most conservative criteria (i.e. sand and a 0m to 1m depth interval) to allow for an initial assessment of potential risk;
- Where exceedances of the HSLs were reported for hydrocarbons (TRH/BTEX and naphthalene), the soil health screening levels for direct contact presented in the CRC Care Technical Report No. 10 – Heath screening levels for hydrocarbons in soil and groundwater Part 1: Technical development document (2011)[10] were considered;
- FCF were assessed for asbestos on the basis of presence/absence;
- Asbestos in soil for EIS 2017b was assessed on the basis of presence/absence;
- Asbestos in soil for the Stage 2 ESA was assessed against the HSL-A criteria. A summary of the asbestos criteria is provided in the table below:

Table 8-1: Details for Asbestos SAC

Guideline	Applicability
Asbestos in Soil	The HSL-A criteria were adopted for the assessment of asbestos in soil. The SAC adopted for asbestos were derived from the NEPM 2013 and are based on WA DoH (2009) guidance. The SAC includes the following: • <0.01% w/w bonded asbestos containing material (ACM) in soil; and • <0.001% w/w asbestos fines/fibrous asbestos (AF/FA) in soil.

[10] 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*

Guideline	Applicability
	The NEPM (2013) and WA DoH (2009) also specify that the surface should be free of visible asbestos. Concentrations for bonded ACM concentrations in soil are based on the following equation which is presented in Schedule B1 of NEPM (2013): $$\% \text{ w/w asbestos in soil} = \frac{\% \text{ asbestos content x bonded ACM (kg)}}{\text{Soil volume (L) x soil density (kg/L)}}$$ However, as most of the soil sampled was cohesive the actual soil volume in the 10L bucket varied considerably due to the presence of voids. Therefore, each bucket sample was weighed using electronic scales and the above equation was adjusted as follows: $$\% \text{ w/w asbestos in soil} = \frac{\% \text{ asbestos content x bonded ACM (kg)}}{\text{Soil weight (kg)}}$$

8.1.2 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 criteria for benzo(a)pyrene has been increased from the value presented in NEPM (2013) based on the information presented in the CRC Care Technical Report No. 39 – Risk-based management and guidance for benzo(a)pyrene (2017)[11];
- ESLs were calculated based on the soil type. EILs for selected metals were calculated using average site-specific soil parameters for pH, cation exchange capacity and clay content. These data were used to select the added contaminant limit (ACL) values presented in Schedule B(1) of NEPM (2013), and published ambient background concentration (ABC) presented in the document titled Trace Element Concentrations in Soils from Rural and Urban Areas of Australia (1995)[12]. This method is considered to be adequate for the Tier 1 screening.

8.1.3 Management Limits for Petroleum Hydrocarbons

Management limits for petroleum hydrocarbons (as presented in Schedule B1 of NEPM 2013) were considered (if required) following evaluation of human health and ecological risks, and risks to groundwater.

[11] CRC Care, (2011). *Technical Report No. 39 - Risk-based management and guidance for benzo(a)pyrene*

[12] 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.

8.1.4 Waste Classification

Data for the waste classification assessment were assessed in accordance with the Waste Classification Guidelines, Part 1: Classifying Waste (2014)[13] as outlined in the following table:

Table 8-2: 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.
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.

8.2 Groundwater Criteria

Groundwater data were compared to relevant Tier 1 screening criteria in accordance with NEPM (2013), following an assessment of environmental values in accordance with the Guidelines for the Assessment and Management of Groundwater Contamination (2007)[14]. Environmental values for this assessment include aquatic ecosystems and human-health risks in non-use scenarios.

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

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

8.2.1 Human Health

- HSLs for a 'low-high density residential' exposure scenario (HSL-A). HSLs were calculated based on the soil type and the observed depth to groundwater; and
- The guidelines for recreational water quality (primary and secondary contact) presented in the Australian and New Zealand Guidelines for Fresh and Marine Water Quality (2000)[15] were adopted as screening criteria to assess potential human-health risks in the nearest receiving water body as it may be used for recreational purposes.

8.2.2 Environment (Ecological - aquatic ecosystems)

- Groundwater Investigation Levels (GILs) for 95% trigger values for protection of freshwater/marine species presented in Australian and New Zealand Guidelines for Fresh and Marine Water Quality (2000)[16]. The 99% trigger values were adopted where required to account for bioaccumulation. Low and moderate reliability trigger values were also adopted for some contaminants where high-reliability trigger values don't exist.

[15] ANZECC, (2000), *Australian and New Zealand Guidelines for Fresh and Marine Water Quality.* (referred to as ANZECC 2000)
[16] ANZECC, (2000). *Australian and New Zealand Guidelines for Fresh and Marine Water Quality.* (referred to as ANZECC 2000)

9 RESULTS

9.1 Soil Investigation Results

9.1.1 Subsurface Conditions

A summary of the subsurface conditions encountered during the Stage 2 investigation is presented in the table below. Reference should be made to the borehole logs attached in the appendices for further details.

Table 9-1: Summary of Subsurface Conditions – Stage 2 ESA

Profile	Description
Pavement	Asphaltic Concrete (AC) or concrete pavement was encountered at the surface in boreholes BH106, BH116, BH120, BH130, BH134, BH135, BH143, BH145, BH146 and BH148. The pavement thickness ranged from approximately 30mm to 400mm.
Fill	Fill material was encountered at the surface or beneath the pavement in all boreholes and extended to depths of approximately 0.2m to 2mBGL. BH103, BH113, BH119, BH122, BH130, BH131, and BH145 were terminated in the fill due to obstructions. Deeper fill was encountered in the east section of the site. The fill typically comprised of: silty sand; silty gravelly sand; clayey sand, sandy clay and gravelly sandy clay. The fill contained inclusions of: igneous, sandstone, ironstone gravel; root fibres; plastic; ash; slag, wood; concrete; glass; clay nodules; brick, tile, ceramic and metal fragments. FCF was detected in the fill and at the surface at many sampling locations shown on Figure 3 (see appendices).
Natural Soil	Natural silty sand was encountered beneath the fill in thirty four (34) locations. Natural soil ranged in depth from approximately 0.5mBGL to 2.7mBGL. The natural soil typically comprised of: silty clay; sandy clay; clayey sand and sand. The soil contained inclusions of: sandstone and ironstone gravel; and root fibres.
Bedrock	Sandstone bedrock was encountered beneath the natural soil or directly beneath the fill in thirty three (33) locations. The sandstone was fine to medium grained and contained inclusions of ironstone gravel and clay nodules.

9.1.2 Field Screening

A summary of the field screening results are presented in the table below.

Table 9-2: Summary of Field Screening – Soil Sampling

Aspect	Details
PID Screening of Soil Samples for VOCs	PID soil sample headspace readings are presented in attached report tables and the COC documents attached in the appendices. The results ranged from 0.2ppm to 45.2ppm equivalent isobutylene. These results indicate PID detectable VOCs. Samples with elevated PID readings were analysed for TRH and BTEX.
Bulk Screening for Asbestos	The bulk field screening results are summarised in the attached report tables. The ACM concentration in samples BH108 (0-0.6m), BH110 (0-0.3m), BH110 (0.3-0.5m), BH124 (0-0.9m), BH125 (0-0.85m), BH126 (0-0.5m) and BH137 (0-0.6m) exceeded the SAC. All other results were below the SAC.

9.1.3 Analytical Results

The soil laboratory results are compared to the relevant SAC in the attached report tables. A summary of the results assessed against the SAC is presented below:

9.1.3.1 Human Health and Environmental (Ecological) Assessment

Table 9-3: Summary of Soil Laboratory Results – Human Health and Environmental (Ecological)

Analyte	Results Compared to SAC
Heavy Metals	The majority of the heavy metals results were below the SAC. Fill samples BH111 (0-0.2m) and BH149 (0-0.2m) detected lead concentrations of 420mg/kg and 350mg/kg respectively, above the HIL-A SAC. The results were below 250% of the SAC for lead. Statistical analysis undertaken on the fill results are summarised in Section 9.1.4.
TRH	The majority of the TRH results were below the SAC. Fill samples BH142 (0-0.2m) and BH150 (0-0.1m) detected TRH F2 concentrations of 120mg/kg and 230mg/kg respectively, above the HSL-A SAC. The results were below 250% of the SAC for TRH F2. Fill sample BH142 (0-0.2m) detected TRH F3 concentration of 360mg/kg above the ESL-URPOS SAC. Fill sample BH150 (0-0.1m) detected TRH F2 and F3 concentrations of 230mg/kg and 1100mg/kg respectively, above the ESL-URPOS SAC.
BTEX	All BTEX results were below the SAC.
PAHs	The majority of the PAHs results were below the SAC. Fill sample BH118 (0-0.2m) detected carcinogenic PAHs concentrations of 8mg/kg above the HIL-A SAC. The result was greater than 250% of the SAC of 3mg/kg. Statistical analysis undertaken on the fill results are summarised in Section 9.1.4.

Analyte	Results Compared to SAC
OCPs and OPPs	All OCP and OPP results were below the SAC.
PCBs	All PCB concentrations were below the laboratory PQLs.
Asbestos	All asbestos quantification results below the laboratory PQL and the SAC. FCF sampled during the field work was tested for asbestos. Asbestos was detected in all of the FCF samples.

9.1.4 Statistical Analysis

Statistical calculations undertaken on the results using ProUCL (Version 5.1) are attached in the appendices. A summary of the results are as follows:

- Statistical calculations were computed on forty-two individual fill lead results. The standard deviation (SD) was 94.5 mg/kg below the 50% of lead SAC of 300 mg/kg. The 95% UCL on the mean lead result was 105.2 mg/kg below the SAC of 300 mg/kg; and
- Statistical calculations were computed on forty-two individual fill carcinogenic PAHs results. The standard deviation (SD) was 1.2 mg/kg below the 50% of SAC of 3 mg/kg. The 95% UCL on the mean carcinogenic PAHs result was 1.03 mg/kg below the SAC of 3 mg/kg.

9.2 Groundwater Investigation Results

9.2.1 Groundwater Conditions

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

Table 9-4: Summary of Groundwater Conditions

Aspect	Details
Groundwater Seepage and Depth	Groundwater seepage was encountered in borehole BH101 during drilling at a depth of approximately 5.3mBGL. All remaining boreholes were dry on completion of drilling and a short time after. Groundwater monitoring wells were installed in BH101 (MW101), BH143 (MW143) and BH142 (MW142). Standing water level (SWL) was measured in the monitoring wells installed at the site on 18 and 25 July 2018. The SWL in the wells ranged from approximately 3.2mBGL to 4.76mBGL.
Groundwater Field Parameters	Field measurements recorded during sampling were as follows: - pH ranged from 4.44 to 5.89; - EC ranged from 388µS/cm to 525µS/cm; - Eh ranged from 12.5mV to 162mV; and

Aspect	Details
	- DO ranged from 1.3ppm to 3.7ppm.
LNAPLs petroleum hydrocarbons	Phase separated product (i.e. LNAPL) were not detected using the interphase probe during groundwater sampling.

9.2.2 Analytical Results

The groundwater laboratory results are compared to the relevant SAC in the attached report tables. A summary of the results assessed against the SAC is presented below:

Table 9-5: Summary of Groundwater Laboratory Results – Human Health and Environmental (Ecological)

Analyte	Results Compared to SAC
Heavy Metals	Groundwater sample MW143 detected a copper result of 2µg/L above the ecological SAC. All groundwater samples MW101, MW142 and MW143 detected zinc values ranging from 22µg/L to 44µg/L above the ecological SAC. The remaining heavy metals results were below the SAC.
TRH	All TRH results were below the SAC.
BTEX	All BTEX results were below the SAC.
Other VOCs	All VOC results were below the SAC.
PAHs	All PAH results were below the SAC.

9.3 Quality Assurance and Quality Control

The data evaluation is presented in the appendices. In summary, EIS are 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.

10 PRELIMINARY WASTE CLASSIFICATION

10.1 Analytical Results

The laboratory results were assessed against the criteria presented in Part 1 of the Waste Classification Guidelines, as summarised previously in this report. The results are presented in the report tables attached in the appendices. A summary of the results is presented below.

Table 10-1: Summary of Soil Laboratory Results Compared to Waste Classification Guidelines

Analyte	No. of Samples Analysed	No. of Results > CT1 Criteria	No. of Results > SCC1 Criteria	No. of Results > TCLP1 Criteria	Comments
Heavy Metals	49	16	0	0	Lead and nickel concentrations exceeded the CT1 criterion in a number of fill samples. TCLP lead and nickel analysis was undertaken on these samples. The results were below the TCLP1 criteria.
TRH	49	0	0	-	-
BTEX	49	0	0	-	-
Total PAHs	49	0	0	-	-
Benzo(a)pyrene	49	2	0	0	B(a)P concentration in two fill samples exceeded the CT1 criterion. TCLP B(a)P analysis was undertaken on these samples. The results were below the TCLP1 criteria.
OCPs & OPPs	35	0	0	-	-
PCBs	35	0	0	-	-
Asbestos in soil	22	-	-	-	Asbestos was not detected in the soil samples analysed.
Asbestos in FCF	8	-	-	-	Asbestos was detected in all FCF samples analysed.

10.2 Preliminary Classification of Fill

The laboratory results indicate that the preliminary waste classification of the fill material is **General Solid Waste (non-putrescible) containing Special Waste (asbestos)**. Surplus fill should be disposed of to a facility that is appropriately licensed to receive this waste stream. The facility should be contacted to obtain the required approvals prior to commencement of excavation.

10.3 Preliminary Classification of Natural Soil and Bedrock

The laboratory results indicate that the natural soil and bedrock meets the definition of **VENM** for off-site disposal or re-use purposes. This classification should be confirmed during development works as the overlying fill in many sections of the site has been contaminated.

VENM is considered suitable for re-use on-site, or alternatively, the information included in this report may be used to assess whether the material is suitable for beneficial reuse at another site as fill material. In accordance with Part 1 of the Waste Classification Guidelines, the VENM is pre-classified as general solid waste and can also be disposed of accordingly to a facility that is licensed to accept it.

10.4 Classification Limitations

Additional testing of fill and natural soil will be required based on the nature and extent of the proposed development. Soil beneath many of the buildings was not accessible for sampling.

11 DISCUSSION AND REVIEW OF CSM

11.1 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.

11.1.1 Soil

The Stage 2 ESA identified contaminants of concern (CoC) in the fill which pose a risk to site receptors. The main CoC identified include: asbestos, lead, carcinogenic PAHs, and TRH F2 and F3 fractions. The CoC and SPR linkages are presented in the following table:

Table 11-1: CoC and SPR Linkages – Soil Contamination

CoC	Receptor		Pathway	Potential Risk
Lead and Carcinogenic PAHs	Human	On-site workers	Inhalation of dust, dermal contact, ingestion	**There is a SPR linkage due to exposure during on-site works.** This will need to be managed by site remediation.
		Current Occupants		**There is a SPR linkage due to exposure by direct contact.** The CoC was detected at the surface increasing the risk of exposure by direct contact. This will need to be managed by site remediation.
		Future Occupants		The SPR linkage will be addressed by site remediation. Post remediation, the CoC is not considered to pose a risk.
	Ecology	Flora	Root zone contact	**There is a SPR linkage due to exposure by root contact.** This will need to be managed by site remediation.
		Fauna	Ingestion, dermal contact	**There is a SPR linkage due to exposure by direct contact.** The CoC was detected at the surface increasing the risk of exposure by direct contact. This will need to be managed by site remediation.

CoC	Receptor		Pathway	Potential Risk
Asbestos	Human	On-site workers	Inhalation of dust, dermal contact, ingestion	**There is a SPR linkage due to exposure during on-site works.** This will need to be managed by site remediation.
		Current Occupants		**There is a SPR linkage due to exposure by direct contact.** Asbestos was detected at the surface increasing the risk of exposure by direct contact. This will need to be managed by site remediation.
		Future Occupants		The SPR linkage will be addressed by site remediation. Post remediation, the CoC is not considered to pose a risk.
	Ecology	Flora	Root zone contact	Not applicable for this CoC.
		Fauna	Ingestion, dermal contact	Not applicable for this CoC.
TRH F2 and F3	Human	On-site workers	Inhalation of vapours, dermal contact, ingestion	**There is a SPR linkage due to exposure during on-site works.** This can be managed by site remediation and management.
		Current Occupants		**There is a SPR linkage due to vapours entering buildings and services.** This will need to be managed by site remediation.
		Future Occupants		The SPR linkage will be addressed by site remediation. Post remediation, the CoC is not considered to pose a risk.
	Ecology	Flora	Root zone contact	**There is a SPR linkage due to exposure by root contact.** This will need to be managed by site remediation.
		Fauna	Ingestion, dermal contact	**There is a SPR linkage due to exposure by direct contact.** Lead was detected at the surface increasing the risk of exposure by direct contact. This will need to be managed by site remediation.

11.1.2 Groundwater

Marginal elevations of lead and zinc were detected in the groundwater. The source of this contaminant could be associated with the leaching of metals from the fill or urban background sources. EIS understand that groundwater will not be used as a resource at the site and hence does not pose a SPR linkage.

In the event that groundwater seepage management or dewatering is required for the development, additional testing and treatment of the groundwater may be required. Dewatering and/or groundwater disposal approvals should be sought from the relevant authorities.

11.2 Source of Contamination, Fate and Transport Mechanism

The source of the PAHs and lead contamination in the fill is considered to be the ash, slag and other inclusions detected in the fill matrix. The site history has not identified any on-site sources of these CoC other than fill. The site was developed prior to 1930. Historical filling of the site is likely to have occurred in the early 1900's, prior to construction of buildings. Slag and ash was frequently used as fill material during this period in Sydney. The slag and ash may have originated from various metal processing industries and from coal burning, respectively.

The elevated TRH (F2 and F3) concentrations are likely to be associated with a localised spill of petroleum containing compounds. The TRH was detected in the surface fill at BH142 and BH150. The deeper natural soil samples were not impacted by this CoC.

Asbestos in the form of FCF was detected at numerous locations as shown on Figure 3. The asbestos could have originated from the demolition of former buildings containing this CoC or imported along with the fill material.

The contamination is likely to be widespread throughout the fill soils. Taking into account the age of the fill and the topography it is likely that the majority of soluble contaminants could have leached out over the intervening years leaving the more insoluble component behind. The TRH F2/F3 fraction is likely to consist principally of the more hydrophobic degradation resistant hydrocarbons which will be strongly bound to soil particles.

The potential transport mechanisms for migration include:

- Fill material – top-down impacts e.g. placement of fill, leaching from surficial material and/or sub-surface release (e.g. impacts from buried material);
- Fuel – top-down, spills (e.g. during filling and usage of products from drums), or sub-surface release (e.g. from leaking drums);
- Hazardous building materials – top-down e.g. demolition resulting in surficial impacts in unpaved areas; and
- Vapour intrusion into the proposed basement and/or building (either from soil contamination or volatilisation of contaminants from groundwater).

11.3 Affected Media

At this stage, soil has been identified as potentially affected media requiring remediation. However, soil vapour testing has not been undertaken and could also be a potentially affected media.

11.4 Presence of Preferential Pathways for Migration

Soil vapour has the potential to migrate through services and enter buildings through service backfill. Vapour can also enter buildings through cracks, joints and other damaged areas.

11.5 Decision Statements

A review of the decision statements are addressed below:

Table 11-2: Review of Decision Statements

Decision Statements	Decision Results
1. Did the site inspection, or does the historical information identify potential contamination sources/AEC at the site?	Yes. The CSM identified the following AEC at the site: fill material; use of pesticides; hazardous building materials; and an off-site source. A previous investigation by EIS in 2017b detected asbestos, TRH F2 and F3 above the SAC.
2. Are any results above the Site Assessment Criteria (SAC)?	Yes. Soil, asbestos and groundwater results were above the SAC.
3. Do potential risks associated with contamination exist, and if so, what are they?	Yes. The CoC in soil pose a risk to site receptors. Remediation and management is required.
4. Is remediation required?	Yes. Remediation and management of CoC is required.
5. Is the site characterisation sufficient to provide adequate confidence in the above decisions?	Yes. The Stage 2 ESA has addressed the site characterisation data gaps identified in EIS 2017b. Reference should be made to data gaps outlined in Section 11.6.
6. Is the site suitable for the proposed development, or can the site be made suitable subject to further characterisation and/or remediation?	The site can be made suitable for the proposed development subject to remediation.

11.6 Data Gaps

The Stage 2 ESA was designed to gain full site coverage. Some areas beneath buildings were not accessible as the site was currently occupied by the school. Any unexpected finds should be addressed as outlined in accordance with a remediation action plan (RAP).

12 CONCLUSIONS AND RECOMMENDATIONS

12.1 Summary of Key Findings

EIS consider that the report objectives outlined in Section 1.3 have been addressed.

A review of the CSM with the Stage 2 ESA data has identified CoC which pose a risk to site receptors. The Stage 2 ESA discusses the potential contaminant sources, transport mechanisms/ pathways and impacted media. Based on the findings of the Stage 2 ESA, the CoC is considered to pose a risk to site receptors and will require remediation.

The CoC at this stage, does not trigger EPA notification requirements under the NSW EPA Guidelines on the Duty to Report Contamination under Section 60 of the CLM Act 1997 (2015)[17] provided the recommendations outlined below are addressed.

12.2 Recommendations

EIS are of the opinion that the following additional work should be undertaken to assess site suitability for the proposed development:

- Remediation Action Plan (RAP) to address the CoC and risks posed to site receptors; and
- Validation Assessment documenting the remediation works undertaken at the site.

EIS are of the opinion that the risk posed by asbestos should be addressed as a priority considering the sensitive nature of the land use (primary school). As a duty of care, we recommend raking and picking of asbestos from the surface to be undertaken as soon as possible. This should be followed by a surface clearance from an Asbestos Assessor.

[17] 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)

13 LIMITATIONS

The report limitations are outlined below:

- EIS 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 EIS proposal; and terms of contract between EIS 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, EIS has not undertaken any verification process, except where specifically stated in the report;
- EIS 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;
- EIS 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;
- EIS 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. EIS 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.

14 REFERENCES

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

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

CRC Care, (2017). Technical Report No. 39 – Risk-based management and guidance for benzo(a)pyrene

Contaminated Land Management Act 1997 (NSW)

Department of Land and Water Conservation, (1997). 1:25,000 Acid Sulfate Soil Risk Map (Series 9130N3, Ed 2)

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

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

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

NSW EPA, (1995). Contaminated Sites Sampling Design Guidelines

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

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 No.55 – Remediation of Land 1998 (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, (2009). Guidelines for the Assessment, Remediation and Management of Asbestos-Contaminated Sites in Western Australia

15 IMPORTANT INFORMATION ABOUT 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 EIS 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.

EIS 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 EIS 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

AERIAL IMAGE SOURCE: GOOGLE EARTH PRO 7.1.5.1557
AERIAL IMAGE ©: 2015 GOOGLE INC.

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

Title:

SITE LOCATION PLAN

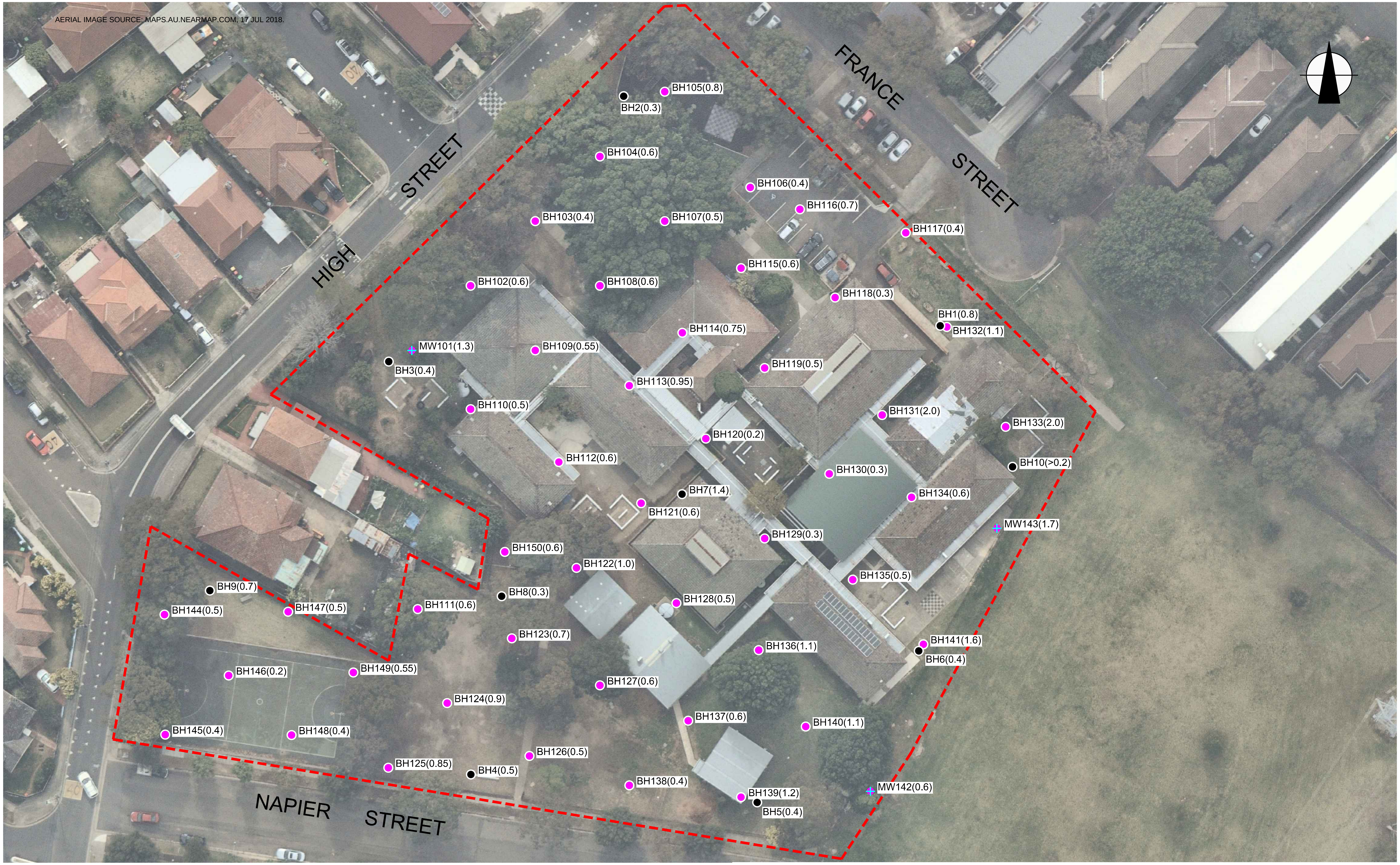
Location: CANTERBURY SOUTH PUBLIC SCHOOL
HIGH STREET, CANTERBURY, NSW

Report No: E31040KB

Figure No: 1

ENVIRONMENTAL INVESTIGATION SERVICES

PLOT DATE: 27/08/2018 4:14:52 PM DWG FILE: S:\5 EIS\5C EIS JOBS\31000's\E31040K CANTERBURY\CAD\E31040KB.DWG



PLOT DATE: 29/08/2018 4:04:56 PM DWG FILE: S:\15 EIS\5C EIS JOBS\31000'S\E31040K CANTERBURY\CAD\E31040KB.DWG

LEGEND

APPROXIMATE SITE BOUNDARY

BH (Fill Depth) BOREHOLE LOCATION, NUMBER AND DEPTH OF FILL (m), 2018

BH (Fill Depth) BOREHOLE LOCATION, NUMBER AND DEPTH OF FILL (m), 2017

BH/MW(Fill Depth) BOREHOLE AND GROUND WATER MONITORING WELL LOCATION, NUMBER AND DEPTH OF FILL (m)

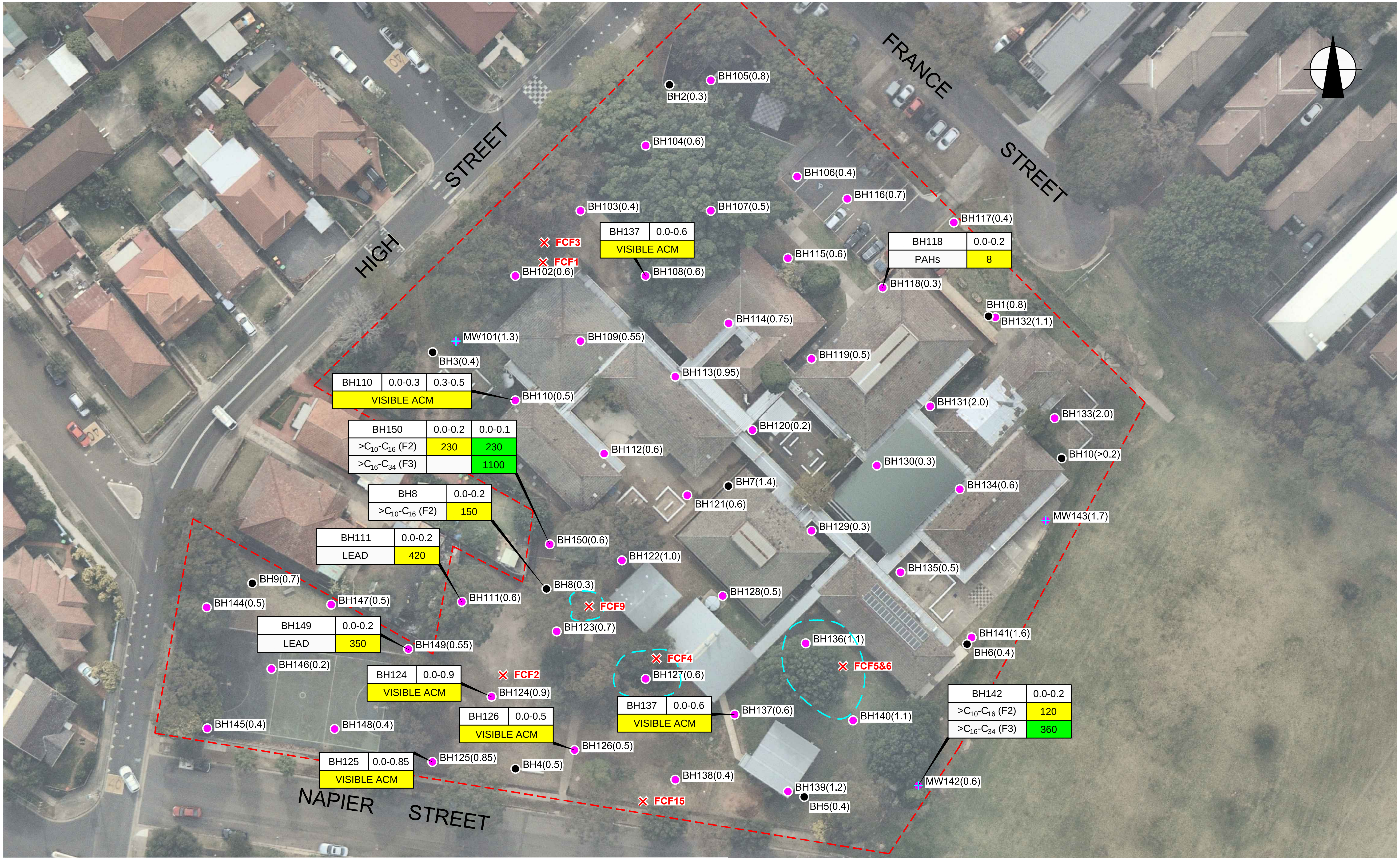
0 6 12 18 24 30

SCALE 1:600 @A3 METRES

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

Title:	SAMPLE LOCATION PLAN
Location:	CANTERBURY SOUTH PUBLIC SCHOOL HIGH STREET, CANTERBURY, NSW
Report No: E31040KB	Figure No: 2
ENVIRONMENTAL INVESTIGATION SERVICES	

EIS



LEGEND

APPROXIMATE SITE BOUNDARY
BH (Fill Depth) BOREHOLE LOCATION, NUMBER AND DEPTH OF FILL (m), 2018
BH (Fill Depth) BOREHOLE LOCATION, NUMBER AND DEPTH OF FILL (m), 2017
BH/MW(Fill Depth) BOREHOLE AND GROUND WATER MONITORING WELL LOCATION, NUMBER AND DEPTH OF FILL (m)

SAMPLE ID	DEPTH (metres)
CHEMICAL	CONCENTRATION

SOIL CONTAMINATION ABOVE SAC FOR HUMAN HEALTH RISK (mg/kg)
FCF FIBRE CEMENT FRAGMENTS (FCF) 2018
FCF SCATTERED AT SURFACE

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

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

Title:
SITE CONTAMINATION DATA PLAN

Location: CANTERBURY SOUTH PUBLIC SCHOOL
HIGH STREET, CANTERBURY, NSW

Report No: E31040KB
Figure No: 3

ENVIRONMENTAL INVESTIGATION SERVICES

EIS

PLOT DATE: 31/08/2018 12:33:47 PM DWG FILE: S:\5 EIS\5C EIS JOBS\31000'S\E31040K CANTERBURY\CAD\E31040KB.DWG

Appendix B: Laboratory Summary Tables

ABBREVIATIONS AND EXPLANATIONS

Abbreviations used in the Tables:

ABC:	Ambient Background Concentration
ACM:	Asbestos Containing Material
ADWG:	AustralianDrinking Water Guidelines
AF:	Asbestos Fines
ANZECC:	Australian and New Zealand Environment Conservation Council
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
HILs:	Health Investigation Levels
HSLs:	Health Screening Levels
HSL-SSA:	Health Screening Level-SiteSpecific Assessment
NA:	Not Analysed
NC:	Not Calculated
NEPM:	National Environmental Protection Measure
NHMRC:	National Health and Medical Research Council
NL:	Not Limiting
NSL:	No Set Limit
OCP:	Organochlorine Pesticides
OPP:	Organophosphorus Pesticides
PAHs:	Polycyclic Aromatic Hydrocarbons
ppm:	Parts per million
PCBs:	Polychlorinated Biphenyls
PCE:	Perchloroethylene (Tetrachloroethylene or 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
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 Age
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.

EIS

TABLE A-1
SOIL LABORATORY RESULTS COMPARED TO NEPM 2013.
HIL-A: 'Residential with garden/accessible soils; children's day care centers; preschools; and primary schools'

All data in mg/kg unless stated otherwise			HEAVY METALS								PAHs		ORGANOCHLORINE PESTICIDES (OCPs)							OP PESTICIDES (OPPs)	TOTAL PCBs	ASBESTOS FIBRES
			Arsenic	Cadmium	Chromium VI	Copper	Lead	Mercury	Nickel	Zinc	Total PAHs	Carcinogenic PAHs	HCB	Endosulfan	Methoxychlor	Aldrin & Dieldrin	Chlordane	DDT, DDD & DDE	Heptachlor	Chlorpyrifos		
PQL - Envirolab Services			4	0.4	1	1	1	0.1	1	1	-	0.5	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	100
Site Assessment Criteria (SAC)			100	20	100	6000	300	40	400	7400	300	3	10	270	300	6	50	240	6	160	1	Detected/Not Detected
Sample Reference	**Sample Depth**	**Sample Description**																				
BH101	0-0.2	Fill: Silty Sand	5	<PQL	13	14	64	0.2	3	110	2.4	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	NA
BH102	0-0.2	Fill: Silty Sand	6	<PQL	11	16	59	0.1	4	110	0.28	<PQL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BH103	0-0.2	Fill: Silty Sand	<PQL	<PQL	9	11	39	<PQL	4	39	0.4	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	NA
BH105	0.03-0.2	Fill: Silty Sand	<PQL	<PQL	22	19	40	0.2	12	51	0.4	<PQL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BH106	0.03-0.2	Fill:Silty Gravelly Sand	<PQL	<PQL	73	30	10	<PQL	75	38	0.6	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	NA
BH108	0-0.2	Fill: Silty Sand	<PQL	<PQL	9	13	33	<PQL	3	49	0.06	<PQL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BH110	0-0.3	Fill: Silty Sand	<PQL	<PQL	11	29	110	0.2	6	130	0.28	<PQL	<PQL	<PQL	<PQL	0.1	<PQL	<PQL	<PQL	<PQL	<PQL	NA
BH111	0-0.2	Fill: Silty Sand	5	0.5	13	53	420	0.2	4	270	3.9	0.7	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BH111	0.8-0.95	Silty Clay	NA	NA	NA	NA	9	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BH112	0-0.2	Fill: Silty Sand	6	<PQL	9	13	37	<PQL	5	50	<PQL	<PQL	<PQL	<PQL	<PQL	0.1	<PQL	<PQL	<PQL	<PQL	<PQL	NA
BH113	0.5-0.7	Fill:Sandy Clay	5	<PQL	15	20	40	<PQL	6	72	0.7	<PQL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BH114	0-0.2	Fill: Silty Sand	9	<PQL	12	30	63	<PQL	7	210	0.06	<PQL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BH115	0-0.2	Fill: Silty Sand	<PQL	<PQL	6	8	24	<PQL	3	28	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	NA
BH116	0.03-0.2	Fill: Silty Sand	4	<PQL	52	30	11	<PQL	58	39	0.56	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	NA
BH117	0-0.2	Fill: Silty Sand	<PQL	<PQL	9	9	12	<PQL	6	28	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	NA
BH118	0-0.2	Fill: Clayey Sand	6	<PQL	13	50	77	0.1	13	200	60.3	8	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BH118	0.6-0.8	Sandy Clay	NA	NA	NA	NA	NA	NA	NA	NA	<PQL	<PQL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BH119	0-0.2	Fill: Silty Sand	<PQL	<PQL	12	23	47	<PQL	9	89	1.8	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	NA
BH121	0-0.2	Fill: Silty Sand	<PQL	<PQL	7	8	29	<PQL	4	50	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	NA
BH122	0-0.2	Fill: Silty Sand	<PQL	<PQL	8	3	16	<PQL	4	22	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	NA
BH123	0-0.2	Fill: Silty Sand	<PQL	<PQL	15	18	96	<PQL	7	96	12.5	2.3	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	NA
BH124	0-0.2	Fill: Clayey Sand	5	<PQL	12	10	57	0.2	2	65	0.8	<PQL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BH125	0-0.2	Fill: Silty Sand	9	0.5	14	38	270	1.4	6	180	2.4	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	NA
JHDUP1	0-0.2	Fill: Silty Sand	<PQL	<PQL	8	8	30	<PQL	2	32	<PQL	0.2	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	NA
JHDUP2	0.03-0.2	Fill: Silty Gravelly Sand	<PQL	<PQL	74	35	11	<PQL	82	51	0.16	0.2	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	NA
JHDUP3	0-0.2	Fill: Silty Sand	5	<PQL	9	10	67	<PQL	2	66	2.2	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	NA
JHDUP4	0-0.2	Fill: Silty Sand	20	<PQL	9	10	65	<PQL	3	90	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	NA
JHDUP5	1.3-1.5	Sandstone	6	<PQL	5	<PQL	9	<PQL	<PQL	2	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	NA
JHF1	Surface	Fragment	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	Detected
JHF2	Surface	Fragment	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	Detected
JHF3	Surface	Fragment	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	Detected
JHF4	Surface	Fragment	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	Detected
JHF5	Surface	Fragment	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	Detected
JHF6	Surface	Fragment	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	Detected
JHF9	Surface	Fragment	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	Detected
JHF15	Surface	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			26	26	26	26	27	26	26	26	27	27	18	18	18	18	18	18	18	18	18	8
Maximum Value			20	0.5	74	53	420	1.4	82	270	60.3	8	<PQL	<PQL	<PQL	0.1	<PQL	<PQL	<PQL	<PQL	<PQL	NC
Statistical Analysis on Fill Samples																						
Number of Fill Samples			NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
Mean Value			NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
Standard Deviation			NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
% UCL			NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
UCL Value			NC	NC	NC	NC	NC	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

TABLE A-2
SOIL LABORATORY RESULTS COMPARED TO NEPM 2013.
HIL-A: 'Residential with garden/accessible soils; children's day care centers; preschools; and primary schools'

All data in mg/kg unless stated otherwise			HEAVY METALS								PAHs		ORGANOCHLORINE PESTICIDES (OCPs)							OP PESTICIDES (OPPs)	TOTAL PCBs	ASBESTOS FIBRES
			Arsenic	Cadmium	Chromium VI	Copper	Lead	Mercury	Nickel	Zinc	Total PAHs	Carcinogenic PAHs	HCB	Endosulfan	Methoxychlor	Aldrin & Dieldrin	Chlordane	DDT, DDD & DDE	Heptachlor	Chlorpyrifos		
PQL - Envirolab Services			4	0.4	1	1	1	0.1	1	1	-	0.5	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	100
Site Assessment Criteria (SAC)			100	20	100	6000	300	40	400	7400	300	3	10	270	300	6	50	240	6	160	1	Detected/Not Detected
Sample Reference	**Sample Depth**	**Sample Description**																				
BH126	0-0.2	Fill: Silty Sand	6	0.7	13	28	220	0.8	4	160	1.9	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	NA
BH128	0-0.2	Fill: Silty Sand	<PQL	<PQL	8	6	23	<PQL	4	29	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	NA
BH129	0-0.2	Fill: Silty Sand	<PQL	<PQL	8	14	31	<PQL	3	57	1.4	<PQL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BH131	0-0.2	Fill: Silty Sand	<PQL	<PQL	9	19	43	<PQL	6	76	0.7	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	NA
BH132	0-0.2	Fill: Silty Sand	<PQL	<PQL	10	17	23	<PQL	12	59	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	NA
BH133	0.7-0.95	Fill: Sandy Clay	6	<PQL	10	34	25	<PQL	34	110	0.4	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	NA
BH135	0.1-0.3	Fill: Clayey Sand	8	<PQL	22	5	17	<PQL	3	17	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	NA
BH137	0-0.2	Fill: Silty Sand	13	<PQL	14	8	64	<PQL	3	87	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	NA
BH138	0-0.2	Fill: Silty Sand	<PQL	<PQL	7	5	8	<PQL	4	14	<PQL	<PQL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BH139	0-0.2	Fill: Clayey Sand	7	<PQL	18	6	130	<PQL	2	76	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	NA
BH140	0-0.2	Fill: Silty Sand	6	<PQL	15	12	130	<PQL	2	72	0.06	<PQL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BH141	0.2-0.5	Fill: Sandy Clay	12	<PQL	12	52	30	<PQL	21	84	0.38	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	NA
BH142	0-0.2	Fill: Silty Sand	5	<PQL	10	11	71	<PQL	3	81	1.7	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	NA
BH143	0.15-0.35	Fill: Gravelly Sandy Clay	7	0.6	9	33	21	<PQL	39	140	0.4	<PQL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BH144	0-0.2	Fill: Silty Sand	7	<PQL	18	20	140	2.9	9	120	0.38	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	NA
BH145	0.04-0.2	Fill: Silty Gravelly Sand	<PQL	<PQL	11	45	3	<PQL	100	32	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	NA
BH146	0.04-0.2	Fill: Gravelly Sand	<PQL	<PQL	13	45	4	<PQL	110	34	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	NA
BH147	0-0.2	Fill: Silty Sand	6	<PQL	7	14	250	0.2	4	88	0.06	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	NA
BH148	0.04-0.2	Fill: Gravelly Sand	<PQL	<PQL	17	44	3	<PQL	130	32	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	NA
BH149	0-0.2	Fill: Silty Sand	6	<PQL	17	45	350	0.8	14	100	0.26	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	NA
BH150	0-0.1	Fill: Silty Sand	<PQL	<PQL	10	29	120	0.2	5	170	2.8	0.5	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	NA
BH150	0.7-0.95	Sandy Clay	4	<PQL	20	<PQL	6	<PQL	1	2	<PQL	<PQL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Number of Samples			22	22	22	22	22	22	22	22	22	22	17	17	17	17	17	17	17	17	17	0
Maximum Value			13	0.7	22	52	350	2.9	130	170	2.8	0.5	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	NC
Statistical Analysis on Fill Samples																						
Number of Fill Samples			NC	NC	NC	NC	42	NC	NC	NC	NC	42	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
Mean Value			NC	NC	NC	NC	78	NC	NC	NC	NC	0.73	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
Standard Deviation			NC	NC	NC	NC	94.5	NC	NC	NC	NC	1.2	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
% UCL			NC	NC	NC	NC	95%	NC	NC	NC	NC	95%	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
UCL Value			NC	NC	NC	NC	105.2	NC	NC	NC	NC	1.033	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC

Concentration above the SAC: **VALUE**

Standard deviation exceeds data assessment criteria: VALUE

TABLE B-1
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**								
BH101	0-0.2	Fill: Silty Sand	0m to < 1m	Sand	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	0
BH102	0-0.2	Fill: Silty Sand	0m to < 1m	Sand	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	0
BH103	0-0.2	Fill: Silty Sand	0m to < 1m	Sand	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	0.2
BH105	0.03-0.2	Fill: Silty Sand	0m to < 1m	Sand	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	0.2
BH106	0.03-0.2	Fill:Silty Gravelly Sand	0m to < 1m	Sand	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	0
BH108	0-0.2	Fill: Silty Sand	0m to < 1m	Sand	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	0
BH110	0-0.3	Fill: Silty Sand	0m to < 1m	Sand	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	0
BH111	0-0.2	Fill: Silty Sand	0m to < 1m	Sand	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	0
BH112	0-0.2	Fill: Silty Sand	0m to < 1m	Sand	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	0
BH113	0.5-0.7	Fill:Sandy Clay	0m to < 1m	Clay	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	0
BH114	0-0.2	Fill: Silty Sand	0m to < 1m	Sand	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	0
BH115	0-0.2	Fill: Silty Sand	0m to < 1m	Sand	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	0
BH116	0.03-0.2	Fill: Silty Sand	0m to < 1m	Sand	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	0
BH117	0-0.2	Fill: Silty Sand	0m to < 1m	Sand	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	0
BH118	0-0.2	Fill: Clayey Sand	0m to < 1m	Sand	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	0
BH119	0-0.2	Fill: Silty Sand	0m to < 1m	Sand	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	0
BH121	0-0.2	Fill: Silty Sand	0m to < 1m	Sand	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	0
BH122	0-0.2	Fill: Silty Sand	0m to < 1m	Sand	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	0
BH123	0-0.2	Fill: Silty Sand	0m to < 1m	Sand	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	0
BH124	0-0.2	Fill: Clayey Sand	0m to < 1m	Sand	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	0
BH125	0-0.2	Fill: Silty Sand	0m to < 1m	Sand	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	0
JHDUP1	0-0.2	Fill: Silty Sand	0m to < 1m	Sand	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	-
JHDUP2	0.03-0.2	Fill: Silty Gravelly Sand	0m to < 1m	Sand	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	-
JHDUP3	0-0.2	Fill: Silty Sand	0m to < 1m	Sand	<PQL	98	<PQL	<PQL	<PQL	<PQL	<PQL	-
JHDUP4	0-0.2	Fill: Silty Sand	0m to < 1m	Sand	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	-
JHDUP5	1.3-1.5	Sandstone	1m to <2m	Sand	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	-
Total Number of Samples					26	26	26	26	26	26	26	21
Raw Max value					0	98	0	0	0	0	0	0.2
Maximum Value					<PQL	98	<PQL	<PQL	<PQL	<PQL	<PQL	0.2

Concentration above the SAC **VALUE**

The guideline corresponding to the elevated value is highlighted in grey in the Site Assessment Criteria Table below

SITE ASSESSMENT CRITERIA

					C_6-C_{10} (F1)	>C_{10}-C_{16} (F2)	Benzene	Toluene	Ethylbenzene	Xylenes	Naphthalene
PQL - Envirolab Services					25	50	0.2	0.5	1	1	1
NEPM 2013 HSL Land Use Category					**HSL-A/B:LOW/HIGH DENSITY RESIDENTIAL**						
Sample Reference	**Sample Depth**	**Sample Description**	**Depth Category**	**Soil Category**							
BH101	0-0.2	Fill: Silty Sand	0m to < 1m	Sand	45	110	0.5	160	55	40	3
BH102	0-0.2	Fill: Silty Sand	0m to < 1m	Sand	45	110	0.5	160	55	40	3
BH103	0-0.2	Fill: Silty Sand	0m to < 1m	Sand	45	110	0.5	160	55	40	3
BH105	0.03-0.2	Fill: Silty Sand	0m to < 1m	Sand	45	110	0.5	160	55	40	3
BH106	0.03-0.2	Fill:Silty Gravelly Sand	0m to < 1m	Sand	45	110	0.5	160	55	40	3
BH108	0-0.2	Fill: Silty Sand	0m to < 1m	Sand	45	110	0.5	160	55	40	3
BH110	0-0.3	Fill: Silty Sand	0m to < 1m	Sand	45	110	0.5	160	55	40	3
BH111	0-0.2	Fill: Silty Sand	0m to < 1m	Sand	45	110	0.5	160	55	40	3
BH112	0-0.2	Fill: Silty Sand	0m to < 1m	Sand	45	110	0.5	160	55	40	3
BH113	0.5-0.7	Fill:Sandy Clay	0m to < 1m	Clay	50	280	0.7	480	NL	110	5
BH114	0-0.2	Fill: Silty Sand	0m to < 1m	Sand	45	110	0.5	160	55	40	3
BH115	0-0.2	Fill: Silty Sand	0m to < 1m	Sand	45	110	0.5	160	55	40	3
BH116	0.03-0.2	Fill: Silty Sand	0m to < 1m	Sand	45	110	0.5	160	55	40	3
BH117	0-0.2	Fill: Silty Sand	0m to < 1m	Sand	45	110	0.5	160	55	40	3
BH118	0-0.2	Fill: Clayey Sand	0m to < 1m	Sand	45	110	0.5	160	55	40	3
BH119	0-0.2	Fill: Silty Sand	0m to < 1m	Sand	45	110	0.5	160	55	40	3
BH121	0-0.2	Fill: Silty Sand	0m to < 1m	Sand	45	110	0.5	160	55	40	3
BH122	0-0.2	Fill: Silty Sand	0m to < 1m	Sand	45	110	0.5	160	55	40	3
BH123	0-0.2	Fill: Silty Sand	0m to < 1m	Sand	45	110	0.5	160	55	40	3
BH124	0-0.2	Fill: Clayey Sand	0m to < 1m	Sand	45	110	0.5	160	55	40	3
BH125	0-0.2	Fill: Silty Sand	0m to < 1m	Sand	45	110	0.5	160	55	40	3
JHDUP1	0-0.2	Fill: Silty Sand	0m to < 1m	Sand	45	110	0.5	160	55	40	3
JHDUP2	0.03-0.2	Fill: Silty Gravelly Sand	0m to < 1m	Sand	45	110	0.5	160	55	40	3
JHDUP3	0-0.2	Fill: Silty Sand	0m to < 1m	Sand	45	110	0.5	160	55	40	3
JHDUP4	0-0.2	Fill: Silty Sand	0m to < 1m	Sand	45	110	0.5	160	55	40	3
JHDUP5	1.3-1.5	Sandstone	1m to <2m	Sand	70	240	0.5	220	NL	60	NL

TABLE B-2
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**								
BH126	0-0.2	Fill: Silty Sand	0m to < 1m	Sand	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	0
BH128	0-0.2	Fill: Silty Sand	0m to < 1m	Sand	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	0
BH129	0-0.2	Fill: Silty Sand	0m to < 1m	Sand	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	0
BH131	0-0.2	Fill: Silty Sand	0m to < 1m	Sand	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	0
BH132	0-0.2	Fill: Silty Sand	0m to < 1m	Sand	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	0
BH133	0.7-0.95	Fill: Sandy Clay	0m to < 1m	Clay	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	0.8
BH135	0.1-0.3	Fill: Clayey Sand	0m to < 1m	Sand	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	0
BH137	0-0.2	Fill: Silty Sand	0m to < 1m	Sand	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	0
BH138	0-0.2	Fill: Silty Sand	0m to < 1m	Sand	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	0
BH139	0-0.2	Fill: Clayey Sand	0m to < 1m	Sand	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	0
BH140	0-0.2	Fill: Silty Sand	0m to < 1m	Sand	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	0
BH141	0.2-0.5	Fill: Sandy Clay	0m to < 1m	Clay	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	0.2
BH142	0-0.2	Fill: Silty Sand	0m to < 1m	Sand	<PQL	120	<PQL	<PQL	<PQL	<PQL	<PQL	45.2
BH142	0.6-0.8	Sandy Clay	0m to < 1m	Clay	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	0.5
BH143	0.15-0.35	Fill: Gravelly Sandy Clay	0m to < 1m	Clay	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	1.8
BH144	0-0.2	Fill: Silty Sand	0m to < 1m	Sand	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	0.5
BH145	0.04-0.2	Fill: Silty Gravelly Sand	0m to < 1m	Sand	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	0
BH146	0.04-0.2	Fill: Gravelly Sand	0m to < 1m	Sand	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	0.1
BH147	0-0.2	Fill: Silty Sand	0m to < 1m	Sand	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	0
BH148	0.04-0.2	Fill: Gravelly Sand	0m to < 1m	Sand	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	0
BH149	0-0.2	Fill: Silty Sand	0m to < 1m	Sand	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	0
BH150	0-0.1	Fill: Silty Sand	0m to < 1m	Sand	<PQL	230	<PQL	<PQL	<PQL	<PQL	<PQL	0
BH150	0.7-0.95	Sandy Clay	0m to < 1m	Clay	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	6.6
Total Number of Samples					23	23	23	23	23	23	23	23
Raw Max value					0	230	0	0	0	0	0	45.2
Maximum Value					<PQL	230	<PQL	<PQL	<PQL	<PQL	<PQL	45.2

The guideline corresponding to the elevated value is highlighted in grey in the Site Assessment Criteria Table below

SITE ASSESSMENT CRITERIA

					C_6-C_{10} (F1)	>C_{10}-C_{16} (F2)	Benzene	Toluene	Ethylbenzene	Xylenes	Naphthalene
PQL - Envirolab Services					25	50	0.2	0.5	1	1	1
NEPM 2013 HSL Land Use Category					**HSL-A/B:LOW/HIGH DENSITY RESIDENTIAL**						
Sample Reference	**Sample Depth**	**Sample Description**	**Depth Category**	**Soil Category**							
BH126	0-0.2	Fill: Silty Sand	0m to < 1m	Sand	45	110	0.5	160	55	40	3
BH128	0-0.2	Fill: Silty Sand	0m to < 1m	Sand	45	110	0.5	160	55	40	3
BH129	0-0.2	Fill: Silty Sand	0m to < 1m	Sand	45	110	0.5	160	55	40	3
BH131	0-0.2	Fill: Silty Sand	0m to < 1m	Sand	45	110	0.5	160	55	40	3
BH132	0-0.2	Fill: Silty Sand	0m to < 1m	Sand	45	110	0.5	160	55	40	3
BH133	0.7-0.95	Fill: Sandy Clay	0m to < 1m	Clay	50	280	0.7	480	NL	110	5
BH135	0.1-0.3	Fill: Clayey Sand	0m to < 1m	Sand	45	110	0.5	160	55	40	3
BH137	0-0.2	Fill: Silty Sand	0m to < 1m	Sand	45	110	0.5	160	55	40	3
BH138	0-0.2	Fill: Silty Sand	0m to < 1m	Sand	45	110	0.5	160	55	40	3
BH139	0-0.2	Fill: Clayey Sand	0m to < 1m	Sand	45	110	0.5	160	55	40	3
BH140	0-0.2	Fill: Silty Sand	0m to < 1m	Sand	45	110	0.5	160	55	40	3
BH141	0.2-0.5	Fill: Sandy Clay	0m to < 1m	Clay	50	280	0.7	480	NL	110	5
BH142	0-0.2	Fill: Silty Sand	0m to < 1m	Sand	45	110	0.5	160	55	40	3
BH143	0.15-0.35	Fill: Gravelly Sandy Clay	0m to < 1m	Clay	50	280	0.7	480	NL	110	5
BH144	0-0.2	Fill: Silty Sand	0m to < 1m	Sand	45	110	0.5	160	55	40	3
BH145	0.04-0.2	Fill: Silty Gravelly Sand	0m to < 1m	Sand	45	110	0.5	160	55	40	3
BH146	0.04-0.2	Fill: Gravelly Sand	0m to < 1m	Sand	45	110	0.5	160	55	40	3
BH147	0-0.2	Fill: Silty Sand	0m to < 1m	Sand	45	110	0.5	160	55	40	3
BH148	0.04-0.2	Fill: Gravelly Sand	0m to < 1m	Sand	45	110	0.5	160	55	40	3
BH149	0-0.2	Fill: Silty Sand	0m to < 1m	Sand	45	110	0.5	160	55	40	3
BH150	0-0.1	Fill: Silty Sand	0m to < 1m	Sand	45	110	0.5	160	55	40	3
BH150	0.7-0.95	Sandy Clay	0m to < 1m	Clay	50	280	0.7	480	NL	110	5

TABLE C-1
SOIL LABORATORY RESULTS COMPARED TO MANAGEMENT LIMITS
All data in mg/kg unless stated otherwise

			C_6-C_{10} (F1)	>C_{10}-C_{16} (F2)	>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**				
BH101	0-0.2	Coarse	<PQL	<PQL	<PQL	<PQL
BH102	0-0.2	Coarse	<PQL	<PQL	100	<PQL
BH103	0-0.2	Coarse	<PQL	<PQL	<PQL	<PQL
BH105	0.03-0.2	Coarse	<PQL	<PQL	<PQL	<PQL
BH106	0.03-0.2	Coarse	<PQL	<PQL	<PQL	<PQL
BH108	0-0.2	Coarse	<PQL	<PQL	<PQL	<PQL
BH110	0-0.3	Coarse	<PQL	<PQL	<PQL	<PQL
BH111	0-0.2	Coarse	<PQL	<PQL	140	<PQL
BH112	0-0.2	Coarse	<PQL	<PQL	<PQL	<PQL
BH113	0.5-0.7	Fine	<PQL	<PQL	110	<PQL
BH114	0-0.2	Coarse	<PQL	<PQL	120	<PQL
BH115	0-0.2	Coarse	<PQL	<PQL	<PQL	<PQL
BH116	0.03-0.2	Coarse	<PQL	<PQL	<PQL	120
BH117	0-0.2	Coarse	<PQL	<PQL	<PQL	<PQL
BH118	0-0.2	Coarse	<PQL	<PQL	240	<PQL
BH119	0-0.2	Coarse	<PQL	<PQL	230	<PQL
BH122	0-0.2	Coarse	<PQL	<PQL	<PQL	<PQL
BH123	0-0.2	Coarse	<PQL	<PQL	190	<PQL
BH124	0-0.2	Coarse	<PQL	<PQL	<PQL	<PQL
BH125	0-0.2	Coarse	<PQL	<PQL	100	<PQL
JHDUP1	0-0.2	Coarse	<PQL	<PQL	<PQL	<PQL
JHDUP2	0.03-0.2	Coarse	<PQL	<PQL	<PQL	<PQL
JHDUP3	0-0.2	Coarse	<PQL	98	370	120
JHDUP4	0-0.2	Coarse	<PQL	<PQL	<PQL	<PQL
JHDUP5	1.3-1.5	Coarse	<PQL	<PQL	<PQL	<PQL
Total Number of Samples			25	25	25	25
Raw Max			0	98	370	120
Maximum Value			<PQL	98	370	120

Concentration above the SAC — VALUE

MANAGEMENT LIMIT ASSESSMENT CRITERIA

			C_6-C_{10} (F1)	>C_{10}-C_{16} (F2)	>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**				
BH101	0-0.2	Coarse	700	1000	2500	10000
BH102	0-0.2	Coarse	700	1000	2500	10000
BH103	0-0.2	Coarse	700	1000	2500	10000
BH105	0.03-0.2	Coarse	700	1000	2500	10000
BH106	0.03-0.2	Coarse	700	1000	2500	10000
BH108	0-0.2	Coarse	700	1000	2500	10000
BH110	0-0.3	Coarse	700	1000	2500	10000
BH111	0-0.2	Coarse	700	1000	2500	10000
BH112	0-0.2	Coarse	700	1000	2500	10000
BH113	0.5-0.7	Fine	800	1000	3500	10000
BH114	0-0.2	Coarse	700	1000	2500	10000
BH115	0-0.2	Coarse	700	1000	2500	10000
BH116	0.03-0.2	Coarse	700	1000	2500	10000
BH117	0-0.2	Coarse	700	1000	2500	10000
BH118	0-0.2	Coarse	700	1000	2500	10000
BH119	0-0.2	Coarse	700	1000	2500	10000
BH122	0-0.2	Coarse	700	1000	2500	10000
BH123	0-0.2	Coarse	700	1000	2500	10000
BH124	0-0.2	Coarse	700	1000	2500	10000
BH125	0-0.2	Coarse	700	1000	2500	10000
JHDUP1	0-0.2	Coarse	700	1000	2500	10000
JHDUP2	0.03-0.2	Coarse	700	1000	2500	10000
JHDUP3	0-0.2	Coarse	700	1000	2500	10000
JHDUP4	0-0.2	Coarse	700	1000	2500	10000
JHDUP5	1.3-1.5	Coarse	700	1000	2500	10000

TABLE C-2
SOIL LABORATORY RESULTS COMPARED TO MANAGEMENT LIMITS
All data in mg/kg unless stated otherwise

			C_6-C_{10} (F1)	>C_{10}-C_{16} (F2)	>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**				
BH126	0-0.2	Coarse	<PQL	<PQL	<PQL	<PQL
BH128	0-0.2	Coarse	<PQL	<PQL	<PQL	<PQL
BH129	0-0.2	Coarse	<PQL	<PQL	<PQL	<PQL
BH131	0-0.2	Coarse	<PQL	<PQL	<PQL	<PQL
BH132	0-0.2	Coarse	<PQL	<PQL	<PQL	<PQL
BH133	0.7-0.95	Fine	<PQL	<PQL	<PQL	<PQL
BH135	0.1-0.3	Coarse	<PQL	<PQL	<PQL	<PQL
BH137	0-0.2	Coarse	<PQL	<PQL	<PQL	<PQL
BH138	0-0.2	Coarse	<PQL	<PQL	<PQL	<PQL
BH139	0-0.2	Coarse	<PQL	<PQL	<PQL	<PQL
BH140	0-0.2	Coarse	<PQL	<PQL	<PQL	<PQL
BH141	0.2-0.5	Fine	<PQL	<PQL	<PQL	<PQL
BH142	0-0.2	Coarse	<PQL	120	360	<PQL
BH143	0.15-0.35	Fine	<PQL	<PQL	<PQL	<PQL
BH144	0-0.2	Coarse	<PQL	<PQL	<PQL	<PQL
BH145	0.04-0.2	Coarse	<PQL	<PQL	<PQL	<PQL
BH146	0.04-0.2	Coarse	<PQL	<PQL	<PQL	<PQL
BH147	0-0.2	Coarse	<PQL	<PQL	<PQL	<PQL
BH148	0.04-0.2	Coarse	<PQL	<PQL	<PQL	<PQL
BH149	0-0.2	Coarse	<PQL	<PQL	<PQL	<PQL
BH150	0-0.1	Coarse	<PQL	230	1100	310
BH150	0.7-0.95	Fine	<PQL	<PQL	<PQL	<PQL
Total Number of Samples			22	22	22	22
Raw Max			0	230	1100	310
Maximum Value			<PQL	230	1100	310

