BUNNINGS

20 March 2017

General Manager
Cumberland Council
PO Box 42
MERRYLANDS NSW 2160

Attention Miss A Matta

RESPONSE TO DEFERRAL OF DA FROM SYDNEY WEST CENTRAL PLANNING PANEL (2016SYW116)
PROPOSED BUNNINGS DEVELOPMENT (DA 2016/171)
1-15 STURT STREET, SMITHFIELD

Dear Ms Matta,

I refer to the meeting of the Sydney West Central Planning Panel on 16 February 2017, and the reasons for deferral of a decision regarding the above DA.

> *"The Panel unanimously determined that the application should be deferred to enable completion of the works recommended on Page 27 of the EIS Report dated 17 July 2015. Following this, that a report confirming the tests specified in Clause 7(1) of SEPP 55 are fully complied with in provided to the Panel."*

The additional works have now been completed.

With regard to the first matter listed above, which are the works recommended on Page 27 of the EIS Report, these have been satisfied as follows:

Recommendation	Response
1. Undertake a Stage 2 ESA to address the data gaps identified in Section 10.3 (note: the data gaps were actually identified in Section 9.4).	Stage 2 ESA completed and data gaps addressed, (report prepared by EIS, dated 14 March 2017, Ref: E28497Krpt2). This report is attached at **Annexure One**.
2. Prepare a Remediation Action Plan (RAP) to outline remedial measures for the site.	A Remediation Action Plan (RAP) has been incorporated into the above report at **Annexure One**.
3. Undertake a Hazardous Materials Assessment (Hazmat) for the existing buildings prior to the commencement of demolition work.	A Hazardous Building Materials Assessment has been issued (prepared by EIS, dated 17 March 2017, Ref: E27497Krpt-HAZ.rev1). This report is

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	attached at **Annexure Two**.
4. An Asbestos Management Plan must be prepared and implemented for the site.	An Asbestos Management Plan is included in Section 15 of the report at **Annexure One**.
5. Prepare an Environmental Management Plan (EMP) should contamination remain on site. The EMP will require establishment of appropriate public notification under Section 149(2) of the E&PAA 1979 or a covenant registered on the title to land under Section 88B of the Conveyancing Act 1919.	An Environmental Management Plan has been issued (prepared by EIS, dated 13 March 2017, Ref: E28497K EMP). This plan is attached at **Annexure Three**.

With regard to the second matter from the Panel's deferral, being satisfaction of the required tests under clause 7(1) of SEPP 55, I refer to analysis of those requirements in pages 35-36 of the "Stage 2 Environmental Site Assessment, Remedial Action Plan and Asbestos Management Plan" (prepared by EIS, dated 14 March 2017, REF: E28497Krpt2). It is our view that this information provides ample basis for the consent authority to issue a determination of the DA with regard to the required considerations of SEPP 55, because:

- There is now ample documented information about the condition of this site, which permits the consent authority to answer clause 7(1)(a) in the positive
- There is now ample scientific analysis as to the degree of contamination present on the site; and there are recommendations and methodologies provided as to how to manage that contamination. The report and plans have been prepared by experts in the field, and their recommendations address industry practice and statutory guidelines. The foregoing ensures that the land can be made suitable for the proposed use. The consent authority can now answer the test of clause 7 (1)(b) that the land will be suitable for the purpose for which the development is proposed to be carried out
- With regard to the minimal degree and nature of contamination on this site, the provision of reports and management plans by expert consultants, and their anticipated enforcement in practice via conditions of consent, the consent authority now has ample grounds to be satisfied that the land will be remediated, to the degree necessary, before the land is used for the proposed purpose. On this basis the consent authority can answer clause 7(1)(c) in the positive.

For completeness, EIS have also addressed the remaining provisions of SEPP 55 that might be applicable (refer page 36 of the report in Annexure One). There are no outstanding or unresolved issues arising from the assessment pursuant to

SEPP 55. It is therefore considered that the second matter referred to in the panel's deferral has been satisfied.

I look forward to presenting to the panel to address any matters raised in this submission or anything else where required. Please keep me informed of the date/time of the next Panel meeting for determination of the DA.

Please contact me on 9846 7334 or 0413 098 609 if you wish to discuss any matter raised in this submission.

Yours sincerely,

Philip Drew
Development Approvals Manager
Bunnings Properties Pty Ltd

Annexure One: *"Stage 2 Environmental Site Assessment, Remedial Action Plan and Asbestos Management Plan"***,** prepared by EIS, dated 14 March 2017, Ref: E28497Krpt2
Annexure Two: ***"****Hazardous Building Materials Assessment",* prepared by EIS**,** dated 17 March 2017, Ref: E27497Krpt-HAZ.rev1
Annexure Three: ***"****Environmental Management Plan (EMP)****",*** *prepared by EIS***,** dated 13 March 2017, Ref: E28497K EMP

ENVIRONMENTAL INVESTIGATION SERVICES

REPORT

TO

BUNNINGS GROUP LIMITED

ON

STAGE 2 ENVIRONMENTAL SITE ASSESSMENT, REMEDIAL ACTION PLAN AND ASBESTOS MANAGEMENT PLAN

FOR

PROPOSED COMMERCIAL DEVELOPMENT

AT

1-15 STURT STREET, SMITHFIELD, NSW

14 MARCH 2017 **REF: E28497Krpt2**

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EXECUTIVE SUMMARY

Bunnings Group Ltd commissioned EIS to undertake a Stage 2 Environmental Site Assessment (ESA) for the proposed commercial development at 1-15 Sturt Street, Smithfield. EIS understands that the prospective future development at the site is likely to include a high roofed warehouse suspended over an undercroft car park, which may be constructed at or close to the current floor slab level. At the time of this assessment the site contained two large industrial buildings on concrete pavement, a shed, and asphaltic concrete car parking areas.

A review of the site's history indicated that it was likely to have been used for commercial/industrial purposes since the 1960s, and was used for soft drink manufacture and distribution from 1984 until recently. The site may have been used for agricultural purposes prior to the 1960s. Potential contamination sources and areas of environmental concern (AEC) include potentially contaminated imported fill material, fuel storage facilities, off-site commercial/industrial use, the use of pesticides and hazardous building materials. Contaminants of potential concern (CoPC) included heavy metals, petroleum hydrocarbons (TRH), BTEX, PAHs, pesticides, PCBs and asbestos.

Soil samples for this assessment were obtained from 40 boreholes, drilled at various locations across the site. Subsurface conditions generally consisted of fill material beneath the pavement to an average depth of 1.0m, underlain by residual silty clay soil and shale bedrock. Three groundwater monitoring wells were installed and groundwater samples were collected. Soil and groundwater samples were compared to site assessment criteria (SAC) which were established with reference to relevant guidelines and regulations.

The assessment indicated that asbestos was present within the fill material in 3 borehole samples out of a total of 40 boreholes and within a fibre cement fragment collected from the site surface. The exposure pathway for potential human receptors is via the inhalation of airborne asbestos fibres. EIS are of the opinion that the risk posed to human receptors is moderate and will require remediation or management. The site can be made suitable for the proposed use provided the Remediation Action Plan (RAP) is implemented.

The requirements of Clause 7 of SEPP55 are addressed in the table below:

Clause 7 SEPP55 Section	Response
(1a) A consent authority must not consent to the carrying out of any development on land unless (a) it has considered whether the land is contaminated.	Stage 1 and detailed Stage 2 investigations completed. Asbestos containing material was identified in the fill soil in 3 borehole samples out of a total of 40 boreholes and in a surface fibre cement fragment.
(1b) If the land is contaminated, it is satisfied that the land is suitable in its contaminated state (or will be suitable, after remediation) for the purpose for which the development is proposed to be carried out.	The site will be suitable for the proposed development following implementation of the Remediation Action Plan (RAP) and through standard environmental management procedures. The RAP is included with this report and an EMP has also been issued.
(1c) If the land requires remediation to be made suitable for the purpose for which the development is proposed to be carried out, it is satisfied that the land will be remediated before the land is used for that purpose.	The implementation of the RAP can be conditioned through planning controls. It is EIS' opinion that subject to the implementation of the RAP and EMP that the site will achieve a suitable standard of remediation for ongoing commercial/industrial land use.

Clause 7 SEPP55 Section	Response
(2) Before determining an application for consent to carry out development that would involve a change of use on any of the land specified in subclause (4), the consent authority must consider a report specifying the findings of a preliminary investigation of the land concerned carried out in accordance with the contaminated land planning guidelines.	This Stage 2 report includes the findings of a Stage 1 preliminary investigation, and addresses the data gaps identified, and has been completed in accordance with the contaminated land planning guidelines.
(3) The applicant for development consent must carry out the investigation required by subclause (2) and must provide a report on it to the consent authority. The consent authority may require the applicant to carry out, and provide a report on, a detailed investigation (as referred to in the contaminated land planning guidelines) if it considers that the findings of the preliminary investigation warrant such an investigation.	This report includes the findings of a Stage 2 detailed investigation completed in accordance with the contaminated land planning guidelines.
(4a) The land concerned is land that is within an investigation area.	The land is not a declared investigation area as defined under Part 3 of the CLM Act 1997.
(4b) The land concerned is land on which development for a purpose referred to in Table 1 to the contaminated land planning guidelines is being, or is known to have been, carried out.	The site may have been used for agricultural purposes prior to 1963. EIS note that a footnote to Table 1 states that it is not sufficient to rely solely on the contents of Table 1, and that it is intended for guidance.
(4c) To the extent to which it is proposed to carry out development on it for residential, educational, recreational or child care purposes, or for the purposes of a hospital – land: in relation to which there is no knowledge (or incomplete knowledge) as to whether development for a purpose referred to in Table 1 to the contaminated land planning guidelines has been carried out, and (ii) on which it would have been lawful to carry out such development during any period in respect of which there is no knowledge (or incomplete knowledge).	The proposed land use does not include any of these activities.

With regard to appropriate industry best practice the Remediation Action Plan details that the most viable remediation option for the fill material remaining on-site is considered to be the cap and contain approach and the implementation of an Environmental Management Plan (EMP). In general the remediation works at this site will consist of:

1. A walkover 'emu-pick' of the surface of the site following demolition to remove any obvious asbestos containing material from the surface of the site;
2. Excavation for services, footings etc. that will involve the off-site disposal of soil; and
3. Capping of the site. This will consist of concrete pavement over the majority of the site. Landscaped areas will be capped using a combination of geofabric/geogrid and topsoil.

In the event unexpected conditions are encountered during development work or between sampling locations that may pose a contamination risk, all works should stop and an environmental consultant should be engaged to inspect the site and address the issue.

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

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ABBREVIATIONS

Ambient Background Concentrations	**ABC**
Added Contaminant Limits	**ACL**
Asbestos Containing Material	**ACM**
Australian Drinking Water Guidelines	**ADWG**
Area of Environmental Concern	**AEC**
Australian Height Datum	**AHD**
Asbestos Health Screening Levels	**ASL**
Acid Sulfate Soil	**ASS**
Above-Ground Storage Tank	**AST**
Below Ground Level	**BGL**
Bureau of Meteorology	**BOM**
Benzene, Toluene, Ethylbenzene, Xylene	**BTEX**
Benzene, Toluene, Ethylbenzene, Xylene, Naphthalene	**BTEXN**
Cation Exchange Capacity	**CEC**
Contaminated Land Management	**CLM**
Construction Management Plan	**CMP**
Contaminant(s) of Potential Concern	**CoPC**
Chain of Custody	**COC**
Conceptual Site Model	**CSM**
Data Quality Indicator	**DQI**
Data Quality Objective	**DQO**
Detailed Site Investigation	**DSI**
Ecological Assessment Criteria	**EAC**
Ecological Investigation Levels	**EILs**
Ecological Screening Level	**ESL**
Environmental Management Plan	**EMP**
Excavated Natural Material	**ENM**
Environmental Protection Agency	**EPA**
Environmental Site Assessment	**ESA**
Ecological Screening Level	**ESL**
Fibre Cement Fragments	**FCF**
General Approvals of Immobilisation	**GAI**
General Solid Waste	**GSW**
Health Investigation Level	**HILs**
Hardness Modified Trigger Values	**HMTV**
Health Screening Level	**HSLs**
International Organisation of Standardisation	**ISO**
Lab Control Spike	**LCS**
Light Non-Aqueous Phase Liquid	**LNAPL**
Local Government Authority	**LGA**
Map Grid of Australia	**MGA**
National Association of Testing Authorities	**NATA**
National Environmental Protection Measure	**NEPM**
Organochlorine Pesticides	**OCP**
Organophosphate Pesticides	**OPP**
Polycyclic Aromatic Hydrocarbons	**PAH**

ABBREVIATIONS

Photo-ionisation Detector	**PID**
Practical Quantitation Limit	**PQL**
Preliminary Site Investigation	**PSI**
Quality Assurance	**QA**
Quality Control	**QC**
Remediation Action Plan	**RAP**
Relative Percentage Difference	**RPD**
Restricted Solid Waste	**RSW**
Site Assessment Criteria	**SAC**
Sampling, Analysis and Quality Plan	**SAQP**
Site Audit Statement	**SAS**
Site Audit Report	**SAR**
Specific Contamination Concentration	**SCC**
Standard Penetration Test	**SPT**
Semi-Volatile Organic Compounds	**sVOC**
Standard Sampling Procedure	**SSP**
Standard Water Level	**SWL**
Standard Sampling Procedure	**SSP**
Trip Blank	**TB**
Toxicity Characteristic Leaching Procedure	**TCLP**
Total Recoverable Hydrocarbons	**TRH**
Trip Spike	**TS**
Upper Confidence Limit	**UCL**
United States Environmental Protection Agency	**USEPA**
Underground Storage Tank	**UST**
Virgin Excavated Natural Material	**VENM**
Volatile Organic Compounds	**VOC**
Work Health and Safety	**WHS**

PART 1 – STAGE 2 ENVIRONMENTAL SITE ASSESSMENT

1 INTRODUCTION

Bunnings Group Ltd ('the client') commissioned Environmental Investigation Services (EIS)[1] to undertake a Stage 2 Environmental Site Assessment (ESA) for the proposed commercial development at 1-15 Sturt Street, Smithfield. The site location is shown on Figure 1 and the assessment was confined to the site boundaries as shown on Figure 2.

1.1 Proposed Development Details

EIS understands that the prospective future development at the site is likely to include a high roofed warehouse suspended over an undercroft car park, which may be constructed at or close to the current floor slab level.

1.2 Aim and Objectives

The primary aims of the assessment were to identify any past or present potentially contaminating activities at the site, identify the potential for site contamination, and make an assessment of the soil and groundwater contamination conditions. The assessment objectives were to:

- Provide an appraisal of the past site use based on a review of historical records;
- Assess the current site conditions and use via a site walkover inspection;
- Identify potential contamination sources, areas of environmental concern (AEC) and contaminants of potential concern (CoPC);
- Assess the soil and groundwater contamination conditions via implementation of a sampling and analysis program;
- Prepare a conceptual site model (CSM);
- Assess the potential risks posed by contamination to the receptors identified in the CSM (Tier 1 assessment);
- Provide a waste classification for the off-site disposal of soil;
- Assess whether further intrusive investigation and/or remediation is required; and
- Assess whether the site is suitable or can be made suitable for the proposed development, from a contamination perspective.

1.3 Scope of Work

The assessment was undertaken generally in accordance with an EIS proposal (Ref: EP44396K) of 17/2/17. The scope of work included the following:

- A review of site information, including background and site history information;
- A site inspection;
- Design and implementation of a sampling, analysis and quality plan (SAQP);

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

- Interpretation of the analytical results against the adopted site assessment criteria (SAC);
- Assessment of data quality; and
- Preparation of a report presenting the results of the assessment.

The report was prepared with reference to regulations and guidelines outlined in the table below. Individual guidelines are also referenced within the text of the report.

Table 1-1: Guidelines

Guidelines/Regulations/Documents
Contaminated Land Management Act (1997)[2]
State Environmental Planning Policy No.55 – Remediation of Land (1998)[3]
Managing Land Contamination, Planning Guidelines SEPP55 – Remediation of Land (1998)[4]
Guidelines for Consultants Reporting on Contaminated Sites (2011)[5]
Guidelines for the NSW Site Auditor Scheme, 2nd Edition (2006)[6]
National Environmental Protection (Assessment of Site Contamination) Measure 1999 (as amended 2013)[7]

[2] NSW Government Legislation, (1997). *Contaminated Land Management Act 1997.* (referred to as CLM Act 1997)
[3] NSW Government, (1998). *State Environmental Planning Policy No. 55 – Remediation of Land.* (referred to as SEPP55)
[4] Department of Urban Affairs and Planning, and Environment Protection Authority, (1998). *Managing Land Contamination, Planning Guidelines SEPP55 – Remediation of Land*. (SEPP55 Planning Guidelines)
[5] NSW Office of Environment and Heritage (OEH), (2011). *Guidelines for Consultants Reporting on Contaminated Sites.* (referred to as Reporting Guidelines 2011)
[6] NSW DEC, (2006). *Guidelines for the NSW Site Auditor Scheme, 2nd ed.* (referred to as Site Auditor Guidelines 2006)
[7] National Environment Protection Council, (2013). *National Environmental Protection (Assessment of Site Contamination) Amendment Measure 1999* (as amended 2013). (referred to as NEPM 2013)

2 SITE INFORMATION

2.1 Background

2.1.1 Preliminary Environmental Site Assessment

In 2015 EIS conducted a preliminary environmental site assessment and waste classification[8] at the site for due diligence purposes. An assessment was made of the site's history and soil samples were collected from 20 sampling points and analysed for CoPC. It was recommended that a Stage 2 ESA be undertaken. Relevant information from the preliminary assessment has been incorporated into the current report.

2.1.2 JK Geotechnics Investigation

In 2015 JK Geotechnics conducted a geotechnical investigation[9] for due diligence purposes. Relevant information, such as subsurface conditions, has been incorporated into the current report.

2.2 Site Identification

Table 2-1: Site Identification

Site Address:	1-15 Sturt Street, Smithfield, NSW
Lot & Deposited Plan:	Lot 12 in DP1004594
Current Land Use:	Commercial/Industrial
Proposed Land Use:	Commercial/industrial
Local Government Authority:	Cumberland Council
Current Zoning:	IN1 – General Industrial
Site Area:	29,520m^2
RL (AHD in m) (approx.):	24m - 27m
Geographical Location (approx.):	Latitude: -33.846144° Longitude: 150.954805°

[8] EIS (2015) *Preliminary Waste Classification and Environmental Site Assessment for Due Diligence for Purchase of Property at 15 Sturt Street, Smithfield, NSW* (Ref: E28497Krpt dated 13 July 2015)

[9] JK Geotechnics (2015) *Geotechnical Investigation for Due Diligence - Proposed Bunnings Warehouse at 15 Sturt Street, Smithfield, NSW* (Ref: 28497V2rpt Smithfield, dated 13 July 2015)

2.3 Site Location and Regional Setting

The site is located in a predominantly commercial/industrial area of Smithfield and is bound by Sturt Street to the east and Cumberland Highway to the north. The site is located approximately 800m north of Prospect Creek and approximately 5km to the south-east of the Prospect Reservoir.

2.4 Topography

The site is located in relatively flat topography with a gentle slope of approximately 2° toward the south-east.

2.5 Site Inspection

Walkover inspections of the site were undertaken by EIS on 22 June 2015 during the preliminary assessment and on 22 February 2017 during the current Stage 2 assessment. The inspections were limited to accessible areas of the site and immediate surrounds.

The general layout of the site at the time of this assessment is shown in the attached Figure 2. At the time of the inspections, the site contained two large industrial buildings: a production building in the north of the site and a warehouse building in the south. The buildings were constructed of a combination of concrete panels and bricks. Two driveways entered the site from Sturt Street and connected with parking areas along the eastern and northern boundaries. A shed was also located in the northern section of the site.

During the 2015 assessment the site was being used by Coca Cola Amatil. The production building contained a receiving dock, first aid room and bottling machinery along the western wall and a laboratory, tea room, workshop, toilets and offices along the eastern wall. A number of above ground petroleum gas and chemical storage tanks were located in the north-west corner of the building and within the central loading area. Hazardous goods storage areas were located at a number of locations throughout the building. The warehouse building consisted of a large open storage area with a sales office, training room, technical office and despatch office in the north-eastern corner of the building.

During the 2017 assessment the site was no longer occupied by Coca Cola Amatil and appeared to be generally used for warehousing. The former production building contained items including rugs, while the warehouse building contained items including boxes of nappies and deodorant cans.

The two large buildings appeared to be situated on concrete pavement, while the car parking areas in the north and south-east of the site were paved with asphaltic concrete. The pavements generally appeared to be in good condition. Landscaped areas were located along the northern and eastern boundaries and in the south-eastern corner of the site, containing grass and trees and shrubs of various size.

2.6 Surrounding Land Use

During the 2015 site inspection, EIS observed the following land uses in the immediate surrounds:

- North – Cumberland Highway, with a car wreckers and spare parts warehouse beyond the road;
- South – Large factory lot with unknown occupants and a truck suspension workshop;
- East – Brix Campers Distributor, cool room service centre and Smithfield Distribution Centre; and
- West – Tile Mega Mart, Bosch diesel centre and Auspac Steel Centre.

2.7 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. No major services were identified that would be expected to act as a preferential pathway for contamination migration.

2.8 Section 149 Planning Certificate

The Section 149 (2 and 5) planning certificates were reviewed for the preliminary 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;
  - the 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 a Class 1 or 2 ASS risk area; and
- The site is not located in a heritage conservation area.

3 GEOLOGY AND HYDROGEOLOGY

3.1 Regional Geology

A review of the regional geological map of Penrith (1991[10]) indicated that the site is underlain by Bringelly Shale of the Wianamatta Group, which typically consists of shale, carbonaceous claystone, claystone, laminite, fine to medium grained lithic sandstone, rare coal and tuff.

3.2 Acid Sulfate Soil Risk and Planning

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

3.3 Hydrogeology

A review of groundwater bore records available on the NSW Office of Water[11] (NOW) database was undertaken for the preliminary assessment. The search was limited to registered bores located within a radius of approximately 1km of the site.

The search indicated that there were three registered bores within the search area. A summary of relevant information is presented below:

Table 3-1: Summary of Groundwater Bores

Reference	Distance from Site (m) (approx.)	Direction & Gradient from Site	Final Depth (m)	Standing Water Level (SWL) (m)	Registered Purpose	Potential Receptor
GW113076	700m	South-east	NA	NA	Monitoring	No
GW113077	750m	South-east	NA	NA	Monitoring	No
GW102599	1000m	South-west	204m	NA	Test	No

A review of the regional geology and groundwater bore information indicated that the subsurface condition at the site is expected to consist of residual soils overlying relatively shallow bedrock. The occurrence of groundwater that could be utilised as a resource for beneficial use is considered to be relatively low under such conditions.

3.4 Receiving Water Bodies

Surface water bodies were not identified in the immediate vicinity of the site. The closest surface water body is Prospect Creek which is located approximately 800m to the south. This is down-gradient from the site and is considered to be a potential receptor.

[10] Department of Mineral Resources, (1991), *1:100,000 Geological Map of Penrith (Series 9030).*
[11] http://www.waterinfo.nsw.gov.au/gw/

4 SITE HISTORY INFORMATION

4.1 Review of Historical Aerial Photographs

Historical aerial photographs available from the NSW Department of Lands and other sources were reviewed for the preliminary assessment. A summary of the relevant information is presented in the table below:

Table 4-1: Summary of Historical Aerial Photos

Year	Details
1930	The photograph was of poor quality. The site boundaries appeared similar to the present day boundaries. The site appeared vacant and the immediate surrounds appeared to be agricultural areas and open farmland.
1943[12]	The image of the site available online was incomplete. The southern half of the site and the area to the south of the site generally appeared similar to the 1930 photograph.
1951	The site and surrounding land uses generally appeared similar to the 1930 photograph.
1961	The site appeared to be a farm property. The surrounding land uses generally appeared similar to the 1951 photograph.
1970	The site consisted of a large warehouse building located centrally and car parking areas in the northern and southern sections. The surrounding land uses appeared to have shifted from largely agricultural uses to light industrial and commercial uses.
1982	The site and surrounding land uses generally appeared similar to the 1970 photograph. Some additions to the warehouse buildings on the site were visible. The southern section of the site had been cleared.
1994	The site consisted of two large warehouse buildings with a central loading area and car parking along Sturt Street and the northern boundary. The surrounding land uses appeared to be industrial and commercial properties.
2005	The site and surrounding land uses generally appeared similar to the 1994 photograph.
2011 (SIX Maps)	The site and surrounding land uses generally appeared similar to the current layout.

4.2 Review of Historical Land Title Records

Land title records were reviewed for the preliminary assessment. The site was owned by private proprietors including farmers until the 1960s. It was then owned by a variety of commercial entities

[12] https://six.maps.nsw.gov.au/wps/portal/SIXViewer, visited on 21 April 2015

between the 1960s and 1984, including glass and tiles manufacturing. The site was acquired by Ecks Pty Ltd in 1984 and was likely used for soft drink manufacture and distribution until 2015 or 2016.

4.3 SafeWork NSW Records

SafeWork NSW records were reviewed for the preliminary assessment. A summary of the relevant information is provided below:

Table 4-2: Summary of WorkCover Records

Record Number	License Details
1075	Cylinder storage of liquefied petroleum gas (LP Gas)
1971	Cylinder store of compressed natural gas
1719	Fenced compound of caustic alkali liquid Nos
1791	Fenced compound of hypochlorite solution
3264/3265	Fenced compound of corrosive liquid acidic inorganic Nos
3149	Bunded pallet of Hydrogen peroxide
1824	Above ground tank of sodium hydroxide solution
1977	Above ground tank of nitrogen refrigerated liquid
1791	Roofed store of hypochlorite solution
1066	Cylinder store of compressed nitrogen
1072	Cylinder store of compressed oxygen
1006	Cylinder store of compressed argon
1001	Cylinder store of dissolved acetylene

4.4 NSW EPA Records

The NSW EPA records available online were reviewed for the assessment. A summary of the relevant information is provided below:

Table 4-3: Summary of NSW EPA Online Records

Source	Details
CLM Act 1997[13]	There were no notices for the site under Section 58 of the Act (including orders made under Part 3 of the CLM Act 1997).
NSW EPA List of Contaminated Sites[14]	The site is not listed on the NSW EPA register.
POEO Register[15]	- Notice number 1044559, type s.58 (license variation) was issued on 19 February 2005 for Hazardous, Industrial or Group A Waste generation or Storage. - Non-compliance for licence condition R4.4 dated 31 Oct 2006 for not submitting waste certificates regarding destinations of Hazardous, Industrial or Group A (HIGA) waste within one month of end of quarter.

[13] http://www.epa.nsw.gov.au/prclmapp/searchregister.aspx, visited on 21/4/15 and 1/3/17
[14] http://www.epa.nsw.gov.au/clm/publiclist.htm, visited on 21/4/15 and 1/3/17
[15] http://www.epa.nsw.gov.au/prpoeoapp/, visited on 21/4/15 and 1/3/17

	- Non-compliance for licence condition O2.1 dated 31 Oct 2007 for a water pollution incident on 8 Oct 2007.

4.5 Summary of Site History Information

A review of the site history information has indicated the following:

- The site was likely to have been agricultural land or vacant from the late 1880s until the 1960s;
- The site was occupied by a variety of companies between the 1960s and 1984, including glass and tile manufacturing;
- The existing buildings at the site appear to have been constructed between 1986 and 1994;
- The site has been used for soft drink manufacture and distribution since 1984;
- Safework records indicate multiple licences to store dangerous goods at the site. These were aboveground storage tanks and have been identified as part of the manufacturing processes undertaken at the site, including the storage of liquefied petroleum gas (LPG); and
- NSW EPA records indicate some notices for the site. Appropriate action was taken by the licensee for all non-compliances.

4.6 Integrity of Site History Information

The majority of the site history information has been obtained from government organisations as outlined above. The veracity of the information from these sources is considered to be relatively high.

A certain degree of information loss can be expected given the age of the development, the gap between aerial photographs, and a lack of detailed information prior to the 1900s.

5 CONCEPTUAL SITE MODEL

NEPM (2013) defines a Conceptual Site Model (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 available site information. Reference should also be made to the figures attached in the appendices.

5.1 Potential Contamination Sources, Areas of Environmental Concern and Contaminants of Potential Concern

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

Table 5-1: Potential Contamination Sources, AEC and CoPC

Source / AEC	CoPC
Fill Material – Entire Site The site appears to have been filled to achieve existing levels. The fill may have been imported from various sources and can contain elevated concentrations of contaminants.	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.
Fuel Storage Facilities – The north-west section of the site appeared to be used for the storage of petroleum and other chemical (including acid/alkali and peroxide solutions) in above ground storage tanks (ASTs). Leakage and spillage of petroleum hydrocarbons and acid solutions could have resulted in site contamination.	Lead, TRH, BTEXN, PAHs and pH
Off-Site Commercial/industrial Use – The associated land uses surrounding the site could have resulted in potential migration of contamination onto the site.	Heavy metals, TRH, BTEXN and PAHs
Use of Pesticides – The site may have been used as market gardens or agricultural purposes between 1929 and 1963. The use of pesticides during this period could have resulted in potential contamination.	Heavy metals, OCPs, and OPPs

Source / AEC	CoPC
Hazardous Building Material – The buildings on the site have been constructed prior to the 1990s. Hazardous building materials were used for construction purposes during this period. The material can pose a potential contamination source during demolition/development.	Asbestos, lead and PCBs

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

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

Table 5-2: Conceptual Site Model

Potential mechanism for contamination	Potential mechanisms for contamination include: • Fill material – importation of impacted material, 'top-down' impacts (e.g. leaching from surficial material), or sub-surface release (e.g. impacts from buried material); • Fuel storage – 'top-down', spills (e.g. during filling of the tanks and/or dispensing activities), or sub-surface release (e.g. from leaking tank or pipework); • Historical agricultural use – 'top-down' and spills (e.g. application of pesticides, refuelling or repairing machinery, and other activities at the ground surface level); • Use of pesticides – 'top-down' and spills (e.g. during normal use, application and/or improper storage); • Hazardous building materials – 'top-down' (e.g. demolition resulting in surficial impacts in unpaved areas); • Off-site land uses – 'top-down', spill or sub-surface release. Impacts to the site could occur via migration of contaminated groundwater.
Affected media	Soil, soil vapour and groundwater have been identified as potentially affected media.
Receptor identification	Potential human receptors include site occupants and users, construction workers and intrusive maintenance workers. Potential off-site human receptors include adjacent land users. Potential ecological receptors include terrestrial organisms and plants within unpaved areas such as landscaped areas, and freshwater/marine ecology in Prospect Creek.

Potential Exposure pathways	Potential exposure pathways relevant to the human receptors include ingestion, dermal absorption and inhalation of dust (all contaminants) and vapours (volatile TRH, naphthalene and BTEX). The potential for exposure would typically be associated with the construction and excavation works and the use of unpaved areas. Potential exposure pathways for ecological receptors include primary contact and ingestion. Groundwater has the potential to enter Prospect Creek.

6 SAMPLING, ANALYSIS AND QUALITY PLAN

6.1 Data Quality Objectives (DQO)

The NEPM 2013 defines the DQO process as a seven-step iterative planning tool used to define the type, quantity and quality of data needed to inform decisions relating to the environmental condition of the site. The DQO process is detailed in the Site Auditor Guidelines 2006 and the USEPA documents Data Quality Objectives Processes for Hazardous Waste Site Investigations (2000) and Guidance on Systematic Planning Using the Data Quality Objectives Process (2006). These seven steps are applicable to this assessment as summarised in the table below:

Table 6-1: DQOs – Seven Steps

Step	Input
State the Problem	The CSM has identified AEC at the site which may pose a risk to the site receptors. An intrusive investigation is required to assess the risk and comment on the suitability of the site for the proposed development or intended land use.
Identify the Decisions/ Goal of the Study	The data collection is project specific and has been designed based on the following information: • A review of site information including site history; • AEC, CoPC, receptors, pathways and media identified in the CSM; • Development of Site Assessment Criteria (SAC) for each medium; and • The use of decision statements outlined below: The decisions of the study are: 1. Are any results above the Site Assessment Criteria? 2. Do the results represent a risk to human or ecological receptors? 3. Is the site suitable or can the site be made suitable for the proposed use? The data will be assessed in the following manner: 1) Statistical analysis will be used to assess the laboratory data against the SAC. The following criteria will be adopted: ➢ The 95% Upper Confidence Limit (UCL) value of the arithmetic mean concentration of each contaminant should be less than the SAC; ➢ The standard deviation (SD) of the results must be less than 50% of the SAC; and ➢ No single value exceeds 250% of the relevant SAC. 2) Statistical calculations will not be undertaken if all results are below the SAC; and 3) Statistical calculations will not be undertaken on the following: ➢ Health Screening Levels (HSLs) – elevated point source contamination associated with petroleum hydrocarbons can pose a vapour risk to receptors; and ➢ Groundwater Investigation Levels (GILs) – elevated GILs can indicate a wider groundwater contamination risk.

Step	Input
Identify Information Inputs	The following information will be collected: • Soil samples based on subsurface conditions; • Groundwater samples from monitoring wells; and • Fibre Cement Fragments (FCF) in the vicinity of the sampling points; • The SAC will be designed based on the criteria outlined in NEPM 2013. Other criteria will be used as required and detailed in this report; • The samples will be analysed in accordance with the analytical methods outlined in NEPM 2013; • Field screening information (i.e. PID data, presence of hydrocarbons etc.) will be taken into consideration in selecting the analytical schedule; and • Any additional information that may arise during the field work will also be used as data inputs.
Define the Study Boundary	The sampling will be confined to the site boundaries as shown in Figure 2. Fill has been identified as an AEC. The source of fill has not been established. Fill is considered to be heterogeneous material with PCC occurring in random pockets or layers. The presence of PCC in between sampling points cannot be measured.
Develop the analytical approach (or decision rule)	The following acceptable limits will be adopted for the data quality assessment: • The following acceptance criteria will be used to assess the RPD results: ➢ results > 10 times the practical quantitation limit (PQL), RPDs < 50% are acceptable; ➢ results between 5 and 10 times PQL, RPDs < 75% are acceptable; ➢ results < 5 times PQL, RPDs < 100% are acceptable; and ➢ An explanation is provided if RPD results are outside the acceptance criteria. • Acceptable concentrations in trip spikes (TS), trip blanks (TB) and field rinsate (FR) samples. Non-compliance to be documented in the report; • The following acceptance criteria will be used to assess the primary laboratory QA/QC results. Non-compliance to be documented: ➢ <u>RPDs</u>: - Results that are < 5 times the PQL, any RPD is acceptable; and - Results > 5 times the PQL, RPDs between 0-50% are acceptable; ➢ <u>LCS recovery and matrix spikes</u>: - 70-130% recovery acceptable for metals and inorganics; - 60-140% recovery acceptable for organics; and - 10-140% recovery acceptable for VOCs; ➢ <u>Surrogate spike recovery</u>: - 60-140% recovery acceptable for general organics; and - 10-140% recovery acceptable for VOCs; ➢ <u>Blanks</u>: All less than PQL.
Specify the performance	NEPM 2013 defines decision errors as "incorrect decisions caused by using data which is not representative of site conditions". This can arise from errors during sampling or analytical

Step	Input
or acceptance criteria	testing. A combination of these errors is referred to as "total study error". The study error can be managed through the correct choice of sample design and measurement. 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. In this case, for example, the PCC identified in the PCSM is considered to pose a risk to receptors unless proven not to. The null hypothesis has been adopted for this assessment.
Optimise the design for obtaining data	The most resource-effective design will be used in an optimum manner to achieve the assessment objectives.

6.2 Soil Sampling Plan and Methodology

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

Table 6-2: Soil Sampling Plan and Methodology

Aspect	Input
Sampling Density	The NSW EPA Contaminated Sites Sampling Design Guidelines (1995[16]) recommend a sampling density for an environmental assessment based on the size of the investigation area. The guideline provides a minimum number of sampling points required for the investigation on a systematic sampling pattern. The guidelines recommend sampling from a minimum of 40 evenly spaced sampling points for this site with an area of approximately 29,520m^2. Samples for this investigation were obtained from 40 sampling points as shown on the attached Figure 2, meeting the minimum sampling density recommended by the EPA.
Sampling Plan	The sampling locations were placed relatively evenly across the site with an average distance of approximately 27m between sampling locations. This sampling plan was considered suitable to address potential contaminants associated with the fill material.

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

Aspect	Input
Sampling Equipment	Soil samples were obtained from BH1 to BH20 on the 22nd of June 2015 and from BH101 to BH120 on the 23rd and 24th of February 2017 in accordance with the standard sampling procedure (SSP) attached in the appendices. All sampling locations were cleared for underground services by an external contractor prior to sampling as outlined in the SSP. The sample locations were drilled using a four-wheel-drive mounted hydraulic push tube rig. Soil samples were obtained from disposable polyethylene push tube samplers and using a hand auger in hard to access areas.
Sampling Collection and Field QA/QC	Soil samples were collected from the fill and natural profiles based on field observations. The sampling depths are shown on the logs attached in the appendices. During sampling, soil at selected depths was split into primary and duplicate samples for field QA/QC analysis. 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. Sampling personnel used disposable nitrile gloves during sampling activities. The samples were labelled with the job number, sampling location, sampling depth and date in accordance with the SSP.
Field PID Screening for VOCs	A photoionisation detector (PID) was used to screen the samples for the presence of VOCs. The sensitivity of the PID is dependent on the organic compound and varies for different mixtures of hydrocarbons. Some compounds give relatively high readings and some can be undetectable even though present in identical concentrations. The PID is best used semi-quantitatively to compare samples contaminated by the same hydrocarbon source. The PID is calibrated before use by measurement of an isobutylene standard gas. All PID measurements are quoted as parts per million (ppm) isobutylene equivalents. 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.

Aspect	Input
Decontamination and Sample Preservation	The decontamination procedure adopted during sampling is outlined in the SSP. Where applicable, the sampling equipment was decontaminated using a scrubbing brush and potable water and Decon 90 solution (phosphate free detergent) followed by rinsing with potable water. Rinsate samples were obtained during the decontamination process as part of the field QA/QC. 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 delivered in the insulated sample container to a NATA registered laboratory for analysis under standard COC procedures.

6.3 Groundwater Sampling Plan and Methodology

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

Table 6-3: Groundwater Sampling Plan and Methodology

Aspect	Input
Sampling Plan	Groundwater monitoring wells were installed in three selected boreholes (BH101, BH102 and BH103) spread across the site as shown on Figure 2. The monitoring well locations were chosen based on subsurface conditions encountered during the investigation and to cover as much area of the site as possible.
Monitoring Well Installation Procedure	The monitoring well construction details are documented on the corresponding borehole logs attached in the appendices. The monitoring wells were installed to depths of approximately 5.8m below ground level. The installation depth was designed to make an assessment of shallow perched groundwater conditions. The wells were constructed as follows: • A 50mm diameter Class 18 PVC casing and machine slotted screen; • A 2mm sand filter pack was used around the screen section for groundwater infiltration; • A bentonite seal was used on top of the slotted section to seal the wells; and • A gatic cover was installed at the surface with a concrete plug to limit the inflow of surface water.
Monitoring Well Development	The monitoring wells were developed on 24/2/17 using a submersible electrical pump. The wells were pumped dry in slow recharging conditions. The field monitoring records are attached in the appendices.

Aspect	Input
Groundwater Sampling	The monitoring wells were allowed to recharge for four days after development. Groundwater samples were obtained on 28/2/17. Prior to sampling, the monitoring wells were checked for the presence of Light Non-Aqueous Phase Liquids (LNAPLs) using an interface probe. 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 (see SSP): • Standing water level (SWL) using an interface probe; and • pH, temperature, electrical conductivity (EC), dissolved oxygen (DO) and redox potential (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%. Groundwater samples were obtained directly from the single use PVC tubing and placed in the sample containers. The use of low-flow sampling techniques such as the peristaltic pump generally provides for an increased confidence of accuracy, and in particular, improves the likelihood that the sample is representative of general aquifer conditions due to much lower aquifer disturbance during sampling. 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.

Aspect	Input
Decontaminant and Sample Preservation	The decontamination procedure adopted during sampling is outlined in the SSP attached in the appendices. During development, the pump was flushed between monitoring wells with potable water. Single-use tubing was used for each well. Sampling was undertaken using a peristaltic pump. The pump tubing was discarded after each sampling event and replaced therefore no decontamination procedure was considered necessary. The samples were preserved in accordance with water sampling requirements detailed in NEPM 2013 and placed in an insulated container with ice in accordance with the SSP. On completion of the fieldwork, the samples were delivered in the insulated sample container to a NATA registered laboratory for analysis under standard COC procedures.

6.4 Analytical Schedule

The analytical schedule is outlined in the following table:

Table 6-4: Analytical Schedule

CoPC	Fill Samples	Natural Soil Samples	Groundwater Samples
Heavy Metals	52	17	3
TRH/BTEXN	52	17	3
PAHs	52	17	3
OCPs	31	8	-
OPPs	11	6	-
PCBs	21	8	-
Asbestos in soil	39	2	-
pH	6	-	-
pH/EC	-	2	3
CEC	-	2	-
TCLP Metals	26	-	-

CoPC	Fill Samples	Natural Soil Samples	Groundwater Samples
TCLP PAHs	12	-	-
Asbestos in Fibre Cement Fragments (FCF)	3	-	-

6.4.1 Laboratory Analysis

The samples were analysed by the NATA- accredited laboratories using the analytical methods detailed in Schedule B(3) of NEPM 2013. Reference should be made to the laboratory reports attached in the appendices for further details.

Table 6-5: Laboratory Details

Samples	Laboratory	Report References
All primary samples and field QA/QC samples including (intra-laboratory duplicates, trip blanks, trip spikes and field rinsate samples)	Envirolab Services Pty Ltd NSW, NATA Accreditation Number – 2901 (ISO/IEC 17025 compliance)	#129948, #129948A, #129948B, #162502, #162502A, #162672
Inter-laboratory duplicates	Envirolab Services Pty Ltd VIC, NATA Accreditation Number – 2901 (ISO/IEC 17025 compliance)	#6530, #10235

7 SITE ASSESSMENT CRITERIA (SAC)

The SAC adopted for the assessment are outlined in the table below. The SAC have been derived from the NEPM 2013 and other guidelines as applicable. The guideline values for individual contaminants are presented in the attached report tables.

Table 7-1: SAC Adopted for this Investigation

Guideline	Applicability
Health Investigation Levels (HILs) (NEPM 2013)	The HIL-D criteria for commercial/industrial sites have been adopted for this assessment.
Health Screening Levels (HSLs) (NEPM 2013)	The HSL-D criteria for commercial/industrial sites have been adopted for this assessment.
Ecological Assessment Criteria (EAC) (NEPM 2013)	A preliminary screening of ecological risk has been undertaken based on the limited information available at this stage. The EAC criteria for commercial/industrial sites have been adopted. The EILs for selected metals have been derived as follows: • The ambient background concentration (ABC) values for high traffic (25th percentiles) areas for old suburbs of NSW published in Olszowy et. al. (1995[17]) have been adopted for this assessment; and • Selected natural samples obtained from the surficial profile (<2m) across the site were analysed for pH, CEC and clay content. The average pH, CEC and clay content values were used to calculate the added contaminant limit (ACL).
Asbestos in Soil	As a conservative measure the presence or absence of asbestos in soil has been adopted as the assessment criterion.
Waste Classification (WC) Criteria	The criteria outlined in the NSW EPA Waste Classification Guidelines - Part 1: Classifying Waste (2014[18]) have been adopted to classify the material for off-site disposal.

[17] 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.

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

Guideline	Applicability
Groundwater Investigation Levels (GILs)	The NSW Department of Environment and Conservation (now EPA) Guidelines for the Assessment and Management of Groundwater Contamination (2007[19]) require an assessment of environmental values including: **1. <u>Aquatic Ecosystems:</u>** The closest receiving water body in the vicinity of the site is Prospect Creek. This water body predominantly sustains a freshwater ecosystem. Hence the freshwater trigger values presented in the Australian and New Zealand Guidelines for Fresh and Marine Water Quality (2000[20]) have been adopted for the assessment (referred to as GIL-ANZECC-Fresh. The NSW EPA promotes the use of trigger values for the protection of 95% of aquatic ecosystems, except where the contaminants have the potential to bio-accumulate, in which case the 99% trigger values are recommended. The 95% trigger values have been adopted for this assessment. Where necessary, the low reliability trigger values are quoted. **2. <u>Human Uses</u>:** The groundwater bore search did not indicate the presence of bores registered for domestic use in the vicinity of the site. The extraction and use of groundwater for drinking purposes is unlikely to occur at the site. The site is also connected to the mains water supply. Based on this, the Australian Drinking Water Guidelines (2011[21]) have not been adopted for this assessment. **3. <u>Health Risk in Non-use Scenarios</u>:** Health risks in non-use scenarios are usually associated with the presence of vapours associated with volatile contaminants. The HSL-D for commercial/industrial sites have been adopted for this investigation. **4. <u>Buildings and Structures:</u>** An assessment of the risk posed by contaminated groundwater towards built structures has not been undertaken for this assessment. In the event elevated levels of contaminants are present, this can be addressed in the Tier 1/2 Risk assessment.

[19] NSW DEC (2007), *Guidelines for the Assessment and Management of Groundwater Contamination* (referred to as Groundwater Guidelines 2011)
[20] ANZECC, (2000), *Australian and New Zealand Guidelines for Fresh and Marine Water Quality.* (referred to as ANZECC 2000)
[21] National Health and Medical Research Council, (2011), *Australian Drinking Water Guidelines.* (referred to as ADWG 2011)

8 INVESTIGATION RESULTS

8.1 Subsurface Conditions

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

Table 8-1: Summary of Subsurface Conditions

Profile	Description
Pavement	Asphaltic concrete pavement was encountered in BH2, BH3, BH4, BH5, BH101, BH103, BH104, BH105 and BH113 to an average depth of 70mm. Concrete pavement was encountered in the majority of the remaining boreholes to depths ranging from 0.13m to 0.37m. Concrete in BH13 extended to a depth of 1m – this was thought to be a building footing rather than pavement. BH1, BH6, BH7, BH119 and BH120 were drilled in unpaved areas.
Fill	Fill material was encountered at the surface or beneath the pavement in all boreholes and extended to depths ranging from 0.07m to 2.5m, with an average depth of 1.0m. BH8, BH11, BH17, BH19, BH117, BH118, BH119 and BH120 were terminated in the fill material. The composition of the fill varied between boreholes and included silty clay, sandy gravel and silty sand, with inclusions of fibre cement fragments, ash and slag.
Natural Soil	Residual silty clay natural soil was encountered beneath the fill material and generally extended to the termination depth of the borehole.
Bedrock	Shale bedrock was encountered in BH101 at a depth of 3.4m.
Groundwater	Groundwater seepage was encountered during drilling in BH3 at a depth of 2.5m and BH4 at 1.3m. During groundwater sampling the static water level in the three wells ranged from 1.95m to 4.05m.

8.2 Field Screening

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

Table 8-2: Summary of Field Screening

Aspect	Details (m in bgl)
PID Screening of Soil Samples for VOCs	PID soil sample headspace readings are presented in the attached report tables and the COC documents attached in the appendices. The results ranged from 0ppm to 15ppm equivalent isobutylene. These results are relatively low and are not considered to indicate PID detectable VOCs.
Groundwater Field Parameters	Field measurements recorded during groundwater sampling are as follows: - pH ranged from 5.84 to 6.4; - EC ranged from 7,866µS/cm to 29,784µS/cm; - Eh ranged from 49.6mV to 275.6mV; and - DO ranged from 0.72ppm to 3.7ppm.
LNAPLs petroleum hydrocarbons	Free phase LNAPLs were not detected using the interphase probe during groundwater sampling.

8.3 Soil Laboratory 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 in the following table:

Table 8-3: Summary of Soil Laboratory Results

<table>
<tr><th>Analyte</th><th>Results Compared to SAC</th></tr>
<tr><td>Heavy Metals</td><td> <u>HILs:</u>
All heavy metal results were below the HIL-D criteria. <u>EILs:</u>
Elevated concentrations of individual metals were encountered above the EIL-Commercial/Industrial as outlined in the table below:
<table>
<tr><th>Analyte</th><th>Sample/Depth (m)</th><th>Description</th><th>EIL (mg/kg)</th><th>Concentration (mg/kg)</th></tr>
<tr><td>Nickel</td><td>BH5 (0.02-0.1)</td><td>Fill: silty gravelly clay</td><td>60</td><td>76</td></tr>
<tr><td rowspan="7">Zinc</td><td>BH1 (1-1.2)</td><td>Fill: silty clay</td><td rowspan="7">482</td><td>1100</td></tr>
<tr><td>BH2 (1.0-1.2)</td><td>Fill: silty clay</td><td>790</td></tr>
<tr><td>BH15 (0.3-.05)</td><td>Fill: silty clay</td><td>490</td></tr>
<tr><td>BH17 (0.17-0.3)</td><td>Fill: silty clay</td><td>2000</td></tr>
<tr><td>BH18 (0.14-0.3)</td><td>Fill: silty clay</td><td>1100</td></tr>
<tr><td>BH19 (0.6-0.8)</td><td>Fill: silty sandy clay</td><td>1000</td></tr>
<tr><td>BH20 (0.19-0.3)</td><td>Fill: silty clay</td><td>690</td></tr>
</table></td></tr>
</table>

Analyte	Results Compared to SAC
	<table><tr><td></td><td>BH101 (0.5-0.95)</td><td>Fill: silty clay</td><td></td><td>750</td></tr><tr><td></td><td>BH108 (0.4-0.5)</td><td>Fill: silty clay</td><td></td><td>880</td></tr><tr><td></td><td>BH109 (0.9-1.1)</td><td>Fill: silty sandy clay</td><td></td><td>660</td></tr><tr><td></td><td>BH110 (0.3-0.5)</td><td>Fill: silty sandy clay</td><td></td><td>720</td></tr><tr><td></td><td>BH110 (1.2-1.5)</td><td>Silty clay</td><td></td><td>500</td></tr><tr><td></td><td>BH111 (1.2-1.3)</td><td>Fill: silty sandy clay</td><td></td><td>710</td></tr><tr><td></td><td>BH116 (0.3-0.5)</td><td>Fill: silty clay</td><td></td><td>980</td></tr></table> **WC:** Twenty-two lead results and three nickel results were above the CT1 criteria. TCLP leachates were prepared from the majority of these samples and analysed for the corresponding heavy metal. The results were all less than the TCLP1 criteria.
TRH	**HSLs:** All TRH results were below the HSL-D criteria. **ESLs:** All TRH results were below the ESL-Commercial/Industrial criteria. **WC:** All TRH results were less than the CT1 criteria.
BTEXN	**HSLs:** All BTEXN results were below the HSL-D criteria. **ESLs:** All BTEXN results were below the ESL-Commercial/Industrial criteria. **WC:** All BTEX results were less than the relevant CT1 criteria.
PAHs	**HILs:** All total PAH and B(a)P TEQ results were below the HIL-D criteria. **HSLs:** All naphthalene results were below the HSL-D criteria. **ESLs:** The B(a)P result from sample BH7 (0.4-0.6m) sample was 5.6mg/kg, which is above the ESL-commercial/industrial criteria of 1.4mg/kg. **EILs:** All naphthalene results were below the Commercial/Industrial criteria.