Concentration above the SAC	VALUE

MANAGEMENT LIMIT ASSESSMENT CRITERIA

			C_6-C_{10} (F1)	>C_{10}-C_{16} (F2)	>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**				
BH126	0-0.2	Coarse	700	1000	2500	10000
BH128	0-0.2	Coarse	700	1000	2500	10000
BH129	0-0.2	Coarse	700	1000	2500	10000
BH131	0-0.2	Coarse	700	1000	2500	10000
BH132	0-0.2	Coarse	700	1000	2500	10000
BH133	0.7-0.95	Fine	800	1000	3500	10000
BH135	0.1-0.3	Coarse	700	1000	2500	10000
BH137	0-0.2	Coarse	700	1000	2500	10000
BH138	0-0.2	Coarse	700	1000	2500	10000
BH139	0-0.2	Coarse	700	1000	2500	10000
BH140	0-0.2	Coarse	700	1000	2500	10000
BH141	0.2-0.5	Fine	800	1000	3500	10000
BH142	0-0.2	Coarse	700	1000	2500	10000
BH143	0.15-0.35	Fine	800	1000	3500	10000
BH144	0-0.2	Coarse	700	1000	2500	10000
BH145	0.04-0.2	Coarse	700	1000	2500	10000
BH146	0.04-0.2	Coarse	700	1000	2500	10000
BH147	0-0.2	Coarse	700	1000	2500	10000
BH148	0.04-0.2	Coarse	700	1000	2500	10000
BH149	0-0.2	Coarse	700	1000	2500	10000
BH150	0-0.1	Coarse	700	1000	2500	10000
BH150	0.7-0.95	Fine	800	1000	3500	10000

TABLE D-1
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	3	1	
CRC 2011 -Direct contact Criteria		4,400	3,300	4,500	6,300	100	14,000	4,500	12,000	1,400	
Site Use		**RESIDENTIAL WITH ACCESSIBLE SOIL- DIRECT SOIL CONTACT**									
Sample Reference	**Sample Depth**										
BH101	0-0.2	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	0
BH102	0-0.2	<PQL	<PQL	100	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	0
BH103	0-0.2	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	0.2
BH105	0.03-0.2	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	0.2
BH106	0.03-0.2	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	0
BH108	0-0.2	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	0
BH110	0-0.3	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	0
BH111	0-0.2	<PQL	<PQL	140	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	0
BH112	0-0.2	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	0
BH113	0.5-0.7	<PQL	<PQL	110	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	0
BH114	0-0.2	<PQL	<PQL	120	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	0
BH115	0-0.2	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	0
BH116	0.03-0.2	<PQL	<PQL	<PQL	120	<PQL	<PQL	<PQL	<PQL	<PQL	0
BH117	0-0.2	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	0
BH118	0-0.2	<PQL	<PQL	240	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	0
BH119	0-0.2	<PQL	<PQL	230	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	0
BH121	0-0.2	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	0
BH122	0-0.2	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	0
BH123	0-0.2	<PQL	<PQL	190	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	0
BH124	0-0.2	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	0
BH125	0-0.2	<PQL	<PQL	100	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	0
JHDUP1	0-0.2	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	-
JHDUP2	0.03-0.2	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	-
JHDUP3	0-0.2	<PQL	98	370	120	<PQL	<PQL	<PQL	<PQL	<PQL	-
JHDUP4	0-0.2	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	-
JHDUP5	1.3-1.5	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	-
Total Number of Samples		26	26	26	26	26	26	26	26	26	
Raw Max		0	98	370	120	0	0	0	0	0	
Maximum Value		<PQL	98	370	120	<PQL	<PQL	<PQL	<PQL	<PQL	

Concentration above the SAC **VALUE**

TABLE D-2
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	3	1	
CRC 2011 -Direct contact Criteria		4,400	3,300	4,500	6,300	100	14,000	4,500	12,000	1,400	
Site Use		**RESIDENTIAL WITH ACCESSIBLE SOIL- DIRECT SOIL CONTACT**									
Sample Reference	**Sample Depth**										
BH126	0-0.2	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	0
BH128	0-0.2	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	0
BH129	0-0.2	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	0
BH131	0-0.2	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	0
BH132	0-0.2	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	0
BH133	0.7-0.95	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	0.8
BH135	0.1-0.3	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	0
BH137	0-0.2	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	0
BH138	0-0.2	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	0
BH139	0-0.2	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	0
BH140	0-0.2	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	0
BH141	0.2-0.5	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	0.2
BH142	0-0.2	<PQL	120	360	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	45.2
BH142	0.6-0.8	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	0.5
BH143	0.15-0.35	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	1.8
BH144	0-0.2	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	0.5
BH145	0.04-0.2	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	0
BH146	0.04-0.2	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	0.1
BH147	0-0.2	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	0
BH148	0.04-0.2	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	0
BH149	0-0.2	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	0
BH150	0-0.1	<PQL	230	1100	310	<PQL	<PQL	<PQL	<PQL	<PQL	0
BH150	0.7-0.95	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	6.6
Total Number of Samples		23	23	23	23	23	23	23	23	23	
Raw Max		0	230	1100	310	0	0	0	0	0	
Maximum Value		<PQL	230	1100	310	<PQL	<PQL	<PQL	<PQL	<PQL	

Concentration above the SAC **VALUE**

EIS

TABLE E-1
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 ($cmol_c$/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	0.1	0.1	25	50	100	100	0.2	0.5	1	3	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**																				
BH101	0-0.2	Fill: Silty Sand	Coarse	7.8	13	NA	5	13	14	64	3	110	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	0.3
BH102	0-0.2	Fill: Silty Sand	Coarse	7.8	13	NA	6	11	16	59	4	110	<PQL	NA	<PQL	<PQL	100	<PQL	<PQL	<PQL	<PQL	<PQL	0.08
BH103	0-0.2	Fill: Silty Sand	Coarse	7.8	13	NA	<PQL	9	11	39	4	39	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	0.1
BH105	0.03-0.2	Fill: Silty Sand	Coarse	7.8	13	NA	<PQL	22	19	40	12	51	<PQL	NA	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	0.1
BH106	0.03-0.2	Fill:Silty Gravelly Sand	Coarse	9.4	28	NA	<PQL	73	30	10	75	38	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	0.1
BH108	0-0.2	Fill: Silty Sand	Coarse	7.8	13	NA	<PQL	9	13	33	3	49	<PQL	NA	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	0.06
BH110	0-0.3	Fill: Silty Sand	Coarse	6.9	13	NA	<PQL	11	29	110	6	130	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	0.08
BH111	0-0.2	Fill: Silty Sand	Coarse	6.5	13	NA	5	13	53	420	4	270	<PQL	NA	<PQL	<PQL	140	<PQL	<PQL	<PQL	<PQL	<PQL	0.5
BH111	0.8-0.95	Silty Clay	Fine	6.5	23	NA	NA	NA	NA	9	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BH112	0-0.2	Fill: Silty Sand	Coarse	7.8	13	NA	6	9	13	37	5	50	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL
BH113	0.5-0.7	Fill:Sandy Clay	Fine	7.8	23	NA	5	15	20	40	6	72	<PQL	NA	<PQL	<PQL	110	<PQL	<PQL	<PQL	<PQL	<PQL	0.1
BH114	0-0.2	Fill: Silty Sand	Coarse	7.8	13	NA	9	12	30	63	7	210	<PQL	NA	<PQL	<PQL	120	<PQL	<PQL	<PQL	<PQL	<PQL	0.06
BH115	0-0.2	Fill: Silty Sand	Coarse	7.8	13	NA	<PQL	6	8	24	3	28	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL
BH116	0.03-0.2	Fill: Silty Sand	Coarse	9.2	13	NA	4	52	30	11	58	39	<PQL	<PQL	<PQL	<PQL	<PQL	120	<PQL	<PQL	<PQL	<PQL	0.06
BH117	0-0.2	Fill: Silty Sand	Coarse	7.8	13	NA	<PQL	9	9	12	6	28	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL
BH118	0-0.2	Fill: Clayey Sand	Coarse	9.1	23	NA	6	13	50	77	13	200	0.1	NA	<PQL	<PQL	240	<PQL	<PQL	<PQL	<PQL	<PQL	5.6
BH118	0.6-0.8	Sandy Clay	Fine	7.6	23	NA	NA	NA	NA	NA	NA	NA	<PQL	NA	NA	NA	NA	NA	NA	NA	NA	NA	<PQL
BH119	0-0.2	Fill: Silty Sand	Coarse	7.8	13	NA	<PQL	12	23	47	9	89	<PQL	<PQL	<PQL	<PQL	230	<PQL	<PQL	<PQL	<PQL	<PQL	0.2
BH121	0-0.2	Fill: Silty Sand	Coarse	7.8	13	NA	<PQL	7	8	29	4	50	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL
BH122	0-0.2	Fill: Silty Sand	Coarse	7.8	13	NA	<PQL	8	3	16	4	22	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL
BH123	0-0.2	Fill: Silty Sand	Coarse	6	13	NA	<PQL	15	18	96	7	96	<PQL	<PQL	<PQL	<PQL	190	<PQL	<PQL	<PQL	<PQL	<PQL	1.6
BH124	0-0.2	Fill: Clayey Sand	Coarse	7.8	23	NA	5	12	10	57	2	65	<PQL	NA	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	0.1
BH125	0-0.2	Fill: Silty Sand	Coarse	6.5	13	NA	9	14	38	270	6	180	<PQL	<PQL	<PQL	<PQL	100	<PQL	<PQL	<PQL	<PQL	<PQL	0.3
JHDUP1	0-0.2	Fill: Silty Sand	Coarse	7.8	13	NA	<PQL	8	8	30	2	32	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL
JHDUP2	0.03-0.2	Fill: Silty Gravelly Sand	Coarse	9.4	28	NA	<PQL	74	35	11	82	51	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	0.06
JHDUP3	0-0.2	Fill: Silty Sand	Coarse	7.8	13	NA	5	9	10	67	2	66	<PQL	<PQL	<PQL	98	370	120	<PQL	<PQL	<PQL	<PQL	0.2
JHDUP4	0-0.2	Fill: Silty Sand	Coarse	7.8	13	NA	20	9	10	65	3	90	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL
JHDUP5	1.3-1.5	Sandstone	Coarse	7.8	13	NA	6	5	<PQL	9	<PQL	2	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL
Total Number of Samples				28	28	0	26	26	26	27	26	26	27	18	26	26	26	26	26	26	26	26	27
Raw Max				9.4	28	0	20	74	53	420	82	270	0.1	0	0	98	370	120	0	0	0	0	5.6
Maximum Value				9.4	28	<PQL	20	74	53	420	82	270	0.1	<PQL	<PQL	98	370	120	<PQL	<PQL	<PQL	<PQL	5.6

Concentration above the SAC — VALUE

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

Land Use Category				URBAN RESIDENTIAL AND PUBLIC OPEN SPACE																			
							AGED HEAVY METALS-EILs						EILs		ESLs								
				pH	CEC ($cmol_c$/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	0.1	0.1	25	50	100	100	0.2	0.5	1	3	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**																				
BH101	0-0.2	Fill: Silty Sand	Coarse	7.8	13	NA	100	203	238	1263	275	822	170	180	180	120	300	2800	50	85	70	105	33
BH102	0-0.2	Fill: Silty Sand	Coarse	7.8	13	NA	100	203	238	1263	275	822	170	--	180	120	300	2800	50	85	70	105	33
BH103	0-0.2	Fill: Silty Sand	Coarse	7.8	13	NA	100	203	238	1263	275	822	170	180	180	120	300	2800	50	85	70	105	33
BH105	0.03-0.2	Fill: Silty Sand	Coarse	7.8	13	NA	100	203	238	1263	275	822	170	--	180	120	300	2800	50	85	70	105	33
BH106	0.03-0.2	Fill:Silty Gravelly Sand	Coarse	9.4	28	NA	100	203	248	1263	355	1082	170	180	180	120	300	2800	50	85	70	105	33
BH108	0-0.2	Fill: Silty Sand	Coarse	7.8	13	NA	100	203	238	1263	275	822	170	--	180	120	300	2800	50	85	70	105	33
BH110	0-0.3	Fill: Silty Sand	Coarse	6.9	13	NA	100	203	238	1263	275	822	170	180	180	120	300	2800	50	85	70	105	33
BH111	0-0.2	Fill: Silty Sand	Coarse	6.5	13	NA	100	203	238	1263	275	712	170	--	180	120	300	2800	50	85	70	105	33
BH111	0.8-0.95	Silty Clay	Fine	6.5	23	NA	--	--	--	1263	--	--	--	--	--	--	--	--	--	--	--	--	--
BH112	0-0.2	Fill: Silty Sand	Coarse	7.8	13	NA	100	203	238	1263	275	822	170	180	180	120	300	2800	50	85	70	105	33
BH113	0.5-0.7	Fill:Sandy Clay	Fine	7.8	23	NA	100	203	248	1263	355	1082	170	--	180	120	1300	5600	60	105	125	45	33
BH114	0-0.2	Fill: Silty Sand	Coarse	7.8	13	NA	100	203	238	1263	275	822	170	--	180	120	300	2800	50	85	70	105	33
BH115	0-0.2	Fill: Silty Sand	Coarse	7.8	13	NA	100	203	238	1263	275	822	170	180	180	120	300	2800	50	85	70	105	33
BH116	0.03-0.2	Fill: Silty Sand	Coarse	9.2	13	NA	100	203	238	1263	275	822	170	180	180	120	300	2800	50	85	70	105	33
BH117	0-0.2	Fill: Silty Sand	Coarse	7.8	13	NA	100	203	238	1263	275	822	170	180	180	120	300	2800	50	85	70	105	33
BH118	0-0.2	Fill: Clayey Sand	Coarse	9.1	23	NA	100	203	248	1263	355	1082	170	--	180	120	300	2800	50	85	70	105	33
BH118	0.6-0.8	Sandy Clay	Fine	7.6	23	NA	--	--	--	--	--	--	170	--	--	--	--	--	--	--	--	--	33
BH119	0-0.2	Fill: Silty Sand	Coarse	7.8	13	NA	100	203	238	1263	275	822	170	180	180	120	300	2800	50	85	70	105	33
BH121	0-0.2	Fill: Silty Sand	Coarse	7.8	13	NA	100	203	238	1263	275	822	170	180	180	120	300	2800	50	85	70	105	33
BH122	0-0.2	Fill: Silty Sand	Coarse	7.8	13	NA	100	203	238	1263	275	822	170	180	180	120	300	2800	50	85	70	105	33
BH123	0-0.2	Fill: Silty Sand	Coarse	6	13	NA	100	203	218	1263	275	522	170	180	180	120	300	2800	50	85	70	105	33
BH124	0-0.2	Fill: Clayey Sand	Coarse	7.8	23	NA	100	203	248	1263	355	1082	170	--	180	120	300	2800	50	85	70	105	33
BH125	0-0.2	Fill: Silty Sand	Coarse	6.5	13	NA	100	203	238	1263	275	712	170	180	180	120	300	2800	50	85	70	105	33
JHDUP1	0-0.2	Fill: Silty Sand	Coarse	7.8	13	NA	100	203	238	1263	275	822	170	180	180	120	300	2800	50	85	70	105	33
JHDUP2	0.03-0.2	Fill: Silty Gravelly Sand	Coarse	9.4	28	NA	100	203	248	1263	355	1082	170	180	180	120	300	2800	50	85	70	105	33
JHDUP3	0-0.2	Fill: Silty Sand	Coarse	7.8	13	NA	100	203	238	1263	275	822	170	180	180	120	300	2800	50	85	70	105	33
JHDUP4	0-0.2	Fill: Silty Sand	Coarse	7.8	13	NA	100	203	238	1263	275	822	170	180	180	120	300	2800	50	85	70	105	33
JHDUP5	1.3-1.5	Sandstone	Coarse	7.8	13	NA	100	203	238	1263	275	822	170	180	180	120	300	2800	50	85	70	105	33

TABLE E-2
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 ($cmol_c$/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	0.1	0.1	25	50	100	100	0.2	0.5	1	3	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**																				
BH126	0-0.2	Fill: Silty Sand	Coarse	6.8	13	NA	6	13	28	220	4	160	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	0.3
BH128	0-0.2	Fill: Silty Sand	Coarse	7.8	13	NA	<PQL	8	6	23	4	29	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL
BH129	0-0.2	Fill: Silty Sand	Coarse	7.8	13	NA	<PQL	8	14	31	3	57	<PQL	NA	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	0.1
BH131	0-0.2	Fill: Silty Sand	Coarse	7.8	13	NA	<PQL	9	19	43	6	76	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	0.1
BH132	0-0.2	Fill: Silty Sand	Coarse	7.8	13	NA	<PQL	10	17	23	12	59	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL
BH133	0.7-0.95	Fill: Sandy Clay	Fine	7.8	23	NA	6	10	34	25	34	110	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL
BH135	0.1-0.3	Fill: Clayey Sand	Coarse	7.8	23	NA	8	22	5	17	3	17	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL
BH137	0-0.2	Fill: Silty Sand	Coarse	7.8	13	NA	13	14	8	64	3	87	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL
BH138	0-0.2	Fill: Silty Sand	Coarse	7.8	13	NA	<PQL	7	5	8	4	14	<PQL	NA	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL
BH139	0-0.2	Fill: Clayey Sand	Coarse	6.4	23	NA	7	18	6	130	2	76	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL
BH140	0-0.2	Fill: Silty Sand	Coarse	7.3	13	NA	6	15	12	130	2	72	<PQL	NA	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	0.06
BH141	0.2-0.5	Fill: Sandy Clay	Fine	7.8	23	NA	12	12	52	30	21	84	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	0.08
BH142	0-0.2	Fill: Silty Sand	Coarse	7.8	13	NA	5	10	11	71	3	81	<PQL	<PQL	<PQL	120	360	<PQL	<PQL	<PQL	<PQL	<PQL	0.2
BH142	0.6-0.8	Sandy Clay	Fine	7.8	23	NA	NA	NA	NA	NA	NA	NA	NA	NA	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	NA
BH143	0.15-0.35	Fill: Gravelly Sandy Clay	Fine	7.8	23	NA	7	9	33	21	39	140	<PQL	NA	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL
BH144	0-0.2	Fill: Silty Sand	Coarse	6.3	13	NA	7	18	20	140	9	120	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	0.08
BH145	0.04-0.2	Fill: Silty Gravelly Sand	Coarse	9.6	24	NA	<PQL	11	45	3	100	32	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL
BH146	0.04-0.2	Fill: Gravelly Sand	Coarse	9.7	27	NA	<PQL	13	45	4	110	34	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL
BH147	0-0.2	Fill: Silty Sand	Coarse	8.9	13	NA	6	7	14	250	4	88	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	0.06
BH148	0.04-0.2	Fill: Gravelly Sand	Coarse	10	27	NA	<PQL	17	44	3	130	32	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL
BH149	0-0.2	Fill: Silty Sand	Coarse	7	13	NA	6	17	45	350	14	100	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	0.06
BH150	0-0.1	Fill: Silty Sand	Coarse	6.6	13	NA	<PQL	10	29	120	5	170	<PQL	<PQL	<PQL	230	1100	310	<PQL	<PQL	<PQL	<PQL	0.3
BH150	0.7-0.95	Sandy Clay	Fine	7.8	23	NA	4	20	<PQL	6	1	2	<PQL	NA	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL
Total Number of Samples				23	23	0	22	22	22	22	22	22	22	17	23	23	23	23	23	23	23	23	22
Raw Max				10	27	0	13	22	52	350	130	170	0	0	0	230	1100	310	0	0	0	0	0.3
Maximum Value				10	27	<PQL	13	22	52	350	130	170	<PQL	<PQL	<PQL	230	1100	310	<PQL	<PQL	<PQL	<PQL	0.3

Concentration above the SAC VALUE

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

Land Use Category				**URBAN RESIDENTIAL AND PUBLIC OPEN SPACE**																			
							AGED HEAVY METALS-EILs						EILs		ESLs								
				pH	CEC ($cmol_c$/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	0.1	0.1	25	50	100	100	0.2	0.5	1	3	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**																				
BH126	0-0.2	Fill: Silty Sand	Coarse	6.8	13	NA	100	203	238	1263	275	822	170	180	180	120	300	2800	50	85	70	105	33
BH128	0-0.2	Fill: Silty Sand	Coarse	7.8	13	NA	100	203	238	1263	275	822	170	180	180	120	300	2800	50	85	70	105	33
BH129	0-0.2	Fill: Silty Sand	Coarse	7.8	13	NA	100	203	238	1263	275	822	170	--	180	120	300	2800	50	85	70	105	33
BH131	0-0.2	Fill: Silty Sand	Coarse	7.8	13	NA	100	203	238	1263	275	822	170	180	180	120	300	2800	50	85	70	105	33
BH132	0-0.2	Fill: Silty Sand	Coarse	7.8	13	NA	100	203	238	1263	275	822	170	180	180	120	300	2800	50	85	70	105	33
BH133	0.7-0.95	Fill: Sandy Clay	Fine	7.8	23	NA	100	203	248	1263	355	1082	170	180	180	120	1300	5600	60	105	125	45	33
BH135	0.1-0.3	Fill: Clayey Sand	Coarse	7.8	23	NA	100	203	248	1263	355	1082	170	180	180	120	300	2800	50	85	70	105	33
BH137	0-0.2	Fill: Silty Sand	Coarse	7.8	13	NA	100	203	238	1263	275	822	170	180	180	120	300	2800	50	85	70	105	33
BH138	0-0.2	Fill: Silty Sand	Coarse	7.8	13	NA	100	203	238	1263	275	822	170	--	180	120	300	2800	50	85	70	105	33
BH139	0-0.2	Fill: Clayey Sand	Coarse	6.4	23	NA	100	203	248	1263	355	712	170	180	180	120	300	2800	50	85	70	105	33
BH140	0-0.2	Fill: Silty Sand	Coarse	7.3	13	NA	100	203	238	1263	275	822	170	--	180	120	300	2800	50	85	70	105	33
BH141	0.2-0.5	Fill: Sandy Clay	Fine	7.8	23	NA	100	203	248	1263	355	1082	170	180	180	120	1300	5600	60	105	125	45	33
BH142	0-0.2	Fill: Silty Sand	Coarse	7.8	13	NA	100	203	238	1263	275	822	170	180	180	120	300	2800	50	85	70	105	33
BH142	0.6-0.8	Sandy Clay	Fine	7.8	23	NA	--	--	--	--	--	--	--	--	180	120	1300	5600	60	105	125	45	--
BH143	0.15-0.35	Fill: Gravelly Sandy Clay	Fine	7.8	23	NA	100	203	248	1263	355	1082	170	--	180	120	1300	5600	60	105	125	45	33
BH144	0-0.2	Fill: Silty Sand	Coarse	6.3	13	NA	100	203	238	1263	275	712	170	180	180	120	300	2800	50	85	70	105	33
BH145	0.04-0.2	Fill: Silty Gravelly Sand	Coarse	9.6	24	NA	100	203	248	1263	355	1082	170	180	180	120	300	2800	50	85	70	105	33
BH146	0.04-0.2	Fill: Gravelly Sand	Coarse	9.7	27	NA	100	203	248	1263	355	1082	170	180	180	120	300	2800	50	85	70	105	33
BH147	0-0.2	Fill: Silty Sand	Coarse	8.9	13	NA	100	203	238	1263	275	822	170	180	180	120	300	2800	50	85	70	105	33
BH148	0.04-0.2	Fill: Gravelly Sand	Coarse	10	27	NA	100	203	248	1263	355	1082	170	180	180	120	300	2800	50	85	70	105	33
BH149	0-0.2	Fill: Silty Sand	Coarse	7	13	NA	100	203	238	1263	275	822	170	180	180	120	300	2800	50	85	70	105	33
BH150	0-0.1	Fill: Silty Sand	Coarse	6.6	13	NA	100	203	238	1263	275	822	170	180	180	120	300	2800	50	85	70	105	33
BH150	0.7-0.95	Sandy Clay	Fine	7.8	23	NA	100	203	248	1263	355	1082	170	--	180	120	1300	5600	60	105	125	45	33

TABLE F-1
SOIL LABORATORY RESULTS COMPARED TO WASTE CLASSIFICATION GUIDELINES
All data in mg/kg unless stated otherwise

			HEAVY METALS								PAHs		OC/OP PESTICIDES				Total	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	PCBs	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	250	0.2	0.5	1	3	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**																									
BH101	0-0.2	Fill: Silty Sand	5	<PQL	13	14	64	0.2	3	110	2.4	0.3	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	NA
BH102	0-0.2	Fill: Silty Sand	6	<PQL	11	16	59	0.1	4	110	0.28	0.08	NA	NA	NA	NA	NA	<PQL	<PQL	100	<PQL	100	<PQL	<PQL	<PQL	<PQL	NA
BH103	0-0.2	Fill: Silty Sand	<PQL	<PQL	9	11	39	<PQL	4	39	0.4	0.1	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	NA
BH105	0.03-0.2	Fill: Silty Sand	<PQL	<PQL	22	19	40	0.2	12	51	0.4	0.1	NA	NA	NA	NA	NA	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	NA
BH106	0.03-0.2	Fill:Silty Gravelly Sand	<PQL	<PQL	73	30	10	<PQL	**75**	38	0.6	0.1	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	NA
BH108	0-0.2	Fill: Silty Sand	<PQL	<PQL	9	13	33	<PQL	3	49	0.06	0.06	NA	NA	NA	NA	NA	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	NA
BH110	0-0.3	Fill: Silty Sand	<PQL	<PQL	11	29	**110**	0.2	6	130	0.28	0.08	<PQL	<PQL	<PQL	0.1	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	NA
BH111	0-0.2	Fill: Silty Sand	5	0.5	13	53	**420**	0.2	4	270	3.9	0.5	NA	NA	NA	NA	NA	<PQL	<PQL	100	140	240	<PQL	<PQL	<PQL	<PQL	NA
BH111	0.8-0.95	Silty Clay	NA	NA	NA	NA	9	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BH112	0-0.2	Fill: Silty Sand	6	<PQL	9	13	37	<PQL	5	50	<PQL	<PQL	<PQL	<PQL	<PQL	0.1	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	NA
BH113	0.5-0.7	Fill:Sandy Clay	5	<PQL	15	20	40	<PQL	6	72	0.7	0.1	NA	NA	NA	NA	NA	<PQL	<PQL	<PQL	100	100	<PQL	<PQL	<PQL	<PQL	NA
BH114	0-0.2	Fill: Silty Sand	9	<PQL	12	30	63	<PQL	7	210	0.06	0.06	NA	NA	NA	NA	NA	<PQL	<PQL	<PQL	140	140	<PQL	<PQL	<PQL	<PQL	NA
BH115	0-0.2	Fill: Silty Sand	<PQL	<PQL	6	8	24	<PQL	3	28	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	NA
BH116	0.03-0.2	Fill: Silty Sand	4	<PQL	52	30	11	<PQL	**58**	39	0.56	0.06	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	110	110	<PQL	<PQL	<PQL	<PQL	NA
BH117	0-0.2	Fill: Silty Sand	<PQL	<PQL	9	9	12	<PQL	6	28	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	NA
BH118	0-0.2	Fill: Clayey Sand	6	<PQL	13	50	77	0.1	13	200	60.3	**5.6**	NA	NA	NA	NA	NA	<PQL	<PQL	270	140	410	<PQL	<PQL	<PQL	<PQL	NA
BH118	0.6-0.8	Sandy Clay	NA	NA	NA	NA	NA	NA	NA	NA	<PQL	<PQL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BH119	0-0.2	Fill: Silty Sand	<PQL	<PQL	12	23	47	<PQL	9	89	1.8	0.2	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	220	180	400	<PQL	<PQL	<PQL	<PQL	NA
BH121	0-0.2	Fill: Silty Sand	<PQL	<PQL	7	8	29	<PQL	4	50	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	NA
BH122	0-0.2	Fill: Silty Sand	<PQL	<PQL	8	3	16	<PQL	4	22	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	NA
BH123	0-0.2	Fill: Silty Sand	<PQL	<PQL	15	18	96	<PQL	7	96	12.5	**1.6**	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	170	160	330	<PQL	<PQL	<PQL	<PQL	NA
BH124	0-0.2	Fill: Clayey Sand	5	<PQL	12	10	57	0.2	2	65	0.8	0.1	NA	NA	NA	NA	NA	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	NA
BH125	0-0.2	Fill: Silty Sand	9	0.5	14	38	**270**	1.4	6	180	2.4	0.3	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	120	120	<PQL	<PQL	<PQL	<PQL	NA
JHDUP1	0-0.2	Fill: Silty Sand	<PQL	<PQL	8	8	30	<PQL	2	32	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	NA
JHDUP2	0.03-0.2	Fill: Silty Gravelly Sand	<PQL	<PQL	74	35	11	<PQL	**82**	51	0.16	0.06	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	NA
JHDUP3	0-0.2	Fill: Silty Sand	5	<PQL	9	10	67	<PQL	2	66	2.2	0.2	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	69	210	300	579	<PQL	<PQL	<PQL	<PQL	NA
JHDUP4	0-0.2	Fill: Silty Sand	20	<PQL	9	10	65	<PQL	3	90	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	NA
JHDUP5	1.3-1.5	Sandstone	6	<PQL	5	<PQL	9	<PQL	<PQL	2	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	NA
Total Number of samples			26	26	26	26	27	26	26	26	27	27	18	18	18	18	18	26	26	26	26	26	26	26	26	26	0
Maximum Value			20	0.5	74	53	420	1.4	82	270	60.3	5.6	<PQL	<PQL	<PQL	0.1	<PQL	<PQL	69	270	300	579	<PQL	<PQL	<PQL	<PQL	NC
Statistical Analysis on Fill Samples																											
Number of Fill Samples			NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
Mean Value			NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
Standard Deviation			NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
% UCL			NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
UCL Value			NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC

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

TABLE F-2
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	250	0.2	0.5	1	3	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**																									
BH126	0-0.2	Fill: Silty Sand	6	0.7	13	28	**220**	0.8	4	160	1.9	0.3	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	NA
BH128	0-0.2	Fill: Silty Sand	<PQL	<PQL	8	6	23	<PQL	4	29	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	NA
BH129	0-0.2	Fill: Silty Sand	<PQL	<PQL	8	14	31	<PQL	3	57	1.4	0.1	NA	NA	NA	NA	NA	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	NA
BH131	0-0.2	Fill: Silty Sand	<PQL	<PQL	9	19	43	<PQL	6	76	0.7	0.1	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	NA
BH132	0-0.2	Fill: Silty Sand	<PQL	<PQL	10	17	23	<PQL	12	59	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	NA
BH133	0.7-0.95	Fill: Sandy Clay	6	<PQL	10	34	25	<PQL	34	110	0.4	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	NA
BH135	0.1-0.3	Fill: Clayey Sand	8	<PQL	22	5	17	<PQL	3	17	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	NA
BH137	0-0.2	Fill: Silty Sand	13	<PQL	14	8	64	<PQL	3	87	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	NA
BH138	0-0.2	Fill: Silty Sand	<PQL	<PQL	7	5	8	<PQL	4	14	<PQL	<PQL	NA	NA	NA	NA	NA	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	NA
BH139	0-0.2	Fill: Clayey Sand	7	<PQL	18	6	**130**	<PQL	2	76	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	NA
BH140	0-0.2	Fill: Silty Sand	6	<PQL	15	12	**130**	<PQL	2	72	0.06	0.06	NA	NA	NA	NA	NA	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	NA
BH141	0.2-0.5	Fill: Sandy Clay	12	<PQL	12	52	30	<PQL	21	84	0.38	0.08	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	NA
BH142	0-0.2	Fill: Silty Sand	5	<PQL	10	11	71	<PQL	3	81	1.7	0.2	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	67	420	280	767	<PQL	<PQL	<PQL	<PQL	NA
BH142	0.6-0.8	Sandy Clay	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	NA
BH143	0.15-0.35	Fill: Gravelly Sandy Clay	7	0.6	9	33	21	<PQL	39	140	0.4	<PQL	NA	NA	NA	NA	NA	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	NA
BH144	0-0.2	Fill: Silty Sand	7	<PQL	18	20	**140**	2.9	9	120	0.38	0.08	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	NA
BH145	0.04-0.2	Fill: Silty Gravelly Sand	<PQL	<PQL	11	45	3	<PQL	**100**	32	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	NA
BH146	0.04-0.2	Fill: Gravelly Sand	<PQL	<PQL	13	45	4	<PQL	**110**	34	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	NA
BH147	0-0.2	Fill: Silty Sand	6	<PQL	7	14	**250**	0.2	4	88	0.06	0.06	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	NA
BH148	0.04-0.2	Fill: Gravelly Sand	<PQL	<PQL	17	44	3	<PQL	**130**	32	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	NA
BH149	0-0.2	Fill: Silty Sand	6	<PQL	17	45	**350**	0.8	14	100	0.26	0.06	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	NA
BH150	0-0.1	Fill: Silty Sand	<PQL	<PQL	10	29	**120**	0.2	5	170	2.8	0.3	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	100	660	740	1500	<PQL	<PQL	<PQL	<PQL	NA
BH150	0.7-0.95	Sandy Clay	4	<PQL	20	<PQL	6	<PQL	1	2	<PQL	<PQL	NA	NA	NA	NA	NA	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	NA
JHF1	Surface	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
JHF2	Surface	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
JHF3	Surface	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
JHF4	Surface	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
JHF5	Surface	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
JHF6	Surface	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
JHF9	Surface	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
JHF15	Surface	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			22	22	22	22	22	22	22	22	22	22	17	17	17	17	17	23	23	23	23	23	23	23	23	23	8
Maximum Value			13	0.7	22	52	350	2.9	130	170	2.8	0.3	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	100	660	740	1500	<PQL	<PQL	<PQL	<PQL	NC
Statistical Analysis on Fill Samples																											
Number of Fill Samples			NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
Mean Value			NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
Standard Deviation			NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
% UCL			NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
UCL Value			NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC

Concentration above the CT1	VALUE
Concentration above SCC1	VALUE
Concentration above the SCC2	VALUE

TABLE F-3
SOIL LABORATORY TCLP RESULTS
All data in mg/L unless stated otherwise

			Lead	Nickel	B(a)P
PQL - Envirolab Services			0.03	0.02	0.001
TCLP1 - General Solid Waste			5	2	0.04
TCLP2 - Restricted Solid Waste			20	8	0.16
TCLP3 - Hazardous Waste			>20	>8	>0.16
Sample Reference	**Sample Depth**	**Sample Description**			
BH106	0.03-0.2	Fill: Silty Gravelly Sand	NA	0.06	NA
BH110	0-0.3	Fill: Silty Sand	<0.03	NA	NA
BH111	0-0.2	Fill: Silty Sand	0.1	NA	NA
BH111	0.8-0.95	Silty Clay	0.03	NA	NA
BH116	0.03-0.2	Fill: Silty Sand	NA	0.04	NA
BH118	0-0.2	Fill: Clayey Sand	NA	NA	<0.001
BH118	0.6-0.8	Sandy Clay	NA	NA	<0.001
BH123	0-0.2	Fill: Silty Sand	NA	NA	<0.001
BH125	0-0.2	Fill: Silty Sand	0.1	NA	NA
BH126	0-0.2	Fill: Silty Sand	0.1	NA	NA
BH139	0-0.2	Fill: Clayey Sand	<0.03	NA	NA
BH140	0-0.2	Fill: Silty Sand	0.1	NA	NA
BH144	0-0.2	Fill: Silty Sand	0.1	NA	NA
BH145	0.04-0.2	Fill: Silty Gravelly Sand	NA	0.1	NA
BH146	0.04-0.2	Fill: Gravelly Sand	NA	0.1	NA
BH147	0-0.2	Fill: Silty Sand	0.2	NA	NA
BH148	0.04-0.2	Fill: Gravelly Sand	NA	0.1	NA
BH149	0-0.2	Fill: Silty Sand	0.06	NA	NA
BH150	0-0.1	Fill: Silty Sand	<0.03	NA	NA
Total Number of samples			10	5	3
Maximum Value			0.2	0.1	<PQL

General Solid Waste	**VALUE**
Restricted Solid Waste	**VALUE**
Hazardous Waste	**VALUE**

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

FIELD DATA															LABORATORY DATA											
Date Sampled	Sample reference	Sample Depth	Visible ACM in top 100mm	Approx. Volume of Soil (L)	Soil Mass (g)	Mass ACM (g)	Mass Asbestos in ACM (g)	[Asbestos from ACM in soil] (%w/w)	Mass ACM <7mm (g)	Mass Asbestos in ACM <7mm (g)	[Asbestos from ACM <7mm in soil] (%w/w)	Mass FA (g)	Mass Asbestos in FA (g)	[Asbestos from FA in soil] (%w/w)	Lab Report Number	Sample refeference	Sample Depth	Sample Mass (g)	Asbestos ID in soil (AS4964) >0.1g/kg	Trace Analysis	Total Asbestos (g/kg)	Asbestos ID in soil <0.1g/kg	ACM >7mm Estimation (g)	FA and AF Estimation (g)	ACM >7mm Estimation %(w/w)	FA and AF Estimation %(w/w)
SAC			**No**					**0.01**			**0.001**			**0.001**									0.01		**0.01**	**0.001**
11/07/2018	BH101	0-0.75	No	NA	9,500	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	--	--	--	--	--	--	--	--	--	--	--	--
16/07/2018	BH102	0-0.6	No	NA	10,380	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	196637	BH102	0-0.6	750.69	No asbestos detected at reporting limit of 0.1g/kg: Organic fibres detected	No asbestos detected	<PQL	No visible asbestos detected			<PQL	<PQL
16/07/2018	BH103	0-0.3	No	NA	11,000	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	196637	BH103	0-0.3	676.49	No asbestos detected at reporting limit of 0.1g/kg: Organic fibres detected	No asbestos detected	<PQL	No visible asbestos detected			<PQL	<PQL
11/07/2018	BH104	0.03-0.6	No	NA	9,500	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	--	--	--	--	--	--	--	--	--	--	--	--
11/07/2018	BH105	0.03-0.6	No	NA	10,500	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	--	--	--	--	--	--	--	--	--	--	--	--
11/07/2018	BH106	0.03-0.4	No	NA	12,500	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	--	--	--	--	--	--	--	--	--	--	--	--
16/07/2018	BH107	0.05-0.5	No	NA	9,000	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	--	--	--	--	--	--	--	--	--	--	--	--
16/07/2018	BH108	0-0.6	Yes	NA	10,200	7.9	1.185	0.0116	No ACM <7mm observed	--	--	No FA observed	--	--	196637	BH108	0-0.6	651.31	No asbestos detected at reporting limit of 0.1g/kg: Organic fibres detected	No asbestos detected	<PQL	No visible asbestos detected			<PQL	<PQL
16/07/2018	BH109	0-0.55	No	NA	8,340	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	--	--	--	--	--	--	--	--	--	--	--	--
16/07/2018	BH110	0-0.3	Yes	NA	9,320	13.5	2.025	0.0217	No ACM <7mm observed	--	--	No FA observed	--	--	196637	BH110	0-0.3	502.4	No asbestos detected at reporting limit of 0.1g/kg: Organic fibres detected	No asbestos detected	<PQL	No visible asbestos detected			<PQL	<PQL
16/07/2018	BH110	0.3-0.5	Yes	NA	9,880	3.9	0.582	0.0059	No ACM <7mm observed	--	--	No FA observed	--	--	196637	BH110	0.3-0.5	635.51	No asbestos detected at reporting limit of 0.1g/kg: Organic fibres detected	No asbestos detected	<PQL	No visible asbestos detected			<PQL	<PQL
12/07/2018	BH111	0-0.6	No	NA	9,020	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	196637	BH111	0-0.6	1020.48	No asbestos detected at reporting limit of 0.1g/kg: Organic fibres detected	No asbestos detected	<PQL	No visible asbestos detected			<PQL	<PQL
12/07/2018	BH112	0-0.6	No	NA	8,070	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	--	--	--	--	--	--	--	--	--	--	--	--
17/07/2018	BH113	0.1-0.3	No	NA	9,060	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	--	--	--	--	--	--	--	--	--	--	--	--
17/07/2018	BH113	0.4-0.7	No	NA	10,620	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	--	--	--	--	--	--	--	--	--	--	--	--
17/07/2018	BH113	0.7-0.95	No	NA	8,750	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	--	--	--	--	--	--	--	--	--	--	--	--
17/07/2018	BH114	0-0.3	No	NA	10,250	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	196637	BH114	0-0.3	742.94	No asbestos detected at reporting limit of 0.1g/kg: Organic fibres detected	No asbestos detected	<PQL	No visible asbestos detected			<PQL	<PQL
17/07/2018	BH114	0.3-0.75	No	NA	9,870	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	--	--	--	--	--	--	--	--	--	--	--	--
16/07/2018	BH115	0-0.6	No	NA	9,500	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	--	--	--	--	--	--	--	--	--	--	--	--
11/07/2018	BH116	0.03-0.6	No	NA	10,820	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	--	--	--	--	--	--	--	--	--	--	--	--
11/07/2018	BH117	0-0.4	No	NA	8,780	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	196637	BH117	0-0.4	750.3	No asbestos detected at reporting limit of 0.1g/kg: Organic fibres detected	No asbestos detected	<PQL	No visible asbestos detected			<PQL	<PQL
16/07/2018	BH118	0-0.3	No	NA	10,480	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	--	--	--	--	--	--	--	--	--	--	--	--
17/07/2018	BH119	0-0.3	No	NA	9,350	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	--	--	--	--	--	--	--	--	--	--	--	--
17/07/2018	BH119	0.3-0.5	No	NA	8,100	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	--	--	--	--	--	--	--	--	--	--	--	--
17/07/2018	BH120	0.07-0.2	No	NA	9,350	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	--	--	--	--	--	--	--	--	--	--	--	--
16/07/2018	BH121	0-0.3	No	NA	9,850	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	196637	BH121	0-0.3	576.04	No asbestos detected at reporting limit of 0.1g/kg: Organic fibres detected	No asbestos detected	<PQL	No visible asbestos detected			<PQL	<PQL
16/07/2018	BH121	0.3-0.6	No	NA	11,100	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	--	--	--	--	--	--	--	--	--	--	--	--
12/07/2018	BH122	0-0.5	No	NA	12,160	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	196637	BH122	0-0.5	976.84	No asbestos detected at reporting limit of 0.1g/kg: Organic fibres detected	No asbestos detected	<PQL	No visible asbestos detected			<PQL	<PQL
12/07/2018	BH123	0-0.7	No	NA	8,780	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	196637	BH123	0-0.7	795.77	No asbestos detected at reporting limit of 0.1g/kg: Organic fibres detected	No asbestos detected	<PQL	No visible asbestos detected			<PQL	<PQL
12/07/2018	BH124	0-0.9	Yes	NA	10,500	6.1	0.915	0.0087	No ACM <7mm observed	--	--	No FA observed	--	--	196637	BH124	0-0.9	633.49	No asbestos detected at reporting limit of 0.1g/kg: Organic fibres detected	No asbestos detected	<PQL	No visible asbestos detected			<PQL	<PQL
12/07/2018	BH125	0-0.85	Yes	NA	10,100	12.0	1.797	0.0178	No ACM <7mm observed	--	--	No FA observed	--	--	196637	BH125	0-0.85	854.67	No asbestos detected at reporting limit of 0.1g/kg: Organic fibres detected	No asbestos detected	<PQL	No visible asbestos detected			<PQL	<PQL
12/07/2018	BH126	0-0.5	Yes	NA	7,500	2.8	0.423	0.0056	No ACM <7mm observed	--	--	No FA observed	--	--	196637	BH126	0-0.5	897.36	No asbestos detected at reporting limit of 0.1g/kg: Organic fibres detected	No asbestos detected	<PQL	No visible asbestos detected			<PQL	<PQL
12/07/2018	BH127	0-0.6	No	NA	10,280	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	196637	BH127	0-0.6	744.69	No asbestos detected at reporting limit of 0.1g/kg: Organic fibres detected	No asbestos detected	<PQL	No visible asbestos detected			<PQL	<PQL
16/07/2018	BH128	0-0.65	No	NA	9,440	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	--	--	--	--	--	--	--	--	--	--	--	--
17/07/2018	BH129	0-0.3	No	NA	10,420	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	--	--	--	--	--	--	--	--	--	--	--	--
19/07/2018	BH130	0.1-0.3	No	NA	7,500	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	--	--	--	--	--	--	--	--	--	--	--	--
13/07/2018	BH131	0-0.6	No	NA	9,270	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	196637	BH131	0-0.6	816.43	No asbestos detected at reporting limit of 0.1g/kg: Organic fibres detected	No asbestos detected	<PQL	No visible asbestos detected			<PQL	<PQL
13/07/2018	BH131	0.6-1.2	No	NA	10,150	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	--	--	--	--	--	--	--	--	--	--	--	--
11/07/2018	BH132	0-0.5	No	NA	11,420	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	--	--	--	--	--	--	--	--	--	--	--	--
11/07/2018	BH132	0.5-1.0	No	NA	9,800	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	--	--	--	--	--	--	--	--	--	--	--	--
11/07/2018	BH133	0-0.5	No	NA	10,150	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	--	--	--	--	--	--	--	--	--	--	--	--
11/07/2018	BH133	0.6-1.4	No	NA	9,780	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	--	--	--	--	--	--	--	--	--	--	--	--
19/07/2018	BH134	0-0.5	No	NA	9,520	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	--	--	--	--	--	--	--	--	--	--	--	--
19/07/2018	BH135	0.1-0.5	No	NA	9,680	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	--	--	--	--	--	--	--	--	--	--	--	--
12/07/2018	BH136	0-0.4	No	NA	10,180	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	196637	BH136	0-0.4	585.97	No asbestos detected at reporting limit of 0.1g/kg: Organic fibres detected	No asbestos detected	<PQL	No visible asbestos detected			<PQL	<PQL
12/07/2018	BH137	0-0.6	Yes	NA	7,940	2.6	0.396	0.0050	No ACM <7mm observed	--	--	No FA observed	--	--	196637	BH137	0-0.6	861.31	No asbestos detected at reporting limit of 0.1g/kg: Organic fibres detected	No asbestos detected	<PQL	No visible asbestos detected			<PQL	<PQL
12/07/2018	BH138	0-0.4	No	NA	10,250	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	196637	BH138	0-0.4	697.76	No asbestos detected at reporting limit of 0.1g/kg: Organic fibres detected	No asbestos detected	<PQL	No visible asbestos detected			<PQL	<PQL
11/07/2018	BH139	0-0.5	No	NA	10,230	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	196637	BH139	0-0.5	704.74	No asbestos detected at reporting limit of 0.1g/kg: Organic fibres detected	No asbestos detected	<PQL	No visible asbestos detected			<PQL	<PQL
11/07/2018	BH139	0.6-1.0	No	NA	10,200	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	--	--	--	--	--	--	--	--	--	--	--	--
11/07/2018	BH140	0-0.6	No	NA	10,500	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	196637	BH140	0-0.6	641.99	No asbestos detected at reporting limit of 0.1g/kg: Organic fibres detected	No asbestos detected	<PQL	No visible asbestos detected			<PQL	<PQL
11/07/2018	BH140	0.6-1.1	No	NA	10,520	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	--	--	--	--	--	--	--	--	--	--	--	--
11/07/2018	BH141	0-0.2	No	NA	9,700	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	--	--	--	--	--	--	--	--	--	--	--	--
11/07/2018	BH141	0.2-1.0	No	NA	10,200	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	--	--	--	--	--	--	--	--	--	--	--	--
12/07/2018	BH142	0-0.6	No	NA	8,200	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	196637	BH142	0-0.6	737.4	No asbestos detected at reporting limit of 0.1g/kg: Organic fibres detected	No asbestos detected	<PQL	No visible asbestos detected			<PQL	<PQL
13/07/2018	BH143	0.15-0.35	No	NA	12,500	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	--	--	--	--	--	--	--	--	--	--	--	--
13/07/2018	BH143	0.5-1.7	No	NA	10,200	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	--	--	--	--	--	--	--	--	--	--	--	--
12/07/2018	BH144	0-0.5	No	NA	8,240	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	--	--	--	--	--	--	--	--	--	--	--	--
18/07/2018	BH145	0.04-0.3	No	NA	9,780	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	--	--	--	--	--	--	--	--	--	--	--	--
18/07/2018	BH145	0.3-0.4	No	NA	9,250	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	--	--	--	--	--	--	--	--	--	--	--	--
17/07/2018	BH146	0.04-0.2	No	NA	7,820	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	--	--	--	--	--	--	--	--	--	--	--	--
16/07/2018	BH147	0-0.6	No	NA	10,660	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	--	--	--	--	--	--	--	--	--	--	--	--
18/07/2018	BH148	0.04-0.4	No	NA	7,660	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	--	--	--	--	--	--	--	--	--	--	--	--
12/07/2018	BH149	0-0.6	No	NA	9,500	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	--	--	--	--	--	--	--	--	--	--	--	--
12/07/2018	BH150	0-0.6	No	NA	7,200	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	--	--	--	--	--	--	--	--	--	--	--	--

TABLE H-1
GROUNDWATER LABORATORY RESULTS COMPARED TO HSLs
All data in µg/L unless stated otherwise

				C_6-C_{10} (F1)	>C_{10}-C_{16} (F2)	Benzene	Toluene	Ethylbenzene	Xylenes	Naphthalene	PID
PQL - Envirolab Services				10	50	1	1	1	3	1	
NEPM 2013 - Land Use Category				**HSL-A/B: LOW/HIGH DENSITY RESIDENTIAL**							
Sample Reference	**Water Depth**	**Depth Category**	**Soil Category**								
MW101	5.3	4m to <8m	Sand	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	10.2
MW142	4.47	4m to <8m	Sand	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	16.7
MW143	4.75	4m to <8m	Sand	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	3.6
DUP1	5.3	4m to <8m	Sand	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	-
Dup 2	4.75	4m to <8m	Sand	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	-
Total Number of Samples				5	5	5	5	5	5	5	3
Maximum Value				<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	16.7

Concentration above the SAC	VALUE
Site specific assesment (SSA) required	VALUE

The guideline corresponding to the elevated value is highlighted in grey in the Site Assessment Criteria Table below

HSL GROUNDWATER ASSESSMENT CRITERIA

				C_6-C_{10} (F1)	>C_{10}-C_{16} (F2)	Benzene	Toluene	Ethylbenzene	Xylenes	Naphthalene
PQL - Envirolab Services				10	50	1	1	1	3	1
NEPM 2013 - Land Use Category				**HSL-A/B: LOW/HIGH DENSITY RESIDENTIAL**						
Sample Reference	**Water Depth**	**Depth Category**	**Soil Category**							
MW101	5.3	4m to <8m	Sand	1000	1000	800	NL	NL	NL	NL
MW142	4.47	4m to <8m	Sand	1000	1000	800	NL	NL	NL	NL
MW143	4.75	4m to <8m	Sand	1000	1000	800	NL	NL	NL	NL
DUP1	5.3	4m to <8m	Sand	1000	1000	800	NL	NL	NL	NL
Dup 2	4.75	4m to <8m	Sand	1000	1000	800	NL	NL	NL	NL

TABLE H-2
SUMMARY OF GROUNDWATER LABORATORY RESULTS COMPARED TO ECOLOGICAL GILs SAC
All results in µg/L unless stated otherwise.

	PQL Envirolab Services	ANZECC 2000 Fresh Waters	SAMPLES				
			MW101	MW142	MW143	DUP1	Dup 2
Metals and Metalloids							
Arsenic (As III)	1	24	<PQL	<PQL	<PQL	<PQL	<PQL
Cadmium	0.1	0.2	<PQL	<PQL	<PQL	<PQL	<PQL
Chromium (SAC for Cr III adopted)	1	3.3	<PQL	<PQL	2	<PQL	2
Copper	1	1.4	<PQL	<PQL	2	<PQL	3
Lead	1	3.4	<PQL	<PQL	2	<PQL	2
Total Mercury (inorganic)	0.05	0.06	<PQL	<PQL	<PQL	<PQL	<PQL
Nickel	1	11	4	1	5	4	5
Zinc	1	8	26	22	44	26	48
Monocyclic Aromatic Hydrocarbons (BTEX Compounds)							
Benzene	1	950	<PQL	<PQL	<PQL	<PQL	<PQL
Toluene	1	180	<PQL	<PQL	<PQL	<PQL	<PQL
Ethylbenzene	1	80	<PQL	<PQL	<PQL	<PQL	<PQL
m+p-xylene	2	75	<PQL	<PQL	<PQL	<PQL	<PQL
o-xylene	1	350	<PQL	<PQL	<PQL	<PQL	<PQL
Total xylenes	2	NSL	<PQL	<PQL	<PQL	<PQL	<PQL
Volatile Organic Compounds (VOCs), including chlorinated VOCs							
Dichlorodifluoromethane	10	NSL	<PQL	<PQL	<PQL	<PQL	<PQL
Chloromethane	10	NSL	<PQL	<PQL	<PQL	<PQL	<PQL
Vinyl Chloride	10	100	<PQL	<PQL	<PQL	<PQL	<PQL
Bromomethane	10	NSL	<PQL	<PQL	<PQL	<PQL	<PQL
Chloroethane	10	NSL	<PQL	<PQL	<PQL	<PQL	<PQL
Trichlorofluoromethane	10	NSL	<PQL	<PQL	<PQL	<PQL	<PQL
1,1-Dichloroethene	1	700	<PQL	<PQL	<PQL	<PQL	<PQL
Trans-1,2-dichloroethene	1	NSL	<PQL	<PQL	<PQL	<PQL	<PQL
1,1-dichloroethane	1	90	<PQL	<PQL	<PQL	<PQL	<PQL
Cis-1,2-dichloroethene	1	NSL	<PQL	<PQL	<PQL	<PQL	<PQL
Bromochloromethane	1	NSL	<PQL	<PQL	<PQL	<PQL	<PQL
Chloroform	1	370	<PQL	<PQL	<PQL	<PQL	<PQL
2,2-dichloropropane	1	NSL	<PQL	<PQL	<PQL	<PQL	<PQL
1,2-dichloroethane	1	1900	<PQL	<PQL	<PQL	<PQL	<PQL
1,1,1-trichloroethane	1	270	<PQL	<PQL	<PQL	<PQL	<PQL
1,1-dichloropropene	1	NSL	<PQL	<PQL	<PQL	<PQL	<PQL
Cyclohexane	1	NSL	<PQL	<PQL	<PQL	<PQL	<PQL
Carbon tetrachloride	1	240	<PQL	<PQL	<PQL	<PQL	<PQL
Benzene	1	see BTEX	<PQL	<PQL	<PQL	<PQL	<PQL
Dibromomethane	1	NSL	<PQL	<PQL	<PQL	<PQL	<PQL
1,2-dichloropropane	1	900	<PQL	<PQL	<PQL	<PQL	<PQL
Trichloroethene	1	NSL	<PQL	<PQL	<PQL	<PQL	<PQL
Bromodichloromethane	1	NSL	<PQL	<PQL	<PQL	<PQL	<PQL
trans-1,3-dichloropropene	1	NSL	<PQL	<PQL	<PQL	<PQL	<PQL
cis-1,3-dichloropropene	1	NSL	<PQL	<PQL	<PQL	<PQL	<PQL
1,1,2-trichloroethane	1	6500	<PQL	<PQL	<PQL	<PQL	<PQL
Toluene	1	see BTEX	<PQL	<PQL	<PQL	<PQL	<PQL
1,3-dichloropropane	1	1100	<PQL	<PQL	<PQL	<PQL	<PQL
Dibromochloromethane	1	NSL	<PQL	<PQL	<PQL	<PQL	<PQL
1,2-dibromoethane	1	NSL	<PQL	<PQL	<PQL	<PQL	<PQL
Tetrachloroethene	1	70	<PQL	<PQL	<PQL	<PQL	<PQL
1,1,1,2-tetrachloroethane	1	NSL	<PQL	<PQL	<PQL	<PQL	<PQL
Chlorobenzene	1	55	<PQL	<PQL	<PQL	<PQL	<PQL
Ethylbenzene	1	see BTEX	<PQL	<PQL	<PQL	<PQL	<PQL
Bromoform	1	NSL	<PQL	<PQL	<PQL	<PQL	<PQL
m+p-xylene	2	see BTEX	<PQL	<PQL	<PQL	<PQL	<PQL
Styrene	1	NSL	<PQL	<PQL	<PQL	<PQL	<PQL
1,1,2,2-tetrachloroethane	1	400	<PQL	<PQL	<PQL	<PQL	<PQL
o-xylene	1	see BTEX	<PQL	<PQL	<PQL	<PQL	<PQL
1,2,3-trichloropropane	1	NSL	<PQL	<PQL	<PQL	<PQL	<PQL
Isopropylbenzene	1	30	<PQL	<PQL	<PQL	<PQL	<PQL
Bromobenzene	1	NSL	<PQL	<PQL	<PQL	<PQL	<PQL
n-propyl benzene	1	NSL	<PQL	<PQL	<PQL	<PQL	<PQL
2-chlorotoluene	1	NSL	<PQL	<PQL	<PQL	<PQL	<PQL
4-chlorotoluene	1	NSL	<PQL	<PQL	<PQL	<PQL	<PQL
1,3,5-trimethyl benzene	1	NSL	<PQL	<PQL	<PQL	<PQL	<PQL
Tert-butyl benzene	1	NSL	<PQL	<PQL	<PQL	<PQL	<PQL
1,2,4-trimethyl benzene	1	NSL	<PQL	<PQL	<PQL	<PQL	<PQL
1,3-dichlorobenzene	1	260	<PQL	<PQL	<PQL	<PQL	<PQL
Sec-butyl benzene	1	NSL	<PQL	<PQL	<PQL	<PQL	<PQL
1,4-dichlorobenzene	1	60	<PQL	<PQL	<PQL	<PQL	<PQL
4-isopropyl toluene	1	NSL	<PQL	<PQL	<PQL	<PQL	<PQL
1,2-dichlorobenzene	1	160	<PQL	<PQL	<PQL	<PQL	<PQL
n-butyl benzene	1	NSL	<PQL	<PQL	<PQL	<PQL	<PQL
1,2-dibromo-3-chloropropane	1	NSL	<PQL	<PQL	<PQL	<PQL	<PQL
1,2,4-trichlorobenzene	1	85	<PQL	<PQL	<PQL	<PQL	<PQL
Hexachlorobutadiene	1	NSL	<PQL	<PQL	<PQL	<PQL	<PQL
1,2,3-trichlorobenzene	1	3	<PQL	<PQL	<PQL	<PQL	<PQL
Polycyclic Aromatic Hydrocarbons (PAHs)							
Naphthalene	0.2	16	<PQL	<PQL	<PQL	<PQL	<PQL
Acenaphthylene	0.1	NSL	<PQL	<PQL	<PQL	<PQL	<PQL
Acenaphthene	0.1	NSL	<PQL	<PQL	<PQL	<PQL	<PQL
Fluorene	0.1	NSL	<PQL	<PQL	<PQL	<PQL	<PQL
Phenanthrene	0.1	0.6	<PQL	<PQL	<PQL	<PQL	<PQL
Anthracene	**0.1**	0.01	<PQL	<PQL	<PQL	<PQL	<PQL
Fluoranthene	0.1	1	<PQL	<PQL	<PQL	<PQL	<PQL
Pyrene	0.1	NSL	<PQL	<PQL	<PQL	<PQL	<PQL
Benzo(a)anthracene	0.1	NSL	<PQL	<PQL	<PQL	<PQL	<PQL
Chrysene	0.1	NSL	<PQL	<PQL	<PQL	<PQL	<PQL
Benzo(b,j+k)fluoranthene	0.2	NSL	<PQL	<PQL	<PQL	<PQL	<PQL
Benzo(a)pyrene	0.1	0.1	<PQL	<PQL	<PQL	<PQL	<PQL
Indeno(1,2,3-c,d)pyrene	0.1	NSL	<PQL	<PQL	<PQL	<PQL	<PQL
Dibenzo(a,h)anthracene	0.1	NSL	<PQL	<PQL	<PQL	<PQL	<PQL
Benzo(g,h,i)perylene	0.1	NSL	<PQL	<PQL	<PQL	<PQL	<PQL

Concentration above the GIL	VALUE
PQL exceeds GIL	**BOLD/RED**

TABLE I-1
SOIL INTRA-LABORATORY DUPLICATE RESULTS & RPD CALCULATIONS
All results in mg/kg unless stated otherwise

SAMPLE	ANALYSIS	Envirolab PQL	INITIAL	REPEAT	MEAN	RPD %
Sample Ref = BH142 (0-0.2)	Arsenic	4	5	5	5.0	0
Dup Ref = JHDUP3	Cadmium	0.4	<PQL	<PQL	NC	NC
	Chromium	1	10	9	9.5	11
Envirolab Report: 196637	Copper	1	11	10	10.5	10
	Lead	1	71	67	69.0	6
	Mercury	0.1	<PQL	<PQL	NC	NC
	Nickel	1	3	2	2.5	40
	Zinc	1	81	66	73.5	20
	Naphthalene	0.1	<PQL	<PQL	NC	NC
	Acenaphthylene	0.1	<PQL	<PQL	NC	NC
	Acenaphthene	0.1	<PQL	<PQL	NC	NC
	Fluorene	0.1	<PQL	<PQL	NC	NC
	Phenanthrene	0.1	<PQL	0.2	0.1	120
	Anthracene	0.1	<PQL	<PQL	NC	NC
	Fluoranthene	0.1	0.3	0.4	0.4	29
	Pyrene	0.1	0.3	0.4	0.4	29
	Benzo(a)anthracene	0.1	0.2	0.2	0.2	0
	Chrysene	0.1	0.2	0.2	0.2	0
	Benzo(b,j+k)fluoranthene	0.2	0.3	0.4	0.4	29
	Benzo(a)pyrene	0.05	0.2	0.2	0.2	0
	Indeno(123-cd)pyrene	0.1	0.1	0.1	0.1	0
	Dibenzo(ah)anthracene	0.1	<PQL	<PQL	NC	NC
	Benzo(ghi)perylene	0.1	0.1	0.1	0.1	0
	Total OCPs	0.1	<PQL	<PQL	NC	NC
	Total OPPs	0.1	<PQL	<PQL	NC	NC
	Total PCBs	0.1	<PQL	<PQL	NC	NC
	TRH C_6-C_{10} (F1)	25	<PQL	<PQL	NC	NC
	TRH >C_{10}-C_{16} (F2)	50	120	98	109.0	20
	TRH >C_{16}-C_{34} (F3)	100	360	370	365.0	3
	TRH >C_{34}-C_{40} (F4)	100	<PQL	120	85.0	82
	Benzene	0.2	<PQL	<PQL	NC	NC
	Toluene	0.5	<PQL	<PQL	NC	NC
	Ethylbenzene	1	<PQL	<PQL	NC	NC
	m+p-xylene	2	<PQL	<PQL	NC	NC
	o-xylene	1	<PQL	<PQL	NC	NC

Explanation:
The RPD value is calculated as the absolute value of the difference between the initial and repeat results divided by the average value expressed as a percentage. The following acceptance criteria will be used to assess the RPD results:

Results > 10 times PQL = RPD value <= 50% are acceptable
Results between 5 & 10 times PQL = RPD value <= 75% are acceptable
Results < 5 times PQL = RPD value <= 100% are acceptable
If result is LPQL then 50% of the PQL is used for the calculation

RPD Results Above the Acceptance Criteria — VALUE

TABLE I-2
SOIL INTRA-LABORATORY DUPLICATE RESULTS & RPD CALCULATIONS
All results in mg/kg unless stated otherwise

SAMPLE	ANALYSIS	Envirolab PQL	INITIAL	REPEAT	MEAN	RPD %
Sample Ref = BH137 (0-0.2)	Arsenic	4	13	20	16.5	42
Dup Ref = JHDUP4	Cadmium	0.4	<PQL	<PQL	NC	NC
	Chromium	1	14	9	11.5	43
Envirolab Report: 196637	Copper	1	8	10	9.0	22
	Lead	1	64	65	64.5	2
	Mercury	0.1	<PQL	<PQL	NC	NC
	Nickel	1	3	3	3.0	0
	Zinc	1	87	90	88.5	3
	Naphthalene	0.1	<PQL	<PQL	NC	NC
	Acenaphthylene	0.1	<PQL	<PQL	NC	NC
	Acenaphthene	0.1	<PQL	<PQL	NC	NC
	Fluorene	0.1	<PQL	<PQL	NC	NC
	Phenanthrene	0.1	<PQL	<PQL	NC	NC
	Anthracene	0.1	<PQL	<PQL	NC	NC
	Fluoranthene	0.1	<PQL	<PQL	NC	NC
	Pyrene	0.1	<PQL	<PQL	NC	NC
	Benzo(a)anthracene	0.1	<PQL	<PQL	NC	NC
	Chrysene	0.1	<PQL	<PQL	NC	NC
	Benzo(b,j+k)fluoranthene	0.2	<PQL	<PQL	NC	NC
	Benzo(a)pyrene	0.05	<PQL	<PQL	NC	NC
	Indeno(123-cd)pyrene	0.1	<PQL	<PQL	NC	NC
	Dibenzo(ah)anthracene	0.1	<PQL	<PQL	NC	NC
	Benzo(ghi)perylene	0.1	<PQL	<PQL	NC	NC
	Total OCPs	0.1	<PQL	<PQL	NC	NC
	Total OPPs	0.1	<PQL	<PQL	NC	NC
	Total PCBs	0.1	<PQL	<PQL	NC	NC
	TRH C6-C10 (F1)	25	<PQL	<PQL	NC	NC
	TRH >C10-C16 (F2)	50	<PQL	<PQL	NC	NC
	TRH >C16-C34 (F3)	100	<PQL	<PQL	NC	NC
	TRH >C34-C40 (F4)	100	<PQL	<PQL	NC	NC
	Benzene	0.2	<PQL	<PQL	NC	NC
	Toluene	0.5	<PQL	<PQL	NC	NC
	Ethylbenzene	1	<PQL	<PQL	NC	NC
	m+p-xylene	2	<PQL	<PQL	NC	NC
	o-xylene	1	<PQL	<PQL	NC	NC

Explanation:
The RPD value is calculated as the absolute value of the difference between the initial and repeat results divided by the average value expressed as a percentage. The following acceptance criteria will be used to assess the RPD results:
Results > 10 times PQL = RPD value <= 50% are acceptable
Results between 5 & 10 times PQL = RPD value <= 75% are acceptable
Results < 5 times PQL = RPD value <= 100% are acceptable
If result is LPQL then 50% of the PQL is used for the calculation

RPD Results Above the Acceptance Criteria | VALUE

TABLE I-4
SOIL INTER-LABORATORY DUPLICATE RESULTS & RPD CALCULATIONS
All results in mg/kg unless stated otherwise

SAMPLE	ANALYSIS	Envirolab PQL	Envirolab VIC PQL	INITIAL	REPEAT	MEAN	RPD %
Sample Ref = BH115 (0-0.2)	Arsenic	4	4	<PQL	<PQL	NC	NC
Dup Ref = JHDUP1	Cadmium	0.4	0.4	<PQL	<PQL	NC	NC
	Chromium	1	1	6	8	7.0	29
Envirolab Report: 196637	Copper	1	1	8	8	8.0	0
Envirolab VIC Report: 14301	Lead	1	1	24	30	27.0	22
	Mercury	0.1	0.1	<PQL	<PQL	NC	NC
	Nickel	1	1	3	2	2.5	40
	Zinc	1	1	28	32	30.0	13
	Naphthalene	0.1	0.1	<PQL	<PQL	NC	NC
	Acenaphthylene	0.1	0.1	<PQL	<PQL	NC	NC
	Acenaphthene	0.1	0.1	<PQL	<PQL	NC	NC
	Fluorene	0.1	0.1	<PQL	<PQL	NC	NC
	Phenanthrene	0.1	0.1	<PQL	<PQL	NC	NC
	Anthracene	0.1	0.1	<PQL	<PQL	NC	NC
	Fluoranthene	0.1	0.1	<PQL	<PQL	NC	NC
	Pyrene	0.1	0.1	<PQL	<PQL	NC	NC
	Benzo(a)anthracene	0.1	0.1	<PQL	<PQL	NC	NC
	Chrysene	0.1	0.1	<PQL	<PQL	NC	NC
	Benzo(b,j+k)fluoranthene	0.2	0.2	<PQL	<PQL	NC	NC
	Benzo(a)pyrene	0.05	0.05	<PQL	<PQL	NC	NC
	Indeno(123-cd)pyrene	0.1	0.1	<PQL	<PQL	NC	NC
	Dibenzo(ah)anthracene	0.1	0.1	<PQL	<PQL	NC	NC
	Benzo(ghi)perylene	0.1	0.1	<PQL	<PQL	NC	NC
	Total OCPs	0.1	0.1	<PQL	<PQL	NC	NC
	Total OPPs	0.1	0.1	<PQL	<PQL	NC	NC
	Total PCBs	0.1	0.1	<PQL	<PQL	NC	NC
	TRH C6-C10 (F1)	25	25	<PQL	<PQL	NC	NC
	TRH >C10-C16 (F2)	50	50	<PQL	<PQL	NC	NC
	TRH >C16-C34 (F3)	100	100	<PQL	<PQL	NC	NC
	TRH >C34-C40 (F4)	100	100	<PQL	<PQL	NC	NC
	Benzene	0.2	0.2	<PQL	<PQL	NC	NC
	Toluene	0.5	0.5	<PQL	<PQL	NC	NC
	Ethylbenzene	1	1	<PQL	<PQL	NC	NC
	m+p-xylene	2	2	<PQL	<PQL	NC	NC
	o-xylene	1	1	<PQL	<PQL	NC	NC

Explanation:
The RPD value is calculated as the absolute value of the difference between the initial and repeat results divided by the average value expressed as a percentage. The following acceptance criteria will be used to assess the RPD results:

- Results > 10 times PQL = RPD value <= 50% are acceptable
- Results between 5 & 10 times PQL = RPD value <= 75% are acceptable
- Results < 5 times PQL = RPD value <= 100% are acceptable

If result is LPQL then 50% of the PQL is used for the calculation

RPD Results Above the Acceptance Criteria VALUE

TABLE I-5
SOIL INTER-LABORATORY DUPLICATE RESULTS & RPD CALCULATIONS
All results in mg/kg unless stated otherwise

SAMPLE	ANALYSIS	Envirolab PQL	Envirolab VIC PQL	INITIAL	REPEAT	MEAN	RPD %
Sample Ref = BH106 (0.03-0.2)	Arsenic	4	4	<PQL	<PQL	NC	NC
Dup Ref = JHDUP2	Cadmium	0.4	0.4	<PQL	<PQL	NC	NC
	Chromium	1	1	73	74	73.5	1
Envirolab Report: 196637	Copper	1	1	30	35	32.5	15
Envirolab VIC Report: 14301	Lead	1	1	10	11	10.5	10
	Mercury	0.1	0.1	<PQL	<PQL	NC	NC
	Nickel	1	1	75	82	78.5	9
	Zinc	1	1	38	51	44.5	29
	Naphthalene	0.1	0.1	<PQL	<PQL	NC	NC
	Acenaphthylene	0.1	0.1	<PQL	<PQL	NC	NC
	Acenaphthene	0.1	0.1	<PQL	<PQL	NC	NC
	Fluorene	0.1	0.1	<PQL	<PQL	NC	NC
	Phenanthrene	0.1	0.1	0.2	0.1	0.2	67
	Anthracene	0.1	0.1	<PQL	<PQL	NC	NC
	Fluoranthene	0.1	0.1	0.1	<PQL	0.1	67
	Pyrene	0.1	0.1	0.1	<PQL	0.1	67
	Benzo(a)anthracene	0.1	0.1	<PQL	<PQL	NC	NC
	Chrysene	0.1	0.1	0.1	<PQL	0.1	67
	Benzo(b,j+k)fluoranthene	0.2	0.2	<PQL	<PQL	NC	NC
	Benzo(a)pyrene	0.05	0.05	0.1	0.06	0.1	50
	Indeno(123-cd)pyrene	0.1	0.1	<PQL	<PQL	NC	NC
	Dibenzo(ah)anthracene	0.1	0.1	<PQL	<PQL	NC	NC
	Benzo(ghi)perylene	0.1	0.1	<PQL	<PQL	NC	NC
	Total OCPs	0.1	0.1	<PQL	<PQL	NC	NC
	Total OPPs	0.1	0.1	<PQL	<PQL	NC	NC
	Total PCBs	0.1	0.1	<PQL	<PQL	NC	NC
	TRH C6-C10 (F1)	25	25	<PQL	<PQL	NC	NC
	TRH >C10-C16 (F2)	50	50	<PQL	<PQL	NC	NC
	TRH >C16-C34 (F3)	100	100	<PQL	<PQL	NC	NC
	TRH >C34-C40 (F4)	100	100	<PQL	<PQL	NC	NC
	Benzene	0.2	0.2	<PQL	<PQL	NC	NC
	Toluene	0.5	0.5	<PQL	<PQL	NC	NC
	Ethylbenzene	1	1	<PQL	<PQL	NC	NC
	m+p-xylene	2	2	<PQL	<PQL	NC	NC
	o-xylene	1	1	<PQL	<PQL	NC	NC

Explanation:
The RPD value is calculated as the absolute value of the difference between the initial and repeat results divided by the average value expressed as a percentage. The following acceptance criteria will be used to assess the RPD results:

Results > 10 times PQL = RPD value <= 50% are acceptable
Results between 5 & 10 times PQL = RPD value <= 75% are acceptable
Results < 5 times PQL = RPD value <= 100% are acceptable

If result is LPQL then 50% of the PQL is used for the calculation

RPD Results Above the Acceptance Criteria VALUE

TABLE J-1
GROUNDWATER INTRA-LABORATORY DUPLICATE RESULTS & RPD CALCULATIONS
All results in µg/L unless stated otherwise

SAMPLE	ANALYSIS	Envirolab PQL	INITIAL	REPEAT	MEAN	RPD %
Sample Ref = MW101	Arsenic	1	<PQL	<PQL	NC	NC
Dup Ref = Dup 1	Cadmium	0.1	<PQL	<PQL	NC	NC
	Chromium	1	<PQL	<PQL	NC	NC
Envirolab Report: 197018	Copper	1	<PQL	<PQL	NC	NC
	Lead	1	<PQL	<PQL	NC	NC
	Mercury	0.05	<PQL	<PQL	NC	NC
	Nickel	1	4	4	4	0
	Zinc	1	26	26	26	0
	Naphthalene	0.2	<PQL	<PQL	NC	NC
	Acenaphthylene	0.1	<PQL	<PQL	NC	NC
	Acenaphthene	0.1	<PQL	<PQL	NC	NC
	Fluorene	0.1	<PQL	<PQL	NC	NC
	Phenanthrene	0.1	<PQL	<PQL	NC	NC
	Anthracene	0.1	<PQL	<PQL	NC	NC
	Fluoranthene	0.1	<PQL	<PQL	NC	NC
	Pyrene	0.1	<PQL	<PQL	NC	NC
	Benzo(a)anthracene	0.1	<PQL	<PQL	NC	NC
	Chrysene	0.1	<PQL	<PQL	NC	NC
	Benzo(b,j+k)fluoranthene	0.2	<PQL	<PQL	NC	NC
	Benzo(a)pyrene	0.1	<PQL	<PQL	NC	NC
	Indeno(123-cd)pyrene	0.1	<PQL	<PQL	NC	NC
	Dibenzo(ah)anthracene	0.1	<PQL	<PQL	NC	NC
	Benzo(ghi)perylene	0.1	<PQL	<PQL	NC	NC
	TRH C6-C10 (F1)	10	<PQL	<PQL	NC	NC
	TRH >C10-C16 (F2)	50	<PQL	<PQL	NC	NC
	TRH >C16-C34 (F3)	100	<PQL	<PQL	NC	NC
	TRH >C34-C40 (F4)	100	<PQL	<PQL	NC	NC
	Benzene	1	<PQL	<PQL	NC	NC
	Toluene	1	<PQL	<PQL	NC	NC
	Ethylbenzene	1	<PQL	<PQL	NC	NC
	m+p-xylene	2	<PQL	<PQL	NC	NC
	o-xylene	1	<PQL	<PQL	NC	NC

Explanation:

The RPD value is calculated as the absolute value of the difference between the initial and repeat results divided by the average value expressed as a percentage. The following acceptance criteria will be used to assess the RPD results:

Results > 10 times PQL = RPD value <= 50% are acceptable
Results between 5 & 10 times PQL = RPD value <= 75% are acceptable
Results < 5 times PQL = RPD value <= 100% are acceptable
If result is LPQL then 50% of the PQL is used for the calculation

RPD Results Above the Acceptance Criteria — VALUE

TABLE J-2
GROUNDWATER INTER-LABORATORY DUPLICATE RESULTS & RPD CALCULATIONS
All results in µg/L unless stated otherwise

SAMPLE	ANALYSIS	Envirolab PQL	Envirolab VIC PQL	INITIAL	REPEAT	MEAN	RPD %
Sample Ref = MW143	Arsenic	1	1	<PQL	<PQL	NC	NC
Dup Ref = Dup 2	Cadmium	0.1	0.1	<PQL	<PQL	NC	NC
	Chromium	1	1	2	2	2	0.0
Envirolab Report: 197018	Copper	1	1	2	3	2.5	40.0
Envirolab Vic Report: 14327	Lead	1	1	2	2	2	0.0
	Mercury	0.05	0.05	<PQL	<PQL	NC	NC
	Nickel	1	1	5	5	5	0.0
	Zinc	1	1	44	48	46	8.7
	Naphthalene	0.2	0.2	<PQL	<PQL	NC	NC
	Acenaphthylene	0.1	0.1	<PQL	<PQL	NC	NC
	Acenaphthene	0.1	0.1	<PQL	<PQL	NC	NC
	Fluorene	0.1	0.1	<PQL	<PQL	NC	NC
	Phenanthrene	0.1	0.1	<PQL	<PQL	NC	NC
	Anthracene	0.1	0.1	<PQL	<PQL	NC	NC
	Fluoranthene	0.1	0.1	<PQL	<PQL	NC	NC
	Pyrene	0.1	0.1	<PQL	<PQL	NC	NC
	Benzo(a)anthracene	0.1	0.1	<PQL	<PQL	NC	NC
	Chrysene	0.1	0.1	<PQL	<PQL	NC	NC
	Benzo(b,j+k)fluoranthene	0.2	0.2	<PQL	<PQL	NC	NC
	Benzo(a)pyrene	0.1	0.1	<PQL	<PQL	NC	NC
	Indeno(123-cd)pyrene	0.1	0.1	<PQL	<PQL	NC	NC
	Dibenzo(ah)anthracene	0.1	0.1	<PQL	<PQL	NC	NC
	Benzo(ghi)perylene	0.1	0.1	<PQL	<PQL	NC	NC
	TRH C6-C10 (F1)	10	10	<PQL	<PQL	NC	NC
	TRH >C10-C16 (F2)	50	50	<PQL	<PQL	NC	NC
	TRH >C16-C34 (F3)	100	100	<PQL	<PQL	NC	NC
	TRH >C34-C40 (F4)	100	100	<PQL	<PQL	NC	NC
	Benzene	1	1	<PQL	<PQL	NC	NC
	Toluene	1	1	<PQL	<PQL	NC	NC
	Ethylbenzene	1	1	<PQL	<PQL	NC	NC
	m+p-xylene	2	2	<PQL	<PQL	NC	NC
	o-xylene	1	1	<PQL	<PQL	NC	NC

Explanation:
The RPD value is calculated as the absolute value of the difference between the initial and repeat results divided by the average value expressed as a percentage. The following acceptance criteria will be used to assess the RPD results:
- Results > 10 times PQL = RPD value <= 50% are acceptable
- Results between 5 & 10 times PQL = RPD value <= 75% are acceptable
- Results < 5 times PQL = RPD value <= 100% are acceptable

If result is LPQL then 50% of the PQL is used for the calculation

RPD Results Above the Acceptance Criteria **VALUE**

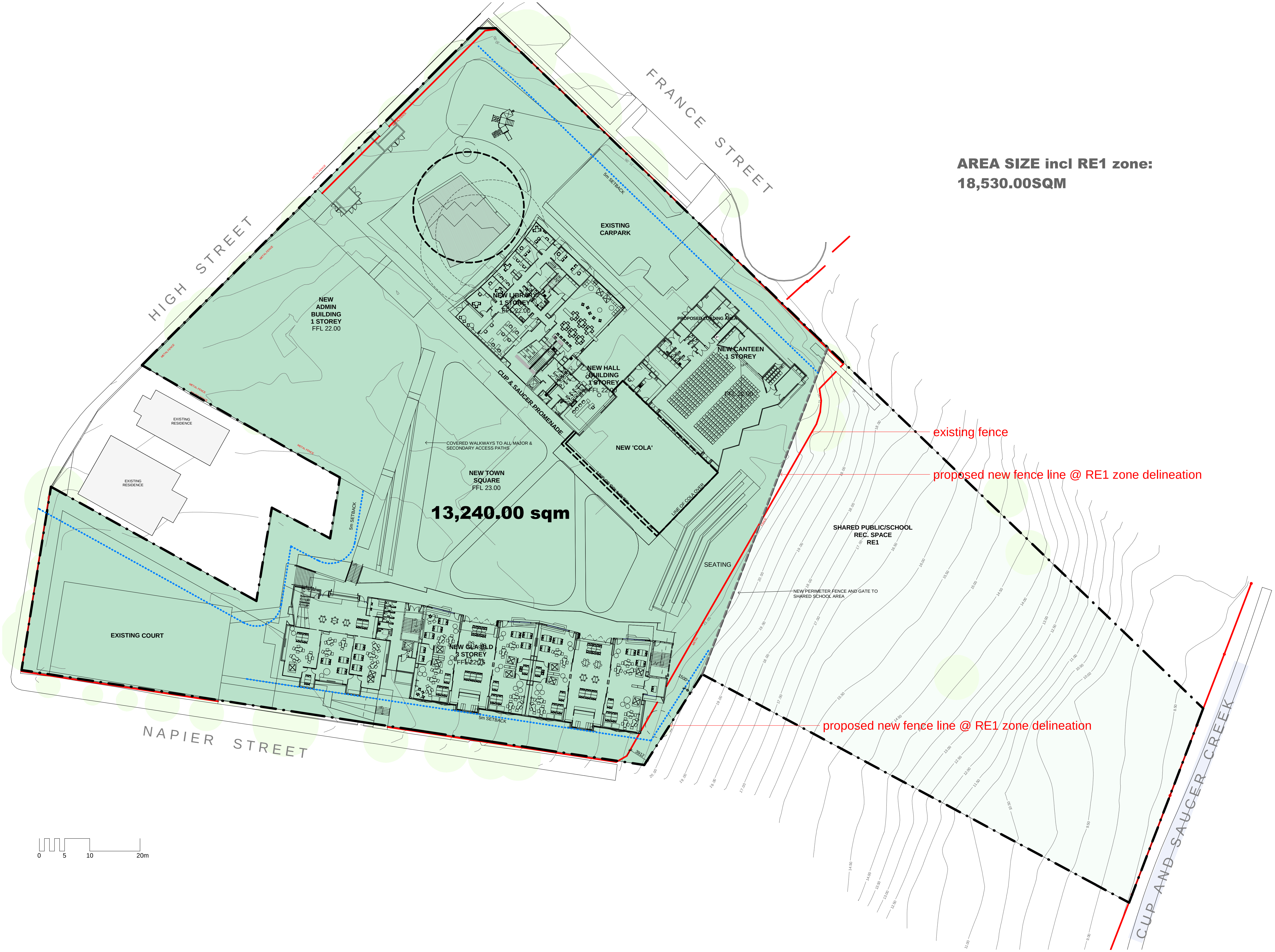
TABLE K
SUMMARY OF FIELD QA/QC RESULTS

ANALYSIS	Envirolab PQL		TB1s	TB1^{S}	TB^{W}	FR1^{S}	FR2^{S}	TS
			11/07/2018	12/07/2018	25/07/2018	11/07/2018	12/07/2018	25/07/2018
	mg/kg	µg/L	mg/kg	mg/kg	µg/L	mg/kg	mg/kg	% Recovery
Benzene	1	0.2	<PQL	<PQL	<PQL	<PQL	<PQL	102%
Toluene	1	0.5	<PQL	<PQL	<PQL	<PQL	<PQL	102%
Ethylbenzene	1	1	<PQL	<PQL	<PQL	<PQL	<PQL	105%
m+p-xylene	2	2	<PQL	<PQL	<PQL	<PQL	<PQL	106%
o-xylene	1	1	<PQL	<PQL	<PQL	<PQL	<PQL	106%

Explanation:
^{W} Sample type (water)
^{S} Sample type (sand)
BTEX concentrations in trip spikes are presented as % recovery

Values above PQLs/Acceptance criteria **VALUE**

Appendix C: Development Concept Plans


AREA SIZE incl RE1 zone:
18,530.00SQM
FRANCE STREET
HIGH STREET
NAPIER STREET
CUP AND SAUCER CREEK
5m SETBACK
EXISTING CARPARK
NEW ADMIN BUILDING 1 STOREY FFL 22.00
NEW LIBRARY 1 STOREY FFL 22.00
PROPOSED LOADING AREA
NEW CANTEEN 1 STOREY
NEW HALL BUILDING 1 STOREY FFL 22.00
CUP & SAUCER PROMENADE
NEW 'COLA'
LINE OF COLA OVER
COVERED WALKWAYS TO ALL MAJOR & SECONDARY ACCESS PATHS
NEW TOWN SQUARE FFL 23.00
13,240.00 sqm
EXISTING RESIDENCE
EXISTING RESIDENCE
EXISTING COURT
NEW GLA BLD 3 STOREY FFL 22.00
SEATING
SHARED PUBLIC/SCHOOL REC. SPACE RE1
NEW PERIMETER FENCE AND GATE TO SHARED SCHOOL AREA
existing fence
proposed new fence line @ RE1 zone delineation
proposed new fence line @ RE1 zone delineation
0 5 10 20m

Appendix D: Sampling Logs

ENVIRONMENTAL INVESTIGATION SERVICES
CONSULTING ENVIRONMENTAL ENGINEERS

ENVIRONMENTAL LOG

Borehole No. **101**
1/2

Environmental logs are not to be used for geotechnical purposes

Client: NBRS ARCHITECTURE
Project: PROPOSED SCHOOL ADDITIONS
Location: CANTERBURY SOUTH PUBLIC SCHOOL, HIGH STREET, CANTERBURY, NSW

Job No. E31040K
Date: 11/7/18
Method: SPIRAL AUGER JK205
R.L. Surface:
Datum:
Logged/Checked by: H.W./V.B.

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
			0			FILL: Silty sand, fine to medium grained, brown, trace of igneous gravel, ironstone gravel, plastic, ash and root fibres.	M			GRASS COVER 9.5kg BUCKET NO FCF
		N = 11 6,5,6	0.5			as above, but with trace of brick fragments and medium to high plasticity clay nodules.				
			1							
					-	SANDSTONE: fine to medium grained, red mottled light grey.				
			1.5							
			2							
			2.5			as above, but yellow and light brown.				
			3			SANDSTONE: fine to medium grained, light brown and yellow.				
			3.5							

ENVIRONMENTAL INVESTIGATION SERVICES
CONSULTING ENVIRONMENTAL ENGINEERS

ENVIRONMENTAL LOG

Borehole No. **101**
2/2

Environmental logs are not to be used for geotechnical purposes

Client: NBRS ARCHITECTURE
Project: PROPOSED SCHOOL ADDITIONS
Location: CANTERBURY SOUTH PUBLIC SCHOOL, HIGH STREET, CANTERBURY, NSW

Job No. E31040K | **Method:** SPIRAL AUGER JK205 | **R.L. Surface:**
Date: 11/7/18 | **Datum:**
Logged/Checked by: H.W./V.B.

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							
							4.5							
							5			as above, but yellow and light brown.				Groundwater monitoring well installed to 6.0m. Class 18 machine slotted 50mm dia. PVC standpipe 3.0m to 6.0m. Casing 0.0m to 3.0m. 2mm sand filter pack 2.5m to 6.0m. Bentonite seal 0.5m to 2.5m. Backfilled with sand (and/ or cuttings) to the surface. Completed with a concreted gatic cover.
▶														
							5.5			as above, but yellow brown.	M			
							6			END OF BOREHOLE AT 6.0m				
							6.5							
							7							

ENVIRONMENTAL INVESTIGATION SERVICES
CONSULTING ENVIRONMENTAL ENGINEERS

ENVIRONMENTAL LOG

Borehole No. **102**
1/1

Environmental logs are not to be used for geotechnical purposes

Client: NBRS ARCHITECTURE
Project: PROPOSED SCHOOL ADDITIONS
Location: CANTERBURY SOUTH PUBLIC SCHOOL, HIGH STREET, CANTERBURY, NSW

Job No. E31040K
Date: 16/7/18
Method: SPIRAL AUGER JK205
R.L. Surface:
Datum:
Logged/Checked by: H.W./V.B.

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 COMPL -ETION			0			FILL: Silty sand, fine to medium grained, brown, trace of ironstone gravel, igneous gravel, glass and root fibres.	D			GRASS COVER 10.38kg BUCKET NO FCF
		N = 43 7,21,22	0.5		CL-CI	Silty CLAY: low to medium plasticity, orange brown, trace of ironstone gravel.	w<PL			
					-	SANDSTONE: fine to medium grained, light brown mottled light grey.				'TC' BIT RESISTANCE
			1.5			END OF BOREHOLE AT 1.5m				
			2							
			2.5							
			3							
			3.5							

ENVIRONMENTAL INVESTIGATION SERVICES
CONSULTING ENVIRONMENTAL ENGINEERS

ENVIRONMENTAL LOG

Borehole No.
103
1/1

Environmental logs are not to be used for geotechnical purposes

Client: NBRS ARCHITECTURE
Project: PROPOSED SCHOOL ADDITIONS
Location: CANTERBURY SOUTH PUBLIC SCHOOL, HIGH STREET, CANTERBURY, NSW

Job No. E31040K **Method:** HAND AUGER **R.L. Surface:**
Date: 16/7/18 **Datum:**
Logged/Checked by: H.W./V.B.

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 COMPL -ETION							0			FILL: Silty sand, fine to medium grained, brown, trace of igneous gravel, ironstone gravel, slag, ash and root fibres.	D			11.0kg BUCKET NO FCF
										as above, but yellow and brown, with igneous gravel.				
							0.5			END OF BOREHOLE AT 0.4m				HAND AUGER REFUSAL ON HARD GRAVEL
							1							
							1.5							
							2							
							2.5							
							3							
							3.5							

ENVIRONMENTAL INVESTIGATION SERVICES
CONSULTING ENVIRONMENTAL ENGINEERS

ENVIRONMENTAL LOG

Borehole No.
104
1/1

Environmental logs are not to be used for geotechnical purposes

Client: NBRS ARCHITECTURE

Project: PROPOSED SCHOOL ADDITIONS

Location: CANTERBURY SOUTH PUBLIC SCHOOL, HIGH STREET, CANTERBURY, NSW

Job No. E31040K

Date: 11/7/18

Method: SPIRAL AUGER JK205

R.L. Surface:

Datum:

Logged/Checked by: H.W./V.B.

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 COMPL -ETION			0			MULCH: 30mm.t.				MULCH COVER
					-	FILL: Silty sand, fine to medium grained, dark brown, trace of wood, igneous gravel and root fibres.	D			9.5kg BUCKET NO FCF
			0.5			as above, but with fine to medium grained sandstone gravel and ironstone gravel.				
		N = 16 13,8,8			-	SANDSTONE: fine to medium grained, yellow and light brown.				
			1							
			1.5			END OF BORHEOLE AT 1.5m				
			2							
			2.5							
			3							
			3.5							

ENVIRONMENTAL INVESTIGATION SERVICES
CONSULTING ENVIRONMENTAL ENGINEERS

ENVIRONMENTAL LOG

Borehole No. 105
1/1

Environmental logs are not to be used for geotechnical purposes

Client: NBRS ARCHITECTURE
Project: PROPOSED SCHOOL ADDITIONS
Location: CANTERBURY SOUTH PUBLIC SCHOOL, HIGH STREET, CANTERBURY, NSW

Job No. E31040K
Method: SPIRAL AUGER JK205
R.L. Surface:
Date: 11/7/18
Datum:
Logged/Checked by: H.W./V.B.

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 COMPL -ETION			0			MULCH: 30mm.t.				MULCH COVER
	ES, DB				-	FILL: Silty sand, fine to medium grained, dark brown, trace of igneous gravel, ironstone gravel and root fibres.	M			10.5kg BUCKET NO FCF
		N = 14 6,8,6	0.5							
	ES				-	SANDSTONE: fine to medium grained, yellow and red brown.				
			1							
			1.5			END OF BOREHOLE AT 1.5m				
			2							
			2.5							
			3							
			3.5							

ENVIRONMENTAL INVESTIGATION SERVICES

CONSULTING ENVIRONMENTAL ENGINEERS

ENVIRONMENTAL LOG

Borehole No.
106
1/1

Environmental logs are not to be used for geotechnical purposes

Client: NBRS ARCHITECTURE

Project: PROPOSED SCHOOL ADDITIONS

Location: CANTERBURY SOUTH PUBLIC SCHOOL, HIGH STREET, CANTERBURY, NSW

Job No. E31040K **Method:** SPIRAL AUGER JK205 **R.L. Surface:**

Date: 11/7/18 **Datum:**

Logged/Checked by: J.H./V.B.

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 COMPL -ETION			0			ASPHALT: 30mm.t.				ASPHALT COVER
					-	FILL: Silty gravelly sand, fine to medium grained, dark brown grey, trace of fine to medium igneous gravel and concrete fragments.	M			12.5kg BUCKET NO FCF
			0.5		-	SANDSTONE: fine to medium grained, orange and red brown.				
		N = 26 5,10,16				as above, but red and brown.				
			1							
			1.5			END OF BOREHOLE AT 1.5m				
			2							
			2.5							
			3							
			3.5							

ENVIRONMENTAL INVESTIGATION SERVICES

CONSULTING ENVIRONMENTAL ENGINEERS

ENVIRONMENTAL LOG

Borehole No.
107
1/1

Environmental logs are not to be used for geotechnical purposes

Client: NBRS ARCHITECTURE

Project: PROPOSED SCHOOL ADDITIONS

Location: CANTERBURY SOUTH PUBLIC SCHOOL, HIGH STREET, CANTERBURY, NSW

Job No. E31040K | **Method:** HAND AUGER | **R.L. Surface:**

Date: 16/7/18 | **Datum:**

Logged/Checked by: H.W./V.B.

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 COMPL -ETION							0			MULCH: 50mm.t				MULCH COVER
									-	FILL: Silty sand, fine to medium grained, dark brown, trace of root fibres.	M			9.0kg BUCKET NO FCF
							0.5		CL-CI	Sandy CLAY: low to medium plasticity, orange brown, trace of ironstone gravel.	w<PL			
										as above, but light brown mottled grey.				
							1			END OF BOREHOLE AT 0.9m				HAND AUGER REFUSAL ON INFERRED SANDSTONE BEDROCK
							1.5							
							2							
							2.5							
							3							
							3.5							

ENVIRONMENTAL INVESTIGATION SERVICES
CONSULTING ENVIRONMENTAL ENGINEERS

ENVIRONMENTAL LOG

Borehole No.
108
1/1

Environmental logs are not to be used for geotechnical purposes

Client: NBRS ARCHITECTURE
Project: PROPOSED SCHOOL ADDITIONS
Location: CANTERBURY SOUTH PUBLIC SCHOOL, HIGH STREET, CANTERBURY, NSW

Job No. E31040K
Date: 16/7/18
Method: SPIRAL AUGER JK205
R.L. Surface:
Datum:
Logged/Checked by: H.W./V.B.

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 COMPL -ETION			0			FILL: Silty sand, fine to medium grained, dark brown, trace of ironstone gravel and igneous gravel.	M			10.2kg BUCKET JHF 12 @ 0.05m
		N = 7 5,5,2	0.5		CL-CI	Sandy CLAY: low to medium plasticity, orange brown, trace of ironstone gravel.	w<PL			
						Sandy CLAY: low to medium plasticity, yellow mottled light grey.	w<PL			
			1							
			1.5		-	SANDSTONE: fine to medium grained, light grey.				
						END OF BOREHOLE AT 1.6m				
			2							
			2.5							
			3							
			3.5							

ENVIRONMENTAL INVESTIGATION SERVICES
CONSULTING ENVIRONMENTAL ENGINEERS

ENVIRONMENTAL LOG

Borehole No. **109**

1/1

Environmental logs are not to be used for geotechnical purposes

Client: NBRS ARCHITECTURE

Project: PROPOSED SCHOOL ADDITIONS

Location: CANTERBURY SOUTH PUBLIC SCHOOL, HIGH STREET, CANTERBURY, NSW

Job No. E31040K | **Method:** SPIRAL AUGER JK205 | **R.L. Surface:**

Date: 16/7/18 | **Datum:**

Logged/Checked by: J.H./V.B.

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 COMPL -ETION			0			FILL: Silty sand, fine to medium grained, dark brown, trace of igneous gravel and root fibres.	M			8.34kg BUCKET NO FCF
		N = 14 10,6,8	0.5		CL-CI	Sandy CLAY: low to medium plasticity, yellow light brown, trace of ironstone gravel.	w<PL			
			1		-	SANDSTONE: fine to medium grained, light brown light grey.				
			1.5			END OF BOREHOLE AT 1.6m				
			2							
			2.5							
			3							
			3.5							

ENVIRONMENTAL INVESTIGATION SERVICES
CONSULTING ENVIRONMENTAL ENGINEERS

ENVIRONMENTAL LOG

Borehole No.
110
1/1

Environmental logs are not to be used for geotechnical purposes

Client: NBRS ARCHITECTURE
Project: PROPOSED SCHOOL ADDITIONS
Location: CANTERBURY SOUTH PUBLIC SCHOOL, HIGH STREET, CANTERBURY, NSW

Job No. E31040K **Method:** HAND AUGER **R.L. Surface:**
Date: 16/7/18 **Datum:**
Logged/Checked by: H.W./V.B.

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 COMPL -ETION	ES, DB		0			FILL: Silty sand, fine to medium grained, dark brown, trace of igneous gravel, ironstone gravel, brick fragments, metal, ceramic fragments, glass and root fibres.	M			9.32kg BUCKET JHF 13 @ 0.01m
	ES, DB					FILL: Clayey sand, fine to medium grained, yellow and dark brown, trace of igneous gravel, ironstone gravel and fine to medium grained sandstone gravel.	M			9.88kg BUCKET JHF 14 @ 0.4m
			0.5		-	SANDSTONE: fine to medium grained, light brown light grey.				HAND AUGER REFUSAL ON SANDSTONE BEDROCK
						END OF BOREHOLE AT 0.55m				
			1							
			1.5							
			2							
			2.5							
			3							
			3.5							

ENVIRONMENTAL INVESTIGATION SERVICES

CONSULTING ENVIRONMENTAL ENGINEERS

ENVIRONMENTAL LOG

Borehole No.
111
1/1

Environmental logs are not to be used for geotechnical purposes

Client: NBRS ARCHITECTURE

Project: PROPOSED SCHOOL ADDITIONS

Location: CANTERBURY SOUTH PUBLIC SCHOOL, HIGH STREET, CANTERBURY, NSW

Job No. E31040K | **Method:** SPIRAL AUGER JK205 | **R.L. Surface:**

Date: 12/7/18 | **Datum:**

Logged/Checked by: J.H./V.B.

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 COMPL -ETION			0			FILL: Silty sand, fine to medium grained, dark brown, trace of glass, igneous and sandstone gravel and root fibres.	M			GRASS COVER 9.02kg BUCKET NO FCF
			0.5							
		N = 14 9,8,6			CL-CI	Silty CLAY: low to medium plasticity, dark grey, mottled orange brown.	w<PL			
			1							
					-	SANDSTONE: fine to medium grained, light brown.				
			1.5							
						END OF BOREHOLE AT 1.6m				
			2							
			2.5							
			3							
			3.5							

ENVIRONMENTAL INVESTIGATION SERVICES
CONSULTING ENVIRONMENTAL ENGINEERS

ENVIRONMENTAL LOG

Borehole No. 112
1/1

Environmental logs are not to be used for geotechnical purposes

Client: NBRS ARCHITECTURE
Project: PROPOSED SCHOOL ADDITIONS
Location: CANTERBURY SOUTH PUBLIC SCHOOL, HIGH STREET, CANTERBURY, NSW

Job No. E31040K **Method:** SPIRAL AUGER JK205 **R.L. Surface:**
Date: 12/7/18 **Datum:**
Logged/Checked by: J.H./V.B.

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 COMPL -ETION							0			FILL: Silty sand, fine to medium grained, dark brown, trace of igneous gravel, slag and root fibres.	M			GRASS COVER 8.07kg BUCKET NO FCF
						N = 8 4,4,4	0.5		CL-CI	Sandy CLAY: low to medium plasticity, light grey, mottled yellow brown, trace of ironstone gravel.	w<PL			
							1		-	SANDSTONE: fine to medium grained, light brown.				
							1.5			END OF BOREHOLE AT 1.5m				
							2							
							2.5							
							3							
							3.5							

ENVIRONMENTAL INVESTIGATION SERVICES
CONSULTING ENVIRONMENTAL ENGINEERS

Borehole No.
113
1/1

ENVIRONMENTAL LOG

Environmental logs are not to be used for geotechnical purposes

Client: NBRS ARCHITECTURE
Project: PROPOSED SCHOOL ADDITIONS
Location: CANTERBURY SOUTH PUBLIC SCHOOL, HIGH STREET, CANTERBURY, NSW

Job No. E31040K **Method:** HAND AUGE **R.L. Surface:**
Date: 17/7/18 **Datum:**
Logged/Checked by: H.W./V.B.

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 COMPL -ETION			0			MULCH: 100mm.t.				MULCH COVER
					-	FILL: Clayey sand, fine to medium grained, dark brown, trace of igneous gravel, ironstone gravel and wood.	M			9.06kg BUCKET NO FCF
			0.5			FILL: Sandy clay, low to medium plasticity, yellow and brown, trace of ironstone gravel, igneous gravel, slag and ash.	w<PL			10.62kg BUCKET NO FCF
						FILL: Sandy clay, low to medium plasticity, light brown, trace of fine to medium grained ironstone and sandstone gravel and ash.	w≈PL			8.75kg BUCKET NO FCF
			1			END OF BOREHOLE AT 0.95m				HAND AUGER REFUSAL ON INFERRED SANDSTONE BEDROCK
			1.5							
			2							
			2.5							
			3							
			3.5							

ENVIRONMENTAL INVESTIGATION SERVICES
CONSULTING ENVIRONMENTAL ENGINEERS

Borehole No.
114
1/1

ENVIRONMENTAL LOG

Environmental logs are not to be used for geotechnical purposes

Client: NBRS ARCHITECTURE
Project: PROPOSED SCHOOL ADDITIONS
Location: CANTERBURY SOUTH PUBLIC SCHOOL, HIGH STREET, CANTERBURY, NSW

Job No. E31040K **Method:** HAND AUGER **R.L. Surface:**
Date: 17/7/18 **Datum:**
Logged/Checked by: H.W./V.B.

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 COMPL -ETION			0			FILL: Silty sand, fine to medium grained, yellow and light brown, trace of ironstone gravel, igneous gravel and low to medium plasticity, clay nodules.	M			10.25kg BUCKET NO FCF
						FILL: Sandy clay, low to medium plasticity, light brown, trace of ironstone gravel and igneous gravel.	M			9.87kg BUCKET NO FCF
			0.5							
					CL-CI	Sandy CLAY: low to medium plasticity, yellow mottled red brown.	w>PL			
						END OF BOREHOLE AT 0.85m				
			1							
			1.5							
			2							
			2.5							
			3							
			3.5							

ENVIRONMENTAL INVESTIGATION SERVICES
CONSULTING ENVIRONMENTAL ENGINEERS

ENVIRONMENTAL LOG

Borehole No. **115**

1/1

Environmental logs are not to be used for geotechnical purposes

Client: NBRS ARCHITECTURE

Project: PROPOSED SCHOOL ADDITIONS

Location: CANTERBURY SOUTH PUBLIC SCHOOL, HIGH STREET, CANTERBURY, NSW

Job No. E31040K **Method:** SPIRAL AUGER JK205 **R.L. Surface:**

Date: 16/7/18 **Datum:**

Logged/Checked by: H.W./V.B.

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 COMPL -ETION			0			FILL: Silty sand, fine to medium grained, dark brown, trace of igneous gravel, medium to high plasticity clay nodules and root fibres.	M			GRASS COVER 9.5kg BUCKET NO FCF
		N = 19 4,7,12	0.5		CL-CI	Sandy CLAY: low to medium plasticity, light grey.	w≈PL			
			1		-	SANDSTONE: fine to medium grained, red and brown.				
			1.5			END OF BORHEOLE AT 1.5m				
			2							
			2.5							
			3							
			3.5							

ENVIRONMENTAL INVESTIGATION SERVICES
CONSULTING ENVIRONMENTAL ENGINEERS

ENVIRONMENTAL LOG

Borehole No. **116**
1/1

Environmental logs are not to be used for geotechnical purposes

Client: NBRS ARCHITECTURE
Project: PROPOSED SCHOOL ADDITIONS
Location: CANTERBURY SOUTH PUBLIC SCHOOL, HIGH STREET, CANTERBURY, NSW

Job No. E31040K
Date: 11/7/18
Method: SPIRAL AUGER JK205
R.L. Surface:
Datum:
Logged/Checked by: J.H./V.B.

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 COMPL -ETION			0			ASPHALT: 30mm.t				
					-	FILL: Silty sand, fine to medium grained, dark brown and grey, trace of slag, concrete, clay nodules, igneous and ironstone gravel and root fibres.	D			10.82kg BUCKET NO FCF
		N = 27 5,10,17	0.5		CL-CI	Sandy CLAY: low to medium plasticity, yellow mottled light grey, trace of root fibres.	w<PL			
			1		-	SANDSTONE: fine to medium grained, red and light grey.				
						END OF BORHEOLE AT 1.3m				
			1.5							
			2							
			2.5							
			3							
			3.5							

ENVIRONMENTAL INVESTIGATION SERVICES
CONSULTING ENVIRONMENTAL ENGINEERS

ENVIRONMENTAL LOG

Borehole No.
117
1/1

Environmental logs are not to be used for geotechnical purposes

Client: NBRS ARCHITECTURE
Project: PROPOSED SCHOOL ADDITIONS
Location: CANTERBURY SOUTH PUBLIC SCHOOL, HIGH STREET, CANTERBURY, NSW

Job No. E31040K
Date: 11/7/18
Method: SPIRAL AUGER JK205
R.L. Surface:
Datum:
Logged/Checked by: J.H./V.B.

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 COMPL -ETION			0			FILL: Silty sand, fine to medium grained, dark brown, trace of brick, ash, fine to medium igneous and ironstone gravel.	M			GRASS COVER 8.78kg BUCKET NO FCF
			0.5		CL-CI	Sandy CLAY: low to medium plasticity, dark orange mottled red brown.	w<PL			
		N = 20 11,13,7				as above, but yellow mottled light grey.				
			1							
					-	SANDSTONE: fine to medium grained, red and light grey.				
			1.5			END OF BOREHOLE AT 1.5m				
			2							
			2.5							
			3							
			3.5							

ENVIRONMENTAL LOG

Borehole No.
118
1/1

Environmental logs are not to be used for geotechnical purposes

Client: NBRS ARCHITECTURE
Project: PROPOSED SCHOOL ADDITIONS
Location: CANTERBURY SOUTH PUBLIC SCHOOL, HIGH STREET, CANTERBURY, NSW

Job No. E31040K **Method:** HAND AUGER **R.L. Surface:**
Date: 16/7/18 **Datum:**
Logged/Checked by: H.W./V.B.

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
	ES, DB		0			FILL: Clayey sand, fine to medium grained, brown, trace of ironstone gravel, igneous gravel, metal and root fibres.	M			GRASS COVER 10.48kg BUCKET NO FCF
	ES		0.5		CL-CI	Sandy CLAY: low to medium plasticity, yellow brown mottled light grey, trace of fine to medium grained sandstone gravel.	w≈PL			
			1 – 3.5			END OF BOREHOLE AT 0.9m				HAND AUGER REFUSAL ON INFERRED SANDSTONE BEDROCK

ENVIRONMENTAL INVESTIGATION SERVICES

CONSULTING ENVIRONMENTAL ENGINEERS

ENVIRONMENTAL LOG

Borehole No. **119**

1/1

Environmental logs are not to be used for geotechnical purposes

Client: NBRS ARCHITECTURE

Project: PROPOSED SCHOOL ADDITIONS

Location: CANTERBURY SOUTH PUBLIC SCHOOL, HIGH STREET, CANTERBURY, NSW

Job No. E31040K **Method:** HAND AUGER **R.L. Surface:**

Date: 17/7/18 **Datum:**

Logged/Checked by: J.H./V.B.

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 COMPL -ETION							0			FILL: Silty sand, fine to medium grained, dark brown, trace of igneous gravel, wood, ash and root fibres.	M			9.35kg BUCKET NO FCF
										FILL: Gravel, fine to medium grained, dark grey, igneous, with fine to medium grained sand and crushed concrete.				8.10kg BUCKET NO FCF
							0.5			END OF BOREHOLE AT 0.5m				REFUSAL ON COPPER PIPE
							1							
							1.5							
							2							
							2.5							
							3							
							3.5							

ENVIRONMENTAL INVESTIGATION SERVICES
CONSULTING ENVIRONMENTAL ENGINEERS

Borehole No. **120**
1/1

ENVIRONMENTAL LOG

Environmental logs are not to be used for geotechnical purposes

Client: NBRS ARCHITECTURE
Project: PROPOSED SCHOOL ADDITIONS
Location: CANTERBURY SOUTH PUBLIC SCHOOL, HIGH STREET, CANTERBURY, NSW

Job No. E31040K **Method:** HAND AUGER **R.L. Surface:**
Date: 17/7/18 **Datum:**
Logged/Checked by: J.H./V.B.

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: 70mm.t				
									-	FILL: Gravelly sandy clay, low to medium plasticity, light brown, yellow, with ironstone gravel.	w<PL			9.35kg BUCKET NO FCF
									CI-CH	Sandy CLAY: medium to high plasticity, red mottled light brown, trace of ironstone gravel.				
							0.5			as above, but orange and red mottled light grey.				
										END OF BOREHOLE AT 0.5m				
							1							
							1.5							
							2							
							2.5							
							3							
							3.5							

ENVIRONMENTAL INVESTIGATION SERVICES
CONSULTING ENVIRONMENTAL ENGINEERS

ENVIRONMENTAL LOG

Borehole No. **121**

1/1

Environmental logs are not to be used for geotechnical purposes

Client: NBRS ARCHITECTURE

Project: PROPOSED SCHOOL ADDITIONS

Location: CANTERBURY SOUTH PUBLIC SCHOOL, HIGH STREET, CANTERBURY, NSW

Job No. E31040K **Method:** HAND AUGER **R.L. Surface:**

Date: 16/7/18 **Datum:**

Logged/Checked by: J.H./V.B.

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 COMPL -ETION			0			FILL: Silty sand, fine to medium grained, dark brown, trace of igneous gravel and root fibres.	M			GRASS COVER 9.85kg BUCKET NO FCF
						FILL: Sandy clay, low to medium plasticity, light brown, trace of igneous and sandstone gravel, ash, root fibres.	w<PL			11.10kg BUCKET NO FCF
			0.5		CI-CH	Sandy CLAY: medium to high plasticity, light orange and red brown, trace of ironstone gravel.	w≈PL			
						as above, but orange and red mottled light grey.				
			1			END OF BOREHOLE AT 1.0m				
			1.5							
			2							
			2.5							
			3							
			3.5							

ENVIRONMENTAL INVESTIGATION SERVICES
CONSULTING ENVIRONMENTAL ENGINEERS

Borehole No.
122
1/1

ENVIRONMENTAL LOG

Environmental logs are not to be used for geotechnical purposes

Client: NBRS ARCHITECTURE
Project: PROPOSED SCHOOL ADDITIONS
Location: CANTERBURY SOUTH PUBLIC SCHOOL, HIGH STREET, CANTERBURY, NSW

Job No. E31040K
Method: SPIRAL AUGER JK205
R.L. Surface:
Date: 12/7/18
Datum:
Logged/Checked by: J.H./V.B.

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 COMPL -ETION							0			FILL: Silty sand, fine to medium grained, brown, trace of igneous gravel and root fibres.	M			12.16kg BUCKET NO FCF
						N = 9 6,3,6	0.5							
							1		-	SANDSTONE: fine to medium grained, grey and light brown, trace of clay nodules.				
							1.5			END OF BOREHOLE AT 1.5m				
							2							
							2.5							
							3							
							3.5							

ENVIRONMENTAL INVESTIGATION SERVICES
CONSULTING ENVIRONMENTAL ENGINEERS

ENVIRONMENTAL LOG

Borehole No. **123**

1/1

Environmental logs are not to be used for geotechnical purposes

Client: NBRS ARCHITECTURE
Project: PROPOSED SCHOOL ADDITIONS
Location: CANTERBURY SOUTH PUBLIC SCHOOL, HIGH STREET, CANTERBURY, NSW

Job No. E31040K **Method:** SPIRAL AUGER JK205 **R.L. Surface:**
Date: 12/7/18 **Datum:**
Logged/Checked by: J.H./V.B.

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 COMPL -ETION			0			FILL: Silty sand, fine to medium grained, brown, trace of igneous and ironstone gravel, glass, root fibres and wood.	D			8.78kg BUCKET NO FCF
			0.5							
		N = 14 5,6,8			CL-CI	Sandy CLAY: low to medium plasticity, dark orange and red brown, trace of ironstone gravel.	w<PL			
			1							
			1.5		-	SANDSTONE: fine to medium grained, red brown.				
						END OF BOREHOLE AT 1.6m				
			2							
			2.5							
			3							
			3.5							

ENVIRONMENTAL INVESTIGATION SERVICES
CONSULTING ENVIRONMENTAL ENGINEERS

ENVIRONMENTAL LOG

Borehole No.
124
1/1

Environmental logs are not to be used for geotechnical purposes

Client: NBRS ARCHITECTURE
Project: PROPOSED SCHOOL ADDITIONS
Location: CANTERBURY SOUTH PUBLIC SCHOOL, HIGH STREET, CANTERBURY, NSW

Job No. E31040K
Date: 12/7/18
Method: SPIRAL AUGER JK205
R.L. Surface:
Datum:
Logged/Checked by: H.W./V.B.

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 COMPL -ETION			0			FILL: Clayey sand, fine to medium grained, brown, trace of igneous gravel, terracotta fragments and root fibres.	M			GRASS COVER 10.5kg BUCKET JHF 10 @ 0.05m
		N = 14 10,6,8	0.5							
			1		CL-CI	Sandy CLAY: low to medium plasticity, red and brown, trace of ironstone gravel.	w<PL			
					-	SANDSTONE: fine to medium grained, light brown mottled light grey.				
			1.5							
						END OF BOREHOLE AT 1.6m				
			2							
			2.5							
			3							
			3.5							

ENVIRONMENTAL INVESTIGATION SERVICES
CONSULTING ENVIRONMENTAL ENGINEERS

ENVIRONMENTAL LOG

Borehole No.
125
1/1

Environmental logs are not to be used for geotechnical purposes

Client: NBRS ARCHITECTURE
Project: PROPOSED SCHOOL ADDITIONS
Location: CANTERBURY SOUTH PUBLIC SCHOOL, HIGH STREET, CANTERBURY, NSW

Job No. E31040K
Method: SPIRAL AUGER JK205
R.L. Surface:
Date: 12/7/18
Datum:
Logged/Checked by: H.W./V.B.

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 COMPL -ETION			0			FILL: Silty sand, fine to medium grained, light brown, trace of ironstone gravel, glass and root fibres.	D			GRASS COVER 10.1kg BUCKET JHF 11 @ 0.05m
		N = 18 4,10,8	0.5							
			1		CL-CI	Sandy CLAY: low to medium plasticity, red and brown, trace of ironstone gravel.	w<PL			
			1.5		-	SANDSTONE: fine to medium grained, light brown mottled light grey.				
						END OF BOREHOLE AT 1.6m				
			2							
			2.5							
			3							
			3.5							

ENVIRONMENTAL INVESTIGATION SERVICES
CONSULTING ENVIRONMENTAL ENGINEERS

ENVIRONMENTAL LOG

Borehole No. **126**
1/1

Environmental logs are not to be used for geotechnical purposes

Client: NBRS ARCHITECTURE
Project: PROPOSED SCHOOL ADDITIONS
Location: CANTERBURY SOUTH PUBLIC SCHOOL, HIGH STREET, CANTERBURY, NSW

Job No. E31040K
Date: 12/7/18
Method: SPIRAL AUGER JK205
R.L. Surface:
Datum:
Logged/Checked by: J.H./V.B.

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 COMPL -ETION			0			FILL: Silty sand, fine to medium grained, dark brown, trace of igneous gravel and root fibres.	M			GRASS COVER 7.5Kg BUCKET JHF 8
		N = 6 2,3,3	0.5		CL-CI	Sandy CLAY: low to medium plasticity, orange and light grey, trace of ironstone gravel.	w<PL			
			1		-	SANDSTONE: fine to medium grained, red brown.				
			1.5			END OF BOREHOLE AT 1.5m				
			2							
			2.5							
			3							
			3.5							

ENVIRONMENTAL INVESTIGATION SERVICES

CONSULTING ENVIRONMENTAL ENGINEERS

ENVIRONMENTAL LOG

Borehole No.
127
1/1

Environmental logs are not to be used for geotechnical purposes

Client: NBRS ARCHITECTURE

Project: PROPOSED SCHOOL ADDITIONS

Location: CANTERBURY SOUTH PUBLIC SCHOOL, HIGH STREET, CANTERBURY, NSW

Job No. E31040K

Method: SPIRAL AUGER JK205

R.L. Surface:

Date: 12/7/18

Datum:

Logged/Checked by: J.H./V.B.

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 COMPL -ETION			0			FILL: Silty sand, fine to medium grained, dark brown, trace of brick, tile, igneous gravel and root fibres.	M			GRASS COVER 10.28kg BUCKET NO FCF
		N = 25 9,14,11	0.5		CL-CI	Sandy CLAY: low to medium plasticity, dark orange and red brown, trace of ironstone gravel	w<PL			
			1		-	SANDSTONE: fine to medium grained, red brown				
			1.5			END OF BOREHOLE AT 1.5m				
			2							
			2.5							
			3							
			3.5							

ENVIRONMENTAL INVESTIGATION SERVICES
CONSULTING ENVIRONMENTAL ENGINEERS

Borehole No.
128
1/1

ENVIRONMENTAL LOG

Environmental logs are not to be used for geotechnical purposes

Client: NBRS ARCHITECTURE
Project: PROPOSED SCHOOL ADDITIONS
Location: CANTERBURY SOUTH PUBLIC SCHOOL, HIGH STREET, CANTERBURY, NSW

Job No. E31040K
Method: SPIRAL AUGER JK205
R.L. Surface:
Date: 16/7/18
Datum:
Logged/Checked by: J.H./V.B.

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 COMPL -ETION			0			FILL: Silty sand, fine to medium grained, brown, trace igneous gravel and root fibres.	M			GRASS COVER 9.44kg BUCKET NO FCF
		N = 3 2,1,2	0.5		CL-CI	Sandy CLAY: low to medium plasticity, orange and light grey, trace of ironstone gravel.	w<PL			
			1		-	SANDSTONE: fine to medium grained, light grey light brown.				
			1.5			END OF BOREHOLE AT 1.6m				
			2							
			2.5							
			3							
			3.5							

ENVIRONMENTAL INVESTIGATION SERVICES
CONSULTING ENVIRONMENTAL ENGINEERS

ENVIRONMENTAL LOG

Borehole No.
129
1/1

Environmental logs are not to be used for geotechnical purposes

Client: NBRS ARCHITECTURE
Project: PROPOSED SCHOOL ADDITIONS
Location: CANTERBURY SOUTH PUBLIC SCHOOL, HIGH STREET, CANTERBURY, NSW

Job No. E31040K
Method: HAND AUGER
R.L. Surface:
Date: 17/7/18
Datum:
Logged/Checked by: J.H./V.B.

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 COMPL -ETION							0			FILL: Silty sand, fine to medium grained, dark brown, trace of brick fragments, ironstone gravel, sandstone gravel, asphaltic concrete fragments, shale fragments and plastic.	D			10.42kg BUCKET NO FCF
							0.5		CL-CI	Sandy CLAY: low to medium plasticity, red mottled light brown, trace of ironstone gravel.	w≈PL			
							1			END OF BOREHOLE AT 0.6m				HAND AUGER REFUSAL ON SUSPECTED INRONSTONE BAND
							1.5							
							2							
							2.5							
							3							
							3.5							

ENVIRONMENTAL INVESTIGATION SERVICES
CONSULTING ENVIRONMENTAL ENGINEERS

ENVIRONMENTAL LOG

Borehole No. 130

1/1

Environmental logs are not to be used for geotechnical purposes

Client: NBRS ARCHITECTURE

Project: PROPOSED SCHOOL ADDITIONS

Location: CANTERBURY SOUTH PUBLIC SCHOOL, HIGH STREET, CANTERBURY, NSW

Job No. E31040K **Method:** HAND AUGER **R.L. Surface:**

Date: 19/7/18 **Datum:**

Logged/Checked by: H.W./V.B.

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 COMPL -ETION							0			CONCRETE: 100mm.t.				CONCRETE COVER
	■				■				-	FILL: Clayey sand, fine to medium grained, red and light brown, trace of ironstone gravel and igneous gravel.	M			7.5kg BUCKET NO FCF
										as above, but red and brown with ironstone gravel bands, but similar? same profile? no igneous gravel.				HAND AUGER REFUSAL ON SUSPECTED IRONSTONE BAND
							0.5			END OF BOREHOLE AT 0.3m				
							1							
							1.5							
							2							
							2.5							
							3							
							3.5							

ENVIRONMENTAL INVESTIGATION SERVICES
CONSULTING ENVIRONMENTAL ENGINEERS

ENVIRONMENTAL LOG

Borehole No. **131**

1/1

Environmental logs are not to be used for geotechnical purposes

Client: NBRS ARCHITECTURE

Project: PROPOSED SCHOOL ADDITIONS

Location: CANTERBURY SOUTH PUBLIC SCHOOL, HIGH STREET, CANTERBURY, NSW

Job No. E31040K **Method:** HAND AUGER **R.L. Surface:**

Date: 13/7/18 **Datum:**

Logged/Checked by: J.H./V.B.

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 COMPL -ETION			0			FILL: Silty sand, fine to medium grained, brown, trace of igneous and ironstone gravel, brick, tile, ash and root fibres.	M			9.27kG BUCKET NO FCF
			0.5			FILL: Clayey sand, fine to medium grained, brown, trace of igneous, ironstone and sandstone gravel, brick, ash and shale.	M			10.15kg BUCKET NO FCF
			1							
			1.5			FILL: Gravel, fine to medium grained, dark grey, igneous, trace of sand.				
			2			END OF BOREHOLE AT 2.0m				HAND AUGER REFUSAL ON COMPACTED GRAVEL
			2.5							
			3							
			3.5							

ENVIRONMENTAL INVESTIGATION SERVICES
CONSULTING ENVIRONMENTAL ENGINEERS

ENVIRONMENTAL LOG

Borehole No.
132
1/1

Environmental logs are not to be used for geotechnical purposes

Client: NBRS ARCHITECTURE
Project: PROPOSED SCHOOL ADDITIONS
Location: CANTERBURY SOUTH PUBLIC SCHOOL, HIGH STREET, CANTERBURY, NSW

Job No. E31040K
Method: SPIRAL AUGER JK205
R.L. Surface:
Date: 11/7/18
Datum:
Logged/Checked by: J.H./V.B.