Analyte	Results Compared to SAC
	WC: Four B(a)P results from BH6 (0.1-0.4m), BH7 (0.4-0.6m), BH112 (0.2-0.3) and BH114 (0.2-0.3) were above the CT1 criterion but below the SCC1. TCLP leachates were prepared for those samples and analysed for PAHs. All results were less than the TCLP1 criterion.
OCPs & OPPs	**HILs:** All OCP and OPP results were below the HIL-D criteria. **EILs:** All DDT results were below the EIL- commercial/industrial criteria. **WC:** All OCP and OPP results were less than the CT1 criteria.
PCBs	**HILs:** All PCB results were below the HIL-D criterion. **WC:** All PCB results were less than the CT1 criterion.
Asbestos	Chrysotile asbestos was detected in a fibre cement fragment within the fill material in BH12 (0.8-0.9m). Chrysotile asbestos was detected within matted material within fill soil sample BH2 (1.0-1.2m). Chrysotile, amosite and crocidolite asbestos were detected in matted material within fill material collected in BH119 (0.0-0.2). Chrysotile asbestos was detected in fibre cement material sample (F1) which was located on the surface of the pavement. The remaining samples that were analysed did not contain asbestos.
pH	The pH of the soil samples analysed ranged from 6.6 to 10.5. These values ranged from slightly acidic to very alkaline.

8.4 Groundwater Laboratory Results

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

Table 8-4: Summary of Groundwater Laboratory Results

Analyte	Results Compared to SAC
Heavy Metals	**GIL-ANZECC-Fresh:** Elevated concentrations of individual metals were encountered above the GIL-ANZECC criteria as outlined below:
TRH & BTEXN	**GIL-ANZECC-Fresh:** All BTEXN results were below the GIL-ANZECC criteria. **HSLs:** All TRH and BTEXN results were below the GIL-HSL criteria.
PAHs	**GIL-ANZECC-Fresh:** All PAH results were below the GIL-ANZECC criteria. **HSLs:** All naphthalene results were below the GIL-HSL criteria.
Other Parameters	The results for pH, EC, TDS and hardness are summarised below: • pH ranged from 6.3 to 6.9; and • EC ranged from 6,200µS/cm to 24,000µS/cm.

Heavy Metals – exceedances:

Analyte	Sample	GIL	Concentration
Cadmium	MW101	0.2 µg/L	1.0 µg/L
Copper	MW101	1.4 µg/L	3.0 µg/L
	MW102		2.0 µg/L
Nickel	MW101	11 µg/L	140 µg/L
Zinc	MW101	8 µg/L	130 µg/L
	MW102		82 µg/L
	MW103		78 µg/L

9 DATA QUALITY ASSESSMENT

As part of the data quality assessment the following data quality indicators (DQIs) were assessed: precision, accuracy, representativeness, completeness and comparability as outlined in the table below. Reference should be made to the appendices for an explanation of the individual DQI.

Table 9-1: Assessment of DQIs

Completeness

Field Considerations:

- The investigation was designed to target the AEC identified at the site. A systematic sampling plan was adopted based on the AEC as outlined in the report;
- Samples were obtained from a variety of depths based on the subsurface conditions encountered at the sampling locations. All samples were recorded on the borehole logs. All sampling points are shown on the attached Figure 2;
- The investigation was undertaken by trained staff in accordance with the SSP; and
- Documentation maintained during the field work is attached in the appendices where applicable.

Laboratory Considerations:

- Selected samples were analysed for a range of CoPC;
- All samples were analysed by NATA registered laboratories in accordance with the analytical methods outlined in NEPM 2013;
- Appropriate analytical methods and PQLs were used by the laboratories; and
- Appropriate sample preservation, handling, holding time and COC procedures were adopted for the investigation.

Comparability

Field Considerations:

- The investigation was undertaken by trained staff in accordance with the SSP;
- The climate conditions encountered during the field work were noted on the site description record maintained in the job file; and
- Consistency was maintained during sampling in accordance with the SSP.

Laboratory Considerations:

- All samples were analysed in accordance with the analytical methods outlined in NEPM 2013;
- Appropriate PQLs were used by the laboratories for all analysis;
- All primary, intra-laboratory duplicates and other QA/QC samples were analysed by the same laboratory; and
- The same units were used by the laboratories for all of the analysis.

Representativeness

Field Considerations:

- The investigation was designed to obtain appropriate media encountered during the field work as outlined in the SAQP. Dust and/or vapour sampling was outside the scope of this assessment; and

- All media identified in the SAQP was sampled.

Laboratory Considerations:
- All samples were analysed in accordance with the SAQP.

Precision

Field Considerations:
- The investigation was undertaken in accordance with the SSP.

Laboratory Considerations:
- Analysis of field QA/QC samples including inter and intra-laboratory duplicates, trip blanks (TB), field rinsate (FR) and trip spikes (TS) as outlined below;
- The field QA/QC frequency adopted for the investigation is outlined below;
- Calculation of the Relative Percentage Difference (RPD) from the primary and duplicate results (the RPD calculation equation is outlined in the attached appendices);
- Assessment of RPD results against the acceptance criteria outlined in **Section 6.1.**

Intra-laboratory RPD Results:
Soil samples at a frequency of 3% of the primary samples:
- Sample JDC1 is a soil duplicate of primary sample BH2 (0.07-0.27);
- Sample DUP-AS2 is a soil duplicate of primary sample BH16 (0.3-0.5).

Groundwater Samples at a frequency of 33% of the primary samples:
- Sample DUP-GW1 is a groundwater duplicate of primary sample MW102.

The intra-laboratory results are presented in the attached report tables. The results indicated that field precision was acceptable. The RPD values for a range of individual PAHs and heavy metals were outside the acceptance criteria. Values outside the acceptable limits have been attributed to sample heterogeneity and the difficulties associated with obtaining homogenous duplicate samples of heterogeneous matrices. As both the primary and duplicate sample results were less than the SAC, the exceedances are not considered to affect the interpretation of the results.

Inter-laboratory RPD Results:
Soil samples at a frequency of 3% of the primary samples:
- Sample DUPJDC2 is a soil duplicate of primary sample BH3 (0.1-0.4);
- Sample DUP-AS1 is a soil duplicate of primary sample BH101 (0.5-0.95).

The inter-laboratory results are presented in the attached report tables. The results indicated that field precision was acceptable. The RPD values for a range of individual heavy metals and heavy-fraction TRH compounds were outside the acceptance criteria. Values outside the acceptable limits have been attributed to sample heterogeneity and the difficulties associated with obtaining homogenous duplicate samples of heterogeneous matrices. As both the primary and duplicate sample results were less than the SAC, the exceedances are not considered to affect the interpretation of the results.

Trip Spike:
One water trip spike was analysed for BTEX at a frequency of one spike per batch of groundwater samples. The results are presented in the attached report tables.

The results ranged from 83% to 88% and indicated that field preservation methods were appropriate.

Field Rinsate:
One field rinsate sample obtained from the field equipment decontamination process on 22/6/15 was analysed for BTEX. The results are presented in the attached report tables. All results were below the PQL which indicates that cross-contamination artefacts associated with sampling equipment were not present.

Trip Blank:
Three soil and one groundwater trip blank were analysed for BTEX at a frequency of one blank per day of sampling. The results are presented in the attached report tables. The results were all less than the PQLs.

Accuracy

Field Considerations:
- The investigation was undertaken in accordance with the SSP.

Laboratory Considerations:
- The analytical quality assessment adopted by the laboratories was in accordance with the NATA and NEPM 2013 requirements as outlined in the analytical reports;
- A review of the reports indicates that the analytical results were generally within the acceptance criteria adopted by the laboratories.

10 PRELIMINARY WASTE CLASSIFICATION OF SOIL FOR OFF-SITE DISPOSAL

The preliminary waste classification of soil for off-site disposal is summarised in the following table:

Table 10-1: Preliminary Waste Classification

Site Extent / Material Type	Classification	Disposal Option
Fill material	General Solid Waste (non-putrescible) (GSW) containing asbestos	A NSW EPA landfill licensed to receive the waste stream. The landfill should be contacted to obtain the required approvals prior to commencement of excavation.
Natural silty clay soil and shale bedrock	Virgin excavated natural material (VENM)	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. Alternatively, the natural material can be disposed of as VENM to a facility licensed by the NSW EPA to receive the waste stream.

11 TIER 1 RISK ASSESSMENT AND REVIEW OF CONCEPTUAL SITE MODEL

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 Risk to Potential Human Receptors

The assessment has identified the following contamination issues at the site:

- Asbestos was identified within the fill soils at three borehole locations: BH2, BH12 and BH119. The three boreholes were spread across the site, BH2 being in the south-east, BH12 in the centre-west and BH119 in the north-east. Based on these results it is reasonable to assume that asbestos is likely to be present within the on-site fill material in other locations.
- The asbestos detected in samples BH2 (1.0-1.2m) and BH119 (0.0-0.2m) was associated with matted material and is considered to be friable.
- Asbestos was identified within a fibre cement fragment collected from the surface of the site near the north-east corner of the warehouse building.

The exposure pathway for potential human receptors is via the inhalation of airborne asbestos fibres. EIS are of the opinion that the risk posed to human receptors is moderate and will require remediation or management.

11.2 Risk to Potential Ecological Receptors

Elevated concentrations (i.e. above the ecological assessment criteria) of lead, nickel and benzo(a)pyrene were encountered within fill soils at several locations. EIS considers that the risk posed to potential environmental receptors is low for the following reasons.

- The site and the immediate surrounds have been used for industrial purposes since at least the 1960s. The ecological value of the area is considered to be relatively low; and
- Pavements appeared to have remained in place at the site since the warehouse buildings were constructed;
- EIS understands that the proposed development includes coverage of the majority of the surface of the site by hardstand; and
- The existing vegetation on-site appeared to be relatively healthy.

Elevated concentrations of some heavy metals were encountered in groundwater at concentrations exceeding the GIL-ANZECC-Fresh. These elevations are considered likely to be a regional issue for the following reasons:

- Significant elevations of heavy metals samples that could act as a point source were not encountered in the soil samples;
- Minor elevations of heavy metals are commonly encountered in urban groundwater. The source of the heavy metals is most likely leaking urban water infrastructure and/or surface water run-off.

The risk to ecological receptors associated with exposure to the groundwater is considered to be low and has not been considered any further.

11.3 Risk to Building Structure

Asbestos does not pose a risk to any building structure.

Soil and water pH values ranged from slightly acidic to very alkaline (the very alkaline results may have been the result of cutting the concrete). These pH values are not considered to pose a risk to the proposed building.

11.4 Source and Extent of Contamination

11.4.1 Possible Sources

Asbestos containing materials may have been imported onto the site within with the fill material. Demolition of former site buildings may also have resulted in asbestos within the fill material. Damage to current site buildings may have resulted in fibre cement fragments on the ground surface.

11.4.2 Known Extent

Based on a review of the available data, EIS are of the opinion that the soil contamination is confined to the fill material at the site and to fragments of fibre cement on the ground surface.

Due to the heterogeneous nature of the fill material and the extent of contamination, no distinct hotspots can be identified at the site. All fill material at the site is considered to be potentially contaminated with asbestos and should be treated accordingly.

11.4.3 Hazardous Building Materials in Existing Buildings

Due to the age of the buildings, hazardous building materials may be present in the existing buildings at the site. This is considered to pose a relatively low risk to the receptors provided that demolition works are undertaken in accordance with the relevant codes and standards.

11.5 Fate and Transport of Contaminants

The potential transport of asbestos fibres is associated with the disturbance of asbestos contaminated soils and release of fibres into the atmosphere. This may occur during development works.

A number of studies have found that soils effectively filter out asbestos fibres and retain them within the soil matrix. The studies concluded that there is no significant migration of asbestos fibres, either through soil or groundwater.

11.6 Data Gaps

There are no significant data gaps in the assessment. The Stage 1 desktop study has provided a reasonably detailed history of site use and the field investigation has addressed soil and groundwater issues. Sufficient data has now been collected to enable a decision to be made regarding the suitability of the site for the proposed use.

12 CONCLUSION

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

12.1 Decisions of the Study

The decisions of the study are addressed below:

1. Are any results above the Site Assessment Criteria?
   - Yes, asbestos was present within some fill soil samples and within fibre cement fragments collected from the surface of the site.

2. Do the results represent a risk to human or ecological receptors?
   - Yes, EIS are of the opinion that the asbestos identified at the site poses a risk to the site receptors if not managed properly.

3. Is the site suitable or can the site be made suitable for the proposed use?
   - Yes, the site can be made suitable for the proposed use provided the Remediation Action Plan (RAP) is implemented.

Trace amounts of asbestos containing materials are commonly encountered in the soils of all types of sites (commercial and residential). EIS are routinely involved in the remediation of similar industrial sites to the subject property. A Remediation Action Plan (RAP) is contained in the next part of this report and an ongoing EMP is also submitted (Ref: E28497K EMP).

12.2 Requirements of Clause 7 of SEPP55

The requirements of Clause 7 of SEPP55 are addressed in the table below:

Table 12-1: Responses to Clause 7 of SEPP55

Clause 7 SEPP55 Section	Response
(1a) A consent authority must not consent to the carrying out of any development on land unless (a) it has considered whether the land is contaminated.	Stage 1 and detailed Stage 2 investigations completed. Asbestos containing material was identified in the fill soil in 3 borehole samples out of a total of 40 boreholes and in a surface fibre cement fragment.
(1b) If the land is contaminated, it is satisfied that the land is suitable in its contaminated state (or will be suitable, after remediation) for the purpose for which the development is proposed to be carried out.	The site will be suitable for the proposed development following implementation of the Remediation Action Plan (RAP) and through standard environmental management procedures. The RAP is included with this report and an EMP has also been issued.

Clause 7 SEPP55 Section	Response
(1c) If the land requires remediation to be made suitable for the purpose for which the development is proposed to be carried out, it is satisfied that the land will be remediated before the land is used for that purpose.	The implementation of the RAP can be conditioned through planning controls. It is EIS' opinion that subject to the implementation of the RAP and EMP that the site will achieve a suitable standard of remediation for ongoing commercial/industrial land use.
(2) Before determining an application for consent to carry out development that would involve a change of use on any of the land specified in subclause (4), the consent authority must consider a report specifying the findings of a preliminary investigation of the land concerned carried out in accordance with the contaminated land planning guidelines.	This Stage 2 report includes the findings of a Stage 1 preliminary investigation, addresses the data gaps identified, and has been completed in accordance with the contaminated land planning guidelines.
(3) The applicant for development consent must carry out the investigation required by subclause (2) and must provide a report on it to the consent authority. The consent authority may require the applicant to carry out, and provide a report on, a detailed investigation (as referred to in the contaminated land planning guidelines) if it considers that the findings of the preliminary investigation warrant such an investigation.	This report includes the findings of a Stage 2 detailed investigation completed in accordance with the contaminated land planning guidelines.
(4a) The land concerned is land that is within an investigation area.	The land is not a declared investigation area as defined under Part 3 of the CLM Act 1997.
(4b) The land concerned is land on which development for a purpose referred to in Table 1 to the contaminated land planning guidelines is being, or is known to have been, carried out.	The site may have been used for agricultural purposes prior to 1963. EIS note that a footnote to Table 1 states that it is not sufficient to rely solely on the contents of Table 1, and that it is intended for guidance.
(4c) To the extent to which it is proposed to carry out development on it for residential, educational, recreational or child care purposes, or for the purposes of a hospital – land: (i) in relation to which there is no knowledge (or incomplete knowledge) as to whether development for a purpose referred to in Table 1 to the contaminated land planning guidelines has been carried out, and (ii) (ii) on which it would have been lawful to carry out such development during any period in respect of which there is no knowledge (or incomplete knowledge).	The proposed land use does not include any of these activities.

12.3 Recommendations of the Previous Report

The recommendations of the *Preliminary Waste Classification and Environmental Site Assessment* report are addressed below (Reference: E28497Krpt dated 13/7/15, Section 10, page 27):

Table 12-2: Responses to Recommendations of Previous Report

Recommendation	Response
1. Undertake a Stage 2 ESA to address the data gaps identified in Section 10.3 (*note: the data gaps were actually identified in Section 9.4)*.	Stage 2 ESA completed and data gaps addressed, as detailed within this report.
2. Prepare a Remediation Action Plan (RAP) to outline remedial measures for the site.	A Remediation Action Plan is included in the following section of this report.
3. Undertake a Hazardous Materials Assessment (Hazmat) for the existing buildings prior to the commencement of demolition work.	A Hazmat inspection is scheduled for 13/3/2017 and the results will be included in a separate report.
4. An Asbestos Management Plan must be prepared and implemented for the site.	An Asbestos Management Plan is included in Section 15 of this report.
5. Prepare an Environmental Management Plan (EMP) should contamination remain on site. The EMP will require establishment of appropriate public notification under Section 149(2) of the E&PAA 1979 or a covenant registered on the title to land under Section 88B of the Conveyancing Act 1919.	An EMP has been prepared and issued in a separate report (Ref: E28497Krpt-EMP dated 13/3/17). The appropriate notification of this EMP can be subject to condition of consent.

12.4 Regulatory Requirements

The regulatory requirements applicable for the site are outlined in the following table:

Table 12-3: Regulatory Requirement

Guideline	Applicability
Duty to Report Contamination 2015[22]	At this stage, EIS consider that there is no requirement to notify the NSW EPA of the site contamination. After successful implementation of the RAP, the site contamination is unlikely to meet the Notification Triggers.
POEO Act 1997	Section 143 of the POEO Act 1997 states that if waste is transported to a place that cannot lawfully be used as a waste facility for that waste, then the transporter and owner of the waste are each guilty of an offence. The transporter and owner of the waste have a duty to ensure that the waste is disposed of in an appropriate manner.
NSW Work Health and Safety Regulation 2011	A Hazardous Building Material assessment should be undertaken prior to demolition of structures constructed before 31 December 2005.
Work Health and Safety Code of Practice 2011[23]	Sites contaminated with asbestos become a 'workplace' when work is carried out there and require a register and asbestos management plan.

[22] NSW Department of Environment and Climate Change, (2009), *Guidelines on the Duty to Report Contamination under the Contaminated Land Management Act 1997.* (referred to as Duty to Report Contamination 2009)
[23] WorkCover NSW, (2011), *WHS Regulation: Code of Practice – How to Manage and Control Asbestos in the Workplace.*

PART 2 – REMEDIATION ACTION PLAN INCLUDING ASBESTOS MANAGEMENT PLAN

13 REMEDIATION OPTIONS

13.1 Soil Remediation

The NSW EPA follows the ANZECC/NHMRC 1992 published hierarchy for the remediation of contaminated sites. The preferred order for soil remediation and management is as follows:

1. On-site treatment of soil so that the contaminant is either destroyed or the associated hazard is reduced to an acceptable level;
2. Off-site treatment of excavated material so that the contaminant is either destroyed or the associated hazard is reduced to an acceptable level, after which the soil is returned to the site;
3. Removal of contaminated material to an approved site or facility, followed where necessary by replacement with clean material; and
4. Consolidation and isolation of the soil on-site by containment within a properly designed barrier.

The Site Auditor Guidelines 2006 provide the following additional requirements to be taken into consideration:

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

It is our view that this latter situation fits the subject circumstances, and EIS' recommendation is consistent with that outcome.

13.2 <u>Site Specific Remediation Options</u>

The table below summarises the site specific remediation options:

Table 13-1: Site Specific Remediation Options

Option	Discussion	Applicability
<u>Option 1</u> On-site treatment of contaminated soil	On-site treatment provides a mechanism to reuse the processed material and in some instances, to avoid the need for large scale earthworks. Some of the treatment options include: <u>Bio-remediation:</u> Addition of oxygen and nutrient compounds to accelerate the natural process of organic compound decay within the environment. Soils require excavation and stockpiling prior to treatment. Not suitable for all contaminants. <u>Soil Washing:</u> Soil is stripped of contaminants via a leaching process and the concentrated contaminated liquid product retained for disposal or additional treatment. <u>Air Sparging and Extraction:</u> Air is forced through the contaminated soil to volatilise organic contaminants. The air is then extracted and captured for treatment leaving reduced contaminant concentrations within the sub-strata. <u>Thermal Desorption:</u> Contaminated soils are heated within an incinerator to volatilise or combust the contaminants. Contaminants are either broken down to water and carbon dioxide or alternatively trapped within an air filtration system. Licenses are necessary for specific individual waste streams due to the potential for air pollution and the formation of harmful by-products during the incineration process.	On-site treatment options are generally very expensive and time consuming. These are applicable for large scale remediation work of sites with large areas impacted by contaminants that can be treated. This option is not considerable to be viable for asbestos contaminated soil.

Option	Discussion	Applicability
<u>Option 2</u> Off-site treatment of contaminated soil	Contaminated soils are excavated, transported to an approved/ licensed treatment facility, treated to remove/stabilise the contaminants then returned to the subject site, transported to an alternative site or disposed to an approved landfill facility. This option provides for a relatively short program of on-site works, however there may be some delays if the material is to be returned to the site following treatment. The cost per tonne for transport to and from the site and for treatment is considered to be relatively high. The material would also have to be assessed in terms of suitability for reuse as part of the proposed development works.	Off-site treatment of soil is very expensive and is not considered a preferred option. Material which leaves the site as a waste stream can only be taken to a facility licensed by the NSW EPA license to receive the waste stream. The treated material cannot be brought back onto the site as it will be classified as a waste stream. This option is not considered viable for asbestos-contaminated soil.
<u>Option 3</u> Removal of contaminated material to an appropriate facility and reinstatement with clean material	Contaminated soils would be classified in accordance with NSW EPA guidelines for waste disposal, excavated and disposed of off-site to a NSW EPA licensed landfill. The material would have to meet the requirements for landfill disposal. Landfill gate fees (which may be significant) would apply in addition to transport costs.	EIS note the requirements of the Site Auditor Guidelines 2006: 1) Large-scale excavation of the site could potentially cause a greater adverse effect than leaving the site undisturbed; and 2) Where there are large quantities of soil with low levels of contamination (the soil at this site contains traces of asbestos containing material) alternative strategies should be considered (e.g. capping). EIS have also noted the recommendations for asbestos contaminated soils contained in in Section 4.11 of the schedule B1 of NEPM 2013: "*Remediation options which minimise disturbance and therefore public risk are preferred. Management of asbestos in situ is encouraged,*

Option	Discussion	Applicability
		which may include covering the contamination with uncontaminated fill or other protective or warning layers." It is EIS' opinion that the recommendation for capping is warranted and appropriate in this case.
<u>Option 4</u> Consolidation and isolation of impacted soil by cap and containment	This may include the placement of an impermeable barrier such as concrete, or a warning barrier and non-contaminated soil material, over the existing ground surface to isolate the contaminated material and thereby reduce the health risk to future site users. This action may also reduce the transport of contamination via surface water movement, dust generation and potentially groundwater infiltration, however, environmental issues would need to be evaluated. Such an option should only be considered where other preferred approaches from the NSW EPA hierarchy are not applicable. The capping and/or containment must be appropriate for the specific contaminants of concern. An ongoing environmental management plan (EMP) would be required and site identification documentation, possibly including the S.149 council planning certificate and/or the land title, would be modified to note the presence of the contamination. This may impact upon development approval conditions and limit the future potential land value.	As the proposed development is for the majority of the site to be paved with concrete, exposure to potential receptors will be limited. This is considered to be a viable option for the site subject to an ongoing EMP.

14 REMEDIATION DETAILS

Prior to commencement of remediation work, the site management plan for remediation works (see **Section 19**) should be reviewed and implemented by the Remediation and Construction Contractor.

Prior to proceeding with the remedial works, approval must be sought from Council for the general acceptance of the proposed remediation strategy in order to comply with Section 3.4.6 of the Site Auditor Guidelines 2006.

14.1 Roles and Responsibility

The roles and responsibilities for the implementation of this RAP are outlined in the table below.

Table 14-1: Roles and Responsibilities

Role	Responsibility
Project Manager (PM)	The identity and contact details of the Project Manager are to be confirmed following appointment. The PM is required to provide all investigation reports including this plan to the Remediation and Construction Contractor (RCC) prior to commencement of remediation work. The PM needs to ensure that the RCC has understood the plan and will implement it in its totality. Further details are outlined in the sections below.
Remediation and Construction Contractor (RCC)	The identity and contact details of the RCC are to be confirmed following appointment. The RCC is required to review all documents prepared for the project and implement the procedures outlined in this plan. The RCC is required to collect all necessary documentation and forward them onto the PM and the Environmental Consultant as they become available. Further details are outlined in the sections below.
Environmental Consultant	Environmental Investigation Services (EIS) Contact: Mr Adrian Kingswell Phone: (02) 9888 5000 Postal Address: PO Box 976, North Ryde BC, NSW 1670 Email: akingswell@jkgroup.net.au The Environmental Consultant provides consulting advice on the ongoing remediation work at the site. The Environmental Consultant is required to review any deviation to this plan or in the event of unexpected finds if and when encountered during the site work. The Environmental Consultant is required to liaise with the site auditor, if appointed, on all matters pertaining to the site contamination and remediation. Further details are outlined in the sections below.

Asbestos Consultant	The identity and contact details of the Asbestos Consultant are to be confirmed following appointment. The Asbestos Consultant provides consulting advice on the ongoing remediation and management of asbestos containing material (ACM) at the site. The Asbestos Consultant is required to review any deviation to the remediation plan or in the event of unexpected finds if and when encountered during the site work. The Asbestos Consultant is required to liaise with the RCC and Environmental Consultant on all matters pertaining to the remediation and management of ACM. Further details are outlined in the sections below.
Other consultants & contractors (e.g. landscaping)	The identity and contact details of the other consultants are to be confirmed following appointment. Other consultants who may become involved in the project from time to time should be made aware of this RAP. The consultants are required to review the RAP and implement the procedures outlined. The consultants are required to collect all necessary documentation and forward them onto the PM and Environmental Consultant as they become available. Further details are outlined in the sections below.

14.2 Rationale for Selection of Remedial Strategy

The proposed development is not understood to include bulk earthworks for basements or similar which would require the removal of significant quantities of fill material from the site. The proposed development is understood to include pavement over the majority of the site. The pavements will limit exposure to the underlying fill impacted by asbestos. The proposed land use is for commercial purposes with minimal exposure to landscaped areas.

Considering the low risk scenario, the most viable remediation option for the fill material remaining on-site is considered to be the cap and contain approach (Option 4) and the implementation of an Environmental Management Plan (EMP). This is also applicable to any proposed landscaped areas.

This remediation strategy is considered most appropriate due to the following:

- The proposed development does not include large scale excavation for proposed basements etc.;
- Remediation of the site to remove all of the contaminated fill soil is likely to cause a greater adverse effect than leaving the site undisturbed;
- The various on-site treatment technologies are generally considered unsuitable for asbestos contamination;
- The risk to potential receptors is via direct exposure to dust. Capping and containing the contamination will minimise this risk due to the lack of an exposure pathway; and
- The risk to site workers can be managed by wearing appropriate PPE and adopting the measures outlined in the Site-Specific Asbestos Control Plan (to be prepared by the Asbestos Consultant).

In general the remediation works at this site will consist of:

1. A walkover 'emu-pick' of the surface of the site following demolition to remove any obvious asbestos containing material from the surface of the site;
2. Excavation for services, footings etc. that will involve the off-site disposal of soil; and
3. Capping of the site. This will consist of concrete pavement over the majority of the site. Landscaped areas will be capped using a combination of geofabric/geogrid and topsoil.

Prior to commencement of remediation work, the site management plan for remediation works (see Section 19) should be reviewed and implemented by the remediation contractor.

15 ASBESTOS MANAGEMENT PLAN (AMP)

The following requirements should be met for any excavation works at the site:

- A Class A licensed asbestos removalist should be engaged to undertake the excavation/removal works. The licenced contractor is to provide a copy of their licence and prepare an Asbestos Removal Control Plan for the site works and provide this to the Environmental Consultant for review;
- SafeWork NSW are to be notified prior to excavation works (5 business days);
- All personnel and contractors must be informed of site conditions, asbestos work areas and exclusion zones;
- Mandatory air monitoring is to be undertaken on a daily basis during any works in the asbestos contaminated areas and all readings are to be below the detection limit of 0.01 fibres per millilitre. The requirement for daily air monitoring has been set due to the 'friable' nature of the asbestos, and the duty to eliminate or minimise exposure to airborne asbestos and to ensure the exposure standard of 0.01 fibres/ml is not exceeded;
- Asbestos clearance certificate/s should be provided by a SafeWork NSW licensed asbestos assessor following the removal of all asbestos containing material from the surface of the site; and
- The site is managed in accordance with this plan and the general requirements of SafeWork NSW and strategies outlined in the regulations outlined above.

15.1 General Site Set Up for Asbestos Remediation Works

15.1.1 Barricaded Asbestos Work Area

Access to the barricaded asbestos work area must be restricted by the erection of temporary barrier tape/fencing and asbestos warning signage. Only personnel employed by the licenced asbestos removal contractor are to work in the barricaded asbestos removal area.

15.1.2 Personal Decontamination and Storage of Personal Protective Equipment (PPE)

A personal decontamination area must be set up in a designated area located on the edge of the asbestos work area. The area must include an asbestos waste bin, wet rags/wet wipes and a sink with soap to wash hands. Additional PPE must be located in this area. Personnel must enter / exit through this area only.

15.1.3 Watering System

A watering system such as a hose must be made available for the spray application to soil during excavation and to decontaminate trucks exiting the barricaded area. The general ground surface should also be kept damp.

15.1.4 Truck Wash Bay

A temporary wash bay must be set up inside the barricaded area. Trucks should park over the wash bay for loading of soil then be washed down with water prior to exiting the barricaded area. Entry and exit to the barricaded area can be maintained simply by the temporary opening of the barrier/flagging tape.

15.2 Asbestos Air Monitoring

Air monitoring will be required along the site boundaries, targeted around remediation areas during the fill excavation works. Monitoring should commence prior to the start of works and continue for the duration of the remediation works.

EIS recommend that air monitoring is undertaken on a daily basis as there is a duty to eliminate or minimise exposure to airborne asbestos and to ensure the exposure standard of 0.01 fibres/mL is not exceeded.

Air monitoring must only be carried out by personnel registered and accredited by NATA. Filter analysis must only be carried out within a NATA certified laboratory.

The monitoring results must conform to the requirements of the NOHSC Guidance note on the Membrane Filter Method for Estimating Airborne Asbestos Fibres 2nd Edition [NOHSC:3003 (2005)].

The monitoring program will be used to assess whether the control procedures being applied are satisfactory and that criteria for airborne asbestos fibre levels are not being exceeded.

The following levels will be used as action criteria during the air monitoring:

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

15.3 Surface Pick of Asbestos Fragments

Following the demolition of the existing buildings, any visible fragments of fibre cement and potential asbestos containing material (ACM) should be “picked” from the site surface by suitably trained personnel prior to the commencement of works. To meet the general requirements outlined in the *Managing Asbestos in or on Soils* (2014[24]) document, a grid pattern should be applied for the surface pick to ensure that the ACM is identified and removed in a systematic manner. All ACM must be securely wrapped in plastic and disposed of to a licensed facility. Disposal dockets must be retained by the contractors and copies forwarded to the Environmental Consultant.

[24] NSW WorkCover 2014, *Managing Asbestos in or on Soils*

Following completion of the surface pick, a surface clearance inspection should be undertaken by the Asbestos Consultant. A clearance inspection report should subsequently be provided prior to the commencement of the remaining development works.

16 REMEDIATION OF GENERAL SITE SURFACE AREA

Following the surface pick and issue of an asbestos clearance certificate, any site areas where the existing pavement is to remain in place during the development are not considered to require any further remediation at this time. Areas which are currently unpaved or where the existing pavement will be removed as part of the development will require remediation as detailed below.

16.1 Excavation of Fill Material and Capping

16.1.1 Remediation Details

The specific remediation details for this area are described in the table below:

Table 16-1: Excavation of Fill Material and Capping

Step	Procedure	Responsibility
1.	<u>Site Set-Up:</u> Prior to the commencement of excavation, temporary wire mesh fencing should be installed along the boundaries of the site and appropriate asbestos warning signage displayed. Areas of the site will need to be designated for a personnel decontamination zone and a barricaded asbestos work area. An asbestos removal control plan should be prepared by the Remediation Contractor and provided to the Environmental Consultant for review. Only personnel employed or directly supervised by the licenced asbestos removal contractor are to work in the barricaded asbestos removal area. Further site set up conditions and controls associated with asbestos containing soil removal/ remediation works are detailed above in Section 15.	RCC
2.	<u>Personal Protective Equipment (PPE) and Work Health and Safety (WHS):</u> Check PPE and WHS requirements prior to commencement of remediation works. The minimum PPE required for the remediation of asbestos includes the following: • Disposable coveralls rated type 5, category 3 (prEN ISO 13982–1) or equivalent. The hood must be worn; • Disposable gloves (heavy duty may be required); and • P2/P3 respirator conforming to the requirements of AS/NZS 1716:2009. PPE cannot be re-used and can only be used within the designated barricaded asbestos work area.	All personnel who have access to the site

Step	Procedure	Responsibility
	Other site/project specific PPE may be required including hard hat, covered clothing, eye protection, steel toed boots and will be dependent on the Remediation Contractor. The personnel decontamination zone must be located on the edge of the barricaded asbestos work area and include an asbestos waste bin, wet rags/wipes and a sink with soap to wash hands. Decontamination must include: • Boots and hand tools should be cleaned by wetting down in the work area; • The worker should then walk to the decontamination area; • A damp rag or wet wipe is used to wipe down the exterior surface of the coveralls; • The damp rag or wet wipe is placed in the asbestos waste bin; • The coveralls are then carefully rolled down, removed and placed in the asbestos waste bin; • Remove and dispose gloves; • The disposable respirator is removed and placed in the asbestos waste bin; • Hands are thoroughly washed with soap and water; and • After removing PPE the worker must remain in the area of the site free of soil disturbance. Machinery and equipment should be sprayed with water prior to exiting the site, preferably over the truck bay wash.	
3.	Site Preparation: Clear the area of all pavements, bricks, cobbles, boulders and other large objects.	RCC
4.	ACM Management: All recommendations outlined in the AMP should be implemented during remediation works.	RCC

Step	Procedure	Responsibility
5.	<u>Removal of the fill:</u> Remediation of the area will be undertaken as follows: • Submit an application to dispose of the fill (General Solid Waste (non-putrescible) (GSW) containing asbestos in accordance with the assigned waste classification in the EIS 2016 ESA report) to a landfill licensed by the NSW EPA to receive the waste and obtain authorisation to dispose.; • The excavation and removal of asbestos contaminated soil should be completed in accordance with the National Code of Practice "How to Manage and Control Asbestos in the Workplace", Safe Work Australia 2011; • A Class A licensed asbestos removalist should be engaged to undertake the excavation/removal works. The licenced contractor is to provide a copy of their licence and prepare an Asbestos Removal Control Plan for the site works and provide this to the Environmental Consultant for review; • Air monitoring will be required along the site boundaries targeted around remediation areas during the fill excavation works. Monitoring should commence prior to the start of works and continue daily for the duration of the works; • A water system will need to be in place to spray the excavated soil during excavation/remediation works and to decontaminate trucks entering the barricaded area. The general site area should be kept damp during remediation works; • Load the fill soil onto trucks and dispose in accordance with the assigned waste classification; and • A licensed asbestos assessor is to undertake a site clearance inspection.	RCC
6.	<u>Capping of Fill in To-be-Paved Areas:</u> Any fill material remaining on-site is potentially contaminated and should be capped to limit exposure. The building floor slab and concrete pavements can act as a suitable capping layer over the contaminated fill in built/hardstand areas. New services in built areas should be placed in trenches that have been lined with orange geo-fabric as shown on the attached Figure 3. Service trenches should be backfilled with VENM or recycled material that has been demonstrated to be free of contamination. The RCC should arrange for a survey of the area prior to placement of the visual marker layer. A final survey should be undertaken of the area after the placement of the building floor slabs and concrete pavements. The survey data should be issued to the EC for inclusions in the validation report.	RCC to arrange for the survey and provide plans to EC EC to inspect the site on regular basis during remediation and capping

Step	Procedure	Responsibility
7.	<u>Capping of Fill remaining in Landscaped Areas:</u> Any fill material remaining in landscaped areas is potentially contaminated and should be capped to limit exposure. In landscaped areas, a geo-grid such as TriAx (TX150 or TX160) or similar should be placed over the underlying fill material. A visual marker layer (geo-fabric/bidim) should be placed over the geo-grid as shown on the attached Figure 4. The geo-grid will act as a physical barrier which will limit exposure to the underlying fill. Any areas that require deep planting will need to be boxed out with geofabric/geogrid. The topsoil imported for landscaping should be placed over the geo-grid and visual marker layer as shown on the attached Figure 4. This material will act as a capping layer and should meet the importation criteria outlined in **Section 17.4.1**. The material should be checked prior to importation onto the site. A topsoil thickness of at least 0.2m will be required for shallow rooting plants. Services in this area should be placed above the visual marker as shown on the attached Figure 4. The RCC should arrange for a survey of the area prior to placement of the visual marker layer and geo-grid. A final survey should be undertaken of the area after the placement of the topsoil which will form the capping layer. The survey data should be issued to the EC for inclusions in the validation report.	RCC to arrange for the placement of the barriers and importation of clean topsoil (see Section 17.4.1). RCC also to arrange for survey of the area. EC to inspect the site on regular basis during remediation and capping
8.	<u>Contingency Plan:</u> The contingency measures outlined in **Section 18** should be implemented in the event of unexpected finds.	RCC
9.	<u>Validation Report:</u> A validation report will be prepared documenting the remediation works undertaken above. The validation report will include documentation of waste tracking, results of the validation testing and other information as applicable.	EC
10.	<u>Post Construction Environmental Management Plan (EMP):</u> An EMP should be prepared for the long term management of the containment area (the site).	EC

Step	Procedure	Responsibility
11.	Public Notification of EMP: The EMP will require notification as a condition on the Site Audit Statement and appropriate public notification established under Section 149(2) of the EP&AA Act 1979 or a covenant registered on the title to land under Section 88B of the Conveyancing Act.	PM to take legal advice Council to amend S149

16.2 Identification of Environmental Values and Potential Impacts

The following environmental values have been assessed as part of this remediation:

- **Aquatic ecosystems** – The closest receiving water body in the vicinity of the site is Prospect Creek, which predominantly sustains a freshwater ecosystem. Following remediation, the potential impact of the site on this ecosystem will be minimal.

- **Human Uses** - Groundwater is unlikely to be used as a drinking water source or for recreation uses at the site. The potential for exposure to contaminants in landscaped areas will be minimised by capping of the potentially contaminated surficial material.

16.3 Inspection Requirements

The Environmental Consultant should be present during the remediation works to assess the works and provide advice on the removal of any impacted soil.

During excavation of any fill material on-site, environmental personnel should be available to make site visits as required to inspect unexpected conditions and manage any issues associated with removal of the fill material.

The site should be inspected by the Environmental Consultant prior to and after the installation of any geo-grid and marker membrane.

16.4 Documentation

The RCC must retain all documentation associated with the remediation (e.g. landfill dockets, photographs, letters from suppliers of products, reports issued by other consultants etc). Copies of these documents must be forwarded to the Environmental Consultant on completion of the remediation for inclusion in the final validation report.

Photographs obtained prior to and after the installation of geo-grid and marker membrane should be retained and forwarded to EIS for inclusion in the final validation report.

Adequate documentation of waste tracking (excavation, stockpiling, classification, transport and disposal) should be retained by the RCC and forwarded to EIS for inclusion in the final validation report.

17 VALIDATION PLAN

Validation is necessary to demonstrate that remedial measures described in this RAP have been successful and that the site is suitable for the intended land use. The validation will be staged to facilitate the remediation works.

17.1 Environmental Management Plan (EMP)

Part of the site validation process will include the preparation of an EMP, which will be completed following the site remediation works. An appropriate public notification of the EMP will be established under Section 149(2) of the Environmental Planning and Assessment Act (1979[25]) or a covenant registered on the title to land under Section 88B of the Conveyancing Act (1919)[26].

17.2 Validation of Removal of Surface ACM Fragments

Following the surface pick detailed in Section 15, a surface clearance inspection should be undertaken by the Asbestos Consultant. A clearance inspection report should be issued for inclusion in the validation report and disposal dockets retained for any fragments of ACM from the site.

17.3 Marker Layer and Barrier System Inspections and Documentation

The primary validation tools for this project will be visual inspections and documentation of the marker layer installation in unpaved and landscaped areas. The visual marker layers must be inspected and photographed prior to placement of the overlying capping materials. Inspection notes and photographs must be included in the site validation report to demonstrate that the capping activities have been undertaken appropriately.

Details regarding the final capping thickness (i.e. base, sub-base and concrete layers, VENM and topsoil layers etc.) must be recorded and documented in the validation report.

The above information will also be recorded in the EMP so that site users are aware of the subsurface conditions.

17.4 Material Importation Requirements

17.4.1 Material for Landscaping

The proposed development may require suitable material (topsoil, nutrient-rich soil, etc.) to be imported onto the site for landscaping purposes. In our experience, this type of material generally does not meet the definition of virgin excavated natural material (VENM) as outlined in the Waste Classification Guidelines 2014.

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[25] NSW Government, (1979), *Environmental Planning and Assessment Act.* (referred to as EPAA 1979)
[26] NSW Government, (1919), *Conveyancing Act.* (referred to as Conveyancing Act)

In order to minimise the risk of importing potentially contaminated material onto the site, the following measures should be adopted:

- A reputable supplier of landscaped material should be contacted to identify suitable material for importation;
- Prior to the importation of the material, the following documentation should be obtained from the supplier:
  - Documentation from the source site indicating that the material is VENM or natural soil;
  - Regular laboratory testing data indicating that the material is not contaminated. The laboratory testing results should be reviewed by the Environmental Consultant; and
  - Product details and other documents.

An inspection of the source material should be undertaken prior to importation onto the site.

- The analytical data should be assessed against the site specific VAC;
- Provided that the analysis results do not exceed the VAC, the material can be imported onto the site and stockpiled away from the remediation area or any other stockpiles located on site;
- Upon importation, the material should be inspected to confirm that the material is the same as what was initially sampled/supplied and is 'free from evidence of contamination'; and
- Some QA/QC samples of the imported material should be obtained and analysed to confirm the status of the material.

17.4.2 Material Imported for Construction of Working Platforms

Material classed as VENM should be imported onto the site to use as backfill, platforms or ramps provided it meets the requirements outlined below:

Importation of Virgin Excavated Natural Material (VENM)

The Waste Classification Guidelines 2014 define VENM as natural material (such as clay, gravel, sand, soil or rock fines):

- 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.

The following procedures should be adopted for all imported material:

- An inspection of the source site to confirm and document that:
  - Historical and current use of the site has not resulted in contamination of the site;
  - Potential acid sulfate soil materials are not present at the site;

  - The appearance of material excavated from the site is consistent with natural material, i.e. relatively homogenous and without any debris (any fill material should have been removed prior to the inspection);
  - The physical characteristics of the material to be imported, i.e. soil/rock description, colour, etc. This should be confirmed by photographic documentation;
- Source sites should be inspected by an experienced consultant and any relevant reports should be reviewed, prior to acceptance of any material onto the site;
- All material imported as VENM should be accompanied by analytical data showing that the material has been analysed and meets the VAC;
- The material should be inspected on arrival to confirm that the material is consistent with the documentation reviewed from the source site and is free from evidence of contamination; and
- Geotechnical advice should be sought regarding compaction so that all backfilled areas are suitable for the proposed use.

Based on the site inspection and review of any relevant documentation there are likely to be two potential scenarios for selecting an appropriate sampling density:
- The risk of the VENM being impacted by contamination is considered to be low. In this case a minimum of three samples of the VENM should be sampled and analysed from across the site; or
- The risk of the VENM being impacted by contamination is considered to be medium to high. In this case the material should be sampled and analysed in accordance with the Schedule B2 NEPM 2013 guidelines.

A suitable QA/QC procedure should be adopted.

All material importation documents should be issued to the Project Manager and the Environmental Consultant for inclusion in the validation report.

<u>Importation of Recycled Material (RM)</u>
Recycled material such as crushed concrete, bricks, AC, road base, gravel etc. may be required for the development. Such materials should only be sourced from licensed suppliers who can demonstrate that adequate testing is undertaken on a regular basis to meet the waste exemption requirements set out by the NSW EPA.

Recycled material should be accompanied by appropriate documentation verifying that the material meets the waste exemption requirements set out by the NSW EPA. The material should be inspected on arrival by the Environmental Consultant to confirm that the material is consistent with the documentation reviewed from the source site. At a minimum two (2) samples are to be analysed for heavy metals, PAHs and asbestos and forwarded to a NATA accredited laboratory for analysis. The recycled material must be quarantined until results are known. The results must satisfy the criteria specified for that particular waste exemption.

Recycled material can only be used as engineered fill in areas specified in the exemption guidelines provided it is geotechnically suitable.

All material importation documents should be issued to the Project Manager and the Environmental Consultant for inclusion in the validation report.

17.5 Validation Report

As part of the validation process, a site validation report should be prepared by the Environmental Consultant. The report should outline the remediation work undertaken at the site and any deviations to the remediation strategy. The report should summarise the results of the validation assessment and should be prepared in accordance with the Guidelines for Consultants Reporting on Contaminated Sites 2011.

The validation report should include:

- Details of the remediation works undertaken at the site;
- Sampling, analysis and quality plan (SAQP) adopted for the validation assessment;
- Details of the validation results including the analytical results assessed against the VAC;
- Details of material disposal analysis and review of contractor documentation;
- Details of material imported onto the site;
- Any deviation to the remediation strategy adopt for the study;
- Data Quality Assessment;
- Details of on-going monitoring and/or management requirements;
- Results from the additional investigation;
- Any optimisation of the remediation works; and
- A statement that the remediated site is suitable for the proposed land use.

18 CONTINGENCY PLAN

A review of the proposed remediation works has indicated that the greatest risk that may affect the success of the remediation is an unexpected find during development work.

18.1 Unexpected Finds

There is a possibility that additional hazards exist at the site. The extent of the contamination has been interpreted from point source data and a documented process of reviewing historical site activities. However, ground conditions may vary between sampling locations and additional hazards may arise as result.

Residual hazards that may exist at the site would generally be expected to be detectable through visual or olfactory means. At this site, these types of hazards may include odorous or stained hydrocarbon impacted soils, demolition waste or ash and slag contaminated soils.

The procedure to be followed in the event of an unexpected find is presented below:

- In the event of an unexpected find, all work in the immediate vicinity should cease and the client should be contacted immediately;
- Temporary barricades should be erected to isolate the area from access to the public and works;
- In the event that potentially friable asbestos material is encountered, a qualified occupational hygienist and/or asbestos consultant should be contacted;
- The client should engage the Environmental Consultant to attend the site and assess the extent of remediation that may be required and/or adequately characterise the contamination;
- In the event remediation is required, the procedures outlined within this report should be adopted where appropriate, alternatively an additional remediation action plan (RAP) should be prepared;
- An additional sampling and analytical rationale should be established by the consultant and should be implemented with reference to the relevant guideline documents; and
- Appropriate validation sampling should be undertaken and the results should be included in the validation report.

18.2 Importation Failure for VENM or Landscaping Soil Materials

Where material to be imported onto the site does not meet the importation acceptance criteria detailed in **Section 17.4**, the only option is to not accept the material. Alternative material must be sourced that meets the importation requirements.

19 SITE MANAGEMENT PLAN FOR REMEDIATION WORKS

The information outlined in this section of the RAP is for the remediation work only. The client should contact the local consent authority (council or certifier) for specific site management requirements for the overall development of the site.

19.1 Interim Site Management

A site-specific asbestos control plan should be prepared and implemented prior to the commencement of site works. The following interim measures should be adopted immediately:

- Maintain fences to prevent access to the site;
- Construct new fences following demolition of the existing buildings where necessary;
- Entrances to the site should be locked to prevent unauthorised access, tipping or dumping on the site; and
- Appropriate warning signage should be erected as required.

19.2 Project Contacts

Emergency procedures and contact telephone numbers should be displayed in a prominent position at the site entrance gate and within the main site working areas. The contacts will also facilitate registration of complaint acceptance points. The primary point for complaint acceptance will be the Project Manager (PM). The contact details of key project personnel are summarised below.

Table 19-1: Project Contacts

Task	Company	Contact Details
Project Manager (PM)	To be advised	To be advised
Remediation and Construction Contractor (RCC)	To be advised	To be advised
Environmental Consultant (EC)	Environmental Investigation Services	9888 5000
Asbestos Consultant (AC)	To be advised	To be advised
Certifier	To be advised	To be advised
NSW EPA	Pollution Line	131 555
Emergency Services	Ambulance, Police, Fire	000

19.3 Security

Prior to the commencement of site works, fencing should be installed as required to secure the remediation areas. Warning signs should be erected, which outline the PPE required for remediation work. All excavations should be clearly marked with coloured tape to reduce the risk to site personnel from injury by falling into open excavations.

19.4 Site Soil and Water Management Plan

The earthworks contractor should prepare a detailed soil and water management plan prior to the commencement of site works. Silt fences should be used to control the surface water runoff at all appropriate locations of the site. Reference should be made to the consent conditions for more details.

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

19.5 Noise and Vibration Control Plan

The guidelines for minimisation of noise on construction sites outlined in Australian Standard AS-2460 (2002[27]) should be adopted. Other measures specified in the consent conditions should also be complied with.

Noise producing machinery and equipment should only be operated between the hours approved by Council (refer to DA consent documents).

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

19.6 Dust Control Plan

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

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

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

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

- Use of water sprays on unsealed or exposed soil surfaces;
- Covering of stockpiled materials and excavation faces (particularly during periods of site inactivity and/or during windy conditions) or alternatively the erection of hessian fences around stockpiled soil or large exposed areas of soil;
- Establishment of dust screens consisting of a 2m high shade cloth or similar material secured to a chain wire fence;
- Maintenance of dust control measures to keep the facilities in good operating condition;
- Concrete surfaces brushed or washed to remove dust;
- Stopping work during strong winds;
- Loading or unloading of dry soil as close as possible to stockpiles to prevent spreading of loose material around the site; and
- The expanse of cleared land should be kept to a minimum to achieve a clean and economical working environment.

If stockpiles are to remain on-site or an excavation remains open for a period of longer than 3 days, dust monitoring should be undertaken at the site. If excessive dust is generated all site activities should cease until either wind conditions are more acceptable or a revised method of excavation/remediation is developed.

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

All equipment and machinery should be brushed or washed down before leaving the site to limit dust and sediment movement off-site. In the event of prolonged rain and lack of paved areas all vehicles should be washed down prior to exit from the site, and any soil or dirt on the wheels of the vehicles removed. Water used to clean the vehicles should be collected and tested prior to appropriate disposal under the Waste Classification Guidelines 2014.

19.7 Air Monitoring

Air monitoring should be undertaken in accordance with the Asbestos Management Plan.

19.8 Odour Control Plan

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

- Maintenance of construction equipment so that exhaust emissions comply with the Clean Air Regulations issued under the POEO Act 1997[28];
- Demolition materials and other combustible waste should not be burnt on site;
- The spraying of a solution of Biosolve™ or other appropriate product if required to suppress any odours that may be generated by excavated materials; and
- Use of protective covers (e.g. HDPE).

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

If the disturbance of contaminated soils results in odorous conditions, the following odour management plan should be implemented to limit the exposure of site personnel and surrounding residents to unpleasant odours:

- Excavation and stockpiling of material should be scheduled during periods with low winds if possible;
- Biosolve or a similar product should be sprayed on material during excavation and following stockpiling to reduce odours;
- All complaints from workers and neighbours should be logged and a response provided. Work should be rescheduled as necessary to minimise odour problems;
- The site foreman should consider the following odour control measures as outlined in NEPM 2013:
  - reduce the exposed surface of the odorous materials;
  - time excavation activities to reduce off-site nuisance (particularly during strong winds); and
  - cover exposed excavation faces overnight or during periods of low excavation activity.
- If continued complaints are received, alternative odour management strategies should be considered and implemented.

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

19.9 Health and Safety Plan

A site specific work, health and safety (WHS) plan should be prepared by the contractor for all work to be undertaken at the site. The WHS plan should meet all the requirements outlined in NSW SafeWork WHS regulations. The WHS plan also should make reference to the site-specific asbestos control plan prepared by the Asbestos Consultant for specific WHS requirements when working with ACM in soil.

As a minimum requirement, personnel must wear appropriate protective clothing, including long sleeve shirts, long trousers and steel cap boots. Gloves and dust masks should be worn when working on remediation activities. Reference should be made to the AMP for additional personal protective equipment (PPE) requirements for working with ACM in soil.

Washroom and lunchroom facilities should also be provided to allow workers to remove potential contamination from their hands and clothing prior to eating or drinking.

19.10 Waste Management

Prior to commencement of remedial works and excavation for the proposed development, the contractor should develop a waste management or recycling plan to minimise the amount of waste produced by the site. This should, as a minimum, include measures to recycle and re-use excavated material wherever possible.

19.11 Incident Management Contingency

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

19.12 Hours of Operation

Hours of operation should be those approved by Council under the development approval process. Reference should also be made to any specific conditions imposed by other consent authority and regulatory bodies.

20 CONCLUSION

EIS are of the opinion that the site can be made suitable for the proposed development provided the recommendations in this RAP are successfully implemented, including a validation assessment and preparation of an Environmental Management Plan.

20.1 Remediation Category

Site remediation can fall under the following two categories outlined in SEPP55:

Table 20-1: Remediation Category

Category	Details
Category 1	Category 1 remediation works are those undertaken in the following areas specified under Clause 9 of SEPP55: A designated development; • Carried out on land declared to be a critical habitat; • Development for which another SEPP or REP requires a development consent; or • Carried out in an area or zone classified as: ➢ Coastal Protection ➢ Conservation or heritage conservation ➢ Habitat protection, or habitat or wildlife corridor ➢ Environmental protection; ➢ Escarpment, escarpment protection or preservation; ➢ Floodway or wetland; ➢ Nature reserve, scenic area or scenic protection; etc. • Work that is not carried out in accordance with the site management provisions contained in the consent authority Development Control Plan (DCP)/Local Environmental Plan (LEP) etc. Approval is required from the consent authority for Category 1 remediation work. The RAP needs to be assessed and determined either as part of the existing DA or as a new and separate DA. Category 1 remediation work is identified as advertised development work unless the remediation work is a designated development or a state significant development (Part 6 of EPAA Regulation 1994).
Category 2	Remediation works which do not fall under the above category are classed as Category 2. Development consent is not required for Category 2 remediation works, however the consent authority should be given 30 days' notice prior to commencement of works.

As the remedial works at the site do not fit the classification of Category 1 works as detailed above, EIS considers that the works are classified as Category 2 remedial works.

21 LIMITATIONS

The report limitations are outlined below:

- EIS accepts no responsibility for any unidentified contamination issues at the site. Any unexpected problems or 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 land use. 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.

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IMPORTANT INFORMATION ABOUT THIS REPORT

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

The Report is based on a Unique Set of Project Specific Factors
This report has been prepared in response to specific project requirements as stated in the 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, egg addition of basement levels; or
- Ownership of the site changes.

EIS/J&K 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.

SITE PHOTOGRAPHS

Plate 1: the paved area between the two main buildings, and the warehouse building (20/4/2015).

Plate 2: former chemical storage area in the north-western section of the site (20/4/2015).

Plate 3: the interior of the warehouse building (20/4/2015).

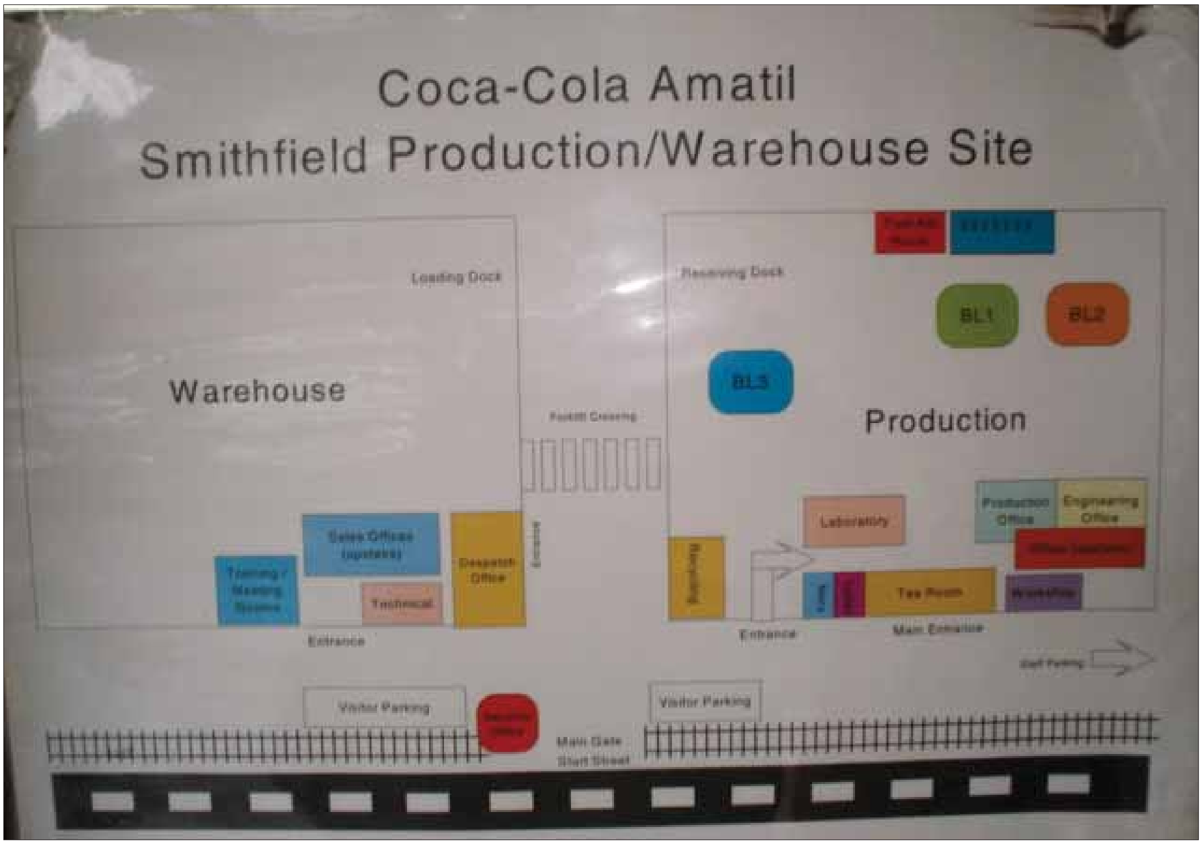
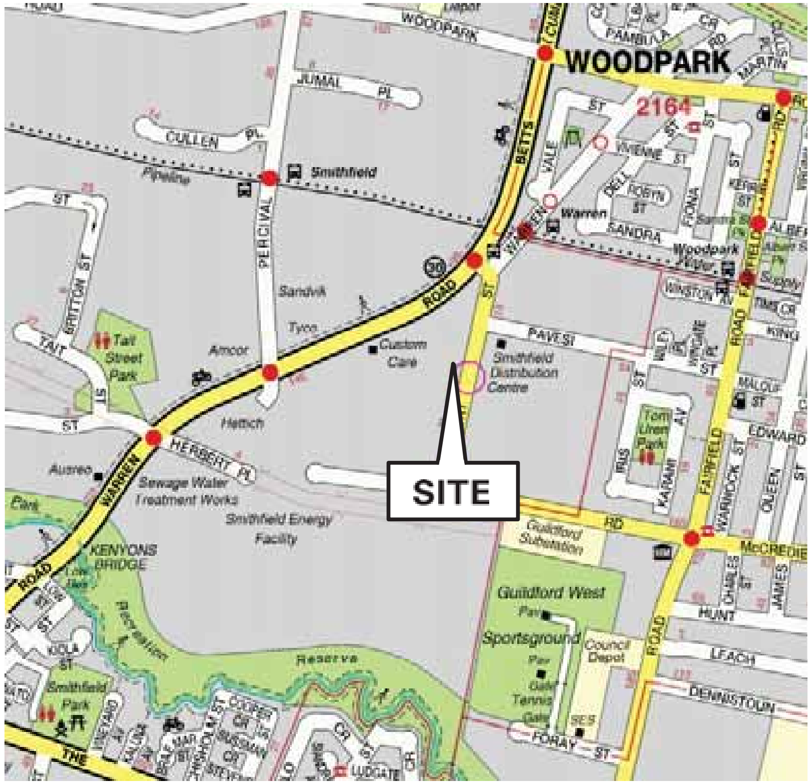


Plate 4: internal diagram showing the location of various site processes during the site's use by Coca-Cola Amatil (20/4/15).

REPORT FIGURES



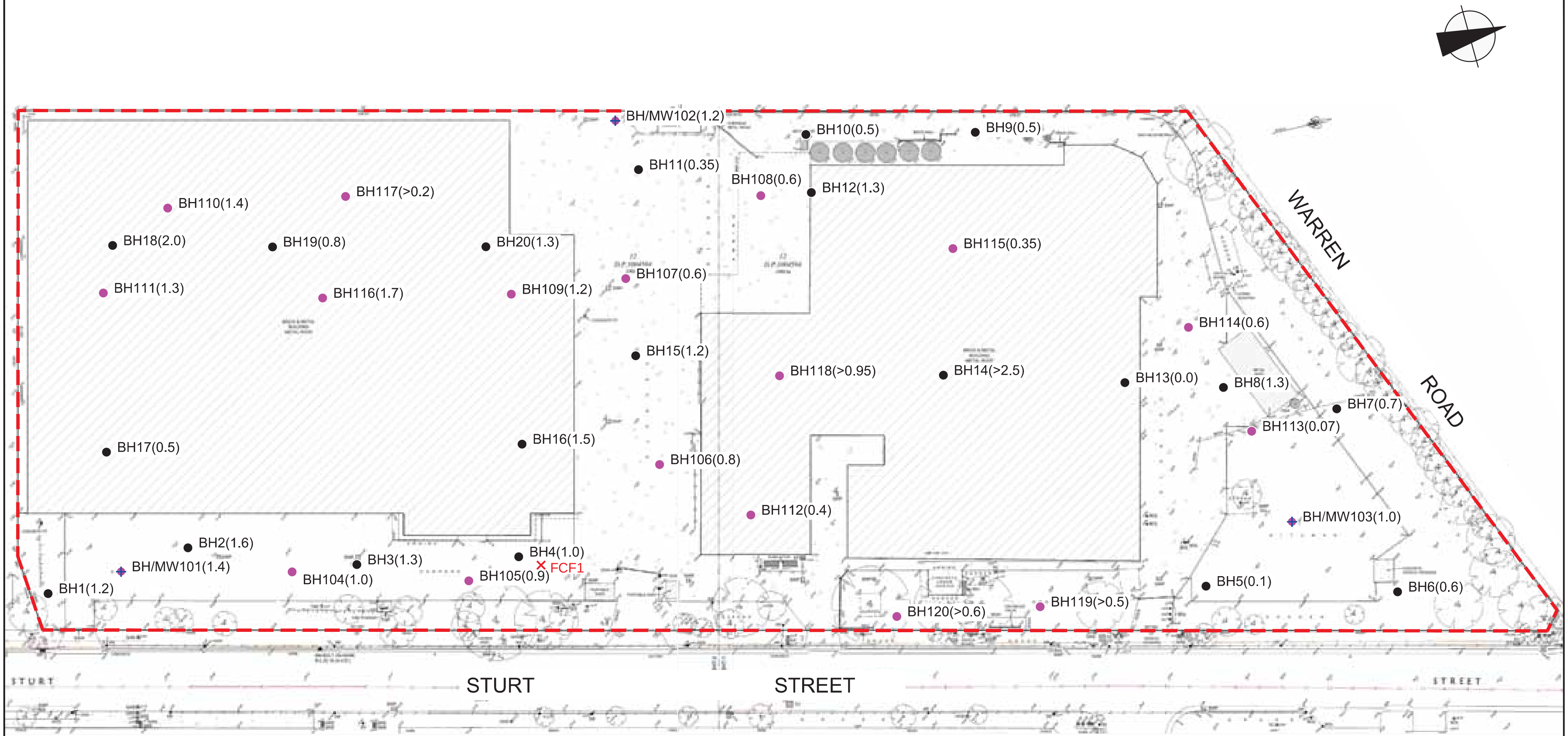
N

NOTES:
Figure has been recreated from UBD on disc (version 7.1) and http://maps.six.nsw.gov.au/.

Figure is not to scale. UBD Map ref: 229Q1 and 229Q2

Reference should be made to the report text for a full understanding of this plan.

EIS ENVIRONMENTAL INVESTIGATION SERVICES	Project Number: E28497K	Title: SITE LOCATION PLAN
	Figure: 1	Address: 15 STURT STREET, SMITHFIELD, NSW



LEGEND

	APPROXIMATE SITE BOUNDARY
BH (Fill Depth)	BOREHOLE LOCATION, NUMBER AND DEPTH OF FILL (m)
BH/MW(Fill Depth)	BOREHOLE AND GROUND WATER MONITORING WELL LOCATION, NUMBER AND DEPTH OF FILL (m)
BH (Fill Depth)	BOREHOLE LOCATION, NUMBER AND DEPTH OF FILL (m), (JK GEOTECHNICS, 2015)
× FCF	SURFACE SAMPLE - FIBRE CEMENT FRAGMENT (FCF)

0 8 16 24 32 40
SCALE 1:800 @A3 METRES

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

Title: **SAMPLE LOCATION PLAN**

Location: 15 STURT ROAD SMITHFIELD, NSW

Report No: E28497K

Figure No: 2

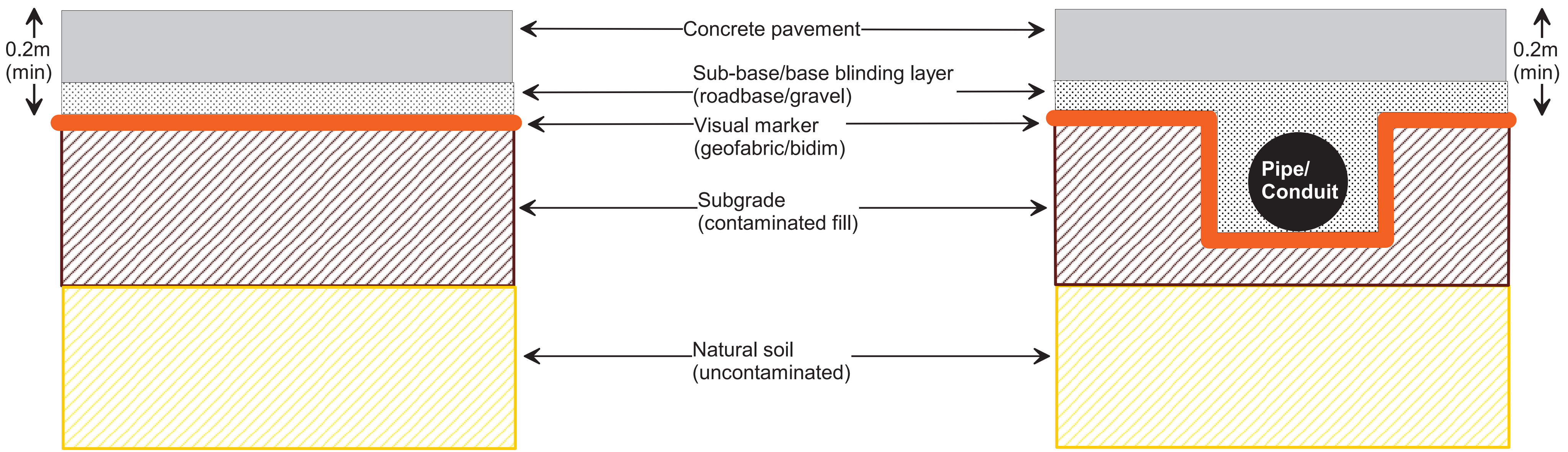
ENVIRONMENTAL INVESTIGATION SERVICES

EIS

PLOT DATE: 7/03/2017 11:09:11 AM DWG FILE: S:\5 EIS\5C EIS JOBS\28000'S\E28497K SMITHFIELD\CAD\E28497K.DWG

Example of Remedial Specification for Hardstand Areas

Example of Remedial Specification for Hardstand Areas - Services



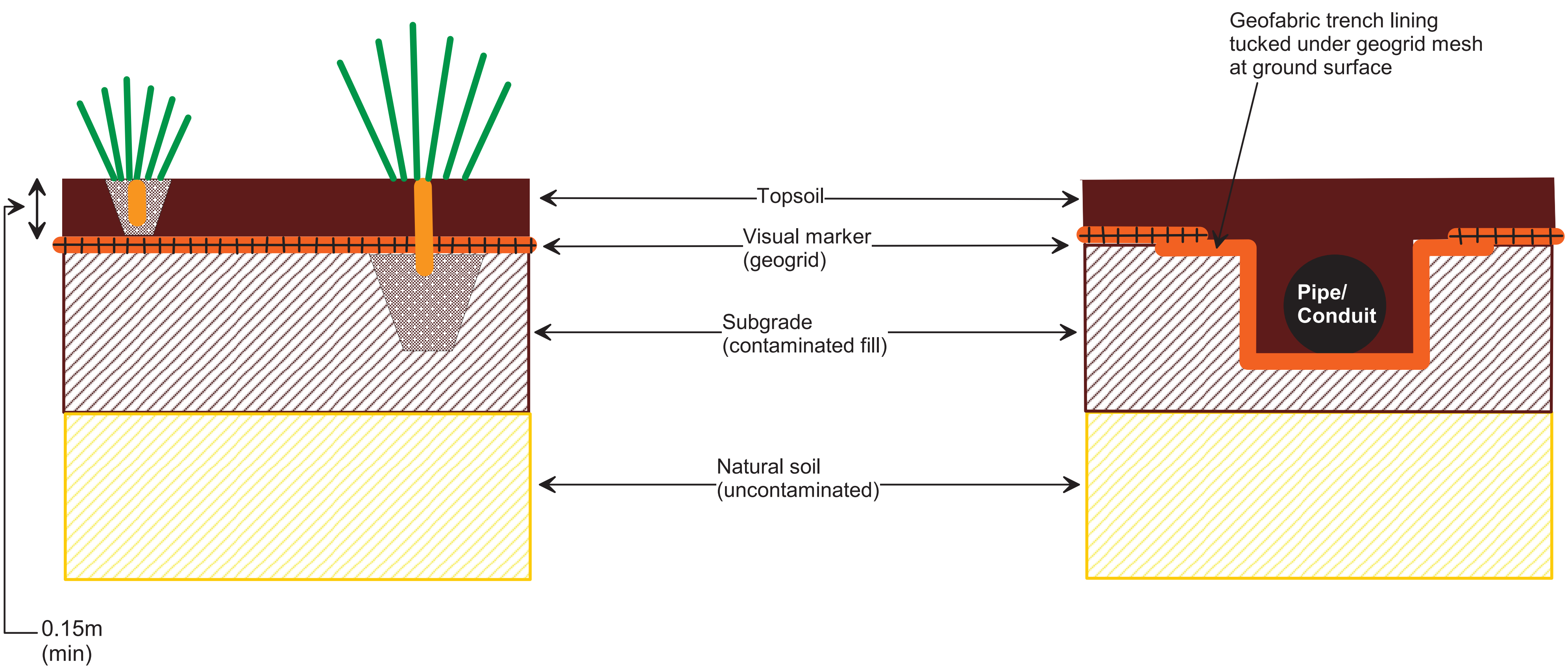
NOTES:
Sketch is indicative only. Not to scale.

Reference should be made to the report text for a full understanding of this plan.

EIS ENVIRONMENTAL INVESTIGATION SERVICES	Project Number: E28497K	Title: CAPPING SPECIFICATION, HARDSTAND AREAS AND SERVICES
	Figure: 3	Address: 1-15 STURT STREET SMITHFIELD, NSW

Example of Remedial Specification for Landscaped Areas (Section 6.5.1 of RAP)

Example of Remedial Specification for Landscaped Areas - Services (Section 6.5.2 of RAP)



NOTES:
Sketch is indicative only. Not to scale.

Reference should be made to the report text for a full understanding of this plan.

EIS ENVIRONMENTAL INVESTIGATION SERVICES	Project Number: E28497K	Title: CAPPING SPECIFICATION, LANDSCAPED AREAS AND SERVICES
	Figure: 4	Address: 1-15 STURT STREET, SMITHFIELD NSW

LABORATORY SUMMARY TABLES

EIS

TABLE A1 (BH1-BH20)
SOIL LABORATORY RESULTS COMPARED TO HILs
All data in mg/kg unless stated otherwise

			HEAVY METALS								PAHs		ORGANOCHLORINE PESTICIDES (OCPs)							OP PESTICIDES (OPPs)		
			Arsenic	Cadmium	Chromium VI [2]	Copper	Lead	Mercury	Nickel	Zinc	Total PAHs	B(a)P TEQ [3]	HCB	Endosulfan	Methoxychlor	Aldrin & Dieldrin	Chlordane	DDT, DDD & DDE	Heptachlor	Chlorpyrifos	TOTAL PCBs	ASBESTOS FIBRES
PQL - Envirolab Services			4	0.4	1	1	1	0.1	1	1	-	0.5	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	100
Site Assessment Criteria (SAC) [1]			3000	900	3600	240000	1500	730	6000	400000	4000	40	80	2000	2500	45	530	3600	50	2000	7	Detected/Not Detected
Sample Reference	**Sample Depth**	**Sample Description**																				
BH1	0.1-0.3	Fill: silty clay	7	LPQL	16	24	240	LPQL	11	230	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	No asbestos detected
BH1	1-1.2	Fill: silty clay	7	0.7	17	37	1400	LPQL	13	1100	2.4	0.6	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	NA	LPQL	No asbestos detected
BH1	1.4-1.6	Silty clay	4	LPQL	11	13	9	LPQL	3	11	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	NA
BH2	0.07-0.27	Fill: silty clay	8	0.4	19	20	230	LPQL	9	280	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	NA	LPQL	No asbestos detected
BH2	1.0-1.2	Fill: silty clay	8	0.8	18	39	820	LPQL	13	790	0.2	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	NA	LPQL	Chrysotile asbestos detected
BH2	1.6-1.8	Silty clay	7	LPQL	16	16	12	LPQL	5	15	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	NA
BH3	0.1-0.4	Fill: silty clay	7	LPQL	18	21	260	LPQL	11	290	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	NA
BH3	1.2-1.3	Fill: silty clay	5	LPQL	13	6	13	LPQL	4	17	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	NA	LPQL	No asbestos detected
BH3	1.3-1.5	Silty clay	10	LPQL	18	20	17	LPQL	5	24	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	NA
BH4	0.16-0.3	Fill: silty clay	9	LPQL	12	37	67	LPQL	11	94	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	NA	LPQL	No asbestos detected
BH4	1.2-1.5	Silty clay	LPQL	LPQL	8	13	8	LPQL	4	16	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	NA
BH5	0.02-0.1	Fill: silty gravelly clay	LPQL	LPQL	78	35	42	LPQL	76	57	0.1	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	NA	LPQL	No asbestos detected
BH5	0.2-0.4	Silty clay	4	LPQL	10	15	9	LPQL	4	13	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	NA	LPQL	NA
BH6	0.1-0.4	Fill: silty clay	6	LPQL	21	27	46	LPQL	18	65	11.77	1.2	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	NA	LPQL	No asbestos detected
BH7	0.4-0.6	Fill: silty clay	5	LPQL	36	29	170	LPQL	36	180	69.6	7.9	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	No asbestos detected
BH8	0.2-0.3	Fill: silty clay	6	LPQL	13	13	12	LPQL	5	12	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	No asbestos detected
BH9	0.2-0.3	Fill: silty clay	5	LPQL	14	9	19	LPQL	4	17	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	NA	LPQL	No asbestos detected
BH10	0.2-0.3	Fill: silty clay	6	LPQL	15	14	27	LPQL	6	47	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	No asbestos detected
BH11	0.22-0.35	Fill: silty sand	LPQL	LPQL	13	33	17	LPQL	7	38	2.6	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	NA	LPQL	No asbestos detected
BH12	0.8-0.9	Fill: clayey gravelly sand + Fragment	10	LPQL	19	13	22	LPQL	4	18	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	NA	LPQL	Chrysotile asbestos detected
BH12	1.3-1.5	Silty clay	9	LPQL	17	19	13	LPQL	4	15	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	NA	LPQL	NA
BH13	1-1.3	Silty clay	7	LPQL	11	21	10	LPQL	3	16	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	NA	LPQL	NA
BH14	0.37-0.47	Fill: clayey sand	6	LPQL	17	20	25	LPQL	8	30	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	No asbestos detected
BH15	0.3-0.5	Fill: silty clay	7	0.4	16	30	520	LPQL	9	490	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	NA	LPQL	No asbestos detected
BH16	1-1.2	Fill: silty clay	6	LPQL	14	11	81	LPQL	4	89	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	NA	LPQL	No asbestos detected
BH17	0.17-0.3	Fill: silty clay	5	LPQL	14	33	290	LPQL	12	300	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	NA	LPQL	NA
BH18	0.14-0.3	Fill: silty clay	7	1	35	52	1400	LPQL	9	2000	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	NA	LPQL	No asbestos detected
BH18	1.3-1.4	Fill: silty clay	7	1	31	40	1200	0.1	12	1100	1.1	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	NA	LPQL	No asbestos detected
BH18	2.1-2.4	Silty clay	5	LPQL	11	16	13	LPQL	4	20	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	NA
BH19	0.6-0.8	Fill: silty sandy clay	6	0.7	27	22	1100	0.2	8	1000	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	NA	LPQL	No asbestos detected
BH20	0.19-0.3	Fill: silty clay	5	0.5	30	48	620	LPQL	16	690	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	NA	LPQL	NA
F1	Surface	Material	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	Chrysotile asbestos detected
Total Number of Samples			31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	11	31	21
Maximum Value			10	1	78	52	1400	0.2	76	2000	69.6	7.9	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	NC

Explanation:

1 - Site Assessment Criteria (SAC): NEPM 2013, HIL-D: 'Commercial/Industrial'

2 - The 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.

3 - B(a)P TEQ - Benzo(a)pyrene Toxicity Equivalence Quotient has been calculated based on 8 carcinogenic PAHs and their Toxic Equivalence Factors (TEFs) outlined in NEPM 2013

Concentration above the SAC **VALUE**

Abbreviations:

PAHs: Polycyclic Aromatic Hydrocarbons
B(a)P: Benzo(a)pyrene
PQL: Practical Quantitation Limit
LPQL: Less than PQL
OPP: Organophosphorus Pesticides
OCP: Organochlorine Pesticides
PCBs: Polychlorinated Biphenyls
UCL: Upper Level Confidence Limit on Mean Value
HILs: Health Investigation Levels
NA: Not Analysed
NC: Not Calculated
NSL: No Set Limit
SAC: Site Assessment Criteria
NEPM: National Environmental Protection Measure

EIS

ME BbV E 1 (BH- 2- 0BH- 12)
SOIb bE BORE MORY RVSv bMS CON PE RVD MD HIbs
E ll : ata in mdg/d unless state: otherk ise

			HEAVY METALS								PAHs		ASBESTOS FIBRES
			Arsenic	Cadmium	Chromium VI [2]	Copper	Lead	Mercury	Nickel	Zinc	Total PAHs	B(a)P TEQ [3]	
PQL - Envirolab Services			4	0.4	1	1	1	0.1	1	1	-	0.5	100
Site Assessment Criteria (SAC) [1]			3000	900	3600	240000	1500	730	6000	400000	4000	40	Detected/Not Detected
Sample Reference	**Sample Depth**	**Sample Description**											
BH101	0.1-0.2	Fill: sandy gravel	LPQL	LPQL	48	43	49	LPQL	53	190	LPQL	LPQL	NA
BH101	0.5-0.95	Fill: silty clay	6	0.7	21	53	840	LPQL	9	750	LPQL	LPQL	Not detected
BH101	1.5-1.95	Silty clay	4	LPQL	10	5	14	LPQL	2	5	LPQL	LPQL	NA
BH102	0.5-0.95	Fill: silty clay	4	LPQL	11	15	13	LPQL	5	15	LPQL	LPQL	Not detected
BH103	0.5-0.95	Fill: silty clay	6	LPQL	10	20	23	LPQL	4	24	LPQL	LPQL	Not detected
BH104	0.5-0.95	Fill: silty clay	4	LPQL	12	18	160	LPQL	7	150	LPQL	LPQL	Not detected
BH105	0.5-0.6	Fill: silty clay	10	0.9	17	37	410	0.2	14	460	LPQL	LPQL	Not detected
BH105	1.4-1.5	Silty clay	5	LPQL	11	20	12	LPQL	5	19	LPQL	LPQL	NA
BH106	0.2-0.3	Fill: sand	LPQL	LPQL	7	7	10	LPQL	4	15	LPQL	LPQL	Not detected
BH107	0.5-0.6	Fill: silty sandy clay	LPQL	LPQL	11	10	16	LPQL	5	18	LPQL	LPQL	Not detected
BH108	0.4-0.5	Fill: silty clay	6	LPQL	14	28	650	LPQL	12	880	LPQL	LPQL	Not detected
BH108	1.2-1.3	Silty clay	6	LPQL	14	10	23	LPQL	3	24	LPQL	LPQL	NA
BH109	0.9-1.1	Fill: silty sandy clay	5	0.4	14	23	580	LPQL	7	660	1.2	LPQL	Not detected
BH109	1.9-2.1	Silty clay	8	LPQL	12	17	15	LPQL	4	20	LPQL	LPQL	NA
BH110	0.3-0.5	Fill: silty sandy clay	LPQL	0.7	14	32	620	LPQL	6	720	LPQL	LPQL	Not detected
BH110	1.2-1.5	Silty clay	5	LPQL	35	30	290	LPQL	16	500	LPQL	LPQL	NA
BH111	0.4-0.5	Fill: silty sandy clay	6	LPQL	13	42	250	LPQL	13	340	0.3	LPQL	Not detected
BH111	1.2-1.3	Fill: silty sandy clay	5	LPQL	12	36	480	LPQL	10	710	LPQL	LPQL	NA
BH112	0.2-0.3	Fill: silty clay	LPQL	LPQL	45	36	33	LPQL	49	59	11	1.4	Not detected
BH112	1.2-1.3	Silty clay	7	LPQL	16	14	18	LPQL	6	13	LPQL	LPQL	NA
BH113	0.5-0.6	Silty clay	6	LPQL	13	9	23	LPQL	3	30	LPQL	LPQL	Not detected
BH114	0.2-0.3	Fill: sandy gravel	LPQL	LPQL	8	23	19	LPQL	14	32	19	1.6	Not detected
BH114	1.2-1.3	Silty clay	7	LPQL	14	14	16	LPQL	3	13	LPQL	LPQL	NA
BH115	0.5-0.6	Silty clay	LPQL	LPQL	9	11	14	LPQL	4	21	LPQL	LPQL	Not detected
BH116	0.3-0.5	Fill: silty clay	6	0.6	13	24	780	LPQL	7	980	LPQL	LPQL	Not detected
BH116	0.9-1.1	Fill: silty clay	LPQL	LPQL	9	16	39	LPQL	1	35	LPQL	LPQL	NA
BH117	0.15-0.2	Fill: sand	5	LPQL	10	8	75	LPQL	3	81	LPQL	LPQL	Not detected
BH118	0.4-0.5	Fill: clayey sand	4	LPQL	21	18	83	LPQL	17	83	LPQL	LPQL	Not detected
BH119	0.0-0.2	Fill: silty sand	4	LPQL	16	18	50	LPQL	11	89	LPQL	LPQL	**Esxestos : etecte:**
BH120	0.0-0.2	Fill: silty sand	6	LPQL	24	20	44	LPQL	15	72	LPQL	LPQL	Not detected
FCF1	Surface	Fibre cement fragment	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	Not detected
Motal wumxer of Samples			30	30	30	30	30	30	30	30	30	30	20
N aAimum Ualue			10	0.9	48	53	840	0.2	53	980	19	1.6	NC

VAplanationL

1 - Site Assessment Criteria (SAC): NEPM 2013, HIL-D: 'Commercial/Industrial'

2 - The results are for Total Cr which includes Cr III and VI. For initial screening purposes, we have assumed that the samples contain only Cr VI unless demonstrated otherwise by additional analysis.

3 - B(a)P TEQ - Benzo(a)pyrene Toxicity Equivalence Quotient has been calculated based on 8 carcinogenic PAHs and their Toxic Equivalence Factors (TEFs) outlined in NEPM 2013

Concentration above the SAC **UE bv V**

ExxreTiationsL

PAHs: Polycyclic Aromatic Hydrocarbons
B(a)P: Benzo(a)pyrene
PQL: Practical Quantitation Limit
LPQL: Less than PQL
OPP: Organophosphorus Pesticides
OCP: Organochlorine Pesticides
PCBs: Polychlorinated Biphenyls

UCL: Upper Level Confidence Limit on Mean Value
HILs: Health Investigation Levels
NA: Not Analysed
NC: Not Calculated
NSL: No Set Limit
SAC: Site Assessment Criteria
NEPM: National Environmental Protection Measure

TABLE B1 (BH1-BH20)
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	PID [2]
PQL - Envirolab Services					25	50	0.2	0.5	1	3	1	
HSL Land Use Category [1]					COMMERCIAL/INDUSTRIAL							
Sample Reference	**Sample Depth**	**Sample Description**	**Depth Category**	**Soil Category**								
BH1	0.1-0.3	Fill: silty clay	0m to < 1m	Clay	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	0
BH1	1-1.2	Fill: silty clay	1m to <2m	Clay	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	0
BH1	1.4-1.6	Silty clay	1m to <2m	Clay	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	0
BH2	0.07-0.27	Fill: silty clay	0m to < 1m	Clay	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	0.8
BH2	1.0-1.2	Fill: silty clay	1m to <2m	Clay	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	1.5
BH2	1.6-1.8	Silty clay	1m to <2m	Clay	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	0
BH3	0.1-0.4	Fill: silty clay	0m to < 1m	Clay	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	0
BH3	1.2-1.3	Fill: silty clay	1m to <2m	Clay	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	1.1
BH3	1.3-1.5	Silty clay	1m to <2m	Clay	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	0
BH4	0.16-0.3	Fill: silty clay	0m to < 1m	Clay	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	0
BH4	1.2-1.5	Silty clay	1m to <2m	Clay	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	0
BH5	0.02-0.1	Fill: silty gravelly clay	0m to < 1m	Clay	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	0
BH5	0.2-0.4	Silty clay	0m to < 1m	Clay	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	0
BH6	0.1-0.4	Fill: silty clay	0m to < 1m	Clay	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	0
BH7	0.4-0.6	Fill: silty clay	0m to < 1m	Clay	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	0
BH8	0.2-0.3	Fill: silty clay	0m to < 1m	Clay	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	0
BH9	0.2-0.3	Fill: silty clay	0m to < 1m	Clay	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	0
BH10	0.2-0.3	Fill: silty clay	0m to < 1m	Clay	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	0
BH11	0.22-0.35	Fill: silty sand	0m to < 1m	Clay	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	0.9
BH12	0.8-0.9	Fill: clayey gravelly sand	0m to < 1m	Sand	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	0
BH12	1.3-1.5	Silty clay	1m to <2m	Clay	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	0
BH13	1-1.3	Silty clay	1m to <2m	Clay	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	1.4
BH14	0.37-0.47	Fill: clayey sand	0m to < 1m	Sand	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	1.4
BH15	0.3-0.5	Fill: silty clay	0m to < 1m	Clay	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	0
BH16	1-1.2	Fill: silty clay	0m to < 1m	Clay	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	2.4
BH17	0.17-0.3	Fill: silty clay	0m to < 1m	Clay	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	0
BH18	0.14-0.3	Fill: silty clay	0m to < 1m	Clay	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	15
BH18	1.3-1.4	Fill: silty clay	1m to <2m	Clay	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	3.8
BH18	2.1-2.4	Silty clay	2m to <4m	Clay	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	0
BH19	0.6-0.8	Fill: silty sandy clay	0m to < 1m	Clay	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	3.1
BH20	0.19-0.3	Fill: silty clay	0m to < 1m	Clay	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	1.5
Total Number of Samples					31	31	31	31	31	31	31	31
Maximum Value					LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	15

Explanation:
1 - Site Assessment Criteria (SAC): NEPM 2013
2 - Field PID values obtained during the investigation

Concentration above the SAC **VALUE**
The guideline corresponding to the elevated value is highlighted in grey in the Site Assessment Criteria Table below

Abbreviations:
UCL: Upper Level Confidence Limit on Mean Value
HSLs: Health Screening Levels
NA: Not Analysed
NC: Not Calculated
NL: Not Limiting
SAC: Site Assessment Criteria
PQL: Practical Quantitation Limit
LPQL: Less than PQL
NEPM: National Environmental Protection Measure

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	3	1
HSL Land Use Category [1]					COMMERCIAL/INDUSTRIAL						
Sample Reference	**Sample Depth**	**Sample Description**	**Depth Category**	**Soil Category**							
BH1	0.1-0.3	Fill: silty clay	0m to < 1m	Clay	310	NL	4	NL	NL	NL	NL
BH1	1-1.2	Fill: silty clay	1m to <2m	Clay	310	NL	4	NL	NL	NL	NL
BH1	1.4-1.6	Silty clay	1m to <2m	Clay	310	NL	4	NL	NL	NL	NL
BH2	0.07-0.27	Fill: silty clay	0m to < 1m	Clay	310	NL	4	NL	NL	NL	NL
BH2	1.0-1.2	Fill: silty clay	1m to <2m	Clay	310	NL	4	NL	NL	NL	NL
BH2	1.6-1.8	Silty clay	1m to <2m	Clay	310	NL	4	NL	NL	NL	NL
BH3	0.1-0.4	Fill: silty clay	0m to < 1m	Clay	310	NL	4	NL	NL	NL	NL
BH3	1.2-1.3	Fill: silty clay	1m to <2m	Clay	310	NL	4	NL	NL	NL	NL
BH3	1.3-1.5	Silty clay	1m to <2m	Clay	310	NL	4	NL	NL	NL	NL
BH4	0.16-0.3	Fill: silty clay	0m to < 1m	Clay	310	NL	4	NL	NL	NL	NL
BH4	1.2-1.5	Silty clay	1m to <2m	Clay	310	NL	4	NL	NL	NL	NL
BH5	0.02-0.1	Fill: silty gravelly clay	0m to < 1m	Clay	310	NL	4	NL	NL	NL	NL
BH5	0.2-0.4	Silty clay	0m to < 1m	Clay	310	NL	4	NL	NL	NL	NL
BH6	0.1-0.4	Fill: silty clay	0m to < 1m	Clay	310	NL	4	NL	NL	NL	NL
BH7	0.4-0.6	Fill: silty clay	0m to < 1m	Clay	310	NL	4	NL	NL	NL	NL
BH8	0.2-0.3	Fill: silty clay	0m to < 1m	Clay	310	NL	4	NL	NL	NL	NL
BH9	0.2-0.3	Fill: silty clay	0m to < 1m	Clay	310	NL	4	NL	NL	NL	NL
BH10	0.2-0.3	Fill: silty clay	0m to < 1m	Clay	310	NL	4	NL	NL	NL	NL
BH11	0.22-0.35	Fill: silty sand	0m to < 1m	Clay	310	NL	4	NL	NL	NL	NL
BH12	0.8-0.9	Fill: clayey gravelly sand	0m to < 1m	Sand	260	NL	3	NL	NL	230	NL
BH12	1.3-1.5	Silty clay	1m to <2m	Clay	310	NL	4	NL	NL	NL	NL
BH13	1-1.3	Silty clay	1m to <2m	Clay	310	NL	4	NL	NL	NL	NL
BH14	0.37-0.47	Fill: clayey sand	0m to < 1m	Sand	260	NL	3	NL	NL	230	NL
BH15	0.3-0.5	Fill: silty clay	0m to < 1m	Clay	310	NL	4	NL	NL	NL	NL
BH16	1-1.2	Fill: silty clay	0m to < 1m	Clay	310	NL	4	NL	NL	NL	NL
BH17	0.17-0.3	Fill: silty clay	0m to < 1m	Clay	310	NL	4	NL	NL	NL	NL
BH18	0.14-0.3	Fill: silty clay	0m to < 1m	Clay	310	NL	4	NL	NL	NL	NL
BH18	1.3-1.4	Fill: silty clay	1m to <2m	Clay	310	NL	4	NL	NL	NL	NL
BH18	2.1-2.4	Silty clay	2m to <4m	Clay	310	NL	4	NL	NL	NL	NL
BH19	0.6-0.8	Fill: silty sandy clay	0m to < 1m	Clay	310	NL	4	NL	NL	NL	NL
BH20	0.19-0.3	Fill: silty clay	0m to < 1m	Clay	310	NL	4	NL	NL	NL	NL

TABLE B2 (BH101-BH120)
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	PID [2]
PQL - Envirolab Services					25	50	0.2	0.5	1	3	1	
HSL Land Use Category [1]					COMMERCIAL/INDUSTRIAL							
Sample Reference	**Sample Depth**	**Sample Description**	**Depth Category**	**Soil Category**								
BH101	0.1-0.2	Fill: sandy gravel	0m to < 1m	Clay	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	NA
BH101	0.5-0.95	Fill: silty clay	0m to < 1m	Clay	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	NA
BH101	1.5-1.95	Silty clay	1m to <2m	Clay	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	NA
BH102	0.5-0.95	Fill: silty clay	0m to < 1m	Clay	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	NA
BH103	0.5-0.95	Fill: silty clay	0m to < 1m	Clay	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	NA
BH104	0.5-0.95	Fill: silty clay	0m to < 1m	Clay	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	NA
BH105	0.5-0.6	Fill: silty clay	0m to < 1m	Clay	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	NA
BH105	1.4-1.5	Silty clay	1m to <2m	Clay	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	NA
BH106	0.2-0.3	Fill: sand	0m to < 1m	Sand	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	NA
BH107	0.5-0.6	Fill: silty sandy clay	0m to < 1m	Clay	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	NA
BH108	0.4-0.5	Fill: silty clay	0m to < 1m	Clay	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	NA
BH108	1.2-1.3	Silty clay	1m to <2m	Clay	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	NA
BH109	0.9-1.1	Fill: silty sandy clay	0m to < 1m	Clay	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	NA
BH109	1.9-2.1	Silty clay	1m to <2m	Clay	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	NA
BH110	0.3-0.5	Fill: silty sandy clay	0m to < 1m	Clay	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	NA
BH110	1.2-1.5	Silty clay	1m to <2m	Clay	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	NA
BH111	0.4-0.5	Fill: silty sandy clay	0m to < 1m	Clay	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	NA
BH111	1.2-1.3	Fill: silty sandy clay	1m to <2m	Clay	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	NA
BH112	0.2-0.3	Fill: silty clay	0m to < 1m	Clay	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	NA
BH112	1.2-1.3	Silty clay	1m to <2m	Clay	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	NA
BH113	0.5-0.6	Silty clay	0m to < 1m	Clay	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	NA
BH114	0.2-0.3	Fill: sandy gravel	0m to < 1m	Sand	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	NA
BH114	1.2-1.3	Silty clay	1m to <2m	Clay	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	NA
BH115	0.5-0.6	Silty clay	0m to < 1m	Clay	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	NA
BH116	0.3-0.5	Fill: silty clay	0m to < 1m	Clay	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	NA
BH116	0.9-1.1	Fill: silty clay	0m to < 1m	Clay	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	NA
BH117	0.15-0.2	Fill: sand	0m to < 1m	Sand	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	NA
BH118	0.4-0.5	Fill: clayey sand	0m to < 1m	Sand	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	NA
BH119	0.0-0.2	Fill: silty sand	0m to < 1m	Sand	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	NA
BH120	0.0-0.2	Fill: silty sand	0m to < 1m	Sand	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	NA
Total Number of Samples					30	30	30	30	30	30	30	-
Maximum Value					LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	-

Explanation:
1 - Site Assessment Criteria (SAC): NEPM 2013
2 - Field PID values obtained during the investigation

Concentration above the SAC **VALUE**
The guideline corresponding to the elevated value is highlighted in grey in the Site Assessment Criteria Table below

Abbreviations:
UCL: Upper Level Confidence Limit on Mean Value
HSLs: Health Screening Levels
NA: Not Analysed
NC: Not Calculated
NL: Not Limiting
SAC: Site Assessment Criteria
PQL: Practical Quantitation Limit
LPQL: Less than PQL
NEPM: National Environmental Protection Measure

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	3	1
HSL Land Use Category [1]					COMMERCIAL/INDUSTRIAL						
Sample Reference	**Sample Depth**	**Sample Description**	**Depth Category**	**Soil Category**							
BH101	0.1-0.2	Fill: sandy gravel	0m to < 1m	Clay	310	NL	4	NL	NL	NL	NL
BH101	0.5-0.95	Fill: silty clay	0m to < 1m	Clay	310	NL	4	NL	NL	NL	NL
BH101	1.5-1.95	Silty clay	1m to <2m	Clay	480	NL	6	NL	NL	NL	NL
BH102	0.5-0.95	Fill: silty clay	0m to < 1m	Clay	310	NL	4	NL	NL	NL	NL
BH103	0.5-0.95	Fill: silty clay	0m to < 1m	Clay	310	NL	4	NL	NL	NL	NL
BH104	0.5-0.95	Fill: silty clay	0m to < 1m	Clay	310	NL	4	NL	NL	NL	NL
BH105	0.5-0.6	Fill: silty clay	0m to < 1m	Clay	310	NL	4	NL	NL	NL	NL
BH105	1.4-1.5	Silty clay	1m to <2m	Clay	480	NL	6	NL	NL	NL	NL
BH106	0.2-0.3	Fill: sand	0m to < 1m	Sand	260	NL	3	NL	NL	230	NL
BH107	0.5-0.6	Fill: silty sandy clay	0m to < 1m	Clay	310	NL	4	NL	NL	NL	NL
BH108	0.4-0.5	Fill: silty clay	0m to < 1m	Clay	310	NL	4	NL	NL	NL	NL
BH108	1.2-1.3	Silty clay	1m to <2m	Clay	480	NL	6	NL	NL	NL	NL
BH109	0.9-1.1	Fill: silty sandy clay	0m to < 1m	Clay	310	NL	4	NL	NL	NL	NL
BH109	1.9-2.1	Silty clay	1m to <2m	Clay	480	NL	6	NL	NL	NL	NL
BH110	0.3-0.5	Fill: silty sandy clay	0m to < 1m	Clay	310	NL	4	NL	NL	NL	NL
BH110	1.2-1.5	Silty clay	1m to <2m	Clay	480	NL	6	NL	NL	NL	NL
BH111	0.4-0.5	Fill: silty sandy clay	0m to < 1m	Clay	310	NL	4	NL	NL	NL	NL
BH111	1.2-1.3	Fill: silty sandy clay	1m to <2m	Clay	480	NL	6	NL	NL	NL	NL
BH112	0.2-0.3	Fill: silty clay	0m to < 1m	Clay	310	NL	4	NL	NL	NL	NL
BH112	1.2-1.3	Silty clay	1m to <2m	Clay	480	NL	6	NL	NL	NL	NL
BH113	0.5-0.6	Silty clay	0m to < 1m	Clay	310	NL	4	NL	NL	NL	NL
BH114	0.2-0.3	Fill: sandy gravel	0m to < 1m	Sand	260	NL	3	NL	NL	230	NL
BH114	1.2-1.3	Silty clay	1m to <2m	Clay	480	NL	6	NL	NL	NL	NL
BH115	0.5-0.6	Silty clay	0m to < 1m	Clay	310	NL	4	NL	NL	NL	NL
BH116	0.3-0.5	Fill: silty clay	0m to < 1m	Clay	310	NL	4	NL	NL	NL	NL
BH116	0.9-1.1	Fill: silty clay	0m to < 1m	Clay	310	NL	4	NL	NL	NL	NL
BH117	0.15-0.2	Fill: sand	0m to < 1m	Sand	260	NL	3	NL	NL	230	NL
BH118	0.4-0.5	Fill: clayey sand	0m to < 1m	Sand	260	NL	3	NL	NL	230	NL
BH119	0.0-0.2	Fill: silty sand	0m to < 1m	Sand	260	NL	3	NL	NL	230	NL
BH120	0.0-0.2	Fill: silty sand	0m to < 1m	Sand	260	NL	3	NL	NL	230	NL