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 COMPL -ETION			0			FILL: Silty sand, fine to medium grained, dark brown, trace of igneous and ironstone gravel, ash, concrete and root fibres.	M			GRASS COVER 11.42kg BUCKET NO FCF
		N = 18 3,9,9	0.5			FILL: Silty clay, medium plasticity, dark brown, trace of igneous and ironstone gravel, ash and slag.	w<PL			9.80kg BUCKET NO FCF
			1		CL-CI	Sandy CLAY: low to medium plasticity, dark orange and red brown.	w<PL			
			1.5		-	SANDSTONE: fine to medium grained, yellow and light grey.				
						END OF BOREHOLE AT 1.7m				
			2							
			2.5							
			3							
			3.5							

ENVIRONMENTAL INVESTIGATION SERVICES

CONSULTING ENVIRONMENTAL ENGINEERS

ENVIRONMENTAL LOG

Borehole No.
133
1/1

Environmental logs are not to be used for geotechnical purposes

Client: NBRS ARCHITECTURE

Project: PROPOSED SCHOOL ADDITIONS

Location: CANTERBURY SOUTH PUBLIC SCHOOL, HIGH STREET, CANTERBURY, NSW

Job No. E31040K **Method:** SPIRAL AUGER JK205 **R.L. Surface:**

Date: 11/7/18 **Datum:**

Logged/Checked by: H.W./V.B.

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 COMPL -ETION			0			FILL: Silty sand, fine to medium grained, dark brown, trace of igneous gravel, shale fragments and root fibres.	M			GRASS COVER 10.15kg BUCKET NO FCF
		N = 16 8,11,5	0.5			FILL: Sandy clay, fine to medium grained, dark brown, trace of igneous gravel, ironstone gravel, ash and slag.	w≈PL			9.78kg BUCKET NO FCF
			1							
			1.5							
			2		-	SANDSTONE: fine to medium grained, red brown.				
						END OF BOREHOLE AT 2.2m				
			2.5							
			3							
			3.5							

ENVIRONMENTAL INVESTIGATION SERVICES
CONSULTING ENVIRONMENTAL ENGINEERS

ENVIRONMENTAL LOG

Borehole No.
134
1/1

Environmental logs are not to be used for geotechnical purposes

Client: NBRS ARCHITECTURE
Project: PROPOSED SCHOOL ADDITIONS
Location: CANTERBURY SOUTH PUBLIC SCHOOL, HIGH STREET, CANTERBURY, NSW

Job No. E31040K **Method:** HAND AUGER **R.L. Surface:**
Date: 19/7/18 **Datum:**
Logged/Checked by: H.W./V.B.

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 COMPL -ETION			0			CONCRETE: 100mm.t.				CONCRETE COVER
					-	FILL: Silty gravelly sand, fine to medium grained, dark brown, igneous gravel and ironstone gravel.	M			9.52kg BUCKET NO FCF
			0.5			as above, but trace of low to medium plasticity, sandy clay nodules.				
					CL-CI	Sandy CLAY: low to medium plasticity, yellow mottled red brown, trace of ironstone gravel and sandstone gravel.	w≈PL			
					-	SANDSTONE: fine to medium grained, red mottled light brown.				
			1			END OF BOREHOLE AT 1.0m				HAND AUGER REFUSAL ON SANDSTONE BEDROCK
			1.5							
			2							
			2.5							
			3							
			3.5							

ENVIRONMENTAL INVESTIGATION SERVICES
CONSULTING ENVIRONMENTAL ENGINEERS

Borehole No. **135**

1/1

ENVIRONMENTAL LOG

Environmental logs are not to be used for geotechnical purposes

Client: NBRS ARCHITECTURE

Project: PROPOSED SCHOOL ADDITIONS

Location: CANTERBURY SOUTH PUBLIC SCHOOL, HIGH STREET, CANTERBURY, NSW

Job No. E31040K **Method:** HAND AUGER **R.L. Surface:**

Date: 19/7/18 **Datum:**

Logged/Checked by: H.W./V.B.

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.				CONCRETE COVER
									-	FILL: Clayey sand, fine to medium grained, yellow and light brown, trace of ironstone gravel, igneous gravel, sandstone gravel and ash.	M			9.68kg BUCKET NO FCF
							0.5		CL-CI	Sandy CLAY: low to medium plasticity, yellow mottled light brown, trace of ironstone gravel.	w>PL			
										END OF BOREHOLE AT 0.6m				HAND AUGER REFUSAL ON SUSPECTED TERRACOTTA PIPE
							1							
							1.5							
							2							
							2.5							
							3							
							3.5							

ENVIRONMENTAL INVESTIGATION SERVICES
CONSULTING ENVIRONMENTAL ENGINEERS

ENVIRONMENTAL LOG

Borehole No.
136
1/1

Environmental logs are not to be used for geotechnical purposes

Client: NBRS ARCHITECTURE
Project: PROPOSED SCHOOL ADDITIONS
Location: CANTERBURY SOUTH PUBLIC SCHOOL, HIGH STREET, CANTERBURY, NSW

Job No. E31040K **Method:** SPIRAL AUGER JK205 **R.L. Surface:**
Date: 12/7/18 **Datum:**
Logged/Checked by: H.W./V.B.

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 COMPL -ETION							0			FILL: Silty sand, fine to medium grained, brown, trace of ironstone gravel, brick fragments and root fibres.	D			GRASS COVER 10.18kg BUCKET NO FCF
										as above, but with low to medium plasticity, sandy clay nodules.				
						N = 6 3,3,3	0.5							
							1		-	SANDSTONE: fine to medium grained, light brown.				
							1.5							
										END OF BOREHOLE AT 1.7m				
							2							
							2.5							
							3							
							3.5							

ENVIRONMENTAL INVESTIGATION SERVICES
CONSULTING ENVIRONMENTAL ENGINEERS

ENVIRONMENTAL LOG

Borehole No.
137
1/1

Environmental logs are not to be used for geotechnical purposes

Client: NBRS ARCHITECTURE
Project: PROPOSED SCHOOL ADDITIONS
Location: CANTERBURY SOUTH PUBLIC SCHOOL, HIGH STREET, CANTERBURY, NSW

Job No. E31040K
Method: SPIRAL AUGER JK205
R.L. Surface:
Date: 12/7/18
Datum:
Logged/Checked by: H.W./V.B.

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 COMPL -ETION			0			FILL: Silty sand, fine to medium grained, dark brown, trace of brick, igneous and ironstone gravel and root fibres.	M			GRASS COVER 7.94kg BUCKET JHF 7
		N = 17 5,6,11	0.5		CL-CI	Sandy CLAY: low to medium plasticity, light orange mottled red brown.	w<PL			
			1			as above, but with ironstone bands.				
					-	SANDSTONE: fine to medium grained, light orange mottled red brown, trace of ironstone gravel and clay nodules.	-			
			1.5			END OF BOREHOLE AT 1.5m				
			2							
			2.5							
			3							
			3.5							

ENVIRONMENTAL INVESTIGATION SERVICES
CONSULTING ENVIRONMENTAL ENGINEERS

ENVIRONMENTAL LOG

Borehole No. **138**
1/1

Environmental logs are not to be used for geotechnical purposes

Client: NBRS ARCHITECTURE
Project: PROPOSED SCHOOL ADDITIONS
Location: CANTERBURY SOUTH PUBLIC SCHOOL, HIGH STREET, CANTERBURY, NSW

Job No. E31040K
Date: 12/7/18
Method: SPIRAL AUGER JK205
R.L. Surface:
Datum:
Logged/Checked by: H.W./V.B.

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 COMPL -ETION			0			FILL: Silty sand, fine to medium grained, dark brown, trace of root fibres.	M			GRASS COVER 10.25kg BUCKET NO FCF
		N = 6 3,1,5	0.5		CL-CI	Sandy CLAY: low to medium plasticity, yellow mottled orange brown.	w≈PL			
			1		-	SANDSTONE: fine to medium grained, light grey.				
			1.5			END OF BOREHOLE AT 1.5m				
			2							
			2.5							
			3							
			3.5							

ENVIRONMENTAL INVESTIGATION SERVICES
CONSULTING ENVIRONMENTAL ENGINEERS

ENVIRONMENTAL LOG

Borehole No.
139
1/1

Environmental logs are not to be used for geotechnical purposes

Client: NBRS ARCHITECTURE
Project: PROPOSED SCHOOL ADDITIONS
Location: CANTERBURY SOUTH PUBLIC SCHOOL, HIGH STREET, CANTERBURY, NSW

Job No. E31040K
Date: 11/7/18
Method: SPIRAL AUGER JK205
R.L. Surface:
Datum:
Logged/Checked by: H.W./V.B.

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 COMPL -ETION			0			FILL: Clayey sand, fine to medium grained, dark brown, trace of ironstone gravel, slag and root fibres.	M			GRASS COVER 10.23kg BUCKET NO FCF
		N = 9 2,4,5	0.5			FILL: Sandy clay, low to medium plasticity, yellow brown, trace of ironstone gravel, igneous gravel, root fibres and ash.	w≈PL			10.2kg BUCKET NO FCF
			1		-	SANDSTONE: fine to medium grained, light brown.				
			1.5			as above, but red and brown.				
						END OF BOREHOLE AT 1.6m				
			2							
			2.5							
			3							
			3.5							

ENVIRONMENTAL INVESTIGATION SERVICES

CONSULTING ENVIRONMENTAL ENGINEERS

ENVIRONMENTAL LOG

Borehole No.
140
1/1

Environmental logs are not to be used for geotechnical purposes

Client: NBRS ARCHITECTURE

Project: PROPOSED SCHOOL ADDITIONS

Location: CANTERBURY SOUTH PUBLIC SCHOOL, HIGH STREET, CANTERBURY, NSW

Job No. E31040K **Method:** SPIRAL AUGER JK205 **R.L. Surface:**

Date: 11/7/18 **Datum:**

Logged/Checked by: H.W./V.B.

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 COMPL -ETION			0			FILL: Silty sand, fine to medium grained, dark brown, trace of ironstone gravel, slag and ash.	M			GRASS COVER 10.5kg BUCKET NO FCF
		N = 7 2,2,5	0.5			FILL: Sandy clay, low to medium plasticity, yellow brown mottled orange brown, trace of ironstone gravel, root fibres and ash.	w≈PL			10.52kg BUCKET NO FCF
			1		-	SANDSTONE: fine to medium grained, red mottled light brown.				
			1.5			END OF BOREHOLE AT 1.5m				
			2							
			2.5							
			3							
			3.5							

ENVIRONMENTAL INVESTIGATION SERVICES
CONSULTING ENVIRONMENTAL ENGINEERS

ENVIRONMENTAL LOG

Borehole No. **141**

1/1

Environmental logs are not to be used for geotechnical purposes

Client: NBRS ARCHITECTURE

Project: PROPOSED SCHOOL ADDITIONS

Location: CANTERBURY SOUTH PUBLIC SCHOOL, HIGH STREET, CANTERBURY, NSW

Job No. E31040K

Date: 11/7/18

Method: SPIRAL AUGER JK205

R.L. Surface:

Datum:

Logged/Checked by: H.W./V.B.

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 COMPL -ETION			0			FILL: Silty sand, fine to medium grained, dark brown, trace of root fibres.	M			GRASS COVER 9.7kg BUCKET NO FCF
						FILL: Sandy clay, low to medium plasticity, brown, trace of igneous gravel, ironstone gravel, shale fragments, brick fragments, concrete fragments, slag and ash.	w<PL			10.2kg BUCKET NO FCF
		N = 8 4,4,4	0.5							
			1							
			1.5		SP	SAND: fine to medium grained, red light brown.	M			
						as above, but light grey mottled light brown.				
			2							
			2.5		-	SANDSTONE: fine to medium grained, light grey.				
			3			END OF BOREHOLE AT 3.0m				
			3.5							

ENVIRONMENTAL INVESTIGATION SERVICES
CONSULTING ENVIRONMENTAL ENGINEERS

ENVIRONMENTAL LOG

Borehole No.
142
1/2

Environmental logs are not to be used for geotechnical purposes

Client: NBRS ARCHITECTURE
Project: PROPOSED SCHOOL ADDITIONS
Location: CANTERBURY SOUTH PUBLIC SCHOOL, HIGH STREET, CANTERBURY, NSW

Job No. E31040K
Date: 12/7/18
Method: SPIRAL AUGER JK205
R.L. Surface:
Datum:
Logged/Checked by: J.H./V.B.

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 COMPL -ETION			0			FILL: Silty sand, fine to medium grained, brown, trace of terracotta tile, brick fragments, concrete fragments, timber and root fibres.	M			GRASS COVER 8.2kg BUCKET NO FCF
		N = >7 4,7	0.5		CL-CI	Sandy CLAY: low to medium plasticity, red mottled orange brown.	w<PL			
		REFUSAL			-	SANDSTONE: fine to medium grained, orange mottled light grey.				
			1							
			1.5							
						as above, but red brown.				'TC' BIT REFUSAL INTRODUCED POTABLE WATER FOR ROCK CORING AT 1.8m
			2							
			2.5			as above, but yellow and light brown.				
			3							
			3.5							

ENVIRONMENTAL INVESTIGATION SERVICES
CONSULTING ENVIRONMENTAL ENGINEERS

ENVIRONMENTAL LOG

Borehole No. **142**

Environmental logs are not to be used for geotechnical purposes

Client: NBRS ARCHITECTURE
Project: PROPOSED SCHOOL ADDITIONS
Location: CANTERBURY SOUTH PUBLIC SCHOOL, HIGH STREET, CANTERBURY, NSW

Job No. E31040K
Date: 12/7/18
Method: SPIRAL AUGER JK205
R.L. Surface:
Datum:
Logged/Checked by: J.H./V.B.

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, 4.5			SANDSTONE: fine to medium grained, yellow and light brown.				
							5, 5.5, 6			as above, but yellow brown.				Groundwater monitoring well installed to 6.0m. Class 18 machine slotted 50mm dia. PVC standpipe 3.0m to 6.0m. Casing 0.0m to 3.0m. 2mm sand filter pack 2.5m to 6.0m. Bentonite seal 0.5m to 2.5m. Backfilled with sand (and/ or cuttings) to the surface. Completed with a concreted gatic cover.
							6.5, 7			END OF BOREHOLE AT 6.0m				

ENVIRONMENTAL INVESTIGATION SERVICES
CONSULTING ENVIRONMENTAL ENGINEERS

ENVIRONMENTAL LOG

Borehole No.
143
1/2

Environmental logs are not to be used for geotechnical purposes

Client: NBRS ARCHITECTURE
Project: PROPOSED SCHOOL ADDITIONS
Location: CANTERBURY SOUTH PUBLIC SCHOOL, HIGH STREET, CANTERBURY, NSW

Job No. E31040K
Date: 13/7/18
Method: SPIRAL AUGER JK205
R.L. Surface:
Datum:
Logged/Checked by: J.H./V.B.

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 COMPL -ETION			0			CONCRETE: 150mm.t.				CONCRETE COVER
					-	FILL: Gravelly sandy clay, medium plasticity, dark brown, igneous gravel.	w<PL			12.50kg BUCKET NO FCF
		N = 27 4,13,14	0.5		-	FILL: Gravelly clay, medium plasticity, dark brown, igneous gravel, trace of shale.	w<PL			10.20kg BUCKET NO FCF
			1							
			1.5		SC	Clayey SAND: fine to medium grained, light orange yellow brown.	M			
			2		-	SANDSTONE: fine to medium grained, light orange brown.				
			2.5							
			3			as above, but light brown.				
			3.5							

ENVIRONMENTAL LOG

Borehole No.
143

Environmental logs are not to be used for geotechnical purposes

Client: NBRS ARCHITECTURE
Project: PROPOSED SCHOOL ADDITIONS
Location: CANTERBURY SOUTH PUBLIC SCHOOL, HIGH STREET, CANTERBURY, NSW

Job No. E31040K
Date: 13/7/18
Method: SPIRAL AUGER JK205
R.L. Surface:
Datum:
Logged/Checked by: J.H./V.B.

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
										SANDSTONE: fine to medium grained, light brown.				
							4			as above, but grey.				
							4.5			as above, but yellow brown.				
							5							Groundwater monitoring well installed to 6.0m. Class 18 machine slotted 50mm dia. PVC standpipe 3.0m to 6.0m. Casing 0.5m to 3.0m. 2mm sand filter pack 2.5m to 6.0m. Bentonite seal 0.0m to 2.5m. Backfilled with sand (and/ or cuttings) to the surface. Completed with a concreted gatic cover.
							5.5							
							6			END OF BOREHOLE AT 6.0m				
							6.5							
							7							

ENVIRONMENTAL INVESTIGATION SERVICES
CONSULTING ENVIRONMENTAL ENGINEERS

ENVIRONMENTAL LOG

Borehole No. **144**
1/1

Environmental logs are not to be used for geotechnical purposes

Client: NBRS ARCHITECTURE
Project: PROPOSED SCHOOL ADDITIONS
Location: CANTERBURY SOUTH PUBLIC SCHOOL, HIGH STREET, CANTERBURY, NSW

Job No. E31040K
Date: 12/7/18
Method: SPIRAL AUGER JK205
R.L. Surface:
Datum:
Logged/Checked by: H.W./V.B.

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 COMPL -ETION			0			FILL: Silty sand, fine to medium grained, brown, trace of ironstone gravel and root fibres.	D			GRASS COVER 8.24kg BUCKET NO FCF
		N = 12 7,8,4	0.5		CL-CI	Sandy CLAY: low to medium plasticity, yellow and light brown, trace of ironstone gravel.	w<PL			
			1			Sandy CLAY: low to medium plasticity, light grey.	w≈PL			
			1.5							
						END OF BOREHOLE AT 1.6m				
			2							
			2.5							
			3							
			3.5							

ENVIRONMENTAL INVESTIGATION SERVICES

CONSULTING ENVIRONMENTAL ENGINEERS

ENVIRONMENTAL LOG

Borehole No.
145
1/1

Environmental logs are not to be used for geotechnical purposes

Client: NBRS ARCHITECTURE

Project: PROPOSED SCHOOL ADDITIONS

Location: CANTERBURY SOUTH PUBLIC SCHOOL, HIGH STREET, CANTERBURY, NSW

Job No. E31040K **Method:** HAND AUGER **R.L. Surface:**

Date: 18/7/18 **Datum:**

Logged/Checked by: H.W./V.B.

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 COMPL -ETION			0			ASPHALT: 40mm.t.				ASPHALTIC COVER
					-	FILL: Silty gravelly sand, fine to medium grained, dark brown and grey, trace of igneous gravel, ironstone gravel and asphaltic concrete fragments.	M			9.78kg BUCKET NO FCF; 9.25kg BUCKET NO FCF
			0.5			as above, but with low to medium plasticity, clay nodules.				HAND AUGER REFUSAL
						END OF BOREHOLE AT 0.4m				
			1							
			1.5							
			2							
			2.5							
			3							
			3.5							

ENVIRONMENTAL INVESTIGATION SERVICES
CONSULTING ENVIRONMENTAL ENGINEERS

ENVIRONMENTAL LOG

Borehole No. **146**
1/1

Environmental logs are not to be used for geotechnical purposes

Client: NBRS ARCHITECTURE
Project: PROPOSED SCHOOL ADDITIONS
Location: CANTERBURY SOUTH PUBLIC SCHOOL, HIGH STREET, CANTERBURY, NSW

Job No. E31040K **Method:** HAND AUGER **R.L. Surface:**
Date: 17/7/18 **Datum:**
Logged/Checked by: J.H./V.B.

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 COMPL -ETION			0			ASPHALT: 40mm.t.				ASPHALTIC COVER
					-	FILL: Gravelly sand, medium grained, dark grey, igneous gravel, trace of slag.	M			7.82kg BUCKET NO FCF
					CI	Sandy CLAY: medium plasticity, light brown mottled red and orange brown, trace of ironstone gravel.	w≈PL			
			0.5			as above, but red and orange mottled light grey.				
						END OF BOREHOLE AT 0.65m				
			1							
			1.5							
			2							
			2.5							
			3							
			3.5							

ENVIRONMENTAL INVESTIGATION SERVICES
CONSULTING ENVIRONMENTAL ENGINEERS

ENVIRONMENTAL LOG

Borehole No. **147**

1/1

Environmental logs are not to be used for geotechnical purposes

Client: NBRS ARCHITECTURE

Project: PROPOSED SCHOOL ADDITIONS

Location: CANTERBURY SOUTH PUBLIC SCHOOL, HIGH STREET, CANTERBURY, NSW

Job No. E31040K **Method:** SPIRAL AUGER JK205 **R.L. Surface:**

Date: 16/7/18 **Datum:**

Logged/Checked by: H.W./V.B.

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 COMPL -ETION			0			FILL: Silty sand, fine to medium grained, dark brown, trace of igneous gravel and root fibres.	D			GRASS COVER 10.66kg BUCKET NO FCF
		N = 5 4,3,2	0.5		CL-CI	Sandy CLAY: low to medium plasticity, yellow and light brown, trace of ironstone gravel.	w≈PL			
			1			Sandy CLAY: low to medium plasticity, red mottled light grey.				
			1.5			END OF BOREHOLE AT 1.5m				
			2							
			2.5							
			3							
			3.5							

ENVIRONMENTAL INVESTIGATION SERVICES
CONSULTING ENVIRONMENTAL ENGINEERS

ENVIRONMENTAL LOG

Borehole No. 148
1/1

Environmental logs are not to be used for geotechnical purposes

Client: NBRS ARCHITECTURE
Project: PROPOSED SCHOOL ADDITIONS
Location: CANTERBURY SOUTH PUBLIC SCHOOL, HIGH STREET, CANTERBURY, NSW

Job No. E31040K **Method:** HAND AUGER **R.L. Surface:**
Date: 18/7/18 **Datum:**
Logged/Checked by: J.H./V.B.

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 COMPL -ETION			0			ASPHALT: 40mm.t.				ASPHALTIC COVER
					-	FILL: Gravelly sand, fine to medium grained, dark grey, igneous gravel, trace ironstone gravel.	M			7.66kg BUCKET NO FCF
					CL-CI	Sandy CLAY: low to medium plasticity, orange mottled light grey, trace ironstone gravel and cobbles.	w<PL			
			0.5			END OF BOREHOLE AT 0.5m				HAND AUGER REFUSAL ON SUSPECTED IRONSTONE ROCK
			1							
			1.5							
			2							
			2.5							
			3							
			3.5							

ENVIRONMENTAL INVESTIGATION SERVICES
CONSULTING ENVIRONMENTAL ENGINEERS

ENVIRONMENTAL LOG

Borehole No.
149
1/1

Environmental logs are not to be used for geotechnical purposes

Client: NBRS ARCHITECTURE
Project: PROPOSED SCHOOL ADDITIONS
Location: CANTERBURY SOUTH PUBLIC SCHOOL, HIGH STREET, CANTERBURY, NSW

Job No. E31040K | **Method:** SPIRAL AUGER JK205 | **R.L. Surface:**
Date: 12/7/18 | **Datum:**
Logged/Checked by: H.W./V.B.

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 COMPL -ETION			0			FILL: Silty sand, fine to medium grained, brown, trace of ironstone gravel, igneous gravel and root fibres.	M			GRASS COVER 9.5kg BUCKET NO FCF
		N = 6 6,3,3	0.5		CL-CI	Sandy CLAY: low to medium plasticity, light orange mottled red brown.	w≈PL			
			1							
			1.5		-	SANDSTONE: fine to medium grained, light grey.				
						END OF BOREHOLE AT 1.6m				
			2							
			2.5							
			3							
			3.5							

ENVIRONMENTAL INVESTIGATION SERVICES
CONSULTING ENVIRONMENTAL ENGINEERS

ENVIRONMENTAL LOG

Borehole No.
150
1/1

Environmental logs are not to be used for geotechnical purposes

Client: NBRS ARCHITECTURE
Project: PROPOSED SCHOOL ADDITIONS
Location: CANTERBURY SOUTH PUBLIC SCHOOL, HIGH STREET, CANTERBURY, NSW

Job No. E31040K
Date: 12/7/18
Method: SPIRAL AUGER JK205
Logged/Checked by: J.H./V.B.
R.L. Surface:
Datum:

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 COMPL -ETION			0			FILL: Silty sand, fine to medium grained, brown, trace of igneous gravel and root fibres.	M			GRASS COVER 7.2kg BUCKET NO FCF
		N = 17 7,9,8	0.5		CL-CI	Sandy CLAY: low to medium plasticity, dark orange and red brown, trace of ironstone gravel.	w<PL			
			1		-	SANDSTONE: fine to medium grained, red brown.				
			1.5			END OF BOREHOLE AT 1.5m				
			2							
			2.5							
			3							
			3.5							

ENVIRONMENTAL LOGS EXPLANATORY 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:

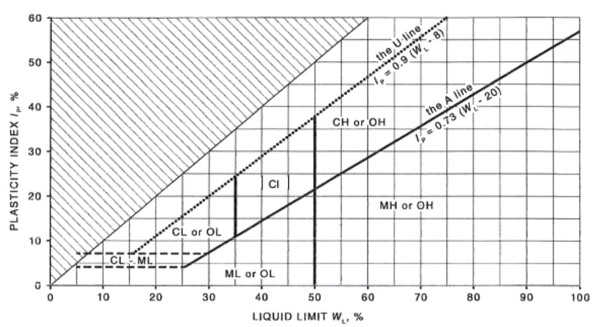
1 For a coarse grained soil with a fines content between 5% and 12%, the soil is given a dual classification comprising the two group symbols separated by a dash; for example, for a poorly graded gravel with between 5% and 12% silt fines, the classification is GP-GM.

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.
	$w \approx$ PL	Moisture content estimated to be approximately equal to plastic limit.
	w < PL	Moisture content estimated to be less than plastic limit.
	$w \approx$ 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.		
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

<table>
<tr><th colspan="2">Term</th><th colspan="2">Abbreviation</th><th>Definition</th></tr>
<tr><td colspan="2">Residual Soil</td><td colspan="2">RS</td><td>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.</td></tr>
<tr><td colspan="2">Extremely Weathered</td><td colspan="2">XW</td><td>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.</td></tr>
<tr><td>Highly Weathered</td><td rowspan="2">Distinctly Weathered (Note 1)</td><td>HW</td><td rowspan="2">DW</td><td>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.</td></tr>
<tr><td>Moderately Weathered</td><td>MW</td><td>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.</td></tr>
<tr><td colspan="2">Slightly Weathered</td><td colspan="2">SW</td><td>Rock is partially discoloured with staining or bleaching along joints but shows little or no change of strength from fresh rock.</td></tr>
<tr><td colspan="2">Fresh</td><td colspan="2">FR</td><td>Rock shows no sign of decomposition of individual minerals or colour changes.</td></tr>
</table>

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

Rock Material Strength Classification

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

Appendix E: Laboratory Reports & COC Documents

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 196637

Client Details

Client	Environmental Investigation Services
Attention	Vittal Boggaram
Address	PO Box 976, North Ryde BC, NSW, 1670

Sample Details

Your Reference	**E31040K, Canterbury South**
Number of Samples	213 soil, 2 water, 15 material
Date samples received	19/07/2018
Date completed instructions received	19/07/2018

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	27/07/2018
Date of Issue	27/07/2018

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

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

Asbestos Approved By

Analysed by Asbestos Approved Identifier: Matt Tang, Lucy Zhu
Authorised by Asbestos Approved Signatory: Lucy Zhu

Results Approved By

Jeremy Faircloth, Organics Supervisor
Ken Nguyen, Senior Chemist
Lucy Zhu, Asbsestos Analyst
Matthew Tang, Asbsestos Analyst
Steven Luong, Senior Chemist

Authorised By

Jacinta Hurst, Laboratory Manager

vTRH(C6-C10)/BTEXN in Soil						
Our Reference		196637-1	196637-4	196637-7	196637-12	196637-14
Your Reference	UNITS	BH101	BH102	BH103	BH105	BH106
Depth		0-0.2	0-0.2	0-0.2	0.03-0.2	0.03-0.2
Date Sampled		11/07/2018	16/07/2018	16/07/2018	11/07/2018	11/07/2018
Type of sample		soil	soil	soil	soil	soil
Date extracted	-	23/07/2018	23/07/2018	23/07/2018	23/07/2018	23/07/2018
Date analysed	-	24/07/2018	24/07/2018	24/07/2018	24/07/2018	24/07/2018
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	%	104	103	97	99	95

vTRH(C6-C10)/BTEXN in Soil						
Our Reference		196637-19	196637-26	196637-28	196637-31	196637-35
Your Reference	UNITS	BH108	BH110	BH111	BH112	BH113
Depth		0-0.2	0-0.3	0-0.2	0-0.2	0.5-0.7
Date Sampled		16/07/2018	16/07/2018	12/07/2018	12/07/2018	17/07/2018
Type of sample		soil	soil	soil	soil	soil
Date extracted	-	23/07/2018	23/07/2018	23/07/2018	23/07/2018	23/07/2018
Date analysed	-	24/07/2018	24/07/2018	24/07/2018	24/07/2018	24/07/2018
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	%	95	93	98	98	101

vTRH(C6-C10)/BTEXN in Soil						
Our Reference		196637-37	196637-40	196637-43	196637-46	196637-49
Your Reference	UNITS	BH114	BH115	BH116	BH117	BH118
Depth		0-0.2	0-0.2	0.03-0.2	0-0.2	0-0.2
Date Sampled		17/07/2018	16/07/2018	11/07/2018	11/07/2018	16/07/2018
Type of sample		soil	soil	soil	soil	soil
Date extracted	-	23/07/2018	23/07/2018	23/07/2018	23/07/2018	23/07/2018
Date analysed	-	24/07/2018	24/07/2018	24/07/2018	24/07/2018	24/07/2018
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	%	95	92	89	102	96

vTRH(C6-C10)/BTEXN in Soil						
Our Reference		196637-51	196637-56	196637-60	196637-63	196637-66
Your Reference	UNITS	BH119	BH121	BH122	BH123	BH124
Depth		0-0.2	0-0.2	0-0.2	0-0.2	0-0.2
Date Sampled		11/07/2018	11/07/2018	11/07/2018	11/07/2018	11/07/2018
Type of sample		soil	soil	soil	soil	soil
Date extracted	-	23/07/2018	23/07/2018	23/07/2018	23/07/2018	23/07/2018
Date analysed	-	24/07/2018	24/07/2018	24/07/2018	24/07/2018	24/07/2018
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	95	92	103	95

vTRH(C6-C10)/BTEXN in Soil						
Our Reference		196637-69	196637-72	196637-78	196637-81	196637-84
Your Reference	UNITS	BH125	BH126	BH128	BH129	BH131
Depth		0-0.2	0-0.2	0-0.2	0-0.2	0-0.2
Date Sampled		11/07/2018	11/07/2018	11/07/2018	11/07/2018	11/07/2018
Type of sample		soil	soil	soil	soil	soil
Date extracted	-	23/07/2018	23/07/2018	23/07/2018	23/07/2018	23/07/2018
Date analysed	-	24/07/2018	24/07/2018	24/07/2018	24/07/2018	24/07/2018
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	98	109	102	93

vTRH(C6-C10)/BTEXN in Soil						
Our Reference		196637-87	196637-92	196637-97	196637-102	196637-105
Your Reference	UNITS	BH132	BH133	BH135	BH137	BH138
Depth		0-0.2	0.7-0.95	0.1-0.3	0-0.2	0-0.2
Date Sampled		11/07/2018	11/07/2018	11/07/2018	11/07/2018	11/07/2018
Type of sample		soil	soil	soil	soil	soil
Date extracted	-	23/07/2018	23/07/2018	23/07/2018	23/07/2018	23/07/2018
Date analysed	-	24/07/2018	24/07/2018	24/07/2018	24/07/2018	24/07/2018
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	%	86	96	94	99	94

vTRH(C6-C10)/BTEXN in Soil						
Our Reference		196637-107	196637-111	196637-115	196637-119	196637-122
Your Reference	UNITS	BH139	BH140	BH141	BH142	BH143
Depth		0-0.2	0-0.2	0.2-0.5	0-0.2	0.15-0.35
Date Sampled		11/07/2018	11/07/2018	11/07/2018	11/07/2018	11/07/2018
Type of sample		soil	soil	soil	soil	soil
Date extracted	-	23/07/2018	23/07/2018	23/07/2018	23/07/2018	23/07/2018
Date analysed	-	24/07/2018	24/07/2018	24/07/2018	24/07/2018	24/07/2018
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	%	90	94	98	103	101

vTRH(C6-C10)/BTEXN in Soil						
Our Reference		196637-126	196637-129	196637-131	196637-133	196637-136
Your Reference	UNITS	BH144	BH145	BH146	BH147	BH148
Depth		0-0.2	0.04-0.2	0.04-0.2	0-0.2	0.04-0.2
Date Sampled		11/07/2018	11/07/2018	11/07/2018	11/07/2018	11/07/2018
Type of sample		soil	soil	soil	soil	soil
Date extracted	-	23/07/2018	24/07/2018	24/07/2018	24/07/2018	24/07/2018
Date analysed	-	24/07/2018	25/07/2018	25/07/2018	25/07/2018	25/07/2018
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	106	106	107	126

vTRH(C6-C10)/BTEXN in Soil						
Our Reference		196637-138	196637-141	196637-142	196637-208	196637-209
Your Reference	UNITS	BH149	BH150	BH150	JHDUP3	JHDUP4
Depth		0-0.2	0-0.1	0.7-0.95	-	-
Date Sampled		11/07/2018	11/07/2018	11/07/2018	11/07/2018	11/07/2018
Type of sample		soil	soil	soil	soil	soil
Date extracted	-	24/07/2018	24/07/2018	24/07/2018	24/07/2018	24/07/2018
Date analysed	-	25/07/2018	25/07/2018	25/07/2018	25/07/2018	25/07/2018
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	%	105	110	104	103	102

vTRH(C6-C10)/BTEXN in Soil				
Our Reference		196637-210	196637-213	196637-214
Your Reference	UNITS	JHDUP5	TB1	TB2
Depth		-	-	-
Date Sampled		11/07/2018	11/07/2018	11/07/2018
Type of sample		soil	soil	soil
Date extracted	-	23/07/2018	23/07/2018	23/07/2018
Date analysed	-	24/07/2018	24/07/2018	24/07/2018
TRH C_6 - C_9	mg/kg	<25	<25	<25
TRH C_6 - C_{10}	mg/kg	<25	<25	<25
vTPH 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 +ve Xylenes	mg/kg	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	80	108	123

svTRH (C10-C40) in Soil						
Our Reference		196637-1	196637-4	196637-7	196637-12	196637-14
Your Reference	UNITS	BH101	BH102	BH103	BH105	BH106
Depth		0-0.2	0-0.2	0-0.2	0.03-0.2	0.03-0.2
Date Sampled		11/07/2018	16/07/2018	16/07/2018	11/07/2018	11/07/2018
Type of sample		soil	soil	soil	soil	soil
Date extracted	-	23/07/2018	23/07/2018	23/07/2018	23/07/2018	23/07/2018
Date analysed	-	23/07/2018	23/07/2018	23/07/2018	23/07/2018	23/07/2018
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
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	100	<50	<50	<50
Surrogate o-Terphenyl	%	91	93	89	89	90

svTRH (C10-C40) in Soil						
Our Reference		196637-19	196637-26	196637-28	196637-31	196637-35
Your Reference	UNITS	BH108	BH110	BH111	BH112	BH113
Depth		0-0.2	0-0.3	0-0.2	0-0.2	0.5-0.7
Date Sampled		16/07/2018	16/07/2018	12/07/2018	12/07/2018	17/07/2018
Type of sample		soil	soil	soil	soil	soil
Date extracted	-	23/07/2018	23/07/2018	23/07/2018	23/07/2018	23/07/2018
Date analysed	-	23/07/2018	23/07/2018	23/07/2018	23/07/2018	23/07/2018
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	140	<100	100
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	140	<100	110
TRH >C_{34} -C_{40}	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	140	<50	110
Surrogate o-Terphenyl	%	89	91	90	89	89

svTRH (C10-C40) in Soil						
Our Reference		196637-37	196637-40	196637-43	196637-46	196637-49
Your Reference	UNITS	BH114	BH115	BH116	BH117	BH118
Depth		0-0.2	0-0.2	0.03-0.2	0-0.2	0-0.2
Date Sampled		17/07/2018	16/07/2018	11/07/2018	11/07/2018	16/07/2018
Type of sample		soil	soil	soil	soil	soil
Date extracted	-	23/07/2018	23/07/2018	23/07/2018	23/07/2018	24/07/2018
Date analysed	-	23/07/2018	23/07/2018	24/07/2018	24/07/2018	25/07/2018
TRH C_{10} - C_{14}	mg/kg	<50	<50	<50	<50	<50
TRH C_{15} - C_{28}	mg/kg	<100	<100	<100	<100	270
TRH C_{29} - C_{36}	mg/kg	140	<100	110	<100	140
TRH >C_{10} -C_{16}	mg/kg	<50	<50	<50	<50	<50
TRH >C_{10} - C_{16} less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH >C_{16} -C_{34}	mg/kg	120	<100	<100	<100	240
TRH >C_{34} -C_{40}	mg/kg	<100	<100	120	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	120	<50	120	<50	240
Surrogate o-Terphenyl	%	89	90	91	89	84

svTRH (C10-C40) in Soil						
Our Reference		196637-51	196637-56	196637-60	196637-63	196637-66
Your Reference	UNITS	BH119	BH121	BH122	BH123	BH124
Depth		0-0.2	0-0.2	0-0.2	0-0.2	0-0.2
Date Sampled		11/07/2018	11/07/2018	11/07/2018	11/07/2018	11/07/2018
Type of sample		soil	soil	soil	soil	soil
Date extracted	-	23/07/2018	23/07/2018	23/07/2018	23/07/2018	23/07/2018
Date analysed	-	24/07/2018	24/07/2018	24/07/2018	24/07/2018	24/07/2018
TRH C_{10} - C_{14}	mg/kg	<50	<50	<50	<50	<50
TRH C_{15} - C_{28}	mg/kg	220	<100	<100	170	<100
TRH C_{29} - C_{36}	mg/kg	180	<100	<100	160	<100
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	230	<100	<100	190	<100
TRH >C_{34} -C_{40}	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	230	<50	<50	190	<50
Surrogate o-Terphenyl	%	92	89	90	92	89

svTRH (C10-C40) in Soil						
Our Reference		196637-69	196637-72	196637-78	196637-81	196637-84
Your Reference	UNITS	BH125	BH126	BH128	BH129	BH131
Depth		0-0.2	0-0.2	0-0.2	0-0.2	0-0.2
Date Sampled		11/07/2018	11/07/2018	11/07/2018	11/07/2018	11/07/2018
Type of sample		soil	soil	soil	soil	soil
Date extracted	-	23/07/2018	23/07/2018	23/07/2018	23/07/2018	23/07/2018
Date analysed	-	24/07/2018	24/07/2018	24/07/2018	24/07/2018	24/07/2018
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	120	<100	<100	<100	<100
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	100	<50	<50	<50	<50
Surrogate o-Terphenyl	%	92	89	97	100	107

svTRH (C10-C40) in Soil						
Our Reference		196637-87	196637-92	196637-97	196637-102	196637-105
Your Reference	UNITS	BH132	BH133	BH135	BH137	BH138
Depth		0-0.2	0.7-0.95	0.1-0.3	0-0.2	0-0.2
Date Sampled		11/07/2018	11/07/2018	11/07/2018	11/07/2018	11/07/2018
Type of sample		soil	soil	soil	soil	soil
Date extracted	-	23/07/2018	23/07/2018	23/07/2018	23/07/2018	23/07/2018
Date analysed	-	24/07/2018	24/07/2018	24/07/2018	24/07/2018	24/07/2018
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
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	%	89	89	88	88	88

svTRH (C10-C40) in Soil						
Our Reference		196637-107	196637-111	196637-115	196637-119	196637-122
Your Reference	UNITS	BH139	BH140	BH141	BH142	BH143
Depth		0-0.2	0-0.2	0.2-0.5	0-0.2	0.15-0.35
Date Sampled		11/07/2018	11/07/2018	11/07/2018	11/07/2018	11/07/2018
Type of sample		soil	soil	soil	soil	soil
Date extracted	-	23/07/2018	23/07/2018	23/07/2018	23/07/2018	23/07/2018
Date analysed	-	24/07/2018	24/07/2018	24/07/2018	24/07/2018	24/07/2018
TRH C_{10} - C_{14}	mg/kg	<50	<50	<50	67	<50
TRH C_{15} - C_{28}	mg/kg	<100	<100	<100	420	<100
TRH C_{29} - C_{36}	mg/kg	<100	<100	<100	280	<100
TRH >C_{10} -C_{16}	mg/kg	<50	<50	<50	120	<50
TRH >C_{10} - C_{16} less Naphthalene (F2)	mg/kg	<50	<50	<50	120	<50
TRH >C_{16} -C_{34}	mg/kg	<100	<100	<100	360	<100
TRH >C_{34} -C_{40}	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	<50	480	<50
Surrogate o-Terphenyl	%	87	88	87	92	87

svTRH (C10-C40) in Soil						
Our Reference		196637-126	196637-129	196637-131	196637-133	196637-136
Your Reference	UNITS	BH144	BH145	BH146	BH147	BH148
Depth		0-0.2	0.04-0.2	0.04-0.2	0-0.2	0.04-0.2
Date Sampled		11/07/2018	11/07/2018	11/07/2018	11/07/2018	11/07/2018
Type of sample		soil	soil	soil	soil	soil
Date extracted	-	23/07/2018	23/07/2018	23/07/2018	23/07/2018	23/07/2018
Date analysed	-	24/07/2018	23/07/2018	23/07/2018	23/07/2018	23/07/2018
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
TRH >C_{10} -C_{16}	mg/kg	<50	<50	<50	<50	<50
TRH >C_{10} - C_{16} less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH >C_{16} -C_{34}	mg/kg	<100	<100	<100	<100	<100
TRH >C_{34} -C_{40}	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	<50	<50	<50
Surrogate o-Terphenyl	%	88	85	83	84	85

svTRH (C10-C40) in Soil						
Our Reference		196637-138	196637-141	196637-142	196637-208	196637-209
Your Reference	UNITS	BH149	BH150	BH150	JHDUP3	JHDUP4
Depth		0-0.2	0-0.1	0.7-0.95	-	-
Date Sampled		11/07/2018	11/07/2018	11/07/2018	11/07/2018	11/07/2018
Type of sample		soil	soil	soil	soil	soil
Date extracted	-	23/07/2018	23/07/2018	23/07/2018	23/07/2018	23/07/2018
Date analysed	-	23/07/2018	23/07/2018	23/07/2018	23/07/2018	23/07/2018
TRH C_{10} - C_{14}	mg/kg	<50	100	<50	69	<50
TRH C_{15} - C_{28}	mg/kg	<100	660	<100	210	<100
TRH C_{29} - C_{36}	mg/kg	<100	740	<100	300	<100
TRH >C_{10} -C_{16}	mg/kg	<50	230	<50	98	<50
TRH >C_{10} - C_{16} less Naphthalene (F2)	mg/kg	<50	230	<50	98	<50
TRH >C_{16} -C_{34}	mg/kg	<100	1,100	<100	370	<100
TRH >C_{34} -C_{40}	mg/kg	<100	310	<100	120	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	1,600	<50	580	<50
Surrogate o-Terphenyl	%	83	98	83	87	81

svTRH (C10-C40) in Soil		
Our Reference		196637-210
Your Reference	UNITS	JHDUP5
Depth		-
Date Sampled		11/07/2018
Type of sample		soil
Date extracted	-	23/07/2018
Date analysed	-	23/07/2018
TRH C_{10} - C_{14}	mg/kg	<50
TRH C_{15} - C_{28}	mg/kg	<100
TRH C_{29} - C_{36}	mg/kg	<100
TRH >C_{10} -C_{16}	mg/kg	<50
TRH >C_{10} - C_{16} less Naphthalene (F2)	mg/kg	<50
TRH >C_{16} -C_{34}	mg/kg	<100
TRH >C_{34} -C_{40}	mg/kg	<100
Total +ve TRH (>C10-C40)	mg/kg	<50
Surrogate o-Terphenyl	%	84

PAHs in Soil						
Our Reference		196637-1	196637-4	196637-7	196637-12	196637-14
Your Reference	UNITS	BH101	BH102	BH103	BH105	BH106
Depth		0-0.2	0-0.2	0-0.2	0.03-0.2	0.03-0.2
Date Sampled		11/07/2018	16/07/2018	16/07/2018	11/07/2018	11/07/2018
Type of sample		soil	soil	soil	soil	soil
Date extracted	-	23/07/2018	23/07/2018	23/07/2018	23/07/2018	23/07/2018
Date analysed	-	24/07/2018	24/07/2018	24/07/2018	24/07/2018	24/07/2018
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	0.2
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	0.3	0.1	0.1	0.2	0.1
Pyrene	mg/kg	0.4	0.1	0.1	0.1	0.1
Benzo(a)anthracene	mg/kg	0.2	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	0.3	<0.1	0.1	<0.1	0.1
Benzo(b,j+k)fluoranthene	mg/kg	0.5	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	0.3	0.08	0.1	0.1	0.1
Indeno(1,2,3-c,d)pyrene	mg/kg	0.2	<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	2.3	0.3	0.5	0.4	0.68
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	%	85	86	86	87	87

PAHs in Soil						
Our Reference		196637-19	196637-26	196637-28	196637-31	196637-35
Your Reference	UNITS	BH108	BH110	BH111	BH112	BH113
Depth		0-0.2	0-0.3	0-0.2	0-0.2	0.5-0.7
Date Sampled		16/07/2018	16/07/2018	12/07/2018	12/07/2018	17/07/2018
Type of sample		soil	soil	soil	soil	soil
Date extracted	-	23/07/2018	23/07/2018	23/07/2018	23/07/2018	23/07/2018
Date analysed	-	24/07/2018	24/07/2018	24/07/2018	24/07/2018	24/07/2018
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	0.5	<0.1	0.2
Pyrene	mg/kg	<0.1	0.1	0.6	<0.1	0.2
Benzo(a)anthracene	mg/kg	<0.1	<0.1	0.4	<0.1	0.1
Chrysene	mg/kg	<0.1	<0.1	0.4	<0.1	0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2	0.9	<0.2	<0.2
Benzo(a)pyrene	mg/kg	0.06	0.08	0.5	<0.05	0.1
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	0.3	<0.1	<0.1
Total +ve PAH's	mg/kg	0.06	0.3	4.0	<0.05	0.60
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	0.7	<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	%	87	85	89	87	87

PAHs in Soil						
Our Reference		196637-37	196637-40	196637-43	196637-46	196637-49
Your Reference	UNITS	BH114	BH115	BH116	BH117	BH118
Depth		0-0.2	0-0.2	0.03-0.2	0-0.2	0-0.2
Date Sampled		17/07/2018	16/07/2018	11/07/2018	11/07/2018	16/07/2018
Type of sample		soil	soil	soil	soil	soil
Date extracted	-	23/07/2018	23/07/2018	23/07/2018	23/07/2018	23/07/2018
Date analysed	-	24/07/2018	24/07/2018	24/07/2018	24/07/2018	24/07/2018
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	0.4
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	0.2
Phenanthrene	mg/kg	<0.1	<0.1	0.2	<0.1	3.7
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	1
Fluoranthene	mg/kg	<0.1	<0.1	0.1	<0.1	12
Pyrene	mg/kg	<0.1	<0.1	0.1	<0.1	13
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	6.4
Chrysene	mg/kg	<0.1	<0.1	0.1	<0.1	4.8
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2	7.7
Benzo(a)pyrene	mg/kg	0.06	<0.05	0.06	<0.05	5.6
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	2.2
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	0.6
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1	2.6
Total +ve PAH's	mg/kg	0.06	<0.05	0.52	<0.05	60
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5	<0.5	8.0
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5	<0.5	8.0
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5	<0.5	8.0
Surrogate p-Terphenyl-d14	%	86	85	87	89	102

PAHs in Soil						
Our Reference	UNITS	196637-51	196637-56	196637-60	196637-63	196637-66
Your Reference		BH119	BH121	BH122	BH123	BH124
Depth		0-0.2	0-0.2	0-0.2	0-0.2	0-0.2
Date Sampled		11/07/2018	11/07/2018	11/07/2018	11/07/2018	11/07/2018
Type of sample		soil	soil	soil	soil	soil
Date extracted	-	23/07/2018	23/07/2018	23/07/2018	23/07/2018	23/07/2018
Date analysed	-	24/07/2018	24/07/2018	24/07/2018	24/07/2018	24/07/2018
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	0.2	<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	1.7	0.2
Pyrene	mg/kg	0.3	<0.1	<0.1	2.3	0.2
Benzo(a)anthracene	mg/kg	0.2	<0.1	<0.1	1.2	<0.1
Chrysene	mg/kg	0.2	<0.1	<0.1	1.2	0.1
Benzo(b,j+k)fluoranthene	mg/kg	0.3	<0.2	<0.2	2.4	0.2
Benzo(a)pyrene	mg/kg	0.2	<0.05	<0.05	1.6	0.1
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	0.6	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	0.2	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	0.8	<0.1
Total +ve PAH's	mg/kg	1.8	<0.05	<0.05	13	0.76
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5	2.3	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5	2.3	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5	2.3	<0.5
Surrogate p-Terphenyl-d14	%	90	86	89	92	90

PAHs in Soil						
Our Reference		196637-69	196637-72	196637-78	196637-81	196637-84
Your Reference	UNITS	BH125	BH126	BH128	BH129	BH131
Depth		0-0.2	0-0.2	0-0.2	0-0.2	0-0.2
Date Sampled		11/07/2018	11/07/2018	11/07/2018	11/07/2018	11/07/2018
Type of sample		soil	soil	soil	soil	soil
Date extracted	-	23/07/2018	23/07/2018	23/07/2018	23/07/2018	23/07/2018
Date analysed	-	24/07/2018	24/07/2018	24/07/2018	24/07/2018	24/07/2018
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	0.4	0.3	<0.1	0.3	0.2
Pyrene	mg/kg	0.4	0.3	<0.1	0.3	0.2
Benzo(a)anthracene	mg/kg	0.2	0.2	<0.1	0.2	0.1
Chrysene	mg/kg	0.2	0.2	<0.1	0.2	0.1
Benzo(b,j+k)fluoranthene	mg/kg	0.5	0.4	<0.2	0.2	<0.2
Benzo(a)pyrene	mg/kg	0.3	0.3	<0.05	0.1	0.1
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	2.4	2.0	<0.05	1.4	0.66
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Surrogate p-Terphenyl-d14	%	92	86	88	89	88

PAHs in Soil						
Our Reference		196637-87	196637-92	196637-97	196637-102	196637-105
Your Reference	UNITS	BH132	BH133	BH135	BH137	BH138
Depth		0-0.2	0.7-0.95	0.1-0.3	0-0.2	0-0.2
Date Sampled		11/07/2018	11/07/2018	11/07/2018	11/07/2018	11/07/2018
Type of sample		soil	soil	soil	soil	soil
Date extracted	-	23/07/2018	23/07/2018	23/07/2018	23/07/2018	23/07/2018
Date analysed	-	24/07/2018	24/07/2018	24/07/2018	24/07/2018	24/07/2018
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	0.50	<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	%	102	89	88	86	86

PAHs in Soil						
Our Reference		196637-107	196637-111	196637-115	196637-119	196637-122
Your Reference	UNITS	BH139	BH140	BH141	BH142	BH143
Depth		0-0.2	0-0.2	0.2-0.5	0-0.2	0.15-0.35
Date Sampled		11/07/2018	11/07/2018	11/07/2018	11/07/2018	11/07/2018
Type of sample		soil	soil	soil	soil	soil
Date extracted	-	23/07/2018	23/07/2018	23/07/2018	23/07/2018	23/07/2018
Date analysed	-	24/07/2018	24/07/2018	24/07/2018	24/07/2018	24/07/2018
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	0.2
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	0.1	0.3	<0.1
Pyrene	mg/kg	<0.1	<0.1	0.1	0.3	<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	0.3	<0.2
Benzo(a)pyrene	mg/kg	<0.05	0.06	0.08	0.2	<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	0.06	0.4	1.6	0.4
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	89	88	92	87

PAHs in Soil						
Our Reference	UNITS	196637-126	196637-129	196637-131	196637-133	196637-136
Your Reference		BH144	BH145	BH146	BH147	BH148
Depth		0-0.2	0.04-0.2	0.04-0.2	0-0.2	0.04-0.2
Date Sampled		11/07/2018	11/07/2018	11/07/2018	11/07/2018	11/07/2018
Type of sample		soil	soil	soil	soil	soil
Date extracted	-	23/07/2018	23/07/2018	23/07/2018	23/07/2018	23/07/2018
Date analysed	-	24/07/2018	24/07/2018	24/07/2018	24/07/2018	24/07/2018
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	0.08	<0.05	<0.05	0.06	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PAH's	mg/kg	0.5	<0.05	<0.05	0.06	<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	90	88	88	90

PAHs in Soil						
Our Reference		196637-138	196637-141	196637-142	196637-208	196637-209
Your Reference	UNITS	BH149	BH150	BH150	JHDUP3	JHDUP4
Depth		0-0.2	0-0.1	0.7-0.95	-	-
Date Sampled		11/07/2018	11/07/2018	11/07/2018	11/07/2018	11/07/2018
Type of sample		soil	soil	soil	soil	soil
Date extracted	-	23/07/2018	23/07/2018	23/07/2018	23/07/2018	23/07/2018
Date analysed	-	24/07/2018	24/07/2018	24/07/2018	24/07/2018	24/07/2018
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	0.2	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	0.1	0.4	<0.1	0.4	<0.1
Pyrene	mg/kg	0.1	0.5	<0.1	0.4	<0.1
Benzo(a)anthracene	mg/kg	<0.1	0.3	<0.1	0.2	<0.1
Chrysene	mg/kg	<0.1	0.3	<0.1	0.2	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	0.6	<0.2	0.4	<0.2
Benzo(a)pyrene	mg/kg	0.06	0.3	<0.05	0.2	<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	0.2	<0.1	0.1	<0.1
Total +ve PAH's	mg/kg	0.3	2.8	<0.05	2.4	<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	%	87	96	86	92	87

PAHs in Soil		
Our Reference		196637-210
Your Reference	UNITS	JHDUP5
Depth		-
Date Sampled		11/07/2018
Type of sample		soil
Date extracted	-	23/07/2018
Date analysed	-	24/07/2018
Naphthalene	mg/kg	<0.1
Acenaphthylene	mg/kg	<0.1
Acenaphthene	mg/kg	<0.1
Fluorene	mg/kg	<0.1
Phenanthrene	mg/kg	<0.1
Anthracene	mg/kg	<0.1
Fluoranthene	mg/kg	<0.1
Pyrene	mg/kg	<0.1
Benzo(a)anthracene	mg/kg	<0.1
Chrysene	mg/kg	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2
Benzo(a)pyrene	mg/kg	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1
Total +ve PAH's	mg/kg	<0.05
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5
Surrogate p-Terphenyl-d14	%	90

Organochlorine Pesticides in soil						
Our Reference		196637-1	196637-7	196637-14	196637-26	196637-31
Your Reference	UNITS	BH101	BH103	BH106	BH110	BH112
Depth		0-0.2	0-0.2	0.03-0.2	0-0.3	0-0.2
Date Sampled		11/07/2018	16/07/2018	11/07/2018	16/07/2018	12/07/2018
Type of sample		soil	soil	soil	soil	soil
Date extracted	-	23/07/2018	23/07/2018	23/07/2018	23/07/2018	23/07/2018
Date analysed	-	23/07/2018	23/07/2018	23/07/2018	23/07/2018	23/07/2018
HCB	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-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
beta-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
pp-DDD	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-DDT	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
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
Total +ve DDT+DDD+DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	117	118	110	116	114

Organochlorine Pesticides in soil						
Our Reference		196637-40	196637-43	196637-46	196637-51	196637-56
Your Reference	UNITS	BH115	BH116	BH117	BH119	BH121
Depth		0-0.2	0.03-0.2	0-0.2	0-0.2	0-0.2
Date Sampled		16/07/2018	11/07/2018	11/07/2018	11/07/2018	11/07/2018
Type of sample		soil	soil	soil	soil	soil
Date extracted	-	23/07/2018	23/07/2018	23/07/2018	23/07/2018	23/07/2018
Date analysed	-	24/07/2018	24/07/2018	24/07/2018	24/07/2018	24/07/2018
HCB	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-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
beta-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
pp-DDD	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-DDT	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
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
Total +ve DDT+DDD+DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	119	122	116	109	116

Organochlorine Pesticides in soil						
Our Reference		196637-60	196637-63	196637-69	196637-72	196637-78
Your Reference	UNITS	BH122	BH123	BH125	BH126	BH128
Depth		0-0.2	0-0.2	0-0.2	0-0.2	0-0.2
Date Sampled		11/07/2018	11/07/2018	11/07/2018	11/07/2018	11/07/2018
Type of sample		soil	soil	soil	soil	soil
Date extracted	-	23/07/2018	23/07/2018	23/07/2018	23/07/2018	23/07/2018
Date analysed	-	24/07/2018	24/07/2018	24/07/2018	24/07/2018	24/07/2018
HCB	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-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
beta-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
pp-DDD	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-DDT	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
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
Total +ve DDT+DDD+DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	115	115	118	121	128

Organochlorine Pesticides in soil						
Our Reference		196637-84	196637-87	196637-92	196637-97	196637-102
Your Reference	UNITS	BH131	BH132	BH133	BH135	BH137
Depth		0-0.2	0-0.2	0.7-0.95	0.1-0.3	0-0.2
Date Sampled		11/07/2018	11/07/2018	11/07/2018	11/07/2018	11/07/2018
Type of sample		soil	soil	soil	soil	soil
Date extracted	-	23/07/2018	23/07/2018	23/07/2018	23/07/2018	23/07/2018
Date analysed	-	24/07/2018	24/07/2018	24/07/2018	24/07/2018	24/07/2018
HCB	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-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
beta-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
pp-DDD	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-DDT	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
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
Total +ve DDT+DDD+DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	117	121	118	122	122

Organochlorine Pesticides in soil						
Our Reference	UNITS	196637-107	196637-115	196637-119	196637-126	196637-129
Your Reference		BH139	BH141	BH142	BH144	BH145
Depth		0-0.2	0.2-0.5	0-0.2	0-0.2	0.04-0.2
Date Sampled		11/07/2018	11/07/2018	11/07/2018	11/07/2018	11/07/2018
Type of sample		soil	soil	soil	soil	soil
Date extracted	-	23/07/2018	23/07/2018	23/07/2018	23/07/2018	23/07/2018
Date analysed	-	24/07/2018	24/07/2018	24/07/2018	24/07/2018	24/07/2018
HCB	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-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
beta-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
pp-DDD	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-DDT	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
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
Total +ve DDT+DDD+DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	115	112	108	114	111

Organochlorine Pesticides in soil						
Our Reference		196637-131	196637-133	196637-136	196637-138	196637-141
Your Reference	UNITS	BH146	BH147	BH148	BH149	BH150
Depth		0.04-0.2	0-0.2	0.04-0.2	0-0.2	0-0.1
Date Sampled		11/07/2018	11/07/2018	11/07/2018	11/07/2018	11/07/2018
Type of sample		soil	soil	soil	soil	soil
Date extracted	-	23/07/2018	23/07/2018	23/07/2018	23/07/2018	23/07/2018
Date analysed	-	24/07/2018	24/07/2018	24/07/2018	24/07/2018	24/07/2018
HCB	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-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
beta-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
pp-DDD	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-DDT	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
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
Total +ve DDT+DDD+DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	121	107	109	113	107

Organochlorine Pesticides in soil				
Our Reference		196637-208	196637-209	196637-210
Your Reference	UNITS	JHDUP3	JHDUP4	JHDUP5
Depth		-	-	-
Date Sampled		11/07/2018	11/07/2018	11/07/2018
Type of sample		soil	soil	soil
Date extracted	-	23/07/2018	23/07/2018	23/07/2018
Date analysed	-	24/07/2018	24/07/2018	24/07/2018
HCB	mg/kg	<0.1	<0.1	<0.1
alpha-BHC	mg/kg	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1
beta-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
pp-DDD	mg/kg	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1
Endrin Aldehyde	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 DDT+DDD+DDE	mg/kg	<0.1	<0.1	<0.1
Surrogate TCMX	%	107	114	112

Organophosphorus Pesticides						
Our Reference		196637-1	196637-7	196637-14	196637-26	196637-31
Your Reference	UNITS	BH101	BH103	BH106	BH110	BH112
Depth		0-0.2	0-0.2	0.03-0.2	0-0.3	0-0.2
Date Sampled		11/07/2018	16/07/2018	11/07/2018	16/07/2018	12/07/2018
Type of sample		soil	soil	soil	soil	soil
Date extracted	-	23/07/2018	23/07/2018	23/07/2018	23/07/2018	23/07/2018
Date analysed	-	23/07/2018	23/07/2018	23/07/2018	23/07/2018	23/07/2018
Azinphos-methyl (Guthion)	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
Chlorpyriphos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyriphos-methyl	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
Dichlorvos	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
Ethion	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
Parathion	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
Surrogate TCMX	%	117	118	110	116	114

Organophosphorus Pesticides						
Our Reference		196637-40	196637-43	196637-46	196637-51	196637-56
Your Reference	UNITS	BH115	BH116	BH117	BH119	BH121
Depth		0-0.2	0.03-0.2	0-0.2	0-0.2	0-0.2
Date Sampled		16/07/2018	11/07/2018	11/07/2018	11/07/2018	11/07/2018
Type of sample		soil	soil	soil	soil	soil
Date extracted	-	23/07/2018	23/07/2018	23/07/2018	23/07/2018	23/07/2018
Date analysed	-	24/07/2018	24/07/2018	24/07/2018	24/07/2018	24/07/2018
Azinphos-methyl (Guthion)	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
Chlorpyriphos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyriphos-methyl	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
Dichlorvos	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
Ethion	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
Parathion	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
Surrogate TCMX	%	119	122	116	109	116

Organophosphorus Pesticides						
Our Reference		196637-60	196637-63	196637-69	196637-72	196637-78
Your Reference	UNITS	BH122	BH123	BH125	BH126	BH128
Depth		0-0.2	0-0.2	0-0.2	0-0.2	0-0.2
Date Sampled		11/07/2018	11/07/2018	11/07/2018	11/07/2018	11/07/2018
Type of sample		soil	soil	soil	soil	soil
Date extracted	-	23/07/2018	23/07/2018	23/07/2018	23/07/2018	23/07/2018
Date analysed	-	24/07/2018	24/07/2018	24/07/2018	24/07/2018	24/07/2018
Azinphos-methyl (Guthion)	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
Chlorpyriphos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyriphos-methyl	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
Dichlorvos	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
Ethion	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
Parathion	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
Surrogate TCMX	%	115	115	118	121	128