EIS

TABLE C1 (BH1-BH20)
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				
			Arsenic	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Zinc	Total PAHs	B(a)P	Total Endosulfans	Chloropyrifos	Total Moderately Harmful [2]	Total Scheduled [3]	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	ASBESTOS FIBRES
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 [1]			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 [1]			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 [1]			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 [1]			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**											LPQL														
BH1	0.1-0.3	Fill: silty clay	7	LPQL	16	24	240	LPQL	11	230	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	No asbestos detected
BH1	1-1.2	Fill: silty clay	7	0.7	17	37	1400	LPQL	13	1100	2.4	0.4	LPQL	NA	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	No asbestos detected
BH1	1.4-1.6	Silty clay	4	LPQL	11	13	9	LPQL	3	11	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	NA
BH2	0.07-0.27	Fill: silty clay	8	0.4	19	20	230	LPQL	9	280	LPQL	LPQL	LPQL	NA	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	No asbestos detected
BH2	1.0-1.2	Fill: silty clay	8	0.8	18	39	820	LPQL	13	790	0.2	LPQL	LPQL	NA	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	Chrysotile asbestos detected
BH2	1.6-1.8	Silty clay	7	LPQL	16	16	12	LPQL	5	15	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	NA
BH3	0.1-0.4	Fill: silty clay	7	LPQL	18	21	260	LPQL	11	290	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	NA
BH3	1.2-1.3	Fill: silty clay	5	LPQL	13	6	13	LPQL	4	17	LPQL	LPQL	LPQL	NA	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	No asbestos detected
BH3	1.3-1.5	Silty clay	10	LPQL	18	20	17	LPQL	5	24	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	NA
BH4	0.16-0.3	Fill: silty clay	9	LPQL	12	37	67	LPQL	11	94	LPQL	LPQL	LPQL	NA	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	No asbestos detected
BH4	1.2-1.5	Silty clay	LPQL	LPQL	8	13	8	LPQL	4	16	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	NA
BH5	0.02-0.1	Fill: silty gravelly clay	LPQL	LPQL	78	35	42	LPQL	76	57	0.1	LPQL	LPQL	NA	LPQL	LPQL	LPQL	LPQL	LPQL	120	550	670	LPQL	LPQL	LPQL	LPQL	No asbestos detected
BH5	0.2-0.4	Silty clay	4	LPQL	10	15	9	LPQL	4	13	LPQL	LPQL	LPQL	NA	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	NA
BH6	0.1-0.4	Fill: silty clay	6	LPQL	21	27	46	LPQL	18	65	11.77	0.87	LPQL	NA	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	No asbestos detected
BH7	0.4-0.6	Fill: silty clay	5	LPQL	36	29	170	LPQL	36	180	69.6	5.6	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	600	550	1150	LPQL	LPQL	LPQL	LPQL	No asbestos detected
BH8	0.2-0.3	Fill: silty clay	6	LPQL	13	13	12	LPQL	5	12	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	No asbestos detected
BH9	0.2-0.3	Fill: silty clay	5	LPQL	14	9	19	LPQL	4	17	LPQL	LPQL	LPQL	NA	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	No asbestos detected
BH10	0.2-0.3	Fill: silty clay	6	LPQL	15	14	27	LPQL	6	47	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	No asbestos detected
BH11	0.22-0.35	Fill: silty sand	LPQL	LPQL	13	33	17	LPQL	7	38	2.6	0.2	LPQL	NA	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	No asbestos detected
BH12	0.8-0.9	Fill: clayey gravelly sand + Fragment	10	LPQL	19	13	22	LPQL	4	18	LPQL	LPQL	LPQL	NA	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	Chrysotile asbestos detected
BH12	1.3-1.5	Silty clay	9	LPQL	17	19	13	LPQL	4	15	LPQL	LPQL	LPQL	NA	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	NA
BH13	1-1.3	Silty clay	7	LPQL	11	21	10	LPQL	3	16	LPQL	LPQL	LPQL	NA	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	NA
BH14	0.37-0.47	Fill: clayey sand	6	LPQL	17	20	25	LPQL	8	30	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	No asbestos detected
BH15	0.3-0.5	Fill: silty clay	7	0.4	16	30	520	LPQL	9	490	LPQL	LPQL	LPQL	NA	LPQL	LPQL	LPQL	LPQL	LPQL	200	LPQL	200	LPQL	LPQL	LPQL	LPQL	No asbestos detected
BH16	1-1.2	Fill: silty clay	6	LPQL	14	11	81	LPQL	4	89	LPQL	LPQL	LPQL	NA	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	No asbestos detected
BH17	0.17-0.3	Fill: silty clay	5	LPQL	14	33	290	LPQL	12	300	LPQL	LPQL	LPQL	NA	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	NA
BH18	0.14-0.3	Fill: silty clay	7	1	35	52	1400	LPQL	9	2000	LPQL	LPQL	LPQL	NA	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	No asbestos detected
BH18	1.3-1.4	Fill: silty clay	7	1	31	40	1200	0.1	12	1100	1.1	0.2	LPQL	NA	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	No asbestos detected
BH18	2.1-2.4	Silty clay	5	LPQL	11	16	13	LPQL	4	20	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	NA
BH19	0.6-0.8	Fill: silty sandy clay	6	0.7	27	22	1100	0.2	8	1000	LPQL	LPQL	LPQL	NA	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	No asbestos detected
BH20	0.19-0.3	Fill: silty clay	5	0.5	30	48	620	LPQL	16	690	LPQL	LPQL	LPQL	NA	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	NA
F1	Surface	Material	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	Chrysotile asbestos detected
Total Number of samples			31	31	31	31	31	31	31	31	31	31	31	11	31	31	31	31	31	31	31	31	31	31	31	31	21
Maximum Value			10	1	78	52	1400	0.2	76	2000	69.6	5.6	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	600	550	1150	LPQL	LPQL	LPQL	LPQL	NC

Explanation:
[1] - NSW EPA Waste Classification Guidelines (2014)
[2] - Assessment of Total Moderately Harmful pesticides includes: Dichlorovos, Dimethoate, Fenitrothion, Ethion, Malathion and Parathion
[3] - 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

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

Abbreviations:
PAHs: Polycyclic Aromatic Hydrocarbons
B(a)P: Benzo(a)pyrene
PQL: Practical Quantitation Limit
LPQL: Less than PQL
PID: Photoionisation Detector
PCBs: Polychlorinated Biphenyls
UCL: Upper Level Confidence Limit on Mean Value
NA: Not Analysed
NC: Not Calculated
NSL: No Set Limit
SAC: Site Assessment Criteria
TRH: Total Recoverable Hydrocarbons
CT: Contaminant Threshold
SCC: Specific Contaminant Concentration
HILs: Health Investigation Levels
NEPM: National Environmental Protection Measure
BTEX: Monocyclic Aromatic Hydrocarbons

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TABLE C2 (BH101-BH120)
SOIL LABORATORY RESULTS COMPARED TO WASTE CLASSIFICATION GUIDELINES
All data in mg/kg unless stated otherwise

			HEAVY METALS								PAHs		TRH					BTEX COMPOUNDS				
			Arsenic	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Zinc	Total PAHs	B(a)P	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	ASBESTOS FIBRES
PQL - Envirolab Services			4	0.4	1	1	1	0.1	1	1	-	0.05	25	50	100	100	250	0.2	0.5	1	3	100
General Solid Waste CT1 [1]			100	20	100	NSL	100	4	40	NSL	200	0.8	650		NSL		10,000	10	288	600	1,000	-
General Solid Waste SCC1 [1]			500	100	1900	NSL	1500	50	1050	NSL	200	10	650		NSL		10,000	18	518	1,080	1,800	-
Restricted Solid Waste CT2 [1]			400	80	400	NSL	400	16	160	NSL	800	3.2	2600		NSL		40,000	40	1,152	2,400	4,000	-
Restricted Solid Waste SCC2 [1]			2000	400	7600	NSL	6000	200	4200	NSL	800	23	2600		NSL		40,000	72	2,073	4,320	7,200	-
Sample Reference	**Sample Depth**	**Sample Description**																				
BH101	0.1-0.2	Fill: sandy gravel	LPQL	LPQL	48	43	49	LPQL	53	190	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	NA
BH101	0.5-0.95	Fill: silty clay	6	0.7	21	53	840	LPQL	9	750	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	Not detected
BH101	1.5-1.95	Silty clay	4	LPQL	10	5	14	LPQL	2	5	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	NA
BH102	0.5-0.95	Fill: silty clay	4	LPQL	11	15	13	LPQL	5	15	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	Not detected
BH103	0.5-0.95	Fill: silty clay	6	LPQL	10	20	23	LPQL	4	24	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	Not detected
BH104	0.5-0.95	Fill: silty clay	4	LPQL	12	18	160	LPQL	7	150	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	Not detected
BH105	0.5-0.6	Fill: silty clay	10	0.9	17	37	410	0.2	14	460	LPQL	LPQL	LPQL	LPQL	540	1200	1740	LPQL	LPQL	LPQL	LPQL	Not detected
BH105	1.4-1.5	Silty clay	5	LPQL	11	20	12	LPQL	5	19	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	NA
BH106	0.2-0.3	Fill: sand	LPQL	LPQL	7	7	10	LPQL	4	15	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	Not detected
BH107	0.5-0.6	Fill: silty sandy clay	LPQL	LPQL	11	10	16	LPQL	5	18	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	Not detected
BH108	0.4-0.5	Fill: silty clay	6	LPQL	14	28	650	LPQL	12	880	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	Not detected
BH108	1.2-1.3	Silty clay	6	LPQL	14	10	23	LPQL	3	24	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	NA
BH109	0.9-1.1	Fill: silty sandy clay	5	0.4	14	23	580	LPQL	7	660	1.2	0.06	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	Not detected
BH109	1.9-2.1	Silty clay	8	LPQL	12	17	15	LPQL	4	20	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	NA
BH110	0.3-0.5	Fill: silty sandy clay	LPQL	0.7	14	32	620	LPQL	6	720	LPQL	LPQL	LPQL	LPQL	210	180	390	LPQL	LPQL	LPQL	LPQL	Not detected
BH110	1.2-1.5	Silty clay	5	LPQL	35	30	290	LPQL	16	500	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	NA
BH111	0.4-0.5	Fill: silty sandy clay	6	LPQL	13	42	250	LPQL	13	340	0.3	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	Not detected
BH111	1.2-1.3	Fill: silty sandy clay	5	LPQL	12	36	480	LPQL	10	710	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	NA
BH112	0.2-0.3	Fill: silty clay	LPQL	LPQL	45	36	33	LPQL	49	59	11	0.99	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	Not detected
BH112	1.2-1.3	Silty clay	7	LPQL	16	14	18	LPQL	6	13	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	NA
BH113	0.5-0.6	Silty clay	6	LPQL	13	9	23	LPQL	3	30	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	Not detected
BH114	0.2-0.3	Fill: sandy gravel	LPQL	LPQL	8	23	19	LPQL	14	32	19	1.1	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	Not detected
BH114	1.2-1.3	Silty clay	7	LPQL	14	14	16	LPQL	3	13	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	NA
BH115	0.5-0.6	Silty clay	LPQL	LPQL	9	11	14	LPQL	4	21	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	Not detected
BH116	0.3-0.5	Fill: silty clay	6	0.6	13	24	780	LPQL	7	980	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	Not detected
BH116	0.9-1.1	Fill: silty clay	LPQL	LPQL	9	16	39	LPQL	1	35	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	NA
BH117	0.15-0.2	Fill: sand	5	LPQL	10	8	75	LPQL	3	81	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	Not detected
BH118	0.4-0.5	Fill: clayey sand	4	LPQL	21	18	83	LPQL	17	83	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	Not detected
BH119	0.0-0.2	Fill: silty sand	4	LPQL	16	18	50	LPQL	11	89	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	**Asbestos detected**
BH120	0.0-0.2	Fill: silty sand	6	LPQL	24	20	44	LPQL	15	72	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	Not detected
Total Number of samples			30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	20
Maximum Value			10	0.9	48	53	840	0.2	53	980	19	1.1	LPQL	LPQL	540	1200	1740	LPQL	LPQL	LPQL	LPQL	NC

Explanation:
[1] - NSW EPA Waste Classification Guidelines, Part 1: Classifying Waste (2014)
[2] - Assessment of Total Moderately Harmful pesticides includes: Dichlorovos, Dimethoate, Fenitrothion, Ethion, Malathion and Parathion
[3] - 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

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

Abbreviations:

PAHs: Polycyclic Aromatic Hydrocarbons
B(a)P: Benzo(a)pyrene
PQL: Practical Quantitation Limit
LPQL: Less than PQL
PID: Photoionisation Detector
PCBs: Polychlorinated Biphenyls

UCL: Upper Level Confidence Limit on Mean Value
NA: Not Analysed
NC: Not Calculated
NSL: No Set Limit
SAC: Site Assessment Criteria
TRH: Total Recoverable Hydrocarbons

CT: Contaminant Threshold
SCC: Specific Contaminant Concentration
HILs: Health Investigation Levels
NEPM: National Environmental Protection Measure
BTEX: Monocyclic Aromatic Hydrocarbons

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TABLE D1 (BH1-BH20)
SOIL LABORATORY TCLP RESULTS
All data in mg/L unless stated otherwise

			Arsenic	Cadmium	Chromium	Lead	Mercury	Nickel	B(a)P
PQL - Envirolab Services			0.05	0.01	0.01	0.03	0.0005	0.02	0.001
TCLP1 - General Solid Waste [1]			5	1	5	5	0.2	2	0.04
TCLP2 - Restricted Solid Waste [1]			20	4	20	20	0.8	8	0.16
TCLP3 - Hazardous Waste [1]			>20	>4	>20	>20	>0.8	>8	>0.16
Sample Reference	**Sample Depth**	**Sample Description**							
BH1	0.1-0.3	Fill: silty clay	LPQL	LPQL	LPQL	0.06	LPQL	LPQL	LPQL
BH2	1.0-1.2	Fill: silty clay	LPQL	LPQL	LPQL	1.8	LPQL	0.03	LPQL
BH6	0.1-0.4	Fill: silty clay	LPQL	LPQL	LPQL	0.03	LPQL	LPQL	LPQL
BH7	0.4-0.6	Fill: silty clay	LPQL	LPQL	LPQL	0.06	LPQL	LPQL	LPQL
BH10	0.2-0.3	Fill: silty clay	LPQL	LPQL	LPQL	0.05	LPQL	LPQL	LPQL
BH12	0.8-0.9	Fill: silty clay	LPQL	LPQL	LPQL	0.04	LPQL	LPQL	LPQL
BH14	0.37-0.47	Fill: clayey sand	LPQL	LPQL	LPQL	0.05	LPQL	0.02	LPQL
BH16	1-1.2	Fill: silty clay	LPQL	LPQL	LPQL	0.44	LPQL	LPQL	LPQL
BH18	0.14-0.3	Fill: silty clay	LPQL	LPQL	0.01	2.4	LPQL	0.03	LPQL
BH18	1.3-1.4	Fill: silty clay	LPQL	LPQL	LPQL	1.4	LPQL	0.05	LPQL
Additional TCLP Results									
BH1	1-1.2	Fill: silty clay	NA	NA	NA	0.9	NA	NA	NA
BH2	0.07-0.27	Fill: silty clay	NA	NA	NA	1.7	NA	NA	NA
BH3	0.1-0.4	Fill: silty clay	NA	NA	NA	0.1	NA	NA	NA
BH5	0.02-0.1	Fill: silty gravelly clay	NA	NA	NA	NA	NA	LPQL	NA
BH15	0.3-0.5	Fill: silty clay	NA	NA	NA	1	NA	NA	NA
BH17	0.17-0.3	Fill: silty clay	NA	NA	NA	0.55	NA	NA	NA
BH19	0.6-0.8	Fill: silty sandy clay	NA	NA	NA	1.4	NA	NA	NA
BH20	0.19-0.3	Fill: silty clay	NA	NA	NA	1.4	NA	NA	NA
Total Number of samples			10	10	10	17	10	11	10
Maximum Value			LPQL	LPQL	0.01	2.4	LPQL	0.05	LPQL

Explanation:

1 - NSW EPA Waste Classification Guidelines (2014)

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

Abbreviations:

PQL: Practical Quantitation Limit
LPQL: Less than PQL
B(a)P: Benzo(a)pyrene
NC: Not Calculated
NA: Not Analysed
TCLP: Toxicity Characteristics Leaching Procedure

: L / PA DwB/ 1 (H(- / 1 (wH2
S0)P PL / 0 RL : 0 RO : I PY RASu P: S
L ll vata in mNMP Unless statev otherg ise

			Lead	Nickel	B(a)P
PQL - Envirolab Services			0.03	0.02	0.001
TCLP1 - General Solid Waste [1]			5	2	0.04
TCLP2 - Restricted Solid Waste [1]			20	8	0.16
TCLP3 - Hazardous Waste [1]			>20	>8	>0.16
Sample Reference	**Sample Depth**	**Sample Description**			
BH101	0.5-0.95	Fill: silty clay	1.9	NA	NA
BH104	0.5-0.95	Fill: silty clay	1.6	NA	NA
BH105	0.5-0.6	Fill: silty clay	0.33	NA	NA
BH108	0.4-0.5	Fill: silty clay	0.3	NA	NA
BH109	0.9-1.1	Fill: silty sandy clay	1	NA	NA
BH110	0.3-0.5	Fill: silty sandy clay	1.9	NA	NA
BH111	0.4-0.5	Fill: silty sandy clay	0.82	NA	NA
BH112	0.2-0.3	Fill: silty clay	NA	0.04	LPQL
BH114	0.2-0.3	Fill: sandy gravel	NA	NA	LPQL
BH116	0.3-0.5	Fill: silty clay	0.76	NA	NA
: otal V UmEer of samples			8	1	2
b adimUm CalUe			1.9	0.04	LPQL

AdplanationT

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

General Solid Waste	**CL Pu A**
Restricted Solid Waste	**CL Pu A**
Hazardous Waste	**CL Pu A**

L EErexiationsT

PQL: Practical Quantitation Limit
LPQL: Less than PQL
B(a)P: Benzo(a)pyrene
NC: Not Calculated
NA: Not Analysed
TCLP: Toxicity Characteristics Leaching Procedure

EIS

TABLE E1 (BH1 to BH20)
SOIL LABORATORY RESULTS COMPARED TO EILs AND ESLs
All data in mg/kg unless stated otherwise

Land Use Category [1]				COMMERCIAL/INDUSTRIAL																			
							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) [2]				-	-	-	NSL	13	28	NSL	5	122	NSL	NSL	NSL	NSL	NSL	NSL	NSL	NSL	NSL	NSL	NSL
Sample Reference	**Sample Depth**	**Sample Description**	**Soil Texture**																				
BH1	0.1-0.3	Fill: silty clay	Fine	NA	NA	NA	7	16	24	240	11	230	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL
BH1	1-1.2	Fill: silty clay	Fine	NA	NA	NA	7	17	37	1400	13	1100	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	0.4
BH1	1.4-1.6	Silty clay	Fine	NA	NA	NA	4	11	13	9	3	11	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL
BH2	0.07-0.27	Fill: silty clay	Fine	NA	NA	NA	8	19	20	230	9	280	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL
BH2	1.0-1.2	Fill: silty clay	Fine	NA	NA	NA	8	18	39	820	13	790	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL
BH2	1.6-1.8	Silty clay	Fine	NA	NA	NA	7	16	16	12	5	15	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL
BH3	0.1-0.4	Fill: silty clay	Fine	NA	NA	NA	7	18	21	260	11	290	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL
BH3	1.2-1.3	Fill: silty clay	Fine	NA	NA	NA	5	13	6	13	4	17	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL
BH3	1.3-1.5	Silty clay	Fine	NA	NA	NA	10	18	20	17	5	24	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL
BH4	0.16-0.3	Fill: silty clay	Fine	NA	NA	NA	9	12	37	67	11	94	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL
BH4	1.2-1.5	Silty clay	Fine	NA	NA	NA	LPQL	8	13	8	4	16	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL
BH5	0.02-0.1	Fill: silty gravelly clay	Fine	NA	NA	NA	LPQL	78	35	42	76	57	LPQL	LPQL	LPQL	LPQL	520	460	LPQL	LPQL	LPQL	LPQL	LPQL
BH5	0.2-0.4	Silty clay	Fine	NA	NA	NA	4	10	15	9	4	13	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL
BH6	0.1-0.4	Fill: silty clay	Fine	NA	NA	NA	6	21	27	46	18	65	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	0.87
BH7	0.4-0.6	Fill: silty clay	Fine	NA	NA	NA	5	36	29	170	36	180	LPQL	LPQL	LPQL	LPQL	1000	390	LPQL	LPQL	LPQL	LPQL	5.6
BH8	0.2-0.3	Fill: silty clay	Fine	NA	NA	NA	6	13	13	12	5	12	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL
BH9	0.2-0.3	Fill: silty clay	Fine	NA	NA	NA	5	14	9	19	4	17	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL
BH10	0.2-0.3	Fill: silty clay	Fine	NA	NA	NA	6	15	14	27	6	47	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL
BH11	0.22-0.35	Fill: silty sand	Fine	NA	NA	NA	LPQL	13	33	17	7	38	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	0.2
BH12	0.8-0.9	Fill: clayey gravelly sand	Coarse	NA	NA	NA	10	19	13	22	4	18	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL
BH12	1.3-1.5	Silty clay	Fine	NA	NA	NA	9	17	19	13	4	15	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL
BH13	1-1.3	Silty clay	Fine	NA	NA	NA	7	11	21	10	3	16	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL
BH14	0.37-0.47	Fill: clayey sand	Coarse	NA	NA	NA	6	17	20	25	8	30	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL
BH15	0.3-0.5	Fill: silty clay	Fine	NA	NA	NA	7	16	30	520	9	490	LPQL	LPQL	LPQL	LPQL	230	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL
BH16	1-1.2	Fill: silty clay	Fine	NA	NA	NA	6	14	11	81	4	89	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL
BH17	0.17-0.3	Fill: silty clay	Fine	NA	NA	NA	5	14	33	290	12	300	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL
BH18	0.14-0.3	Fill: silty clay	Fine	NA	NA	NA	7	35	52	1400	9	2000	LPQL	LPQL	LPQL	LPQL	130	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL
BH18	1.3-1.4	Fill: silty clay	Fine	NA	NA	NA	7	31	40	1200	12	1100	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	0.2
BH18	2.1-2.4	Silty clay	Fine	NA	NA	NA	5	11	16	13	4	20	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL
BH19	0.6-0.8	Fill: silty sandy clay	Fine	NA	NA	NA	6	27	22	1100	8	1000	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL
BH20	0.19-0.3	Fill: silty clay	Fine	NA	NA	NA	5	30	48	620	16	690	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL
Total Number of Samples				0	0	0	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31
Maximum Value				0	0	0	10	78	52	1400	76	2000	LPQL	LPQL	LPQL	LPQL	1000	460	LPQL	LPQL	LPQL	LPQL	5.6

Explanation:
1 - Site Assessment Criteria (SAC): NEPM 2013
2 - ABC Values for selected metals has 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)

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

Abbreviations:

EILs: Ecological Investigation Levels	UCL: Upper Level Confidence Limit on Mean Value	LPQL: Less than PQL	NC: Not Calculated
B(a)P: Benzo(a)pyrene	ESLs: Ecological Screening Levels	SAC: Site Assessment Criteria	NSL: No Set Limit
PQL: Practical Quantitation Limit	NA: Not Analysed	NEPM: National Environmental Protection Measure	ABC: Ambient Background Concentration

EIL AND ESL ASSESSMENT CRITERIA

Land Use Category [1]				COMMERCIAL/INDUSTRIAL																			
							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) [2]				-	-	-	NSL	13	28	NSL	5	122	NSL	NSL	NSL	NSL	NSL	NSL	NSL	NSL	NSL	NSL	NSL
Sample Reference	**Sample Depth**	**Sample Description**	**Soil Texture**																				
BH1	0.1-0.3	Fill: silty clay	Fine	NA	NA	NA	160	323	113	1800	60	232	370	640	215	170	2500	6600	95	135	185	95	1.4
BH1	1-1.2	Fill: silty clay	Fine	NA	NA	NA	160	323	113	1800	60	232	370	640	215	170	2500	6600	95	135	185	95	1.4
BH1	1.4-1.6	Silty clay	Fine	NA	NA	NA	160	323	113	1800	60	232	370	640	215	170	2500	6600	95	135	185	95	1.4
BH2	0.07-0.27	Fill: silty clay	Fine	NA	NA	NA	160	323	113	1800	60	232	370	640	215	170	2500	6600	95	135	185	95	1.4
BH2	1.0-1.2	Fill: silty clay	Fine	NA	NA	NA	160	323	113	1800	60	232	370	640	215	170	2500	6600	95	135	185	95	1.4
BH2	1.6-1.8	Silty clay	Fine	NA	NA	NA	160	323	113	1800	60	232	370	640	215	170	2500	6600	95	135	185	95	1.4
BH3	0.1-0.4	Fill: silty clay	Fine	NA	NA	NA	160	323	113	1800	60	232	370	640	215	170	2500	6600	95	135	185	95	1.4
BH3	1.2-1.3	Fill: silty clay	Fine	NA	NA	NA	160	323	113	1800	60	232	370	640	215	170	2500	6600	95	135	185	95	1.4
BH3	1.3-1.5	Silty clay	Fine	NA	NA	NA	160	323	113	1800	60	232	370	640	215	170	2500	6600	95	135	185	95	1.4
BH4	0.16-0.3	Fill: silty clay	Fine	NA	NA	NA	160	323	113	1800	60	232	370	640	215	170	2500	6600	95	135	185	95	1.4
BH4	1.2-1.5	Silty clay	Fine	NA	NA	NA	160	323	113	1800	60	232	370	640	215	170	2500	6600	95	135	185	95	1.4
BH5	0.02-0.1	Fill: silty gravelly clay	Fine	NA	NA	NA	160	323	113	1800	60	232	370	640	215	170	2500	6600	95	135	185	95	1.4
BH5	0.2-0.4	Silty clay	Fine	NA	NA	NA	160	323	113	1800	60	232	370	640	215	170	2500	6600	95	135	185	95	1.4
BH6	0.1-0.4	Fill: silty clay	Fine	NA	NA	NA	160	323	113	1800	60	232	370	640	215	170	2500	6600	95	135	185	95	1.4
BH7	0.4-0.6	Fill: silty clay	Fine	NA	NA	NA	160	323	113	1800	60	232	370	640	215	170	2500	6600	95	135	185	95	1.4
BH8	0.2-0.3	Fill: silty clay	Fine	NA	NA	NA	160	323	113	1800	60	232	370	640	215	170	2500	6600	95	135	185	95	1.4
BH9	0.2-0.3	Fill: silty clay	Fine	NA	NA	NA	160	323	113	1800	60	232	370	640	215	170	2500	6600	95	135	185	95	1.4
BH10	0.2-0.3	Fill: silty clay	Fine	NA	NA	NA	160	323	113	1800	60	232	370	640	215	170	2500	6600	95	135	185	95	1.4
BH11	0.22-0.35	Fill: silty sand	Fine	NA	NA	NA	160	323	113	1800	60	232	370	640	215	170	2500	6600	95	135	185	95	1.4
BH12	0.8-0.9	Fill: clayey gravelly sand	Coarse	NA	NA	NA	160	323	113	1800	60	232	370	640	215	170	1700	3300	75	135	165	180	1.4
BH12	1.3-1.5	Silty clay	Fine	NA	NA	NA	160	323	113	1800	60	232	370	640	215	170	2500	6600	95	135	185	95	1.4
BH13	1-1.3	Silty clay	Fine	NA	NA	NA	160	323	113	1800	60	232	370	640	215	170	2500	6600	95	135	185	95	1.4
BH14	0.37-0.47	Fill: clayey sand	Coarse	NA	NA	NA	160	323	113	1800	60	232	370	640	215	170	1700	3300	75	135	165	180	1.4
BH15	0.3-0.5	Fill: silty clay	Fine	NA	NA	NA	160	323	113	1800	60	232	370	640	215	170	2500	6600	95	135	185	95	1.4
BH16	1-1.2	Fill: silty clay	Fine	NA	NA	NA	160	323	113	1800	60	232	370	640	215	170	2500	6600	95	135	185	95	1.4
BH17	0.17-0.3	Fill: silty clay	Fine	NA	NA	NA	160	323	113	1800	60	232	370	640	215	170	2500	6600	95	135	185	95	1.4
BH18	0.14-0.3	Fill: silty clay	Fine	NA	NA	NA	160	323	113	1800	60	232	370	640	215	170	2500	6600	95	135	185	95	1.4
BH18	1.3-1.4	Fill: silty clay	Fine	NA	NA	NA	160	323	113	1800	60	232	370	640	215	170	2500	6600	95	135	185	95	1.4
BH18	2.1-2.4	Silty clay	Fine	NA	NA	NA	160	323	113	1800	60	232	370	640	215	170	2500	6600	95	135	185	95	1.4
BH19	0.6-0.8	Fill: silty sandy clay	Fine	NA	NA	NA	160	323	113	1800	60	232	370	640	215	170	2500	6600	95	135	185	95	1.4
BH20	0.19-0.3	Fill: silty clay	Fine	NA	NA	NA	160	323	113	1800	60	232	370	640	215	170	2500	6600	95	135	185	95	1.4

EL HNV V- 2H0) O) IH0) - OY
STuVNIHT RL ET RC RVS(NES vT N PL RVD ET VuNd L 1 D VSNI
L ll data in mgB/g : nless stated otherk ise

(and T:e categB,s [1]							AYED L EAvZ Q EwA(S5EI(:						vT N N VRvuL NBu1 D(SERuL M EI(:		ES(:								
				ML -	cEc k3i BNy%go -	cNs cBntent kG 3Naso	A,:enl3	cf,Bi hri	cBMMe,	(ead	Cl3beN	Xln3	CaMtfaNene	DDw	c)5c1K kH1o	/c1K5c1) kH2o	/c1)5c-8 kH o	/c-85c8K kH8o	.enQene	wBNene	EtfsNenQene	wBtaN>sNene:	.kaoP
P6(5Enyh BN0 Se,yl3e:				5	1	5	8	1	1	1	1	1	Kp1	Kp1	2u	uK	1KK	1KK	Kp2	Kpu	1	-	KpKu
Ai 0lrent . a3bg, Br nd cBn3ent, atlBn kA. co[2]				5	5	5	CS(	1-	2W	1)-	u	122	CS(	CS(	CS(	CS(	CS(	CS(	CS(	CS(	CS(	CS(	CS(
Sample Reference	**Sample Depth**	**Sample Description**	**Soil Eext: re**																				
. L 1K1	Kp15Kp2	HNF: ands g,ayeN	cBa,:e	)pu	8p8u	CA	(P6(	8W	8-	84	u-	14K	(P6(	CA	(P6(	(P6(	(P6(	(P6(	(P6(	(P6(	(P6(	(P6(	(P6(
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. L 1K-	Kpu5Kp4u	HNF: hNs 3Nas	Hme	)pu	8p8u	CA	)	1K	2K	2-	8	28	(P6(	CA	(P6(	(P6(	(P6(	(P6(	(P6(	(P6(	(P6(	(P6(	(P6(
. L 1K8	Kpu5Kp4u	HNF: hNs 3Nas	Hme	)pu	8p8u	CA	8	12	1W	1)K	9	1uK	(P6(	CA	(P6(	(P6(	(P6(	(P6(	(P6(	(P6(	(P6(	(P6(	(P6(
. L 1Ku	Kpu5Kp)	HNF: hNs 3Nas	Hme	)pu	8p8u	CA	1K	19	-9	81K	18	8)K	(P6(	CA	(P6(	(P6(	18KK	)8K	(P6(	(P6(	(P6(	(P6(	(P6(
. L 1Ku	1p851pu	ShNs 3Nas	Hme	)pu	8p8u	CA	u	11	2K	12	u	14	(P6(	CA	(P6(	(P6(	(P6(	(P6(	(P6(	(P6(	(P6(	(P6(	(P6(
. L 1K)	Kp25Kp	HNF: and	cBa,:e	)pu	8p8u	CA	(P6(	9	9	1K	8	1u	(P6(	CA	(P6(	(P6(	(P6(	(P6(	(P6(	(P6(	(P6(	(P6(	(P6(
. L 1K9	Kpu5Kp)	HNF: hNs :ands 3Nas	Hme	)pu	8p8u	CA	(P6(	11	1K	1)	u	1W	(P6(	CA	(P6(	(P6(	(P6(	(P6(	(P6(	(P6(	(P6(	(P6(	(P6(
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. L 1KW	1p251p	ShNs 3Nas	Hme	)pu	8p8u	CA	)	18	1K	2-	-	28	(P6(	CA	(P6(	(P6(	(P6(	(P6(	(P6(	(P6(	(P6(	(P6(	(P6(
. L 1K4	Kp451p1	HNF: hNs :ands 3Nas	Hme	)pu	8p8u	CA	u	18	2-	uWK	9	))K	(P6(	CA	(P6(	(P6(	(P6(	(P6(	(P6(	(P6(	(P6(	(P6(	KpK)
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. L 11K	1p251pu	ShNs 3Nas	Hme	)pu	8p8u	CA	u	-u	-K	24K	1)	uKK	(P6(	CA	(P6(	(P6(	(P6(	(P6(	(P6(	(P6(	(P6(	(P6(	(P6(
. L 111	Kp85Kpu	HNF: hNs :ands 3Nas	Hme	)pu	8p8u	CA	)	1-	82	2uK	1-	-8K	(P6(	CA	(P6(	(P6(	(P6(	(P6(	(P6(	(P6(	(P6(	(P6(	(P6(
. L 111	1p251p	HNF: hNs :ands 3Nas	Hme	)pu	8p8u	CA	u	12	-)	8WK	1K	91K	(P6(	CA	(P6(	(P6(	(P6(	(P6(	(P6(	(P6(	(P6(	(P6(	(P6(
. L 112	Kp25Kp	HNF: hNs 3Nas	Hme	)pu	8p8u	CA	(P6(	8u	-)	--	84	u4	(P6(	CA	(P6(	(P6(	(P6(	(P6(	(P6(	(P6(	(P6(	(P6(	Kp44
. L 112	1p251p	ShNs 3Nas	Hme	)pu	8p8u	CA	9	1)	18	1W	)	1-	(P6(	CA	(P6(	(P6(	(P6(	(P6(	(P6(	(P6(	(P6(	(P6(	(P6(
. L 11-	Kpu5Kp)	ShNs 3Nas	Hme	)pu	8p8u	CA	)	1-	4	2-	-	-K	(P6(	CA	(P6(	(P6(	(P6(	(P6(	(P6(	(P6(	(P6(	(P6(	(P6(
. L 118	Kp25Kp	HNF: ands g,ayeN	cBa,:e	)pu	8p8u	CA	(P6(	W	2-	14	18	-2	(P6(	CA	(P6(	(P6(	(P6(	(P6(	(P6(	(P6(	(P6(	(P6(	1p1
. L 118	1p251p	ShNs 3Nas	Hme	)pu	8p8u	CA	9	18	18	1)	-	1-	(P6(	CA	(P6(	(P6(	(P6(	(P6(	(P6(	(P6(	(P6(	(P6(	(P6(
. L 11u	Kpu5Kp)	ShNs 3Nas	Hme	)pu	8p8u	CA	(P6(	4	11	18	8	21	(P6(	CA	(P6(	(P6(	(P6(	(P6(	(P6(	(P6(	(P6(	(P6(	(P6(
. L 11)	Kp 5Kpu	HNF: hNs 3Nas	Hme	)pu	8p8u	CA	)	1-	28	9WK	9	4WK	(P6(	CA	(P6(	(P6(	(P6(	(P6(	(P6(	(P6(	(P6(	(P6(	(P6(
. L 11)	Kp451p1	HNF: hNs 3Nas	Hme	)pu	8p8u	CA	(P6(	4	1)	-4	1	-u	(P6(	CA	(P6(	(P6(	(P6(	(P6(	(P6(	(P6(	(P6(	(P6(	(P6(
. L 119	Kp1u5Kp2	HNF: and	cBa,:e	)pu	8p8u	CA	u	1K	W	9u	-	W1	(P6(	CA	(P6(	(P6(	(P6(	(P6(	(P6(	(P6(	(P6(	(P6(	(P6(
. L 11W	Kp85Kpu	HNF3Nases :and	cBa,:e	)pu	8p8u	CA	8	21	1W	W	19	W	(P6(	CA	(P6(	(P6(	(P6(	(P6(	(P6(	(P6(	(P6(	(P6(	(P6(
. L 114	KpK5Kp2	HNF: hNs :and	cBa,:e	)pu	8p8u	CA	8	1)	1W	uK	11	W4	(P6(	CA	(P6(	(P6(	(P6(	(P6(	(P6(	(P6(	(P6(	(P6(	(P6(
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VxplanationA
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2 5A. c vaNe: lB, :eNe3ted i etaN f a: 0een adBMted l, Bi tf e Mr0Nef ed 0a3bg, Br nd 3Bn3ent, atlBn: Me:ented ln V NOBz s etpaNprk144uomw, a3e ENei ent cBn3ent, atlBn: ln SBlN l, Bi Rr, aNand T, 0an Cez SBr tf U aNe: ktf e 2utf Me, 3entlNe yaNe: lB, BNd :r0r, 0: z htf fhgf t, alll3 f aye 0een qr Btedo
- 5Aye, age yaNe taben l, Bi tz B :eNe3ted :ai MNe:p

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L UUrebiationsA
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. L 1K1	1pu51p4u	ShNs 3Nas	Hme	)pu	8p8u	CA	1)K	-2-	1)W	14)-	)K	8W2	-9K	55	21u	19K	2uKK	))KK	4u	1-u	1Wu	4u	1p8
. L 1K2	Kpu5Kp4u	HNF: hNs 3Nas	Hme	)pu	8p8u	CA	1)K	-2-	1)W	14)-	)K	8W2	-9K	55	21u	19K	2uKK	))KK	4u	1-u	1Wu	4u	1p8
. L 1K-	Kpu5Kp4u	HNF: hNs 3Nas	Hme	)pu	8p8u	CA	1)K	-2-	1)W	14)-	)K	8W2	-9K	55	21u	19K	2uKK	))KK	4u	1-u	1Wu	4u	1p8
. L 1K8	Kpu5Kp4u	HNF: hNs 3Nas	Hme	)pu	8p8u	CA	1)K	-2-	1)W	14)-	)K	8W2	-9K	55	21u	19K	2uKK	))KK	4u	1-u	1Wu	4u	1p8
. L 1Ku	Kpu5Kp)	HNF: hNs 3Nas	Hme	)pu	8p8u	CA	1)K	-2-	1)W	14)-	)K	8W2	-9K	55	21u	19K	2uKK	))KK	4u	1-u	1Wu	4u	1p8
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. L 1K)	Kp25Kp	HNF: and	cBa,:e	)pu	8p8u	CA	1)K	-2-	1)W	14)-	)K	8W2	-9K	55	21u	19K	19KK	--KK	9u	1-u	1)u	1WK	1p8
. L 1K9	Kpu5Kp)	HNF: hNs :ands 3Nas	Hme	)pu	8p8u	CA	1)K	-2-	1)W	14)-	)K	8W2	-9K	55	21u	19K	2uKK	))KK	4u	1-u	1Wu	4u	1p8
. L 1KW	Kp85Kpu	HNF: hNs 3Nas	Hme	)pu	8p8u	CA	1)K	-2-	1)W	14)-	)K	8W2	-9K	55	21u	19K	2uKK	))KK	4u	1-u	1Wu	4u	1p8
. L 1KW	1p251p	ShNs 3Nas	Hme	)pu	8p8u	CA	1)K	-2-	1)W	14)-	)K	8W2	-9K	55	21u	19K	2uKK	))KK	4u	1-u	1Wu	4u	1p8
. L 1K4	Kp451p1	HNF: hNs :ands 3Nas	Hme	)pu	8p8u	CA	1)K	-2-	1)W	14)-	)K	8W2	-9K	55	21u	19K	2uKK	))KK	4u	1-u	1Wu	4u	1p8
. L 1K4	1p452p1	ShNs 3Nas	Hme	)pu	8p8u	CA	1)K	-2-	1)W	14)-	)K	8W2	-9K	55	21u	19K	2uKK	))KK	4u	1-u	1Wu	4u	1p8
. L 11K	Kp 5Kpu	HNF: hNs :ands 3Nas	Hme	)pu	8p8u	CA	1)K	-2-	1)W	14)-	)K	8W2	-9K	55	21u	19K	2uKK	))KK	4u	1-u	1Wu	4u	1p8
. L 11K	1p251pu	ShNs 3Nas	Hme	)pu	8p8u	CA	1)K	-2-	1)W	14)-	)K	8W2	-9K	55	21u	19K	2uKK	))KK	4u	1-u	1Wu	4u	1p8
. L 111	Kp85Kpu	HNF: hNs :ands 3Nas	Hme	)pu	8p8u	CA	1)K	-2-	1)W	14)-	)K	8W2	-9K	55	21u	19K	2uKK	))KK	4u	1-u	1Wu	4u	1p8
. L 111	1p251p	HNF: hNs :ands 3Nas	Hme	)pu	8p8u	CA	1)K	-2-	1)W	14)-	)K	8W2	-9K	55	21u	19K	2uKK	))KK	4u	1-u	1Wu	4u	1p8
. L 112	Kp25Kp	HNF: hNs 3Nas	Hme	)pu	8p8u	CA	1)K	-2-	1)W	14)-	)K	8W2	-9K	55	21u	19K	2uKK	))KK	4u	1-u	1Wu	4u	1p8
. L 112	1p251p	ShNs 3Nas	Hme	)pu	8p8u	CA	1)K	-2-	1)W	14)-	)K	8W2	-9K	55	21u	19K	2uKK	))KK	4u	1-u	1Wu	4u	1p8
. L 11-	Kpu5Kp)	ShNs 3Nas	Hme	)pu	8p8u	CA	1)K	-2-	1)W	14)-	)K	8W2	-9K	55	21u	19K	2uKK	))KK	4u	1-u	1Wu	4u	1p8
. L 118	Kp25Kp	HNF: ands g,ayeN	cBa,:e	)pu	8p8u	CA	1)K	-2-	1)W	14)-	)K	8W2	-9K	55	21u	19K	19KK	--KK	9u	1-u	1)u	1WK	1p8
. L 118	1p251p	ShNs 3Nas	Hme	)pu	8p8u	CA	1)K	-2-	1)W	14)-	)K	8W2	-9K	55	21u	19K	2uKK	))KK	4u	1-u	1Wu	4u	1p8
. L 11u	Kpu5Kp)	ShNs 3Nas	Hme	)pu	8p8u	CA	1)K	-2-	1)W	14)-	)K	8W2	-9K	55	21u	19K	2uKK	))KK	4u	1-u	1Wu	4u	1p8
. L 11)	Kp 5Kpu	HNF: hNs 3Nas	Hme	)pu	8p8u	CA	1)K	-2-	1)W	14)-	)K	8W2	-9K	55	21u	19K	2uKK	))KK	4u	1-u	1Wu	4u	1p8
. L 11)	Kp451p1	HNF: hNs 3Nas	Hme	)pu	8p8u	CA	1)K	-2-	1)W	14)-	)K	8W2	-9K	55	21u	19K	2uKK	))KK	4u	1-u	1Wu	4u	1p8
. L 119	Kp1u5Kp2	HNF: and	cBa,:e	)pu	8p8u	CA	1)K	-2-	1)W	14)-	)K	8W2	-9K	55	21u	19K	19KK	--KK	9u	1-u	1)u	1WK	1p8
. L 11W	Kp85Kpu	HNF3Nases :and	cBa,:e	)pu	8p8u	CA	1)K	-2-	1)W	14)-	)K	8W2	-9K	55	21u	19K	19KK	--KK	9u	1-u	1)u	1WK	1p8
. L 114	KpK5Kp2	HNF: hNs :and	cBa,:e	)pu	8p8u	CA	1)K	-2-	1)W	14)-	)K	8W2	-9K	55	21u	19K	19KK	--KK	9u	1-u	1)u	1WK	1p8
. L 12K	KpK5Kp2	HNF: hNs :and	cBa,:e	)pu	8p8u	CA	1)K	-2-	1)W	14)-	)K	8W2	-9K	55	21u	19K	19KK	--KK	9u	1-u	1)u	1WK	1p8

TABLE F1 (BH1-BH20)
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 = BH2 (0.07-0.27)	Arsenic	4	8	7	7.5	13
Dup Ref = JDC1	Cadmium	0.4	0.4	0.8	0.6	67
	Chromium	1	19	28	23.5	38
Envirolab Report: 129948	Copper	1	20	65	42.5	106
	Lead	1	230	890	560.0	118
	Mercury	0.1	LPQL	LPQL	NC	NC
	Nickel	1	9	13	11.0	36
	Zinc	1	280	850	565.0	101
	Naphthalene	0.1	LPQL	LPQL	NC	NC
	Acenaphthylene	0.1	LPQL	LPQL	NC	NC
	Acenaphthene	0.1	LPQL	LPQL	NC	NC
	Fluorene	0.1	LPQL	LPQL	NC	NC
	Phenanthrene	0.1	LPQL	LPQL	NC	NC
	Anthracene	0.1	LPQL	LPQL	NC	NC
	Fluoranthene	0.1	LPQL	LPQL	NC	NC
	Pyrene	0.1	LPQL	LPQL	NC	NC
	Benzo(a)anthracene	0.1	LPQL	LPQL	NC	NC
	Chrysene	0.1	LPQL	LPQL	NC	NC
	Benzo(b,j+k)fluoranthene	0.2	LPQL	LPQL	NC	NC
	Benzo(a)pyrene	0.05	LPQL	LPQL	NC	NC
	Indeno(123-cd)pyrene	0.1	LPQL	LPQL	NC	NC
	Dibenzo(ah)anthracene	0.1	LPQL	LPQL	NC	NC
	Benzo(ghi)perylene	0.1	LPQL	LPQL	NC	NC
	Benzo(a)pyrene TEQ	0.5	LPQL	LPQL	NC	NC
	Total OCPs	0.1	LPQL	LPQL	NC	NC
	Total OPPs	0.1	LPQL	LPQL	NC	NC
	Total PCBs	0.1	LPQL	LPQL	NC	NC
	TRH C_6-C_{10} (F1)	25	LPQL	LPQL	NC	NC
	TRH >C_{10}-C_{16} (F2)	50	LPQL	LPQL	NC	NC
	TRH >C_{16}-C_{34} (F3)	100	LPQL	110	80.0	75
	TRH >C_{34}-C_{40} (F4)	100	LPQL	LPQL	NC	NC
	Benzene	0.5	LPQL	LPQL	NC	NC
	Toluene	0.5	LPQL	LPQL	NC	NC
	Ethylbenzene	1	LPQL	LPQL	NC	NC
	m+p-xylene	2	LPQL	LPQL	NC	NC
	o-xylene	1	LPQL	LPQL	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

Abbreviations:

PQL: Practical Quantitation Limit
LPQL: Less than PQL
NA: Not Analysed
NC: Not Calculated
OCP: Organochlorine Pesticides
OPP: Organophosphorus Pesticides
PCBs: Polychlorinated Biphenyls
TRH: Total Recoverable Hydrocarbons

TABLE F2 (BH101-BH120)
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 = BH16 (0.3-0.5)	Arsenic	4	6	4	5.0	40
Dup Ref = DUP-AS2	Cadmium	0.4	0.6	0.6	0.6	0
	Chromium	1	13	17	15	27
Envirolab Report: #162502	Copper	1	24	28	26	15
	Lead	1	780	740	760	5
	Mercury	0.1	LPQL	LPQL	NC	NC
	Nickel	1	7	12	9.5	53
	Zinc	1	980	940	960	4
	Naphthalene	0.1	LPQL	LPQL	NC	NC
	Acenaphthylene	0.1	LPQL	LPQL	NC	NC
	Acenaphthene	0.1	LPQL	LPQL	NC	NC
	Fluorene	0.1	LPQL	LPQL	NC	NC
	Phenanthrene	0.1	LPQL	0.1	0.1	67
	Anthracene	0.1	LPQL	LPQL	NC	NC
	Fluoranthene	0.1	LPQL	0.2	0.1	120
	Pyrene	0.1	LPQL	0.2	0.1	120
	Benzo(a)anthracene	0.1	LPQL	LPQL	NC	NC
	Chrysene	0.1	LPQL	LPQL	NC	NC
	Benzo(b,j+k)fluoranthene	0.2	LPQL	LPQL	NC	NC
	Benzo(a)pyrene	0.05	LPQL	0.05	0.0	67
	Indeno(123-cd)pyrene	0.1	LPQL	LPQL	NC	NC
	Dibenzo(ah)anthracene	0.1	LPQL	LPQL	NC	NC
	Benzo(ghi)perylene	0.1	LPQL	LPQL	NC	NC
	TRH C_6-C_{10} (F1)	25	LPQL	LPQL	NC	NC
	TRH >C_{10}-C_{16} (F2)	50	LPQL	LPQL	NC	NC
	TRH >C_{16}-C_{34} (F3)	100	LPQL	LPQL	NC	NC
	TRH >C_{34}-C_{40} (F4)	100	LPQL	LPQL	NC	NC
	Benzene	0.5	LPQL	LPQL	NC	NC
	Toluene	0.5	LPQL	LPQL	NC	NC
	Ethylbenzene	1	LPQL	LPQL	NC	NC
	m+p-xylene	2	LPQL	LPQL	NC	NC
	o-xylene	1	LPQL	LPQL	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

Abbreviations:
PQL: Practical Quantitation Limit
LPQL: Less than PQL
NA: Not Analysed
NC: Not Calculated
OCP: Organochlorine Pesticides
OPP: Organophosphorus Pesticides
PCBs: Polychlorinated Biphenyls
TRH: Total Recoverable Hydrocarbons

TABLE G1 (BH1-BH20)
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 = BH3 (0.1-0.4)	Arsenic	4	4	7	4	5.5	55
Dup Ref = DUPJDC2	Cadmium	0.4	0.4	LPQL	LPQL	NC	NC
	Chromium	1	1	18	20	19.0	11
Envirolab Report: 129948-A	Copper	1	1	21	18	19.5	15
Envirolab VIC Report: 6530	Lead	1	1	260	120	190.0	74
	Mercury	0.1	0.1	LPQL	LPQL	NC	NC
	Nickel	1	1	11	16	13.5	37
	Zinc	1	1	290	140	215.0	70
	Naphthalene	0.1	0.1	LPQL	LPQL	NC	NC
	Acenaphthylene	0.1	0.1	LPQL	LPQL	NC	NC
	Acenaphthene	0.1	0.1	LPQL	LPQL	NC	NC
	Fluorene	0.1	0.1	LPQL	LPQL	NC	NC
	Phenanthrene	0.1	0.1	LPQL	LPQL	NC	NC
	Anthracene	0.1	0.1	LPQL	LPQL	NC	NC
	Fluoranthene	0.1	0.1	LPQL	LPQL	NC	NC
	Pyrene	0.1	0.1	LPQL	LPQL	NC	NC
	Benzo(a)anthracene	0.1	0.1	LPQL	LPQL	NC	NC
	Chrysene	0.1	0.1	LPQL	LPQL	NC	NC
	Benzo(b,j+k)fluoranthene	0.2	0.2	LPQL	LPQL	NC	NC
	Benzo(a)pyrene	0.05	0.05	LPQL	LPQL	NC	NC
	Indeno(123-cd)pyrene	0.1	0.1	LPQL	LPQL	NC	NC
	Dibenzo(ah)anthracene	0.1	0.1	LPQL	LPQL	NC	NC
	Benzo(ghi)perylene	0.1	0.1	LPQL	LPQL	NC	NC
	Benzo(a)pyrene TEQ	0.5	0.5	LPQL	LPQL	NC	NC
	Total OCPs	0.1	0.1	LPQL	LPQL	NC	NC
	Total OPPs	0.1	0.1	LPQL	LPQL	NC	NC
	Total PCBs	0.1	0.1	LPQL	LPQL	NC	NC
	TRH C6-C10 (F1)	25	25	LPQL	LPQL	NC	NC
	TRH >C10-C16 (F2)	50	50	LPQL	LPQL	NC	NC
	TRH >C16-C34 (F3)	100	100	LPQL	LPQL	NC	NC
	TRH >C34-C40 (F4)	100	100	LPQL	LPQL	NC	NC
	Benzene	0.5	0.5	LPQL	LPQL	NC	NC
	Toluene	0.5	0.5	LPQL	LPQL	NC	NC
	Ethylbenzene	1	1	LPQL	LPQL	NC	NC
	m+p-xylene	2	2	LPQL	LPQL	NC	NC
	o-xylene	1	1	LPQL	LPQL	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

Abbreviations:
PQL: Practical Quantitation Limit
LPQL: Less than PQL
NA: Not Analysed
NC: Not Calculated
OCP: Organochlorine Pesticides
OPP: Organophosphorus Pesticides
PCBs: Polychlorinated Biphenyls
TRH: Total Recoverable Hydrocarbons

TABLE G2 (BH101-BH120)
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 = BH101 (0.5-0.95)	Arsenic	4	4	6	7	6.5	15
Dup Ref = DUP-AS1	Cadmium	0.4	0.4	0.7	1	0.9	35
	Chromium	1	1	21	37	29	55
Envirolab Report: #162502	Copper	1	1	53	60	56.5	12
Envirolab VIC Report: #10235	Lead	1	1	840	1000	920	17
	Mercury	0.1	0.1	LPQL	0.2	0.1	120
	Nickel	1	1	9	20	14.5	76
	Zinc	1	1	750	1300	1025	54
	Naphthalene	0.1	0.1	LPQL	LPQL	NC	NC
	Acenaphthylene	0.1	0.1	LPQL	LPQL	NC	NC
	Acenaphthene	0.1	0.1	LPQL	LPQL	NC	NC
	Fluorene	0.1	0.1	LPQL	LPQL	NC	NC
	Phenanthrene	0.1	0.1	LPQL	LPQL	NC	NC
	Anthracene	0.1	0.1	LPQL	LPQL	NC	NC
	Fluoranthene	0.1	0.1	LPQL	LPQL	NC	NC
	Pyrene	0.1	0.1	LPQL	LPQL	NC	NC
	Benzo(a)anthracene	0.1	0.1	LPQL	LPQL	NC	NC
	Chrysene	0.1	0.1	LPQL	LPQL	NC	NC
	Benzo(b,j+k)fluoranthene	0.2	0.2	LPQL	LPQL	NC	NC
	Benzo(a)pyrene	0.05	0.05	LPQL	0.06	0.0	82
	Indeno(123-cd)pyrene	0.1	0.1	LPQL	LPQL	NC	NC
	Dibenzo(ah)anthracene	0.1	0.1	LPQL	LPQL	NC	NC
	Benzo(ghi)perylene	0.1	0.1	LPQL	LPQL	NC	NC
	TRH C6-C10 (F1)	25	25	LPQL	LPQL	NC	NC
	TRH >C10-C16 (F2)	50	50	LPQL	LPQL	NC	NC
	TRH >C16-C34 (F3)	100	100	LPQL	610	330	170
	TRH >C34-C40 (F4)	100	100	LPQL	170	110	109
	Benzene	0.5	0.5	LPQL	LPQL	NC	NC
	Toluene	0.5	0.5	LPQL	LPQL	NC	NC
	Ethylbenzene	1	1	LPQL	LPQL	NC	NC
	m+p-xylene	2	2	LPQL	LPQL	NC	NC
	o-xylene	1	1	LPQL	LPQL	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

Abbreviations:
PQL: Practical Quantitation Limit
LPQL: Less than PQL
NA: Not Analysed
NC: Not Calculated
OCP: Organochlorine Pesticides
OPP: Organophosphorus Pesticides
PCBs: Polychlorinated Biphenyls
TRH: Total Recoverable Hydrocarbons

TABLE H1 (BH1-BH20)
SUMMARY OF FIELD QA/QC RESULTS

ANALYSIS	Envirolab PQL		TB1 22/06/2015 129948 mg/kg	FR1 22/06/2015 129948 mg/kg
	mg/kg	µg/L		
Benzene	1	1	LPQL	LPQL
Toluene	1	1	LPQL	LPQL
Ethylbenzene	1	1	LPQL	LPQL
m+p-xylene	2	2	LPQL	LPQL
o-xylene	1	1	LPQL	LPQL

Explanation:
BTEX concentrations in trip spikes are presented as % recovery

Values above PQLs/Acceptance criteria **VALUE**

Abbreviations:
PQL: Practical Quantitation Limit
LPQL: Less than PQL
NA: Not Analysed
NC: Not Calculated
TB: Trip Blank
TS: Trip Spike
RS: Rinsate Sample
TRH: Total Recoverable Hydrocarbons

TABLE H2 (BH101-BH120 + GROUNDWATER)
SUMMARY OF FIELD QA/QC RESULTS

ANALYSIS	Envirolab PQL		$TB1^{S}$	$TB2^{S}$	TB^{W}	TS^{W}
			23/02/2017	24/02/2017	28/02/2017	28/02/2017
	mg/kg	µg/L	mg/kg	mg/kg	µS/cm	% Recovery
Benzene	1	1	LPQL	LPQL	LPQL	88%
Toluene	1	1	LPQL	LPQL	LPQL	86%
Ethylbenzene	1	1	LPQL	LPQL	LPQL	83%
m+p-xylene	2	2	LPQL	LPQL	LPQL	86%
o-xylene	1	1	LPQL	LPQL	LPQL	86%

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

Values above PQLs/Acceptance criteria **VALUE**

Abbreviations:
PQL: Practical Quantitation Limit
LPQL: Less than PQL
NA: Not Analysed
NC: Not Calculated
TB: Trip Blank
TS: Trip Spike
RS: Rinsate Sample
TRH: Total Recoverable Hydrocarbons

TABLE I
GROUNDWATER LABORATORY RESULTS COMPARED TO GILs
All results in µg/L unless stated otherwise.