Organophosphorus Pesticides						
Our Reference		196637-84	196637-87	196637-92	196637-97	196637-102
Your Reference	UNITS	BH131	BH132	BH133	BH135	BH137
Depth		0-0.2	0-0.2	0.7-0.95	0.1-0.3	0-0.2
Date Sampled		11/07/2018	11/07/2018	11/07/2018	11/07/2018	11/07/2018
Type of sample		soil	soil	soil	soil	soil
Date extracted	-	23/07/2018	23/07/2018	23/07/2018	23/07/2018	23/07/2018
Date analysed	-	24/07/2018	24/07/2018	24/07/2018	24/07/2018	24/07/2018
Azinphos-methyl (Guthion)	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
Chlorpyriphos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyriphos-methyl	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
Dichlorvos	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
Ethion	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
Parathion	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
Surrogate TCMX	%	117	121	118	122	122

Organophosphorus Pesticides						
Our Reference		196637-107	196637-115	196637-119	196637-126	196637-129
Your Reference	UNITS	BH139	BH141	BH142	BH144	BH145
Depth		0-0.2	0.2-0.5	0-0.2	0-0.2	0.04-0.2
Date Sampled		11/07/2018	11/07/2018	11/07/2018	11/07/2018	11/07/2018
Type of sample		soil	soil	soil	soil	soil
Date extracted	-	23/07/2018	23/07/2018	23/07/2018	23/07/2018	23/07/2018
Date analysed	-	24/07/2018	24/07/2018	24/07/2018	24/07/2018	24/07/2018
Azinphos-methyl (Guthion)	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
Chlorpyriphos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyriphos-methyl	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
Dichlorvos	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
Ethion	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
Parathion	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
Surrogate TCMX	%	115	112	108	114	111

Organophosphorus Pesticides						
Our Reference		196637-131	196637-133	196637-136	196637-138	196637-141
Your Reference	UNITS	BH146	BH147	BH148	BH149	BH150
Depth		0.04-0.2	0-0.2	0.04-0.2	0-0.2	0-0.1
Date Sampled		11/07/2018	11/07/2018	11/07/2018	11/07/2018	11/07/2018
Type of sample		soil	soil	soil	soil	soil
Date extracted	-	23/07/2018	23/07/2018	23/07/2018	23/07/2018	23/07/2018
Date analysed	-	24/07/2018	24/07/2018	24/07/2018	24/07/2018	24/07/2018
Azinphos-methyl (Guthion)	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
Chlorpyriphos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyriphos-methyl	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
Dichlorvos	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
Ethion	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
Parathion	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
Surrogate TCMX	%	121	107	109	113	107

Organophosphorus Pesticides				
Our Reference		196637-208	196637-209	196637-210
Your Reference	UNITS	JHDUP3	JHDUP4	JHDUP5
Depth		-	-	-
Date Sampled		11/07/2018	11/07/2018	11/07/2018
Type of sample		soil	soil	soil
Date extracted	-	23/07/2018	23/07/2018	23/07/2018
Date analysed	-	24/07/2018	24/07/2018	24/07/2018
Azinphos-methyl (Guthion)	mg/kg	<0.1	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1	<0.1
Chlorpyriphos	mg/kg	<0.1	<0.1	<0.1
Chlorpyriphos-methyl	mg/kg	<0.1	<0.1	<0.1
Diazinon	mg/kg	<0.1	<0.1	<0.1
Dichlorvos	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
Surrogate TCMX	%	107	114	112

PCBs in Soil						
Our Reference		196637-1	196637-7	196637-14	196637-26	196637-31
Your Reference	UNITS	BH101	BH103	BH106	BH110	BH112
Depth		0-0.2	0-0.2	0.03-0.2	0-0.3	0-0.2
Date Sampled		11/07/2018	16/07/2018	11/07/2018	16/07/2018	12/07/2018
Type of sample		soil	soil	soil	soil	soil
Date extracted	-	23/07/2018	23/07/2018	23/07/2018	23/07/2018	23/07/2018
Date analysed	-	23/07/2018	23/07/2018	23/07/2018	23/07/2018	23/07/2018
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 TCLMX	%	117	118	110	116	114

PCBs in Soil						
Our Reference		196637-40	196637-43	196637-46	196637-51	196637-56
Your Reference	UNITS	BH115	BH116	BH117	BH119	BH121
Depth		0-0.2	0.03-0.2	0-0.2	0-0.2	0-0.2
Date Sampled		16/07/2018	11/07/2018	11/07/2018	11/07/2018	11/07/2018
Type of sample		soil	soil	soil	soil	soil
Date extracted	-	23/07/2018	23/07/2018	23/07/2018	23/07/2018	23/07/2018
Date analysed	-	24/07/2018	24/07/2018	24/07/2018	24/07/2018	24/07/2018
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 TCLMX	%	119	122	116	109	116

PCBs in Soil						
Our Reference		196637-60	196637-63	196637-69	196637-72	196637-78
Your Reference	UNITS	BH122	BH123	BH125	BH126	BH128
Depth		0-0.2	0-0.2	0-0.2	0-0.2	0-0.2
Date Sampled		11/07/2018	11/07/2018	11/07/2018	11/07/2018	11/07/2018
Type of sample		soil	soil	soil	soil	soil
Date extracted	-	23/07/2018	23/07/2018	23/07/2018	25/07/2018	23/07/2018
Date analysed	-	24/07/2018	24/07/2018	24/07/2018	26/07/2018	24/07/2018
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 TCLMX	%	115	115	118	92	128

PCBs in Soil						
Our Reference		196637-84	196637-87	196637-92	196637-97	196637-102
Your Reference	UNITS	BH131	BH132	BH133	BH135	BH137
Depth		0-0.2	0-0.2	0.7-0.95	0.1-0.3	0-0.2
Date Sampled		11/07/2018	11/07/2018	11/07/2018	11/07/2018	11/07/2018
Type of sample		soil	soil	soil	soil	soil
Date extracted	-	23/07/2018	23/07/2018	23/07/2018	23/07/2018	23/07/2018
Date analysed	-	24/07/2018	24/07/2018	24/07/2018	24/07/2018	24/07/2018
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 TCLMX	%	117	121	118	122	122

PCBs in Soil						
Our Reference		196637-107	196637-115	196637-119	196637-126	196637-129
Your Reference	UNITS	BH139	BH141	BH142	BH144	BH145
Depth		0-0.2	0.2-0.5	0-0.2	0-0.2	0.04-0.2
Date Sampled		11/07/2018	11/07/2018	11/07/2018	11/07/2018	11/07/2018
Type of sample		soil	soil	soil	soil	soil
Date extracted	-	23/07/2018	23/07/2018	23/07/2018	23/07/2018	23/07/2018
Date analysed	-	24/07/2018	24/07/2018	24/07/2018	24/07/2018	24/07/2018
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 TCLMX	%	115	112	108	114	111

PCBs in Soil						
Our Reference		196637-131	196637-133	196637-136	196637-138	196637-141
Your Reference	UNITS	BH146	BH147	BH148	BH149	BH150
Depth		0.04-0.2	0-0.2	0.04-0.2	0-0.2	0-0.1
Date Sampled		11/07/2018	11/07/2018	11/07/2018	11/07/2018	11/07/2018
Type of sample		soil	soil	soil	soil	soil
Date extracted	-	23/07/2018	23/07/2018	23/07/2018	23/07/2018	23/07/2018
Date analysed	-	24/07/2018	24/07/2018	24/07/2018	24/07/2018	24/07/2018
Aroclor 1016	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.5
Aroclor 1221	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.5
Aroclor 1232	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.5
Aroclor 1242	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.5
Aroclor 1248	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.5
Aroclor 1254	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.5
Aroclor 1260	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.5
Total +ve PCBs (1016-1260)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.5
Surrogate TCLMX	%	121	107	109	113	107

PCBs in Soil				
Our Reference		196637-208	196637-209	196637-210
Your Reference	UNITS	JHDUP3	JHDUP4	JHDUP5
Depth		-	-	-
Date Sampled		11/07/2018	11/07/2018	11/07/2018
Type of sample		soil	soil	soil
Date extracted	-	23/07/2018	23/07/2018	23/07/2018
Date analysed	-	24/07/2018	24/07/2018	24/07/2018
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 TCLMX	%	107	114	112

Acid Extractable metals in soil						
Our Reference		196637-1	196637-4	196637-7	196637-12	196637-14
Your Reference	UNITS	BH101	BH102	BH103	BH105	BH106
Depth		0-0.2	0-0.2	0-0.2	0.03-0.2	0.03-0.2
Date Sampled		11/07/2018	16/07/2018	16/07/2018	11/07/2018	11/07/2018
Type of sample		soil	soil	soil	soil	soil
Date prepared	-	23/07/2018	23/07/2018	23/07/2018	23/07/2018	23/07/2018
Date analysed	-	23/07/2018	23/07/2018	23/07/2018	23/07/2018	23/07/2018
Arsenic	mg/kg	5	6	<4	<4	<4
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	13	11	9	22	73
Copper	mg/kg	14	16	11	19	30
Lead	mg/kg	64	59	39	40	10
Mercury	mg/kg	0.2	0.1	<0.1	0.2	<0.1
Nickel	mg/kg	3	4	4	12	75
Zinc	mg/kg	110	110	39	51	38

Acid Extractable metals in soil						
Our Reference		196637-19	196637-26	196637-28	196637-31	196637-35
Your Reference	UNITS	BH108	BH110	BH111	BH112	BH113
Depth		0-0.2	0-0.3	0-0.2	0-0.2	0.5-0.7
Date Sampled		16/07/2018	16/07/2018	12/07/2018	12/07/2018	17/07/2018
Type of sample		soil	soil	soil	soil	soil
Date prepared	-	23/07/2018	23/07/2018	23/07/2018	23/07/2018	23/07/2018
Date analysed	-	23/07/2018	23/07/2018	23/07/2018	23/07/2018	23/07/2018
Arsenic	mg/kg	<4	<4	5	6	5
Cadmium	mg/kg	<0.4	<0.4	0.5	<0.4	<0.4
Chromium	mg/kg	9	11	13	9	15
Copper	mg/kg	13	29	53	13	20
Lead	mg/kg	33	110	420	37	40
Mercury	mg/kg	<0.1	0.2	0.2	<0.1	<0.1
Nickel	mg/kg	3	6	4	5	6
Zinc	mg/kg	49	130	270	50	72

Acid Extractable metals in soil						
Our Reference		196637-37	196637-40	196637-43	196637-46	196637-49
Your Reference	UNITS	BH114	BH115	BH116	BH117	BH118
Depth		0-0.2	0-0.2	0.03-0.2	0-0.2	0-0.2
Date Sampled		17/07/2018	16/07/2018	11/07/2018	11/07/2018	16/07/2018
Type of sample		soil	soil	soil	soil	soil
Date prepared	-	23/07/2018	23/07/2018	23/07/2018	23/07/2018	23/07/2018
Date analysed	-	23/07/2018	23/07/2018	23/07/2018	23/07/2018	23/07/2018
Arsenic	mg/kg	9	<4	4	<4	6
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	12	6	52	9	13
Copper	mg/kg	30	8	30	9	50
Lead	mg/kg	63	24	11	12	77
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	0.1
Nickel	mg/kg	7	3	58	6	13
Zinc	mg/kg	210	28	39	28	200

Acid Extractable metals in soil						
Our Reference		196637-51	196637-56	196637-60	196637-63	196637-66
Your Reference	UNITS	BH119	BH121	BH122	BH123	BH124
Depth		0-0.2	0-0.2	0-0.2	0-0.2	0-0.2
Date Sampled		11/07/2018	11/07/2018	11/07/2018	11/07/2018	11/07/2018
Type of sample		soil	soil	soil	soil	soil
Date prepared	-	23/07/2018	23/07/2018	23/07/2018	23/07/2018	23/07/2018
Date analysed	-	23/07/2018	23/07/2018	23/07/2018	23/07/2018	23/07/2018
Arsenic	mg/kg	<4	<4	<4	<4	5
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	12	7	8	15	12
Copper	mg/kg	23	8	3	18	10
Lead	mg/kg	47	29	16	96	57
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	0.2
Nickel	mg/kg	9	4	4	7	2
Zinc	mg/kg	89	50	22	96	65

Acid Extractable metals in soil						
Our Reference		196637-69	196637-72	196637-78	196637-81	196637-84
Your Reference	UNITS	BH125	BH126	BH128	BH129	BH131
Depth		0-0.2	0-0.2	0-0.2	0-0.2	0-0.2
Date Sampled		11/07/2018	11/07/2018	11/07/2018	11/07/2018	11/07/2018
Type of sample		soil	soil	soil	soil	soil
Date prepared	-	23/07/2018	23/07/2018	23/07/2018	23/07/2018	23/07/2018
Date analysed	-	23/07/2018	23/07/2018	23/07/2018	23/07/2018	23/07/2018
Arsenic	mg/kg	9	6	<4	<4	<4
Cadmium	mg/kg	0.5	0.7	<0.4	<0.4	<0.4
Chromium	mg/kg	14	13	8	8	9
Copper	mg/kg	38	28	6	14	19
Lead	mg/kg	270	220	23	31	43
Mercury	mg/kg	1.4	0.8	<0.1	<0.1	<0.1
Nickel	mg/kg	6	4	4	3	6
Zinc	mg/kg	180	160	29	57	76

Acid Extractable metals in soil						
Our Reference		196637-87	196637-92	196637-97	196637-102	196637-105
Your Reference	UNITS	BH132	BH133	BH135	BH137	BH138
Depth		0-0.2	0.7-0.95	0.1-0.3	0-0.2	0-0.2
Date Sampled		11/07/2018	11/07/2018	11/07/2018	11/07/2018	11/07/2018
Type of sample		soil	soil	soil	soil	soil
Date prepared	-	23/07/2018	23/07/2018	23/07/2018	23/07/2018	23/07/2018
Date analysed	-	23/07/2018	23/07/2018	23/07/2018	23/07/2018	23/07/2018
Arsenic	mg/kg	<4	6	8	13	<4
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	10	10	22	14	7
Copper	mg/kg	17	34	5	8	5
Lead	mg/kg	23	25	17	64	8
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	12	34	3	3	4
Zinc	mg/kg	59	110	17	87	14

Acid Extractable metals in soil						
Our Reference		196637-107	196637-111	196637-115	196637-119	196637-122
Your Reference	UNITS	BH139	BH140	BH141	BH142	BH143
Depth		0-0.2	0-0.2	0.2-0.5	0-0.2	0.15-0.35
Date Sampled		11/07/2018	11/07/2018	11/07/2018	11/07/2018	11/07/2018
Type of sample		soil	soil	soil	soil	soil
Date prepared	-	23/07/2018	23/07/2018	23/07/2018	23/07/2018	23/07/2018
Date analysed	-	23/07/2018	23/07/2018	23/07/2018	23/07/2018	23/07/2018
Arsenic	mg/kg	7	6	12	5	7
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	0.6
Chromium	mg/kg	18	15	12	10	9
Copper	mg/kg	6	12	52	11	33
Lead	mg/kg	130	130	30	71	21
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	2	2	21	3	39
Zinc	mg/kg	76	72	84	81	140

Acid Extractable metals in soil						
Our Reference		196637-126	196637-129	196637-131	196637-133	196637-136
Your Reference	UNITS	BH144	BH145	BH146	BH147	BH148
Depth		0-0.2	0.04-0.2	0.04-0.2	0-0.2	0.04-0.2
Date Sampled		11/07/2018	11/07/2018	11/07/2018	11/07/2018	11/07/2018
Type of sample		soil	soil	soil	soil	soil
Date prepared	-	23/07/2018	23/07/2018	23/07/2018	23/07/2018	23/07/2018
Date analysed	-	23/07/2018	23/07/2018	23/07/2018	23/07/2018	23/07/2018
Arsenic	mg/kg	7	<4	<4	6	<4
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	18	11	13	7	17
Copper	mg/kg	20	45	45	14	44
Lead	mg/kg	140	3	4	250	3
Mercury	mg/kg	2.9	<0.1	<0.1	0.2	<0.1
Nickel	mg/kg	9	100	110	4	130
Zinc	mg/kg	120	32	34	88	32

Acid Extractable metals in soil						
Our Reference		196637-138	196637-141	196637-142	196637-208	196637-209
Your Reference	UNITS	BH149	BH150	BH150	JHDUP3	JHDUP4
Depth		0-0.2	0-0.1	0.7-0.95	-	-
Date Sampled		11/07/2018	11/07/2018	11/07/2018	11/07/2018	11/07/2018
Type of sample		soil	soil	soil	soil	soil
Date prepared	-	23/07/2018	23/07/2018	23/07/2018	23/07/2018	23/07/2018
Date analysed	-	23/07/2018	23/07/2018	23/07/2018	23/07/2018	23/07/2018
Arsenic	mg/kg	6	<4	4	5	20
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	17	10	20	9	9
Copper	mg/kg	45	29	<1	10	10
Lead	mg/kg	350	120	6	67	65
Mercury	mg/kg	0.8	0.2	<0.1	<0.1	<0.1
Nickel	mg/kg	14	5	1	2	3
Zinc	mg/kg	100	170	2	66	90

Acid Extractable metals in soil		
Our Reference		196637-210
Your Reference	UNITS	JHDUP5
Depth		-
Date Sampled		11/07/2018
Type of sample		soil
Date prepared	-	23/07/2018
Date analysed	-	23/07/2018
Arsenic	mg/kg	6
Cadmium	mg/kg	<0.4
Chromium	mg/kg	5
Copper	mg/kg	<1
Lead	mg/kg	9
Mercury	mg/kg	<0.1
Nickel	mg/kg	<1
Zinc	mg/kg	2

Moisture						
Our Reference		196637-1	196637-4	196637-7	196637-12	196637-14
Your Reference	UNITS	BH101	BH102	BH103	BH105	BH106
Depth		0-0.2	0-0.2	0-0.2	0.03-0.2	0.03-0.2
Date Sampled		11/07/2018	16/07/2018	16/07/2018	11/07/2018	11/07/2018
Type of sample		soil	soil	soil	soil	soil
Date prepared	-	23/07/2018	23/07/2018	23/07/2018	23/07/2018	23/07/2018
Date analysed	-	24/07/2018	24/07/2018	24/07/2018	24/07/2018	24/07/2018
Moisture	%	11	6.8	8.2	10	6.4

Moisture						
Our Reference		196637-19	196637-26	196637-28	196637-31	196637-35
Your Reference	UNITS	BH108	BH110	BH111	BH112	BH113
Depth		0-0.2	0-0.3	0-0.2	0-0.2	0.5-0.7
Date Sampled		16/07/2018	16/07/2018	12/07/2018	12/07/2018	17/07/2018
Type of sample		soil	soil	soil	soil	soil
Date prepared	-	23/07/2018	23/07/2018	23/07/2018	23/07/2018	23/07/2018
Date analysed	-	24/07/2018	24/07/2018	24/07/2018	24/07/2018	24/07/2018
Moisture	%	8.0	12	9.0	8.6	11

Moisture						
Our Reference		196637-37	196637-40	196637-43	196637-46	196637-49
Your Reference	UNITS	BH114	BH115	BH116	BH117	BH118
Depth		0-0.2	0-0.2	0.03-0.2	0-0.2	0-0.2
Date Sampled		17/07/2018	16/07/2018	11/07/2018	11/07/2018	16/07/2018
Type of sample		soil	soil	soil	soil	soil
Date prepared	-	23/07/2018	23/07/2018	23/07/2018	23/07/2018	23/07/2018
Date analysed	-	24/07/2018	24/07/2018	24/07/2018	24/07/2018	24/07/2018
Moisture	%	8.5	11	7.5	10	12

Moisture						
Our Reference		196637-51	196637-56	196637-60	196637-63	196637-66
Your Reference	UNITS	BH119	BH121	BH122	BH123	BH124
Depth		0-0.2	0-0.2	0-0.2	0-0.2	0-0.2
Date Sampled		11/07/2018	11/07/2018	11/07/2018	11/07/2018	11/07/2018
Type of sample		soil	soil	soil	soil	soil
Date prepared	-	23/07/2018	23/07/2018	23/07/2018	23/07/2018	23/07/2018
Date analysed	-	24/07/2018	24/07/2018	24/07/2018	24/07/2018	24/07/2018
Moisture	%	14	12	5.3	6.4	7.9

Moisture						
Our Reference		196637-69	196637-72	196637-78	196637-81	196637-84
Your Reference	UNITS	BH125	BH126	BH128	BH129	BH131
Depth		0-0.2	0-0.2	0-0.2	0-0.2	0-0.2
Date Sampled		11/07/2018	11/07/2018	11/07/2018	11/07/2018	11/07/2018
Type of sample		soil	soil	soil	soil	soil
Date prepared	-	23/07/2018	23/07/2018	23/07/2018	23/07/2018	23/07/2018
Date analysed	-	24/07/2018	24/07/2018	24/07/2018	24/07/2018	24/07/2018
Moisture	%	5.2	7.9	8.0	9.8	8.4

Moisture						
Our Reference		196637-87	196637-92	196637-97	196637-102	196637-105
Your Reference	UNITS	BH132	BH133	BH135	BH137	BH138
Depth		0-0.2	0.7-0.95	0.1-0.3	0-0.2	0-0.2
Date Sampled		11/07/2018	11/07/2018	11/07/2018	11/07/2018	11/07/2018
Type of sample		soil	soil	soil	soil	soil
Date prepared	-	23/07/2018	23/07/2018	23/07/2018	23/07/2018	23/07/2018
Date analysed	-	24/07/2018	24/07/2018	24/07/2018	24/07/2018	24/07/2018
Moisture	%	13	9.7	12	11	8.4

Moisture						
Our Reference		196637-107	196637-111	196637-115	196637-119	196637-122
Your Reference	UNITS	BH139	BH140	BH141	BH142	BH143
Depth		0-0.2	0-0.2	0.2-0.5	0-0.2	0.15-0.35
Date Sampled		11/07/2018	11/07/2018	11/07/2018	11/07/2018	11/07/2018
Type of sample		soil	soil	soil	soil	soil
Date prepared	-	23/07/2018	23/07/2018	23/07/2018	23/07/2018	23/07/2018
Date analysed	-	24/07/2018	24/07/2018	24/07/2018	24/07/2018	24/07/2018
Moisture	%	12	13	8.3	8.7	10

Moisture						
Our Reference		196637-126	196637-129	196637-131	196637-133	196637-136
Your Reference	UNITS	BH144	BH145	BH146	BH147	BH148
Depth		0-0.2	0.04-0.2	0.04-0.2	0-0.2	0.04-0.2
Date Sampled		11/07/2018	11/07/2018	11/07/2018	11/07/2018	11/07/2018
Type of sample		soil	soil	soil	soil	soil
Date prepared	-	23/07/2018	23/07/2018	23/07/2018	23/07/2018	23/07/2018
Date analysed	-	24/07/2018	24/07/2018	24/07/2018	24/07/2018	24/07/2018
Moisture	%	6.6	3.7	7.3	12	5.1

Moisture						
Our Reference		196637-138	196637-141	196637-142	196637-208	196637-209
Your Reference	UNITS	BH149	BH150	BH150	JHDUP3	JHDUP4
Depth		0-0.2	0-0.1	0.7-0.95	-	-
Date Sampled		11/07/2018	11/07/2018	11/07/2018	11/07/2018	11/07/2018
Type of sample		soil	soil	soil	soil	soil
Date prepared	-	23/07/2018	23/07/2018	23/07/2018	23/07/2018	23/07/2018
Date analysed	-	24/07/2018	24/07/2018	24/07/2018	24/07/2018	24/07/2018
Moisture	%	8.5	19	8.7	7.3	11

Moisture		
Our Reference		196637-210
Your Reference	UNITS	JHDUP5
Depth		-
Date Sampled		11/07/2018
Type of sample		soil
Date prepared	-	23/07/2018
Date analysed	-	24/07/2018
Moisture	%	4.4

Asbestos ID - soils NEPM - ASB-001						
Our Reference		196637-145	196637-146	196637-151	196637-153	196637-154
Your Reference	UNITS	BH102	BH103	BH108	BH110	BH110
Depth		0-0.6	0-0.3	0-0.6	0-0.3	0.3-0.5
Date Sampled		11/07/2018	11/07/2018	11/07/2018	11/07/2018	11/07/2018
Type of sample		soil	soil	soil	soil	soil
Date analysed	-	24/07/2018	24/07/2018	24/07/2018	24/07/2018	24/07/2018
Sample mass tested	g	750.69	676.49	651.31	502.4	635.51
Sample Description	-	Brown fine-grained soil & rocks	Brown fine-grained soil & rocks	Brown fine-grained soil & rocks	Brown fine-grained soil & rocks	Brown fine-grained soil & rocks
Asbestos ID in soil (AS4964) >0.1g/kg	-	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected
Trace Analysis	-	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected
Total Asbestos#1	g/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Asbestos ID in soil <0.1g/kg*	-	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected
ACM >7mm Estimation*	g	–	–	–	–	–
FA and AF Estimation*	g	–	–	–	–	–
ACM >7mm Estimation*	%(w/w)	<0.01	<0.01	<0.01	<0.01	<0.01
FA and AF Estimation*#2	%(w/w)	<0.001	<0.001	<0.001	<0.001	<0.001

Asbestos ID - soils NEPM - ASB-001						
Our Reference		196637-155	196637-160	196637-164	196637-169	196637-171
Your Reference	UNITS	BH111	BH114	BH117	BH121	BH122
Depth		0-0.6	0-0.3	0-0.4	0-0.3	0-0.5
Date Sampled		11/07/2018	11/07/2018	11/07/2018	11/07/2018	11/07/2018
Type of sample		soil	soil	soil	soil	soil
Date analysed	-	24/07/2018	24/07/2018	24/07/2018	24/07/2018	24/07/2018
Sample mass tested	g	1,020.48	742.94	750.3	576.04	976.84
Sample Description	-	Brown fine-grained soil & rocks	Brown fine-grained soil & rocks	Brown fine-grained soil & rocks	Brown fine-grained soil & rocks	Brown fine-grained soil & rocks
Asbestos ID in soil (AS4964) >0.1g/kg	-	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected
Trace Analysis	-	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected
Total Asbestos[#1]	g/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Asbestos ID in soil <0.1g/kg*	-	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected
ACM >7mm Estimation*	g	–	–	–	–	–
FA and AF Estimation*	g	–	–	–	–	–
ACM >7mm Estimation*	%(w/w)	<0.01	<0.01	<0.01	<0.01	<0.01
FA and AF Estimation*#2	%(w/w)	<0.001	<0.001	<0.001	<0.001	<0.001

Asbestos ID - soils NEPM - ASB-001						
Our Reference		196637-172	196637-173	196637-174	196637-175	196637-176
Your Reference	UNITS	BH123	BH124	BH125	BH126	BH127
Depth		0-0.7	0-0.9	0-0.85	0-0.5	0-0.6
Date Sampled		11/07/2018	11/07/2018	11/07/2018	11/07/2018	11/07/2018
Type of sample		soil	soil	soil	soil	soil
Date analysed	-	24/07/2018	24/07/2018	24/07/2018	24/07/2018	24/07/2018
Sample mass tested	g	795.77	633.49	854.67	897.36	744.69
Sample Description	-	Brown fine-grained soil & rocks	Brown fine-grained soil & rocks	Brown fine-grained soil & rocks	Brown fine-grained soil & rocks	Brown fine-grained soil & rocks
Asbestos ID in soil (AS4964) >0.1g/kg	-	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected
Trace Analysis	-	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected
Total Asbestos[#1]	g/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Asbestos ID in soil <0.1g/kg*	-	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected
ACM >7mm Estimation*	g	–	–	–	–	–
FA and AF Estimation*	g	–	–	–	–	–
ACM >7mm Estimation*	%(w/w)	<0.01	<0.01	<0.01	<0.01	<0.01
FA and AF Estimation*#2	%(w/w)	<0.001	<0.001	<0.001	<0.001	<0.001

Asbestos ID - soils NEPM - ASB-001						
Our Reference		196637-180	196637-188	196637-189	196637-190	196637-191
Your Reference	UNITS	BH131	BH136	BH137	BH138	BH139
Depth		0-0.6	0-0.4	0-0.6	0-0.4	0-0.5
Date Sampled		11/07/2018	11/07/2018	11/07/2018	11/07/2018	11/07/2018
Type of sample		soil	soil	soil	soil	soil
Date analysed	-	24/07/2018	24/07/2018	24/07/2018	24/07/2018	24/07/2018
Sample mass tested	g	816.43	585.97	861.31	697.76	704.74
Sample Description	-	Brown fine-grained soil & rocks	Brown fine-grained soil & rocks	Brown fine-grained soil & rocks	Brown fine-grained soil & rocks	Brown fine-grained soil & rocks
Asbestos ID in soil (AS4964) >0.1g/kg	-	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected
Trace Analysis	-	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected
Total Asbestos#1	g/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Asbestos ID in soil <0.1g/kg*	-	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected
ACM >7mm Estimation*	g	–	–	–	–	–
FA and AF Estimation*	g	–	–	–	–	–
ACM >7mm Estimation*	%(w/w)	<0.01	<0.01	<0.01	<0.01	<0.01
FA and AF Estimation*#2	%(w/w)	<0.001	<0.001	<0.001	<0.001	<0.001

Asbestos ID - soils NEPM - ASB-001			
Our Reference		196637-193	196637-197
Your Reference	UNITS	BH140	BH142
Depth		0-0.6	0-0.6
Date Sampled		11/07/2018	11/07/2018
Type of sample		soil	soil
Date analysed	-	24/07/2018	24/07/2018
Sample mass tested	g	641.99	737.4
Sample Description	-	Brown fine-grained soil & rocks	Brown fine-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
Trace Analysis	-	No asbestos detected	No asbestos detected
Total Asbestos[#1]	g/kg	<0.1	<0.1
Asbestos ID in soil <0.1g/kg*	-	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
FA and AF Estimation*#2	%(w/w)	<0.001	<0.001

Asbestos ID - materials						
Our Reference		196637-215	196637-216	196637-217	196637-218	196637-219
Your Reference	UNITS	JHF1	JHF2	JHF3	JHF4	JHF5
Depth		-	-	-	-	-
Date Sampled		11/07/2018	11/07/2018	11/07/2018	11/07/2018	11/07/2018
Type of sample		material	material	material	material	material
Date analysed	-	26/07/2018	26/07/2018	26/07/2018	26/07/2018	26/07/2018
Mass / Dimension of Sample	-	85x40x3mm	50x40x4mm	30x20x3mm	40x25x4mm	150x90x5mm
Sample Description	-	White fibre cement material	White cement material	White fibre cement material	White fibre cement material	Assorted layered fibre cement material
Asbestos ID in materials	-	Chrysotile asbestos detected Amosite asbestos detected	Chrysotile asbestos detected Amosite asbestos detected	Chrysotile asbestos detected Amosite asbestos detected Crocidolite asbestos detected	Chrysotile asbestos detected Amosite asbestos detected	Chrysotile asbestos detected Amosite asbestos detected Crocidolite asbestos detected

Asbestos ID - materials						
Our Reference		196637-220	196637-221	196637-222	196637-223	196637-224
Your Reference	UNITS	JHF6	JHF7	JHF8	JHF9	JHF10
Depth		-	-	-	-	-
Date Sampled		11/07/2018	11/07/2018	11/07/2018	11/07/2018	11/07/2018
Type of sample		material	material	material	material	material
Date analysed	-	26/07/2018	26/07/2018	26/07/2018	26/07/2018	26/07/2018
Mass / Dimension of Sample	-	175x95x5mm	20x20x4mm	15x15x5mm	35x35x5mm	30x20x5mm
Sample Description	-	Assorted layered fibre cement material	White fibre cement material	White fibre cement material	White fibre cement material	White fibre cement material
Asbestos ID in materials	-	Chrysotile asbestos detected Amosite asbestos detected	Chrysotile asbestos detected Amosite asbestos detected	Chrysotile asbestos detected	Chrysotile asbestos detected	Chrysotile asbestos detected

Asbestos ID - materials						
Our Reference		196637-225	196637-226	196637-227	196637-228	196637-229
Your Reference	UNITS	JHF11	JHF12	JHF13	JHF14	JHF15
Depth		-	-	-	-	-
Date Sampled		11/07/2018	11/07/2018	11/07/2018	11/07/2018	11/07/2018
Type of sample		material	material	material	material	material
Date analysed	-	26/07/2018	26/07/2018	26/07/2018	26/07/2018	26/07/2018
Mass / Dimension of Sample	-	40x30x5mm	40x30x5mm	50x40x5mm	30x25x5mm	60x50x5mm
Sample Description	-	White fibre cement material	White fibre cement material	Beige layered fibre cement material	Beige layered fibre cement material	Beige layered fibre cement material
Asbestos ID in materials	-	Chrysotile asbestos detected Amosite asbestos detected Crocidolite asbestos detected	Chrysotile asbestos detected Amosite asbestos detected	Chrysotile asbestos detected Amosite asbestos detected	Chrysotile asbestos detected Amosite asbestos detected	Chrysotile asbestos detected Amosite asbestos detected

vTRH(C6-C10)/BTEXN in Water			
Our Reference		196637-211	196637-212
Your Reference	UNITS	FR1	FR2
Depth		-	-
Date Sampled		11/07/2018	11/07/2018
Type of sample		water	water
Date extracted	-	23/07/2018	23/07/2018
Date analysed	-	24/07/2018	24/07/2018
TRH C_6 - C_9	µg/L	32	34
TRH C_6 - C_{10}	µg/L	37	38
TRH C_6 - C_{10} less BTEX (F1)	µg/L	37	38
Benzene	µg/L	<1	<1
Toluene	µg/L	<1	<1
Ethylbenzene	µg/L	<1	<1
m+p-xylene	µg/L	<2	<2
o-xylene	µg/L	<1	<1
Naphthalene	µg/L	<1	<1
Surrogate Dibromofluoromethane	%	99	100
Surrogate toluene-d8	%	96	97
Surrogate 4-BFB	%	93	93

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-003	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-003	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-005	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC with dual ECD's.

Method ID	Methodology Summary
Org-005	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC with dual ECD's. 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-006	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-ECD.
Org-006	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-008	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC with dual ECD's.
Org-012	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-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-013	Water samples are analysed directly by purge and trap GC-MS.
Org-014	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS.
Org-016	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-016	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-3	196637-7
Date extracted	-			24/07/2018	1	23/07/2018	23/07/2018		24/07/2018	23/07/2018
Date analysed	-			25/07/2018	1	24/07/2018	24/07/2018		25/07/2018	24/07/2018
TRH C_6 - C_9	mg/kg	25	Org-016	<25	1	<25	<25	0	108	100
TRH C_6 - C_{10}	mg/kg	25	Org-016	<25	1	<25	<25	0	108	100
Benzene	mg/kg	0.2	Org-016	<0.2	1	<0.2	<0.2	0	108	98
Toluene	mg/kg	0.5	Org-016	<0.5	1	<0.5	<0.5	0	106	99
Ethylbenzene	mg/kg	1	Org-016	<1	1	<1	<1	0	108	100
m+p-xylene	mg/kg	2	Org-016	<2	1	<2	<2	0	109	102
o-Xylene	mg/kg	1	Org-016	<1	1	<1	<1	0	109	103
naphthalene	mg/kg	1	Org-014	<1	1	<1	<1	0	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-016	108	1	104	92	12	106	100

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-4	196637-78
Date extracted	-			[NT]	40	23/07/2018	23/07/2018		23/07/2018	23/07/2018
Date analysed	-			[NT]	40	24/07/2018	24/07/2018		24/07/2018	24/07/2018
TRH C_6 - C_9	mg/kg	25	Org-016	[NT]	40	<25	<25	0	112	102
TRH C_6 - C_{10}	mg/kg	25	Org-016	[NT]	40	<25	<25	0	112	102
Benzene	mg/kg	0.2	Org-016	[NT]	40	<0.2	<0.2	0	109	98
Toluene	mg/kg	0.5	Org-016	[NT]	40	<0.5	<0.5	0	113	97
Ethylbenzene	mg/kg	1	Org-016	[NT]	40	<1	<1	0	112	104
m+p-xylene	mg/kg	2	Org-016	[NT]	40	<2	<2	0	114	106
o-Xylene	mg/kg	1	Org-016	[NT]	40	<1	<1	0	115	107
naphthalene	mg/kg	1	Org-014	[NT]	40	<1	<1	0	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-016	[NT]	40	92	100	8	114	98

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-5	196637-122
Date extracted	-			[NT]	72	23/07/2018	23/07/2018		23/07/2018	23/07/2018
Date analysed	-			[NT]	72	24/07/2018	24/07/2018		24/07/2018	24/07/2018
TRH C_6 - C_9	mg/kg	25	Org-016	[NT]	72	<25	<25	0	109	105
TRH C_6 - C_{10}	mg/kg	25	Org-016	[NT]	72	<25	<25	0	109	105
Benzene	mg/kg	0.2	Org-016	[NT]	72	<0.2	<0.2	0	106	101
Toluene	mg/kg	0.5	Org-016	[NT]	72	<0.5	<0.5	0	107	103
Ethylbenzene	mg/kg	1	Org-016	[NT]	72	<1	<1	0	109	106
m+p-xylene	mg/kg	2	Org-016	[NT]	72	<2	<2	0	112	108
o-Xylene	mg/kg	1	Org-016	[NT]	72	<1	<1	0	112	108
naphthalene	mg/kg	1	Org-014	[NT]	72	<1	<1	0	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-016	[NT]	72	98	91	7	109	105

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]	111	23/07/2018	23/07/2018		[NT]	[NT]
Date analysed	-			[NT]	111	24/07/2018	24/07/2018		[NT]	[NT]
TRH C_6 - C_9	mg/kg	25	Org-016	[NT]	111	<25	<25	0	[NT]	[NT]
TRH C_6 - C_{10}	mg/kg	25	Org-016	[NT]	111	<25	<25	0	[NT]	[NT]
Benzene	mg/kg	0.2	Org-016	[NT]	111	<0.2	<0.2	0	[NT]	[NT]
Toluene	mg/kg	0.5	Org-016	[NT]	111	<0.5	<0.5	0	[NT]	[NT]
Ethylbenzene	mg/kg	1	Org-016	[NT]	111	<1	<1	0	[NT]	[NT]
m+p-xylene	mg/kg	2	Org-016	[NT]	111	<2	<2	0	[NT]	[NT]
o-Xylene	mg/kg	1	Org-016	[NT]	111	<1	<1	0	[NT]	[NT]
naphthalene	mg/kg	1	Org-014	[NT]	111	<1	<1	0	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-016	[NT]	111	94	102	8	[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]	141	24/07/2018	24/07/2018		[NT]	[NT]
Date analysed	-			[NT]	141	25/07/2018	25/07/2018		[NT]	[NT]
TRH C_6 - C_9	mg/kg	25	Org-016	[NT]	141	<25	<25	0	[NT]	[NT]
TRH C_6 - C_{10}	mg/kg	25	Org-016	[NT]	141	<25	<25	0	[NT]	[NT]
Benzene	mg/kg	0.2	Org-016	[NT]	141	<0.2	<0.2	0	[NT]	[NT]
Toluene	mg/kg	0.5	Org-016	[NT]	141	<0.5	<0.5	0	[NT]	[NT]
Ethylbenzene	mg/kg	1	Org-016	[NT]	141	<1	<1	0	[NT]	[NT]
m+p-xylene	mg/kg	2	Org-016	[NT]	141	<2	<2	0	[NT]	[NT]
o-Xylene	mg/kg	1	Org-016	[NT]	141	<1	<1	0	[NT]	[NT]
naphthalene	mg/kg	1	Org-014	[NT]	141	<1	<1	0	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-016	[NT]	141	110	108	2	[NT]	[NT]

QUALITY CONTROL: svTRH (C10-C40) in Soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-3	196637-7
Date extracted	-			23/07/2018	1	23/07/2018	23/07/2018		23/07/2018	23/07/2018
Date analysed	-			24/07/2018	1	23/07/2018	23/07/2018		24/07/2018	23/07/2018
TRH C_{10} - C_{14}	mg/kg	50	Org-003	<50	1	<50	<50	0	102	102
TRH C_{15} - C_{28}	mg/kg	100	Org-003	<100	1	<100	<100	0	87	76
TRH C_{29} - C_{36}	mg/kg	100	Org-003	<100	1	<100	<100	0	108	91
TRH >C_{10} -C_{16}	mg/kg	50	Org-003	<50	1	<50	<50	0	102	102
TRH >C_{16} -C_{34}	mg/kg	100	Org-003	<100	1	<100	<100	0	87	76
TRH >C_{34} -C_{40}	mg/kg	100	Org-003	<100	1	<100	<100	0	108	91
Surrogate o-Terphenyl	%		Org-003	86	1	91	90	1	93	89

QUALITY CONTROL: svTRH (C10-C40) in Soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-4	196637-78
Date extracted	-			[NT]	40	23/07/2018	23/07/2018		23/07/2018	23/07/2018
Date analysed	-			[NT]	40	23/07/2018	24/07/2018		24/07/2018	24/07/2018
TRH C_{10} - C_{14}	mg/kg	50	Org-003	[NT]	40	<50	<50	0	102	107
TRH C_{15} - C_{28}	mg/kg	100	Org-003	[NT]	40	<100	<100	0	86	84
TRH C_{29} - C_{36}	mg/kg	100	Org-003	[NT]	40	<100	<100	0	92	116
TRH >C_{10} -C_{16}	mg/kg	50	Org-003	[NT]	40	<50	<50	0	102	107
TRH >C_{16} -C_{34}	mg/kg	100	Org-003	[NT]	40	<100	<100	0	86	84
TRH >C_{34} -C_{40}	mg/kg	100	Org-003	[NT]	40	<100	<100	0	92	116
Surrogate o-Terphenyl	%		Org-003	[NT]	40	90	90	0	94	97

QUALITY CONTROL: svTRH (C10-C40) in Soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-5	196637-122
Date extracted	-			[NT]	49	24/07/2018	24/07/2018		23/07/2018	23/07/2018
Date analysed	-			[NT]	49	25/07/2018	25/07/2018		24/07/2018	24/07/2018
TRH C_{10} - C_{14}	mg/kg	50	Org-003	[NT]	49	<50	<50	0	104	92
TRH C_{15} - C_{28}	mg/kg	100	Org-003	[NT]	49	270	<100	92	89	84
TRH C_{29} - C_{36}	mg/kg	100	Org-003	[NT]	49	140	120	15	77	105
TRH >C_{10} -C_{16}	mg/kg	50	Org-003	[NT]	49	<50	<50	0	104	92
TRH >C_{16} -C_{34}	mg/kg	100	Org-003	[NT]	49	240	140	53	89	84
TRH >C_{34} -C_{40}	mg/kg	100	Org-003	[NT]	49	<100	<100	0	77	105
Surrogate o-Terphenyl	%		Org-003	[NT]	49	84	84	0	94	87

QUALITY CONTROL: svTRH (C10-C40) in Soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	72	23/07/2018	23/07/2018		[NT]	[NT]
Date analysed	-			[NT]	72	24/07/2018	24/07/2018		[NT]	[NT]
TRH C_{10} - C_{14}	mg/kg	50	Org-003	[NT]	72	<50	<50	0	[NT]	[NT]
TRH C_{15} - C_{28}	mg/kg	100	Org-003	[NT]	72	<100	<100	0	[NT]	[NT]
TRH C_{29} - C_{36}	mg/kg	100	Org-003	[NT]	72	<100	<100	0	[NT]	[NT]
TRH >C_{10} -C_{16}	mg/kg	50	Org-003	[NT]	72	<50	<50	0	[NT]	[NT]
TRH >C_{16} -C_{34}	mg/kg	100	Org-003	[NT]	72	<100	<100	0	[NT]	[NT]
TRH >C_{34} -C_{40}	mg/kg	100	Org-003	[NT]	72	<100	<100	0	[NT]	[NT]
Surrogate o-Terphenyl	%		Org-003	[NT]	72	89	89	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]	111	23/07/2018	23/07/2018		[NT]	[NT]
Date analysed	-			[NT]	111	24/07/2018	24/07/2018		[NT]	[NT]
TRH C_{10} - C_{14}	mg/kg	50	Org-003	[NT]	111	<50	<50	0	[NT]	[NT]
TRH C_{15} - C_{28}	mg/kg	100	Org-003	[NT]	111	<100	<100	0	[NT]	[NT]
TRH C_{29} - C_{36}	mg/kg	100	Org-003	[NT]	111	<100	<100	0	[NT]	[NT]
TRH >C_{10} -C_{16}	mg/kg	50	Org-003	[NT]	111	<50	<50	0	[NT]	[NT]
TRH >C_{16} -C_{34}	mg/kg	100	Org-003	[NT]	111	<100	<100	0	[NT]	[NT]
TRH >C_{34} -C_{40}	mg/kg	100	Org-003	[NT]	111	<100	<100	0	[NT]	[NT]
Surrogate o-Terphenyl	%		Org-003	[NT]	111	88	88	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]	141	23/07/2018	23/07/2018		[NT]	[NT]
Date analysed	-			[NT]	141	23/07/2018	23/07/2018		[NT]	[NT]
TRH C_{10} - C_{14}	mg/kg	50	Org-003	[NT]	141	100	120	18	[NT]	[NT]
TRH C_{15} - C_{28}	mg/kg	100	Org-003	[NT]	141	660	800	19	[NT]	[NT]
TRH C_{29} - C_{36}	mg/kg	100	Org-003	[NT]	141	740	870	16	[NT]	[NT]
TRH >C_{10} -C_{16}	mg/kg	50	Org-003	[NT]	141	230	280	20	[NT]	[NT]
TRH >C_{16} -C_{34}	mg/kg	100	Org-003	[NT]	141	1100	1300	17	[NT]	[NT]
TRH >C_{34} -C_{40}	mg/kg	100	Org-003	[NT]	141	310	360	15	[NT]	[NT]
Surrogate o-Terphenyl	%		Org-003	[NT]	141	98	102	4	[NT]	[NT]

QUALITY CONTROL: PAHs in Soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-3	196637-7
Date extracted	-			23/07/2018	1	23/07/2018	23/07/2018		23/07/2018	23/07/2018
Date analysed	-			24/07/2018	1	24/07/2018	24/07/2018		24/07/2018	24/07/2018
Naphthalene	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	100	89
Acenaphthylene	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Acenaphthene	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Fluorene	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	109	91
Phenanthrene	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	95	88
Anthracene	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Fluoranthene	mg/kg	0.1	Org-012	<0.1	1	0.3	0.2	40	94	90
Pyrene	mg/kg	0.1	Org-012	<0.1	1	0.4	0.2	67	99	96
Benzo(a)anthracene	mg/kg	0.1	Org-012	<0.1	1	0.2	<0.1	67	[NT]	[NT]
Chrysene	mg/kg	0.1	Org-012	<0.1	1	0.3	0.1	100	99	94
Benzo(b,j+k)fluoranthene	mg/kg	0.2	Org-012	<0.2	1	0.5	0.2	86	[NT]	[NT]
Benzo(a)pyrene	mg/kg	0.05	Org-012	<0.05	1	0.3	0.1	100	95	90
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-012	<0.1	1	0.2	<0.1	67	[NT]	[NT]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-012	<0.1	1	0.2	0.1	67	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-012	91	1	85	86	1	113	119

QUALITY CONTROL: PAHs in Soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-4	196637-78
Date extracted	-			[NT]	40	23/07/2018	23/07/2018		23/07/2018	23/07/2018
Date analysed	-			[NT]	40	24/07/2018	24/07/2018		24/07/2018	24/07/2018
Naphthalene	mg/kg	0.1	Org-012	[NT]	40	<0.1	<0.1	0	102	88
Acenaphthylene	mg/kg	0.1	Org-012	[NT]	40	<0.1	<0.1	0	[NT]	[NT]
Acenaphthene	mg/kg	0.1	Org-012	[NT]	40	<0.1	<0.1	0	[NT]	[NT]
Fluorene	mg/kg	0.1	Org-012	[NT]	40	<0.1	<0.1	0	114	91
Phenanthrene	mg/kg	0.1	Org-012	[NT]	40	<0.1	<0.1	0	98	89
Anthracene	mg/kg	0.1	Org-012	[NT]	40	<0.1	<0.1	0	[NT]	[NT]
Fluoranthene	mg/kg	0.1	Org-012	[NT]	40	<0.1	<0.1	0	101	92
Pyrene	mg/kg	0.1	Org-012	[NT]	40	<0.1	<0.1	0	106	97
Benzo(a)anthracene	mg/kg	0.1	Org-012	[NT]	40	<0.1	<0.1	0	[NT]	[NT]
Chrysene	mg/kg	0.1	Org-012	[NT]	40	<0.1	<0.1	0	103	97
Benzo(b,j+k)fluoranthene	mg/kg	0.2	Org-012	[NT]	40	<0.2	<0.2	0	[NT]	[NT]
Benzo(a)pyrene	mg/kg	0.05	Org-012	[NT]	40	<0.05	<0.05	0	97	89
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-012	[NT]	40	<0.1	<0.1	0	[NT]	[NT]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-012	[NT]	40	<0.1	<0.1	0	[NT]	[NT]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-012	[NT]	40	<0.1	<0.1	0	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-012	[NT]	40	85	87	2	125	120

QUALITY CONTROL: PAHs in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-5	196637-122
Date extracted	-			[NT]	49	23/07/2018	24/07/2018		23/07/2018	23/07/2018
Date analysed	-			[NT]	49	24/07/2018	25/07/2018		24/07/2018	24/07/2018
Naphthalene	mg/kg	0.1	Org-012	[NT]	49	0.1	<0.1	0	101	90
Acenaphthylene	mg/kg	0.1	Org-012	[NT]	49	0.4	<0.1	120	[NT]	[NT]
Acenaphthene	mg/kg	0.1	Org-012	[NT]	49	<0.1	<0.1	0	[NT]	[NT]
Fluorene	mg/kg	0.1	Org-012	[NT]	49	0.2	<0.1	67	112	93
Phenanthrene	mg/kg	0.1	Org-012	[NT]	49	3.7	0.4	161	95	90
Anthracene	mg/kg	0.1	Org-012	[NT]	49	1	0.1	164	[NT]	[NT]
Fluoranthene	mg/kg	0.1	Org-012	[NT]	49	12	1	169	98	94
Pyrene	mg/kg	0.1	Org-012	[NT]	49	13	1	171	103	98
Benzo(a)anthracene	mg/kg	0.1	Org-012	[NT]	49	6.4	0.5	171	[NT]	[NT]
Chrysene	mg/kg	0.1	Org-012	[NT]	49	4.8	0.5	162	101	95
Benzo(b,j+k)fluoranthene	mg/kg	0.2	Org-012	[NT]	49	7.7	0.8	162	[NT]	[NT]
Benzo(a)pyrene	mg/kg	0.05	Org-012	[NT]	49	5.6	0.53	165	93	85
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-012	[NT]	49	2.2	0.2	167	[NT]	[NT]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-012	[NT]	49	0.6	<0.1	143	[NT]	[NT]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-012	[NT]	49	2.6	0.3	159	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-012	[NT]	49	102	94	8	122	123

QUALITY CONTROL: PAHs in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	72	23/07/2018	23/07/2018		[NT]	[NT]
Date analysed	-			[NT]	72	24/07/2018	24/07/2018		[NT]	[NT]
Naphthalene	mg/kg	0.1	Org-012	[NT]	72	<0.1	<0.1	0	[NT]	[NT]
Acenaphthylene	mg/kg	0.1	Org-012	[NT]	72	<0.1	<0.1	0	[NT]	[NT]
Acenaphthene	mg/kg	0.1	Org-012	[NT]	72	<0.1	<0.1	0	[NT]	[NT]
Fluorene	mg/kg	0.1	Org-012	[NT]	72	<0.1	<0.1	0	[NT]	[NT]
Phenanthrene	mg/kg	0.1	Org-012	[NT]	72	<0.1	<0.1	0	[NT]	[NT]
Anthracene	mg/kg	0.1	Org-012	[NT]	72	<0.1	<0.1	0	[NT]	[NT]
Fluoranthene	mg/kg	0.1	Org-012	[NT]	72	0.3	0.2	40	[NT]	[NT]
Pyrene	mg/kg	0.1	Org-012	[NT]	72	0.3	0.2	40	[NT]	[NT]
Benzo(a)anthracene	mg/kg	0.1	Org-012	[NT]	72	0.2	0.1	67	[NT]	[NT]
Chrysene	mg/kg	0.1	Org-012	[NT]	72	0.2	0.1	67	[NT]	[NT]
Benzo(b,j+k)fluoranthene	mg/kg	0.2	Org-012	[NT]	72	0.4	0.2	67	[NT]	[NT]
Benzo(a)pyrene	mg/kg	0.05	Org-012	[NT]	72	0.3	0.1	100	[NT]	[NT]
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-012	[NT]	72	0.1	<0.1	0	[NT]	[NT]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-012	[NT]	72	<0.1	<0.1	0	[NT]	[NT]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-012	[NT]	72	0.1	<0.1	0	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-012	[NT]	72	86	87	1	[NT]	[NT]

QUALITY CONTROL: PAHs in Soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	111	23/07/2018	23/07/2018		[NT]	[NT]
Date analysed	-			[NT]	111	24/07/2018	24/07/2018		[NT]	[NT]
Naphthalene	mg/kg	0.1	Org-012	[NT]	111	<0.1	<0.1	0	[NT]	[NT]
Acenaphthylene	mg/kg	0.1	Org-012	[NT]	111	<0.1	<0.1	0	[NT]	[NT]
Acenaphthene	mg/kg	0.1	Org-012	[NT]	111	<0.1	<0.1	0	[NT]	[NT]
Fluorene	mg/kg	0.1	Org-012	[NT]	111	<0.1	<0.1	0	[NT]	[NT]
Phenanthrene	mg/kg	0.1	Org-012	[NT]	111	<0.1	<0.1	0	[NT]	[NT]
Anthracene	mg/kg	0.1	Org-012	[NT]	111	<0.1	<0.1	0	[NT]	[NT]
Fluoranthene	mg/kg	0.1	Org-012	[NT]	111	<0.1	<0.1	0	[NT]	[NT]
Pyrene	mg/kg	0.1	Org-012	[NT]	111	<0.1	<0.1	0	[NT]	[NT]
Benzo(a)anthracene	mg/kg	0.1	Org-012	[NT]	111	<0.1	<0.1	0	[NT]	[NT]
Chrysene	mg/kg	0.1	Org-012	[NT]	111	<0.1	<0.1	0	[NT]	[NT]
Benzo(b,j+k)fluoranthene	mg/kg	0.2	Org-012	[NT]	111	<0.2	<0.2	0	[NT]	[NT]
Benzo(a)pyrene	mg/kg	0.05	Org-012	[NT]	111	0.06	0.06	0	[NT]	[NT]
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-012	[NT]	111	<0.1	<0.1	0	[NT]	[NT]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-012	[NT]	111	<0.1	<0.1	0	[NT]	[NT]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-012	[NT]	111	<0.1	<0.1	0	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-012	[NT]	111	89	86	3	[NT]	[NT]

QUALITY CONTROL: PAHs in Soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	141	23/07/2018	23/07/2018		[NT]	[NT]
Date analysed	-			[NT]	141	24/07/2018	24/07/2018		[NT]	[NT]
Naphthalene	mg/kg	0.1	Org-012	[NT]	141	<0.1	<0.1	0	[NT]	[NT]
Acenaphthylene	mg/kg	0.1	Org-012	[NT]	141	<0.1	<0.1	0	[NT]	[NT]
Acenaphthene	mg/kg	0.1	Org-012	[NT]	141	<0.1	<0.1	0	[NT]	[NT]
Fluorene	mg/kg	0.1	Org-012	[NT]	141	<0.1	<0.1	0	[NT]	[NT]
Phenanthrene	mg/kg	0.1	Org-012	[NT]	141	0.1	0.3	100	[NT]	[NT]
Anthracene	mg/kg	0.1	Org-012	[NT]	141	<0.1	<0.1	0	[NT]	[NT]
Fluoranthene	mg/kg	0.1	Org-012	[NT]	141	0.4	0.7	55	[NT]	[NT]
Pyrene	mg/kg	0.1	Org-012	[NT]	141	0.5	0.8	46	[NT]	[NT]
Benzo(a)anthracene	mg/kg	0.1	Org-012	[NT]	141	0.3	0.4	29	[NT]	[NT]
Chrysene	mg/kg	0.1	Org-012	[NT]	141	0.3	0.4	29	[NT]	[NT]
Benzo(b,j+k)fluoranthene	mg/kg	0.2	Org-012	[NT]	141	0.6	0.7	15	[NT]	[NT]
Benzo(a)pyrene	mg/kg	0.05	Org-012	[NT]	141	0.3	0.4	29	[NT]	[NT]
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-012	[NT]	141	0.1	0.1	0	[NT]	[NT]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-012	[NT]	141	<0.1	<0.1	0	[NT]	[NT]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-012	[NT]	141	0.2	0.2	0	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-012	[NT]	141	96	97	1	[NT]	[NT]

QUALITY CONTROL: Organochlorine Pesticides in soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-3	196637-7
Date extracted	-			23/07/2018	1	23/07/2018	23/07/2018		23/07/2018	23/07/2018
Date analysed	-			24/07/2018	1	23/07/2018	23/07/2018		23/07/2018	23/07/2018
HCB	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
alpha-BHC	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	107	113
gamma-BHC	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
beta-BHC	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	95	101
Heptachlor	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	104	110
delta-BHC	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aldrin	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	102	108
Heptachlor Epoxide	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	100	111
gamma-Chlordane	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
alpha-chlordane	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Endosulfan I	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
pp-DDE	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	109	117
Dieldrin	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	116	124
Endrin	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	100	110
pp-DDD	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	106	115
Endosulfan II	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
pp-DDT	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Endrin Aldehyde	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Endosulfan Sulphate	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	121	130
Methoxychlor	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-005	107	1	117	122	4	101	106

QUALITY CONTROL: Organochlorine Pesticides in soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-4	196637-78
Date extracted	-			[NT]	40	23/07/2018	23/07/2018		23/07/2018	23/07/2018
Date analysed	-			[NT]	40	24/07/2018	23/07/2018		24/07/2018	24/07/2018
HCB	mg/kg	0.1	Org-005	[NT]	40	<0.1	<0.1	0	[NT]	[NT]
alpha-BHC	mg/kg	0.1	Org-005	[NT]	40	<0.1	<0.1	0	110	113
gamma-BHC	mg/kg	0.1	Org-005	[NT]	40	<0.1	<0.1	0	[NT]	[NT]
beta-BHC	mg/kg	0.1	Org-005	[NT]	40	<0.1	<0.1	0	102	103
Heptachlor	mg/kg	0.1	Org-005	[NT]	40	<0.1	<0.1	0	105	106
delta-BHC	mg/kg	0.1	Org-005	[NT]	40	<0.1	<0.1	0	[NT]	[NT]
Aldrin	mg/kg	0.1	Org-005	[NT]	40	<0.1	<0.1	0	110	113
Heptachlor Epoxide	mg/kg	0.1	Org-005	[NT]	40	<0.1	<0.1	0	106	114
gamma-Chlordane	mg/kg	0.1	Org-005	[NT]	40	<0.1	<0.1	0	[NT]	[NT]
alpha-chlordane	mg/kg	0.1	Org-005	[NT]	40	<0.1	<0.1	0	[NT]	[NT]
Endosulfan I	mg/kg	0.1	Org-005	[NT]	40	<0.1	<0.1	0	[NT]	[NT]
pp-DDE	mg/kg	0.1	Org-005	[NT]	40	<0.1	<0.1	0	116	117
Dieldrin	mg/kg	0.1	Org-005	[NT]	40	<0.1	<0.1	0	122	123
Endrin	mg/kg	0.1	Org-005	[NT]	40	<0.1	<0.1	0	103	104
pp-DDD	mg/kg	0.1	Org-005	[NT]	40	<0.1	<0.1	0	112	110
Endosulfan II	mg/kg	0.1	Org-005	[NT]	40	<0.1	<0.1	0	[NT]	[NT]
pp-DDT	mg/kg	0.1	Org-005	[NT]	40	<0.1	<0.1	0	[NT]	[NT]
Endrin Aldehyde	mg/kg	0.1	Org-005	[NT]	40	<0.1	<0.1	0	[NT]	[NT]
Endosulfan Sulphate	mg/kg	0.1	Org-005	[NT]	40	<0.1	<0.1	0	102	93
Methoxychlor	mg/kg	0.1	Org-005	[NT]	40	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-005	[NT]	40	119	99	18	111	110

QUALITY CONTROL: Organochlorine Pesticides in soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-5	[NT]
Date extracted	-			[NT]	72	23/07/2018	23/07/2018		23/07/2018	[NT]
Date analysed	-			[NT]	72	24/07/2018	24/07/2018		24/07/2018	[NT]
HCB	mg/kg	0.1	Org-005	[NT]	72	<0.1	<0.1	0	[NT]	[NT]
alpha-BHC	mg/kg	0.1	Org-005	[NT]	72	<0.1	<0.1	0	105	[NT]
gamma-BHC	mg/kg	0.1	Org-005	[NT]	72	<0.1	<0.1	0	[NT]	[NT]
beta-BHC	mg/kg	0.1	Org-005	[NT]	72	<0.1	<0.1	0	95	[NT]
Heptachlor	mg/kg	0.1	Org-005	[NT]	72	<0.1	<0.1	0	98	[NT]
delta-BHC	mg/kg	0.1	Org-005	[NT]	72	<0.1	<0.1	0	[NT]	[NT]
Aldrin	mg/kg	0.1	Org-005	[NT]	72	<0.1	<0.1	0	103	[NT]
Heptachlor Epoxide	mg/kg	0.1	Org-005	[NT]	72	<0.1	<0.1	0	99	[NT]
gamma-Chlordane	mg/kg	0.1	Org-005	[NT]	72	<0.1	<0.1	0	[NT]	[NT]
alpha-chlordane	mg/kg	0.1	Org-005	[NT]	72	<0.1	<0.1	0	[NT]	[NT]
Endosulfan I	mg/kg	0.1	Org-005	[NT]	72	<0.1	<0.1	0	[NT]	[NT]
pp-DDE	mg/kg	0.1	Org-005	[NT]	72	<0.1	<0.1	0	106	[NT]
Dieldrin	mg/kg	0.1	Org-005	[NT]	72	<0.1	<0.1	0	113	[NT]
Endrin	mg/kg	0.1	Org-005	[NT]	72	<0.1	<0.1	0	94	[NT]
pp-DDD	mg/kg	0.1	Org-005	[NT]	72	<0.1	<0.1	0	100	[NT]
Endosulfan II	mg/kg	0.1	Org-005	[NT]	72	<0.1	<0.1	0	[NT]	[NT]
pp-DDT	mg/kg	0.1	Org-005	[NT]	72	<0.1	<0.1	0	[NT]	[NT]
Endrin Aldehyde	mg/kg	0.1	Org-005	[NT]	72	<0.1	<0.1	0	[NT]	[NT]
Endosulfan Sulphate	mg/kg	0.1	Org-005	[NT]	72	<0.1	<0.1	0	90	[NT]
Methoxychlor	mg/kg	0.1	Org-005	[NT]	72	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-005	[NT]	72	121	119	2	104	[NT]