	PQL Envirolab Services	GIL - ANZECC 2000 [1] Fresh Waters	SAMPLES		
			MW101	MW102	MW103
Inorganic Compounds and Parameters					
pH	0.1	6.5 - 8.5 [i]	6.3	6.8	6.9
Electrical Conductivity (µS/cm)	1	NSL	24000	6200	14000
Metals and Metalloids					
Arsenic (As III)	1	24	14	6	7
Cadmium	0.1	0.2	1	LPQL	0.2
Chromium (total)	1	3.3 [a#]	LPQL	LPQL	LPQL
Copper	1	1.4	3	2	LPQL
Lead	1	3.4	LPQL	LPQL	LPQL
Total Mercury (inorganic)	0.05	0.06	LPQL	LPQL	LPQL
Nickel	1	11	140	3	9
Zinc	1	8	130	82	78
Total Recoverable Hydrocarbons (TRH)					
C_6-C_9 (assessed using F1)	10	NSL	LPQL	LPQL	LPQL
>C_9-C_{14} (assessed using F2)	50	NSL	LPQL	LPQL	LPQL
Monocyclic Aromatic Hydrocarbons (BTEX Compounds)					
Benzene	1	950	LPQL	LPQL	LPQL
Toluene	1	180 [a]	LPQL	LPQL	LPQL
Ethylbenzene	1	80 [a]	LPQL	LPQL	LPQL
m+p-xylene	2	75 [m]	LPQL	LPQL	LPQL
o-xylene	1	350 [a]	LPQL	LPQL	LPQL
Total xylenes	2	NSL	LPQL	LPQL	LPQL
Polycyclic Aromatic Hydrocarbons (PAHs)					
Naphthalene	0.2	16 [a]	LPQL	LPQL	LPQL
Acenaphthylene	0.1	NSL	LPQL	LPQL	LPQL
Acenaphthene	0.1	NSL	LPQL	LPQL	LPQL
Fluorene	0.1	NSL	LPQL	LPQL	LPQL
Phenanthrene	0.1	0.6 [c]	LPQL	LPQL	LPQL
Anthracene	0.1	0.01 [c]	LPQL	LPQL	LPQL
Fluoranthene	0.1	1 [c]	LPQL	LPQL	LPQL
Pyrene	0.1	NSL	LPQL	LPQL	LPQL
Benzo(a)anthracene	0.1	NSL	LPQL	LPQL	LPQL
Chrysene	0.1	NSL	LPQL	LPQL	LPQL
Benzo(b,j+k)fluoranthene	0.2	NSL	LPQL	LPQL	LPQL
Benzo(a)pyrene	0.1	0.1 [c]	LPQL	LPQL	LPQL
Indeno(1,2,3-c,d)pyrene	0.1	NSL	LPQL	LPQL	LPQL
Dibenzo(a,h)anthracene	0.1	NSL	LPQL	LPQL	LPQL
Benzo(g,h,i)perylene	0.1	NSL	LPQL	LPQL	LPQL

Explanation:
1 - ANZECC Australian Water Quality Guidelines for Fresh Waters (ANZECC 2000) - Trigger Values for protection of 95% of species
a - In the absence of a high reliability guideline concentration, the moderate or low reliability guideline concentration has been quoted
a# - The GIL for Cr III has been adopted as Cr VI is relatively unstable and breaksdown rapidly
c - 99% trigger values adopted due to the potential for bioaccumulation effects
i - ANZECC 2000 - Level for NSW Lowland Rivers.
m - Guideline value adopted for m-Xylene. We note that the m-Xylene guideline value is 75ug/L and the p-Xylene guideline value is 200ug/L. However these two isomers cannot be distinguished analytically, therefore EIS have adopted the more conservative guideline value.

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

Abbreviations:

NA: Not Analysed	PQL: Practical Quantitation Limit
NSL: No Set Limit	LPQL: Less than Practical Quantitation Limit
GIL - Groundwater Investigation Levels	(-) : Not Applicable

TABLE J
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 [2]
PQL - Envirolab Services				10	50	1	1	1	3	1	
Land Use Category [1]				COMMERCIAL/INDUSTRIAL							
Sample Reference	**Water Depth**	**Depth Category[3]**	**Soil Category**								
MW101	4.05	4m to <8m	Clay	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	0
MW102	1.95	0m to <2m	Clay	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	0
MW103	2.87	2m to <4m	Clay	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	0
		FALSE									
Total Number of Samples				3	3	3	3	3	3	3	3
Maximum Value				LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL

Explanation:
1 - Groundwater Investigation Levels (GILs): NEPM 2013
2 - Field PID values obtained from the monitroing well headspace during the investigation
3 - The depth category used for calculating the HSL is based on the observed standing water levels in relation to the proposed building/basement finished floor level for the proposed development.

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

Abbreviations:
UCL: Upper Level Confidence Limit on Mean Value
HSLs: Health Screening Levels
NA: Not Analysed
NC: Not Calculated
NL: Not Limiting
PQL: Practical Quantitation Limit
LPQL: Less than PQL
SAC: Site Assessment Criteria
NEPM: National Environmental Protection Measure
SSA: Site Specific Assessment

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
Land Use Category [1]				COMMERCIAL/INDUSTRIAL						
Sample Reference	**Water Depth**	**Depth Category[3]**	**Soil Category**							
MW101	4.05	4m to <8m	Clay	NL	NL	30000	NL	NL	NL	NL
MW102	1.95	0m to <2m	Clay	NL	SSA	SSA	SSA	SSA	SSA	SSA
MW103	2.87	2m to <4m	Clay	NL	NL	30000	NL	NL	NL	NL

TABLE K
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 = #MW102	Arsenic	1	6	5	6	18.182
Dup Ref = DUP-AS1	Cadmium	0.1	LPQL	LPQL	NC	NC
	Chromium	1	LPQL	LPQL	NC	NC
Envirolab Report: #162672	Copper	1	2	1	2	67
	Lead	1	LPQL	LPQL	NC	NC
	Mercury	0.05	LPQL	LPQL	NC	NC
	Nickel	1	3	3	3	0
	Zinc	1	82	81	82	1
	Naphthalene	0.1	LPQL	LPQL	NC	NC
	Acenaphthylene	0.1	LPQL	LPQL	NC	NC
	Acenaphthene	0.1	LPQL	LPQL	NC	NC
	Fluorene	0.1	LPQL	LPQL	NC	NC
	Phenanthrene	0.1	LPQL	LPQL	NC	NC
	Anthracene	0.1	LPQL	LPQL	NC	NC
	Fluoranthene	0.1	LPQL	LPQL	NC	NC
	Pyrene	0.1	LPQL	LPQL	NC	NC
	Benzo(a)anthracene	0.1	LPQL	LPQL	NC	NC
	Chrysene	0.1	LPQL	LPQL	NC	NC
	Benzo(b,j+k)fluoranthene	0.2	LPQL	LPQL	NC	NC
	Benzo(a)pyrene	0.1	LPQL	LPQL	NC	NC
	Indeno(123-cd)pyrene	0.1	LPQL	LPQL	NC	NC
	Dibenzo(ah)anthracene	0.1	LPQL	LPQL	NC	NC
	Benzo(ghi)perylene	0.1	LPQL	LPQL	NC	NC
	TRH C6-C10 (F1)	10	LPQL	LPQL	NC	NC
	TRH >C10-C16 (F2)	50	LPQL	LPQL	NC	NC
	TRH >C16-C34 (F3)	100	LPQL	LPQL	NC	NC
	TRH >C34-C40 (F4)	100	LPQL	LPQL	NC	NC
	Benzene	1	LPQL	LPQL	NC	NC
	Toluene	1	LPQL	LPQL	NC	NC
	Ethylbenzene	1	LPQL	LPQL	NC	NC
	m+p-xylene	2	LPQL	LPQL	NC	NC
	o-xylene	1	LPQL	LPQL	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

Abbreviations:

PQL: Practical Quantitation Limit
LPQL: Less than PQL
NA: Not Analysed
NC: Not Calculated
OCP: Organochlorine Pesticides
OPP: Organophosphorus Pesticides
PCBs: Polychlorinated Biphenyls
TRH: Total Recoverable Hydrocarbons

REPORT APPENDICES

Appendix A: Borehole Logs

ENVIRONMENTAL INVESTIGATION SERVICES

CONSULTING ENVIRONMENTAL ENGINEERS

ENVIRONMENTAL LOG

Borehole No. **1**

1/1

Environmental logs are not to be used for geotechnical purposes

Client: BUNNINGS GROUP PTY LTD

Project: DUE DILIGENCE FOR PURCHASE OF PROPERTY

Location: 15 STURT STREET, SMITHFIELD, NSW

Job No. E28497K **Method:** EZIPROBE **R.L. Surface:** N/A

Date: 22-6-15 **Datum:**

Logged/Checked by: J.D.C./T.H.

Groundwater Record	SAMPLES ES	ASS	ASB	SAL	Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
DRY ON COMPLETION & AFTER 10 HRS						0			FILL: Silty clay, low to medium plasticity, light brown, trace of asphaltic concrete, tile fragments and ash.	MC≈PL			GRASS COVER
						1		CL-CH	SILTY CLAY: medium to high plasticity, light brown and orange brown, trace of fine to medium grained ironstone gravel.	MC≈PL	H	>600 500 550	
						2			GRAVELLY CLAY: medium to high plasticity, orange brown, with fine to medium grained ironstone gravel.				
									END OF BOREHOLE AT 2.4m				TEMPORARY MONITORING WELL INSTALLED TO 2.4m DEPTH. 25mm DIA. MACHINE SLOTTED PVC FROM 2.4m TO 0. 4m, CASING FROM 0.4m TO SURFACE, 2mm SAND FROM 2.4m TO SURFACE.
						3							
						4							
						5							
						6							
						7							

ENVIRONMENTAL INVESTIGATION SERVICES

CONSULTING ENVIRONMENTAL ENGINEERS

ENVIRONMENTAL LOG

Borehole No. **2**

1/1

Environmental logs are not to be used for geotechnical purposes

Client: BUNNINGS GROUP PTY LTD

Project: DUE DILIGENCE FOR PURCHASE OF PROPERTY

Location: 15 STURT STREET, SMITHFIELD, NSW

Job No. E28497K **Method:** EZIPROBE **R.L. Surface:** N/A

Date: 22-6-15 **Datum:**

Logged/Checked by: J.D.C./T.H.

Groundwater Record	Samples (ES / ASS / ASB / SAL)	Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
DRY ON COMPLETION			0			ASPHALTIC CONCRETE: 70mm.t				
						FILL: Silty clay, low to medium plasticity, light brown, trace of asphaltic concrete, tile fragments and ash.	MC≈PL			
			1							
					CL-CH	SILTY CLAY: medium to high plasticity, light brown and orange brown, trace of fine to medium grained ironstone gravel and root fibres.	MC≈PL	H		
			2			SILTY CLAY: medium to high plasticity, orange brown, with fine to coarse grained ironstone gravel.				PROBE REFUSAL ON INFERRED IRONSTONE GRAVEL
						END OF BOREHOLE AT 2.0m				
			3							
			4							
			5							
			6							
			7							

ENVIRONMENTAL INVESTIGATION SERVICES
CONSULTING ENVIRONMENTAL ENGINEERS

ENVIRONMENTAL LOG

Borehole No.
3
1/1

Environmental logs are not to be used for geotechnical purposes

Client: BUNNINGS GROUP PTY LTD
Project: DUE DILIGENCE FOR PURCHASE OF PROPERTY
Location: 15 STURT STREET, SMITHFIELD, NSW

Job No. E28497K **Method:** EZIPROBE **R.L. Surface:** N/A
Date: 22-6-15 **Datum:**
Logged/Checked by: J.D.C./T.H.

Depth (m)	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
0	-	ASPHALTIC CONCRETE: 20mm.t	D			ROADBASE
		FILL: Sandy gravel, fine to coarse grained igneous, grey.	MC≈PL			
		FILL: Silty clay, medium to high plasticity, light brown, trace of fine to coarse grained igneous gravel and tile fragments.				
		FILL: Silty clay, low to medium plasticity, light brown, trace of ash and root fibres.				POSSIBLY NATURAL
	CL-CH	SILTY CLAY: medium to high plasticity, red brown and orange brown, trace of fine to medium grained igneous gravel and root fibres.	MC≈PL	H	550 350 420	
		SILTY CLAY: medium to high plasticity, orange brown, with fine to medium grained igneous gravel.				
2.7		END OF BOREHOLE AT 2.7m				

Columns also present: Groundwater Record; SAMPLES (ES, ASS, ASB, SAL); Field Tests; Graphic Log. Depth scale: 0, 1, 2, 3, 4, 5, 6, 7.

ENVIRONMENTAL INVESTIGATION SERVICES
CONSULTING ENVIRONMENTAL ENGINEERS

ENVIRONMENTAL LOG

Borehole No. 4
1/1

Environmental logs are not to be used for geotechnical purposes

Client: BUNNINGS GROUP PTY LTD
Project: DUE DILIGENCE FOR PURCHASE OF PROPERTY
Location: 15 STURT STREET, SMITHFIELD, NSW

Job No. E28497K
Method: EZIPROBE
R.L. Surface: N/A
Date: 22-6-15
Datum:
Logged/Checked by: J.D.C./T.H

Groundwater Record	SAMPLES ES	ASS	ASB	SAL	Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
						0			ASPHALTIC CONCRETE: 160mm.t				
									FILL: Silty clay, medium to high plasticity, brown, trace of brick and tile fragments.	MC>PL			
						1		CL-CH	SILTY CLAY: medium to high plasticity, light brown and light grey, trace of root fibres.	MC≈PL	H		
										MC>PL			
										MC≈PL			
						2		-	SILTY CLAYEY GRAVEL: fine to medium grained ironstone, medium to high plasticity, trace of ash.	MC>PL			
									END OF BOREHOLE AT 2.3m				
						3							
						4							
						5							
						6							
						7							

ENVIRONMENTAL INVESTIGATION SERVICES
CONSULTING ENVIRONMENTAL ENGINEERS

Borehole No. 5
1/1

ENVIRONMENTAL LOG

Environmental logs are not to be used for geotechnical purposes

Client: BUNNINGS GROUP PTY LTD
Project: DUE DILIGENCE FOR PURCHASE OF PROPERTY
Location: 15 STURT STREET, SMITHFIELD, NSW

Job No. E28497K **Method:** EZIPROBE **R.L. Surface:** N/A
Date: 22-6-15 **Datum:**
Logged/Checked by: J.D.C./T.H

Groundwater Record	SAMPLES ES	ASS	ASB	SAL	Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
DRY ON COMPLETION						0		-	ASPHALTIC CONCRETE: 20mm.t				
									FILL: Silty sandy gravel, fine to coarse grained igneous, grey.	D			
								CL-CH	SILTY CLAY: medium to high plasticity, light brown and orange brown, trace of fine to medium grained ironstone gravel.	MC≈PL	H	>600 500 >600	
						1							
									END OF BOREHOLE AT 1.4m				
						2							
						3							
						4							
						5							
						6							
						7							

ENVIRONMENTAL INVESTIGATION SERVICES

CONSULTING ENVIRONMENTAL ENGINEERS

ENVIRONMENTAL LOG

Borehole No. **6**

1/1

Environmental logs are not to be used for geotechnical purposes

Client: BUNNINGS GROUP PTY LTD

Project: DUE DILIGENCE FOR PURCHASE OF PROPERTY

Location: 15 STURT STREET, SMITHFIELD, NSW

Job No. E28497K **Method:** EZIPROBE **R.L. Surface:** N/A

Date: 22-6-15 **Datum:**

Logged/Checked by: J.D.C./T.H.

Groundwater Record	SAMPLES ES	ASS	ASB	SAL	Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
DRY ON COMPLETION						0			FILL: Silty clay, medium to high plasticity, trace of root fibres and fine to coarse grained ironstone gravel.	MC≈PL			GRASS COVER
						1		CL-CH	SILTY CLAY: medium to high plasticity, red brown and light grey, trace of root fibres and fine to medium grained igneous gravel.	MC≈PL			
						2 3 4 5 6 7			END OF BOREHOLE AT 1.3m				

ENVIRONMENTAL INVESTIGATION SERVICES
CONSULTING ENVIRONMENTAL ENGINEERS

ENVIRONMENTAL LOG

Borehole No.
7
1/1

Environmental logs are not to be used for geotechnical purposes

Client: BUNNINGS GROUP PTY LTD
Project: DUE DILIGENCE FOR PURCHASE OF PROPERTY
Location: 15 STURT STREET, SMITHFIELD, NSW

Job No. E28497K **Method:** EZIPROBE **R.L. Surface:** N/A
Date: 22-6-15 **Datum:**
Logged/Checked by: J.D.C./T.H.

Groundwater Record	SAMPLES ES	ASS	ASB	SAL	Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
DRY ON COMPLETION						0			FILL: Silty sand, fine to medium grained, brown, trace of ash and root fibres.	M			GRASS COVER
									FILL: Silty clay, low to medium plasticity, brown trace of root fibres and fine to coarse grained igneous gravel, tile fragments and slag.	MC≈PL			
								CL	SILTY CLAY: low to medium plasticity, light grey, trace of fine grained sand fine to medium grained ironstone gravel.	MC≈PL	(VSt)	200 250 300	
						1		CL-CH	SILTY CLAY: medium to high plasticity, orange brown and light brown, trace of fine to medium grained ironstone gravel.				
						2			END OF BOREHOLE AT 1.3m				
						3							
						4							
						5							
						6							
						7							

ENVIRONMENTAL INVESTIGATION SERVICES
CONSULTING ENVIRONMENTAL ENGINEERS

ENVIRONMENTAL LOG

Borehole No. **8**

1/1

Environmental logs are not to be used for geotechnical purposes

Client: BUNNINGS GROUP PTY LTD
Project: DUE DILIGENCE FOR PURCHASE OF PROPERTY
Location: 15 STURT STREET, SMITHFIELD, NSW

Job No. E28497K | **Method:** EZIPROBE | **R.L. Surface:** N/A
Date: 22-6-15 | **Datum:**
Logged/Checked by: J.D.C./T.H.

Groundwater Record	SAMPLES ES	SAMPLES ASS	SAMPLES ASB	SAMPLES SAL	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: 170mm.t				10mm DIA. REINFORCEMENT
	■		■					-	FILL: Silty clay, medium to high plasticity, orange brown and red brown.	MC≈PL			
						1							
									END OF BORHOLE AT 1.3m				EZIPROBE REFUSAL
						2							
						3							
						4							
						5							
						6							
						7							

ENVIRONMENTAL INVESTIGATION SERVICES
CONSULTING ENVIRONMENTAL ENGINEERS

ENVIRONMENTAL LOG

Borehole No. **9**
1/1

Environmental logs are not to be used for geotechnical purposes

Client: BUNNINGS GROUP PTY LTD
Project: DUE DILIGENCE FOR PURCHASE OF PROPERTY
Location: 15 STURT STREET, SMITHFIELD, NSW

Job No. E28497K **Method:** EZIPROBE **R.L. Surface:** N/A
Date: 22-6-15 **Datum:**
Logged/Checked by: J.D.C./T.H.

Groundwater Record	SAMPLES ES	ASS	ASB	SAL	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: 170mm.t				
								-	FILL: Silty clay, low to medium plasticity, light brown, trace of fine to medium grained igneous gravel.	MC≈PL			
						1		CL-CH	SILTY CLAY: medium to high plasticity, light brown, trace of fine to medium grained ironstone gravel.	MC≈PL			
						2 3 4 5 6 7			END OF BORHOLE AT 1.3m				

ENVIRONMENTAL INVESTIGATION SERVICES
CONSULTING ENVIRONMENTAL ENGINEERS

ENVIRONMENTAL LOG

Borehole No.
10
1/1

Environmental logs are not to be used for geotechnical purposes

Client: BUNNINGS GROUP PTY LTD
Project: DUE DILIGENCE FOR PURCHASE OF PROPERTY
Location: 15 STURT STREET, SMITHFIELD, NSW

Job No. E28497K **Method:** EZIPROBE **R.L. Surface:** N/A
Date: 22-6-15 **Datum:**
Logged/Checked by: J.D.C./T.H.

Groundwater Record	SAMPLES ES	ASS	ASB	SAL	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: 160mm.t				9mm DIA. REINFORCEMENT
								-	FILL: Silty clay, low to medium plasticity, light grey, trace of ash.	MC≈PL			
						1		CL-CH	SILTY CLAY: medium to high plasticity, light brown.	MC≈PL			
						2 3 4 5 6 7			END OF BOREHOLE AT 1.5m				

ENVIRONMENTAL INVESTIGATION SERVICES
CONSULTING ENVIRONMENTAL ENGINEERS

ENVIRONMENTAL LOG

Borehole No. **11**
1/1

Environmental logs are not to be used for geotechnical purposes

Client: BUNNINGS GROUP PTY LTD
Project: DUE DILIGENCE FOR PURCHASE OF PROPERTY
Location: 15 STURT STREET, SMITHFIELD, NSW

Job No. E28497K **Method:** EZIPROBE **R.L. Surface:** N/A
Date: 22-6-15 **Datum:**
Logged/Checked by: J.D.C./T.H.

Groundwater Record	SAMPLES ES	ASS	ASB	SAL	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: 220mm.t				
	■		■					-	FILL: Silty sand, medium to coarse grained, brown, with brick fragments.	M			
									END OF BOREHOLE AT 0.35m				EZIPROBE REFUSAL
						1							
						2							
						3							
						4							
						5							
						6							
						7							

ENVIRONMENTAL INVESTIGATION SERVICES
CONSULTING ENVIRONMENTAL ENGINEERS

ENVIRONMENTAL LOG

Borehole No.
12
1/1

Environmental logs are not to be used for geotechnical purposes

Client: BUNNINGS GROUP PTY LTD
Project: DUE DILIGENCE FOR PURCHASE OF PROPERTY
Location: 15 STURT STREET, SMITHFIELD, NSW

Job No. E28497K **Method:** EZIPROBE **R.L. Surface:** N/A
Date: 22-6-15 **Datum:**
Logged/Checked by: J.D.C./T.H.

Groundwater Record	SAMPLES ES	SAMPLES ASS	SAMPLES ASB	SAMPLES SAL	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: 130mm.t				
								-	FILL: Clayey silty sand, fine to medium grained, brown, trace of tile fragments and fine to medium grained igneous gravel.	M MC≈PL			
						1			FILL: Silty clay, medium to high plasticity, brown, trace of ash and fibre cement fragments and organic material.				
								CL-CH	SILTY CLAY: medium to high plasticity, orange brown and light grey, trace of root fibres.	MC≈PL			
						2			SILTY CLAY: medium to high plasticity, orange brown, trace of fine to medium grained ironstone gravel.				
									END OF BOREHOLE AT 2.3m				EZIPROBE REFUSAL
						3							
						4							
						5							
						6							
						7							

ENVIRONMENTAL INVESTIGATION SERVICES
CONSULTING ENVIRONMENTAL ENGINEERS

ENVIRONMENTAL LOG

Borehole No.
13
1/1

Environmental logs are not to be used for geotechnical purposes

Client: BUNNINGS GROUP PTY LTD
Project: DUE DILIGENCE FOR PURCHASE OF PROPERTY
Location: 15 STURT STREET, SMITHFIELD, NSW

Job No. E28497K **Method:** EZIPROBE **R.L. Surface:** N/A
Date: 22-6-15 **Datum:**
Logged/Checked by: J.D.C./T.H.

Groundwater Record	SAMPLES ES	ASS	ASB	SAL	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: 1000mm				10mm - 20mm DIA. REINFORCEMENT (POSSIBLE EXISTING FOOTING)
	■		■			1		CL-CH	SILTY CLAY: medium to high plasticity, red brown and light grey.	MC≈PL	VSt	260 380 310	
									END OF BOREHOLE AT 1.3m				
						2							
						3							
						4							
						5							
						6							
						7							

ENVIRONMENTAL INVESTIGATION SERVICES

CONSULTING ENVIRONMENTAL ENGINEERS

ENVIRONMENTAL LOG

Borehole No.
14
1/1

Environmental logs are not to be used for geotechnical purposes

Client: BUNNINGS GROUP PTY LTD

Project: DUE DILIGENCE FOR PURCHASE OF PROPERTY

Location: 15 STURT STREET, SMITHFIELD, NSW

Job No. E28497K **Method:** EZIPROBE **R.L. Surface:** N/A

Date: 22-6-15 **Datum:**

Logged/Checked by: J.D.C./T.H.

Groundwater Record	SAMPLES (ES, ASS, ASB, SAL)	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: 370mm.t				7mm DIA. REINFORCEMENT
					-	FILL: Silty clayey sand, fine to medium grained, brown, trace of fine to medium grained siltstone gravel.	M			
			1			FILL: Silty clay, medium to high plasticity, light grey, trace of organic material and ash.	MC≈PL			
			2							NO SAMPLE RETURN
					CL-CH	SILTY CLAY: medium to high plasticity, orange brown, with fine to medium grained ironstone gravel.	MC≈PL			
						END OF BOREHOLE AT 2.7m				
			3							
			4							
			5							
			6							
			7							

ENVIRONMENTAL INVESTIGATION SERVICES
CONSULTING ENVIRONMENTAL ENGINEERS

ENVIRONMENTAL LOG

Borehole No.
15
1/1

Environmental logs are not to be used for geotechnical purposes

Client: BUNNINGS GROUP PTY LTD
Project: DUE DILIGENCE FOR PURCHASE OF PROPERTY
Location: 15 STURT STREET, SMITHFIELD, NSW

Job No. E28497K **Method:** EZIPROBE **R.L. Surface:** N/A
Date: 22-6-15 **Datum:**
Logged/Checked by: J.D.C./T.H.

Groundwater Record	SAMPLES ES	ASS	ASB	SAL	Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
DRY ON COMPLETION						0			CONCRETE: 150mm.t				7mm DIA. REINFORCEMENT
								-	FILL: Silty sand, medium to coarse grained, light brown.	W			APPEARED TO BE CRUSHED SANDSTONE
									FILL: silty clay, medium to high plasticity, dark brown, traces of fine to coarse grained igneous gravel, ash, organic material, and tile fragments.	MC≈PL			
						1		CL-CH	SILTY CLAY: medium to high plasticity, light brown and light grey, traces of root fibres.	MC≈PL			
									END OF BOREHOLE AT 1.5m				
						2							
						3							
						4							
						5							
						6							
						7							

ENVIRONMENTAL INVESTIGATION SERVICES

CONSULTING ENVIRONMENTAL ENGINEERS

ENVIRONMENTAL LOG

Borehole No.
16
1/1

Environmental logs are not to be used for geotechnical purposes

Client: BUNNINGS GROUP PTY LTD

Project: DUE DILIGENCE FOR PURCHASE OF PROPERTY

Location: 15 STURT STREET, SMITHFIELD, NSW

Job No. E28497K **Method:** EZIPROBE **R.L. Surface:** N/A

Date: 22-6-15 **Datum:**

Logged/Checked by: J.D.C./T.H.

Groundwater Record	Depth (m)	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
DRY ON COMPLETION	0		CONCRETE: 140mm.t				7mm DIA. REINFORCEMENT
		-	FILL: Silty clay, medium to high plasticity, brown, traces of fine to coarse grained ironstone gravel, tile fragments.	MC≈PL			
	1		FILL: Silty clay, medium to high plasticity, dark grey, with ash, traces of tile fragments.				
	2	CL-CH	SILTY CLAY: medium to high plasticity, orange brown and light grey.	MC≈PL	VSt	260 350 380	
			END OF BOREHOLE AT 2.5m				EZIPROBE REFUSAL
	3						
	4						
	5						
	6						
	7						

Samples columns: ES | ASS | ASB | SAL; Field Tests; Graphic Log

ENVIRONMENTAL INVESTIGATION SERVICES
CONSULTING ENVIRONMENTAL ENGINEERS

ENVIRONMENTAL LOG

Borehole No. 17

1/1

Environmental logs are not to be used for geotechnical purposes

Client: BUNNINGS GROUP PTY LTD

Project: DUE DILIGENCE FOR PURCHASE OF PROPERTY

Location: 15 STURT STREET, SMITHFIELD, NSW

Job No. E28497K **Method:** EZIPROBE **R.L. Surface:** N/A

Date: 22-6-15 **Datum:**

Logged/Checked by: J.D.C./T.H.

Groundwater Record	SAMPLES ES	SAMPLES ASS	SAMPLES ASB	SAMPLES SAL	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: 170mm.t				
	■		■					-	FILL: Silty clay, low to medium plasticity, brown with tile fragments, fine to coarse grained ironstone gravel.	MC≈PL			
									END OF BOREHOLE AT 0.5m				EZIPROBE REFUSAL
						1							
						2							
						3							
						4							
						5							
						6							
						7							

ENVIRONMENTAL INVESTIGATION SERVICES
CONSULTING ENVIRONMENTAL ENGINEERS

ENVIRONMENTAL LOG

Borehole No.
18
1/1

Environmental logs are not to be used for geotechnical purposes

Client: BUNNINGS GROUP PTY LTD
Project: DUE DILIGENCE FOR PURCHASE OF PROPERTY
Location: 15 STURT STREET, SMITHFIELD, NSW

Job No. E28497K **Method:** EZIPROBE **R.L. Surface:** N/A
Date: 22-6-15 **Datum:**
Logged/Checked by: J.D.C./T.H.

Groundwater Record	SAMPLES ES	ASS	ASB	SAL	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: 140mm.t				7mm DIA. REINFORCEMENT
								-	FILL: Silty clay, medium to high plasticity, brown, with tile fragments, traces of ash and slag.	MC≈PL			
						1							
						2		CL-CH	SILTY CLAY: medium to high plasticity, orange brown, traces of root fibres and ash.	MC≈PL			
									END OF BOREHOLE AT 2.5m				
						3							
						4							
						5							
						6							
						7							

ENVIRONMENTAL INVESTIGATION SERVICES
CONSULTING ENVIRONMENTAL ENGINEERS

Borehole No. **19**
1/1

ENVIRONMENTAL LOG

Environmental logs are not to be used for geotechnical purposes

Client: BUNNINGS GROUP PTY LTD
Project: DUE DILIGENCE FOR PURCHASE OF PROPERTY
Location: 15 STURT STREET, SMITHFIELD, NSW

Job No. E28497K **Method:** EZIPROBE **R.L. Surface:** N/A
Date: 22-6-15 **Datum:**
Logged/Checked by: J.D.C./T.H.

Groundwater Record	SAMPLES ES	SAMPLES ASS	SAMPLES ASB	SAMPLES SAL	Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
DRY ON COMPLETION						0			CONCRETE: 150mm.t				7mm DIA. REINFORCEMENT
								-	FILL: Silty sandy clay, low to medium plasticity, light brown, with tile fragments, traces of brick fragments.	MC≈PL			
									END OF BOREHOLE AT 0.8m				EZIPROBE REFUSAL
						1							
						2							
						3							
						4							
						5							
						6							
						7							

ENVIRONMENTAL INVESTIGATION SERVICES
CONSULTING ENVIRONMENTAL ENGINEERS

ENVIRONMENTAL LOG

Borehole No.
20
1/1

Environmental logs are not to be used for geotechnical purposes

Client: BUNNINGS GROUP PTY LTD
Project: DUE DILIGENCE FOR PURCHASE OF PROPERTY
Location: 15 STURT STREET, SMITHFIELD, NSW

Job No. E28497K **Method:** EZIPROBE **R.L. Surface:** N/A
Date: 22-6-15 **Datum:**
Logged/Checked by: J.D.C./T.H.

Groundwater Record	SAMPLES ES	ASS	ASB	SAL	Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
DRY ON COMPLETION						0			CONCRETE: 190mm.t				
								-	FILL: Silty clay, medium to high plasticity, with tile fragments, traces of ash.	MC≈PL			
						1		CL	CLAYEY GRAVEL: fine to medium grained, ironstone, red brown.				POSSIBLY FILL
									END OF BOREHOLE AT 1.35m				EZIPROBE REFUSAL
						2							
						3							
						4							
						5							
						6							
						7							

ENVIRONMENTAL INVESTIGATION SERVICES
CONSULTING ENVIRONMENTAL ENGINEERS

ENVIRONMENTAL LOG

Borehole No. **101**
1/1

Environmental logs are not to be used for geotechnical purposes

Client: BUNNINGS GROUP PTY LTD
Project: DUE DILIGENCE FOR PURCHASE OF PROPERTY
Location: 15 STURT STREET, SMITHFIELD, NSW

Job No. E28497K1 **Method:** SPIRAL AUGER JK350 **R.L. Surface:** N/A
Date: 23/2/17 **Datum:**
Logged/Checked by: A.S./G.F.

Groundwater Record	SAMPLES (ES / ASS / ASB / SAL)	Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
DRY ON COMPLETION			0			ASPHALTIC LAYER: 100mm.t				
					-	FILL: Sandy gravel, fine to coarse grained igneous, brown, trace of ash.	D			
		N = 11 3,6,5	1			FILL: Silty clay, low to medium plasticity, brown grey, trace of fine to medium grained igneous gravel, fine to medium grained sand, tile fragments, and ash.	MC≈PL			
		N = 15 6,7,8	2		CL	SILTY CLAY: low to medium plasticity, grey, trace of ash, and root fibres.	MC≈PL			
			3			SILTY CLAY: low to medium plasticity, orange brown mottled grey.				
			4, 5		-	SHALE: grey.				LOW 'TC' BIT RESISTANCE
			6, 7			END OF BOREHOLE AT 5.8m				MONITORING WELL INSTALLED TO 5.8m, CLASS 18 50mm DIA. MACHINE SLOTTED PVC FROM 5.8m TO 2. 0m, CASING FROM 2.0m TO SURFACE, 2mm SAND FILTER PACK FROM 6.0m TO 2.0m, BENTONITE SEAL FROM 2.0m TO 0. 5m, BACKFILLED WITH SAND TO SURFACE AND COMPLETED WITH A STEEL GATIC COVER AND LOCKABLE CAP.

ENVIRONMENTAL INVESTIGATION SERVICES
CONSULTING ENVIRONMENTAL ENGINEERS

ENVIRONMENTAL LOG

Borehole No. 102

1/1

Environmental logs are not to be used for geotechnical purposes

Client: BUNNINGS GROUP PTY LTD

Project: DUE DILIGENCE FOR PURCHASE OF PROPERTY

Location: 15 STURT STREET, SMITHFIELD, NSW

Job No. E28497K1

Method: SPIRAL AUGER JK350

R.L. Surface: N/A

Date: 23/2/17

Datum:

Logged/Checked by: A.S./G.F.

Groundwater Record	SAMPLES (ES / ASS / ASB / SAL)	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: 170mm.t				4mm DIA. REINFORCEMENT
					-	FILL: Sand, fine to coarse grained, yellow brown.	D			
		N = 7 3,3,4	1			FILL: Silty clay, low to medium plasticity, brown mottled red brown, trace of fine to medium grained ironstone gravel, ash, and root fibres.	MC≈PL			
			2, 3, 4, 5		CL	SILTY CLAY: low to medium plasticity, brown mottled red brown.	MC≈PL			
			6, 7			END OF BOREHOLE AT 5.8m				MONITORING WELL INSTALLED TO 5.8m, CLASS 18 50mm DIA. MACHINE SLOTTED PVC FROM 5.8m TO 2. 1m, CASING FROM 2.1m TO SURFACE, 2mm SAND FILTER PACK FROM 5.8m TO 2.0m, BENTONITE SEAL FROM 2.0m TO 0. 5m, BACKFILLED WITH SAND TO SURFACE AND COMPLETED WITH A STEEL GATIC COVER AND LOCKABLE CAP.

ENVIRONMENTAL INVESTIGATION SERVICES

CONSULTING ENVIRONMENTAL ENGINEERS

ENVIRONMENTAL LOG

Borehole No.
103
1/1

Environmental logs are not to be used for geotechnical purposes

Client: BUNNINGS GROUP PTY LTD

Project: DUE DILIGENCE FOR PURCHASE OF PROPERTY

Location: 15 STURT STREET, SMITHFIELD, NSW

Job No. E28497K1 **Method:** SPIRAL AUGER JK350 **R.L. Surface:** N/A

Date: 23/2/17 **Datum:**

Logged/Checked by: A.S./G.F.

Groundwater Record	Field Tests	Depth (m)	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
DRY ON COMPLETION		0		ASPHALTIC LAYER: 100mm.t				
			-	FILL: Clayey sand, fine to medium grained, brown, with fine to medium grained igneous gravel, brick and tile fragments, and ash.	D			
	N = 17 6,8,9			FILL: Silty clay, low to medium plasticity, trace of ironstone gravel, tile, and ash.	MC≈PL			
		1	CL	SILTY CLAY: low to medium plasticity, brown, with fine to medium grained ironstone gravel bands, trace of ash.	MC≈PL			
		2						
				SILTY CLAY: low to medium plasticity, red brown.				
		3						
		4						
		5						MONITORING WELL INSTALLED TO 5.8m, CLASS 18 50mm DIA. MACHINE SLOTTED PVC FROM 5.8m TO 2.1m, CASING FROM 2.1m TO SURFACE, 2mm SAND FILTER PACK FROM 5.8m TO 2.0m, BENTONITE SEAL FROM 2.0m TO 0.5m, BACKFILLED WITH SAND TO SURFACE AND COMPLETED WITH A STEEL GATIC COVER AND LOCKABLE CAP.
		6		END OF BOREHOLE AT 5.8m				
		7						

SAMPLES: ES, ASS, ASB, SAL

ENVIRONMENTAL INVESTIGATION SERVICES
CONSULTING ENVIRONMENTAL ENGINEERS

ENVIRONMENTAL LOG

Borehole No. **104** 1/1

Environmental logs are not to be used for geotechnical purposes

Client: BUNNINGS GROUP PTY LTD
Project: DUE DILIGENCE FOR PURCHASE OF PROPERTY
Location: 15 STURT STREET, SMITHFIELD, NSW

Job No. E28497K1 **Method:** EZIPROBE **R.L. Surface:** N/A
Date: 23/2/17 **Datum:**
Logged/Checked by: A.S./G.F.

Groundwater Record	Samples (ES, ASS, ASB, SAL)	Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
DRY ON COMPLETION			0			ASPHALTIC LAYER: 70mm.t				
					-	FILL: Sandy gravel, fine to medium grained igneous, brown.	D			
						FILL: Silty clay, low to medium plasticity, brown mottled grey, trace of ash, and tile fragments.	MC≈PL			
			1		CL	SILTY CLAY: low to medium plasticity, brown mottled grey.	MC≈PL			
						END OF BOREHOLE AT 1.4m				
			2							
			3							
			4							
			5							
			6							
			7							

ENVIRONMENTAL INVESTIGATION SERVICES

CONSULTING ENVIRONMENTAL ENGINEERS

ENVIRONMENTAL LOG

Borehole No.
105
1/1

Environmental logs are not to be used for geotechnical purposes

Client: BUNNINGS GROUP PTY LTD

Project: DUE DILIGENCE FOR PURCHASE OF PROPERTY

Location: 15 STURT STREET, SMITHFIELD, NSW

Job No. E28497K1 **Method:** EZIPROPE **R.L. Surface:** N/A

Date: 23/2/17 **Datum:**

Logged/Checked by: A.S./G.F.

Groundwater Record	SAMPLES ES	ASS	ASB	SAL	Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
DRY ON COMPLET-ION						0			ASPHALTIC LAYER: 50mm.t				
								-	FILL: Sandy gravel, fine to medium grained igneous, brown.	D			
									FILL: Silty clay, low to medium plasticity, brown, with fine to medium grained sandstone gravel, tile fragments, trace of ash, charcoal, and root fibres.	MC≈PL			
						1		CL	SILTY CLAY: low to medium plasticity, brown, trace of root fibres, and ash.	MC≈PL			
									END OF BOREHOLE AT 1.5m				
						2							
						3							
						4							
						5							
						6							
						7							

ENVIRONMENTAL INVESTIGATION SERVICES

CONSULTING ENVIRONMENTAL ENGINEERS

Borehole No. **106** 1/1

ENVIRONMENTAL LOG

Environmental logs are not to be used for geotechnical purposes

Client: BUNNINGS GROUP PTY LTD

Project: DUE DILIGENCE FOR PURCHASE OF PROPERTY

Location: 15 STURT STREET, SMITHFIELD, NSW

Job No. E28497K1 **Method:** EZIPROBE **R.L. Surface:** N/A

Date: 23/2/17 **Datum:**

Logged/Checked by: A.S./G.F.

Groundwater Record	SAMPLES ES	ASS	ASB	SAL	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: 140mm.t				
	■		■					-	FILL: Sand, fine to medium grained, brown.	D			
	■		■						FILL: Silty clay, low to medium plasticity, brown grey, trace of fine to medium grained igneous gravel, tile fragments, and ash.	MC≈PL			
	■					1		CL	SILTY CLAY: low to medium plasticity, brown, trace of root fibres.	MC≈PL			
									END OF BOREHOLE AT 1.5m				
						2							
						3							
						4							
						5							
						6							
						7							

ENVIRONMENTAL INVESTIGATION SERVICES
CONSULTING ENVIRONMENTAL ENGINEERS

ENVIRONMENTAL LOG

Borehole No. **107**
1/1

Environmental logs are not to be used for geotechnical purposes

Client: BUNNINGS GROUP PTY LTD
Project: DUE DILIGENCE FOR PURCHASE OF PROPERTY
Location: 15 STURT STREET, SMITHFIELD, NSW

Job No. E28497K1 **Method:** EZIPROBE **R.L. Surface:** N/A
Date: 23/2/17 **Datum:**
Logged/Checked by: A.S./G.F.

Groundwater Record	Samples (ES / ASS / ASB / SAL)	Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
DRY ON COMPLETION			0			CONCRETE: 150mm.t				
					-	FILL: Sand, fine to medium grained, brown.	D			
						FILL: Silty sandy clay, low to medium plasticity, brown, trace of fine to medium grained igneous gravel, root fibres, and ash.	MC≈PL			
			1		CL	SILTY CLAY: low to medium plasticity, brown, trace of ash.	MC≈PL			
			2			END OF BOREHOLE AT 1.5m				
			3							
			4							
			5							
			6							
			7							

ENVIRONMENTAL INVESTIGATION SERVICES

CONSULTING ENVIRONMENTAL ENGINEERS

ENVIRONMENTAL LOG

Borehole No.
108
1/1

Environmental logs are not to be used for geotechnical purposes

Client: BUNNINGS GROUP PTY LTD

Project: DUE DILIGENCE FOR PURCHASE OF PROPERTY

Location: 15 STURT STREET, SMITHFIELD, NSW

Job No. E28497K1 **Method:** EZIPROBE **R.L. Surface:** N/A

Date: 23/2/17 **Datum:**

Logged/Checked by: A.S./G.F.

Groundwater Record	SAMPLES ES	ASS	ASB	SAL	Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
DRY ON COMPLETION						0			CONCRETE: 150mm.t				
								-	FILL: Sand, fine to medium grained, brown.	D			
									FILL: Silty clay, low to medium plasticity, brown, with tile fragments, ash, trace of charcoal, and root fibres.	MC≈PL			
						1		CL	SILTY CLAY: low to medium plasticity, brown grey, trace of root fibres, and ash.	MC≈PL			
									SILTY CLAY: low to medium plasticity, orange brown.				
									END OF BOREHOLE AT 1.5m				
						2							
						3							
						4							
						5							
						6							
						7							

ENVIRONMENTAL INVESTIGATION SERVICES
CONSULTING ENVIRONMENTAL ENGINEERS

ENVIRONMENTAL LOG

Borehole No.
109
1/1

Environmental logs are not to be used for geotechnical purposes

Client: BUNNINGS GROUP PTY LTD
Project: DUE DILIGENCE FOR PURCHASE OF PROPERTY
Location: 15 STURT STREET, SMITHFIELD, NSW

Job No. E28497K1 **Method:** EZIPROBE **R.L. Surface:** N/A
Date: 23/2/17 **Datum:**
Logged/Checked by: A.S./G.F.

Groundwater Record	SAMPLES ES	ASS	ASB	SAL	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: 140mm.t				
								-	FILL: Silty sandy clay, low to medium plasticity, brown and dark grey, with tile fragments, trace of fine to medium grained igneous and ironstone gravel, and ash.	MC≈PL			
						1		CL	SILTY CLAY: low to medium plasticity, orange brown, trace of ash.	MC<PL			
						2							
						3			END OF BOREHOLE AT 3.0m				
						4							
						5							
						6							
						7							

ENVIRONMENTAL INVESTIGATION SERVICES
CONSULTING ENVIRONMENTAL ENGINEERS

ENVIRONMENTAL LOG

Borehole No. **110**
1/1

Environmental logs are not to be used for geotechnical purposes

Client: BUNNINGS GROUP PTY LTD
Project: DUE DILIGENCE FOR PURCHASE OF PROPERTY
Location: 15 STURT STREET, SMITHFIELD, NSW

Job No. E28497K1 **Method:** EZIPROBE **R.L. Surface:** N/A
Date: 23/2/17 **Datum:**
Logged/Checked by: A.S./G.F.

Groundwater Record	SAMPLES ES	ASS	ASB	SAL	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: 130mm.t				
								-	FILL: Silty sandy clay, low to medium plasticity, brown grey, with tile fragments, trace of fine to medium grained igneous and ironstone gravel, and ash.	MC≈PL			
						1		CL	SILTY CLAY: low to medium plasticity, orange brown, trace of ash.	MC<PL			
						2							
						3			END OF BOREHOLE AT 3.0m				
						4							
						5							
						6							
						7							

ENVIRONMENTAL INVESTIGATION SERVICES
CONSULTING ENVIRONMENTAL ENGINEERS

ENVIRONMENTAL LOG

Borehole No.
111
1/1

Environmental logs are not to be used for geotechnical purposes

Client: BUNNINGS GROUP PTY LTD
Project: DUE DILIGENCE FOR PURCHASE OF PROPERTY
Location: 15 STURT STREET, SMITHFIELD, NSW

Job No. E28497K1 **Method:** EZIPROBE **R.L. Surface:** N/A
Date: 23/2/17 **Datum:**
Logged/Checked by: A.S./G.F.

Groundwater Record	SAMPLES ES	ASS	ASB	SAL	Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
DRY ON COMPLETION						0			CONCRETE: 150mm.t				
								-	FILL: Silty sandy clay, low to medium plasticity, with tile fragments, trace of fine to medium grained igneous gravel, ash, trace of root fibres.	MC≈PL			
						1							
								CL	SILTY CLAY: low to medium plasticity, orange brown, trace of ash.	MC≈PL			
									END OF BOREHOLE AT 1.7m				REFUSAL
						2							
						3							
						4							
						5							
						6							
						7							

ENVIRONMENTAL INVESTIGATION SERVICES
CONSULTING ENVIRONMENTAL ENGINEERS

ENVIRONMENTAL LOG

Borehole No.
112
1/1

Environmental logs are not to be used for geotechnical purposes

Client: BUNNINGS GROUP PTY LTD
Project: DUE DILIGENCE FOR PURCHASE OF PROPERTY
Location: 15 STURT STREET, SMITHFIELD, NSW

Job No. E28497K1 **Method:** EZIPROBE **R.L. Surface:** N/A
Date: 23/2/17 **Datum:**
Logged/Checked by: A.S./G.F.

Groundwater Record	SAMPLES ES	ASS	ASB	SAL	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: 155mm.t				
								-	FILL: Silty clay, low to medium plasticity, brown grey, trace of fine to medium grained igneous gravel.	MC≈PL			
								CL	SILTY CLAY: low to medium plasticity, orange brown, with fine to medium grained ironstone gravel bands.	MC≈PL			
						1							
									END OF BOREHOLE AT 1.3m				
						2							
						3							
						4							
						5							
						6							
						7							

ENVIRONMENTAL INVESTIGATION SERVICES
CONSULTING ENVIRONMENTAL ENGINEERS

ENVIRONMENTAL LOG

Borehole No. **113**

1/1

Environmental logs are not to be used for geotechnical purposes

Client: BUNNINGS GROUP PTY LTD

Project: DUE DILIGENCE FOR PURCHASE OF PROPERTY

Location: 15 STURT STREET, SMITHFIELD, NSW

Job No. E28497K1 **Method:** EZIPROBE **R.L. Surface:** N/A

Date: 23/2/17 **Datum:**

Logged/Checked by: A.S./G.F.

Groundwater Record	SAMPLES ES	SAMPLES ASS	SAMPLES ASB	SAMPLES SAL	Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
DRY ON COMPLET-ION						0			CONCRETE: 70mm.t				
								CL	SILTY CLAY: low to medium plasticity, brown, with ash, trace of root fibres.	MC≈PL			
						1			SILTY CLAY: low to medium plasticity, brown, trace of ash.	MC≈PL			
									END OF BOREHOLE AT 1.3m				
						2							
						3							
						4							
						5							
						6							
						7							

ENVIRONMENTAL INVESTIGATION SERVICES
CONSULTING ENVIRONMENTAL ENGINEERS

ENVIRONMENTAL LOG

Borehole No. **114**
1/1

Environmental logs are not to be used for geotechnical purposes

Client: BUNNINGS GROUP PTY LTD
Project: DUE DILIGENCE FOR PURCHASE OF PROPERTY
Location: 15 STURT STREET, SMITHFIELD, NSW

Job No. E28497K1 **Method:** EZIPROBE **R.L. Surface:** N/A
Date: 23/2/17 **Datum:**
Logged/Checked by: A.S./G.F.

Groundwater Record	SAMPLES ES	ASS	ASB	SAL	Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
DRY ON COMPLETION						0			CONCRETE: 150mm.t				
								-	FILL: Sandy gravel, fine to medium grained, brown, trace of tile fragments, and ash.	D			
						1		CL	SILTY CLAY: low to medium plasticity, orange brown, trace of root fibres, and ash.	MC≈PL			
						2			END OF BOREHOLE AT 1.4m				
						3							
						4							
						5							
						6							
						7							

ENVIRONMENTAL INVESTIGATION SERVICES

CONSULTING ENVIRONMENTAL ENGINEERS

ENVIRONMENTAL LOG

Borehole No. **115**

1/1

Environmental logs are not to be used for geotechnical purposes

Client: BUNNINGS GROUP PTY LTD

Project: DUE DILIGENCE FOR PURCHASE OF PROPERTY

Location: 15 STURT STREET, SMITHFIELD, NSW

Job No. E28497K1 **Method:** EZIPROBE **R.L. Surface:** N/A

Date: 23/2/17 **Datum:**

Logged/Checked by: A.S./G.F.

Groundwater Record	SAMPLES ES	ASS	ASB	SAL	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: 350mm.t				
	■							CL	SILTY CLAY: low to medium plasticity, orange brown, trace of root fibres and ash.	MC≈PL			
	■					1							
									END OF BOREHOLE AT 1.3m				
						2							
						3							
						4							
						5							
						6							
						7							

ENVIRONMENTAL INVESTIGATION SERVICES

CONSULTING ENVIRONMENTAL ENGINEERS

ENVIRONMENTAL LOG

Borehole No.
116
1/1

Environmental logs are not to be used for geotechnical purposes

Client: BUNNINGS GROUP PTY LTD

Project: DUE DILIGENCE FOR PURCHASE OF PROPERTY

Location: 15 STURT STREET, SMITHFIELD, NSW

Job No. E28497K1 **Method:** EZIPROBE **R.L. Surface:** N/A

Date: 23/2/17 **Datum:**

Logged/Checked by: A.S./G.F.

Groundwater Record	SAMPLES ES	ASS	ASB	SAL	Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
DRY ON COMPLET-ION						0			CONCRETE: 150mm.t				
								-	FILL: Silty clay, low to medium plasticity, brown grey, with tile fragments, trace of fine to medium grained igneous gravel, with tile fragments, and ash.	MC≈PL			
						1							
						2		CL	SILTY CLAY: low to medium plasticity, orange brown.	MC≈PL			
						3			END OF BOREHOLE AT 3.0m				
						4							
						5							
						6							
						7							

ENVIRONMENTAL INVESTIGATION SERVICES

CONSULTING ENVIRONMENTAL ENGINEERS

ENVIRONMENTAL LOG

Borehole No.
117
1/1

Environmental logs are not to be used for geotechnical purposes

Client: BUNNINGS GROUP PTY LTD
Project: DUE DILIGENCE FOR PURCHASE OF PROPERTY
Location: 15 STURT STREET, SMITHFIELD, NSW

Job No. E28497K1 **Method:** HAND AUGER **R.L. Surface:** N/A
Date: 23/2/17 **Datum:**
Logged/Checked by: A.S./G.F.

Groundwater Record	SAMPLES ES	SAMPLES ASS	SAMPLES ASB	SAMPLES SAL	Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
DRY ON COMPLETION						0			CONCRETE: 150mm.t				
	■		■					-	FILL: Sand, fine to medium grained, brown.	D			HAND AUGER REFUSAL
									END OF BOREHOLE AT 0.2m				
						1							
						2							
						3							
						4							
						5							
						6							
						7							

ENVIRONMENTAL INVESTIGATION SERVICES
CONSULTING ENVIRONMENTAL ENGINEERS

ENVIRONMENTAL LOG

Borehole No.
118
1/1

Environmental logs are not to be used for geotechnical purposes

Client: BUNNINGS GROUP PTY LTD
Project: DUE DILIGENCE FOR PURCHASE OF PROPERTY
Location: 15 STURT STREET, SMITHFIELD, NSW

Job No. E28497K1 **Method:** HAND AUGER **R.L. Surface:** N/A
Date: 23/2/17 **Datum:**
Logged/Checked by: A.S./G.F.

Groundwater Record	SAMPLES ES	SAMPLES ASS	SAMPLES ASB	SAMPLES SAL	Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
DRY ON COMPLETION						0			CONCRETE: 150mm.t				
								-	FILL: Sand, fine to medium grained, brown, trace of tile fragments.	D			
									FILL: Clayey sand, fine to medium grained, brown, trace of tile fragments, and ash.				
						1			END OF BOREHOLE AT 0.95m				HAND AUGER REFUSAL
						2							
						3							
						4							
						5							
						6							
						7							

ENVIRONMENTAL INVESTIGATION SERVICES
CONSULTING ENVIRONMENTAL ENGINEERS

ENVIRONMENTAL LOG

Borehole No.
119
1/1

Environmental logs are not to be used for geotechnical purposes

Client: BUNNINGS GROUP PTY LTD
Project: DUE DILIGENCE FOR PURCHASE OF PROPERTY
Location: 15 STURT STREET, SMITHFIELD, NSW

Job No. E28497K1 **Method:** HAND AUGER **R.L. Surface:** N/A
Date: 23/2/17 **Datum:**
Logged/Checked by: A.S./G.F.

Groundwater Record	SAMPLES ES	SAMPLES ASS	SAMPLES ASB	SAMPLES SAL	Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
DRY ON COMPLETION						0			FILL: Silty sand, fine to medium grained, brown, trace of root fibres.	D			GRASS LAWN
									END OF BOREHOLE AT 0.5m				HAND AUGER REFUSAL
						1							
						2							
						3							
						4							
						5							
						6							
						7							

ENVIRONMENTAL INVESTIGATION SERVICES
CONSULTING ENVIRONMENTAL ENGINEERS

ENVIRONMENTAL LOG

Borehole No. 120

1/1

Environmental logs are not to be used for geotechnical purposes

Client: BUNNINGS GROUP PTY LTD
Project: DUE DILIGENCE FOR PURCHASE OF PROPERTY
Location: 15 STURT STREET, SMITHFIELD, NSW

Job No. E28497K1 **Method:** HAND AUGER **R.L. Surface:** N/A
Date: 23/2/17 **Datum:**
Logged/Checked by: A.S./G.F.

Groundwater Record	SAMPLES ES	ASS	ASB	SAL	Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
DRY ON COMPLET-ION						0			FILL: Silty sand, fine to medium grained, brown, trace of root fibres.	D			
									END OF BOREHOLE AT 0.6m				HAND AUGER REFUSAL
						1							
						2							
						3							
						4							
						5							
						6							
						7							

EXPLANATORY NOTES – ENVIRONMENTAL LOGS

INTRODUCTION

These notes have been provided to supplement the environmental report with regards to drilling and field logging. 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 manmade processes and therefore exhibits a variety of characteristics and properties which vary from place to place and can change with time. Environmental studies involve gathering and assimilating limited facts about these characteristics and properties in order to understand the ground on a particular site under certain conditions. These conditions 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, the SAA Site Investigation Code. 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 geotechnical practice.

Soil types are described according to the predominating particle size and behaviour as set out in the attached Unified Soil Classification Table qualified by the grading of other particles present (e.g. sandy clay) as set out below (note that unless stated in the report, the soil classification is based on a qualitative field assessment, not laboratory testing):

Soil Classification	Particle Size
Clay	less than 0.002mm
Silt	0.002 to 0.075mm
Sand	0.075 to 2mm
Gravel	2 to 60mm

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	less than 4
Loose	4 – 10
Medium dense	10 – 30
Dense	30 – 50
Very Dense	greater than 50

Cohesive soils are classified on the basis of strength (consistency) either by use of hand penetrometer, laboratory testing or engineering examination. The strength terms are defined as shown in the following table:

Classification	Unconfined Compressive Strength kPa
Very Soft	less than 25
Soft	25 – 50
Firm	50 – 100
Stiff	100 – 200
Very Stiff	200 – 400
Hard	Greater than 400
Friable	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 thinly bedded to laminated siltstone.

DRILLING OR EXCAVATION METHODS

The following is a brief summary of drilling and excavation methods currently adopted by the Company, and some comments on their use and application. All except test pits and hand auger drilling require the use of a mechanical drilling rig.

Test Pits: These are normally excavated with a backhoe or a tracked excavator, allowing close examination of the in-situ soils if it is safe to descend into the pit. The depth of penetration is limited to approximately 3m for a backhoe and up to 6m for an excavator. Limitations of test pits include problems associated with disturbance and difficulty of reinstatement; and the consequent effects on nearby structures. Care must be taken if construction is to be carried out near test pit locations to either properly re-compact 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. Premature refusal of the hand augers can occur on a variety of materials such as fill, hard clay, gravel or ironstone, 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 in-situ 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 relatively lower 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 fragments. 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 determined 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 such as Revert or Biogel. The mud tends to mask the cuttings and reliable identification is only possible from intermittent intact sampling (e.g. 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, an NMLC triple tube core barrel, which gives a core of about 50mm diameter, 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 CORE LOSS. The locations of losses are determined on site by the supervising engineer; where the location is uncertain, the loss is placed at the top end 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, "Methods of Testing Soils for Engineering Purposes" – Test F3.1.

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 63kg 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. Occasionally, the drop hammer is used to drive 50mm diameter thin walled sample tubes (U50) in clays. In such circumstances, the test results are shown on the borehole logs in brackets.

A modification to the SPT test 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 "Nc" 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 attached explanatory notes define the terms and symbols used in preparation of the logs.

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; and
- 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 water observations are to be made.

More reliable measurements can be made by installing standpipes which are read after stabilising 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 (e.g. bricks, concrete, plastic, slag/ash, 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 determine the extent of the fill.

The presence of fill materials is usually regarded with caution as the possible variation in density, strength and material type is much greater than with natural soil deposits. If the volume and quality of fill is of importance to a project, then frequent test pit excavations are preferable to boreholes

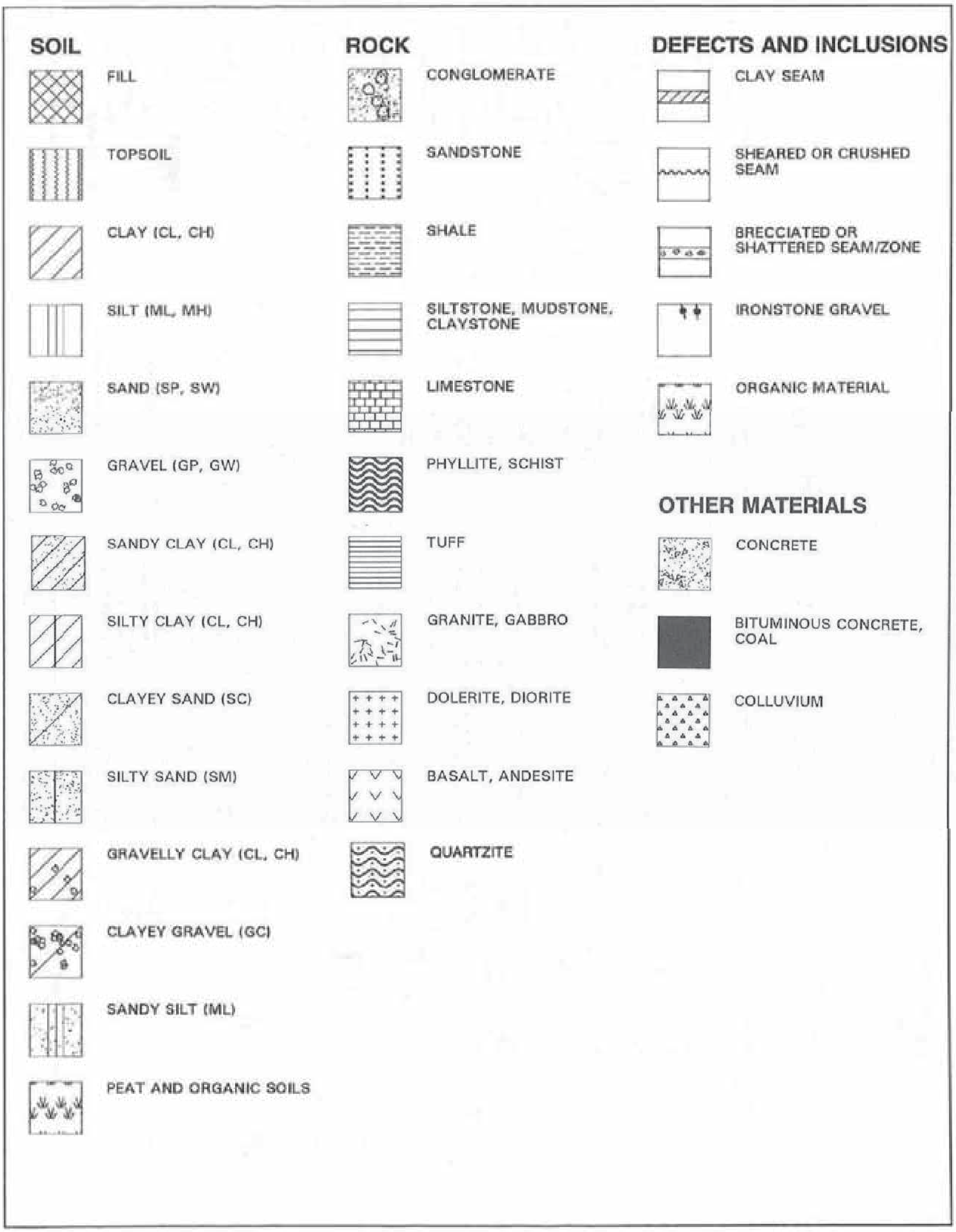
LABORATORY TESTING

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

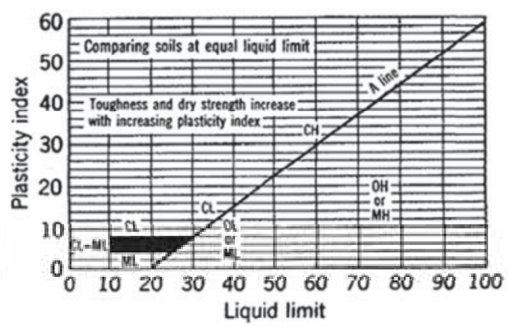
SITE ANOMALIES

In the event that conditions encountered on site during construction appear to vary from those which were expected from the information contained in the report, EIS should be notified immediately.

GRAPHIC LOG SYMBOLS FOR SOIL AND ROCKS



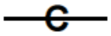
Field Identification Procedures (Excluding particles larger than 75 μm and basing fractions on estimated weights)						Group Symbols[a]	Typical Names	Information Required for Describing Soils	Laboratory Classification Criteria		
Coarse-grained soils. More than half of material is *larger* than 75 μm sieve size[b] (The 75 μm sieve size is about the smallest particle visible to naked eye)	Gravels. More than half of coarse fraction is larger than 4 mm sieve size	Clean gravels (little or no fines)	Wide range in grain size and substantial amounts of all intermediate particle sizes			*GW*	Well graded gravels, gravel-sand mixtures, little or no fines	Give typical name; indicate approximate percentages of sand and gravel; maximum size; angularity, surface condition, and hardness of the coarse grains; local or geologic name and other pertinent descriptive information; and symbols in parentheses	Use grain size curve in identifying the fractions as given under field identification. Determine percentages of gravel and sand from grain size curve. Depending on percentage of fines (fraction smaller than 75 μm sieve size) coarse grained soils are classified as follows: Less than 5% *GW, GP, SW, SP*; More than 12% *GM, GC, SM, SC*; 5% to 12% *Borderline* cases requiring use of dual symbols	$C_U = \frac{D_{60}}{D_{10}}$ Greater than 4; $C_C = \frac{(D_{30})^2}{D_{10} \times D_{60}}$ Between 1 and 3	
			Predominantly one size or a range of sizes with some intermediate sizes missing			*GP*	Poorly graded gravels, gravel-sand mixtures, little or no fines			Not meeting all gradation requirements for *GW*	
		Gravels with fines (appreciable amount of fines)	Nonplastic fines (for identification procedures see *ML* below)			*GM*	Silty gravels, poorly graded gravel-sand-silt mixtures			Atterberg limits below "A" line, or *PI* less than 4	Above "A" line with *PI* between 4 and 7 are *borderline* cases requiring use of dual symbols
			Plastic fines (for identification procedures, see *CL* below)			*GC*	Clayey gravels, poorly graded gravel-sand-clay mixtures	For undisturbed soils add information on stratification, degree of compactness, cementation, moisture conditions and drainage characteristics		Atterberg limits above "A" line, with *PI* greater than 7	
	Sands. More than half of coarse fraction is smaller than 4 mm sieve size	Clean sands (little or no fines)	Wide range in grain sizes and substantial amounts of all intermediate particle sizes			*SW*	Well graded sands, gravelly sands, little or no fines	Example: *Silty sand*, gravelly; about 20% hard, angular gravel particles 12 mm maximum size; rounded and subangular sand grains coarse to fine, about 15% non-plastic fines with low dry strength; well compacted and moist in place; alluvial sand; (*SM*)		$C_U = \frac{D_{60}}{D_{10}}$ Greater than 6; $C_C = \frac{(D_{30})^2}{D_{10} \times D_{60}}$ Between 1 and 3	
			Predominantly one size or a range of sizes with some intermediate sizes missing			*SP*	Poorly graded sands, gravelly sands, little or no fines			Not meeting all gradation requirements for *SW*	
		Sands with fines (appreciable amount of fines)	Nonplastic fines (for identification procedures, see *ML* below)			*SM*	Silty sands, poorly graded sand-silt mixtures			Atterberg limits below "A" line or *PI* less than 5	Above "A" line with *PI* between 4 and 7 are *borderline* cases requiring use of dual symbols
			Plastic fines (for identification procedures, see *CL* below)			*SC*	Clayey sands, poorly graded sand-clay mixtures			Atterberg limits below "A" line with *PI* greater than 7	
Fine-grained soils. More than half of material is *smaller* than 75 μm sieve size	Identification Procedures on Fraction Smaller than 380 μm Sieve Size		Dry Strength (crushing characteristics)	Dilatancy (reaction to shaking)	Toughness (consistency near plastic limit)						
	Silts and clays liquid limit less than 50		None to slight	Quick to slow	None	*ML*	Inorganic silts and very fine sands, rock flour, silty or clayey fine sands with slight plasticity	Give typical name; indicate degree and character of plasticity, amount and maximum size of coarse grains; colour in wet condition, odour if any, local or geologic name, and other pertinent descriptive information, and symbol in parentheses			
			Medium to high	None to very slow	Medium	*CL*	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays				
			Slight to medium	Slow	Slight	*OL*	Organic silts and organic silt-clays of low plasticity	For undisturbed soils add information on structure, stratification, consistency in undisturbed and remoulded states, moisture and drainage conditions			
	Silts and clays liquid limit greater than 50		Slight to medium	Slow to none	Slight to medium	*MH*	Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts				
			High to very high	None	High	*CH*	Inorganic clays of high plasticity, fat clays	Example: *Clayey silt*, brown; slightly plastic; small percentage of fine sand; numerous vertical root holes; firm and dry in place; loess; (*ML*)			
			Medium to high	None to very slow	Slight to medium	*OH*	Organic clays of medium to high plasticity				
Highly Organic Soils			Readily identified by colour, odour, spongy feel and frequently by fibrous texture			*Pt*	Peat and other highly organic soils				



Plasticity chart
for laboratory classification of fine grained soils

Note: 1 Soils possessing characteristics of two groups are designated by combinations of group symbols (eg. GW-GC, well graded gravel-sand mixture with clay fines).
2 Soils with liquid limits of the order of 35 to 50 may be visually classified as being of medium plasticity.

LOG SYMBOLS

LOG COLUMN	SYMBOL	DEFINITION
Groundwater Record		Standing water level. Time delay following completion of drilling may be shown.
		Extent of borehole collapse shortly after drilling.
		Groundwater seepage into borehole or excavation noted during drilling or excavation.
Samples	ES	Soil 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 screening.
	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 show blows per 150mm penetration. 'R' as noted below.
	N_c = 5 7 3 R	Solid Cone Penetration Test (SCPT) performed between depths indicated by lines. Individual figures show blows per 150mm penetration for 60 degree 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 heads pace test).
Moisture (Cohesive Soils)	MC>PL	Moisture content estimated to be greater than plastic limit.
	MC≈PL	Moisture content estimated to be approximately equal to plastic limit.
	MC<PL	Moisture content estimated to be less than plastic limit.
(Cohesionless)	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 less than 25kPa
	S	SOFT – Unconfined compressive strength 25-5 0kPa
	F	FIRM – Unconfined compressive strength 50-1 00kPa
	St	STIFF – Unconfined compressive strength 100- 200kPa
	VSt	VERY STIFF – Unconfined compressive strength 200- 400kPa
	H	HARD – Unconfined compressive strength greater than 400kPa
	( )	Bracketed symbol indicates estimated consistency based o n tactile examination or other tests.
Density Index/ Relative Density (Cohesionless Soils)		**Density Index (ID) Range (%)** — **SPT ' N' Value Range (Blows/300mm)**
	VL	Very Loose <15 — 0-4
	L	Loose 15-35 — 4-10
	MD	Medium Dense 35-65 — 10-30
	D	Dense 65-85 — 30-50
	VD	Very Dense >85 — >50
	( )	Bracketed symbol indicates estimated density based on ease of drilling or other tests.
Hand Penetrometer Readings	300 250	Numbers indicate individual test results in kPa on representative undisturbed material unless noted otherwise
Remarks	'V' bit	Hardened steel 'V' shaped bit.
	'TC' bit	Tungsten carbide wing bit.
	T_{60}	Penetration of auger string in mm under static load of rig applied by drill head hydraulics without rotation of augers.

LOG SYMBOLS CONTINUED

ROCK STRENGTH

Rock strength is defined by the Point Load Strength Index (Is 50) and refers to the strength of the rock substance in the bedding. The test procedure is described by the International Journal of Rock Mechanics, Mining and Geomechanics Abstract Volume 22, No 2, 1985.

TERM	SYMBOL	Is (50) MPa	FIELD GUIDE
Extremely Low:	EL	0.03	Easily remoulded by hand to a material with soil properties.
Very Low:	VL	0.1	May be crumbled in the hand. Sandstone is "sugary" and friable.
Low:	L	0.3	A piece of core 150 mm long x 50mm dia. may be broken by hand and easily scored with a knife. Sharp edges of core may be friable and break during handling.
Medium Strength:	M	1	A piece of core 150 mm long x 50mm dia. can be broken by hand with difficulty. Readily scored with knife.
High:	H	3	A piece of core 150 mm long x 50mm dia. core cannot be broken by hand, can be slightly scratched or scored with knife; rock rings under hammer.
Very High:	VH	10	A piece of core 150 mm long x 50mm dia. may be broken with hand-held pick after more than one blow. Cannot be scratched with pen knife; rock rings under hammer.
Extremely High:	EH		A piece of core 150 mm long x 50mm dia. is very difficult to break with h and-held hammer . Rings when struck with a hammer.

ROCK STRENGTH

ABBREVIATION	DESCRIPTION	NOTES
Be	Bedding Plane Parting	Defect orientations measured relative to the normal to (i.e. relative to horizontal for vertical holes)
CS	Clay Seam	
J	Joint	
P	Planar	
Un	Undulating	
S	Smooth	
R	Rough	
IS	Iron stained	
XWS	Extremely Weathered Seam	
Cr	Crushed Seam	
60t	Thickness of defect in millimetres	

Appendix B: 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
enquiries@envirolabservices.com.au
www.envirolabservices.com.au

CERTIFICATE OF ANALYSIS **129948**

Client:
Environmental Investigation Services
PO Box 976
North Ryde BC
NSW 1670

Attention: Jake Cashman

Sample log in details:

Your Reference:	**E28497K, Smithfield**
No. of samples:	2 material 1 water 52 soils
Date samples received / completed instructions received	23/06/15 / 23/06/15

This report replaces the R00 due to extra sample added to the ASB material result.

This report replaces the R01 report due to changes in asbestos result for sample 6.

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: / Issue Date:	25/06/15 / 26/06/15
Date of Preliminary Report:	Not Issued

NATA accreditation number 2901. This document shall not be reproduced except in full.
Accredited for compliance with ISO/IEC 17025. **Tests not covered by NATA are denoted with *.**

Results Approved By:

Jacinta Hurst
Laboratory Manager

ACCREDITED FOR TECHNICAL COMPETENCE

vTRH(C6-C10)/BTEXN in Soil						
Our Reference:	UNITS	129948-1	129948-2	129948-3	129948-5	129948-6
Your Reference	-------------	BH1	BH1	BH1	BH2	BH2
Depth	------------	0.1-0.3	1-1.2	1.4-1.6	0.07-0.27	1.0-1.2
Date Sampled		22/06/2015	22/06/2015	22/06/2015	22/06/2015	22/06/2015
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	24/06/2015	24/06/2015	24/06/2015	24/06/2015	24/06/2015
Date analysed	-	24/06/2015	24/06/2015	24/06/2015	24/06/2015	24/06/2015
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
Surrogate aaa-Trifluorotoluene	%	98	98	101	100	96

vTRH(C6-C10)/BTEXN in Soil						
Our Reference:	UNITS	129948-7	129948-10	129948-11	129948-13	129948-14
Your Reference	-------------	BH2	BH3	BH3	BH4	BH4
Depth	------------	1.6-1.8	1.2-1.3	1.3-1.5	0.16-0.3	1.2-1.5
Date Sampled		22/06/2015	22/06/2015	22/06/2015	22/06/2015	22/06/2015
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	24/06/2015	24/06/2015	24/06/2015	24/06/2015	24/06/2015
Date analysed	-	24/06/2015	24/06/2015	24/06/2015	24/06/2015	24/06/2015
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
Surrogate aaa-Trifluorotoluene	%	96	97	101	100	100

vTRH(C6-C10)/BTEXN in Soil Our Reference: Your Reference Depth Date Sampled Type of sample	UNITS ------------- ------------	129948-16 BH5 0.02-0.1 22/06/2015 Soil	129948-17 BH5 0.2-0.4 22/06/2015 Soil	129948-18 BH6 0.1-0.4 22/06/2015 Soil	129948-21 BH7 0.4-0.6 22/06/2015 Soil	129948-23 BH8 0.2-0.3 22/06/2015 Soil
Date extracted	-	24/06/2015	24/06/2015	24/06/2015	24/06/2015	24/06/2015
Date analysed	-	24/06/2015	24/06/2015	24/06/2015	24/06/2015	24/06/2015
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
Surrogate aaa-Trifluorotoluene	%	98	101	101	95	100

vTRH(C6-C10)/BTEXN in Soil Our Reference: Your Reference Depth Date Sampled Type of sample	UNITS ------------- ------------	129948-24 BH9 0.2-0.3 22/06/2015 Soil	129948-26 BH10 0.2-0.3 22/06/2015 Soil	129948-28 BH11 0.22-0.35 22/06/2015 Soil	129948-30 BH12 0.8-0.9 22/06/2015 Soil	129948-31 BH12 1.3-1.5 22/06/2015 Soil
Date extracted	-	24/06/2015	24/06/2015	24/06/2015	24/06/2015	24/06/2015
Date analysed	-	24/06/2015	24/06/2015	24/06/2015	24/06/2015	24/06/2015
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
Surrogate aaa-Trifluorotoluene	%	97	101	100	100	101

vTRH(C6-C10)/BTEXN in Soil						
Our Reference:	UNITS	129948-32	129948-33	129948-37	129948-40	129948-42
Your Reference	-------------	BH13	BH14	BH15	BH16	BH17
Depth	------------	1-1.3	0.37-0.47	0.3-0.5	1-1.2	0.17-0.3
Date Sampled		22/06/2015	22/06/2015	22/06/2015	22/06/2015	22/06/2015
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	24/06/2015	24/06/2015	24/06/2015	24/06/2015	24/06/2015
Date analysed	-	24/06/2015	24/06/2015	24/06/2015	24/06/2015	24/06/2015
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
Surrogate aaa-Trifluorotoluene	%	94	98	94	100	99

vTRH(C6-C10)/BTEXN in Soil						
Our Reference:	UNITS	129948-43	129948-44	129948-45	129948-47	129948-48
Your Reference	-------------	BH18	BH18	BH18	BH19	BH20
Depth	------------	0.14-0.3	1.3-1.4	2.1-2.4	0.6-0.8	0.19-0.3
Date Sampled		22/06/2015	22/06/2015	22/06/2015	22/06/2015	22/06/2015
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	24/06/2015	24/06/2015	24/06/2015	24/06/2015	24/06/2015
Date analysed	-	24/06/2015	24/06/2015	24/06/2015	25/06/2015	25/06/2015
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
Surrogate aaa-Trifluorotoluene	%	100	96	103	98	90

vTRH(C6-C10)/BTEXN in Soil			
Our Reference:	UNITS	129948-50	129948-54
Your Reference	-------------	DUPJDC1	TB
Depth	------------	-	-
Date Sampled		22/06/2015	22/06/2015
Type of sample		Soil	Soil
Date extracted	-	24/06/2015	24/06/2015
Date analysed	-	25/06/2015	25/06/2015
TRH C_6 - C_9	mg/kg	<25	[NA]
TRH C_6 - C_{10}	mg/kg	<25	[NA]
vTPH C_6 - C_{10} less BTEX (F1)	mg/kg	<25	[NA]
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	[NA]
Surrogate aaa-Trifluorotoluene	%	98	103

svTRH (C10-C40) in Soil						
Our Reference:	UNITS	129948-1	129948-2	129948-3	129948-5	129948-6
Your Reference	-------------	BH1	BH1	BH1	BH2	BH2
Depth	------------	0.1-0.3	1-1.2	1.4-1.6	0.07-0.27	1.0-1.2
Date Sampled		22/06/2015	22/06/2015	22/06/2015	22/06/2015	22/06/2015
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	24/06/2015	24/06/2015	24/06/2015	24/06/2015	24/06/2015
Date analysed	-	24/06/2015	24/06/2015	24/06/2015	24/06/2015	24/06/2015
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
Surrogate o-Terphenyl	%	85	80	90	86	89

svTRH (C10-C40) in Soil						
Our Reference:	UNITS	129948-7	129948-10	129948-11	129948-13	129948-14
Your Reference	-------------	BH2	BH3	BH3	BH4	BH4
Depth	------------	1.6-1.8	1.2-1.3	1.3-1.5	0.16-0.3	1.2-1.5
Date Sampled		22/06/2015	22/06/2015	22/06/2015	22/06/2015	22/06/2015
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	24/06/2015	24/06/2015	24/06/2015	24/06/2015	24/06/2015
Date analysed	-	24/06/2015	24/06/2015	24/06/2015	24/06/2015	24/06/2015
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
Surrogate o-Terphenyl	%	77	82	89	88	84

svTRH (C10-C40) in Soil						
Our Reference:	UNITS	129948-16	129948-17	129948-18	129948-21	129948-23
Your Reference	-------------	BH5	BH5	BH6	BH7	BH8
Depth	------------	0.02-0.1	0.2-0.4	0.1-0.4	0.4-0.6	0.2-0.3
Date Sampled		22/06/2015	22/06/2015	22/06/2015	22/06/2015	22/06/2015
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	24/06/2015	24/06/2015	24/06/2015	24/06/2015	24/06/2015
Date analysed	-	24/06/2015	24/06/2015	24/06/2015	24/06/2015	25/06/2015
TRHC $_{10}$ - C $_{14}$	mg/kg	<50	<50	<50	<50	<50
TRHC $_{15}$ - C $_{28}$	mg/kg	120	<100	<100	600	<100
TRHC $_{29}$ - C $_{36}$	mg/kg	550	<100	<100	550	<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	520	<100	<100	1,000	<100
TRH>C $_{34}$-C $_{40}$	mg/kg	460	<100	<100	390	<100
Surrogate o-Terphenyl	%	92	88	87	105	81

svTRH (C10-C40) in Soil						
Our Reference:	UNITS	129948-24	129948-26	129948-28	129948-30	129948-31
Your Reference	-------------	BH9	BH10	BH11	BH12	BH12
Depth	------------	0.2-0.3	0.2-0.3	0.22-0.35	0.8-0.9	1.3-1.5
Date Sampled		22/06/2015	22/06/2015	22/06/2015	22/06/2015	22/06/2015
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	24/06/2015	24/06/2015	24/06/2015	24/06/2015	24/06/2015
Date analysed	-	25/06/2015	24/06/2015	24/06/2015	24/06/2015	24/06/2015
TRHC $_{10}$ - C $_{14}$	mg/kg	<50	<50	<50	<50	<50
TRHC $_{15}$ - C $_{28}$	mg/kg	<100	<100	<100	<100	<100
TRHC $_{29}$ - 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
Surrogate o-Terphenyl	%	93	81	100	76	83

svTRH (C10-C40) in Soil						
Our Reference:	UNITS	129948-32	129948-33	129948-37	129948-40	129948-42
Your Reference	-------------	BH13	BH14	BH15	BH16	BH17
Depth	------------	1-1.3	0.37-0.47	0.3-0.5	1-1.2	0.17-0.3
Date Sampled		22/06/2015	22/06/2015	22/06/2015	22/06/2015	22/06/2015
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	24/06/2015	24/06/2015	24/06/2015	24/06/2015	24/06/2015
Date analysed	-	24/06/2015	24/06/2015	24/06/2015	24/06/2015	24/06/2015
TRHC $_{10}$ - C $_{14}$	mg/kg	<50	<50	<50	<50	<50
TRHC $_{15}$ - C $_{28}$	mg/kg	<100	<100	200	<100	<100
TRHC $_{29}$ - 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	230	<100	<100
TRH>C $_{34}$-C $_{40}$	mg/kg	<100	<100	<100	<100	<100
Surrogate o-Terphenyl	%	86	86	115	73	90

svTRH (C10-C40) in Soil						
Our Reference:	UNITS	129948-43	129948-44	129948-45	129948-47	129948-48
Your Reference	-------------	BH18	BH18	BH18	BH19	BH20
Depth	------------	0.14-0.3	1.3-1.4	2.1-2.4	0.6-0.8	0.19-0.3
Date Sampled		22/06/2015	22/06/2015	22/06/2015	22/06/2015	22/06/2015
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	24/06/2015	24/06/2015	24/06/2015	24/06/2015	24/06/2015
Date analysed	-	24/06/2015	24/06/2015	24/06/2015	24/06/2015	24/06/2015
TRHC $_{10}$ - C $_{14}$	mg/kg	<50	<50	<50	<50	<50
TRHC $_{15}$ - C $_{28}$	mg/kg	<100	<100	<100	<100	<100
TRHC $_{29}$ - 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	130	<100	<100	<100	<100
TRH>C $_{34}$-C $_{40}$	mg/kg	<100	<100	<100	<100	<100
Surrogate o-Terphenyl	%	89	80	84	84	82

svTRH (C10-C40) in Soil		
Our Reference:	UNITS	129948-50
Your Reference	-------------	DUPJDC1
Depth	------------	-
Date Sampled		22/06/2015
Type of sample		Soil
Date extracted	-	24/06/2015
Date analysed	-	24/06/2015
TRH C_{10} - C_{14}	mg/kg	<50
TRH C_{15} - C_{28}	mg/kg	<100
TRH C_{29} - C_{36}	mg/kg	120
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	110
TRH >C_{34}-C_{40}	mg/kg	<100
Surrogate o-Terphenyl	%	83

PAHs in Soil						
Our Reference:	UNITS	129948-1	129948-2	129948-3	129948-5	129948-6
Your Reference	-------------	BH1	BH1	BH1	BH2	BH2
Depth	------------	0.1-0.3	1-1.2	1.4-1.6	0.07-0.27	1.0-1.2
Date Sampled		22/06/2015	22/06/2015	22/06/2015	22/06/2015	22/06/2015
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	24/06/2015	24/06/2015	24/06/2015	24/06/2015	24/06/2015
Date analysed	-	24/06/2015	24/06/2015	24/06/2015	24/06/2015	24/06/2015
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	<0.1	<0.1
Pyrene	mg/kg	<0.1	0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	0.2	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	0.2	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	0.7	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	0.4	<0.05	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	0.3	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	0.4	<0.1	<0.1	<0.1
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	0.6	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	0.6	<0.5	<0.5	<0.5
Total Positive PAHs	mg/kg	NIL (+)VE	2.5	NIL (+)VE	NIL (+)VE	0.16
Surrogate p-Terphenyl-d14	%	96	82	100	96	100

PAHs in Soil						
Our Reference:	UNITS	129948-7	129948-10	129948-11	129948-13	129948-14
Your Reference	-------------	BH2	BH3	BH3	BH4	BH4
Depth	------------	1.6-1.8	1.2-1.3	1.3-1.5	0.16-0.3	1.2-1.5
Date Sampled		22/06/2015	22/06/2015	22/06/2015	22/06/2015	22/06/2015
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	24/06/2015	24/06/2015	24/06/2015	24/06/2015	24/06/2015
Date analysed	-	24/06/2015	24/06/2015	24/06/2015	24/06/2015	24/06/2015
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
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
Total Positive PAHs	mg/kg	NIL (+)VE	NIL (+)VE	NIL (+)VE	NIL (+)VE	NIL (+)VE
Surrogate p-Terphenyl-d14	%	90	88	107	102	95

PAHs in Soil						
Our Reference:	UNITS	129948-16	129948-17	129948-18	129948-21	129948-23
Your Reference	-------------	BH5	BH5	BH6	BH7	BH8
Depth	------------	0.02-0.1	0.2-0.4	0.1-0.4	0.4-0.6	0.2-0.3
Date Sampled		22/06/2015	22/06/2015	22/06/2015	22/06/2015	22/06/2015
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	24/06/2015	24/06/2015	24/06/2015	24/06/2015	24/06/2015
Date analysed	-	24/06/2015	24/06/2015	24/06/2015	24/06/2015	24/06/2015
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	0.6	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	0.2	<0.1
Phenanthrene	mg/kg	0.1	<0.1	1.8	7.5	<0.1
Anthracene	mg/kg	<0.1	<0.1	0.4	2.2	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	2.2	14	<0.1
Pyrene	mg/kg	<0.1	<0.1	2.5	14	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	0.9	5.8	<0.1
Chrysene	mg/kg	<0.1	<0.1	1	5.5	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2	1	8.9	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05	0.87	5.6	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	0.4	2.4	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	0.1	0.5	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	0.5	2.3	<0.1
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	1.2	7.9	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	1.2	7.9	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	1.2	7.9	<0.5
Total Positive PAHs	mg/kg	0.10	NIL (+)VE	12	70	NIL (+)VE
Surrogate p-Terphenyl-d14	%	96	100	99	101	96

PAHs in Soil						
Our Reference:	UNITS	129948-24	129948-26	129948-28	129948-30	129948-31
Your Reference	-------------	BH9	BH10	BH11	BH12	BH12
Depth	------------	0.2-0.3	0.2-0.3	0.22-0.35	0.8-0.9	1.3-1.5
Date Sampled		22/06/2015	22/06/2015	22/06/2015	22/06/2015	22/06/2015
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	24/06/2015	24/06/2015	24/06/2015	24/06/2015	24/06/2015
Date analysed	-	24/06/2015	24/06/2015	24/06/2015	24/06/2015	24/06/2015
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	0.4	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	0.5	<0.1	<0.1
Pyrene	mg/kg	<0.1	<0.1	0.5	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	0.2	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	0.2	<0.1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2	0.3	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05	0.2	<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
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
Total Positive PAHs	mg/kg	NIL (+)VE	NIL (+)VE	2.7	NIL (+)VE	NIL (+)VE
Surrogate p-Terphenyl-d14	%	92	86	109	83	88

PAHs in Soil						
Our Reference:	UNITS	129948-32	129948-33	129948-37	129948-40	129948-42
Your Reference	-------------	BH13	BH14	BH15	BH16	BH17
Depth	------------	1-1.3	0.37-0.47	0.3-0.5	1-1.2	0.17-0.3
Date Sampled		22/06/2015	22/06/2015	22/06/2015	22/06/2015	22/06/2015
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	24/06/2015	24/06/2015	24/06/2015	24/06/2015	24/06/2015
Date analysed	-	24/06/2015	24/06/2015	24/06/2015	24/06/2015	24/06/2015
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
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
Total Positive PAHs	mg/kg	NIL (+)VE	NIL (+)VE	NIL (+)VE	NIL (+)VE	NIL (+)VE
Surrogate p-Terphenyl-d14	%	93	90	103	76	99

PAHs in Soil						
Our Reference:	UNITS	129948-43	129948-44	129948-45	129948-47	129948-48
Your Reference	-------------	BH18	BH18	BH18	BH19	BH20
Depth	------------	0.14-0.3	1.3-1.4	2.1-2.4	0.6-0.8	0.19-0.3
Date Sampled		22/06/2015	22/06/2015	22/06/2015	22/06/2015	22/06/2015
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	24/06/2015	24/06/2015	24/06/2015	24/06/2015	24/06/2015
Date analysed	-	24/06/2015	24/06/2015	24/06/2015	24/06/2015	24/06/2015
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	0.3	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	0.2	<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
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
Total Positive PAHs	mg/kg	NIL (+)VE	1.2	NIL (+)VE	NIL (+)VE	NIL (+)VE
Surrogate p-Terphenyl-d14	%	98	90	93	93	91

PAHs in Soil Our Reference: Your Reference Depth Date Sampled Type of sample	UNITS ------------- ------------	129948-50 DUPJDC1 - 22/06/2015 Soil
Date extracted	-	24/06/2015
Date analysed	-	24/06/2015
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
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
Total Positive PAHs	mg/kg	NIL (+)VE
Surrogate p-Terphenyl-d14	%	91

Organochlorine Pesticides in soil						
Our Reference:	UNITS	129948-1	129948-2	129948-3	129948-5	129948-6
Your Reference	-------------	BH1	BH1	BH1	BH2	BH2
Depth	------------	0.1-0.3	1-1.2	1.4-1.6	0.07-0.27	1.0-1.2
Date Sampled		22/06/2015	22/06/2015	22/06/2015	22/06/2015	22/06/2015
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	24/06/2015	24/06/2015	24/06/2015	24/06/2015	24/06/2015
Date analysed	-	24/06/2015	24/06/2015	24/06/2015	24/06/2015	24/06/2015
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
Surrogate TCMX	%	104	92	106	110	105

Organochlorine Pesticides in soil						
Our Reference:	UNITS	129948-7	129948-10	129948-11	129948-13	129948-14
Your Reference	-------------	BH2	BH3	BH3	BH4	BH4
Depth	------------	1.6-1.8	1.2-1.3	1.3-1.5	0.16-0.3	1.2-1.5
Date Sampled		22/06/2015	22/06/2015	22/06/2015	22/06/2015	22/06/2015
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	24/06/2015	24/06/2015	24/06/2015	24/06/2015	24/06/2015
Date analysed	-	24/06/2015	24/06/2015	24/06/2015	24/06/2015	24/06/2015
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
Surrogate TCMX	%	100	96	109	1,000	101

Organochlorine Pesticides in soil						
Our Reference:	UNITS	129948-16	129948-17	129948-18	129948-21	129948-23
Your Reference	-------------	BH5	BH5	BH6	BH7	BH8
Depth	------------	0.02-0.1	0.2-0.4	0.1-0.4	0.4-0.6	0.2-0.3
Date Sampled		22/06/2015	22/06/2015	22/06/2015	22/06/2015	22/06/2015
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	24/06/2015	24/06/2015	24/06/2015	24/06/2015	24/06/2015
Date analysed	-	24/06/2015	24/06/2015	24/06/2015	24/06/2015	24/06/2015
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
Surrogate TCMX	%	108	104	100	100	97

Organochlorine Pesticides in soil Our Reference: Your Reference Depth Date Sampled Type of sample	UNITS ------------- ------------	129948-24 BH9 0.2-0.3 22/06/2015 Soil	129948-26 BH10 0.2-0.3 22/06/2015 Soil	129948-28 BH11 0.22-0.35 22/06/2015 Soil	129948-30 BH12 0.8-0.9 22/06/2015 Soil	129948-31 BH12 1.3-1.5 22/06/2015 Soil
Date extracted	-	24/06/2015	24/06/2015	24/06/2015	24/06/2015	24/06/2015
Date analysed	-	24/06/2015	24/06/2015	24/06/2015	24/06/2015	24/06/2015
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
Surrogate TCMX	%	104	94	115	101	97

Organochlorine Pesticides in soil						
Our Reference:	UNITS	129948-32	129948-33	129948-37	129948-40	129948-42
Your Reference	-------------	BH13	BH14	BH15	BH16	BH17
Depth	------------	1-1.3	0.37-0.47	0.3-0.5	1-1.2	0.17-0.3
Date Sampled		22/06/2015	22/06/2015	22/06/2015	22/06/2015	22/06/2015
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	24/06/2015	24/06/2015	24/06/2015	24/06/2015	24/06/2015
Date analysed	-	24/06/2015	24/06/2015	24/06/2015	24/06/2015	24/06/2015
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
Surrogate TCMX	%	103	100	107	88	106

Organochlorine Pesticides in soil						
Our Reference:	UNITS	129948-43	129948-44	129948-45	129948-47	129948-48
Your Reference	-------------	BH18	BH18	BH18	BH19	BH20
Depth	------------	0.14-0.3	1.3-1.4	2.1-2.4	0.6-0.8	0.19-0.3
Date Sampled		22/06/2015	22/06/2015	22/06/2015	22/06/2015	22/06/2015
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	24/06/2015	24/06/2015	24/06/2015	24/06/2015	24/06/2015
Date analysed	-	24/06/2015	24/06/2015	24/06/2015	24/06/2015	24/06/2015
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
Surrogate TCMX	%	105	96	102	114	98

Organochlorine Pesticides in soil		
Our Reference:	UNITS	129948-50
Your Reference	-------------	DUPJDC1
Depth	------------	-
Date Sampled		22/06/2015
Type of sample		Soil
Date extracted	-	24/06/2015
Date analysed	-	24/06/2015
HCB	mg/kg	<0.1
alpha-BHC	mg/kg	<0.1
gamma-BHC	mg/kg	<0.1
beta-BHC	mg/kg	<0.1
Heptachlor	mg/kg	<0.1
delta-BHC	mg/kg	<0.1
Aldrin	mg/kg	<0.1
Heptachlor Epoxide	mg/kg	<0.1
gamma-Chlordane	mg/kg	<0.1
alpha-chlordane	mg/kg	<0.1
Endosulfan I	mg/kg	<0.1
pp-DDE	mg/kg	<0.1
Dieldrin	mg/kg	<0.1
Endrin	mg/kg	<0.1
pp-DDD	mg/kg	<0.1
Endosulfan II	mg/kg	<0.1
pp-DDT	mg/kg	<0.1
Endrin Aldehyde	mg/kg	<0.1
Endosulfan Sulphate	mg/kg	<0.1
Methoxychlor	mg/kg	<0.1
Surrogate TCMX	%	97