QUALITY CONTROL: Organochlorine Pesticides in soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	141	23/07/2018	23/07/2018		[NT]	[NT]
Date analysed	-			[NT]	141	24/07/2018	24/07/2018		[NT]	[NT]
HCB	mg/kg	0.1	Org-005	[NT]	141	<0.1	<0.1	0	[NT]	[NT]
alpha-BHC	mg/kg	0.1	Org-005	[NT]	141	<0.1	<0.1	0	[NT]	[NT]
gamma-BHC	mg/kg	0.1	Org-005	[NT]	141	<0.1	<0.1	0	[NT]	[NT]
beta-BHC	mg/kg	0.1	Org-005	[NT]	141	<0.1	<0.1	0	[NT]	[NT]
Heptachlor	mg/kg	0.1	Org-005	[NT]	141	<0.1	<0.1	0	[NT]	[NT]
delta-BHC	mg/kg	0.1	Org-005	[NT]	141	<0.1	<0.1	0	[NT]	[NT]
Aldrin	mg/kg	0.1	Org-005	[NT]	141	<0.1	<0.1	0	[NT]	[NT]
Heptachlor Epoxide	mg/kg	0.1	Org-005	[NT]	141	<0.1	<0.1	0	[NT]	[NT]
gamma-Chlordane	mg/kg	0.1	Org-005	[NT]	141	<0.1	<0.1	0	[NT]	[NT]
alpha-chlordane	mg/kg	0.1	Org-005	[NT]	141	<0.1	<0.1	0	[NT]	[NT]
Endosulfan I	mg/kg	0.1	Org-005	[NT]	141	<0.1	<0.1	0	[NT]	[NT]
pp-DDE	mg/kg	0.1	Org-005	[NT]	141	<0.1	<0.1	0	[NT]	[NT]
Dieldrin	mg/kg	0.1	Org-005	[NT]	141	<0.1	<0.1	0	[NT]	[NT]
Endrin	mg/kg	0.1	Org-005	[NT]	141	<0.1	<0.1	0	[NT]	[NT]
pp-DDD	mg/kg	0.1	Org-005	[NT]	141	<0.1	<0.1	0	[NT]	[NT]
Endosulfan II	mg/kg	0.1	Org-005	[NT]	141	<0.1	<0.1	0	[NT]	[NT]
pp-DDT	mg/kg	0.1	Org-005	[NT]	141	<0.1	<0.1	0	[NT]	[NT]
Endrin Aldehyde	mg/kg	0.1	Org-005	[NT]	141	<0.1	<0.1	0	[NT]	[NT]
Endosulfan Sulphate	mg/kg	0.1	Org-005	[NT]	141	<0.1	<0.1	0	[NT]	[NT]
Methoxychlor	mg/kg	0.1	Org-005	[NT]	141	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-005	[NT]	141	107	107	0	[NT]	[NT]

QUALITY CONTROL: Organophosphorus Pesticides					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-3	196637-7
Date extracted	-			23/07/2018	1	23/07/2018	23/07/2018		23/07/2018	23/07/2018
Date analysed	-			24/07/2018	1	23/07/2018	23/07/2018		23/07/2018	23/07/2018
Azinphos-methyl (Guthion)	mg/kg	0.1	Org-008	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Bromophos-ethyl	mg/kg	0.1	Org-008	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Chlorpyriphos	mg/kg	0.1	Org-008	<0.1	1	<0.1	<0.1	0	100	104
Chlorpyriphos-methyl	mg/kg	0.1	Org-008	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Diazinon	mg/kg	0.1	Org-008	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Dichlorvos	mg/kg	0.1	Org-008	<0.1	1	<0.1	<0.1	0	93	79
Dimethoate	mg/kg	0.1	Org-008	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Ethion	mg/kg	0.1	Org-008	<0.1	1	<0.1	<0.1	0	101	104
Fenitrothion	mg/kg	0.1	Org-008	<0.1	1	<0.1	<0.1	0	113	110
Malathion	mg/kg	0.1	Org-008	<0.1	1	<0.1	<0.1	0	102	89
Parathion	mg/kg	0.1	Org-008	<0.1	1	<0.1	<0.1	0	107	110
Ronnel	mg/kg	0.1	Org-008	<0.1	1	<0.1	<0.1	0	112	114
Surrogate TCMX	%		Org-008	107	1	117	122	4	107	114

QUALITY CONTROL: Organophosphorus Pesticides					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-4	196637-78
Date extracted	-			[NT]	40	23/07/2018	23/07/2018		23/07/2018	23/07/2018
Date analysed	-			[NT]	40	24/07/2018	23/07/2018		24/07/2018	24/07/2018
Azinphos-methyl (Guthion)	mg/kg	0.1	Org-008	[NT]	40	<0.1	<0.1	0	[NT]	[NT]
Bromophos-ethyl	mg/kg	0.1	Org-008	[NT]	40	<0.1	<0.1	0	[NT]	[NT]
Chlorpyriphos	mg/kg	0.1	Org-008	[NT]	40	<0.1	<0.1	0	107	106
Chlorpyriphos-methyl	mg/kg	0.1	Org-008	[NT]	40	<0.1	<0.1	0	[NT]	[NT]
Diazinon	mg/kg	0.1	Org-008	[NT]	40	<0.1	<0.1	0	[NT]	[NT]
Dichlorvos	mg/kg	0.1	Org-008	[NT]	40	<0.1	<0.1	0	90	83
Dimethoate	mg/kg	0.1	Org-008	[NT]	40	<0.1	<0.1	0	[NT]	[NT]
Ethion	mg/kg	0.1	Org-008	[NT]	40	<0.1	<0.1	0	88	115
Fenitrothion	mg/kg	0.1	Org-008	[NT]	40	<0.1	<0.1	0	94	104
Malathion	mg/kg	0.1	Org-008	[NT]	40	<0.1	<0.1	0	76	74
Parathion	mg/kg	0.1	Org-008	[NT]	40	<0.1	<0.1	0	110	106
Ronnel	mg/kg	0.1	Org-008	[NT]	40	<0.1	<0.1	0	123	124
Surrogate TCMX	%		Org-008	[NT]	40	119	99	18	114	118

QUALITY CONTROL: Organophosphorus Pesticides					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-5	[NT]
Date extracted	-			[NT]	72	23/07/2018	23/07/2018		23/07/2018	[NT]
Date analysed	-			[NT]	72	24/07/2018	24/07/2018		24/07/2018	[NT]
Azinphos-methyl (Guthion)	mg/kg	0.1	Org-008	[NT]	72	<0.1	<0.1	0	[NT]	[NT]
Bromophos-ethyl	mg/kg	0.1	Org-008	[NT]	72	<0.1	<0.1	0	[NT]	[NT]
Chlorpyriphos	mg/kg	0.1	Org-008	[NT]	72	<0.1	<0.1	0	108	[NT]
Chlorpyriphos-methyl	mg/kg	0.1	Org-008	[NT]	72	<0.1	<0.1	0	[NT]	[NT]
Diazinon	mg/kg	0.1	Org-008	[NT]	72	<0.1	<0.1	0	[NT]	[NT]
Dichlorvos	mg/kg	0.1	Org-008	[NT]	72	<0.1	<0.1	0	92	[NT]
Dimethoate	mg/kg	0.1	Org-008	[NT]	72	<0.1	<0.1	0	[NT]	[NT]
Ethion	mg/kg	0.1	Org-008	[NT]	72	<0.1	<0.1	0	129	[NT]
Fenitrothion	mg/kg	0.1	Org-008	[NT]	72	<0.1	<0.1	0	100	[NT]
Malathion	mg/kg	0.1	Org-008	[NT]	72	<0.1	<0.1	0	74	[NT]
Parathion	mg/kg	0.1	Org-008	[NT]	72	<0.1	<0.1	0	117	[NT]
Ronnel	mg/kg	0.1	Org-008	[NT]	72	<0.1	<0.1	0	123	[NT]
Surrogate TCMX	%		Org-008	[NT]	72	121	119	2	113	[NT]

QUALITY CONTROL: Organophosphorus Pesticides					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	141	23/07/2018	23/07/2018		[NT]	[NT]
Date analysed	-			[NT]	141	24/07/2018	24/07/2018		[NT]	[NT]
Azinphos-methyl (Guthion)	mg/kg	0.1	Org-008	[NT]	141	<0.1	<0.1	0	[NT]	[NT]
Bromophos-ethyl	mg/kg	0.1	Org-008	[NT]	141	<0.1	<0.1	0	[NT]	[NT]
Chlorpyriphos	mg/kg	0.1	Org-008	[NT]	141	<0.1	<0.1	0	[NT]	[NT]
Chlorpyriphos-methyl	mg/kg	0.1	Org-008	[NT]	141	<0.1	<0.1	0	[NT]	[NT]
Diazinon	mg/kg	0.1	Org-008	[NT]	141	<0.1	<0.1	0	[NT]	[NT]
Dichlorvos	mg/kg	0.1	Org-008	[NT]	141	<0.1	<0.1	0	[NT]	[NT]
Dimethoate	mg/kg	0.1	Org-008	[NT]	141	<0.1	<0.1	0	[NT]	[NT]
Ethion	mg/kg	0.1	Org-008	[NT]	141	<0.1	<0.1	0	[NT]	[NT]
Fenitrothion	mg/kg	0.1	Org-008	[NT]	141	<0.1	<0.1	0	[NT]	[NT]
Malathion	mg/kg	0.1	Org-008	[NT]	141	<0.1	<0.1	0	[NT]	[NT]
Parathion	mg/kg	0.1	Org-008	[NT]	141	<0.1	<0.1	0	[NT]	[NT]
Ronnel	mg/kg	0.1	Org-008	[NT]	141	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-008	[NT]	141	107	107	0	[NT]	[NT]

QUALITY CONTROL: PCBs in Soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-3	196637-7
Date extracted	-			23/07/2018	1	23/07/2018	23/07/2018		23/07/2018	23/07/2018
Date analysed	-			24/07/2018	1	23/07/2018	23/07/2018		23/07/2018	23/07/2018
Aroclor 1016	mg/kg	0.1	Org-006	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1221	mg/kg	0.1	Org-006	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1232	mg/kg	0.1	Org-006	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1242	mg/kg	0.1	Org-006	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1248	mg/kg	0.1	Org-006	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1254	mg/kg	0.1	Org-006	<0.1	1	<0.1	<0.1	0	116	115
Aroclor 1260	mg/kg	0.1	Org-006	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCLMX	%		Org-006	107	1	117	122	4	107	114

QUALITY CONTROL: PCBs in Soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-4	196637-78
Date extracted	-			[NT]	40	23/07/2018	23/07/2018		23/07/2018	23/07/2018
Date analysed	-			[NT]	40	24/07/2018	23/07/2018		24/07/2018	24/07/2018
Aroclor 1016	mg/kg	0.1	Org-006	[NT]	40	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1221	mg/kg	0.1	Org-006	[NT]	40	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1232	mg/kg	0.1	Org-006	[NT]	40	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1242	mg/kg	0.1	Org-006	[NT]	40	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1248	mg/kg	0.1	Org-006	[NT]	40	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1254	mg/kg	0.1	Org-006	[NT]	40	<0.1	<0.1	0	122	121
Aroclor 1260	mg/kg	0.1	Org-006	[NT]	40	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCLMX	%		Org-006	[NT]	40	119	99	18	114	118

QUALITY CONTROL: PCBs in Soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-5	[NT]
Date extracted	-			[NT]	72	25/07/2018	23/07/2018		23/07/2018	[NT]
Date analysed	-			[NT]	72	26/07/2018	24/07/2018		24/07/2018	[NT]
Aroclor 1016	mg/kg	0.1	Org-006	[NT]	72	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1221	mg/kg	0.1	Org-006	[NT]	72	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1232	mg/kg	0.1	Org-006	[NT]	72	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1242	mg/kg	0.1	Org-006	[NT]	72	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1248	mg/kg	0.1	Org-006	[NT]	72	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1254	mg/kg	0.1	Org-006	[NT]	72	<0.1	<0.1	0	120	[NT]
Aroclor 1260	mg/kg	0.1	Org-006	[NT]	72	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCLMX	%		Org-006	[NT]	72	92	119	26	113	[NT]

QUALITY CONTROL: PCBs in Soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	141	23/07/2018	23/07/2018		[NT]	[NT]
Date analysed	-			[NT]	141	24/07/2018	24/07/2018		[NT]	[NT]
Aroclor 1016	mg/kg	0.1	Org-006	[NT]	141	<0.5	<0.5	0	[NT]	[NT]
Aroclor 1221	mg/kg	0.1	Org-006	[NT]	141	<0.5	<0.5	0	[NT]	[NT]
Aroclor 1232	mg/kg	0.1	Org-006	[NT]	141	<0.5	<0.5	0	[NT]	[NT]
Aroclor 1242	mg/kg	0.1	Org-006	[NT]	141	<0.5	<0.5	0	[NT]	[NT]
Aroclor 1248	mg/kg	0.1	Org-006	[NT]	141	<0.5	<0.5	0	[NT]	[NT]
Aroclor 1254	mg/kg	0.1	Org-006	[NT]	141	<0.5	<0.5	0	[NT]	[NT]
Aroclor 1260	mg/kg	0.1	Org-006	[NT]	141	<0.5	<0.5	0	[NT]	[NT]
Surrogate TCLMX	%		Org-006	[NT]	141	107	107	0	[NT]	[NT]

QUALITY CONTROL: Acid Extractable metals in soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-3	196637-7
Date prepared	-			23/07/2018	1	23/07/2018	23/07/2018		23/07/2018	23/07/2018
Date analysed	-			23/07/2018	1	23/07/2018	23/07/2018		23/07/2018	23/07/2018
Arsenic	mg/kg	4	Metals-020	<4	1	5	<4	22	100	83
Cadmium	mg/kg	0.4	Metals-020	<0.4	1	<0.4	<0.4	0	93	82
Chromium	mg/kg	1	Metals-020	<1	1	13	9	36	97	94
Copper	mg/kg	1	Metals-020	<1	1	14	16	13	103	95
Lead	mg/kg	1	Metals-020	<1	1	64	72	12	97	85
Mercury	mg/kg	0.1	Metals-021	<0.1	1	0.2	0.2	0	97	103
Nickel	mg/kg	1	Metals-020	<1	1	3	3	0	99	87
Zinc	mg/kg	1	Metals-020	<1	1	110	120	9	92	72

QUALITY CONTROL: Acid Extractable metals in soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-4	196637-78
Date prepared	-			[NT]	40	23/07/2018	23/07/2018		23/07/2018	23/07/2018
Date analysed	-			[NT]	40	23/07/2018	23/07/2018		23/07/2018	23/07/2018
Arsenic	mg/kg	4	Metals-020	[NT]	40	<4	<4	0	99	84
Cadmium	mg/kg	0.4	Metals-020	[NT]	40	<0.4	<0.4	0	93	87
Chromium	mg/kg	1	Metals-020	[NT]	40	6	6	0	96	87
Copper	mg/kg	1	Metals-020	[NT]	40	8	8	0	101	98
Lead	mg/kg	1	Metals-020	[NT]	40	24	24	0	97	92
Mercury	mg/kg	0.1	Metals-021	[NT]	40	<0.1	<0.1	0	98	104
Nickel	mg/kg	1	Metals-020	[NT]	40	3	3	0	98	94
Zinc	mg/kg	1	Metals-020	[NT]	40	28	25	11	92	87

QUALITY CONTROL: Acid Extractable metals in soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-5	196637-122
Date prepared	-			[NT]	72	23/07/2018	23/07/2018		23/07/2018	23/07/2018
Date analysed	-			[NT]	72	23/07/2018	23/07/2018		23/07/2018	23/07/2018
Arsenic	mg/kg	4	Metals-020	[NT]	72	6	6	0	103	79
Cadmium	mg/kg	0.4	Metals-020	[NT]	72	0.7	0.7	0	98	77
Chromium	mg/kg	1	Metals-020	[NT]	72	13	19	38	102	79
Copper	mg/kg	1	Metals-020	[NT]	72	28	23	20	105	92
Lead	mg/kg	1	Metals-020	[NT]	72	220	180	20	102	78
Mercury	mg/kg	0.1	Metals-021	[NT]	72	0.8	0.7	13	105	96
Nickel	mg/kg	1	Metals-020	[NT]	72	4	3	29	103	73
Zinc	mg/kg	1	Metals-020	[NT]	72	160	120	29	97	#

QUALITY CONTROL: Acid Extractable metals in soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date prepared	-			[NT]	111	23/07/2018	23/07/2018		[NT]	[NT]
Date analysed	-			[NT]	111	23/07/2018	23/07/2018		[NT]	[NT]
Arsenic	mg/kg	4	Metals-020	[NT]	111	6	6	0	[NT]	[NT]
Cadmium	mg/kg	0.4	Metals-020	[NT]	111	<0.4	<0.4	0	[NT]	[NT]
Chromium	mg/kg	1	Metals-020	[NT]	111	15	17	12	[NT]	[NT]
Copper	mg/kg	1	Metals-020	[NT]	111	12	16	29	[NT]	[NT]
Lead	mg/kg	1	Metals-020	[NT]	111	130	180	32	[NT]	[NT]
Mercury	mg/kg	0.1	Metals-021	[NT]	111	<0.1	<0.1	0	[NT]	[NT]
Nickel	mg/kg	1	Metals-020	[NT]	111	2	3	40	[NT]	[NT]
Zinc	mg/kg	1	Metals-020	[NT]	111	72	91	23	[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]	141	23/07/2018	23/07/2018		[NT]	[NT]
Date analysed	-			[NT]	141	23/07/2018	23/07/2018		[NT]	[NT]
Arsenic	mg/kg	4	Metals-020	[NT]	141	<4	<4	0	[NT]	[NT]
Cadmium	mg/kg	0.4	Metals-020	[NT]	141	<0.4	<0.4	0	[NT]	[NT]
Chromium	mg/kg	1	Metals-020	[NT]	141	10	14	33	[NT]	[NT]
Copper	mg/kg	1	Metals-020	[NT]	141	29	30	3	[NT]	[NT]
Lead	mg/kg	1	Metals-020	[NT]	141	120	120	0	[NT]	[NT]
Mercury	mg/kg	0.1	Metals-021	[NT]	141	0.2	0.2	0	[NT]	[NT]
Nickel	mg/kg	1	Metals-020	[NT]	141	5	6	18	[NT]	[NT]
Zinc	mg/kg	1	Metals-020	[NT]	141	170	170	0	[NT]	[NT]

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Water					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W2	[NT]
Date extracted	-			23/07/2018	[NT]	[NT]	[NT]	[NT]	23/07/2018	[NT]
Date analysed	-			24/07/2018	[NT]	[NT]	[NT]	[NT]	24/07/2018	[NT]
TRH C_6 - C_9	µg/L	10	Org-016	<10	[NT]	[NT]	[NT]	[NT]	84	[NT]
TRH C_6 - C_{10}	µg/L	10	Org-016	<10	[NT]	[NT]	[NT]	[NT]	84	[NT]
Benzene	µg/L	1	Org-016	<1	[NT]	[NT]	[NT]	[NT]	81	[NT]
Toluene	µg/L	1	Org-016	<1	[NT]	[NT]	[NT]	[NT]	82	[NT]
Ethylbenzene	µg/L	1	Org-016	<1	[NT]	[NT]	[NT]	[NT]	85	[NT]
m+p-xylene	µg/L	2	Org-016	<2	[NT]	[NT]	[NT]	[NT]	85	[NT]
o-xylene	µg/L	1	Org-016	<1	[NT]	[NT]	[NT]	[NT]	85	[NT]
Naphthalene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate Dibromofluoromethane	%		Org-016	99	[NT]	[NT]	[NT]	[NT]	100	[NT]
Surrogate toluene-d8	%		Org-016	95	[NT]	[NT]	[NT]	[NT]	103	[NT]
Surrogate 4-BFB	%		Org-016	94	[NT]	[NT]	[NT]	[NT]	101	[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.

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: <5xPQL - any RPD is acceptable; >5xPQL - 0-50% RPD is acceptable.

Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals; 60-140% for organics (+/-50% surrogates) and 10-140% for labile SVOCs (including labile surrogates), ultra trace organics and speciated phenols is acceptable.

In circumstances where no duplicate and/or sample spike has been reported at 1 in 10 and/or 1 in 20 samples respectively, the sample volume submitted was 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.

Report Comments

Acid Extractable Metals in Soil:
Percent recovery is not possible to report due to the inhomogeneous nature 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.

PCBs in Soil - PQL has been raised due to interference from analytes(other than those being tested) in sample 141.

vTRH & BTEXN in Water NEPM - THMs noted in rinsates

PAHs in Soil - The RPD for duplicate results is accepted due to the non homogenous nature of samples 49 and 141.

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	Environmental Investigation Services
Attention	Vittal Boggaram

Sample Login Details	
Your reference	E31040K, Canterbury South
Envirolab Reference	196637
Date Sample Received	19/07/2018
Date Instructions Received	19/07/2018
Date Results Expected to be Reported	27/07/2018

Sample Condition	
Samples received in appropriate condition for analysis	YES
No. of Samples Provided	213 soil, 2 water, 15 material
Turnaround Time Requested	Standard
Temperature on Receipt (°C)	3.0
Cooling Method	Ice
Sampling Date Provided	YES

Comments

FR1 & FR2 insufficient sample supplied for combo 3L testing.

Please direct any queries to:

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

Analysis Underway, details on the following page:

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

Sample ID	vTRH(C6-C10)/BTEXN in Soil	svTRH (C10-C40) in Soil	PAHs in Soil	Organochlorine Pesticidesin soil	Organophosphorus Pesticides	PCBsin Soil	Acid Extractable metalsin soil	Asbestos ID - soils NEPM - ASB-001	Asbestos ID - materials	vTRH(C6-C10)/BTEXN in Water	On Hold
BH101-0-0.2	✓	✓	✓	✓	✓	✓	✓				
BH101-0.7-0.95											✓
BH101-1.3-1.5											✓
BH102-0-0.2	✓	✓	✓				✓				
BH102-0.6-0.75											✓
BH102-0.75-0.95											✓
BH103-0-0.2	✓	✓	✓	✓	✓	✓	✓				
BH103-0.3-0.4											✓
BH104-0.03-0.2											✓
BH104-0.2-0.4											✓
BH104-0.6-0.95											✓
BH105-0.03-0.2	✓	✓	✓				✓				
BH105-0.8-0.95											✓
BH106-0.03-0.2	✓	✓	✓	✓	✓	✓	✓				
BH106-0.7-0.95											✓
BH107-0.05-0.2											✓
BH107-0.6-0.7											✓
BH107-0.8-0.9											✓
BH108-0-0.2	✓	✓	✓				✓				
BH108-0.6-0.7											✓
BH108-0.85-0.95											✓
BH108-1.4-1.6											✓
BH109-0-0.2											✓
BH109-0.6-0.95											✓
BH109-1.4-1.6											✓
BH110-0-0.3	✓	✓	✓	✓	✓	✓	✓				
BH110-0.3-0.5											✓
BH111-0-0.2	✓	✓	✓				✓				
BH111-0.8-0.95											✓
BH111-1.4-1.6											✓
BH112-0-0.2	✓	✓	✓	✓	✓	✓	✓				
BH112-0.7-0.95											✓

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

Sample ID	vTRH(C6-C10)/BTEXN in Soil	svTRH (C10-C40) in Soil	PAHs in Soil	Organochlorine Pesticidesin soil	Organophosphorus Pesticides	PCBsin Soil	Acid Extractable metalsin soil	Asbestos ID - soils NEPM - ASB-001	Asbestos ID - materials	vTRH(C6-C10)/BTEXN in Water	On Hold
BH112-1.3-1.5											✓
BH113-0.1-0.2											✓
BH113-0.5-0.7	✓	✓	✓				✓				
BH113-0.8-0.95											✓
BH114-0-0.2	✓	✓	✓				✓				
BH114-0.3-0.5											✓
BH114-0.75-0.85											✓
BH115-0-0.2	✓	✓	✓	✓	✓	✓	✓				
BH115-0.7-0.95											✓
BH115-1.1-1.3											✓
BH116-0.03-0.2	✓	✓	✓	✓	✓	✓	✓				
BH116-0.7-0.95											✓
BH116-1.1-1.3											✓
BH117-0-0.2	✓	✓	✓	✓	✓	✓	✓				
BH117-0.7-0.95											✓
BH117-1.3-1.5											✓
BH118-0-0.2	✓	✓	✓				✓				
BH118-0.6-0.8											✓
BH119-0-0.2	✓	✓	✓	✓	✓	✓	✓				
BH119-0.3-0.5											✓
BH120-0.07-0.2											✓
BH120-0.3-0.4											✓
BH120-0.4-0.5											✓
BH121-0-0.2	✓	✓	✓	✓	✓	✓	✓				
BH121-0.3-0.5											✓
BH121-0.6-0.75											✓
BH121-0.9-1.0											✓
BH122-0-0.2	✓	✓	✓	✓	✓	✓	✓				
BH122-0.5-0.95											✓
BH122-1.3-1.5											✓
BH123-0-0.2	✓	✓	✓	✓	✓	✓	✓				
BH123-0.7-0.95											✓

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

Sample ID	vTRH(C6-C10)/BTEXN in Soil	svTRH (C10-C40) in Soil	PAHs in Soil	Organochlorine Pesticidesin soil	Organophosphorus Pesticides	PCBsin Soil	Acid Extractable metalsin soil	Asbestos ID - soils NEPM - ASB-001	Asbestos ID - materials	vTRH(C6-C10)/BTEXN in Water	On Hold
BH123-1.5-1.6											✓
BH124-0-0.2	✓	✓	✓				✓				
BH124-0.9-0.95											✓
BH124-1.3-1.6											✓
BH125-0-0.2	✓	✓	✓	✓	✓	✓	✓				
BH125-0.9-0.95											✓
BH125-1.5-1.6											✓
BH126-0-0.2	✓	✓	✓	✓	✓	✓	✓				
BH126-0.7-0.95											✓
BH126-1.3-1.5											✓
BH127-0-0.2											✓
BH127-0.7-0.95											✓
BH127-1.3-1.5											✓
BH128-0-0.2	✓	✓	✓	✓	✓	✓	✓				
BH128-0.65-0.95											✓
BH128-1.4-1.6											✓
BH129-0-0.2	✓	✓	✓				✓				
BH129-0.4-0.6											✓
BH130-0.1-0.3											✓
BH131-0-0.2	✓	✓	✓	✓	✓	✓	✓				
BH131-0.6-0.9											✓
BH131-1.9-2.0											✓
BH132-0-0.2	✓	✓	✓	✓	✓	✓	✓				
BH132-0.5-0.95											✓
BH132-1.1-1.3											✓
BH132-1.5-1.7											✓
BH133-0-0.2											✓
BH133-0.7-0.95	✓	✓	✓	✓	✓	✓	✓				
BH133-2.0-2.2											✓
BH134-0.1-0.3											✓
BH134-0.7-0.8											✓
BH134-0.9-1.0											✓

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

Sample ID	vTRH(C6-C10)/BTEXN in Soil	svTRH (C10-C40) in Soil	PAHs in Soil	Organochlorine Pesticidesin soil	Organophosphorus Pesticides	PCBsin Soil	Acid Extractable metalsin soil	Asbestos ID - soils NEPM - ASB-001	Asbestos ID - materials	vTRH(C6-C10)/BTEXN in Water	On Hold
BH135-0.1-0.3	✓	✓	✓	✓	✓	✓	✓				
BH135-0.5-0.6											✓
BH136-0-0.2											✓
BH136-0.7-0.95											✓
BH136-1.1-1.3											✓
BH137-0-0.2	✓	✓	✓	✓	✓	✓	✓				
BH137-0.6-0.95											✓
BH137-1.3-1.5											✓
BH138-0-0.2	✓	✓	✓				✓				
BH138-1.0-1.2											✓
BH139-0-0.2	✓	✓	✓	✓	✓	✓	✓				
BH139-0.6-0.95											✓
BH139-1.2-1.4											✓
BH139-1.5-1.6											✓
BH140-0-0.2	✓	✓	✓				✓				
BH140-0.7-0.95											✓
BH140-1.1-1.3											✓
BH141-0-0.2											✓
BH141-0.2-0.5	✓	✓	✓	✓	✓	✓	✓				
BH141-0.7-0.95											✓
BH141-1.6-18											✓
BH141-2.7-3.0											✓
BH142-0-0.2	✓	✓	✓	✓	✓	✓	✓				
BH142-0.6-0.8											✓
BH142-0.9-1.0											✓
BH143-0.15-0.35	✓	✓	✓				✓				
BH143-0.6-0.95											✓
BH143-1.7-1.9											✓
BH143-1.9-2.0											✓
BH144-0-0.2	✓	✓	✓	✓	✓	✓	✓				
BH144-0.6-0.95											✓
BH144-1.4-1.6											✓

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

Sample ID	vTRH(C6-C10)/BTEXN in Soil	svTRH (C10-C40) in Soil	PAHs in Soil	Organochlorine Pesticidesin soil	Organophosphorus Pesticides	PCBsin Soil	Acid Extractable metalsin soil	Asbestos ID - soils NEPM - ASB-001	Asbestos ID - materials	vTRH(C6-C10)/BTEXN in Water	On Hold
BH145-0.04-0.2	✓	✓	✓	✓	✓	✓	✓				
BH145-0.3-0.4											✓
BH146-0.04-0.2	✓	✓	✓	✓	✓	✓	✓				
BH146-0.2-0.4											✓
BH147-0-0.2	✓	✓	✓	✓	✓	✓	✓				
BH147-0.6-0.95											✓
BH147-1.3-1.5											✓
BH148-0.04-0.2	✓	✓	✓	✓	✓	✓	✓				
BH148-0.4-0.5											✓
BH149-0-0.2	✓	✓	✓	✓	✓	✓	✓				
BH149-0.6-0.95											✓
BH149-1.5-1.6											✓
BH150-0-0.1	✓	✓	✓	✓	✓	✓	✓				
BH150-0.7-0.95	✓	✓	✓				✓				
BH150-1.3-1.5											✓
BH101-0-0.75											✓
BH102-0-0.6								✓			
BH103-0-0.3								✓			
BH104-0.03-0.6											✓
BH105-0.03-0.6											✓
BH106-0.03-0.4											✓
BH107-0.05-0.5											✓
BH108-0-0.6								✓			
BH109-0-0.55											✓
BH110-0-0.3								✓			
BH110-0.3-0.5								✓			
BH111-0-0.6								✓			
BH112-0-0.6											✓
BH113-0.1-0.3											✓
BH113-0.4-0.7											✓
BH113-0.7-0.95											✓
BH114-0-0.3								✓			

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

Sample ID	vTRH(C6-C10)/BTEXN in Soil	svTRH (C10-C40) in Soil	PAHs in Soil	Organochlorine Pesticidesin soil	Organophosphorus Pesticides	PCBsin Soil	Acid Extractable metalsin soil	Asbestos ID - soils NEPM - ASB-001	Asbestos ID - materials	vTRH(C6-C10)/BTEXN in Water	On Hold
BH114-0.3-0.75											✓
BH115-0-0.6											✓
BH116-0.03-0.6											✓
BH117-0-0.4								✓			
BH118-0-0.3											✓
BH119-0-0.3											✓
BH119-0.3-0.2											✓
BH120-0.07-0.2											✓
BH121-0-0.3								✓			
BH121-0.3-0.6											✓
BH122-0-0.5								✓			
BH123-0-0.7								✓			
BH124-0-0.9								✓			
BH125-0-0.85								✓			
BH126-0-0.5								✓			
BH127-0-0.6								✓			
BH128-0-0.65											✓
BH129-0-0.3											✓
BH130-0.1-0.3											✓
BH131-0-0.6								✓			
BH131-0.6-1.2											✓
BH132-0-0.5											✓
BH132-0.5-1.0											✓
BH133-0-0.5											✓
BH133-0.6-1.4											✓
BH134-0-0.5											✓
BH135-0.1-0.5											✓
BH136-0-0.4								✓			
BH137-0-0.6								✓			
BH138-0-0.4								✓			
BH139-0-0.5								✓			
BH139-0.6-1.0											✓

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

Sample ID	vTRH(C6-C10)/BTEXN in Soil	svTRH (C10-C40) in Soil	PAHs in Soil	Organochlorine Pesticidesin soil	Organophosphorus Pesticides	PCBsin Soil	Acid Extractable metalsin soil	Asbestos ID - soils NEPM - ASB-001	Asbestos ID - materials	vTRH(C6-C10)/BTEXN in Water	On Hold
BH140-0-0.6								✓			
BH140-0.6-1.1											✓
BH141-0-0.2											✓
BH141-0.2-1.0											✓
BH142-0-0.6								✓			
BH143-0.15-0.35											✓
BH143-0.5-1.7											✓
BH144-0-0.5											✓
BH145-0.04-0.3											✓
BH145-0.3-0.4											✓
BH146-0.04-0.2											✓
BH147-0-0.6											✓
BH148-0.04-0.4											✓
BH149-0-0.6											✓
BH150-0-0.6											✓
JHDUP3	✓	✓	✓	✓	✓	✓	✓				
JHDUP4	✓	✓	✓	✓	✓	✓	✓				
JHDUP5	✓	✓	✓	✓	✓	✓	✓				
FR1										✓	
FR2										✓	
TB1	✓										
TB2	✓										
JHF1									✓		
JHF2									✓		
JHF3									✓		
JHF4									✓		
JHF5									✓		
JHF6									✓		
JHF7									✓		
JHF8									✓		
JHF9									✓		
JHF10									✓		

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

Sample ID	vTRH(C6-C10)/BTEXN in Soil	svTRH (C10-C40) in Soil	PAHs in Soil	Organochlorine Pesticidesin soil	Organophosphorus Pesticides	PCBsin Soil	Acid Extractable metalsin soil	Asbestos ID - soils NEPM - ASB-001	Asbestos ID - materials	vTRH(C6-C10)/BTEXN in Water	On Hold
JHF11									✓		
JHF12									✓		
JHF13									✓		
JHF14									✓		
JHF15									✓		
BH135											✓

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.

SAMPLE AND CHAIN OF CUSTODY FORM

TO:	EIS Job Number: E31040K	FROM:
ENVIROLAB SERVICES PTY LTD 12 ASHLEY STREET CHATSWOOD NSW 2067 P: (02) 99106200 F: (02) 99106201 Attention: Aileen	EIS Job Number: E31040K Date Results Required: STANDARD Page: 1 of 10	EIS ENVIRONMENTAL INVESTIGATION SERVICES REAR OF 115 WICKS ROAD MACQUARIE PARK, NSW 2113 P: 02-9888 5000 F: 02-9888 5001 Attention: Vboggaram@jkgroup.net.au

Location: Canterbury South

Sampler: JH/HW

Sample Preserved in Esky on Ice

Tests Required

Date Sampled	Lab Ref:	Sample Number	Depth (m)	Sample Container	PID	Sample Description	Combo 3	Combo 6	Asbestos	Asbestos 500mL	pH, CEC and clay content	PAHs	TRH/BTEX	BTEX				
11/7/18	1	BH101	0-0.2	G,A	0	FILL		X										
↓	2	↓	0.7-0.95	↓	0	↓												
↓	3	↓	1.3-1.5		0	NATURAL												
16/7/18	4	BH102	0-0.2		0	FILL	X											
↓	5	↓	0.6-0.75		0	NATURAL												
	6	↓	0.75-0.95		0	↓												
	7	BH103	0-0.2		0.2	FILL		X										
↓	8	↓	0.3-0.4		0	↓												
11/7/18	9	BH104	0.03-0.2		0	FILL												
↓	10	↓	0.2-0.4		0	↓												
	11	↓	0.6-0.95		0.4	NATURAL												
	12	BH105	0.03-0.2		0.2	FILL	X											
	13	↓	0.8-0.95		0.7	NATURAL												
	14	BH106	0.03-0.2		0	FILL		X										
↓	15	↓	0.7-0.95		0	NATURAL												
16/7/18	16	BH107	0.05-0.2		0	FILL												
↓	17	↓	0.6-0.7		0	NATURAL												
	18	↓	0.8-0.9		0	↓												
	19	BH108	0-0.2		0	FILL	X											
	20	↓	0.6-0.7		0	NATURAL												
	21	↓	0.85-0.95		0	↓												
	22	↓	1.4-1.6		0	↓												
	23	BH109	0-0.2		0	FILL												
	24	↓	0.6-0.95		0.1	NATURAL												
↓	25	↓	1.4-1.6	↓	0	↓												

Envirolab Services
12 Ashley St
Chatswood NSW 2067
Ph: (02) 9910 6200
ENVIROLAB
Job No: 196637
Date Received: 19/7/18
Time Received: 16:00
Received By: JE
Temp: Cool/Ambient
Cooling: Ice/Icepack
Security: Intact/Broken/None

Remarks (comments/detection limits required):
Send JHQUP1 & JHQUP2 to Melbourne Lab

Sample Containers:
G - 250mg Glass Jar
V - Vial
A - Ziplock Asbestos Bag
G2 - 125ml Jar
P - Plastic Bag

Relinquished By:	Date:	Time:	Received By:	Date:
Vittal.B.S	19/7/18		JE	19/7/18

196637

SAMPLE AND CHAIN OF CUSTODY FORM

TO:		FROM:
ENVIROLAB SERVICES PTY LTD 12 ASHLEY STREET CHATSWOOD NSW 2067 P: (02) 99106200 F: (02) 99106201 Attention: Aileen	EIS Job Number: E31040K Date Results Required: STANDARD Page: 2 of 10	ENVIRONMENTAL INVESTIGATION SERVICES REAR OF 115 WICKS ROAD MACQUARIE PARK, NSW 2113 P: 02-9888 5000 F: 02-9888 5001 Attention: Vboggaram@jkgroup.net.au

Location: Canterbury South

Sampler: JH/HW

Sample Preserved in Esky on Ice

Tests Required

Date Sampled	Lab Ref:	Sample Number	Depth (m)	Sample Container	PID	Sample Description	Combo 3	Combo 6	Asbestos	Asbestos 500mL	pH, CEC and clay content	PAHs	TRH/BTEX	BTEX
16/7/18	26	BH110	0-0.3	G, [illegible]	0	FILL		X						
↓	27	↓	0.3-0.5	↓	0	↓								
12/7/18	28	BH111	0-0.2	↓	0	↓	X							
↓	29	↓	0.8-0.95	↓	0.7	NATURAL								
↓	30	↓	1.4-1.6	↓	0	↓								
↓	31	BH112	0-0.2	↓	0	FILL		X						
↓	32	↓	0.7-0.95	↓	0.6	NATURAL								
↓	33	↓	1.3-1.5	↓	0	↓								
17/7/18	34	BH113	0.1-0.2	↓	0	FILL								
↓	35	↓	0.5-0.7	↓	0	↓	X							
↓	36	↓	0.8-0.95	↓	0	↓								
↓	37	BH114	0-0.2	↓	0	↓	X							
↓	38	↓	0.3-0.5	↓	0	↓								
↓	39	↓	0.75-0.85	↓	0	NATURAL								
16/7/18	40	BH115	0-0.2	↓	0	FILL		X						
↓	41	↓	0.7-0.95	↓	0	↓								
↓	42	↓	1.1-1.3	↓	0	↓								
11/7/18	43	BH116	0.03-0.2	↓	0	FILL		X						
↓	44	↓	0.7-0.95	↓	0	NATURAL								
↓	45	↓	1.1-1.3	↓	0	↓								
↓	46	BH117	0-0.2	↓	0	FILL		X						
↓	47	↓	0.7-0.95	↓	0	NATURAL								
↓	48	↓	1.3-1.5	↓	0	↓								
16/7/18	49	BH118	0-0.2	↓	0	FILL	X							
↓	50	↓	0.6-0.8	↓	0	NATURAL								

Remarks (comments/detection limits required):

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

Relinquished By:	Date:	Time:	Received By:	Date:
Vittal B-S	19/7/2018		JE	19/7/18

196637

SAMPLE AND CHAIN OF CUSTODY FORM

TO:		FROM:
ENVIROLAB SERVICES PTY LTD 12 ASHLEY STREET CHATSWOOD NSW 2067 P: (02) 99106200 F: (02) 99106201 Attention: Aileen	EIS Job Number: E31040K Date Results Required: STANDARD Page: 3 of 10	ENVIRONMENTAL INVESTIGATION SERVICES REAR OF 115 WICKS ROAD MACQUARIE PARK, NSW 2113 P: 02-9888 5000 F: 02-9888 5001 Attention: Vboggaram@jkgroup.net.au

Location: Canterbury South

Sampler: JH/HW

Sample Preserved in Esky on Ice

Tests Required

Date Sampled	Lab Ref:	Sample Number	Depth (m)	Sample Container	PID	Sample Description	Combo 3	Combo 6	Asbestos	Asbestos 500mL	pH, CEC and clay content	PAHs	TRH/BTEX	BTEX				
17/7/18	51	BH119	0-0.2	G,[illegible]	0	FILL		X										
↓	52	↓	0.3-0.5	↓	0	↓												
	53	BH120	0.07-0.2		0	FILL												
	54	↓	0.3-0.4		0	NATURAL												
↓	55	↓	0.4-0.5		0	↓												
16/7/18	56	BH121	0-0.2		0	FILL		X										
↓	57	↓	0.3-0.5		0	↓												
	58		0.6-0.75		0	NATURAL												
↓	59	↓	0.9-1.0		1.2	↓												
12/7/18	60	BH122	0-0.2		0	FILL		X										
↓	61	↓	0.5-0.95		0	↓												
	62	↓	1.3-1.5		0	NATURAL												
	63	BH123	0-0.2		0	FILL		X										
	64	↓	0.7-0.95		0	NATURAL												
	65	↓	1.5-1.6		0	↓												
	66	BH124	0-0.2		0	FILL	X											
	67	↓	0.9-0.95		0.4	NATURAL												
	68	↓	1.3-1.6		0	↓												
	69	BH125	0-0.2		0	FILL		X										
	70	↓	0.9-0.95		0.1	NATURAL												
	71	↓	1.5-1.6		0.3	↓												
	72	BH126	0-0.2		0	FILL		X										
	73	↓	0.7-0.95		0.5	NATURAL												
	74	↓	1.3-1.5		0	↓												
↓	75	BH127	0-0.2	↓	0	FILL												

Remarks (comments/detection limits required):

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

Relinquished By:	Date:	Time:	Received By:	Date:
Vittal B-S	19/7/18		JE	19/7/18

196637

SAMPLE AND CHAIN OF CUSTODY FORM

TO:		FROM:
ENVIROLAB SERVICES PTY LTD 12 ASHLEY STREET CHATSWOOD NSW 2067 P: (02) 99106200 F: (02) 99106201 Attention: Aileen	EIS Job Number: E31040K Date Results Required: STANDARD Page: 4 of 10	ENVIRONMENTAL INVESTIGATION SERVICES REAR OF 115 WICKS ROAD MACQUARIE PARK, NSW 2113 P: 02-9888 5000 F: 02-9888 5001 Attention: Vboggaram@jkgroup.net.au

Location: Canterbury South — Sample Preserved in Esky on Ice

Sampler: JH/HW — Tests Required

Date Sampled	Lab Ref:	Sample Number	Depth (m)	Sample Container	PID	Sample Description	Combo 3	Combo 6	Asbestos	Asbestos 500mL	pH, CEC and clay content	PAHs	TRH/BTEX	BTEX				
12/7/18	76	BH127	0.7-0.95	G,●	0.7	FILL												
↓	77	↓	1.3-1.5		0.2	NATURAL												
16/7/18	78	BH128	0-0.2		0	FILL		X										
	79		0.65-0.95		9.2	NATURAL												
↓	80	↓	1.4-1.6		0.3	↓												
17/7/18	81	BH129	0-0.2		0	FILL	X											
↓	82	↓	0.4-0.6		0	NATURAL												
19/7/18	83	BH130	0.1-0.3		0	FILL												
13/7/18	84	BH131	0-0.2		0	FILL		X										
	85		0.6-0.9		0.8	↓												
↓	86	↓	1.9-2.0		0	NATURAL												
11/7/18	87	BH132	0-0.2		0	FILL		X										
	88		0.5-0.95		0	↓												
	89		1.1-1.3		0	NATURAL												
	90	↓	1.5-1.7		0	↓												
	91	BH133	0-0.2		0	FILL												
	92		0.7-0.95		0.8	↓		X										
↓	93		2.0-2.2		0	NATURAL												
19/7/18	94	BH134	0.1-0.3		0.6	FILL												
	95		0.7-0.8		1.0	NATURAL												
	96	↓	0.9-1.0		1.1	↓												
	97	BH135	0.1-0.3		0	FILL		X										
↓	98	↓	0.5-0.6	↓	0	NATURAL												

Remarks (comments/detection limits required):

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

Relinquished By:	Date:	Time:	Received By:	Date:
Vuitae B-S	19/7/18		JE	19/7/18

196637

SAMPLE AND CHAIN OF CUSTODY FORM

TO:	EIS Job Number: E31040K	FROM:
ENVIROLAB SERVICES PTY LTD 12 ASHLEY STREET CHATSWOOD NSW 2067 P: (02) 99106200 F: (02) 99106201 Attention: Aileen	Date Results Required: STANDARD Page: 5 of 10	EIS ENVIRONMENTAL INVESTIGATION SERVICES REAR OF 115 WICKS ROAD MACQUARIE PARK, NSW 2113 P: 02-9888 5000 F: 02-9888 5001 Attention: Vboggaram@jkgroup.net.au

Location: Canterbury South

Sampler: JH/HW

Sample Preserved in Esky on Ice

Tests Required

Date Sampled	Lab Ref:	Sample Number	Depth (m)	Sample Container	PID	Sample Description	Combo 3	Combo 6	Asbestos	Asbestos 500mL	pH, CEC and clay content	PAHs	TRH/BTEX	BTEX				
				G,A														
12/7/18	99	BH136	0-0.2		0	FILL												
↓	100	↓	0.7-0.95		0.8	↓												
	101	↓	1.1-1.3		0	NATURAL												
	102	BH137	0-0.2		0	FILL		X										
	103	↓	0.6-0.95		2.4	NATURAL												
	104	↓	1.3-1.5		0	↓												
	105	BH138	0-0.2		0	FILL	X											
↓	106	↓	1.0-1.2		0	NATURAL												
11/7/18	107	BH139	0-0.2		0	FILL		X										
↓	108	↓	0.6-0.95		0	↓												
	109		1.2-1.4		0	NATURAL												
	110	↓	1.5-1.6		0	↓												
	111	BH140	0-0.2		0	FILL	X											
	112	↓	0.7-0.95		0	↓												
	113	↓	1.1-1.3		0	NATURAL												
	114	BH141	0-0.2		0	FILL												
	115	↓	0.2-0.5		0.2	↓		X										
	116		0.7-0.95		0	↓												
	117		1.6-1.9		0	NATURAL												
↓	118	↓	2.7-3.0		0	↓												
12/7/18	119	BH142	0-0.2		45.2	FILL		X										
↓	120	↓	0.6-0.8		0.5	NATURAL												
↓	121	↓	0.9-1.0		4.9	↓												
13/7/18	122	BH143	0.15-0.35	↓	1.8	FILL	X											

Remarks (comments/detection limits required):

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

Relinquished By:	Date:	Time:	Received By:	Date:
Vuttal K-S	19/7/18		JE	19/7/18

196637

SAMPLE AND CHAIN OF CUSTODY FORM

TO:		FROM:
ENVIROLAB SERVICES PTY LTD 12 ASHLEY STREET CHATSWOOD NSW 2067 P: (02) 99106200 F: (02) 99106201 Attention: Aileen	EIS Job Number: E31040K Date Results Required: STANDARD Page: 6 of 10	ENVIRONMENTAL INVESTIGATION SERVICES REAR OF 115 WICKS ROAD MACQUARIE PARK, NSW 2113 P: 02-9888 5000 F: 02-9888 5001 Attention: Vboggaram@lkgroup.net.au

Location: Canterbury South
Sampler: JH/HW

Sample Preserved in Esky on Ice

Date Sampled	Lab Ref:	Sample Number	Depth (m)	Sample Container	PID	Sample Description	Combo 3	Combo 6	Asbestos	Asbestos 500mL	pH, CEC and clay content	PAHs	TRH/BTEX	BTEX				
13/7/18	123	BH143	0.6-0.95	G	0.3	FILL												
↓	124	↓	1.7-1.9		0	NATURAL												
↓	125	↓	1.9-2.0		0	↓												
12/7/18	126	BH144	0-0.2		0.5	FILL		X										
↓	127	↓	0.6-0.95		0.4	NATURAL												
↓	128	↓	1.4-1.6		0.4	↓												
18/7/18	129	BH145	0.04-0.2		0	FILL		X										
↓	130	↓	0.3-0.4		0.1	↓												
17/7/18	131	BH146	0.04-0.2		0.1	FILL		X										
↓	132	↓	0.2-0.4		6.5	NATURAL												
16/7/18	133	BH147	0-0.2		0	FILL		X										
↓	134	↓	0.6-0.95		0.3	NATURAL												
↓	135	↓	1.3-1.5		0	↓												
18/7/18	136	BH148	0.04-0.2		0	FILL		X										
↓	137	↓	0.4-0.5		2.7	NATURAL												
12/7/18	138	BH149	0-0.2		0	FILL		X										
↓	139	↓	0.6-0.95		0.6	NATURAL												
↓	140	↓	1.5-1.6		0.1	↓												
↓	141	BH150	0-0.1		0	FILL		X										
↓	142	↓	0.7-0.95		6.6	NATURAL	X											
↓	143	↓	1.3-1.5	↓	0.2	↓												
11/7/18	144	BH101	0-0.75	A	-	FILL												
16/7/18	145	BH102	0-0.6	↓	-	↓				X								
16/7/18	146	BH103	0-0.3	↓	-	↓				X								
11/7/18	147	BH104	0.03-0.6	↓	-	↓												

Remarks (comments/detection limits required):

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

Relinquished By:	Date:	Time:	Received By:	Date:
Vittal-B-S	19/7/18		JE	19/7/18

196637

SAMPLE AND CHAIN OF CUSTODY FORM

TO:		FROM:
ENVIROLAB SERVICES PTY LTD 12 ASHLEY STREET CHATSWOOD NSW 2067 P: (02) 99106200 F: (02) 99106201 Attention: Aileen	EIS Job Number: E31040K Date Results Required: STANDARD Page: 7 of 10	ENVIRONMENTAL INVESTIGATION SERVICES REAR OF 115 WICKS ROAD MACQUARIE PARK, NSW 2113 P: 02-9888 5000 F: 02-9888 5001 Attention: Vboggaram@jkgroup.net.au

Location:	Canterbury South	Sample Preserved in Esky on Ice
Sampler:	JH/HW	Tests Required

Date Sampled	Lab Ref:	Sample Number	Depth (m)	Sample Container	PID	Sample Description	Combo 3	Combo 6	Asbestos	Asbestos 500mL	pH, CEC and clay content	PAHs	TRH/BTEX	BTEX				
11/7/18	148	BH105	0.03-0.6	A	-	FILL												
11/7/18	149	BH106	0.03-0.4	↓	-	↓												
16/7/18	150	BH107	0.05-0.5		-													
↓	151	BH108	0-0.6		-					X								
	152	BH109	0-0.55		-													
	153	BH110	0-0.3		-					X								
↓	154	↓	0.3-0.5		-					X								
12/7/18	155	BH111	0-0.6		-					X								
↓	156	BH112	0-0.6		-													
17/7/18	157	BH113	0.1-0.3		-													
↓	158	↓	0.4-0.7		-													
	159	↓	0.7-0.95		-													
	160	BH114	0-0.3		-					X								
↓	161	↓	0.3-0.75		-													
16/7/18	162	BH115	0-0.6		-													
11/7/18	163	BH116	0.03-0.6		-													
↓	164	BH117	0-0.4		-					X								
16/7/18	165	BH118	0-0.3		-													
17/7/18	166	BH119	0-0.3		-													
↓	167	↓	0.3-0.2		-													
↓	168	BH120	0.07-0.2		-													
16/7/18	169	BH121	0-0.3		-					X								
↓	170	↓	0.3-0.6		-													
12/7/18	171	BH122	0-0.5		-					X								
↓	172	BH123	0-0.7	↓	-	↓				X								

Remarks (comments/detection limits required):		Sample Containers: G - 250mg Glass Jar V - Vial A - Ziplock Asbestos Bag P - Plastic Bag		
Relinquished By: Vittal B-S	Date: 19/7/18	Time:	Received By: JE	Date: 19/7/18

196637

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	EIS Job Number: E31040K Date Results Required: STANDARD Page: 8 of 10	**FROM:** ENVIRONMENTAL INVESTIGATION SERVICES REAR OF 115 WICKS ROAD MACQUARIE PARK, NSW 2113 P: 02-9888 5000 F: 02-9888 5001 Attention: Vboggaram@jkgroup.net.au

Location: Canterbury South | Sample Preserved in Esky on Ice

Sampler: JH/HW | Tests Required

Date Sampled	Lab Ref:	Sample Number	Depth (m)	Sample Container	PID	Sample Description	Combo 3	Combo 6	Asbestos	Asbestos 500mL	pH, CEC and clay content	PAHs	TRH/BTEX	BTEX				
12/7/18	173	BH124	0-0.9	A	-	FILL				X								
↓	174	BH125	0-0.85		-					X								
	175	BH126	0-0.5		-					X								
↓	176	BH127	0-0.6		-					X								
16/7/18	177	BH128	0-0.65		-													
17/7/18	178	BH129	0-0.3		-													
19/7/18	179	BH130	0.1-0.3		-													
13/7/18	180	BH131	0-0.6		-					X								
↓	181	↓	0.6-1.2		-													
11/7/18	182	BH132	0-0.5		-													
	183	↓	0.5-1.0		-													
	184	BH133	0-0.5		-													
↓	185	↓	0.6-1.4		-													
19/7/18	186	BH134	0-0.5	0.1-0.6														
↓	187	BH135	0.1-0.5		-													
12/7/18	188	BH136	0-0.4		-					X								
	189	BH137	0-0.6		-					X								
↓	190	BH138	0-0.4		-					X								
11/7/18	191	BH139	0-0.5		-					X								
	192	↓	0.6-1.0		-													
	193	BH140	0-0.6		-					X								
	194	↓	0.6-1.1		-													
	195	BH141	0-0.2		-													
↓	196	↓	0.2-1.0		-													
12/7/18	197	BH142	0-0.6	↓	-	↓				X								

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

Relinquished By:	Date:	Time:	Received By:	Date:
Vittal B S	19/7/18		JE	19/7/18

196637

SAMPLE AND CHAIN OF CUSTODY FORM

TO:		FROM:
ENVIROLAB SERVICES PTY LTD 12 ASHLEY STREET CHATSWOOD NSW 2067 P: (02) 99106200 F: (02) 99106201 Attention: Aileen	EIS Job Number: E31040K Date Results Required: STANDARD Page: 9 of 10	ENVIRONMENTAL INVESTIGATION SERVICES REAR OF 115 WICKS ROAD MACQUARIE PARK, NSW 2113 P: 02-9888 5000 F: 02-9888 5001 Attention: Vboggaram@jkgroup.net.au

Location: Canterbury South

Sampler: JH/HW

Sample Preserved in Esky on Ice

Tests Required

Date Sampled	Lab Ref:	Sample Number	Depth (m)	Sample Container	PID	Sample Description	Combo 3	Combo 6	Asbestos	Asbestos 500mL	pH, CEC and clay content	PAHs	TRH/BTEX	BTEX	COMBO 3			
13/7/18	198	BH143	0-0.5 0.15-0.35	A	-	FILL												
↓	199	↓	0.5-1.2		-													
12/7/18	200	BH144	0-0.5		-													
18/7/18	201	BH145	0.04-0.3		-													
↓	202	↓	0.3-0.4		-													
17/7/18	203	BH146	0.04-0.2		-													
16/7/18	204	BH147	0-0.6		-													
18/7/18	205	BH148	0.04-0.4		-													
12/7/18	206	BH149	0-0.6		-													
↓	207	BH150	0-0.6	↓	-													
-	—	JHDUP1	-	G	-		X											
-	—	JHDUP2	-		-		X											
-	208	JHDUP3	-		-		X											
-	209	JHDUP4	-		-		X											
-	210	JHDUP5	-	↓	-		X											
18/7/18	211,212	FR 1&2	? -	Vx2	-	Rinsate Water									X			
-	213,214	TB 1&2	-	G2x2	-	Trip Blank Sand								X				
-	215	JHF1		A		Material			X									
-	216	JHF2							X									
-	217	JHF3							X									
-	218	JHF4							X									
-	219	JHF5							X									
-	220	JHF6							X									
-	221	JHF7							X									
-	222	JHF8		↓		↓			X									

Remarks (comments/detection limits required):

Sample Containers:
G - 250mg Glass Jar
V - Vial
A - Ziplock Asbestos Bag
G2 - 125mL Jar
P - Plastic Bag

Relinquished By:	Date:	Time:	Received By:	Date:
Vittal B-S	19/7/18		JE	19/7/18

196637

SAMPLE AND CHAIN OF CUSTODY FORM

TO:		FROM:
ENVIROLAB SERVICES PTY LTD 12 ASHLEY STREET CHATSWOOD NSW 2067 P: (02) 99106200 F: (02) 99106201 Attention: Aileen	EIS Job Number: E31040K Date Results Required: STANDARD Page: 10 of 10	ENVIRONMENTAL INVESTIGATION SERVICES REAR OF 115 WICKS ROAD MACQUARIE PARK, NSW 2113 P: 02-9888 5000 F: 02-9888 5001 Attention: Vboggaram@jkgroup.net.au

Location: Canterbury South — Sample Preserved in Esky on Ice

Sampler: JH/HW — Tests Required

Date Sampled	Lab Ref:	Sample Number	Depth (m)	Sample Container	PID	Sample Description	Combo 3	Combo 6	Asbestos	Asbestos 500mL	pH, CEC and clay content	PAHs	TRH/BTEX	BTEX				
-	223	JHF9	-	A	-	Material			X									
-	224	JHF10	-	↓	-	↓			X									
-	225	JHF11	-		-				X									
-	226	JHF12	-		-				X									
-	227	JHF13	-		-				X									
-	228	JHF14	-		-				X									
-	229	JHF15	-	↓	-	↓			X									
	230	BH135	extra			500ml	bag		- soil									

Remarks (comments/detection limits required):

Sample Containers:
~~G - 250mg Glass Jar~~ ~~V - Vial~~
A - Ziplock Asbestos Bag G2 - 125ml Jar
P - Plastic Bag

Relinquished By:	Date:	Time:	Received By:	Date:
Jarryd H	19/7/18		JE	19/07/18

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 196637-A

Client Details

Client	Environmental Investigation Services
Attention	Vittal Boggaram, Alistair Mitchell
Address	PO Box 976, North Ryde BC, NSW, 1670

Sample Details

Your Reference	**E31040K, Canterbury South**
Number of Samples	213 soil, 2 water, 15 material
Date samples received	19/07/2018
Date completed instructions received	15/08/2018

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	22/08/2018
Date of Issue	22/08/2018

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

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

Results Approved By
Giovanni Agosti, Group Technical Manager
Jeremy Faircloth, Organics Supervisor
Long Pham, Team Leader, Metals
Steven Luong, Senior Chemist

Authorised By

Jacinta Hurst, Laboratory Manager

vTRH(C6-C10)/BTEXN in Soil		
Our Reference		196637-A-120
Your Reference	UNITS	BH142
Depth		0.6-0.8
Date Sampled		11/07/2018
Type of sample		soil
Date extracted	-	16/08/2018
Date analysed	-	20/08/2018
TRH C_6 - C_9	mg/kg	<25
TRH C_6 - C_{10}	mg/kg	<25
vTPH C_6 - C_{10} less BTEX (F1)	mg/kg	<25
Benzene	mg/kg	<0.2
Toluene	mg/kg	<0.5
Ethylbenzene	mg/kg	<1
m+p-xylene	mg/kg	<2
o-Xylene	mg/kg	<1
naphthalene	mg/kg	<1
Total +ve Xylenes	mg/kg	<1
Surrogate aaa-Trifluorotoluene	%	93

svTRH (C10-C40) in Soil		
Our Reference		196637-A-120
Your Reference	UNITS	BH142
Depth		0.6-0.8
Date Sampled		11/07/2018
Type of sample		soil
Date extracted	-	16/08/2018
Date analysed	-	17/08/2018
TRH C_{10} - C_{14}	mg/kg	<50
TRH C_{15} - C_{28}	mg/kg	<100
TRH C_{29} - C_{36}	mg/kg	<100
TRH >C_{10} -C_{16}	mg/kg	<50
TRH >C_{10} - C_{16} less Naphthalene (F2)	mg/kg	<50
TRH >C_{16} -C_{34}	mg/kg	<100
TRH >C_{34} -C_{40}	mg/kg	<100
Total +ve TRH (>C10-C40)	mg/kg	<50
Surrogate o-Terphenyl	%	103

PAHs in Soil		
Our Reference		196637-A-50
Your Reference	UNITS	BH118
Depth		0.6-0.8
Date Sampled		16/07/2018
Type of sample		soil
Date extracted	-	16/08/2018
Date analysed	-	17/08/2018
Naphthalene	mg/kg	<0.1
Acenaphthylene	mg/kg	<0.1
Acenaphthene	mg/kg	<0.1
Fluorene	mg/kg	<0.1
Phenanthrene	mg/kg	<0.1
Anthracene	mg/kg	<0.1
Fluoranthene	mg/kg	<0.1
Pyrene	mg/kg	<0.1
Benzo(a)anthracene	mg/kg	<0.1
Chrysene	mg/kg	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2
Benzo(a)pyrene	mg/kg	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1
Total +ve PAH's	mg/kg	<0.05
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5
Surrogate p-Terphenyl-d14	%	101

Acid Extractable metals in soil		
Our Reference		196637-A-29
Your Reference	UNITS	BH111
Depth		0.8-0.95
Date Sampled		12/07/2018
Type of sample		soil
Date prepared	-	16/08/2018
Date analysed	-	16/08/2018
Lead	mg/kg	9

Moisture				
Our Reference		196637-A-29	196637-A-50	196637-A-120
Your Reference	UNITS	BH111	BH118	BH142
Depth		0.8-0.95	0.6-0.8	0.6-0.8
Date Sampled		12/07/2018	16/07/2018	11/07/2018
Type of sample		soil	soil	soil
Date prepared	-	16/08/2018	16/08/2018	16/08/2018
Date analysed	-	17/08/2018	17/08/2018	17/08/2018
Moisture	%	9.4	9.9	12

CEC					
Our Reference		196637-A-14	196637-A-28	196637-A-129	196637-A-136
Your Reference	UNITS	BH106	BH111	BH145	BH148
Depth		0.03-0.2	0-0.2	0.04-0.2	0.04-0.2
Date Sampled		11/07/2018	12/07/2018	11/07/2018	11/07/2018
Type of sample		soil	soil	soil	soil
Date prepared	-	20/08/2018	20/08/2018	20/08/2018	20/08/2018
Date analysed	-	20/08/2018	20/08/2018	20/08/2018	20/08/2018
Exchangeable Ca	meq/100g	22	10	16	16
Exchangeable K	meq/100g	0.5	0.3	0.8	0.9
Exchangeable Mg	meq/100g	5.4	2.2	5.0	5.6
Exchangeable Na	meq/100g	0.13	<0.1	1.6	4.7
Cation Exchange Capacity	meq/100g	28	13	24	27

Metals in TCLP USEPA1311						
Our Reference		196637-A-14	196637-A-26	196637-A-28	196637-A-29	196637-A-43
Your Reference	UNITS	BH106	BH110	BH111	BH111	BH116
Depth		0.03-0.2	0-0.3	0-0.2	0.8-0.95	0.03-0.2
Date Sampled		11/07/2018	16/07/2018	12/07/2018	12/07/2018	11/07/2018
Type of sample		soil	soil	soil	soil	soil
Date extracted	-	17/08/2018	17/08/2018	17/08/2018	17/08/2018	17/08/2018
Date analysed	-	17/08/2018	17/08/2018	17/08/2018	17/08/2018	17/08/2018
pH of soil for fluid# determ.	pH units	9.4	6.9	6.5	6.5	9.2
pH of soil TCLP (after HCl)	pH units	1.6	1.6	1.6	1.6	1.6
Extraction fluid used	-	1	1	1	1	1
pH of final Leachate	pH units	5.5	5.0	5.0	4.9	5.2
Lead in TCLP	mg/L	[NA]	<0.03	0.1	0.03	[NA]
Nickel in TCLP	mg/L	0.06	[NA]	[NA]	[NA]	0.04

Metals in TCLP USEPA1311						
Our Reference		196637-A-49	196637-A-50	196637-A-63	196637-A-69	196637-A-72
Your Reference	UNITS	BH118	BH118	BH123	BH125	BH126
Depth		0-0.2	0.6-0.8	0-0.2	0-0.2	0-0.2
Date Sampled		16/07/2018	16/07/2018	11/07/2018	11/07/2018	11/07/2018
Type of sample		soil	soil	soil	soil	soil
Date extracted	-	16/08/2018	16/08/2018	16/08/2018	17/08/2018	17/08/2018
Date analysed	-	16/08/2018	16/08/2018	16/08/2018	17/08/2018	17/08/2018
pH of soil for fluid# determ.	pH units	9.1	7.6	6.0	6.5	6.8
pH of soil TCLP (after HCl)	pH units	1.6	1.6	1.6	1.6	1.6
Extraction fluid used	-	1	1	1	1	1
pH of final Leachate	pH units	5.4	5.0	5.0	5.0	5.0
Lead in TCLP	mg/L	[NA]	[NA]	[NA]	0.1	0.1

Metals in TCLP USEPA1311						
Our Reference		196637-A-107	196637-A-111	196637-A-126	196637-A-129	196637-A-131
Your Reference	UNITS	BH139	BH140	BH144	BH145	BH146
Depth		0-0.2	0-0.2	0-0.2	0.04-0.2	0.04-0.2
Date Sampled		11/07/2018	11/07/2018	11/07/2018	11/07/2018	11/07/2018
Type of sample		soil	soil	soil	soil	soil
Date extracted	-	17/08/2018	17/08/2018	17/08/2018	17/08/2018	17/08/2018
Date analysed	-	17/08/2018	17/08/2018	17/08/2018	17/08/2018	17/08/2018
pH of soil for fluid# determ.	pH units	6.4	7.3	6.3	9.6	9.7
pH of soil TCLP (after HCl)	pH units	1.6	1.6	1.6	1.6	1.6
Extraction fluid used	-	1	1	1	1	1
pH of final Leachate	pH units	5.0	5.0	4.9	5.1	5.1
Lead in TCLP	mg/L	<0.03	0.1	0.1	[NA]	[NA]
Nickel in TCLP	mg/L	[NA]	[NA]	[NA]	0.1	0.1

Metals in TCLP USEPA1311					
Our Reference	UNITS	196637-A-133	196637-A-136	196637-A-138	196637-A-141
Your Reference		BH147	BH148	BH149	BH150
Depth		0-0.2	0.04-0.2	0-0.2	0-0.1
Date Sampled		11/07/2018	11/07/2018	11/07/2018	11/07/2018
Type of sample		soil	soil	soil	soil
Date extracted	-	17/08/2018	17/08/2018	17/08/2018	17/08/2018
Date analysed	-	17/08/2018	17/08/2018	17/08/2018	17/08/2018
pH of soil for fluid# determ.	pH units	8.9	10.0	7.0	6.6
pH of soil TCLP (after HCl)	pH units	1.7	1.6	1.6	1.8
Extraction fluid used	-	1	1	1	1
pH of final Leachate	pH units	5.8	5.1	5.1	5.0
Lead in TCLP	mg/L	0.2	[NA]	0.06	<0.03
Nickel in TCLP	mg/L	[NA]	0.1	[NA]	[NA]

PAHs in TCLP (USEPA 1311)				
Our Reference		196637-A-49	196637-A-50	196637-A-63
Your Reference	UNITS	BH118	BH118	BH123
Depth		0-0.2	0.6-0.8	0-0.2
Date Sampled		16/07/2018	16/07/2018	11/07/2018
Type of sample		soil	soil	soil
Date extracted	-	20/08/2018	21/08/2018	21/08/2018
Date analysed	-	21/08/2018	22/08/2018	22/08/2018
Naphthalene in TCLP	mg/L	<0.001	<0.001	<0.001
Acenaphthylene in TCLP	mg/L	<0.001	<0.001	<0.001
Acenaphthene in TCLP	mg/L	<0.001	<0.001	<0.001
Fluorene in TCLP	mg/L	<0.001	<0.001	<0.001
Phenanthrene in TCLP	mg/L	<0.001	<0.001	<0.001
Anthracene in TCLP	mg/L	<0.001	<0.001	<0.001
Fluoranthene in TCLP	mg/L	<0.001	<0.001	<0.001
Pyrene in TCLP	mg/L	<0.001	<0.001	<0.001
Benzo(a)anthracene in TCLP	mg/L	<0.001	<0.001	<0.001
Chrysene in TCLP	mg/L	<0.001	<0.001	<0.001
Benzo(bjk)fluoranthene in TCLP	mg/L	<0.002	<0.002	<0.002
Benzo(a)pyrene in TCLP	mg/L	<0.001	<0.001	<0.001
Indeno(1,2,3-c,d)pyrene - TCLP	mg/L	<0.001	<0.001	<0.001
Dibenzo(a,h)anthracene in TCLP	mg/L	<0.001	<0.001	<0.001
Benzo(g,h,i)perylene in TCLP	mg/L	<0.001	<0.001	<0.001
Total +ve PAH's	mg/L	NIL (+)VE	NIL (+)VE	NIL (+)VE
Surrogate p-Terphenyl-d14	%	103	96	75

Method ID	Methodology Summary
EXTRACT.7	Toxicity Characteristic Leaching Procedure (TCLP) using Zero Headspace Extraction (zHE) using AS4439 and USEPA 1311.
Inorg-001	pH - Measured using pH meter and electrode in accordance with APHA latest edition, 4500-H+. Please note that the results for water analyses are indicative only, as analysis outside of the APHA storage times.
Inorg-004	Toxicity Characteristic Leaching Procedure (TCLP) using in house method INORG-004.
Inorg-008	Moisture content determined by heating at 105+/-5 °C for a minimum of 12 hours.
Metals-009	Determination of exchangeable cations and cation exchange capacity in soils using 1M Ammonium Chloride exchange and ICP-AES analytical finish.
Metals-020	Determination of various metals by ICP-AES.
Metals-020 ICP-AES	Determination of various metals by ICP-AES.
Org-003	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-003	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-012	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS.
Org-012	Leachates are extracted with Dichloromethane and analysed by GC-MS.
Org-012	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS. Benzo(a)pyrene TEQ as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater - 2013.