Organophosphorus Pesticides						
Our Reference:	UNITS	129948-2	129948-5	129948-10	129948-13	129948-16
Your Reference	-------------	BH1	BH2	BH3	BH4	BH5
Depth	------------	1-1.2	0.07-0.27	1.2-1.3	0.16-0.3	0.02-0.1
Date Sampled		22/06/2015	22/06/2015	22/06/2015	22/06/2015	22/06/2015
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	24/06/2015	24/06/2015	24/06/2015	24/06/2015	24/06/2015
Date analysed	-	24/06/2015	24/06/2015	24/06/2015	24/06/2015	24/06/2015
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	%	92	110	96	100	108

Organophosphorus Pesticides						
Our Reference:	UNITS	129948-23	129948-24	129948-28	129948-37	129948-47
Your Reference	-------------	BH8	BH9	BH11	BH15	BH19
Depth	------------	0.2-0.3	0.2-0.3	0.22-0.35	0.3-0.5	0.6-0.8
Date Sampled		22/06/2015	22/06/2015	22/06/2015	22/06/2015	22/06/2015
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	24/06/2015	24/06/2015	24/06/2015	24/06/2015	24/06/2015
Date analysed	-	24/06/2015	24/06/2015	24/06/2015	24/06/2015	24/06/2015
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	%	97	104	115	107	114

Organophosphorus Pesticides		
Our Reference:	UNITS	129948-50
Your Reference	-------------	DUPJDC1
Depth	------------	-
Date Sampled		22/06/2015
Type of sample		Soil
Date extracted	-	24/06/2015
Date analysed	-	24/06/2015
Azinphos-methyl (Guthion)	mg/kg	<0.1
Bromophos-ethyl	mg/kg	<0.1
Chlorpyriphos	mg/kg	<0.1
Chlorpyriphos-methyl	mg/kg	<0.1
Diazinon	mg/kg	<0.1
Dichlorvos	mg/kg	<0.1
Dimethoate	mg/kg	<0.1
Ethion	mg/kg	<0.1
Fenitrothion	mg/kg	<0.1
Malathion	mg/kg	<0.1
Parathion	mg/kg	<0.1
Ronnel	mg/kg	<0.1
Surrogate TCMX	%	97

PCBs in Soil Our Reference: Your Reference Depth Date Sampled Type of sample	UNITS ------------ ------------	129948-1 BH1 0.1-0.3 22/06/2015 Soil	129948-2 BH1 1-1.2 22/06/2015 Soil	129948-3 BH1 1.4-1.6 22/06/2015 Soil	129948-5 BH2 0.07-0.27 22/06/2015 Soil	129948-6 BH2 1.0-1.2 22/06/2015 Soil
Date extracted	-	24/06/2015	24/06/2015	24/06/2015	24/06/2015	24/06/2015
Date analysed	-	24/06/2015	24/06/2015	24/06/2015	24/06/2015	24/06/2015
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
Surrogate TCLMX	%	104	92	106	110	105

PCBs in Soil Our Reference: Your Reference Depth Date Sampled Type of sample	UNITS ------------ ------------	129948-7 BH2 1.6-1.8 22/06/2015 Soil	129948-10 BH3 1.2-1.3 22/06/2015 Soil	129948-11 BH3 1.3-1.5 22/06/2015 Soil	129948-13 BH4 0.16-0.3 22/06/2015 Soil	129948-14 BH4 1.2-1.5 22/06/2015 Soil
Date extracted	-	24/06/2015	24/06/2015	24/06/2015	24/06/2015	24/06/2015
Date analysed	-	24/06/2015	24/06/2015	24/06/2015	24/06/2015	24/06/2015
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
Surrogate TCLMX	%	100	96	109	100	101

PCBs in Soil Our Reference: Your Reference Depth Date Sampled Type of sample	UNITS ------------ ------------	129948-16 BH5 0.02-0.1 22/06/2015 Soil	129948-17 BH5 0.2-0.4 22/06/2015 Soil	129948-18 BH6 0.1-0.4 22/06/2015 Soil	129948-21 BH7 0.4-0.6 22/06/2015 Soil	129948-23 BH8 0.2-0.3 22/06/2015 Soil
Date extracted	-	24/06/2015	24/06/2015	24/06/2015	24/06/2015	24/06/2015
Date analysed	-	24/06/2015	24/06/2015	24/06/2015	24/06/2015	24/06/2015
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
Surrogate TCLMX	%	108	104	100	100	97

PCBs in Soil						
Our Reference:	UNITS	129948-24	129948-26	129948-28	129948-30	129948-31
Your Reference	-------------	BH9	BH10	BH11	BH12	BH12
Depth	------------	0.2-0.3	0.2-0.3	0.22-0.35	0.8-0.9	1.3-1.5
Date Sampled		22/06/2015	22/06/2015	22/06/2015	22/06/2015	22/06/2015
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	24/06/2015	24/06/2015	24/06/2015	24/06/2015	24/06/2015
Date analysed	-	24/06/2015	24/06/2015	24/06/2015	24/06/2015	24/06/2015
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
Surrogate TCLMX	%	104	94	115	101	97

PCBs in Soil						
Our Reference:	UNITS	129948-32	129948-33	129948-37	129948-40	129948-42
Your Reference	-------------	BH13	BH14	BH15	BH16	BH17
Depth	------------	1-1.3	0.37-0.47	0.3-0.5	1-1.2	0.17-0.3
Date Sampled		22/06/2015	22/06/2015	22/06/2015	22/06/2015	22/06/2015
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	24/06/2015	24/06/2015	24/06/2015	24/06/2015	24/06/2015
Date analysed	-	24/06/2015	24/06/2015	24/06/2015	24/06/2015	24/06/2015
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	<0.5	<0.1	<0.1
Aroclor 1260	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCLMX	%	103	100	107	88	106

PCBs in Soil						
Our Reference:	UNITS	129948-43	129948-44	129948-45	129948-47	129948-48
Your Reference	-------------	BH18	BH18	BH18	BH19	BH20
Depth	------------	0.14-0.3	1.3-1.4	2.1-2.4	0.6-0.8	0.19-0.3
Date Sampled		22/06/2015	22/06/2015	22/06/2015	22/06/2015	22/06/2015
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	24/06/2015	24/06/2015	24/06/2015	24/06/2015	24/06/2015
Date analysed	-	24/06/2015	24/06/2015	24/06/2015	24/06/2015	24/06/2015
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	<0.6	<0.1	<0.6	<0.6
Aroclor 1248	mg/kg	<0.1	<0.2	<0.1	<0.2	<0.2
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
Surrogate TCLMX	%	105	96	102	114	98

PCBs in Soil		
Our Reference:	UNITS	129948-50
Your Reference	-------------	DUPJDC1
Depth	------------	-
Date Sampled		22/06/2015
Type of sample		Soil
Date extracted	-	24/06/2015
Date analysed	-	24/06/2015
Aroclor 1016	mg/kg	<0.1
Aroclor 1221	mg/kg	<0.1
Aroclor 1232	mg/kg	<0.1
Aroclor 1242	mg/kg	<0.6
Aroclor 1248	mg/kg	<0.2
Aroclor 1254	mg/kg	<0.1
Aroclor 1260	mg/kg	<0.1
Surrogate TCLMX	%	97

Acid Extractable metals in soil Our Reference: Your Reference Depth Date Sampled Type of sample	UNITS ------------ ------------	129948-1 BH1 0.1-0.3 22/06/2015 Soil	129948-2 BH1 1-1.2 22/06/2015 Soil	129948-3 BH1 1.4-1.6 22/06/2015 Soil	129948-5 BH2 0.07-0.27 22/06/2015 Soil	129948-6 BH2 1.0-1.2 22/06/2015 Soil
Date digested	-	24/06/2015	24/06/2015	24/06/2015	24/06/2015	24/06/2015
Date analysed	-	24/06/2015	24/06/2015	24/06/2015	24/06/2015	24/06/2015
Arsenic	mg/kg	7	7	4	8	8
Cadmium	mg/kg	<0.4	0.7	<0.4	0.4	0.8
Chromium	mg/kg	16	17	11	19	18
Copper	mg/kg	24	37	13	20	39
Lead	mg/kg	240	1,400	9	230	820
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	11	13	3	9	13
Zinc	mg/kg	230	1,100	11	280	790

Acid Extractable metals in soil Our Reference: Your Reference Depth Date Sampled Type of sample	UNITS ------------ ------------	129948-7 BH2 1.6-1.8 22/06/2015 Soil	129948-10 BH3 1.2-1.3 22/06/2015 Soil	129948-11 BH3 1.3-1.5 22/06/2015 Soil	129948-13 BH4 0.16-0.3 22/06/2015 Soil	129948-14 BH4 1.2-1.5 22/06/2015 Soil
Date digested	-	24/06/2015	24/06/2015	24/06/2015	24/06/2015	24/06/2015
Date analysed	-	24/06/2015	24/06/2015	24/06/2015	24/06/2015	24/06/2015
Arsenic	mg/kg	7	5	10	9	<4
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	16	13	18	12	8
Copper	mg/kg	16	6	20	37	13
Lead	mg/kg	12	13	17	67	8
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	5	4	5	11	4
Zinc	mg/kg	15	17	24	94	16

Acid Extractable metals in soil Our Reference: Your Reference Depth Date Sampled Type of sample	UNITS ------------ ------------	129948-16 BH5 0.02-0.1 22/06/2015 Soil	129948-17 BH5 0.2-0.4 22/06/2015 Soil	129948-18 BH6 0.1-0.4 22/06/2015 Soil	129948-21 BH7 0.4-0.6 22/06/2015 Soil	129948-23 BH8 0.2-0.3 22/06/2015 Soil
Date digested	-	24/06/2015	24/06/2015	24/06/2015	24/06/2015	24/06/2015
Date analysed	-	24/06/2015	24/06/2015	24/06/2015	24/06/2015	24/06/2015
Arsenic	mg/kg	<4	4	6	5	6
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	78	10	21	36	13
Copper	mg/kg	35	15	27	29	13
Lead	mg/kg	42	9	46	170	12
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	76	4	18	36	5
Zinc	mg/kg	57	13	65	180	12

Acid Extractable metals in soil Our Reference: Your Reference Depth Date Sampled Type of sample	UNITS ------------ ------------	129948-24 BH9 0.2-0.3 22/06/2015 Soil	129948-26 BH10 0.2-0.3 22/06/2015 Soil	129948-28 BH11 0.22-0.35 22/06/2015 Soil	129948-30 BH12 0.8-0.9 22/06/2015 Soil	129948-31 BH12 1.3-1.5 22/06/2015 Soil
Date digested	-	24/06/2015	24/06/2015	24/06/2015	24/06/2015	24/06/2015
Date analysed	-	24/06/2015	24/06/2015	24/06/2015	24/06/2015	24/06/2015
Arsenic	mg/kg	5	6	<4	10	9
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	14	15	13	19	17
Copper	mg/kg	9	14	33	13	19
Lead	mg/kg	19	27	17	22	13
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	4	6	7	4	4
Zinc	mg/kg	17	47	38	18	15

Acid Extractable metals in soil Our Reference: Your Reference Depth Date Sampled Type of sample	UNITS ------------ ------------	129948-32 BH13 1-1.3 22/06/2015 Soil	129948-33 BH14 0.37-0.47 22/06/2015 Soil	129948-37 BH15 0.3-0.5 22/06/2015 Soil	129948-40 BH16 1-1.2 22/06/2015 Soil	129948-42 BH17 0.17-0.3 22/06/2015 Soil
Date digested	-	24/06/2015	24/06/2015	24/06/2015	24/06/2015	24/06/2015
Date analysed	-	24/06/2015	24/06/2015	24/06/2015	24/06/2015	24/06/2015
Arsenic	mg/kg	7	6	7	6	5
Cadmium	mg/kg	<0.4	<0.4	0.4	<0.4	<0.4
Chromium	mg/kg	11	17	16	14	14
Copper	mg/kg	21	20	30	11	33
Lead	mg/kg	10	25	520	81	290
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	3	8	9	4	12
Zinc	mg/kg	16	30	490	89	300

Acid Extractable metals in soil Our Reference: Your Reference Depth Date Sampled Type of sample	UNITS ------------ ------------	129948-43 BH18 0.14-0.3 22/06/2015 Soil	129948-44 BH18 1.3-1.4 22/06/2015 Soil	129948-45 BH18 2.1-2.4 22/06/2015 Soil	129948-47 BH19 0.6-0.8 22/06/2015 Soil	129948-48 BH20 0.19-0.3 22/06/2015 Soil
Date digested	-	24/06/2015	24/06/2015	24/06/2015	24/06/2015	24/06/2015
Date analysed	-	24/06/2015	24/06/2015	24/06/2015	24/06/2015	24/06/2015
Arsenic	mg/kg	7	7	5	6	5
Cadmium	mg/kg	1	1	<0.4	0.7	0.5
Chromium	mg/kg	35	31	11	27	30
Copper	mg/kg	52	40	16	22	48
Lead	mg/kg	1,400	1,200	13	1,100	620
Mercury	mg/kg	<0.1	0.1	<0.1	0.2	<0.1
Nickel	mg/kg	9	12	4	8	16
Zinc	mg/kg	2,000	1,100	20	1,000	690

Acid Extractable metals in soil		
Our Reference:	UNITS	129948-50
Your Reference	-------------	DUPJDC1
Depth	------------	-
Date Sampled		22/06/2015
Type of sample		Soil
Date digested	-	24/06/2015
Date analysed	-	24/06/2015
Arsenic	mg/kg	7
Cadmium	mg/kg	0.8
Chromium	mg/kg	28
Copper	mg/kg	65
Lead	mg/kg	890
Mercury	mg/kg	<0.1
Nickel	mg/kg	13
Zinc	mg/kg	850

Moisture Our Reference: Your Reference Depth Date Sampled Type of sample	UNITS ------------- ------------	129948-1 BH1 0.1-0.3 22/06/2015 Soil	129948-2 BH1 1-1.2 22/06/2015 Soil	129948-3 BH1 1.4-1.6 22/06/2015 Soil	129948-5 BH2 0.07-0.27 22/06/2015 Soil	129948-6 BH2 1.0-1.2 22/06/2015 Soil
Date prepared	-	24/06/2015	24/06/2015	24/06/2015	24/06/2015	24/06/2015
Date analysed	-	25/06/2015	25/06/2015	25/06/2015	25/06/2015	25/06/2015
Moisture	%	11	14	15	13	16

Moisture Our Reference: Your Reference Depth Date Sampled Type of sample	UNITS ------------- ------------	129948-7 BH2 1.6-1.8 22/06/2015 Soil	129948-10 BH3 1.2-1.3 22/06/2015 Soil	129948-11 BH3 1.3-1.5 22/06/2015 Soil	129948-13 BH4 0.16-0.3 22/06/2015 Soil	129948-14 BH4 1.2-1.5 22/06/2015 Soil
Date prepared	-	24/06/2015	24/06/2015	24/06/2015	24/06/2015	24/06/2015
Date analysed	-	25/06/2015	25/06/2015	25/06/2015	25/06/2015	25/06/2015
Moisture	%	18	13	21	18	15

Moisture Our Reference: Your Reference Depth Date Sampled Type of sample	UNITS ------------- ------------	129948-16 BH5 0.02-0.1 22/06/2015 Soil	129948-17 BH5 0.2-0.4 22/06/2015 Soil	129948-18 BH6 0.1-0.4 22/06/2015 Soil	129948-21 BH7 0.4-0.6 22/06/2015 Soil	129948-23 BH8 0.2-0.3 22/06/2015 Soil
Date prepared	-	24/06/2015	24/06/2015	24/06/2015	24/06/2015	24/06/2015
Date analysed	-	25/06/2015	25/06/2015	25/06/2015	25/06/2015	25/06/2015
Moisture	%	11	14	16	12	17

Moisture Our Reference: Your Reference Depth Date Sampled Type of sample	UNITS ------------- ------------	129948-24 BH9 0.2-0.3 22/06/2015 Soil	129948-26 BH10 0.2-0.3 22/06/2015 Soil	129948-28 BH11 0.22-0.35 22/06/2015 Soil	129948-30 BH12 0.8-0.9 22/06/2015 Soil	129948-31 BH12 1.3-1.5 22/06/2015 Soil
Date prepared	-	24/06/2015	24/06/2015	24/06/2015	24/06/2015	24/06/2015
Date analysed	-	25/06/2015	25/06/2015	25/06/2015	25/06/2015	25/06/2015
Moisture	%	15	20	14	19	20

Moisture Our Reference: Your Reference Depth Date Sampled Type of sample	UNITS ------------- ------------	129948-32 BH13 1-1.3 22/06/2015 Soil	129948-33 BH14 0.37-0.47 22/06/2015 Soil	129948-37 BH15 0.3-0.5 22/06/2015 Soil	129948-40 BH16 1-1.2 22/06/2015 Soil	129948-42 BH17 0.17-0.3 22/06/2015 Soil
Date prepared	-	24/06/2015	24/06/2015	24/06/2015	24/06/2015	24/06/2015
Date analysed	-	25/06/2015	25/06/2015	25/06/2015	25/06/2015	25/06/2015
Moisture	%	18	15	15	12	13

Moisture						
Our Reference:	UNITS	129948-43	129948-44	129948-45	129948-47	129948-48
Your Reference	-------------	BH18	BH18	BH18	BH19	BH20
Depth	------------	0.14-0.3	1.3-1.4	2.1-2.4	0.6-0.8	0.19-0.3
Date Sampled		22/06/2015	22/06/2015	22/06/2015	22/06/2015	22/06/2015
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	24/06/2015	24/06/2015	24/06/2015	24/06/2015	24/06/2015
Date analysed	-	25/06/2015	25/06/2015	25/06/2015	25/06/2015	25/06/2015
Moisture	%	15	16	14	16	16

Moisture		
Our Reference:	UNITS	129948-50
Your Reference	-------------	DUPJDC1
Depth	------------	-
Date Sampled		22/06/2015
Type of sample		Soil
Date prepared	-	24/06/2015
Date analysed	-	25/06/2015
Moisture	%	16

Asbestos ID - soils						
Our Reference:	UNITS	129948-1	129948-2	129948-5	129948-6	129948-10
Your Reference	-------------	BH1	BH1	BH2	BH2	BH3
Depth	------------	0.1-0.3	1-1.2	0.07-0.27	1.0-1.2	1.2-1.3
Date Sampled		22/06/2015	22/06/2015	22/06/2015	22/06/2015	22/06/2015
Type of sample		Soil	Soil	Soil	Soil	Soil
Date analysed	-	25/06/2015	25/06/2015	25/06/2015	25/06/2015	25/06/2015
Sample mass tested	g	Approx 40g	Approx 35g	Approx 50g	26.33g	Approx 40g
Sample Description	-	Brown coarse-grained soil & rocks	Brown coarse-grained soil & rocks	Brown coarse-grained soil & rocks	Brown coarse-grained soil & rocks	Brown coarse-grained soil & rocks
Asbestos ID in soil	-	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	Chrysotile asbestos detected 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

Asbestos ID - soils						
Our Reference:	UNITS	129948-13	129948-16	129948-18	129948-21	129948-23
Your Reference	-------------	BH4	BH5	BH6	BH7	BH8
Depth	------------	0.16-0.3	0.02-0.1	0.1-0.4	0.4-0.6	0.2-0.3
Date Sampled		22/06/2015	22/06/2015	22/06/2015	22/06/2015	22/06/2015
Type of sample		Soil	Soil	Soil	Soil	Soil
Date analysed	-	25/06/2015	25/06/2015	25/06/2015	25/06/2015	25/06/2015
Sample mass tested	g	Approx 35g	Approx 40g	Approx 40g	Approx 40g	Approx 35g
Sample Description	-	Brown coarse-grained soil & rocks	Brown coarse-grained soil & rocks	Brown coarse-grained soil & rocks	Brown coarse-grained soil & rocks	Brown coarse-grained soil & rocks
Asbestos ID in soil	-	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

Asbestos ID - soils						
Our Reference:	UNITS	129948-24	129948-26	129948-28	129948-30	129948-33
Your Reference	-------------	BH9	BH10	BH11	BH12	BH14
Depth	------------	0.2-0.3	0.2-0.3	0.22-0.35	0.8-0.9	0.37-0.47
Date Sampled		22/06/2015	22/06/2015	22/06/2015	22/06/2015	22/06/2015
Type of sample		Soil	Soil	Soil	Soil	Soil
Date analysed	-	25/06/2015	25/06/2015	25/06/2015	25/06/2015	25/06/2015
Sample mass tested	g	Approx 45g	Approx 40g	Approx 40g	Approx 35g	Approx 40g
Sample Description	-	Brown coarse-grained soil & rocks	Brown coarse-grained soil & rocks	Brown coarse-grained soil & rocks	Brown coarse-grained soil & rocks	Brown coarse-grained soil & rocks
Asbestos ID in soil	-	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

Asbestos ID - soils						
Our Reference:	UNITS	129948-37	129948-40	129948-43	129948-44	129948-47
Your Reference	-------------	BH15	BH16	BH18	BH18	BH19
Depth	------------	0.3-0.5	1-1.2	0.14-0.3	1.3-1.4	0.6-0.8
Date Sampled		22/06/2015	22/06/2015	22/06/2015	22/06/2015	22/06/2015
Type of sample		Soil	Soil	Soil	Soil	Soil
Date analysed	-	25/06/2015	25/06/2015	25/06/2015	25/06/2015	25/06/2015
Sample mass tested	g	Approx 35g	Approx 40g	Approx 40g	Approx 40g	Approx 35g
Sample Description	-	Brown coarse-grained soil & rocks	Brown fine-grained soil & rocks	Brown coarse-grained soil & rocks	Brown coarse-grained soil & rocks	Brown coarse-grained soil & rocks
Asbestos ID in soil	-	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

Metals in TCLP USEPA1311 Our Reference:	UNITS	129948-1	129948-6	129948-18	129948-21	129948-26
Your Reference	-------------	BH1	BH2	BH6	BH7	BH10
Depth	------------	0.1-0.3	1.0-1.2	0.1-0.4	0.4-0.6	0.2-0.3
Date Sampled		22/06/2015	22/06/2015	22/06/2015	22/06/2015	22/06/2015
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	24/06/2015	24/06/2015	24/06/2015	24/06/2015	24/06/2015
Date analysed	-	24/06/2015	24/06/2015	24/06/2015	24/06/2015	24/06/2015
pH of soil for fluid# determ.	pH units	8.3	5.6	8.1	8.8	7.5
pH of soil for fluid # determ. (acid)	pH units	1.7	1.6	1.6	1.6	1.5
Extraction fluid used	-	1	1	1	1	1
pH of final Leachate	pH units	5.0	5.1	5.0	5.1	5.1
Arsenic in TCLP	mg/L	<0.05	<0.05	<0.05	<0.05	<0.05
Cadmium in TCLP	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01
Chromium in TCLP	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01
Lead in TCLP	mg/L	0.06	1.8	0.03	0.06	0.05
Mercury in TCLP	mg/L	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Nickel in TCLP	mg/L	<0.02	0.03	<0.02	<0.02	<0.02

Metals in TCLP USEPA1311 Our Reference:	UNITS	129948-30	129948-33	129948-40	129948-43	129948-44
Your Reference	-------------	BH12	BH14	BH16	BH18	BH18
Depth	------------	0.8-0.9	0.37-0.47	1-1.2	0.14-0.3	1.3-1.4
Date Sampled		22/06/2015	22/06/2015	22/06/2015	22/06/2015	22/06/2015
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	24/06/2015	24/06/2015	24/06/2015	24/06/2015	24/06/2015
Date analysed	-	24/06/2015	24/06/2015	24/06/2015	24/06/2015	24/06/2015
pH of soil for fluid# determ.	pH units	7.7	9.2	8.0	8.8	8.9
pH of soil for fluid # determ. (acid)	pH units	1.6	1.6	1.7	1.7	1.6
Extraction fluid used	-	1	1	1	1	1
pH of final Leachate	pH units	5.0	5.1	5.0	5.1	5.1
Arsenic in TCLP	mg/L	<0.05	<0.05	<0.05	<0.05	<0.05
Cadmium in TCLP	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01
Chromium in TCLP	mg/L	<0.01	<0.01	<0.01	0.01	<0.01
Lead in TCLP	mg/L	0.04	0.05	0.44	2.4	1.4
Mercury in TCLP	mg/L	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Nickel in TCLP	mg/L	<0.02	0.02	<0.02	0.03	0.05

PAHs in TCLP (USEPA 1311)						
Our Reference:	UNITS	129948-1	129948-6	129948-18	129948-21	129948-26
Your Reference	-------------	BH1	BH2	BH6	BH7	BH10
Depth	------------	0.1-0.3	1.0-1.2	0.1-0.4	0.4-0.6	0.2-0.3
Date Sampled		22/06/2015	22/06/2015	22/06/2015	22/06/2015	22/06/2015
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	24/06/2015	24/06/2015	24/06/2015	24/06/2015	24/06/2015
Date analysed	-	24/06/2015	24/06/2015	24/06/2015	24/06/2015	24/06/2015
Naphthalene in TCLP	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Acenaphthylene in TCLP	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Acenaphthene in TCLP	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Fluorene in TCLP	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Phenanthrene in TCLP	mg/L	<0.001	<0.001	<0.001	0.002	<0.001
Anthracene in TCLP	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Fluoranthene in TCLP	mg/L	<0.001	<0.001	<0.001	0.001	<0.001
Pyrene in TCLP	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Benzo(a)anthracene in TCLP	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Chrysene in TCLP	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Benzo(bjk)fluoranthene in TCLP	mg/L	<0.002	<0.002	<0.002	<0.002	<0.002
Benzo(a)pyrene in TCLP	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Indeno(1,2,3-c,d)pyrene - TCLP	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Dibenzo(a,h)anthracene in TCLP	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Benzo(g,h,i)perylene in TCLP	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Total +ve PAH's	mg/L	NIL (+)VE	NIL (+)VE	NIL (+)VE	0.0030	NIL (+)VE
Surrogate p-Terphenyl-d14	%	104	93	97	109	101

PAHs in TCLP (USEPA 1311) Our Reference: Your Reference Depth Date Sampled Type of sample	UNITS ------------- ------------	129948-30 BH12 0.8-0.9 22/06/2015 Soil	129948-33 BH14 0.37-0.47 22/06/2015 Soil	129948-40 BH16 1-1.2 22/06/2015 Soil	129948-43 BH18 0.14-0.3 22/06/2015 Soil	129948-44 BH18 1.3-1.4 22/06/2015 Soil
Date extracted	-	24/06/2015	24/06/2015	24/06/2015	24/06/2015	24/06/2015
Date analysed	-	24/06/2015	24/06/2015	24/06/2015	24/06/2015	24/06/2015
Naphthalene in TCLP	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Acenaphthylene in TCLP	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Acenaphthene in TCLP	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Fluorene in TCLP	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Phenanthrene in TCLP	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Anthracene in TCLP	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Fluoranthene in TCLP	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Pyrene in TCLP	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Benzo(a)anthracene in TCLP	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Chrysene in TCLP	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Benzo(bjk)fluoranthene in TCLP	mg/L	<0.002	<0.002	<0.002	<0.002	<0.002
Benzo(a)pyrene in TCLP	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Indeno(1,2,3-c,d)pyrene - TCLP	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Dibenzo(a,h)anthracene in TCLP	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Benzo(g,h,i)perylene in TCLP	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Total +ve PAH's	mg/L	NIL (+)VE	NIL (+)VE	NIL (+)VE	NIL (+)VE	NIL (+)VE
Surrogate p-Terphenyl-d14	%	101	106	95	97	101

Asbestos ID - materials			
Our Reference:	UNITS	129948-30	129948-52
Your Reference	-------------	BH12	F1
Depth	------------	0.8-0.9	-
Date Sampled		22/06/2015	22/06/2015
Type of sample		Soil	material
Date analysed	-	25/6/2015	25/06/2015
Mass / Dimension of Sample	-	17x15x3mm	60x41x5mm
Sample Description	-	Dark grey fibre cement material	Grey compressed fibre cement material
Asbestos ID in materials	-	Chrysotile asbestos detected	Chrysotile asbestos detected

BTEX in Water		
Our Reference:	UNITS	129948-53
Your Reference	-------------	FR1
Depth	------------	-
Date Sampled		22/06/2015
Type of sample		water
Date extracted	-	23/06/2015
Date analysed	-	23/06/2015
Benzene	µg/L	<1
Toluene	µg/L	<1
Ethylbenzene	µg/L	<1
m+p-xylene	µg/L	<2
o-xylene	µg/L	<1
Surrogate Dibromofluoromethane	%	83
Surrogate toluene-d8	%	96
Surrogate 4-BFB	%	95

Method ID	Methodology Summary
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-014	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-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 subset	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. 'TEQ PQL' values are assuming all contributing PAHs reported as <PQL are actually at the PQL. This is the most conservative approach and can give false positive TEQs given that PAHs that contribute to the TEQ calculation may not be present. 2. 'TEQ zero' values are assuming all contributing PAHs reported as <PQL are zero. This is the least conservative approach and is more susceptible to false negative TEQs when PAHs that contribute to the TEQ calculation are present but below PQL. 3. 'TEQ half PQL' values are assuming all contributing PAHs reported as <PQL are half the stipulated PQL. Hence a mid-point between the most and least conservative approaches above. Note, 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-005	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC with dual ECD's.
Org-008	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC with dual ECD's.
Org-006	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-ECD.
Metals-020 ICP-AES	Determination of various metals by ICP-AES.
Metals-021 CV-AAS	Determination of Mercury by Cold Vapour AAS.
Inorg-008	Moisture content determined by heating at 105+/-5 deg C for a minimum of 12 hours.
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.
Inorg-004	Toxicity Characteristic Leaching Procedure (TCLP) using AS 4439 and USEPA 1311 and in house method INORG-004.
EXTRACT.7	Toxicity Characteristic Leaching Procedure (TCLP).
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.
Metals-020 ICP-AES	Determination of various metals by ICP-AES.
Metals-021 CV-AAS	Determination of Mercury by Cold Vapour AAS.

Method ID	Methodology Summary
Org-012 subset	Leachates are extracted with Dichloromethane and analysed by GC-MS.
Org-012 subset	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-012	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS.

QUALITY CONTROL vTRH(C6-C10)/BTEXN in Soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			24/06/2015	129948-2	24/06/2015 || 24/06/2015	LCS-4	24/06/2015
Date analysed	-			24/06/2015	129948-2	24/06/2015 || 24/06/2015	LCS-4	24/06/2015
TRHC$_6$ - C$_9$	mg/kg	25	Org-016	<25	129948-2	<25 || <25	LCS-4	107%
TRHC$_6$ - C$_{10}$	mg/kg	25	Org-016	<25	129948-2	<25 || <25	LCS-4	107%
Benzene	mg/kg	0.2	Org-016	<0.2	129948-2	<0.2 || <0.2	LCS-4	104%
Toluene	mg/kg	0.5	Org-016	<0.5	129948-2	<0.5 || <0.5	LCS-4	104%
Ethylbenzene	mg/kg	1	Org-016	<1	129948-2	<1 || <1	LCS-4	102%
m+p-xylene	mg/kg	2	Org-016	<2	129948-2	<2 || <2	LCS-4	112%
o-Xylene	mg/kg	1	Org-016	<1	129948-2	<1 || <1	LCS-4	101%
naphthalene	mg/kg	1	Org-014	<1	129948-2	<1 || <1	[NR]	[NR]
Surrogate aaa-Trifluorotoluene	%		Org-016	101	129948-2	98 || 96 || RPD: 2	LCS-4	102%

QUALITY CONTROL svTRH (C10-C40) in Soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			24/06/2015	129948-2	24/06/2015 || 24/06/2015	LCS-4	24/06/2015
Date analysed	-			24/06/2015	129948-2	24/06/2015 || 24/06/2015	LCS-4	24/06/2015
TRHC$_{10}$ - C$_{14}$	mg/kg	50	Org-003	<50	129948-2	<50 || <50	LCS-4	96%
TRHC$_{15}$ - C$_{28}$	mg/kg	100	Org-003	<100	129948-2	<100 || <100	LCS-4	96%
TRHC$_{29}$ - C$_{36}$	mg/kg	100	Org-003	<100	129948-2	<100 || <100	LCS-4	92%
TRH>C$_{10}$-C$_{16}$	mg/kg	50	Org-003	<50	129948-2	<50 || <50	LCS-4	96%
TRH>C$_{16}$-C$_{34}$	mg/kg	100	Org-003	<100	129948-2	<100 || <100	LCS-4	96%
TRH>C$_{34}$-C$_{40}$	mg/kg	100	Org-003	<100	129948-2	<100 || <100	LCS-4	92%
Surrogate o-Terphenyl	%		Org-003	82	129948-2	80 || 89 || RPD: 11	LCS-4	114%

QUALITY CONTROL PAHs in Soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			24/06/2015	129948-2	24/06/2015 || 24/06/2015	LCS-4	24/06/2015
Date analysed	-			24/06/2015	129948-2	24/06/2015 || 24/06/2015	LCS-4	24/06/2015
Naphthalene	mg/kg	0.1	Org-012 subset	<0.1	129948-2	<0.1 || <0.1	LCS-4	108%
Acenaphthylene	mg/kg	0.1	Org-012 subset	<0.1	129948-2	<0.1 || <0.1	[NR]	[NR]
Acenaphthene	mg/kg	0.1	Org-012 subset	<0.1	129948-2	<0.1 || <0.1	[NR]	[NR]
Fluorene	mg/kg	0.1	Org-012 subset	<0.1	129948-2	<0.1 || <0.1	LCS-4	90%
Phenanthrene	mg/kg	0.1	Org-012 subset	<0.1	129948-2	<0.1 || <0.1	LCS-4	95%
Anthracene	mg/kg	0.1	Org-012 subset	<0.1	129948-2	<0.1 || <0.1	[NR]	[NR]
Fluoranthene	mg/kg	0.1	Org-012 subset	<0.1	129948-2	0.1 || <0.1	LCS-4	97%

QUALITY CONTROL PAHs in Soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Pyrene	mg/kg	0.1	Org-012 subset	<0.1	129948-2	0.1 || <0.1	LCS-4	101%
Benzo(a)anthracene	mg/kg	0.1	Org-012 subset	<0.1	129948-2	0.2 || <0.1	[NR]	[NR]
Chrysene	mg/kg	0.1	Org-012 subset	<0.1	129948-2	0.2 || <0.1	LCS-4	95%
Benzo(b,j+k) fluoranthene	mg/kg	0.2	Org-012 subset	<0.2	129948-2	0.7 || <0.2	[NR]	[NR]
Benzo(a)pyrene	mg/kg	0.05	Org-012 subset	<0.05	129948-2	0.4 || 0.05 || RPD: 156	LCS-4	94%
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-012 subset	<0.1	129948-2	0.3 || <0.1	[NR]	[NR]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-012 subset	<0.1	129948-2	<0.1 || <0.1	[NR]	[NR]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-012 subset	<0.1	129948-2	0.4 || <0.1	[NR]	[NR]
Surrogate p-Terphenyl-d14	%		Org-012 subset	91	129948-2	82 || 95 || RPD: 15	LCS-4	99%

QUALITY CONTROL Organochlorine Pesticides in soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			24/06/2015	129948-2	24/06/2015 || 24/06/2015	LCS-4	24/06/2015
Date analysed	-			24/06/2015	129948-2	24/06/2015 || 24/06/2015	LCS-4	24/06/2015
HCB	mg/kg	0.1	Org-005	<0.1	129948-2	<0.1 || <0.1	[NR]	[NR]
alpha-BHC	mg/kg	0.1	Org-005	<0.1	129948-2	<0.1 || <0.1	LCS-4	100%
gamma-BHC	mg/kg	0.1	Org-005	<0.1	129948-2	<0.1 || <0.1	[NR]	[NR]
beta-BHC	mg/kg	0.1	Org-005	<0.1	129948-2	<0.1 || <0.1	LCS-4	88%
Heptachlor	mg/kg	0.1	Org-005	<0.1	129948-2	<0.1 || <0.1	LCS-4	101%
delta-BHC	mg/kg	0.1	Org-005	<0.1	129948-2	<0.1 || <0.1	[NR]	[NR]
Aldrin	mg/kg	0.1	Org-005	<0.1	129948-2	<0.1 || <0.1	LCS-4	104%
Heptachlor Epoxide	mg/kg	0.1	Org-005	<0.1	129948-2	<0.1 || <0.1	LCS-4	99%
gamma-Chlordane	mg/kg	0.1	Org-005	<0.1	129948-2	<0.1 || <0.1	[NR]	[NR]
alpha-chlordane	mg/kg	0.1	Org-005	<0.1	129948-2	<0.1 || <0.1	[NR]	[NR]
Endosulfan I	mg/kg	0.1	Org-005	<0.1	129948-2	<0.1 || <0.1	[NR]	[NR]
pp-DDE	mg/kg	0.1	Org-005	<0.1	129948-2	<0.1 || <0.1	LCS-4	90%
Dieldrin	mg/kg	0.1	Org-005	<0.1	129948-2	<0.1 || <0.1	LCS-4	102%
Endrin	mg/kg	0.1	Org-005	<0.1	129948-2	<0.1 || <0.1	LCS-4	114%
pp-DDD	mg/kg	0.1	Org-005	<0.1	129948-2	<0.1 || <0.1	LCS-4	91%
Endosulfan II	mg/kg	0.1	Org-005	<0.1	129948-2	<0.1 || <0.1	[NR]	[NR]
pp-DDT	mg/kg	0.1	Org-005	<0.1	129948-2	<0.1 || <0.1	[NR]	[NR]
Endrin Aldehyde	mg/kg	0.1	Org-005	<0.1	129948-2	<0.1 || <0.1	[NR]	[NR]
Endosulfan Sulphate	mg/kg	0.1	Org-005	<0.1	129948-2	<0.1 || <0.1	LCS-4	99%
Methoxychlor	mg/kg	0.1	Org-005	<0.1	129948-2	<0.1 || <0.1	[NR]	[NR]
Surrogate TCMX	%		Org-005	97	129948-2	92 || 100 || RPD: 8	LCS-4	103%

QUALITY CONTROL Organophosphorus Pesticides	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			24/06/2015	129948-2	24/06/2015 || 24/06/2015	LCS-4	24/06/2015
Date analysed	-			24/06/2015	129948-2	24/06/2015 || 24/06/2015	LCS-4	24/06/2015
Azinphos-methyl (Guthion)	mg/kg	0.1	Org-008	<0.1	129948-2	<0.1 || <0.1	LCS-4	104%
Bromophos-ethyl	mg/kg	0.1	Org-008	<0.1	129948-2	<0.1 || <0.1	[NR]	[NR]
Chlorpyriphos	mg/kg	0.1	Org-008	<0.1	129948-2	<0.1 || <0.1	LCS-4	112%
Chlorpyriphos-methyl	mg/kg	0.1	Org-008	<0.1	129948-2	<0.1 || <0.1	[NR]	[NR]
Diazinon	mg/kg	0.1	Org-008	<0.1	129948-2	<0.1 || <0.1	[NR]	[NR]
Dichlorvos	mg/kg	0.1	Org-008	<0.1	129948-2	<0.1 || <0.1	LCS-4	100%
Dimethoate	mg/kg	0.1	Org-008	<0.1	129948-2	<0.1 || <0.1	[NR]	[NR]
Ethion	mg/kg	0.1	Org-008	<0.1	129948-2	<0.1 || <0.1	LCS-4	124%
Fenitrothion	mg/kg	0.1	Org-008	<0.1	129948-2	<0.1 || <0.1	LCS-4	105%
Malathion	mg/kg	0.1	Org-008	<0.1	129948-2	<0.1 || <0.1	LCS-4	96%
Parathion	mg/kg	0.1	Org-008	<0.1	129948-2	<0.1 || <0.1	LCS-4	110%
Ronnel	mg/kg	0.1	Org-008	<0.1	129948-2	<0.1 || <0.1	[NR]	[NR]
Surrogate TCMX	%		Org-008	97	129948-2	92 || 100 || RPD: 8	LCS-4	104%

QUALITY CONTROL PCBs in Soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			24/06/2015	129948-2	24/06/2015 || 24/06/2015	LCS-4	24/06/2015
Date analysed	-			24/06/2015	129948-2	24/06/2015 || 24/06/2015	LCS-4	24/06/2015
Aroclor 1016	mg/kg	0.1	Org-006	<0.1	129948-2	<0.1 || <0.1	[NR]	[NR]
Aroclor 1221	mg/kg	0.1	Org-006	<0.1	129948-2	<0.1 || <0.1	[NR]	[NR]
Aroclor 1232	mg/kg	0.1	Org-006	<0.1	129948-2	<0.1 || <0.1	[NR]	[NR]
Aroclor 1242	mg/kg	0.1	Org-006	<0.1	129948-2	<0.1 || <0.1	[NR]	[NR]
Aroclor 1248	mg/kg	0.1	Org-006	<0.1	129948-2	<0.1 || <0.1	[NR]	[NR]
Aroclor 1254	mg/kg	0.1	Org-006	<0.1	129948-2	<0.1 || <0.1	LCS-4	106%
Aroclor 1260	mg/kg	0.1	Org-006	<0.1	129948-2	<0.1 || <0.1	[NR]	[NR]
Surrogate TCLMX	%		Org-006	97	129948-2	92 || 100 || RPD: 8	LCS-4	89%

QUALITY CONTROL Acid Extractable metals in soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date digested	-			24/06/2015	129948-2	24/06/2015 || 24/06/2015	LCS-10	24/06/2015
Date analysed	-			24/06/2015	129948-2	24/06/2015 || 24/06/2015	LCS-10	24/06/2015
Arsenic	mg/kg	4	Metals-020 ICP-AES	<4	129948-2	7 || 6 || RPD: 15	LCS-10	96%
Cadmium	mg/kg	0.4	Metals-020 ICP-AES	<0.4	129948-2	0.7 || 0.7 || RPD: 0	LCS-10	83%
Chromium	mg/kg	1	Metals-020 ICP-AES	<1	129948-2	17 || 18 || RPD: 6	LCS-10	93%
Copper	mg/kg	1	Metals-020 ICP-AES	<1	129948-2	37 || 32 || RPD: 14	LCS-10	96%
Lead	mg/kg	1	Metals-020 ICP-AES	<1	129948-2	1400 || 1500 || RPD: 7	LCS-10	87%
Mercury	mg/kg	0.1	Metals-021 CV-AAS	<0.1	129948-2	<0.1 || <0.1	LCS-10	84%
Nickel	mg/kg	1	Metals-020 ICP-AES	<1	129948-2	13 || 12 || RPD: 8	LCS-10	90%
Zinc	mg/kg	1	Metals-020 ICP-AES	<1	129948-2	1100 || 1200 || RPD: 9	LCS-10	89%

QUALITY CONTROL Metals in TCLP USEPA1311	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			24/06/2015	129948-6	24/06/2015 || 24/06/2015	LCS-W1	24/06/2015
Date analysed	-			24/06/2015	129948-6	24/06/2015 || 24/06/2015	LCS-W1	24/06/2015
Arsenic in TCLP	mg/L	0.05	Metals-020 ICP-AES	<0.05	129948-6	<0.05 || <0.05	LCS-W1	104%
Cadmium in TCLP	mg/L	0.01	Metals-020 ICP-AES	<0.01	129948-6	<0.01 || <0.01	LCS-W1	110%
Chromium in TCLP	mg/L	0.01	Metals-020 ICP-AES	<0.01	129948-6	<0.01 || <0.01	LCS-W1	96%
Lead in TCLP	mg/L	0.03	Metals-020 ICP-AES	<0.03	129948-6	1.8 || 1.9 || RPD: 5	LCS-W1	86%
Mercury in TCLP	mg/L	0.0005	Metals-021 CV-AAS	<0.0005	129948-6	<0.0005 || <0.0005	LCS-W1	104%
Nickel in TCLP	mg/L	0.02	Metals-020 ICP-AES	<0.02	129948-6	0.03 || 0.04 || RPD: 29	LCS-W1	102%

QUALITY CONTROL PAHs in TCLP (USEPA 1311)	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			24/06/2015	[NT]	[NT]	LCS-W1	24/06/2015
Date analysed	-			24/06/2015	[NT]	[NT]	LCS-W1	24/06/2015
Naphthalene in TCLP	mg/L	0.001	Org-012 subset	<0.001	[NT]	[NT]	LCS-W1	83%
Acenaphthylene in TCLP	mg/L	0.001	Org-012 subset	<0.001	[NT]	[NT]	[NR]	[NR]
Acenaphthene in TCLP	mg/L	0.001	Org-012 subset	<0.001	[NT]	[NT]	[NR]	[NR]
Fluorene in TCLP	mg/L	0.001	Org-012 subset	<0.001	[NT]	[NT]	LCS-W1	71%
Phenanthrene in TCLP	mg/L	0.001	Org-012 subset	<0.001	[NT]	[NT]	LCS-W1	76%
Anthracene in TCLP	mg/L	0.001	Org-012 subset	<0.001	[NT]	[NT]	[NR]	[NR]
Fluoranthene in TCLP	mg/L	0.001	Org-012 subset	<0.001	[NT]	[NT]	LCS-W1	75%
Pyrene in TCLP	mg/L	0.001	Org-012 subset	<0.001	[NT]	[NT]	LCS-W1	78%
Benzo(a)anthracene in TCLP	mg/L	0.001	Org-012 subset	<0.001	[NT]	[NT]	[NR]	[NR]
Chrysene in TCLP	mg/L	0.001	Org-012 subset	<0.001	[NT]	[NT]	LCS-W1	73%
Benzo(bjk)fluoranthene in TCLP	mg/L	0.002	Org-012 subset	<0.002	[NT]	[NT]	[NR]	[NR]
Benzo(a)pyrene in TCLP	mg/L	0.001	Org-012 subset	<0.001	[NT]	[NT]	LCS-W1	76%
Indeno(1,2,3-c,d)pyrene - TCLP	mg/L	0.001	Org-012 subset	<0.001	[NT]	[NT]	[NR]	[NR]
Dibenzo(a,h)anthracene in TCLP	mg/L	0.001	Org-012 subset	<0.001	[NT]	[NT]	[NR]	[NR]
Benzo(g,h,i)perylene in TCLP	mg/L	0.001	Org-012 subset	<0.001	[NT]	[NT]	[NR]	[NR]
Surrogate p-Terphenyl-d14	%		Org-012	97	[NT]	[NT]	LCS-W1	89%

QUALITY CONTROL BTEX in Water	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			23/06/2015	[NT]	[NT]	LCS-W1	23/06/2015
Date analysed	-			23/06/2015	[NT]	[NT]	LCS-W1	23/06/2015
Benzene	µg/L	1	Org-016	<1	[NT]	[NT]	LCS-W1	84%
Toluene	µg/L	1	Org-016	<1	[NT]	[NT]	LCS-W1	84%
Ethylbenzene	µg/L	1	Org-016	<1	[NT]	[NT]	LCS-W1	85%
m+p-xylene	µg/L	2	Org-016	<2	[NT]	[NT]	LCS-W1	84%
o-xylene	µg/L	1	Org-016	<1	[NT]	[NT]	LCS-W1	87%
Surrogate Dibromofluoromethane	%		Org-016	97	[NT]	[NT]	LCS-W1	80%
Surrogate toluene-d8	%		Org-016	94	[NT]	[NT]	LCS-W1	99%
Surrogate 4-BFB	%		Org-016	96	[NT]	[NT]	LCS-W1	100%

QUALITY CONTROL vTRH(C6-C10)/BTEXN in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	129948-17	24/06/2015 || 24/06/2015	LCS-5	24/06/2015
Date analysed	-	129948-17	24/06/2015 || 24/06/2015	LCS-5	24/06/2015
TRHC_6 - C_9	mg/kg	129948-17	<25 || <25	LCS-5	107%
TRHC_6 - C_{10}	mg/kg	129948-17	<25 || <25	LCS-5	107%
Benzene	mg/kg	129948-17	<0.2 || <0.2	LCS-5	104%
Toluene	mg/kg	129948-17	<0.5 || <0.5	LCS-5	104%
Ethylbenzene	mg/kg	129948-17	<1 || <1	LCS-5	102%
m+p-xylene	mg/kg	129948-17	<2 || <2	LCS-5	112%
o-Xylene	mg/kg	129948-17	<1 || <1	LCS-5	101%
naphthalene	mg/kg	129948-17	<1 || <1	[NR]	[NR]
Surrogate aaa-Trifluorotoluene	%	129948-17	101 || 101 || RPD: 0	LCS-5	102%

QUALITY CONTROL svTRH (C10-C40) in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	129948-17	24/06/2015 || 24/06/2015	LCS-5	24/06/2015
Date analysed	-	129948-17	24/06/2015 || 24/06/2015	LCS-5	24/06/2015
TRHC_{10} - C_{14}	mg/kg	129948-17	<50 || <50	LCS-5	97%
TRHC_{15} - C_{28}	mg/kg	129948-17	<100 || <100	LCS-5	103%
TRHC_{29} - C_{36}	mg/kg	129948-17	<100 || <100	LCS-5	108%
TRH>C_{10}-C_{16}	mg/kg	129948-17	<50 || <50	LCS-5	97%
TRH>C_{16}-C_{34}	mg/kg	129948-17	<100 || <100	LCS-5	103%
TRH>C_{34}-C_{40}	mg/kg	129948-17	<100 || <100	LCS-5	108%
Surrogate o-Terphenyl	%	129948-17	88 || 84 || RPD: 5	LCS-5	100%

QUALITY CONTROL PAHs in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	129948-17	24/06/2015 || 24/06/2015	LCS-5	24/06/2015
Date analysed	-	129948-17	24/06/2015 || 24/06/2015	LCS-5	24/06/2015
Naphthalene	mg/kg	129948-17	<0.1 || <0.1	LCS-5	103%
Acenaphthylene	mg/kg	129948-17	<0.1 || <0.1	[NR]	[NR]
Acenaphthene	mg/kg	129948-17	<0.1 || <0.1	[NR]	[NR]
Fluorene	mg/kg	129948-17	<0.1 || <0.1	LCS-5	90%
Phenanthrene	mg/kg	129948-17	<0.1 || <0.1	LCS-5	87%
Anthracene	mg/kg	129948-17	<0.1 || <0.1	[NR]	[NR]
Fluoranthene	mg/kg	129948-17	<0.1 || <0.1	LCS-5	88%
Pyrene	mg/kg	129948-17	<0.1 || <0.1	LCS-5	93%
Benzo(a)anthracene	mg/kg	129948-17	<0.1 || <0.1	[NR]	[NR]
Chrysene	mg/kg	129948-17	<0.1 || <0.1	LCS-5	88%
Benzo(b,j+k)fluoranthene	mg/kg	129948-17	<0.2 || <0.2	[NR]	[NR]
Benzo(a)pyrene	mg/kg	129948-17	<0.05 || <0.05	LCS-5	88%
Indeno(1,2,3-c,d)pyrene	mg/kg	129948-17	<0.1 || <0.1	[NR]	[NR]
Dibenzo(a,h)anthracene	mg/kg	129948-17	<0.1 || <0.1	[NR]	[NR]
Benzo(g,h,i)perylene	mg/kg	129948-17	<0.1 || <0.1	[NR]	[NR]
Surrogate p-Terphenyl-d14	%	129948-17	100 || 92 || RPD: 8	LCS-5	93%