Method ID	Methodology Summary
Org-012	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-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-014	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS.
Org-016	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-016	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-5	[NT]
Date extracted	-			16/08/2018	[NT]	[NT]	[NT]	[NT]	16/08/2018	[NT]
Date analysed	-			20/08/2018	[NT]	[NT]	[NT]	[NT]	20/08/2018	[NT]
TRH C_6 - C_9	mg/kg	25	Org-016	<25	[NT]	[NT]	[NT]	[NT]	103	[NT]
TRH C_6 - C_{10}	mg/kg	25	Org-016	<25	[NT]	[NT]	[NT]	[NT]	103	[NT]
Benzene	mg/kg	0.2	Org-016	<0.2	[NT]	[NT]	[NT]	[NT]	96	[NT]
Toluene	mg/kg	0.5	Org-016	<0.5	[NT]	[NT]	[NT]	[NT]	100	[NT]
Ethylbenzene	mg/kg	1	Org-016	<1	[NT]	[NT]	[NT]	[NT]	106	[NT]
m+p-xylene	mg/kg	2	Org-016	<2	[NT]	[NT]	[NT]	[NT]	107	[NT]
o-Xylene	mg/kg	1	Org-016	<1	[NT]	[NT]	[NT]	[NT]	105	[NT]
naphthalene	mg/kg	1	Org-014	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-016	105	[NT]	[NT]	[NT]	[NT]	105	[NT]

QUALITY CONTROL: svTRH (C10-C40) in Soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-5	[NT]
Date extracted	-			16/08/2018	[NT]	[NT]	[NT]	[NT]	16/08/2018	[NT]
Date analysed	-			17/08/2018	[NT]	[NT]	[NT]	[NT]	17/08/2018	[NT]
TRH C_{10} - C_{14}	mg/kg	50	Org-003	<50	[NT]	[NT]	[NT]	[NT]	116	[NT]
TRH C_{15} - C_{28}	mg/kg	100	Org-003	<100	[NT]	[NT]	[NT]	[NT]	118	[NT]
TRH C_{29} - C_{36}	mg/kg	100	Org-003	<100	[NT]	[NT]	[NT]	[NT]	108	[NT]
TRH >C_{10}-C_{16}	mg/kg	50	Org-003	<50	[NT]	[NT]	[NT]	[NT]	116	[NT]
TRH >C_{16}-C_{34}	mg/kg	100	Org-003	<100	[NT]	[NT]	[NT]	[NT]	118	[NT]
TRH >C_{34}-C_{40}	mg/kg	100	Org-003	<100	[NT]	[NT]	[NT]	[NT]	108	[NT]
Surrogate o-Terphenyl	%		Org-003	108	[NT]	[NT]	[NT]	[NT]	112	[NT]

QUALITY CONTROL: PAHs in Soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-5	[NT]
Date extracted	-			16/08/2018	[NT]	[NT]	[NT]	[NT]	16/08/2018	[NT]
Date analysed	-			17/08/2018	[NT]	[NT]	[NT]	[NT]	17/08/2018	[NT]
Naphthalene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	110	[NT]
Acenaphthylene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Acenaphthene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Fluorene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	107	[NT]
Phenanthrene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	113	[NT]
Anthracene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Fluoranthene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	113	[NT]
Pyrene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	104	[NT]
Benzo(a)anthracene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Chrysene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	100	[NT]
Benzo(b,j+k)fluoranthene	mg/kg	0.2	Org-012	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Benzo(a)pyrene	mg/kg	0.05	Org-012	<0.05	[NT]	[NT]	[NT]	[NT]	109	[NT]
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-012	100	[NT]	[NT]	[NT]	[NT]	130	[NT]

QUALITY CONTROL: Acid Extractable metals in soil					Duplicate					Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-5	[NT]
Date prepared	-			16/08/2018	[NT]	[NT]	[NT]	[NT]	16/08/2018	[NT]
Date analysed	-			16/08/2018	[NT]	[NT]	[NT]	[NT]	16/08/2018	[NT]
Lead	mg/kg	1	Metals-020	<1	[NT]	[NT]	[NT]	[NT]	103	[NT]

QUALITY CONTROL: CEC					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-5	[NT]
Date prepared	-			20/08/2018	[NT]	[NT]	[NT]	[NT]	20/08/2018	[NT]
Date analysed	-			20/08/2018	[NT]	[NT]	[NT]	[NT]	20/08/2018	[NT]
Exchangeable Ca	meq/100g	0.1	Metals-009	<0.1	[NT]	[NT]	[NT]	[NT]	108	[NT]
Exchangeable K	meq/100g	0.1	Metals-009	<0.1	[NT]	[NT]	[NT]	[NT]	117	[NT]
Exchangeable Mg	meq/100g	0.1	Metals-009	<0.1	[NT]	[NT]	[NT]	[NT]	108	[NT]
Exchangeable Na	meq/100g	0.1	Metals-009	<0.1	[NT]	[NT]	[NT]	[NT]	116	[NT]

QUALITY CONTROL: Metals in TCLP USEPA1311					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	196637-A-126
Date extracted	-			17/08/2018	14	17/08/2018	17/08/2018		17/08/2018	17/08/2018
Date analysed	-			17/08/2018	14	17/08/2018	17/08/2018		17/08/2018	17/08/2018
Lead in TCLP	mg/L	0.03	Metals-020 ICP-AES	<0.03	111	0.1	0.1	0	96	93
Nickel in TCLP	mg/L	0.02	Metals-020 ICP-AES	<0.02	14	0.06	0.06	0	97	93

QUALITY CONTROL: Metals in TCLP USEPA1311					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	111	17/08/2018	17/08/2018		[NT]	[NT]
Date analysed	-			[NT]	111	17/08/2018	17/08/2018		[NT]	[NT]

QUALITY CONTROL: PAHs in TCLP (USEPA 1311)					Duplicate					Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W2	[NT]
Date extracted	-			21/08/2018	[NT]	[NT]	[NT]	[NT]	20/08/2018	[NT]
Date analysed	-			22/08/2018	[NT]	[NT]	[NT]	[NT]	21/08/2018	[NT]
Naphthalene in TCLP	mg/L	0.001	Org-012	<0.001	[NT]	[NT]	[NT]	[NT]	87	[NT]
Acenaphthylene in TCLP	mg/L	0.001	Org-012	<0.001	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Acenaphthene in TCLP	mg/L	0.001	Org-012	<0.001	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Fluorene in TCLP	mg/L	0.001	Org-012	<0.001	[NT]	[NT]	[NT]	[NT]	89	[NT]
Phenanthrene in TCLP	mg/L	0.001	Org-012	<0.001	[NT]	[NT]	[NT]	[NT]	93	[NT]
Anthracene in TCLP	mg/L	0.001	Org-012	<0.001	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Fluoranthene in TCLP	mg/L	0.001	Org-012	<0.001	[NT]	[NT]	[NT]	[NT]	98	[NT]
Pyrene in TCLP	mg/L	0.001	Org-012	<0.001	[NT]	[NT]	[NT]	[NT]	91	[NT]
Benzo(a)anthracene in TCLP	mg/L	0.001	Org-012	<0.001	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Chrysene in TCLP	mg/L	0.001	Org-012	<0.001	[NT]	[NT]	[NT]	[NT]	86	[NT]
Benzo(bjk)fluoranthene in TCLP	mg/L	0.002	Org-012	<0.002	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Benzo(a)pyrene in TCLP	mg/L	0.001	Org-012	<0.001	[NT]	[NT]	[NT]	[NT]	87	[NT]
Indeno(1,2,3-c,d)pyrene - TCLP	mg/L	0.001	Org-012	<0.001	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Dibenzo(a,h)anthracene in TCLP	mg/L	0.001	Org-012	<0.001	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Benzo(g,h,i)perylene in TCLP	mg/L	0.001	Org-012	<0.001	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-012	96	[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.

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: <5xPQL - any RPD is acceptable; >5xPQL - 0-50% RPD is acceptable.

Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals; 60-140% for organics (+/-50% surrogates) and 10-140% for labile SVOCs (including labile surrogates), ultra trace organics and speciated phenols is acceptable.

In circumstances where no duplicate and/or sample spike has been reported at 1 in 10 and/or 1 in 20 samples respectively, the sample volume submitted was 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.

Report Comments
organics analysed outside of RHT

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	Environmental Investigation Services
Attention	Vittal Boggaram, Alistair Mitchell

Sample Login Details	
Your reference	E31040K, Canterbury South
Envirolab Reference	196637-A
Date Sample Received	19/07/2018
Date Instructions Received	15/08/2018
Date Results Expected to be Reported	22/08/2018

Sample Condition	
Samples received in appropriate condition for analysis	YES
No. of Samples Provided	213 soil, 2 water, 15 material
Turnaround Time Requested	Standard
Temperature on Receipt (°C)	3.0
Cooling Method	Ice
Sampling Date Provided	YES

Comments
Nil

Please direct any queries to:

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

Analysis Underway, details on the following page:

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

Sample ID	vTRH(C6-C10)/BTEXN in Soil	svTRH (C10-C40) in Soil	PAHs in Soil	Acid Extractable metalsin soil	CEC	pH of soil for fluid#determ.	pH of soil TCLP (after HCl)	Extraction fluid used	pH of final Leachate	Lead in TCLP	Nickel in TCLP	Naphthalene in TCLP	Acenaphthylene in TCLP	Acenaphthene in TCLP	Fluorene in TCLP	Phenanthrene in TCLP	Anthracene in TCLP	Fluoranthene in TCLP	Pyrene in TCLP	Benzo(a)anthracene in TCLP	Chrysene in TCLP	Benzo(bjk)fluoranthene in TCLP	Benzo(a)pyrene in TCLP	Indeno(1,2,3-c,d)pyrene - TCLP	Dibenzo(a,h)anthracene in TCLP	Benzo(g,h,i)perylene in TCLP	Total +vePAH's	Surrogate p-Terphenyl-d14	On Hold
BH101-0-0.2																													✓
BH101-0.7-0.95																													✓
BH101-1.3-1.5																													✓
BH102-0-0.2																													✓
BH102-0.6-0.75																													✓
BH102-0.75-0.95																													✓
BH103-0-0.2																													✓
BH103-0.3-0.4																													✓
BH104-0.03-0.2																													✓
BH104-0.2-0.4																													✓
BH104-0.6-0.95																													✓
BH105-0.03-0.2																													✓
BH105-0.8-0.95																													✓
BH106-0.03-0.2					✓	✓	✓	✓	✓		✓																		
BH106-0.7-0.95																													✓
BH107-0.05-0.2																													✓
BH107-0.6-0.7																													✓
BH107-0.8-0.9																													✓
BH108-0-0.2																													✓
BH108-0.6-0.7																													✓

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

Sample ID	vTRH(C6-C10)/BTEXN in Soil	svTRH (C10-C40) in Soil	PAHs in Soil	Acid Extractable metalsin soil	CEC	pH of soil for fluid#determ.	pH of soil TCLP (after HCl)	Extraction fluid used	pH of final Leachate	Lead in TCLP	Nickel in TCLP	Naphthalene in TCLP	Acenaphthylene in TCLP	Acenaphthene in TCLP	Fluorene in TCLP	Phenanthrene in TCLP	Anthracene in TCLP	Fluoranthene in TCLP	Pyrene in TCLP	Benzo(a)anthracene in TCLP	Chrysene in TCLP	Benzo(bjk)fluoranthene in TCLP	Benzo(a)pyrene in TCLP	Indeno(1,2,3-c,d)pyrene - TCLP	Dibenzo(a,h)anthracene in TCLP	Benzo(g,h,i)perylene in TCLP	Total +vePAH's	Surrogate p-Terphenyl-d14	On Hold
BH108-0.85-0.95																													✓
BH108-1.4-1.6																													✓
BH109-0-0.2																													✓
BH109-0.6-0.95																													✓
BH109-1.4-1.6																													✓
BH110-0-0.3						✓	✓	✓	✓	✓																			
BH110-0.3-0.5																													✓
BH111-0-0.2					✓	✓	✓	✓	✓	✓																			
BH111-0.8-0.95				✓		✓	✓	✓	✓	✓																			
BH111-1.4-1.6																													✓
BH112-0-0.2																													✓
BH112-0.7-0.95																													✓
BH112-1.3-1.5																													✓
BH113-0.1-0.2																													✓
BH113-0.5-0.7																													✓
BH113-0.8-0.95																													✓
BH114-0-0.2																													✓
BH114-0.3-0.5																													✓
BH114-0.75-0.85																													✓
BH115-0-0.2																													✓

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

Sample ID	vTRH(C6-C10)/BTEXN in Soil	svTRH (C10-C40) in Soil	PAHs in Soil	Acid Extractable metalsin soil	CEC	pH of soil for fluid#determ.	pH of soil TCLP (after HCl)	Extraction fluid used	pH of final Leachate	Lead in TCLP	Nickel in TCLP	Naphthalene in TCLP	Acenaphthylene in TCLP	Acenaphthene in TCLP	Fluorene in TCLP	Phenanthrene in TCLP	Anthracene in TCLP	Fluoranthene in TCLP	Pyrene in TCLP	Benzo(a)anthracene in TCLP	Chrysene in TCLP	Benzo(bjk)fluoranthene in TCLP	Benzo(a)pyrene in TCLP	Indeno(1,2,3-c,d)pyrene - TCLP	Dibenzo(a,h)anthracene in TCLP	Benzo(g,h,i)perylene in TCLP	Total +vePAH's	Surrogate p-Terphenyl-d14	On Hold
BH115-0.7-0.95																													✓
BH115-1.1-1.3																													✓
BH116-0.03-0.2						✓	✓	✓	✓		✓																		
BH116-0.7-0.95																													✓
BH116-1.1-1.3																													✓
BH117-0-0.2																													✓
BH117-0.7-0.95																													✓
BH117-1.3-1.5																													✓
BH118-0-0.2						✓	✓	✓	✓			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
BH118-0.6-0.8			✓			✓	✓	✓	✓			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
BH119-0-0.2																													✓
BH119-0.3-0.5																													✓
BH120-0.07-0.2																													✓
BH120-0.3-0.4																													✓
BH120-0.4-0.5																													✓
BH121-0-0.2																													✓
BH121-0.3-0.5																													✓
BH121-0.6-0.75																													✓
BH121-0.9-1.0																													✓
BH122-0-0.2																													✓

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

Sample ID	vTRH(C6-C10)/BTEXN in Soil	svTRH (C10-C40) in Soil	PAHs in Soil	Acid Extractable metalsin soil	CEC	pH of soil for fluid#determ.	pH of soil TCLP (after HCl)	Extraction fluid used	pH of final Leachate	Lead in TCLP	Nickel in TCLP	Naphthalene in TCLP	Acenaphthylene in TCLP	Acenaphthene in TCLP	Fluorene in TCLP	Phenanthrene in TCLP	Anthracene in TCLP	Fluoranthene in TCLP	Pyrene in TCLP	Benzo(a)anthracene in TCLP	Chrysene in TCLP	Benzo(bjk)fluoranthene in TCLP	Benzo(a)pyrene in TCLP	Indeno(1,2,3-c,d)pyrene - TCLP	Dibenzo(a,h)anthracene in TCLP	Benzo(g,h,i)perylene in TCLP	Total +vePAH's	Surrogate p-Terphenyl-d14	On Hold
BH122-0.5-0.95																													✓
BH122-1.3-1.5																													✓
BH123-0-0.2						✓	✓	✓	✓			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
BH123-0.7-0.95																													✓
BH123-1.5-1.6																													✓
BH124-0-0.2																													✓
BH124-0.9-0.95																													✓
BH124-1.3-1.6																													✓
BH125-0-0.2						✓	✓	✓	✓	✓																			
BH125-0.9-0.95																													✓
BH125-1.5-1.6																													✓
BH126-0-0.2						✓	✓	✓	✓	✓																			
BH126-0.7-0.95																													✓
BH126-1.3-1.5																													✓
BH127-0-0.2																													✓
BH127-0.7-0.95																													✓
BH127-1.3-1.5																													✓
BH128-0-0.2																													✓
BH128-0.65-0.95																													✓
BH128-1.4-1.6																													✓

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

Sample ID	vTRH(C6-C10)/BTEXN in Soil	svTRH (C10-C40) in Soil	PAHs in Soil	Acid Extractable metalsin soil	CEC	pH of soil for fluid#determ.	pH of soil TCLP (after HCl)	Extraction fluid used	pH of final Leachate	Lead in TCLP	Nickel in TCLP	Naphthalene in TCLP	Acenaphthylene in TCLP	Acenaphthene in TCLP	Fluorene in TCLP	Phenanthrene in TCLP	Anthracene in TCLP	Fluoranthene in TCLP	Pyrene in TCLP	Benzo(a)anthracene in TCLP	Chrysene in TCLP	Benzo(bjk)fluoranthene in TCLP	Benzo(a)pyrene in TCLP	Indeno(1,2,3-c,d)pyrene - TCLP	Dibenzo(a,h)anthracene in TCLP	Benzo(g,h,i)perylene in TCLP	Total +vePAH's	Surrogate p-Terphenyl-d14	On Hold
BH129-0-0.2																													✓
BH129-0.4-0.6																													✓
BH130-0.1-0.3																													✓
BH131-0-0.2																													✓
BH131-0.6-0.9																													✓
BH131-1.9-2.0																													✓
BH132-0-0.2																													✓
BH132-0.5-0.95																													✓
BH132-1.1-1.3																													✓
BH132-1.5-1.7																													✓
BH133-0-0.2																													✓
BH133-0.7-0.95																													✓
BH133-2.0-2.2																													✓
BH134-0.1-0.3																													✓
BH134-0.7-0.8																													✓
BH134-0.9-1.0																													✓
BH135-0.1-0.3																													✓
BH135-0.5-0.6																													✓
BH136-0-0.2																													✓
BH136-0.7-0.95																													✓

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

Sample ID	vTRH(C6-C10)/BTEXN in Soil	svTRH (C10-C40) in Soil	PAHs in Soil	Acid Extractable metalsin soil	CEC	pH of soil for fluid#determ.	pH of soil TCLP (after HCl)	Extraction fluid used	pH of final Leachate	Lead in TCLP	Nickel in TCLP	Naphthalene in TCLP	Acenaphthylene in TCLP	Acenaphthene in TCLP	Fluorene in TCLP	Phenanthrene in TCLP	Anthracene in TCLP	Fluoranthene in TCLP	Pyrene in TCLP	Benzo(a)anthracene in TCLP	Chrysene in TCLP	Benzo(bjk)fluoranthene in TCLP	Benzo(a)pyrene in TCLP	Indeno(1,2,3-c,d)pyrene - TCLP	Dibenzo(a,h)anthracene in TCLP	Benzo(g,h,i)perylene in TCLP	Total +vePAH's	Surrogate p-Terphenyl-d14	On Hold
BH136-1.1-1.3																													✓
BH137-0-0.2																													✓
BH137-0.6-0.95																													✓
BH137-1.3-1.5																													✓
BH138-0-0.2																													✓
BH138-1.0-1.2																													✓
BH139-0-0.2						✓	✓	✓	✓	✓																			
BH139-0.6-0.95																													✓
BH139-1.2-1.4																													✓
BH139-1.5-1.6																													✓
BH140-0-0.2						✓	✓	✓	✓	✓																			
BH140-0.7-0.95																													✓
BH140-1.1-1.3																													✓
BH141-0-0.2																													✓
BH141-0.2-0.5																													✓
BH141-0.7-0.95																													✓
BH141-1.6-18																													✓
BH141-2.7-3.0																													✓
BH142-0-0.2																													✓
BH142-0.6-0.8	✓	✓																											

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

Sample ID	vTRH(C6-C10)/BTEXN in Soil	svTRH (C10-C40) in Soil	PAHs in Soil	Acid Extractable metalsin soil	CEC	pH of soil for fluid#determ.	pH of soil TCLP (after HCl)	Extraction fluid used	pH of final Leachate	Lead in TCLP	Nickel in TCLP	Naphthalene in TCLP	Acenaphthylene in TCLP	Acenaphthene in TCLP	Fluorene in TCLP	Phenanthrene in TCLP	Anthracene in TCLP	Fluoranthene in TCLP	Pyrene in TCLP	Benzo(a)anthracene in TCLP	Chrysene in TCLP	Benzo(bjk)fluoranthene in TCLP	Benzo(a)pyrene in TCLP	Indeno(1,2,3-c,d)pyrene - TCLP	Dibenzo(a,h)anthracene in TCLP	Benzo(g,h,i)perylene in TCLP	Total +vePAH's	Surrogate p-Terphenyl-d14	On Hold
BH142-0.9-1.0																													✓
BH143-0.15-0.35																													✓
BH143-0.6-0.95																													✓
BH143-1.7-1.9																													✓
BH143-1.9-2.0																													✓
BH144-0-0.2						✓	✓	✓	✓	✓																			
BH144-0.6-0.95																													✓
BH144-1.4-1.6																													✓
BH145-0.04-0.2					✓	✓	✓	✓	✓		✓																		
BH145-0.3-0.4																													✓
BH146-0.04-0.2						✓	✓	✓	✓		✓																		
BH146-0.2-0.4																													✓
BH147-0-0.2						✓	✓	✓	✓	✓																			
BH147-0.6-0.95																													✓
BH147-1.3-1.5																													✓
BH148-0.04-0.2					✓	✓	✓	✓	✓		✓																		
BH148-0.4-0.5																													✓
BH149-0-0.2						✓	✓	✓	✓	✓																			
BH149-0.6-0.95																													✓
BH149-1.5-1.6																													✓

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

Sample ID	vTRH(C6-C10)/BTEXN in Soil	svTRH (C10-C40) in Soil	PAHs in Soil	Acid Extractable metalsin soil	CEC	pH of soil for fluid#determ.	pH of soil TCLP (after HCl)	Extraction fluid used	pH of final Leachate	Lead in TCLP	Nickel in TCLP	Naphthalene in TCLP	Acenaphthylene in TCLP	Acenaphthene in TCLP	Fluorene in TCLP	Phenanthrene in TCLP	Anthracene in TCLP	Fluoranthene in TCLP	Pyrene in TCLP	Benzo(a)anthracene in TCLP	Chrysene in TCLP	Benzo(bjk)fluoranthene in TCLP	Benzo(a)pyrene in TCLP	Indeno(1,2,3-c,d)pyrene - TCLP	Dibenzo(a,h)anthracene in TCLP	Benzo(g,h,i)perylene in TCLP	Total +vePAH's	Surrogate p-Terphenyl-d14	On Hold
BH150-0-0.1						✓	✓	✓	✓	✓																			
BH150-0.7-0.95																													✓
BH150-1.3-1.5																													✓
BH101-0-0.75																													✓
BH102-0-0.6																													✓
BH103-0-0.3																													✓
BH104-0.03-0.6																													✓
BH105-0.03-0.6																													✓
BH106-0.03-0.4																													✓
BH107-0.05-0.5																													✓
BH108-0-0.6																													✓
BH109-0-0.55																													✓
BH110-0-0.3																													✓
BH110-0.3-0.5																													✓
BH111-0-0.6																													✓
BH112-0-0.6																													✓
BH113-0.1-0.3																													✓
BH113-0.4-0.7																													✓
BH113-0.7-0.95																													✓
BH114-0-0.3																													✓

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

Sample ID	vTRH(C6-C10)/BTEXN in Soil	svTRH (C10-C40) in Soil	PAHs in Soil	Acid Extractable metalsin soil	CEC	pH of soil for fluid#determ.	pH of soil TCLP (after HCl)	Extraction fluid used	pH of final Leachate	Lead in TCLP	Nickel in TCLP	Naphthalene in TCLP	Acenaphthylene in TCLP	Acenaphthene in TCLP	Fluorene in TCLP	Phenanthrene in TCLP	Anthracene in TCLP	Fluoranthene in TCLP	Pyrene in TCLP	Benzo(a)anthracene in TCLP	Chrysene in TCLP	Benzo(bjk)fluoranthene in TCLP	Benzo(a)pyrene in TCLP	Indeno(1,2,3-c,d)pyrene - TCLP	Dibenzo(a,h)anthracene in TCLP	Benzo(g,h,i)perylene in TCLP	Total +vePAH's	Surrogate p-Terphenyl-d14	On Hold
BH114-0.3-0.75																													✓
BH115-0-0.6																													✓
BH116-0.03-0.6																													✓
BH117-0-0.4																													✓
BH118-0-0.3																													✓
BH119-0-0.3																													✓
BH119-0.3-0.2																													✓
BH120-0.07-0.2																													✓
BH121-0-0.3																													✓
BH121-0.3-0.6																													✓
BH122-0-0.5																													✓
BH123-0-0.7																													✓
BH124-0-0.9																													✓
BH125-0-0.85																													✓
BH126-0-0.5																													✓
BH127-0-0.6																													✓
BH128-0-0.65																													✓
BH129-0-0.3																													✓
BH130-0.1-0.3																													✓
BH131-0-0.6																													✓

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

Sample ID	vTRH(C6-C10)/BTEXN in Soil	svTRH (C10-C40) in Soil	PAHs in Soil	Acid Extractable metalsin soil	CEC	pH of soil for fluid#determ.	pH of soil TCLP (after HCl)	Extraction fluid used	pH of final Leachate	Lead in TCLP	Nickel in TCLP	Naphthalene in TCLP	Acenaphthylene in TCLP	Acenaphthene in TCLP	Fluorene in TCLP	Phenanthrene in TCLP	Anthracene in TCLP	Fluoranthene in TCLP	Pyrene in TCLP	Benzo(a)anthracene in TCLP	Chrysene in TCLP	Benzo(bjk)fluoranthene in TCLP	Benzo(a)pyrene in TCLP	Indeno(1,2,3-c,d)pyrene - TCLP	Dibenzo(a,h)anthracene in TCLP	Benzo(g,h,i)perylene in TCLP	Total +vePAH's	Surrogate p-Terphenyl-d14	On Hold
BH131-0.6-1.2																													✓
BH132-0-0.5																													✓
BH132-0.5-1.0																													✓
BH133-0-0.5																													✓
BH133-0.6-1.4																													✓
BH134-0-0.5																													✓
BH135-0.1-0.5																													✓
BH136-0-0.4																													✓
BH137-0-0.6																													✓
BH138-0-0.4																													✓
BH139-0-0.5																													✓
BH139-0.6-1.0																													✓
BH140-0-0.6																													✓
BH140-0.6-1.1																													✓
BH141-0-0.2																													✓
BH141-0.2-1.0																													✓
BH142-0-0.6																													✓
BH143-0.15-0.35																													✓
BH143-0.5-1.7																													✓
BH144-0-0.5																													✓

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

Sample ID	vTRH(C6-C10)/BTEXN in Soil	svTRH (C10-C40) in Soil	PAHs in Soil	Acid Extractable metalsin soil	CEC	pH of soil for fluid#determ.	pH of soil TCLP (after HCl)	Extraction fluid used	pH of final Leachate	Lead in TCLP	Nickel in TCLP	Naphthalene in TCLP	Acenaphthylene in TCLP	Acenaphthene in TCLP	Fluorene in TCLP	Phenanthrene in TCLP	Anthracene in TCLP	Fluoranthene in TCLP	Pyrene in TCLP	Benzo(a)anthracene in TCLP	Chrysene in TCLP	Benzo(bjk)fluoranthene in TCLP	Benzo(a)pyrene in TCLP	Indeno(1,2,3-c,d)pyrene - TCLP	Dibenzo(a,h)anthracene in TCLP	Benzo(g,h,i)perylene in TCLP	Total +vePAH's	Surrogate p-Terphenyl-d14	On Hold
BH145-0.04-0.3																													✓
BH145-0.3-0.4																													✓
BH146-0.04-0.2																													✓
BH147-0-0.6																													✓
BH148-0.04-0.4																													✓
BH149-0-0.6																													✓
BH150-0-0.6																													✓
JHDUP3																													✓
JHDUP4																													✓
JHDUP5																													✓
FR1																													✓
FR2																													✓
TB1																													✓
TB2																													✓
JHF1																													✓
JHF2																													✓
JHF3																													✓
JHF4																													✓
JHF5																													✓
JHF6																													✓

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

Sample ID	vTRH(C6-C10)/BTEXN in Soil	svTRH (C10-C40) in Soil	PAHs in Soil	Acid Extractable metalsin soil	CEC	pH of soil for fluid#determ.	pH of soil TCLP (after HCl)	Extraction fluid used	pH of final Leachate	Lead in TCLP	Nickel in TCLP	Naphthalene in TCLP	Acenaphthylene in TCLP	Acenaphthene in TCLP	Fluorene in TCLP	Phenanthrene in TCLP	Anthracene in TCLP	Fluoranthene in TCLP	Pyrene in TCLP	Benzo(a)anthracene in TCLP	Chrysene in TCLP	Benzo(bjk)fluoranthene in TCLP	Benzo(a)pyrene in TCLP	Indeno(1,2,3-c,d)pyrene - TCLP	Dibenzo(a,h)anthracene in TCLP	Benzo(g,h,i)perylene in TCLP	Total +vePAH's	Surrogate p-Terphenyl-d14	On Hold
JHF7																													✓
JHF8																													✓
JHF9																													✓
JHF10																													✓
JHF11																													✓
JHF12																													✓
JHF13																													✓
JHF14																													✓
JHF15																													✓
BH135																													✓
BH150 - [TRIPLICATE]-0-0.1																													✓

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

Additional Info

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

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

Please note that all samples submitted to the Envirolab Group laboratories will be analysed under the Envirolab Group Terms and Conditions. The Terms and Conditions are accessible by clicking this link

---

ELS: 196637-A
TAT: 5 days
Due: 22/8/18
AHz

From: Vittal Boggaram [mailto:VBoggaram@jkgroup.net.au]
Sent: Wednesday, 15 August 2018 2:08 PM
To: Aileen Hie <AHie@envirolab.com.au>
Cc: Alistair Mitchell <AMitchell@jkgroup.net.au>
Subject: RE: Additional Testing for 196637 E31040K, Canterbury South

Hi Aileen,

Hope you are well. I wanted to schedule the following additional testing for the above job on a **standard turnaround**. Thanks.

EIS Sample Reference	Sample Depth	Envirolab Report	Additional Testing Required
BH106 14	0.03-0.2	196637	TCLP Nickel, CEC
BH110 26	0-0.3	196637	TCLP Lead
BH111 28	0-0.2	196637	TCLP Lead, CEC
BH111 29	0.8-0.95	196637	Lead and TCLP Lead
BH116 43	0.03-0.2	196637	TCLP Nickel
BH118 49	0-0.2	196637	TCLP PAHs
BH118 50	0.6-0.8	196637	PAHs and TCLP PAHs
BH123 63	0-0.2	196637	TCLP PAHs
BH125 69	0-0.2	196637	TCLP Lead
BH126 72	0-0.2	196637	TCLP Lead
BH139 107	0-0.2	196637	TCLP Lead
BH140 111	0-0.2	196637	TCLP Lead
BH142 120	0.6-0.8	196637	TRH/BTEX
BH144 126	0-0.2	196637	TCLP Lead
BH145 129	0.04-0.2	196637	TCLP Nickel, CEC
BH146 131	0.04-0.2	196637	TCLP Nickel
BH147 133	0-0.2	196637	TCLP Lead
BH148 136	0.04-0.2	196637	TCLP Nickel, CEC
BH149 138	0-0.2	196637	TCLP Lead
BH150 141	0-0.1	196637	TCLP Lead

Regards,

Vittal Boggaram
Principal Associate | Environmental Scientist

T: +612 9888 5000
F: +612 9888 5001
VBoggaram@jkgroup.net.au
www.jkgroup.net.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 197018

Client Details

Client	Environmental Investigation Services
Attention	Vittal Boggaram
Address	PO Box 976, North Ryde BC, NSW, 1670

Sample Details

Your Reference	**E31040K, Canterbury**
Number of Samples	7 WATER
Date samples received	25/07/2018
Date completed instructions received	25/07/2018

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	01/08/2018
Date of Issue	31/07/2018

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

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

Results Approved By
Giovanni Agosti, Group Technical Manager
Jeremy Faircloth, Organics Supervisor

Authorised By

Jacinta Hurst, Laboratory Manager

VOCs in water					
Our Reference		197018-1	197018-2	197018-3	197018-4
Your Reference	UNITS	MW101	MW142	MW143	DUP1
Date Sampled		25/07/2018	25/07/2018	25/07/2018	25/07/2018
Type of sample		WATER	WATER	WATER	WATER
Date extracted	-	26/07/2018	26/07/2018	26/07/2018	26/07/2018
Date analysed	-	27/07/2018	27/07/2018	27/07/2018	27/07/2018
Dichlorodifluoromethane	µg/L	<10	<10	<10	<10
Chloromethane	µg/L	<10	<10	<10	<10
Vinyl Chloride	µg/L	<10	<10	<10	<10
Bromomethane	µg/L	<10	<10	<10	<10
Chloroethane	µg/L	<10	<10	<10	<10
Trichlorofluoromethane	µg/L	<10	<10	<10	<10
1,1-Dichloroethene	µg/L	<1	<1	<1	<1
Trans-1,2-dichloroethene	µg/L	<1	<1	<1	<1
1,1-dichloroethane	µg/L	<1	<1	<1	<1
Cis-1,2-dichloroethene	µg/L	<1	<1	<1	<1
Bromochloromethane	µg/L	<1	<1	<1	<1
Chloroform	µg/L	<1	<1	<1	<1
2,2-dichloropropane	µg/L	<1	<1	<1	<1
1,2-dichloroethane	µg/L	<1	<1	<1	<1
1,1,1-trichloroethane	µg/L	<1	<1	<1	<1
1,1-dichloropropene	µg/L	<1	<1	<1	<1
Cyclohexane	µg/L	<1	<1	<1	<1
Carbon tetrachloride	µg/L	<1	<1	<1	<1
Benzene	µg/L	<1	<1	<1	<1
Dibromomethane	µg/L	<1	<1	<1	<1
1,2-dichloropropane	µg/L	<1	<1	<1	<1
Trichloroethene	µg/L	<1	<1	<1	<1
Bromodichloromethane	µg/L	<1	<1	<1	<1
trans-1,3-dichloropropene	µg/L	<1	<1	<1	<1
cis-1,3-dichloropropene	µg/L	<1	<1	<1	<1
1,1,2-trichloroethane	µg/L	<1	<1	<1	<1
Toluene	µg/L	<1	<1	<1	<1
1,3-dichloropropane	µg/L	<1	<1	<1	<1
Dibromochloromethane	µg/L	<1	<1	<1	<1
1,2-dibromoethane	µg/L	<1	<1	<1	<1
Tetrachloroethene	µg/L	<1	<1	<1	<1
1,1,1,2-tetrachloroethane	µg/L	<1	<1	<1	<1
Chlorobenzene	µg/L	<1	<1	<1	<1
Ethylbenzene	µg/L	<1	<1	<1	<1
Bromoform	µg/L	<1	<1	<1	<1

VOCs in water					
Our Reference		197018-1	197018-2	197018-3	197018-4
Your Reference	UNITS	MW101	MW142	MW143	DUP1
Date Sampled		25/07/2018	25/07/2018	25/07/2018	25/07/2018
Type of sample		WATER	WATER	WATER	WATER
m+p-xylene	µg/L	<2	<2	<2	<2
Styrene	µg/L	<1	<1	<1	<1
1,1,2,2-tetrachloroethane	µg/L	<1	<1	<1	<1
o-xylene	µg/L	<1	<1	<1	<1
1,2,3-trichloropropane	µg/L	<1	<1	<1	<1
Isopropylbenzene	µg/L	<1	<1	<1	<1
Bromobenzene	µg/L	<1	<1	<1	<1
n-propyl benzene	µg/L	<1	<1	<1	<1
2-chlorotoluene	µg/L	<1	<1	<1	<1
4-chlorotoluene	µg/L	<1	<1	<1	<1
1,3,5-trimethyl benzene	µg/L	<1	<1	<1	<1
Tert-butyl benzene	µg/L	<1	<1	<1	<1
1,2,4-trimethyl benzene	µg/L	<1	<1	<1	<1
1,3-dichlorobenzene	µg/L	<1	<1	<1	<1
Sec-butyl benzene	µg/L	<1	<1	<1	<1
1,4-dichlorobenzene	µg/L	<1	<1	<1	<1
4-isopropyl toluene	µg/L	<1	<1	<1	<1
1,2-dichlorobenzene	µg/L	<1	<1	<1	<1
n-butyl benzene	µg/L	<1	<1	<1	<1
1,2-dibromo-3-chloropropane	µg/L	<1	<1	<1	<1
1,2,4-trichlorobenzene	µg/L	<1	<1	<1	<1
Hexachlorobutadiene	µg/L	<1	<1	<1	<1
1,2,3-trichlorobenzene	µg/L	<1	<1	<1	<1
Surrogate Dibromofluoromethane	%	117	75	86	105
Surrogate toluene-d8	%	95	87	86	78
Surrogate 4-BFB	%	83	91	67	90

vTRH(C6-C10)/BTEXN in Water						
Our Reference		197018-1	197018-2	197018-3	197018-4	197018-5
Your Reference	UNITS	MW101	MW142	MW143	DUP1	TB
Date Sampled		25/07/2018	25/07/2018	25/07/2018	25/07/2018	25/07/2018
Type of sample		WATER	WATER	WATER	WATER	WATER
Date extracted	-	26/07/2018	26/07/2018	26/07/2018	26/07/2018	27/07/2018
Date analysed	-	27/07/2018	27/07/2018	27/07/2018	27/07/2018	28/07/2018
TRH C_6 - C_9	µg/L	<10	<10	<10	<10	<10
TRH C_6 - C_{10}	µg/L	<10	<10	<10	<10	<10
TRH C_6 - C_{10} less BTEX (F1)	µg/L	<10	<10	<10	<10	<10
Benzene	µg/L	<1	<1	<1	<1	<1
Toluene	µg/L	<1	<1	<1	<1	<1
Ethylbenzene	µg/L	<1	<1	<1	<1	<1
m+p-xylene	µg/L	<2	<2	<2	<2	<2
o-xylene	µg/L	<1	<1	<1	<1	<1
Naphthalene	µg/L	<1	<1	<1	<1	<1
Surrogate Dibromofluoromethane	%	117	75	86	105	100
Surrogate toluene-d8	%	95	87	86	78	96
Surrogate 4-BFB	%	83	91	67	90	91

vTRH(C6-C10)/BTEXN in Water		
Our Reference		197018-7
Your Reference	UNITS	TS
Date Sampled		25/07/2018
Type of sample		WATER
Date extracted	-	27/07/2018
Date analysed	-	28/07/2018
Benzene	µg/L	102%
Toluene	µg/L	102%
Ethylbenzene	µg/L	105%
m+p-xylene	µg/L	106%
o-xylene	µg/L	106%
Surrogate Dibromofluoromethane	%	99
Surrogate toluene-d8	%	103
Surrogate 4-BFB	%	102

svTRH (C10-C40) in Water					
Our Reference		197018-1	197018-2	197018-3	197018-4
Your Reference	UNITS	MW101	MW142	MW143	DUP1
Date Sampled		25/07/2018	25/07/2018	25/07/2018	25/07/2018
Type of sample		WATER	WATER	WATER	WATER
Date extracted	-	26/07/2018	26/07/2018	26/07/2018	26/07/2018
Date analysed	-	26/07/2018	26/07/2018	27/07/2018	27/07/2018
TRH C_{10} - C_{14}	μg/L	<50	<50	<50	<50
TRH C_{15} - C_{28}	μg/L	<100	<100	<100	<100
TRH C_{29} - C_{36}	μg/L	<100	<100	<100	<100
TRH >C_{10} - C_{16}	μg/L	<50	<50	<50	<50
TRH >C_{10} - C_{16} less Naphthalene (F2)	μg/L	<50	<50	<50	<50
TRH >C_{16} - C_{34}	μg/L	<100	<100	<100	<100
TRH >C_{34} - C_{40}	μg/L	<100	<100	<100	<100
Surrogate o-Terphenyl	%	100	95	97	90

PAHs in Water - Low Level					
Our Reference		197018-1	197018-2	197018-3	197018-4
Your Reference	UNITS	MW101	MW142	MW143	DUP1
Date Sampled		25/07/2018	25/07/2018	25/07/2018	25/07/2018
Type of sample		WATER	WATER	WATER	WATER
Date extracted	-	26/07/2018	26/07/2018	26/07/2018	26/07/2018
Date analysed	-	27/07/2018	27/07/2018	27/07/2018	27/07/2018
Naphthalene	µg/L	<0.2	<0.2	<0.2	<0.2
Acenaphthylene	µg/L	<0.1	<0.1	<0.1	<0.1
Acenaphthene	µg/L	<0.1	<0.1	<0.1	<0.1
Fluorene	µg/L	<0.1	<0.1	<0.1	<0.1
Phenanthrene	µg/L	<0.1	<0.1	<0.1	<0.1
Anthracene	µg/L	<0.1	<0.1	<0.1	<0.1
Fluoranthene	µg/L	<0.1	<0.1	<0.1	<0.1
Pyrene	µg/L	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	µg/L	<0.1	<0.1	<0.1	<0.1
Chrysene	µg/L	<0.1	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	µg/L	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	µg/L	<0.1	<0.1	<0.1	<0.1
Indeno(1,2,3-c,d)pyrene	µg/L	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	µg/L	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	µg/L	<0.1	<0.1	<0.1	<0.1
Benzo(a)pyrene TEQ	µg/L	<0.5	<0.5	<0.5	<0.5
Total +ve PAH's	µg/L	NIL (+)VE	NIL (+)VE	NIL (+)VE	NIL (+)VE
Surrogate p-Terphenyl-d14	%	110	103	109	114

HM in water - dissolved					
Our Reference	UNITS	197018-1	197018-2	197018-3	197018-4
Your Reference		MW101	MW142	MW143	DUP1
Date Sampled		25/07/2018	25/07/2018	25/07/2018	25/07/2018
Type of sample		WATER	WATER	WATER	WATER
Date prepared	-	26/07/2018	26/07/2018	26/07/2018	26/07/2018
Date analysed	-	26/07/2018	26/07/2018	26/07/2018	26/07/2018
Arsenic-Dissolved	µg/L	<1	<1	<1	<1
Cadmium-Dissolved	µg/L	<0.1	<0.1	<0.1	<0.1
Chromium-Dissolved	µg/L	<1	<1	2	<1
Copper-Dissolved	µg/L	<1	<1	2	<1
Lead-Dissolved	µg/L	<1	<1	2	<1
Mercury-Dissolved	µg/L	<0.05	<0.05	<0.05	<0.05
Nickel-Dissolved	µg/L	4	1	5	4
Zinc-Dissolved	µg/L	26	22	44	26

Method ID	Methodology Summary
Metals-021	Determination of Mercury by Cold Vapour AAS.
Metals-022	Determination of various metals by ICP-MS.
Org-003	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-012	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS. Benzo(a)pyrene TEQ as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater - 2013.
Org-013	Water samples are analysed directly by purge and trap GC-MS.
Org-016	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater.

QUALITY CONTROL: VOCs in water						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date extracted	-			26/07/2018	[NT]	[NT]	[NT]	[NT]	26/07/2018	[NT]
Date analysed	-			27/07/2018	[NT]	[NT]	[NT]	[NT]	27/07/2018	[NT]
Dichlorodifluoromethane	µg/L	10	Org-013	<10	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Chloromethane	µg/L	10	Org-013	<10	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Vinyl Chloride	µg/L	10	Org-013	<10	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Bromomethane	µg/L	10	Org-013	<10	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Chloroethane	µg/L	10	Org-013	<10	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Trichlorofluoromethane	µg/L	10	Org-013	<10	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,1-Dichloroethene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Trans-1,2-dichloroethene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,1-dichloroethane	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	108	[NT]
Cis-1,2-dichloroethene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Bromochloromethane	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Chloroform	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	70	[NT]
2,2-dichloropropane	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,2-dichloroethane	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	70	[NT]
1,1,1-trichloroethane	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	87	[NT]
1,1-dichloropropene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Cyclohexane	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Carbon tetrachloride	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Benzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Dibromomethane	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,2-dichloropropane	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Trichloroethene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	111	[NT]
Bromodichloromethane	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	101	[NT]
trans-1,3-dichloropropene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
cis-1,3-dichloropropene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,1,2-trichloroethane	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Toluene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,3-dichloropropane	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Dibromochloromethane	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	107	[NT]
1,2-dibromoethane	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Tetrachloroethene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	108	[NT]
1,1,1,2-tetrachloroethane	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Chlorobenzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Ethylbenzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Bromoform	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
m+p-xylene	µg/L	2	Org-013	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Styrene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,1,2,2-tetrachloroethane	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
o-xylene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]

QUALITY CONTROL: VOCs in water					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
1,2,3-trichloropropane	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Isopropylbenzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Bromobenzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
n-propyl benzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
2-chlorotoluene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
4-chlorotoluene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,3,5-trimethyl benzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Tert-butyl benzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,2,4-trimethyl benzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,3-dichlorobenzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Sec-butyl benzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,4-dichlorobenzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
4-isopropyl toluene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,2-dichlorobenzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
n-butyl benzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,2-dibromo-3-chloropropane	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,2,4-trichlorobenzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Hexachlorobutadiene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,2,3-trichlorobenzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate Dibromofluoromethane	%		Org-013	96	[NT]	[NT]	[NT]	[NT]	73	[NT]
Surrogate toluene-d8	%		Org-013	99	[NT]	[NT]	[NT]	[NT]	92	[NT]
Surrogate 4-BFB	%		Org-013	95	[NT]	[NT]	[NT]	[NT]	109	[NT]

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Water					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date extracted	-			26/07/2018	[NT]	[NT]	[NT]	[NT]	26/07/2018	[NT]
Date analysed	-			27/07/2018	[NT]	[NT]	[NT]	[NT]	27/07/2018	[NT]
TRH C_6 - C_9	µg/L	10	Org-016	<10	[NT]	[NT]	[NT]	[NT]	111	[NT]
TRH C_6 - C_{10}	µg/L	10	Org-016	<10	[NT]	[NT]	[NT]	[NT]	111	[NT]
Benzene	µg/L	1	Org-016	<1	[NT]	[NT]	[NT]	[NT]	92	[NT]
Toluene	µg/L	1	Org-016	<1	[NT]	[NT]	[NT]	[NT]	108	[NT]
Ethylbenzene	µg/L	1	Org-016	<1	[NT]	[NT]	[NT]	[NT]	118	[NT]
m+p-xylene	µg/L	2	Org-016	<2	[NT]	[NT]	[NT]	[NT]	118	[NT]
o-xylene	µg/L	1	Org-016	<1	[NT]	[NT]	[NT]	[NT]	125	[NT]
Naphthalene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate Dibromofluoromethane	%		Org-016	96	[NT]	[NT]	[NT]	[NT]	73	[NT]
Surrogate toluene-d8	%		Org-016	99	[NT]	[NT]	[NT]	[NT]	92	[NT]
Surrogate 4-BFB	%		Org-016	95	[NT]	[NT]	[NT]	[NT]	109	[NT]

QUALITY CONTROL: svTRH (C10-C40) in Water					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W3	[NT]
Date extracted	-			26/07/2018	[NT]	[NT]	[NT]	[NT]	26/07/2018	[NT]
Date analysed	-			26/07/2018	[NT]	[NT]	[NT]	[NT]	26/07/2018	[NT]
TRH C_{10} - C_{14}	µg/L	50	Org-003	<50	[NT]	[NT]	[NT]	[NT]	93	[NT]
TRH C_{15} - C_{28}	µg/L	100	Org-003	<100	[NT]	[NT]	[NT]	[NT]	100	[NT]
TRH C_{29} - C_{36}	µg/L	100	Org-003	<100	[NT]	[NT]	[NT]	[NT]	79	[NT]
TRH $>C_{10}$ - C_{16}	µg/L	50	Org-003	<50	[NT]	[NT]	[NT]	[NT]	93	[NT]
TRH $>C_{16}$ - C_{34}	µg/L	100	Org-003	<100	[NT]	[NT]	[NT]	[NT]	100	[NT]
TRH $>C_{34}$ - C_{40}	µg/L	100	Org-003	<100	[NT]	[NT]	[NT]	[NT]	79	[NT]
Surrogate o-Terphenyl	%		Org-003	83	[NT]	[NT]	[NT]	[NT]	98	[NT]

QUALITY CONTROL: PAHs in Water - Low Level					Duplicate					Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W4	[NT]
Date extracted	-			26/07/2018	[NT]	[NT]	[NT]	[NT]	26/07/2018	[NT]
Date analysed	-			27/07/2018	[NT]	[NT]	[NT]	[NT]	27/07/2018	[NT]
Naphthalene	µg/L	0.2	Org-012	<0.2	[NT]	[NT]	[NT]	[NT]	82	[NT]
Acenaphthylene	µg/L	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Acenaphthene	µg/L	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Fluorene	µg/L	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	93	[NT]
Phenanthrene	µg/L	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	89	[NT]
Anthracene	µg/L	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Fluoranthene	µg/L	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	87	[NT]
Pyrene	µg/L	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	86	[NT]
Benzo(a)anthracene	µg/L	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Chrysene	µg/L	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	84	[NT]
Benzo(b,j+k)fluoranthene	µg/L	0.2	Org-012	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Benzo(a)pyrene	µg/L	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	91	[NT]
Indeno(1,2,3-c,d)pyrene	µg/L	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Dibenzo(a,h)anthracene	µg/L	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Benzo(g,h,i)perylene	µg/L	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-012	94	[NT]	[NT]	[NT]	[NT]	79	[NT]

QUALITY CONTROL: HM in water - dissolved					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W2	[NT]
Date prepared	-			26/07/2018	[NT]	[NT]	[NT]	[NT]	26/07/2018	[NT]
Date analysed	-			26/07/2018	[NT]	[NT]	[NT]	[NT]	26/07/2018	[NT]
Arsenic-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	104	[NT]
Cadmium-Dissolved	µg/L	0.1	Metals-022	<0.1	[NT]	[NT]	[NT]	[NT]	103	[NT]
Chromium-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	99	[NT]
Copper-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	112	[NT]
Lead-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	106	[NT]
Mercury-Dissolved	µg/L	0.05	Metals-021	<0.05	[NT]	[NT]	[NT]	[NT]	103	[NT]
Nickel-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	103	[NT]
Zinc-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	101	[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.

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: <5xPQL - any RPD is acceptable; >5xPQL - 0-50% RPD is acceptable.

Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals; 60-140% for organics (+/-50% surrogates) and 10-140% for labile SVOCs (including labile surrogates), ultra trace organics and speciated phenols is acceptable.

In circumstances where no duplicate and/or sample spike has been reported at 1 in 10 and/or 1 in 20 samples respectively, the sample volume submitted was 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.

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	Environmental Investigation Services
Attention	Vittal Boggaram

Sample Login Details	
Your reference	E31040K, Canterbury
Envirolab Reference	197018
Date Sample Received	25/07/2018
Date Instructions Received	25/07/2018
Date Results Expected to be Reported	01/08/2018

Sample Condition	
Samples received in appropriate condition for analysis	YES
No. of Samples Provided	7 WATER
Turnaround Time Requested	Standard
Temperature on Receipt (°C)	11.9
Cooling Method	Ice
Sampling Date Provided	YES

Comments
Nil

Please direct any queries to:

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

Analysis Underway, details on the following page:

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

Sample ID	VOCs in water	vTRH(C6-C10)/BTEXN in Water	svTRH (C10-C40) in Water	PAHs in Water - Low Level	HM in water - dissolved	On Hold
MW101	✓	✓	✓	✓	✓	
MW142	✓	✓	✓	✓	✓	
MW143	✓	✓	✓	✓	✓	
DUP1	✓	✓	✓	✓	✓	
TB		✓				
TB1						✓
TS		✓				

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

Additional Info

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.

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	EIS Job Number: Date Results Required: Page:	E31040K STANDARD 1/1	FROM: ENVIRONMENTAL INVESTIGATION SERVICES REAR OF 115 WICKS ROAD MACQUARIE PARK, NSW 2113 P: 02-9888 5000 F: 02-9888 5001 Attention: Vittal Boggaram

Location: Canterbury

Sampler: HW

Sample Preserved in Esky on Ice

Tests Required

Date Sampled	Lab Ref:	Sample Number	Sample Containers	PID	Sample Description	Combo 2	Combo 3L	VOCs	pH / EC	8 Metals	PAHs	TRH/BTEX	BTEX	Hardness			
25/07/2018	1	MW101	G1,3xV,H		Water		X	X									
↓	2	MW142	G1,3xV,H		↓		X	X									
↓	3	MW143	G1,3xV,H		↓		X	X									
↓	4	DUP1	G1,3xV,H		↓		X	X									
↓		~~DUP2~~	~~G1,3xV,H~~		↓		X	X	Please send to VIC as Interlab dup								
↓	5	TB	V		↓								X				
↓	6	TB1	V		↓												
↓	7.	TS	V		↓								X				

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

ENVIROLAB GROUP

Job No: 197018

Date Received: 25/7/18

Time Received: 16:15

Received By: HH.

Temp: Cool/Ambient 11.9

Cooling: Ice/Icepack

Security: Intact/Broken/None

Remarks (comments/detection limits required):	Sample Containers:
All analysis PQLs to ANZECC (2000) Detection Limits Please	G1 - 500mL Amber Glass Bottle V - BTEX Vial H - HNO3 Wash PVC

Relinquished By:	Date:	Time:	Received By:	Date:
Vittal B-S	25/7/18		[signature]	25/7/18

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 14301

Client Details

Client	Environmental Investigation Services
Attention	Vittal Boggaram
Address	PO Box 976, North Ryde BC, NSW, 1670

Sample Details

Your Reference	**E31040K - Canterbury South**
Number of Samples	2 Soil
Date samples received	24/07/2018
Date completed instructions received	24/07/2018

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	31/07/2018
Date of Issue	31/07/2018

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

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

Results Approved By
Chris De Luca, Senior Chemist

Authorised By

P.Adams.

Pamela Adams, Laboratory Manager

vTRH(C6-C10)/BTEXN in Soil			
Our Reference		14301-1	14301-2
Your Reference	UNITS	JHDUP1	JHDUP2
Type of sample		Soil	Soil
Date Sampled		12/07/2018	12/07/2018
Date extracted	-	25/07/2018	25/07/2018
Date analysed	-	25/07/2018	25/07/2018
vTRH C_6 - C_9	mg/kg	<25	<25
vTRH C_6 - C_{10}	mg/kg	<25	<25
TRH C_6 - C_{10} less BTEX (F1)	mg/kg	<25	<25
Benzene	mg/kg	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1
m+p-xylene	mg/kg	<2	<2
o-Xylene	mg/kg	<1	<1
Naphthalene	mg/kg	<1	<1
Total +ve Xylenes	mg/kg	<1	<1
Surrogate aaa-Trifluorotoluene	%	88	84

TRH Soil C10-C40 NEPM			
Our Reference		14301-1	14301-2
Your Reference	UNITS	JHDUP1	JHDUP2
Type of sample		Soil	Soil
Date Sampled		12/07/2018	12/07/2018
Date extracted	-	25/07/2018	25/07/2018
Date analysed	-	25/07/2018	25/07/2018
TRH C_{10} - C_{14}	mg/kg	<50	<50
TRH C_{15} - C_{28}	mg/kg	<100	<100
TRH C_{29} - C_{36}	mg/kg	<100	<100
Total +ve TRH (C10-C36)	mg/kg	<50	<50
TRH >C_{10} -C_{16}	mg/kg	<50	<50
TRH >C_{10} - C_{16} less Naphthalene (F2)	mg/kg	<50	<50
TRH >C_{16} -C_{34}	mg/kg	<100	<100
TRH >C_{34} -C_{40}	mg/kg	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50
Surrogate o-Terphenyl	%	88	88

PAHs in Soil			
Our Reference		14301-1	14301-2
Your Reference	UNITS	JHDUP1	JHDUP2
Type of sample		Soil	Soil
Date Sampled		12/07/2018	12/07/2018
Date extracted	-	25/07/2018	25/07/2018
Date analysed	-	28/07/2018	28/07/2018
Naphthalene	mg/kg	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	0.1
Anthracene	mg/kg	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1
Pyrene	mg/kg	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1
Benzo(b,j&k)fluoranthene	mg/kg	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	0.06
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1
Total +ve PAH's	mg/kg	<0.05	0.2
Benzo(a)pyrene TEQ calc (Zero)	mg/kg	0	0.06
Benzo(a)pyrene TEQ calc (Half)	mg/kg	0.1	0.1
Benzo(a)pyrene TEQ calc (PQL)	mg/kg	0.2	0.2
Surrogate p-Terphenyl-d_{14}	%	90	90

OCP in Soil			
Our Reference		14301-1	14301-2
Your Reference	UNITS	JHDUP1	JHDUP2
Type of sample		Soil	Soil
Date Sampled		12/07/2018	12/07/2018
Date extracted	-	25/07/2018	25/07/2018
Date analysed	-	28/07/2018	28/07/2018
alpha-BHC	mg/kg	<0.1	<0.1
Hexachlorobenzene	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
Total +ve reported DDT+DDD+DDE	mg/kg	<0.1	<0.1
Surrogate p-Terphenyl-d_{14}	%	90	90

OP in Soil			
Our Reference		14301-1	14301-2
Your Reference	UNITS	JHDUP1	JHDUP2
Type of sample		Soil	Soil
Date Sampled		12/07/2018	12/07/2018
Date extracted	-	25/07/2018	25/07/2018
Date analysed	-	28/07/2018	28/07/2018
Azinphos-methyl	mg/kg	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1
Chlorpyrifos	mg/kg	<0.1	<0.1
Chlorpyrifos-methyl	mg/kg	<0.1	<0.1
Diazinon	mg/kg	<0.1	<0.1
Dichlorovos	mg/kg	<0.1	<0.1
Dimethoate	mg/kg	<0.1	<0.1
Ethion	mg/kg	<0.1	<0.1
Fenitrothion	mg/kg	<0.1	<0.1
Malathion	mg/kg	<0.1	<0.1
Parathion	mg/kg	<0.1	<0.1
Ronnel	mg/kg	<0.1	<0.1
Surrogate p-Terphenyl-d_{14}	%	90	90

PCBs in Soil			
Our Reference		14301-1	14301-2
Your Reference	UNITS	JHDUP1	JHDUP2
Type of sample		Soil	Soil
Date Sampled		12/07/2018	12/07/2018
Date extracted	-	25/07/2018	25/07/2018
Date analysed	-	28/07/2018	28/07/2018
Aroclor 1016	mg/kg	<0.1	<0.1
Aroclor 1221	mg/kg	<0.1	<0.1
Aroclor 1232	mg/kg	<0.1	<0.1
Aroclor 1242	mg/kg	<0.1	<0.1
Aroclor 1248	mg/kg	<0.1	<0.1
Aroclor 1254	mg/kg	<0.1	<0.1
Aroclor 1260	mg/kg	<0.1	<0.1
Total +ve PCBs (1016-1260)	mg/kg	<0.1	<0.1
Surrogate p-Terphenyl-d_{14}	%	90	90

Acid Extractable metals in soil			
Our Reference		14301-1	14301-2
Your Reference	UNITS	JHDUP1	JHDUP2
Type of sample		Soil	Soil
Date Sampled		12/07/2018	12/07/2018
Date digested	-	25/07/2018	25/07/2018
Date analysed	-	25/07/2018	25/07/2018
Arsenic	mg/kg	<4	<4
Cadmium	mg/kg	<0.4	<0.4
Chromium	mg/kg	8	74
Copper	mg/kg	8	35
Lead	mg/kg	30	11
Mercury	mg/kg	<0.1	<0.1
Nickel	mg/kg	2	82
Zinc	mg/kg	32	51

Moisture			
Our Reference		14301-1	14301-2
Your Reference	UNITS	JHDUP1	JHDUP2
Type of sample		Soil	Soil
Date Sampled		12/07/2018	12/07/2018
Date prepared	-	25/07/2018	25/07/2018
Date analysed	-	26/07/2018	26/07/2018
Moisture	%	14	7.3

Method ID	Methodology Summary
Inorg-008	Moisture content determined by heating at 105 deg 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-003	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-012	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS.
Org-012	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS. 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.
Org-012	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-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-012	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS.

Method ID	Methodology Summary
Org-012	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-014	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS.
Org-016	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	-			25/07/2018	1	25/07/2018	25/07/2018		25/07/2018	[NT]
Date analysed	-			25/07/2018	1	25/07/2018	25/07/2018		25/07/2018	[NT]
vTRH C_6 - C_9	mg/kg	25	Org-016	<25	1	<25	<25	0	85	[NT]
vTRH C_6 - C_{10}	mg/kg	25	Org-016	<25	1	<25	<25	0	85	[NT]
Benzene	mg/kg	0.2	Org-016	<0.2	1	<0.2	<0.2	0	88	[NT]
Toluene	mg/kg	0.5	Org-016	<0.5	1	<0.5	<0.5	0	81	[NT]
Ethylbenzene	mg/kg	1	Org-016	<1	1	<1	<1	0	82	[NT]
m+p-xylene	mg/kg	2	Org-016	<2	1	<2	<2	0	86	[NT]
o-Xylene	mg/kg	1	Org-016	<1	1	<1	<1	0	86	[NT]
Naphthalene	mg/kg	1	Org-014	<1	1	<1	<1	0	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-016	81	1	88	77	13	85	[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	-			25/07/2018	1	25/07/2018	25/07/2018		25/07/2018	[NT]
Date analysed	-			25/07/2018	1	25/07/2018	25/07/2018		25/07/2018	[NT]
TRH C_{10} - C_{14}	mg/kg	50	Org-003	<50	1	<50	<50	0	88	[NT]
TRH C_{15} - C_{28}	mg/kg	100	Org-003	<100	1	<100	<100	0	86	[NT]
TRH C_{29} - C_{36}	mg/kg	100	Org-003	<100	1	<100	<100	0	80	[NT]
TRH >C_{10} -C_{16}	mg/kg	50	Org-003	<50	1	<50	<50	0	88	[NT]
TRH >C_{16} -C_{34}	mg/kg	100	Org-003	<100	1	<100	<100	0	86	[NT]
TRH >C_{34} -C_{40}	mg/kg	100	Org-003	<100	1	<100	<100	0	80	[NT]
Surrogate o-Terphenyl	%		Org-003	89	1	88	90	2	84	[NT]

QUALITY CONTROL: PAHs in Soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	14301-2
Date extracted	-			25/07/2018	1	25/07/2018	25/07/2018		25/07/2018	25/07/2018
Date analysed	-			28/07/2018	1	28/07/2018	28/07/2018		28/07/2018	28/07/2018
Naphthalene	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	68	67
Acenaphthylene	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	68	60
Acenaphthene	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Fluorene	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	68	63
Phenanthrene	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	64	79
Anthracene	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Fluoranthene	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	60	96
Pyrene	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	60	100
Benzo(a)anthracene	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Chrysene	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	64	77
Benzo(b,j&k)fluoranthene	mg/kg	0.2	Org-012	<0.2	1	<0.2	<0.2	0	[NT]	[NT]
Benzo(a)pyrene	mg/kg	0.05	Org-012	<0.05	1	<0.05	<0.05	0	64	81
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Surrogate p-Terphenyl-d_{14}	%		Org-012	86	1	90	92	2	84	82

QUALITY CONTROL: OCP in Soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	14301-2
Date extracted	-			25/07/2018	1	25/07/2018	25/07/2018		25/07/2018	25/07/2018
Date analysed	-			28/07/2018	1	28/07/2018	28/07/2018		28/07/2018	28/07/2018
alpha-BHC	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	64	63
Hexachlorobenzene	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
beta-BHC	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	68	67
gamma-BHC	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Heptachlor	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	60	63
delta-BHC	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aldrin	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	60	63
Heptachlor Epoxide	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	64	67
gamma-Chlordane	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	64	63
alpha-chlordane	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Endosulfan I	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
pp-DDE	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	60	63
Dieldrin	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	60	67
Endrin	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	[NT]	139
Endosulfan II	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
pp-DDD	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	60	78
Endrin Aldehyde	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
pp-DDT	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Endosulfan Sulphate	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	60	63
Methoxychlor	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Surrogate p-Terphenyl-d_{14}	%		Org-012	86	1	90	92	2	84	82

QUALITY CONTROL: OP in Soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	14301-2
Date extracted	-			25/07/2018	1	25/07/2018	25/07/2018		25/07/2018	25/07/2018
Date analysed	-			28/07/2018	1	28/07/2018	28/07/2018		28/07/2018	28/07/2018
Azinphos-methyl	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Bromophos-ethyl	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Chlorpyrifos	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	64	67
Chlorpyrifos-methyl	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Diazinon	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Dichlorovos	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Dimethoate	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Ethion	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	60	107
Fenitrothion	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	60	71
Malathion	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Parathion	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Ronnel	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Surrogate p-Terphenyl-d_{14}	%		Org-012	86	1	90	92	2	84	82

QUALITY CONTROL: PCBs in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	14301-2
Date extracted	-			25/07/2018	1	25/07/2018	25/07/2018		25/07/2018	25/07/2018
Date analysed	-			28/07/2018	1	28/07/2018	28/07/2018		28/07/2018	28/07/2018
Aroclor 1016	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1221	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1232	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1242	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1248	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1254	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	71	65
Aroclor 1260	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Surrogate p-Terphenyl-d_{14}	%		Org-012	86	1	90	92	2	84	82

QUALITY CONTROL: Acid Extractable metals in soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
Date digested	-			25/07/2018	[NT]	[NT]	[NT]	[NT]	25/07/2018	[NT]
Date analysed	-			25/07/2018	[NT]	[NT]	[NT]	[NT]	25/07/2018	[NT]
Arsenic	mg/kg	4	Metals-020 ICP-AES	<4	[NT]	[NT]	[NT]	[NT]	97	[NT]
Cadmium	mg/kg	0.4	Metals-020 ICP-AES	<0.4	[NT]	[NT]	[NT]	[NT]	104	[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]	102	[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]	101	[NT]
Nickel	mg/kg	1	Metals-020 ICP-AES	<1	[NT]	[NT]	[NT]	[NT]	101	[NT]
Zinc	mg/kg	1	Metals-020 ICP-AES	<1	[NT]	[NT]	[NT]	[NT]	100	[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.	

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: <5xPQL - any RPD is acceptable; >5xPQL - 0-50% RPD is acceptable.

Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals; 60-140% for organics (+/-50% surrogates) and 10-140% for labile SVOCs (including labile surrogates), ultra trace organics and speciated phenols is acceptable.

In circumstances where no duplicate and/or sample spike has been reported at 1 in 10 and/or 1 in 20 samples respectively, the sample volume submitted was 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.

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	Environmental Investigation Services
Attention	Vittal Boggaram

Sample Login Details	
Your reference	E31040K - Canterbury South
Envirolab Reference	14301
Date Sample Received	24/07/2018
Date Instructions Received	24/07/2018
Date Results Expected to be Reported	31/07/2018

Sample Condition	
Samples received in appropriate condition for analysis	YES
No. of Samples Provided	2 Soil
Turnaround Time Requested	Standard
Temperature on Receipt (°C)	9
Cooling Method	Ice Pack
Sampling Date Provided	YES

Comments
Nil

Please direct any queries to:

Pamela Adams	Analisa Mathrick
Phone: 03 9763 2500	**Phone: 03 9763 2500**
Fax: 03 9763 2633	**Fax: 03 9763 2633**
Email: padams@envirolab.com.au	**Email: amathrick@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
JHDUP1	✓	✓	✓	✓	✓	✓	✓
JHDUP2	✓	✓	✓	✓	✓	✓	✓

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.

196637

SAMPLE AND CHAIN OF CUSTODY FORM

TO:		FROM:
ENVIROLAB SERVICES PTY LTD 12 ASHLEY STREET CHATSWOOD NSW 2067 P: (02) 99106200 F: (02) 99106201 Attention: Aileen	EIS Job Number: E31040K Date Results Required: STANDARD Page: 9 of 10	EIS ENVIRONMENTAL INVESTIGATION SERVICES REAR OF 115 WICKS ROAD MACQUARIE PARK, NSW 2113 P: 02-9888 5000 F: 02-9888 5001 Attention: Vboggaram@jkgroup.net.au

Location: Canterbury South

Sampler: JH/HW

Sample Preserved in Esky on Ice

Tests Required

	Date Sampled	Lab Ref:	Sample Number	Depth (m)	Sample Container	PID	Sample Description	Combo 3	Combo 6	Asbestos	Asbestos 500mL	pH, CEC and clay content	PAHs	TRH/BTEX	BTEX	COMBO 3L			
	13/7/18	198	BH143	~~0.15-0.35~~ 0-0.5	A	–	FILL												
	↓	199	↓	0.5-1.7		–													
	12/7/18	200	BH144	0-0.5		–													
	18/7/18	201	BH145	0.04-0.3		–													
	↓	202	↓	0.3-0.4		–													
	17/7/18	203	BH146	0.04-0.2		–													
	16/7/18	204	BH147	0-0.6		–													
	18/7/18	205	BH148	0.04-0.4		–													
	12/7/18	206	BH149	0-0.6		–													
	↓	207	BH150	0-0.6	↓	–													
1	–	—	JHDUP1	–	G	–			X										
2	–	—	JHDUP2	–		–			X										
	–	208	JHDUP3	–		–			X										
	–	209	JHDUP4	–		–			X										
	–	210	JHDUP5	–	↓	–			X										
	18/7/18	211,212	FR1&2	? –	Vx2	–	Rinsate Water									X			
	–	213,214	TB1&2	–	G2x2	–	Trip Blank Sand								X				
	–	215	JHF1		A		Material			X									
	–	216	JHF2							X									
	–	217	JHF3							X									
	–	218	JHF4							X									
	–	219	JHF5							X									
	–	220	JHF6							X									
	–	221	JHF7							X									
	–	222	JHF8		↓		↓			X									

Envirolab Services
1a Dalmore Drive
Carrum Downs
Scoresby VIC 3179
Ph: (03) 9763 2500

ENVIROLAB

Job No: 14301

Date Received: 24/7/18

Time Received: 13:00

Received by: CD

Temp: Cool/Ambient

Cooling: Ice/Icepack

Security: Intact/Broken/None

9°C

Remarks (comments/detection limits required):

Sample Containers:
G - 250mg Glass Jar
A - Ziplock Asbestos Bag
P - Plastic Bag
V - Vial
G2 - 125mL Jar

Relinquished By:	Date:	Time:	Received By:	Date:
Vittal B-S	19/7/18		JE	19/7/18

Relin: MING YAN ZO
EIS SYD
23/7/18 12:25
Ming Yan Zo

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 14327

Client Details	
Client	Environmental Investigation Services
Attention	Vittal Boggaram
Address	PO Box 976, North Ryde BC, NSW, 1670

Sample Details	
Your Reference	**E31040K - Canterbury**
Number of Samples	1 Water
Date samples received	27/07/2018
Date completed instructions received	27/07/2018

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	03/08/2018
Date of Issue	03/08/2018

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

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

Results Approved By
Chris De Luca, Senior Chemist

Authorised By

P.Adams.

Pamela Adams, Laboratory Manager

VOCs in water		
Our Reference		14327-1
Your Reference	UNITS	Dup 2
Date Sampled		25/07/2018
Type of sample		Water
Date extracted	-	03/08/2018
Date analysed	-	03/08/2018
Dichlorodifluoromethane	µg/L	<10
Chloromethane	µg/L	<10
Vinyl Chloride	µg/L	<10
Bromomethane	µg/L	<10
Chloroethane	µg/L	<10
Trichlorofluoromethane	µg/L	<10
1,1-Dichloroethene	µg/L	<1
Trans-1,2-dichloroethene	µg/L	<1
1,1-dichloroethane	µg/L	<1
Cis-1,2-dichloroethene	µg/L	<1
Bromochloromethane	µg/L	<1
Chloroform	µg/L	<1
2,2-dichloropropane	µg/L	<1
1,2-dichloroethane	µg/L	<1
1,1,1-trichloroethane	µg/L	<1
1,1-dichloropropene	µg/L	<1
Cyclohexane	µg/L	<1
Carbon tetrachloride	µg/L	<1
Benzene	µg/L	<1
Dibromomethane	µg/L	<1
1,2-dichloropropane	µg/L	<1
Trichloroethene	µg/L	<1
Bromodichloromethane	µg/L	<1
trans-1,3-dichloropropene	µg/L	<1
cis-1,3-dichloropropene	µg/L	<1
1,1,2-trichloroethane	µg/L	<1
Toluene	µg/L	<1
1,3-dichloropropane	µg/L	<1
Dibromochloromethane	µg/L	<1
1,2-dibromoethane	µg/L	<1
Tetrachloroethene	µg/L	<1
1,1,1,2-tetrachloroethane	µg/L	<1
Chlorobenzene	µg/L	<1
Ethylbenzene	µg/L	<1
Bromoform	µg/L	<1

VOCs in water		
Our Reference		14327-1
Your Reference	UNITS	Dup 2
Date Sampled		25/07/2018
Type of sample		Water
m+p-xylene	µg/L	<2
Styrene	µg/L	<1
1,1,2,2-tetrachloroethane	µg/L	<1
o-xylene	µg/L	<1
1,2,3-trichloropropane	µg/L	<1
Isopropylbenzene	µg/L	<1
Bromobenzene	µg/L	<1
n-propyl benzene	µg/L	<1
2-chlorotoluene	µg/L	<1
4-chlorotoluene	µg/L	<1
1,3,5-trimethyl benzene	µg/L	<1
Tert-butyl benzene	µg/L	<1
1,2,4-trimethyl benzene	µg/L	<1
1,3-dichlorobenzene	µg/L	<1
Sec-butyl benzene	µg/L	<1
1,4-dichlorobenzene	µg/L	<1
4-isopropyl toluene	µg/L	<1
1,2-dichlorobenzene	µg/L	<1
n-butyl benzene	µg/L	<1
1,2-dibromo-3-chloropropane	µg/L	<1
1,2,4-trichlorobenzene	µg/L	<1
Hexachlorobutadiene	µg/L	<1
1,2,3-trichlorobenzene	µg/L	<1
Surrogate Dibromofluoromethane	%	96
Surrogate toluene-d8	%	96
Surrogate 4-BFB	%	104

vTRH(C6-C10)/BTEXN in Water		
Our Reference		14327-1
Your Reference	UNITS	Dup 2
Date Sampled		25/07/2018
Type of sample		Water
Date extracted	-	03/08/2018
Date analysed	-	03/08/2018
TRH C_6 - C_9	µg/L	<10
TRH C_6 - C_{10}	µg/L	<10
TRH C_6 - C_{10} less BTEX (F1)	µg/L	<10
Benzene	µg/L	<1
Toluene	µg/L	<1
Ethylbenzene	µg/L	<1
m+p-xylene	µg/L	<2
o-xylene	µg/L	<1
Naphthalene	µg/L	<1
Surrogate Dibromofluoromethane	%	99
Surrogate toluene-d8	%	90
Surrogate 4-BFB	%	107

TRH Water(C10-C40) NEPM		
Our Reference		14327-1
Your Reference	UNITS	Dup 2
Date Sampled		25/07/2018
Type of sample		Water
Date extracted	-	30/07/2018
Date analysed	-	02/08/2018
TRH C_{10} - C_{14}	µg/L	<50
TRH C_{15} - C_{28}	µg/L	<100
TRH C_{29} - C_{36}	µg/L	<100
TRH >C_{10} - C_{16}	µg/L	<50
TRH >C_{10} - C_{16} less Naphthalene (F2)	µg/L	<50
TRH >C_{16} - C_{34}	µg/L	<100
TRH >C_{34} - C_{40}	µg/L	<100
Surrogate o-Terphenyl	%	82

PAHs in Water - Low Level		
Our Reference		14327-1
Your Reference	UNITS	Dup 2
Date Sampled		25/07/2018
Type of sample		Water
Date extracted	-	31/07/2018
Date analysed	-	31/07/2018
Naphthalene	µg/L	<0.1
Acenaphthylene	µg/L	<0.1
Acenaphthene	µg/L	<0.1
Fluorene	µg/L	<0.1
Phenanthrene	µg/L	<0.1
Anthracene	µg/L	<0.1
Fluoranthene	µg/L	<0.1
Pyrene	µg/L	<0.1
Benzo(a)anthracene	µg/L	<0.1
Chrysene	µg/L	<0.1
Benzo(b,j&k)fluoranthene	µg/L	<0.2
Benzo(a)pyrene	µg/L	<0.1
Indeno(1,2,3-c,d)pyrene	µg/L	<0.1
Dibenzo(a,h)anthracene	µg/L	<0.1
Benzo(g,h,i)perylene	µg/L	<0.1
Total +ve PAH's	µg/L	NIL (+)VE PAH
Benzo(a)pyrene TEQ	µg/L	<0.5
Surrogate p-Terphenyl-d_{14}	%	68

HM in water - dissolved		
Our Reference		14327-1
Your Reference	UNITS	Dup 2
Date Sampled		25/07/2018
Type of sample		Water
Date prepared	-	30/07/2018
Date analysed	-	30/07/2018
Arsenic-Dissolved	µg/L	<1
Cadmium-Dissolved	µg/L	<0.1
Chromium-Dissolved	µg/L	2
Copper-Dissolved	µg/L	3
Lead-Dissolved	µg/L	2
Nickel-Dissolved	µg/L	5
Zinc-Dissolved	µg/L	48
Mercury-Dissolved	µg/L	<0.05

Method ID	Methodology Summary
Metals-021 CV-AAS	Determination of Mercury by Cold Vapour AAS.
Metals-022 ICP-MS	Determination of various metals by ICP-MS.
Org-003	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-012	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS. Benzo(a)pyrene TEQ as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater 2013.
Org-013	Water samples are analysed directly by purge and trap GC-MS.
Org-016	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: VOCs in water					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
Date extracted	-			03/08/2018	[NT]	[NT]	[NT]	[NT]	03/08/2018	[NT]
Date analysed	-			03/08/2018	[NT]	[NT]	[NT]	[NT]	03/08/2018	[NT]
Dichlorodifluoromethane	µg/L	10	Org-013	<10	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Chloromethane	µg/L	10	Org-013	<10	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Vinyl Chloride	µg/L	10	Org-013	<10	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Bromomethane	µg/L	10	Org-013	<10	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Chloroethane	µg/L	10	Org-013	<10	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Trichlorofluoromethane	µg/L	10	Org-013	<10	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,1-Dichloroethene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Trans-1,2-dichloroethene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,1-dichloroethane	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	89	[NT]
Cis-1,2-dichloroethene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Bromochloromethane	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Chloroform	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	83	[NT]
2,2-dichloropropane	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,2-dichloroethane	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	90	[NT]
1,1,1-trichloroethane	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	82	[NT]
1,1-dichloropropene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Cyclohexane	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Carbon tetrachloride	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Benzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Dibromomethane	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,2-dichloropropane	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Trichloroethene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	109	[NT]
Bromodichloromethane	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	96	[NT]
trans-1,3-dichloropropene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
cis-1,3-dichloropropene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,1,2-trichloroethane	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Toluene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,3-dichloropropane	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Dibromochloromethane	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	117	[NT]
1,2-dibromoethane	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Tetrachloroethene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	100	[NT]
1,1,1,2-tetrachloroethane	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Chlorobenzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Ethylbenzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Bromoform	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
m+p-xylene	µg/L	2	Org-013	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Styrene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,1,2,2-tetrachloroethane	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
o-xylene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]

QUALITY CONTROL: VOCs in water					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
1,2,3-trichloropropane	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Isopropylbenzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Bromobenzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
n-propyl benzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
2-chlorotoluene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
4-chlorotoluene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,3,5-trimethyl benzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Tert-butyl benzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,2,4-trimethyl benzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,3-dichlorobenzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Sec-butyl benzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,4-dichlorobenzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
4-isopropyl toluene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,2-dichlorobenzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
n-butyl benzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,2-dibromo-3-chloropropane	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,2,4-trichlorobenzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Hexachlorobutadiene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,2,3-trichlorobenzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate Dibromofluoromethane	%		Org-013	96	[NT]	[NT]	[NT]	[NT]	94	[NT]
Surrogate toluene-d8	%		Org-013	118	[NT]	[NT]	[NT]	[NT]	135	[NT]
Surrogate 4-BFB	%		Org-013	117	[NT]	[NT]	[NT]	[NT]	88	[NT]

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Water					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
Date extracted	-			03/08/2018	[NT]	[NT]	[NT]	[NT]	03/08/2018	[NT]
Date analysed	-			03/08/2018	[NT]	[NT]	[NT]	[NT]	03/08/2018	[NT]
TRH C_6 - C_9	µg/L	10	Org-016	<10	[NT]	[NT]	[NT]	[NT]	102	[NT]
TRH C_6 - C_{10}	µg/L	10	Org-016	<10	[NT]	[NT]	[NT]	[NT]	102	[NT]
Benzene	µg/L	1	Org-016	<1	[NT]	[NT]	[NT]	[NT]	95	[NT]
Toluene	µg/L	1	Org-016	<1	[NT]	[NT]	[NT]	[NT]	107	[NT]
Ethylbenzene	µg/L	1	Org-016	<1	[NT]	[NT]	[NT]	[NT]	97	[NT]
m+p-xylene	µg/L	2	Org-016	<2	[NT]	[NT]	[NT]	[NT]	96	[NT]
o-xylene	µg/L	1	Org-016	<1	[NT]	[NT]	[NT]	[NT]	97	[NT]
Naphthalene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	91	[NT]
Surrogate Dibromofluoromethane	%		Org-016	99	[NT]	[NT]	[NT]	[NT]	98	[NT]
Surrogate toluene-d8	%		Org-016	111	[NT]	[NT]	[NT]	[NT]	93	[NT]
Surrogate 4-BFB	%		Org-016	120	[NT]	[NT]	[NT]	[NT]	103	[NT]

QUALITY CONTROL: TRH Water(C10-C40) NEPM					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
Date extracted	-			30/07/2018	[NT]	[NT]	[NT]	[NT]	30/07/2018	[NT]
Date analysed	-			02/08/2018	[NT]	[NT]	[NT]	[NT]	02/08/2018	[NT]
TRH C_{10} - C_{14}	µg/L	50	Org-003	<50	[NT]	[NT]	[NT]	[NT]	97	[NT]
TRH C_{15} - C_{28}	µg/L	100	Org-003	<100	[NT]	[NT]	[NT]	[NT]	115	[NT]
TRH C_{29} - C_{36}	µg/L	100	Org-003	<100	[NT]	[NT]	[NT]	[NT]	107	[NT]
TRH >C_{10} - C_{16}	µg/L	50	Org-003	<50	[NT]	[NT]	[NT]	[NT]	97	[NT]
TRH >C_{16} - C_{34}	µg/L	100	Org-003	<100	[NT]	[NT]	[NT]	[NT]	115	[NT]
TRH >C_{34} - C_{40}	µg/L	100	Org-003	<100	[NT]	[NT]	[NT]	[NT]	107	[NT]
Surrogate o-Terphenyl	%		Org-003	104	[NT]	[NT]	[NT]	[NT]	98	[NT]

QUALITY CONTROL: PAHs in Water - Low Level					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
Date extracted	-			31/07/2018	[NT]	[NT]	[NT]	[NT]	31/07/2018	[NT]
Date analysed	-			31/07/2018	[NT]	[NT]	[NT]	[NT]	31/07/2018	[NT]
Naphthalene	µg/L	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Acenaphthylene	µg/L	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	88	[NT]
Acenaphthene	µg/L	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Fluorene	µg/L	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	94	[NT]
Phenanthrene	µg/L	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	90	[NT]
Anthracene	µg/L	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Fluoranthene	µg/L	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	96	[NT]
Pyrene	µg/L	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	98	[NT]
Benzo(a)anthracene	µg/L	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Chrysene	µg/L	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Benzo(b,j&k)fluoranthene	µg/L	0.2	Org-012	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Benzo(a)pyrene	µg/L	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	94	[NT]
Indeno(1,2,3-c,d)pyrene	µg/L	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Dibenzo(a,h)anthracene	µg/L	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Benzo(g,h,i)perylene	µg/L	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate p-Terphenyl-d_{14}	%		Org-012	86	[NT]	[NT]	[NT]	[NT]	80	[NT]

QUALITY CONTROL: HM in water - dissolved					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	14327-1
Date prepared	-			30/07/2018	[NT]	[NT]	[NT]	[NT]	30/07/2018	30/07/2018
Date analysed	-			30/07/2018	[NT]	[NT]	[NT]	[NT]	30/07/2018	30/07/2018
Arsenic-Dissolved	µg/L	1	Metals-022 ICP-MS	<1	[NT]	[NT]	[NT]	[NT]	106	112
Cadmium-Dissolved	µg/L	0.1	Metals-022 ICP-MS	<0.1	[NT]	[NT]	[NT]	[NT]	108	112
Chromium-Dissolved	µg/L	1	Metals-022 ICP-MS	<1	[NT]	[NT]	[NT]	[NT]	103	109
Copper-Dissolved	µg/L	1	Metals-022 ICP-MS	<1	[NT]	[NT]	[NT]	[NT]	106	109
Lead-Dissolved	µg/L	1	Metals-022 ICP-MS	<1	[NT]	[NT]	[NT]	[NT]	112	110
Nickel-Dissolved	µg/L	1	Metals-022 ICP-MS	<1	[NT]	[NT]	[NT]	[NT]	106	109
Zinc-Dissolved	µg/L	1	Metals-022 ICP-MS	<1	[NT]	[NT]	[NT]	[NT]	107	110
Mercury-Dissolved	µg/L	0.05	Metals-021 CV-AAS	<0.05	[NT]	[NT]	[NT]	[NT]	105	85

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.

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: <5xPQL - any RPD is acceptable; >5xPQL - 0-50% RPD is acceptable.

Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals; 60-140% for organics (+/-50% surrogates) and 10-140% for labile SVOCs (including labile surrogates), ultra trace organics and speciated phenols is acceptable.

In circumstances where no duplicate and/or sample spike has been reported at 1 in 10 and/or 1 in 20 samples respectively, the sample volume submitted was 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.

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	Environmental Investigation Services
Attention	Vittal Boggaram

Sample Login Details	
Your reference	E31040K - Canterbury
Envirolab Reference	14327
Date Sample Received	27/07/2018
Date Instructions Received	27/07/2018
Date Results Expected to be Reported	03/08/2018

Sample Condition	
Samples received in appropriate condition for analysis	YES
No. of Samples Provided	1 Water
Turnaround Time Requested	Standard
Temperature on Receipt (°C)	15.8
Cooling Method	Ice Pack
Sampling Date Provided	YES

Comments
Nil

Please direct any queries to:

Pamela Adams	Analisa Mathrick
Phone: 03 9763 2500	**Phone: 03 9763 2500**
Fax: 03 9763 2633	**Fax: 03 9763 2633**
Email: padams@envirolab.com.au	**Email: amathrick@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	VOCs in water	vTRH(C6-C10)/BTEXN in Water	TRH Water(C10-C40) NEPM	PAHs in Water - Low Level	HM in water - dissolved
Dup 2	✓	✓	✓	✓	✓

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.

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	EIS Job Number: E31040K Date Results Required: STANDARD Page: 1/1	**FROM:** ENVIRONMENTAL INVESTIGATION SERVICES REAR OF 115 WICKS ROAD MACQUARIE PARK, NSW 2113 P: 02-9888 5000 F: 02-9888 5001 Attention: Vittal Boggaram

Location: Canterbury

Sampler: HW

Sample Preserved in Esky on Ice

Tests Required

Date Sampled	Lab Ref:	Sample Number	Sample Containers	PID	Sample Description	Combo 2	Combo 3L	VOCs	pH / EC	8 Metals	PAHs	TRH/BTEX	BTEX	Hardness			
25/07/2018	1	MW101	G1,3xV,H		Water		X	X									
	2	MW142	G1,3xV,H				X	X									
	3	MW143	G1,3xV,H				X	X									
	4	DUP1	G1,3xV,H				X	X									
		DUP2	G1,3xV,H				X	X	Please send to VIC as Interlab dup.								
	5	TB	V										X				
	6	TB1	V														
	7	TS	V										X				

ENVIROLAB GROUP
Envirolab Services
12 Ashley St
Chatswood NSW 2067
Ph: (02) 9910 6200
Job No: 197018
Date Received: 25/7/18
Time Received: 16:15
Received By: JH
Temp: Cool/Ambient 11.9
Cooling: Ice/Icepack
Security: Intact/Broken/None

ENVIROLAB GROUP
Envirolab Services
Caribbean Park
Scoresby VIC 3179
Ph: (03) 9763 2500
Job No: 14327
Date Received: 27/7/18
Time Received: 14:35
Received by:
Temp: Cool/Ambient 15.8°
Cooling: Ice/Icepack
Security: Intact/Broken/None

Remarks (comments/detection limits required):

All analysis PQLs to ANZECC (2000) Detection Limits Please

Sample Containers:
G1 - 500mL Amber Glass Bottle
V - BTEX Vial H - HNO3 Wash PVC

Relinquished By:	Date:	Time:	Received By:	Date:
Vittal B.S	25/7/18			25/7/18

Relin: ELS JACK EMBLEN
26/7/18 13:00

Appendix F: QA/QC Evaluation

QA/QC EVALUATION

1. INTRODUCTION

This Data (QA/QC) Evaluation forms part of the validation process for the DQOs documented in Section 6 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 NEPM 2013.

A. 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.

B. Field QA/QC Samples and Analysis

A summary of the field QA/QC samples collected and analysed for this assessment is provided in the following table:

Sample Type	Sample Identification	Frequency (of Sample Type)	Analysis Performed
Intra-laboratory duplicate (soil)	JHDUP3 (primary sample BH142 0-0.2m) JHDUP4 (primary sample BH137 0-0.2m)	Approximately 4% of primary samples	Heavy metals, TRH/BTEX, PAHs, OCPs, OPPs and PCBs
Intra-laboratory duplicate (groundwater)	Dup 1 (primary sample MW101)	Approximately 33% of primary samples	Heavy metals, TRH/BTEX, PAHs
Inter-laboratory duplicate (soil)	JHDUP1 (primary sample BH115 0-0.2m) JHDUP2 (primary sample BH106 0.03-0.2m)	Approximately 4% of primary samples	Heavy metals, TRH/BTEX, PAHs, OCPs, OPPs and PCBs
Inter-laboratory duplicate (groundwater)	Dup 2 (primary sample MW143)	Approximately 33% of primary samples	Heavy metals, TRH/BTEX, PAHs

Sample Type	Sample Identification	Frequency (of Sample Type)	Analysis Performed
Trip spike (soil)	TS (25/07/2018)	One for the assessment to demonstrate adequacy of preservation, storage and transport methods	BTEX
Trip blank (soil)	TB1 (11/07/2018) TB1 (12/07/2018)	Two for the assessment to demonstrate adequacy of storage and transport methods	BTEX
Trip blank (water)	TB (25/07/2018)	One for the assessment to demonstrate adequacy of storage and transport methods	BTEX
Rinsate (soil SPT)	FR1 (11/07/2018) FR2 (12/07/2018)	Two for the assessment to demonstrate adequacy of decontamination methods	BTEX

The results for the field QA/QC samples are detailed in the laboratory summary tables (Table I to Table K inclusive) attached to the assessment report and are discussed in the subsequent sections of this Data (QA/QC) Evaluation report.

C. Data Assessment Criteria

EIS 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 less than 50% RPD for concentrations greater than 10 times the PQL, less than 75% RPD for concentrations between five and 10 times the PQL and less than 100% RPD for concentrations that are less than five times the PQL. RPD failures will be considered qualitatively on a case-by-case basis taking into account factors such as the sample type, collection methods and the specific analyte where the RPD exceedance was reported.

Field Blanks and Rinsates

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

Trip Spikes

Acceptable targets for trip spike samples in this report will be 70% to 130%. This is in line with spike recovery limits adopted by the laboratory for organic analysis.

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.

2. DATA EVALUATION

A. Sample Collection, Storage, Transport and Analysis

Samples were collected by trained field staff in accordance with the EIS procedures developed 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.

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 assessment.

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.

B. Laboratory PQLs

Appropriate PQLs were adopted for the analysis and all PQLs were below the SAC with the exception of the anthracene PQL for groundwater analysis which was 10 times greater than the ecological SAC. In light of the PAH concentrations reported for soil and groundwater, EIS are of the opinion that this is not significant, and it does not affect the quality of the dataset as a whole or the outcome of the assessment.

C. Field QA/QC Sample Results

Field Duplicates

The results indicated that field precision was acceptable. RPD non-conformance was reported for Phenanthrene compound in JHDUP3/BH142 (0-0.2m). The value is 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 Blanks

During the investigation, two soil and one water trip blanks were placed in eskys during sampling and transported back to the laboratory. The results were all less than the PQLs, therefore cross contamination between samples that may have significance for data validity did not occur.

Rinsates

All results were below the PQL. This indicated that cross-contamination artefacts associated with sampling equipment were not present and the potential for cross-contamination to have occurred was low.

Trip Spikes

The results indicated that field preservation methods were appropriate.

D. 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 assessment.

A review of the laboratory QA/QC data identified the following minor non-conformances:

- Envirolab report 196637:

- Percentage recovery was not possible for individual metals due to inhomogeneous nature of the elements in the samples. However, an acceptable recovery was obtained for the LCS;
- PQL for PCBs in soil was raised due to interference from other analytes;
- THMs was noted in rinsates; and
- The RPDs for individual PAHs was outside the acceptance criteria. This was attributed to non-homogenous nature of the samples.

- Envirolab report 196637-A: individual organics were analysed outside the holding time.

3. DATA QUALITY SUMMARY

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

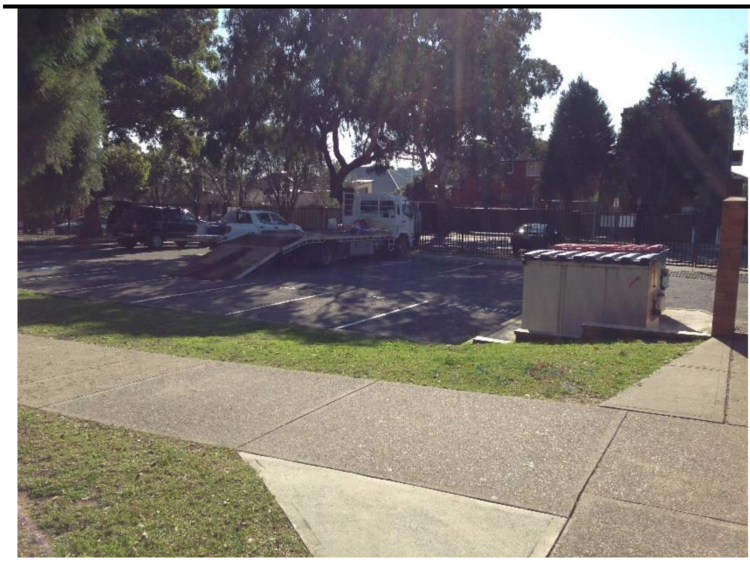
Non-conformances were reported for some field QA/QC samples and laboratory QA/QC analysis. These non-conformances were considered to be sporadic and minor and were not considered to be indicative of systematic sampling or analytical errors. On this basis, these non-conformances are not considered to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

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

Appendix G: Field Work Documents

Site Photographs

Project Ref: E31040KB
Site Address: Canterbury South Public School, off High Street, Canterbury, NSW
Selected Site Photos Dated: 11 July 2018

	**Photograph 1:** Photo showing the car park in the north section of the site. Sampling locations BH106, BH116 and BH118 were placed in this area.
	**Photograph 2:** Photo showing typical site buildings.

	**Photograph 3:** Photo of groundwater monitoring well installed at the site.
	**Photograph 4:** Photo showing grass covered area in the south section of the site. Sampling locations BH139, BH140 and BH142 were placed in this area.
	**Photograph 5:** Photo showing a Fibre Cement Fragment (FCF) containing asbestos at the surface. Typical of FCF detected in many areas.

	**Photograph 6:** Photo showing Fibre Cement Fragments (FCF) containing asbestos collected at the site.
	**Photograph 7:** Photo showing a shipping container in the west section of the site near BH150. This area is impacted by TRH.
	**Photograph 8:** Photo showing the falls to the south towards the creek. A high voltage power line was located along the creek corridor.

Groundwater Monitoring and Sampling Records

ENVIRONMENTAL INVESTIGATION SERVICES
CONSULTING ENVIRONMENTAL ENGINEERS

EIS

Client:	NBRS Architecture	**Job No.:**	E31040K
Project:	Proposed School Additions	**Well No.:**	MW101
Location:	CANTERBURY SOUTH PUBLIC SCHOOL, HIGH STREET, CANTERBURY, NSW	**Depth (m):**	6

WELL FINISH DETAILS

	Gatic Cover ☑	Standpipe ☐	Other (describe) ☐

WELL DEVELOPMENT DETAILS

Method:	Development pump	**SWL – Before (m):**	4.16
Date:	18/7/18	**Time – Before:**	1:38pm
Undertaken By:	HW	**SWL – After (m):**	—
Total Vol. Removed:	4L	**Time – After:**	1:42pm
PID Reading (ppm):			

Comments:

DEVELOPMENT MEASUREMENTS

Volume Removed (L)	Temp (°C)	DO (mg/L)	EC (µS/m)	pH	Eh (mV)
2	19.50	4.90	620	5.61	70.20
4	19.60	2.30	609	5.66	51.50
Well dry					

Comments:Odours (YES / NO) NAPL/PSH (YES / NO) Sheen (YES / NO) Steady State Achieved (YES / NO)

Tested By:	HW	**Remarks:**
Date Tested:	18/7/18	- All measurements are corrected to ground level - All stated Volumes are in Litres - SWL is an abbreviation for standing water level - Steady state conditions - difference in the pH less than 0.2 units and difference in conductivity less than 10%
Checked By:	UB	
Date:	7/8/18	- Minimum 3 monitoring well volumes are purged

ENVIRONMENTAL INVESTIGATION SERVICES
CONSULTING ENVIRONMENTAL ENGINEERS

EIS

Client:	NBRS Architecture	**Job No.:**	E31040K
Project:	Proposed School Additions	**Well No.:**	MW142
Location:	CANTERBURY SOUTH PUBLIC SCHOOL, HIGH STREET, CANTERBURY, NSW	**Depth (m):**	6

WELL FINISH DETAILS

	Gatic Cover ☑	Standpipe ☐	Other (describe) ☐

WELL DEVELOPMENT DETAILS

Method:	Development pump	**SWL – Before (m):**	3.20
Date:	18/7/18	**Time – Before:**	11:35am
Undertaken By:	HW	**SWL – After (m):**	5.80
Total Vol. Removed:	5L	**Time – After:**	12:00pm
PID Reading (ppm):	1.2		

Comments:

DEVELOPMENT MEASUREMENTS

Volume Removed (L)	Temp (°C)	DO (mg/L)	EC (µS/m)	pH	Eh (mV)
2	18.90	2.20	283.50	5.41	-14.30
4	18.40	0.50	274.60	6.05	-80.10
5	18.40	0.40	131.70	6.19	-55.70
Well dry					

Comments:Odours (YES / NO) NAPL/PSH (YES / NO) Sheen (YES / NO), Steady State Achieved (YES / NO)

Tested By:	HW	**Remarks:**
Date Tested:	18/7/18	- All measurements are corrected to ground level - All stated Volumes are in Litres - SWL is an abbreviation for standing water level - Steady state conditions - difference in the pH less than 0.2 units and difference in conductivity less than 10%
Checked By:	VB	
Date:	7/8/18	- Minimum 3 monitoring well volumes are purged

ENVIRONMENTAL INVESTIGATION SERVICES
CONSULTING ENVIRONMENTAL ENGINEERS

EIS

Client:	NBRS Architecture	Job No.:	E31040K
Project:	Proposed School Additions	Well No.:	MW143
Location:	CANTERBURY SOUTH PUBLIC SCHOOL, HIGH STREET, CANTERBURY, NSW	Depth (m):	6

WELL FINISH DETAILS

	Gatic Cover ☑	Standpipe ☐	Other (describe) ☐

WELL DEVELOPMENT DETAILS

Method:	Development pump	SWL – Before (m):	4.76
Date:	18/7/18	Time – Before:	1:20pm
Undertaken By:	HW	SWL – After (m):	5.95
Total Vol. Removed:	4L	Time – After:	1:25pm
PID Reading (ppm):	4		

Comments:

DEVELOPMENT MEASUREMENTS

Volume Removed (L)	Temp (°C)	DO (mg/L)	EC (µS/m)	pH	Eh (mV)
2	19.30	6.10	471.30	4.78	140.30
4	19.40	3.30	479.80	4.84	149.20
Well dry					

Comments: Odours (YES / NO), NAPL/PSH (YES / NO), Sheen (YES / NO), Steady State Achieved (YES / NO)

Tested By:	HW	**Remarks:**
Date Tested:	18/7/18	- All measurements are corrected to ground level - All stated Volumes are in Litres - SWL is an abbreviation for standing water level - Steady state conditions - difference in the pH less than 0.2 units and difference in conductivity less than 10%
Checked By:	VB	
Date:	7/8/18	- Minimum 3 monitoring well volumes are purged

ENVIRONMENTAL INVESTIGATION SERVICES
CONSULTING ENVIRONMENTAL ENGINEERS

EIS

Client:	NBRS Architecture	Job No.:	E31040K
Project:	Proposed School Additions	Well No.:	MW143
Location:	CANTERBURY SOUTH PUBLIC SCHOOL, HIGH STREET, CANTERBURY, NSW	Depth (m):	6.10

WELL FINISH

	Gatic Cover ✓		Standpipe		Other (describe)

WELL PURGE DETAILS:

Method:	Peristaltic pump	SWL – Before:	4.75
Date:	25/7/2018	Time – Before:	10.08am
Undertaken By:	HW	Total Vol Removed:	0.5 litres
Pump Program No:	4.16	PID (ppm):	3.6

PURGING / SAMPLING MEASUREMENTS

Time (min)	SWL (m)	Vol (L)	Notes	Temp (°C)	DO (mg/L)	EC (µS/cm)	pH	Eh (mV)
1	4.99	0.5	Slow recharge	19.10	2.90	388.80	4.44	162.0
DUP2								

Comments: Odours (YES / NO), NAPL/PSH (YES / NO), Sheen (YES / NO), Steady State Achieved (YES / NO)

Sampling Containers Used: 2 x glass amber, 6 x BTEX vials, 2 x H2NO3 plastic, x H2SO4 plastic, x unpreserved plastic

Tested By: ~~Vittal Boggaram~~ HW	**Remarks:**
Date Tested: 18/7/18	- All measurements are corrected to ground level
Checked By: VB	- SWL is an abbreviation for standing water level
Date: 7/8/18	- Steady state conditions - difference in the pH less than 0.2 units and difference in conductivity less than 10%

ENVIRONMENTAL INVESTIGATION SERVICES
CONSULTING ENVIRONMENTAL ENGINEERS

EIS

Client:	NBRS Architecture	**Job No.:**	E31040K
Project:	Proposed School Additions	**Well No.:**	MW101
Location:	CANTERBURY SOUTH PUBLIC SCHOOL, HIGH STREET, CANTERBURY, NSW	**Depth (m):**	6.0

WELL FINISH

	Gatic Cover ✓		**Standpipe**		**Other (describe)**

WELL PURGE DETAILS:

Method:	Peristaltic pump	**SWL – Before:**	4.08
Date:	25/7/2018	**Time – Before:**	7:55am
Undertaken By:	HW	**Total Vol Removed:**	2.5litres
Pump Program No:	4.34	**PID (ppm):**	10.2

PURGING / SAMPLING MEASUREMENTS

Time (min)	SWL (m)	Vol (L)	Notes	Temp (°C)	DO (mg/L)	EC (µS/cm)	pH	Eh (mV)
1	4.18	0.5	Silty yellow	15.0	3.70	525	5.47	65.30
2	4.40	1		16.40	1.50	425.50	5.08	62.30
3	4.41	1.5		17.0	1.70	426.90	5.10	59.70
4	4.41	2		17.10	1.50	427.90	5.09	58.0
5	4.41	2.5		17.20	1.40	426.60	5.05	57.70
DUP1								

Comments: Odours (YES / NO), NAPL/PSH (YES / NO), Sheen (YES / NO), Steady State Achieved (YES / NO)

Sampling Containers Used: 2 **x glass amber,** 6 **x BTEX vials,** 2 **x H2NO3 plastic, x H2SO4 plastic, x unpreserved plastic**

Tested By: ~~Vittal Boggaram~~ HW		**Remarks:**
Date Tested:	18/7/18	- All measurements are corrected to ground level
Checked By:	VB	- SWL is an abbreviation for standing water level
Date:	7/8/18	- Steady state conditions - difference in the pH less than 0.2 units and difference in conductivity less than 10%

ENVIRONMENTAL INVESTIGATION SERVICES
CONSULTING ENVIRONMENTAL ENGINEERS

EIS

Client:	NBRS Architecture	Job No.:	E31040K
Project:	Proposed School Additions	Well No.:	MW142
Location:	CANTERBURY SOUTH PUBLIC SCHOOL, HIGH STREET, CANTERBURY, NSW	Depth (m):	6.0

WELL FINISH

	Gatic Cover ✓		Standpipe		Other (describe)

WELL PURGE DETAILS:

Method:	Peristaltic pump	SWL – Before:	4.47
Date:	25/7/2018	Time – Before:	9:14 am
Undertaken By:	HW	Total Vol Removed:	0.5 litre
Pump Program No:	4.15	PID (ppm):	16.7

PURGING / SAMPLING MEASUREMENTS

Time (min)	SWL (m)	Vol (L)	Notes	Temp (°C)	DO (mg/L)	EC (µS/cm)	pH	Eh (mV)
1	4.64	0.5	Slow recharge	16.90	1.30	382.80	5.89	12.50

Comments: Odours (YES / NO), NAPL/PSH (YES / NO), Sheen (YES / NO), Steady State Achieved (YES / NO)

Sampling Containers Used: 1 x glass amber, 3 x BTEX vials, 1 x H2NO3 plastic, x H2SO4 plastic, x unpreserved plastic

Tested By: ~~Vittal Boggaram~~ HW	**Remarks:**
Date Tested: 10/7/18	- All measurements are corrected to ground level
Checked By: VB	- SWL is an abbreviation for standing water level
Date: 9/8/18	- Steady state conditions - difference in the pH less than 0.2 units and difference in conductivity less than 10%

Calibration Information

AES
ACTIVE ENVIRONMENTAL SOLUTIONS

Calibration and Service Report – PID

Company: Environmental Investigation Ser
Contact: Alistair Mitchell
Address: JK Group
PO Box 976
NORTH RYDE, NSW
Phone: 0298885000
Fax:
Email: amitchell@jkgroup.net.au

Manufacturer: RAE
Instrument: MINIRAE LITE SN: 595-001254
Model: MiniRAE Lite
Configuration: VOC
Wireless: -
Network ID: -
Unit ID: -
Details:

Serial #: 595-001254
Asset #:
Part #: 059-A126-000
Sold: 30.11.2015
Last Cal: 19.05.2018
Job #: 52916
Cal Spec:
Order #: WARRANTY

Item	Test	Pass/Fail	Comments	Serial Number
Battery	NiCd, NiMH, Dry cell, LiIon	P		
Charger	Power Supply	-		
	Cradle, Travel Charger	-		
Pump	Flow	P	Serviced > 500ml/min	
Filter	Filter, fitting, etc	-		
Alarms	Audible, visual, vibration	P		
Display	Operation	P		
Switches	Operation	P		
PCB	Operation	P		
Connectors	Condition	P		
Firmware	Version	P		
Datalogger	Operation	P		
Monitor Housing	Condition	P		
Case	Condition / Type	P		
Sensors				
PID	Lamp	P		
PID	Sensor	P		
THP	Sensor	P		

Engineer's Report

Serviced pump and tested operation - okay
Unit serviced and calibrated.

AES
ACTIVE ENVIRONMENTAL SOLUTIONS

Calibration Certificate

Sensor	Type	Serial No.	Span Gas	Concentration	Traceability Lot #	CF	Reading	
							Zero	Span
PID	10.6 eV Lamp	1062R003920	Isobutylene	100 ppm	WO148384-1		0	100

Calibrated/Repaired by: AMEND ROSHAN KUMAR Date: 19.05.2018 Next Due: 19.11.2018

EIS

EIS
ENVIRONMENTAL INVESTIGATION SERVICES

PO Box 976, North Ryde BC NSW 1670
115 Wicks Rd, Macquarie Park NSW 2113
Tel: 02 9888 5000 Fax: 02 9888 5001
www.jkgroup.net.au

PURPOSE: Canterbury Public School
LOCATION: Frag weights
GIVEN TO: ....
OF: ....

EIS JOB No: E31040K
DATE: 19/7/18
PAGE: 1 **OF** 1
INSP BY: ....

INSPECTION REPORT No ....

JHF7 = 2.64g
JHF8 = 2.82g
JHF10 = 6.10g
JHF11 = 11.98g
JHF12 = 7.9g
JHF13 = 13.5g
JHF14 = 3.88g

Scales calibrated
20g weight = 20.00g
1g weight = 1.00g

Given by: .... Received by: ....

Time Arrive: .... Time Depart: ....

DISTRIBUTION: Original EIS file, Copy to Client

Appendix H: Calculation Sheets

UCL Statistics for Uncensored Full Data Sets

User Selected Options	
Date/Time of Computation	ProUCL 5.130/08/2018 10:02:33 AM
From File	WorkSheet.xls
Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	2000

Lead

General Statistics

Total Number of Observations	42	Number of Distinct Observations	37
		Number of Missing Observations	0
Minimum	3	Mean	77.62
Maximum	420	Median	40
SD	94.52	Std. Error of Mean	14.58
Coefficient of Variation	1.218	Skewness	2.173

Normal GOF Test

Shapiro Wilk Test Statistic	0.698	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.942	Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.248	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.135	Data Not Normal at 5% Significance Level

Data Not Normal at 5% Significance Level

Assuming Normal Distribution

95% Normal UCL		**95% UCLs (Adjusted for Skewness)**	
95% Student's-t UCL	102.2	95% Adjusted-CLT UCL (Chen-1995)	106.8
		95% Modified-t UCL (Johnson-1978)	103

Gamma GOF Test

A-D Test Statistic	0.625	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.781	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.121	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.141	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	0.929	k star (bias corrected MLE)	0.879
Theta hat (MLE)	83.53	Theta star (bias corrected MLE)	88.33
nu hat (MLE)	78.06	nu star (bias corrected)	73.82
MLE Mean (bias corrected)	77.62	MLE Sd (bias corrected)	82.8
		Approximate Chi Square Value (0.05)	55.03
Adjusted Level of Significance	0.0443	Adjusted Chi Square Value	54.45

Assuming Gamma Distribution

95% Approximate Gamma UCL (use when n>=50)	104.1	95% Adjusted Gamma UCL (use when n<50)	105.2

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.936	**Shapiro Wilk Lognormal GOF Test**
5% Shapiro Wilk Critical Value	0.942	Data Not Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.0732	**Lilliefors Lognormal GOF Test**
5% Lilliefors Critical Value	0.135	Data appear Lognormal at 5% Significance Level

Data appear Approximate Lognormal at 5% Significance Level

Lognormal Statistics

Minimum of Logged Data	1.099	Mean of logged Data	3.725
Maximum of Logged Data	6.04	SD of logged Data	1.198

Assuming Lognormal Distribution

95% H-UCL	137.9	90% Chebyshev (MVUE) UCL	138.8
95% Chebyshev (MVUE) UCL	164.2	97.5% Chebyshev (MVUE) UCL	199.5
99% Chebyshev (MVUE) UCL	268.8		

Nonparametric Distribution Free UCL Statistics

Data appear to follow a Discernible Distribution at 5% Significance Level

Nonparametric Distribution Free UCLs

95% CLT UCL	101.6	95% Jackknife UCL	102.2
95% Standard Bootstrap UCL	100.8	95% Bootstrap-t UCL	113
95% Hall's Bootstrap UCL	108.2	95% Percentile Bootstrap UCL	100.9
95% BCA Bootstrap UCL	107.5		
90% Chebyshev(Mean, Sd) UCL	121.4	95% Chebyshev(Mean, Sd) UCL	141.2
97.5% Chebyshev(Mean, Sd) UCL	168.7	99% Chebyshev(Mean, Sd) UCL	222.7

Suggested UCL to Use

95% Adjusted Gamma UCL	105.2

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

B(a)P TEQ

General Statistics

Total Number of Observations	42	Number of Distinct Observations	4
		Number of Missing Observations	0
Minimum	0.5	Mean	0.726
Maximum	8	Median	0.5
SD	1.183	Std. Error of Mean	0.183
Coefficient of Variation	1.629	Skewness	6.006

Normal GOF Test

Shapiro Wilk Test Statistic	0.21	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.942	Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.504	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.135	Data Not Normal at 5% Significance Level

Data Not Normal at 5% Significance Level

Assuming Normal Distribution

95% Normal UCL		**95% UCLs (Adjusted for Skewness)**	
95% Student's-t UCL	1.033	95% Adjusted-CLT UCL (Chen-1995)	1.207
		95% Modified-t UCL (Johnson-1978)	1.062

Gamma GOF Test

A-D Test Statistic	14.55	**Anderson-Darling Gamma GOF Test**

5% A-D Critical Value	0.759	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.532	**Kolmogorov-Smirnov Gamma GOF Test**	
5% K-S Critical Value	0.138	Data Not Gamma Distributed at 5% Significance Level	
Data Not Gamma Distributed at 5% Significance Level			
Gamma Statistics			
k hat (MLE)	2.053	k star (bias corrected MLE)	1.923
Theta hat (MLE)	0.354	Theta star (bias corrected MLE)	0.378
nu hat (MLE)	172.5	nu star (bias corrected)	161.5
MLE Mean (bias corrected)	0.726	MLE Sd (bias corrected)	0.524
		Approximate Chi Square Value (0.05)	133.1
Adjusted Level of Significance	0.0443	Adjusted Chi Square Value	132.2
Assuming Gamma Distribution			
95% Approximate Gamma UCL (use when n>=50))	0.881	95% Adjusted Gamma UCL (use when n<50)	0.887
Lognormal GOF Test			
Shapiro Wilk Test Statistic	0.259	**Shapiro Wilk Lognormal GOF Test**	
5% Shapiro Wilk Critical Value	0.942	Data Not Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0.519	**Lilliefors Lognormal GOF Test**	
5% Lilliefors Critical Value	0.135	Data Not Lognormal at 5% Significance Level	
Data Not Lognormal at 5% Significance Level			
Lognormal Statistics			
Minimum of Logged Data	-0.693	Mean of logged Data	-0.583
Maximum of Logged Data	2.079	SD of logged Data	0.484
Assuming Lognormal Distribution			
95% H-UCL	0.724	90% Chebyshev (MVUE) UCL	0.773
95% Chebyshev (MVUE) UCL	0.839	97.5% Chebyshev (MVUE) UCL	0.931
99% Chebyshev (MVUE) UCL	1.113		
Nonparametric Distribution Free UCL Statistics			
Data do not follow a Discernible Distribution (0.05)			
Nonparametric Distribution Free UCLs			
95% CLT UCL	1.026	95% Jackknife UCL	1.033
95% Standard Bootstrap UCL	N/A	95% Bootstrap-t UCL	N/A
95% Hall's Bootstrap UCL	N/A	95% Percentile Bootstrap UCL	N/A
95% BCA Bootstrap UCL	N/A		
90% Chebyshev(Mean, Sd) UCL	1.274	95% Chebyshev(Mean, Sd) UCL	1.522
97.5% Chebyshev(Mean, Sd) UCL	1.866	99% Chebyshev(Mean, Sd) UCL	2.542
Suggested UCL to Use			
95% Student's-t UCL	1.033	or 95% Modified-t UCL	1.062

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.