QUALITY CONTROL Organochlorine Pesticides in soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	129948-11	24/06/2015 || 24/06/2015	LCS-5	24/06/2015
Date analysed	-	129948-11	24/06/2015 || 24/06/2015	LCS-5	24/06/2015
HCB	mg/kg	129948-11	<0.1 || <0.1	[NR]	[NR]
alpha-BHC	mg/kg	129948-11	<0.1 || <0.1	LCS-5	97%
gamma-BHC	mg/kg	129948-11	<0.1 || <0.1	[NR]	[NR]
beta-BHC	mg/kg	129948-11	<0.1 || <0.1	LCS-5	90%
Heptachlor	mg/kg	129948-11	<0.1 || <0.1	LCS-5	98%
delta-BHC	mg/kg	129948-11	<0.1 || <0.1	[NR]	[NR]
Aldrin	mg/kg	129948-11	<0.1 || <0.1	LCS-5	102%
Heptachlor Epoxide	mg/kg	129948-11	<0.1 || <0.1	LCS-5	97%
gamma-Chlordane	mg/kg	129948-11	<0.1 || <0.1	[NR]	[NR]
alpha-chlordane	mg/kg	129948-11	<0.1 || <0.1	[NR]	[NR]
Endosulfan I	mg/kg	129948-11	<0.1 || <0.1	[NR]	[NR]
pp-DDE	mg/kg	129948-11	<0.1 || <0.1	LCS-5	88%
Dieldrin	mg/kg	129948-11	<0.1 || <0.1	LCS-5	100%
Endrin	mg/kg	129948-11	<0.1 || <0.1	LCS-5	111%
pp-DDD	mg/kg	129948-11	<0.1 || <0.1	LCS-5	88%
Endosulfan II	mg/kg	129948-11	<0.1 || <0.1	[NR]	[NR]
pp-DDT	mg/kg	129948-11	<0.1 || <0.1	[NR]	[NR]
Endrin Aldehyde	mg/kg	129948-11	<0.1 || <0.1	[NR]	[NR]
Endosulfan Sulphate	mg/kg	129948-11	<0.1 || <0.1	LCS-5	96%

QUALITY CONTROL Organochlorine Pesticides in soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Methoxychlor	mg/kg	129948-11	<0.1 || <0.1	[NR]	[NR]
Surrogate TCMX	%	129948-11	109 || 102 || RPD: 7	LCS-5	101%
QUALITY CONTROL Organophosphorus Pesticides	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	129948-50	24/06/2015 || 24/06/2015	129948-5	24/06/2015
Date analysed	-	129948-50	24/06/2015 || 24/06/2015	129948-5	24/06/2015
Azinphos-methyl (Guthion)	mg/kg	129948-50	<0.1 || <0.1	129948-5	100%
Bromophos-ethyl	mg/kg	129948-50	<0.1 || <0.1	[NR]	[NR]
Chlorpyriphos	mg/kg	129948-50	<0.1 || <0.1	129948-5	115%
Chlorpyriphos-methyl	mg/kg	129948-50	<0.1 || <0.1	[NR]	[NR]
Diazinon	mg/kg	129948-50	<0.1 || <0.1	[NR]	[NR]
Dichlorvos	mg/kg	129948-50	<0.1 || <0.1	129948-5	94%
Dimethoate	mg/kg	129948-50	<0.1 || <0.1	[NR]	[NR]
Ethion	mg/kg	129948-50	<0.1 || <0.1	129948-5	120%
Fenitrothion	mg/kg	129948-50	<0.1 || <0.1	129948-5	101%
Malathion	mg/kg	129948-50	<0.1 || <0.1	129948-5	94%
Parathion	mg/kg	129948-50	<0.1 || <0.1	129948-5	124%
Ronnel	mg/kg	129948-50	<0.1 || <0.1	[NR]	[NR]
Surrogate TCMX	%	129948-50	97 || 96 || RPD: 1	129948-5	109%
QUALITY CONTROL PCBs in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	129948-11	24/06/2015 || 24/06/2015	LCS-5	24/06/2015
Date analysed	-	129948-11	24/06/2015 || 24/06/2015	LCS-5	24/06/2015
Aroclor 1016	mg/kg	129948-11	<0.1 || <0.1	[NR]	[NR]
Aroclor 1221	mg/kg	129948-11	<0.1 || <0.1	[NR]	[NR]
Aroclor 1232	mg/kg	129948-11	<0.1 || <0.1	[NR]	[NR]
Aroclor 1242	mg/kg	129948-11	<0.1 || <0.1	[NR]	[NR]
Aroclor 1248	mg/kg	129948-11	<0.1 || <0.1	[NR]	[NR]
Aroclor 1254	mg/kg	129948-11	<0.1 || <0.1	LCS-5	101%
Aroclor 1260	mg/kg	129948-11	<0.1 || <0.1	[NR]	[NR]
Surrogate TCLMX	%	129948-11	109 || 102 || RPD: 7	LCS-5	86%

QUALITY CONTROL Acid Extractable metals in soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date digested	-	129948-17	24/06/2015 || 24/06/2015	129948-5	24/06/2015
Date analysed	-	129948-17	24/06/2015 || 24/06/2015	129948-5	24/06/2015
Arsenic	mg/kg	129948-17	4 || <4	129948-5	80%
Cadmium	mg/kg	129948-17	<0.4 || <0.4	129948-5	79%
Chromium	mg/kg	129948-17	10 || 9 || RPD: 11	129948-5	90%
Copper	mg/kg	129948-17	15 || 14 || RPD: 7	129948-5	100%
Lead	mg/kg	129948-17	9 || 8 || RPD: 12	129948-5	#
Mercury	mg/kg	129948-17	<0.1 || <0.1	129948-5	85%
Nickel	mg/kg	129948-17	4 || 4 || RPD: 0	129948-5	85%
Zinc	mg/kg	129948-17	13 || 13 || RPD: 0	129948-5	#
QUALITY CONTROL Metals in TCLP USEPA1311	**UNITS**	**Dup. Sm#**	**Duplicate Base + Duplicate + %RPD**	**Spike Sm#**	**Spike % Recovery**
Date extracted	-	[NT]	[NT]	129948-18	24/06/2015
Date analysed	-	[NT]	[NT]	129948-18	24/06/2015
Arsenic in TCLP	mg/L	[NT]	[NT]	129948-18	115%
Cadmium in TCLP	mg/L	[NT]	[NT]	129948-18	115%
Chromium in TCLP	mg/L	[NT]	[NT]	129948-18	108%
Lead in TCLP	mg/L	[NT]	[NT]	129948-18	106%
Mercury in TCLP	mg/L	[NT]	[NT]	129948-18	108%
Nickel in TCLP	mg/L	[NT]	[NT]	129948-18	105%
QUALITY CONTROL vTRH(C6-C10)/BTEXN in Soil	**UNITS**	**Dup. Sm#**	**Duplicate Base + Duplicate + %RPD**	**Spike Sm#**	**Spike % Recovery**
Date extracted	-	129948-33	24/06/2015 || 24/06/2015	129948-5	24/06/2015
Date analysed	-	129948-33	24/06/2015 || 24/06/2015	129948-5	24/06/2015
TRHC_6 - C_9	mg/kg	129948-33	<25 || <25	129948-5	106%
TRHC_6 - C_{10}	mg/kg	129948-33	<25 || <25	129948-5	106%
Benzene	mg/kg	129948-33	<0.2 || <0.2	129948-5	100%
Toluene	mg/kg	129948-33	<0.5 || <0.5	129948-5	100%
Ethylbenzene	mg/kg	129948-33	<1 || <1	129948-5	102%
m+p-xylene	mg/kg	129948-33	<2 || <2	129948-5	113%
o-Xylene	mg/kg	129948-33	<1 || <1	129948-5	102%
naphthalene	mg/kg	129948-33	<1 || <1	[NR]	[NR]
Surrogate aaa-Trifluorotoluene	%	129948-33	98 || 96 || RPD: 2	129948-5	95%

QUALITY CONTROL svTRH (C10-C40) in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	129948-33	24/06/2015 || 24/06/2015	129948-5	24/06/2015
Date analysed	-	129948-33	24/06/2015 || 24/06/2015	129948-5	24/06/2015
TRHC $_{10}$ - C $_{14}$	mg/kg	129948-33	<50 || <50	129948-5	95%
TRHC $_{15}$ - C $_{28}$	mg/kg	129948-33	<100 || <100	129948-5	95%
TRHC $_{29}$ - C $_{36}$	mg/kg	129948-33	<100 || <100	129948-5	94%
TRH>C $_{10}$-C $_{16}$	mg/kg	129948-33	<50 || <50	129948-5	95%
TRH>C $_{16}$-C $_{34}$	mg/kg	129948-33	<100 || <100	129948-5	95%
TRH>C $_{34}$-C $_{40}$	mg/kg	129948-33	<100 || <100	129948-5	94%
Surrogate o-Terphenyl	%	129948-33	86 || 86 || RPD: 0	129948-5	112%

QUALITY CONTROL PAHs in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	129948-33	24/06/2015 || 24/06/2015	129948-5	24/06/2015
Date analysed	-	129948-33	24/06/2015 || 24/06/2015	129948-5	24/06/2015
Naphthalene	mg/kg	129948-33	<0.1 || <0.1	129948-5	114%
Acenaphthylene	mg/kg	129948-33	<0.1 || <0.1	[NR]	[NR]
Acenaphthene	mg/kg	129948-33	<0.1 || <0.1	[NR]	[NR]
Fluorene	mg/kg	129948-33	<0.1 || <0.1	129948-5	94%
Phenanthrene	mg/kg	129948-33	<0.1 || <0.1	129948-5	99%
Anthracene	mg/kg	129948-33	<0.1 || <0.1	[NR]	[NR]
Fluoranthene	mg/kg	129948-33	<0.1 || <0.1	129948-5	101%
Pyrene	mg/kg	129948-33	<0.1 || <0.1	129948-5	107%
Benzo(a)anthracene	mg/kg	129948-33	<0.1 || <0.1	[NR]	[NR]
Chrysene	mg/kg	129948-33	<0.1 || <0.1	129948-5	99%
Benzo(b,j+k)fluoranthene	mg/kg	129948-33	<0.2 || <0.2	[NR]	[NR]
Benzo(a)pyrene	mg/kg	129948-33	<0.05 || <0.05	129948-5	98%
Indeno(1,2,3-c,d)pyrene	mg/kg	129948-33	<0.1 || <0.1	[NR]	[NR]
Dibenzo(a,h)anthracene	mg/kg	129948-33	<0.1 || <0.1	[NR]	[NR]
Benzo(g,h,i)perylene	mg/kg	129948-33	<0.1 || <0.1	[NR]	[NR]
Surrogate p-Terphenyl-d14	%	129948-33	90 || 94 || RPD: 4	129948-5	99%

QUALITY CONTROL Organochlorine Pesticides in soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	129948-17	24/06/2015 || 24/06/2015	129948-5	24/06/2015
Date analysed	-	129948-17	24/06/2015 || 24/06/2015	129948-5	24/06/2015
HCB	mg/kg	129948-17	<0.1 || <0.1	[NR]	[NR]
alpha-BHC	mg/kg	129948-17	<0.1 || <0.1	129948-5	101%
gamma-BHC	mg/kg	129948-17	<0.1 || <0.1	[NR]	[NR]
beta-BHC	mg/kg	129948-17	<0.1 || <0.1	129948-5	93%
Heptachlor	mg/kg	129948-17	<0.1 || <0.1	129948-5	102%
delta-BHC	mg/kg	129948-17	<0.1 || <0.1	[NR]	[NR]
Aldrin	mg/kg	129948-17	<0.1 || <0.1	129948-5	105%
Heptachlor Epoxide	mg/kg	129948-17	<0.1 || <0.1	129948-5	98%
gamma-Chlordane	mg/kg	129948-17	<0.1 || <0.1	[NR]	[NR]
alpha-chlordane	mg/kg	129948-17	<0.1 || <0.1	[NR]	[NR]
Endosulfan I	mg/kg	129948-17	<0.1 || <0.1	[NR]	[NR]
pp-DDE	mg/kg	129948-17	<0.1 || <0.1	129948-5	91%
Dieldrin	mg/kg	129948-17	<0.1 || <0.1	129948-5	105%
Endrin	mg/kg	129948-17	<0.1 || <0.1	129948-5	98%
pp-DDD	mg/kg	129948-17	<0.1 || <0.1	129948-5	91%
Endosulfan II	mg/kg	129948-17	<0.1 || <0.1	[NR]	[NR]
pp-DDT	mg/kg	129948-17	<0.1 || <0.1	[NR]	[NR]
Endrin Aldehyde	mg/kg	129948-17	<0.1 || <0.1	[NR]	[NR]
Endosulfan Sulphate	mg/kg	129948-17	<0.1 || <0.1	129948-5	100%
Methoxychlor	mg/kg	129948-17	<0.1 || <0.1	[NR]	[NR]
Surrogate TCMX	%	129948-17	104 || 94 || RPD: 10	129948-5	102%

QUALITY CONTROL PCBs in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	129948-17	24/06/2015 || 24/06/2015	129948-5	24/06/2015
Date analysed	-	129948-17	24/06/2015 || 24/06/2015	129948-5	24/06/2015
Aroclor 1016	mg/kg	129948-17	<0.1 || <0.1	[NR]	[NR]
Aroclor 1221	mg/kg	129948-17	<0.1 || <0.1	[NR]	[NR]
Aroclor 1232	mg/kg	129948-17	<0.1 || <0.1	[NR]	[NR]
Aroclor 1242	mg/kg	129948-17	<0.1 || <0.1	[NR]	[NR]
Aroclor 1248	mg/kg	129948-17	<0.1 || <0.1	[NR]	[NR]
Aroclor 1254	mg/kg	129948-17	<0.1 || <0.1	129948-5	105%
Aroclor 1260	mg/kg	129948-17	<0.1 || <0.1	[NR]	[NR]
Surrogate TCLMX	%	129948-17	104 || 94 || RPD: 10	129948-5	105%

QUALITY CONTROL Acid Extractable metals in soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date digested	-	129948-33	24/06/2015 || 24/06/2015	LCS-11	24/06/2015
Date analysed	-	129948-33	24/06/2015 || 24/06/2015	LCS-11	24/06/2015
Arsenic	mg/kg	129948-33	6 || 5 || RPD: 18	LCS-11	93%
Cadmium	mg/kg	129948-33	<0.4 || <0.4	LCS-11	82%
Chromium	mg/kg	129948-33	17 || 18 || RPD: 6	LCS-11	91%
Copper	mg/kg	129948-33	20 || 27 || RPD: 30	LCS-11	92%
Lead	mg/kg	129948-33	25 || 18 || RPD: 33	LCS-11	85%
Mercury	mg/kg	129948-33	<0.1 || <0.1	LCS-11	85%
Nickel	mg/kg	129948-33	8 || 11 || RPD: 32	LCS-11	87%
Zinc	mg/kg	129948-33	30 || 29 || RPD: 3	LCS-11	87%

QUALITY CONTROL vTRH(C6-C10)/BTEXN in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	129948-50	24/06/2015 || 24/06/2015	129948-40	24/06/2015
Date analysed	-	129948-50	25/06/2015 || 25/06/2015	129948-40	24/06/2015
TRH C_6 - C_9	mg/kg	129948-50	<25 || <25	129948-40	105%
TRH C_6 - C_{10}	mg/kg	129948-50	<25 || <25	129948-40	105%
Benzene	mg/kg	129948-50	<0.2 || <0.2	129948-40	99%
Toluene	mg/kg	129948-50	<0.5 || <0.5	129948-40	100%
Ethylbenzene	mg/kg	129948-50	<1 || <1	129948-40	102%
m+p-xylene	mg/kg	129948-50	<2 || <2	129948-40	113%
o-Xylene	mg/kg	129948-50	<1 || <1	129948-40	103%
naphthalene	mg/kg	129948-50	<1 || <1	[NR]	[NR]
Surrogate aaa-Trifluorotoluene	%	129948-50	98 || 102 || RPD: 4	129948-40	99%

QUALITY CONTROL svTRH (C10-C40) in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	129948-50	24/06/2015 || 24/06/2015	129948-40	24/06/2015
Date analysed	-	129948-50	24/06/2015 || 25/06/2015	129948-40	24/06/2015
TRHC $_{10}$ - C $_{14}$	mg/kg	129948-50	<50 || <50	129948-40	95%
TRHC $_{15}$ - C $_{28}$	mg/kg	129948-50	<100 || <100	129948-40	95%
TRHC $_{29}$ - C $_{36}$	mg/kg	129948-50	120 || <100	129948-40	80%
TRH>C $_{10}$-C $_{16}$	mg/kg	129948-50	<50 || <50	129948-40	95%
TRH>C $_{16}$-C $_{34}$	mg/kg	129948-50	110 || <100	129948-40	95%
TRH>C $_{34}$-C $_{40}$	mg/kg	129948-50	<100 || <100	129948-40	80%
Surrogate o-Terphenyl	%	129948-50	83 || 79 || RPD: 5	129948-40	95%

QUALITY CONTROL PAHs in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	129948-50	24/06/2015 || 24/06/2015	129948-40	24/06/2015
Date analysed	-	129948-50	24/06/2015 || 24/06/2015	129948-40	24/06/2015
Naphthalene	mg/kg	129948-50	<0.1 || <0.1	129948-40	103%
Acenaphthylene	mg/kg	129948-50	<0.1 || <0.1	[NR]	[NR]
Acenaphthene	mg/kg	129948-50	<0.1 || <0.1	[NR]	[NR]
Fluorene	mg/kg	129948-50	<0.1 || <0.1	129948-40	86%
Phenanthrene	mg/kg	129948-50	<0.1 || <0.1	129948-40	86%
Anthracene	mg/kg	129948-50	<0.1 || <0.1	[NR]	[NR]
Fluoranthene	mg/kg	129948-50	<0.1 || <0.1	129948-40	86%
Pyrene	mg/kg	129948-50	<0.1 || <0.1	129948-40	91%
Benzo(a)anthracene	mg/kg	129948-50	<0.1 || <0.1	[NR]	[NR]
Chrysene	mg/kg	129948-50	<0.1 || <0.1	129948-40	87%
Benzo(b,j+k)fluoranthene	mg/kg	129948-50	<0.2 || <0.2	[NR]	[NR]
Benzo(a)pyrene	mg/kg	129948-50	<0.05 || <0.05	129948-40	86%
Indeno(1,2,3-c,d)pyrene	mg/kg	129948-50	<0.1 || <0.1	[NR]	[NR]
Dibenzo(a,h)anthracene	mg/kg	129948-50	<0.1 || <0.1	[NR]	[NR]
Benzo(g,h,i)perylene	mg/kg	129948-50	<0.1 || <0.1	[NR]	[NR]
Surrogate p-Terphenyl-d14	%	129948-50	91 || 87 || RPD: 4	129948-40	86%

QUALITY CONTROL Organochlorine Pesticides in soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	129948-33	24/06/2015 || 24/06/2015	129948-40	24/06/2015
Date analysed	-	129948-33	24/06/2015 || 24/06/2015	129948-40	24/06/2015
HCB	mg/kg	129948-33	<0.1 || <0.1	[NR]	[NR]
alpha-BHC	mg/kg	129948-33	<0.1 || <0.1	129948-40	115%
gamma-BHC	mg/kg	129948-33	<0.1 || <0.1	[NR]	[NR]
beta-BHC	mg/kg	129948-33	<0.1 || <0.1	129948-40	71%
Heptachlor	mg/kg	129948-33	<0.1 || <0.1	129948-40	114%
delta-BHC	mg/kg	129948-33	<0.1 || <0.1	[NR]	[NR]
Aldrin	mg/kg	129948-33	<0.1 || <0.1	129948-40	120%
Heptachlor Epoxide	mg/kg	129948-33	<0.1 || <0.1	129948-40	126%
gamma-Chlordane	mg/kg	129948-33	<0.1 || <0.1	[NR]	[NR]
alpha-chlordane	mg/kg	129948-33	<0.1 || <0.1	[NR]	[NR]
Endosulfan I	mg/kg	129948-33	<0.1 || <0.1	[NR]	[NR]
pp-DDE	mg/kg	129948-33	<0.1 || <0.1	129948-40	102%
Dieldrin	mg/kg	129948-33	<0.1 || <0.1	129948-40	111%
Endrin	mg/kg	129948-33	<0.1 || <0.1	129948-40	110%
pp-DDD	mg/kg	129948-33	<0.1 || <0.1	129948-40	102%
Endosulfan II	mg/kg	129948-33	<0.1 || <0.1	[NR]	[NR]
pp-DDT	mg/kg	129948-33	<0.1 || <0.1	[NR]	[NR]
Endrin Aldehyde	mg/kg	129948-33	<0.1 || <0.1	[NR]	[NR]
Endosulfan Sulphate	mg/kg	129948-33	<0.1 || <0.1	129948-40	112%
Methoxychlor	mg/kg	129948-33	<0.1 || <0.1	[NR]	[NR]
Surrogate TCMX	%	129948-33	100 || 106 || RPD: 6	129948-40	113%

QUALITY CONTROL PCBs in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	129948-33	24/06/2015 || 24/06/2015	129948-40	24/06/2015
Date analysed	-	129948-33	24/06/2015 || 24/06/2015	129948-40	24/06/2015
Aroclor 1016	mg/kg	129948-33	<0.1 || <0.1	[NR]	[NR]
Aroclor 1221	mg/kg	129948-33	<0.1 || <0.1	[NR]	[NR]
Aroclor 1232	mg/kg	129948-33	<0.1 || <0.1	[NR]	[NR]
Aroclor 1242	mg/kg	129948-33	<0.1 || <0.1	[NR]	[NR]
Aroclor 1248	mg/kg	129948-33	<0.1 || <0.1	[NR]	[NR]
Aroclor 1254	mg/kg	129948-33	<0.1 || <0.1	129948-40	100%
Aroclor 1260	mg/kg	129948-33	<0.1 || <0.1	[NR]	[NR]
Surrogate TCLMX	%	129948-33	100 || 106 || RPD: 6	129948-40	81%

QUALITY CONTROL Acid Extractable metals in soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date digested	-	129948-50	24/06/2015 || 24/06/2015	129948-40	24/06/2015
Date analysed	-	129948-50	24/06/2015 || 24/06/2015	129948-40	24/06/2015
Arsenic	mg/kg	129948-50	7 || 11 || RPD: 44	129948-40	87%
Cadmium	mg/kg	129948-50	0.8 || 1 || RPD: 22	129948-40	85%
Chromium	mg/kg	129948-50	28 || 44 || RPD: 44	129948-40	86%
Copper	mg/kg	129948-50	65 || 57 || RPD: 13	129948-40	96%
Lead	mg/kg	129948-50	890 || 950 || RPD: 7	129948-40	71%
Mercury	mg/kg	129948-50	<0.1 || <0.1	129948-40	89%
Nickel	mg/kg	129948-50	13 || 15 || RPD: 14	129948-40	87%
Zinc	mg/kg	129948-50	850 || 820 || RPD: 4	129948-40	##

QUALITY CONTROL Organochlorine Pesticides in soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD
Date extracted	-	129948-50	24/06/2015 || 24/06/2015
Date analysed	-	129948-50	24/06/2015 || 24/06/2015
HCB	mg/kg	129948-50	<0.1 || <0.1
alpha-BHC	mg/kg	129948-50	<0.1 || <0.1
gamma-BHC	mg/kg	129948-50	<0.1 || <0.1
beta-BHC	mg/kg	129948-50	<0.1 || <0.1
Heptachlor	mg/kg	129948-50	<0.1 || <0.1
delta-BHC	mg/kg	129948-50	<0.1 || <0.1
Aldrin	mg/kg	129948-50	<0.1 || <0.1
Heptachlor Epoxide	mg/kg	129948-50	<0.1 || <0.1
gamma-Chlordane	mg/kg	129948-50	<0.1 || <0.1
alpha-chlordane	mg/kg	129948-50	<0.1 || <0.1
Endosulfan I	mg/kg	129948-50	<0.1 || <0.1
pp-DDE	mg/kg	129948-50	<0.1 || <0.1
Dieldrin	mg/kg	129948-50	<0.1 || <0.1
Endrin	mg/kg	129948-50	<0.1 || <0.1

QUALITY CONTROL Organochlorine Pesticides in soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD
pp-DDD	mg/kg	129948-50	<0.1 || <0.1
Endosulfan II	mg/kg	129948-50	<0.1 || <0.1
pp-DDT	mg/kg	129948-50	<0.1 || <0.1
Endrin Aldehyde	mg/kg	129948-50	<0.1 || <0.1
Endosulfan Sulphate	mg/kg	129948-50	<0.1 || <0.1
Methoxychlor	mg/kg	129948-50	<0.1 || <0.1
Surrogate TCMX	%	129948-50	97 || 96 || RPD: 1

QUALITY CONTROL PCBs in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD
Date extracted	-	129948-50	24/06/2015 || 24/06/2015
Date analysed	-	129948-50	24/06/2015 || 24/06/2015
Aroclor 1016	mg/kg	129948-50	<0.1 || <0.1
Aroclor 1221	mg/kg	129948-50	<0.1 || <0.1
Aroclor 1232	mg/kg	129948-50	<0.1 || <0.1
Aroclor 1242	mg/kg	129948-50	<0.6 || <0.6
Aroclor 1248	mg/kg	129948-50	<0.2 || <0.2
Aroclor 1254	mg/kg	129948-50	<0.1 || <0.1
Aroclor 1260	mg/kg	129948-50	<0.1 || <0.1
Surrogate TCLMX	%	129948-50	97 || 96 || RPD: 1

QUALITY CONTROL Acid Extractable metals in soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date digested	-	[NT]	[NT]	LCS-12	24/06/2015
Date analysed	-	[NT]	[NT]	LCS-12	24/06/2015
Arsenic	mg/kg	[NT]	[NT]	LCS-12	93%
Cadmium	mg/kg	[NT]	[NT]	LCS-12	81%
Chromium	mg/kg	[NT]	[NT]	LCS-12	90%
Copper	mg/kg	[NT]	[NT]	LCS-12	93%
Lead	mg/kg	[NT]	[NT]	LCS-12	84%
Mercury	mg/kg	[NT]	[NT]	LCS-12	83%
Nickel	mg/kg	[NT]	[NT]	LCS-12	87%
Zinc	mg/kg	[NT]	[NT]	LCS-12	86%

Report Comments:

Acid Extractable Metals in Soil: # Percent recovery is not possible to report due to the high concentration of the element/s in the sample/s. However an acceptable recovery was obtained for the LCS.

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.

PCB's in soil:PQL has been raised due to interference from analytes(other than those being tested) in the sample/s.

PAH in soil: The RPD for duplicate results is accepted due to the non homogenous nature of the sample/s.

Sample 129948-6; Chrysotile asbestos identified in matted material, it is estimated to be 5.40g/kg in 26.33g of soil (i.e. > reporting limit for the method of 0.1g/kg).

Asbestos ID was analysed by Approved Identifier:	Paul Ching
Asbestos ID was authorised by Approved Signatory:	Paul Ching

INS: Insufficient sample for this test	PQL: Practical Quantitation Limit	NT: Not tested
NA: Test not required	RPD: Relative Percent Difference	NA: Test not required
<: Less than	>: Greater than	LCS: Laboratory Control Sample

Quality Control Definitions

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

Duplicate: This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.

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

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

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

Laboratory Acceptance Criteria

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

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

Spikes for Physical and Aggregate Tests are not applicable.

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

Duplicates: <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.

BH17
0.8-0.9 ASB

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: E28497K Date Results Required: 48/hr Page: 1	FROM: ENVIRONMENTAL INVESTIGATION SERVICES REAR OF 115 WICKS ROAD MACQUARIE PARK, NSW 2113 P: 02-9888 5000 F: 02-9888 5001 Attention: Jake Cashman

Location: Smithfield
Sampler: JDC

Sample Preserved in Esky on Ice

Tests Required

Date Sampled	Lab Ref:	Sample Number	Depth (m)	Sample Container	PID	Sample Description	Combo 6a	Combo 12a	Combo 5	Asbestos
22/06/2015	1	BH1	0.1-0.3	G, A	0	Fill: Silty Clay		X		
22/06/2015	2		1-1.2		0		X			
22/06/2015	3		1.4-1.6		0	Silty Clay			X	
22/06/2015	4		1.8-2.0	G	0	Gravelly Clay				
22/06/2015	5	BH2	0.07-0.27	G, A	0.8	Fill: Silty Clay	X			
22/06/2015	6		1.0-1.2		1.5			X		
22/06/2015	7		1.6-1.8		0	Silty Clay			X	
22/06/2015	8	BH3	0.02-0.1	G, A	0	Sandy gravel				
22/06/2015	9		0.1-0.4		0.9	Fill: Silty Clay				
22/06/2015	10		1.2-1.3		1.1		X			
22/06/2015	11		1.3-1.5		0	Silty Clay			X	
22/06/2015	12		2.5-2.6	G	0					
22/06/2015	13	BH4	0.16-0.3	G, A	0	Fill: Silty Clay	X			
22/06/2015	14		1.2-1.5		0	Silty Clay			X	
22/06/2015	15		1.8-2.0	G	0	Silty Clay gravel				
22/06/2015	16	BH5	0.02-0.1	G, A	0	Fill: Silty Sandy gravel	X			
22/06/2015	17		0.2-0.4		0	Silty Clay			X	
22/06/2015	18	BH6	0.1-0.4		0	Fill: Silty Clay		X		
22/06/2015	19		0.8-1.0		0	Silty Clay				
22/06/2015	20	BH7	0-0.2		0	Fill: Silty Sand				
22/06/2015	21		0.4-0.6		0	Fill: Silty Clay		X		
22/06/2015	22		0.7-0.9		0	Silty Clay				
22/06/2015	23	BH8	0.2-0.3		0	Fill: Silty Clay	X			
22/06/2015	24	BH9	0.2-0.3		0	Fill: Silty Clay	X			
22/06/2015	25		0.5-0.7		0	Silty Clay				

ENVIROLAB
Envirolab Services
12 Ashley St
Chatswood NSW 2067
Ph: (02) 9910 6200
Job No: 129948
Date Received: 23/6/15
Time Received: 15:00
Received by: PT
Temp: Cool/Ambient
Cooling: Ice/Icepack
Security: Intact/Broken/None

Remarks (comments/detection limits required):
Send DUPJDC2 TO VIC

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

Relinquished By:	Date:	Time:	Received By:	Date:
Jake Cashman	23/6/15	12:00	PT	23/6/15

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: E28497K Date Results Required: 48/hr Page: 2	EIS ENVIRONMENTAL INVESTIGATION SERVICES REAR OF 115 WICKS ROAD MACQUARIE PARK, NSW 2113 P: 02-9888 5000 F: 02-9888 5001 Attention: Jake Cashman

Location: Smithfield

Sampler: JDC

Sample Preserved in Esky on Ice

Tests Required

Date Sampled	Lab Ref:	Sample Number	Depth (m)	Sample Container	PID	Sample Description	Combo 6a	Combo 12a	Combo 5	Asbestos	Combo 6
22/06/2015	26	BH10	0.2-0.3	G, A	0	Fill: Silty Clay		X			
22/06/2015	27	↓	0.5-0.7		0	Silty Clay					
22/06/2015	28	BH11	0.27-0.35		0.9	Fill: Silty Sand	X				
22/06/2015	29	BH12	0.13-0.3		0	Fill: Clayey gravelly sand + fragment					
22/06/2015	30		0.8-0.9	↓	0	Fill: Silty Clay		X			
22/06/2015	31	↓	1.3-1.5	G	0	Silty Clay			X		
22/06/2015	32	BH13	1-1.3	G, A	1.4	Silty Clay			X		
22/06/2015	33	BH14	0.37-0.47		1.4	Fill: Clayey Sand		X			
22/06/2015	34		0.8-1.0	↓	0	Fill: Silty Clay					
22/06/2015	35	↓	2.5-2.7	G	0	Gravelly Clay					
22/06/2015	36	BH15	0.15-0.2	G, A	0	Fill: Silty Sand					
22/06/2015	37		0.3-0.5	↓	0	Fill: Silty Clay	X				
22/06/2015	38	↓	1.2-1.5	G	0	Silty Clay					
22/06/2015	39	BH16	0.2-0.4	G, A	0	Fill: Silty Clay					
22/06/2015	40		1-1.2		2.4	↓		X			
22/06/2015	41	↓	1.6-1.8		0	Silty Clay					
22/06/2015	42	BH17	0.17-0.3		0	Fill: Silty Clay			X		
22/06/2015	43	BH18	0.14-0.3		15.0			X			
22/06/2015	44		1.3-1.5		3.8	↓		X			
22/06/2015	45	↓	2.1-2.4		0	Silty Clay			X		
22/06/2015	46	BH19	0.15-0.3		1.0	Fill: silty sandy clay					
22/06/2015	47	↓	0.6-0.8		3.1	↓	X				
22/06/2015	48	BH20	0.19-0.3	↓	1.5	Fill: Silty Clay			X		
22/06/2015	49	↓	1.3-1.75	G	0	Clayey gravel					
22/06/2015	50	DUPID01	—	↓	—	—					X

Remarks (comments/detection limits required):

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

129948

Relinquished By:	Date:	Time:	Received By:	Date:
			PT	23/6

SAMPLE AND CHAIN OF CUSTODY FORM

TO:	EIS Job Number: E28497K	FROM:
ENVIROLAB SERVICES PTY LTD 12 ASHLEY STREET CHATSWOOD NSW 2067 P: (02) 99106200 F: (02) 99106201	Date Results Required: 48/hr	ENVIRONMENTAL INVESTIGATION SERVICES REAR OF 115 WICKS ROAD MACQUARIE PARK, NSW 2113 P: 02-9888 5000 F: 02-9888 5001
Attention: Aileen	Page: 3	Attention: Jake Cashman

EIS

Location: Smithfield

Sampler: JDC

Sample Preserved in Esky on Ice

Tests Required

Date Sampled	Lab Ref:	Sample Number	Depth (m)	Sample Container	PID	Sample Description	Combo 6a	Combo 12a	Combo 5	Asbestos	Combo 6	BTEXN							
22/06/2015	51	DUPJDC2	—	G.	—	—					X								
22/06/2015	52	F1	Surface	A	—	Fragment				X									
22/06/2015	53	FR	—	1 Vial	—	Water						X							
22/06/2015	54	TB	—	G	—	Sand						X							
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22/06/2015																			

Remarks (comments/detection limits required):	Sample Containers: G - 250mg Glass Jar A - Ziplock Asbestos Bag P - Plastic Bag	129948

Relinquished By:	Date:	Time:	Received By: PT	Date: 23/6

Simon Song

From: Jake Cashman <JCashman@jkgroup.net.au>
Sent: Thursday, 25 June 2015 12:51 PM
To: Simon Song
Cc: Aileen Hie
Subject: RE: Sample Receipt for 129948 E28497K, Smithfield

Simon/Aileen,

-9

Can I please have BH3 0.1-0.4 analysed for combo 6.

This can be sent as addition report to the one today, once complete.

Thankyou for your hard work with regards to delivering to report today.

129948 A
2 days T/A
due 29/6.

Regards,

Jake Cashman
Environmental Scientist

JCashman@jkgroup.net.au
www.jkgroup.net.au

Environmental Investigation Services
CONSULTING ENVIRONMENTAL ENGINEERS AND SCIENTISTS
PO Box 976, North Ryde BC NSW 1670
115 Wicks Rd, Macquarie Park NSW 2113
T: +612 9888 5000 F: +612 9888 5001

From: Simon Song [mailto:SSong@envirolab.com.au]
Sent: Tuesday, 23 June 2015 5:16 PM
To: Jake Cashman
Subject: Sample Receipt for 129948 E28497K, Smithfield

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

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

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

The current pricing schedule came into effect on 1/1/13.

Please note that subcontracted testing or non routine testing may take significantly longer than just the std 5 day TAT, contact the lab

to get an approximate due date

Enquiries should be made directly to:
Aileen Hie on ahie@envirolabservices.com.au
or
Jacinta Hurst on jhurst@envirolabservices.com.au
or
Geoff Weir on gweir@envirolabservices.com.au (Tuesday to Friday)

Regards

Envirolab Services
12 Ashley St Chatswood NSW 2067
ph 02 9910 6200 fax 02 9910 6201
www.envirolabservices.com.au

Regards

Simon Song | Sample Receipt | Envirolab Services Pty Ltd

Great Chemistry, Great Service.

12 Ashley Street Chatswood NSW 2067
T 612 9910 6200 **F** 612 9910 6201
ssong@envirolab.com.au | www.envirolab.com.au

Follow this link to provide feedback on our service.

ENVIROLAB REPORT (CoA) CHANGES:

Due to market demand, Envirolab will now report three values for the calculated B(a)P TEQ results, as detailed below:-

1. B(a)P 'TEQ PQL' values are assuming all contributing PAHs reported as <PQL are actually at the PQL. This is the most conservative approach and can give false positive TEQs given that PAHs that contribute to the TEQ calculation may not be present.
2. B(a)P 'TEQ zero' values are assuming all contributing PAHs reported as <PQL are zero. This is the least conservative approach and is more susceptible to false negative TEQs when PAHs that contribute to the TEQ calculation are present but below PQL.
3. B(a)P 'TEQ half PQL' values are assuming all contributing PAHs reported as <PQL are half the stipulated PQL. Hence a mid-point between the most and least conservative approaches above.

B(a)P TEQ is a measure of carcinogenic PAHs for health investigation levels for soil contaminants, as per the NEPM Schedule B1 2013 amendment.

If any further information is required, please contact the laboratory.

Latest Links Below:

Our "RECOMMENDED PRESERVATION & HOLDING TIMES (RHT)" chart that includes minimal sample volumes required

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

ENVIROLAB SERVICES A division of Envirolab Group ENVIROLAB GROUP

Sydney	Perth	Melbourne	Adelaide	Brisbane
National Ph	1300 42 43 44			
Envirolab Services	MPL Laboratories	Envirolab Services	Envirolab Services	Envirolab Services
12 Ashley St	16-18 Hayden Court,	1 Dalmore Drive	7a The Parade	Unit 20a, 10-20 Depot St,
Chatswood NSW 2067	Myaree WA 6154	Scoresby VIC 3179	Norwood SA 5067	Banyo QLD 4014
T 02 9910 6200	T 08 9317 2505	T 03 9763 2500	T 08 7087 6800	T 07 3266 9532
F 02 9910 6299	F 089317 4163	F 03 9763 2633	F 08 8362 1776	F 07 3256 9411
sydney@envirolab.com.au	lab@mpl.com.au	melbourne@envirolab.com.au	adelaide@envirolab.com.au	brisbane@envirolab.com.au

This email has been scanned by the Symantec Email Security.cloud service.
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Envirolab Services Pty Ltd
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12 Ashley St Chatswood NSW 2067
ph 02 9910 6200 fax 02 9910 6201
enquiries@envirolabservices.com.au
www.envirolabservices.com.au

CERTIFICATE OF ANALYSIS 129948-A

Client:
Environmental Investigation Services
PO Box 976
North Ryde BC
NSW 1670

Attention: Jake Cashman

Sample log in details:

Your Reference:	**E28497K, Smithfield**
No. of samples:	Additional testing on 1 soil
Date samples received / completed instructions received	23/06/15 / 25/06/15

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: / Issue Date:	29/06/15 / 29/06/15
Date of Preliminary Report:	Not Issued

NATA accreditation number 2901. This document shall not be reproduced except in full.
Accredited for compliance with ISO/IEC 17025. **Tests not covered by NATA are denoted with *.**

Results Approved By:

Jacinta Hurst
Laboratory Manager

vTRH(C6-C10)/BTEXN in Soil Our Reference: Your Reference Depth Date Sampled Type of sample	UNITS ------------- ------------	129948-A-9 BH3 0.1-0.4 22/06/2015 Soil
Date extracted	-	26/06/2015
Date analysed	-	26/06/2015
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
Surrogate aaa-Trifluorotoluene	%	101

svTRH (C10-C40) in Soil		
Our Reference:	UNITS	129948-A-9
Your Reference	-------------	BH3
Depth	------------	0.1-0.4
Date Sampled		22/06/2015
Type of sample		Soil
Date extracted	-	26/06/2015
Date analysed	-	26/06/2015
TRHC $_{10}$ - C $_{14}$	mg/kg	<50
TRHC $_{15}$ - C $_{28}$	mg/kg	<100
TRHC $_{29}$ - 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
Surrogate o-Terphenyl	%	93

PAHs in Soil		
Our Reference:	UNITS	129948-A-9
Your Reference	-------------	BH3
Depth	------------	0.1-0.4
Date Sampled		22/06/2015
Type of sample		Soil
Date extracted	-	26/06/2015
Date analysed	-	26/06/2015
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
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
Total Positive PAHs	mg/kg	NIL (+)VE
Surrogate p-Terphenyl-d14	%	105

Organochlorine Pesticides in soil		
Our Reference:	UNITS	129948-A-9
Your Reference	-------------	BH3
Depth	------------	0.1-0.4
Date Sampled		22/06/2015
Type of sample		Soil
Date extracted	-	26/06/2015
Date analysed	-	27/06/2015
HCB	mg/kg	<0.1
alpha-BHC	mg/kg	<0.1
gamma-BHC	mg/kg	<0.1
beta-BHC	mg/kg	<0.1
Heptachlor	mg/kg	<0.1
delta-BHC	mg/kg	<0.1
Aldrin	mg/kg	<0.1
Heptachlor Epoxide	mg/kg	<0.1
gamma-Chlordane	mg/kg	<0.1
alpha-chlordane	mg/kg	<0.1
Endosulfan I	mg/kg	<0.1
pp-DDE	mg/kg	<0.1
Dieldrin	mg/kg	<0.1
Endrin	mg/kg	<0.1
pp-DDD	mg/kg	<0.1
Endosulfan II	mg/kg	<0.1
pp-DDT	mg/kg	<0.1
Endrin Aldehyde	mg/kg	<0.1
Endosulfan Sulphate	mg/kg	<0.1
Methoxychlor	mg/kg	<0.1
Surrogate TCMX	%	99

Organophosphorus Pesticides		
Our Reference:	UNITS	129948-A-9
Your Reference	-------------	BH3
Depth	------------	0.1-0.4
Date Sampled		22/06/2015
Type of sample		Soil
Date extracted	-	26/06/2015
Date analysed	-	27/06/2015
Azinphos-methyl (Guthion)	mg/kg	<0.1
Bromophos-ethyl	mg/kg	<0.1
Chlorpyriphos	mg/kg	<0.1
Chlorpyriphos-methyl	mg/kg	<0.1
Diazinon	mg/kg	<0.1
Dichlorvos	mg/kg	<0.1
Dimethoate	mg/kg	<0.1
Ethion	mg/kg	<0.1
Fenitrothion	mg/kg	<0.1
Malathion	mg/kg	<0.1
Parathion	mg/kg	<0.1
Ronnel	mg/kg	<0.1
Surrogate TCMX	%	99

PCBs in Soil		
Our Reference:	UNITS	129948-A-9
Your Reference	-------------	BH3
Depth	------------	0.1-0.4
Date Sampled		22/06/2015
Type of sample		Soil
Date extracted	-	26/06/2015
Date analysed	-	27/06/2015
Aroclor 1016	mg/kg	<0.1
Aroclor 1221	mg/kg	<0.1
Aroclor 1232	mg/kg	<0.1
Aroclor 1242	mg/kg	<0.1
Aroclor 1248	mg/kg	<0.1
Aroclor 1254	mg/kg	<0.1
Aroclor 1260	mg/kg	<0.1
Surrogate TCLMX	%	99

Acid Extractable metals in soil		
Our Reference:	UNITS	129948-A-9
Your Reference	-------------	BH3
Depth	------------	0.1-0.4
Date Sampled		22/06/2015
Type of sample		Soil
Date digested	-	26/06/2015
Date analysed	-	26/06/2015
Arsenic	mg/kg	7
Cadmium	mg/kg	<0.4
Chromium	mg/kg	18
Copper	mg/kg	21
Lead	mg/kg	260
Mercury	mg/kg	<0.1
Nickel	mg/kg	11
Zinc	mg/kg	290

Moisture		
Our Reference:	UNITS	129948-A-9
Your Reference	-------------	BH3
Depth	------------	0.1-0.4
Date Sampled		22/06/2015
Type of sample		Soil
Date prepared	-	26/06/2015
Date analysed	-	29/06/2015
Moisture	%	15

Method ID	Methodology Summary
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-014	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-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 subset	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. 'TEQ PQL' values are assuming all contributing PAHs reported as <PQL are actually at the PQL. This is the most conservative approach and can give false positive TEQs given that PAHs that contribute to the TEQ calculation may not be present. 2. 'TEQ zero' values are assuming all contributing PAHs reported as <PQL are zero. This is the least conservative approach and is more susceptible to false negative TEQs when PAHs that contribute to the TEQ calculation are present but below PQL. 3. 'TEQ half PQL' values are assuming all contributing PAHs reported as <PQL are half the stipulated PQL. Hence a mid-point between the most and least conservative approaches above. Note, 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-005	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC with dual ECD's.
Org-008	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC with dual ECD's.
Org-006	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-ECD.
Metals-020 ICP-AES	Determination of various metals by ICP-AES.
Metals-021 CV-AAS	Determination of Mercury by Cold Vapour AAS.
Inorg-008	Moisture content determined by heating at 105+/-5 deg C for a minimum of 12 hours.

QUALITY CONTROL vTRH(C6-C10)/BTEXN in Soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			26/06/2015	[NT]	[NT]	LCS-1	26/06/2015
Date analysed	-			26/06/2015	[NT]	[NT]	LCS-1	26/06/2015
TRH C_6 - C_9	mg/kg	25	Org-016	<25	[NT]	[NT]	LCS-1	102%
TRH C_6 - C_{10}	mg/kg	25	Org-016	<25	[NT]	[NT]	LCS-1	102%
Benzene	mg/kg	0.2	Org-016	<0.2	[NT]	[NT]	LCS-1	104%
Toluene	mg/kg	0.5	Org-016	<0.5	[NT]	[NT]	LCS-1	100%
Ethylbenzene	mg/kg	1	Org-016	<1	[NT]	[NT]	LCS-1	100%
m+p-xylene	mg/kg	2	Org-016	<2	[NT]	[NT]	LCS-1	102%
o-Xylene	mg/kg	1	Org-016	<1	[NT]	[NT]	LCS-1	101%
naphthalene	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
Surrogate aaa-Trifluorotoluene	%		Org-016	107	[NT]	[NT]	LCS-1	109%

QUALITY CONTROL svTRH (C10-C40) in Soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			26/06/2015	[NT]	[NT]	LCS-1	26/06/2015
Date analysed	-			26/06/2015	[NT]	[NT]	LCS-1	26/06/2015
TRH C_{10} - C_{14}	mg/kg	50	Org-003	<50	[NT]	[NT]	LCS-1	100%
TRH C_{15} - C_{28}	mg/kg	100	Org-003	<100	[NT]	[NT]	LCS-1	97%
TRH C_{29} - C_{36}	mg/kg	100	Org-003	<100	[NT]	[NT]	LCS-1	83%
TRH $>C_{10}$-C_{16}	mg/kg	50	Org-003	<50	[NT]	[NT]	LCS-1	100%
TRH $>C_{16}$-C_{34}	mg/kg	100	Org-003	<100	[NT]	[NT]	LCS-1	97%
TRH $>C_{34}$-C_{40}	mg/kg	100	Org-003	<100	[NT]	[NT]	LCS-1	83%
Surrogate o-Terphenyl	%		Org-003	94	[NT]	[NT]	LCS-1	111%

QUALITY CONTROL PAHs in Soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			26/06/2015	[NT]	[NT]	LCS-1	26/06/2015
Date analysed	-			26/06/2015	[NT]	[NT]	LCS-1	26/06/2015
Naphthalene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	LCS-1	102%
Acenaphthylene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	[NR]	[NR]
Acenaphthene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	[NR]	[NR]
Fluorene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	LCS-1	89%
Phenanthrene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	LCS-1	90%
Anthracene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	[NR]	[NR]
Fluoranthene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	LCS-1	83%

QUALITY CONTROL PAHs in Soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Pyrene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	LCS-1	86%
Benzo(a)anthracene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	[NR]	[NR]
Chrysene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	LCS-1	92%
Benzo(b,j+k) fluoranthene	mg/kg	0.2	Org-012 subset	<0.2	[NT]	[NT]	[NR]	[NR]
Benzo(a)pyrene	mg/kg	0.05	Org-012 subset	<0.05	[NT]	[NT]	LCS-1	90%
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	[NR]	[NR]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	[NR]	[NR]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	[NR]	[NR]
Surrogate p-Terphenyl-d14	%		Org-012 subset	108	[NT]	[NT]	LCS-1	94%

QUALITY CONTROL Organochlorine Pesticides in soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			26/06/2015	[NT]	[NT]	LCS-1	26/06/2015
Date analysed	-			27/06/2015	[NT]	[NT]	LCS-1	27/06/2015
HCB	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NR]	[NR]
alpha-BHC	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	LCS-1	93%
gamma-BHC	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NR]	[NR]
beta-BHC	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	LCS-1	89%
Heptachlor	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	LCS-1	93%
delta-BHC	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NR]	[NR]
Aldrin	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	LCS-1	94%
Heptachlor Epoxide	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	LCS-1	93%
gamma-Chlordane	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NR]	[NR]
alpha-chlordane	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NR]	[NR]
Endosulfan I	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NR]	[NR]
pp-DDE	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	LCS-1	87%
Dieldrin	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	LCS-1	95%
Endrin	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	LCS-1	92%
pp-DDD	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	LCS-1	95%
Endosulfan II	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NR]	[NR]
pp-DDT	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NR]	[NR]
Endrin Aldehyde	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NR]	[NR]
Endosulfan Sulphate	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	LCS-1	92%
Methoxychlor	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NR]	[NR]
Surrogate TCMX	%		Org-005	101	[NT]	[NT]	LCS-1	89%

QUALITY CONTROL Organophosphorus Pesticides	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			26/06/2015	[NT]	[NT]	LCS-1	26/06/2015
Date analysed	-			27/06/2015	[NT]	[NT]	LCS-1	27/06/2015
Azinphos-methyl (Guthion)	mg/kg	0.1	Org-008	<0.1	[NT]	[NT]	LCS-1	94%
Bromophos-ethyl	mg/kg	0.1	Org-008	<0.1	[NT]	[NT]	[NR]	[NR]
Chlorpyriphos	mg/kg	0.1	Org-008	<0.1	[NT]	[NT]	LCS-1	102%
Chlorpyriphos-methyl	mg/kg	0.1	Org-008	<0.1	[NT]	[NT]	[NR]	[NR]
Diazinon	mg/kg	0.1	Org-008	<0.1	[NT]	[NT]	[NR]	[NR]
Dichlorvos	mg/kg	0.1	Org-008	<0.1	[NT]	[NT]	LCS-1	94%
Dimethoate	mg/kg	0.1	Org-008	<0.1	[NT]	[NT]	[NR]	[NR]
Ethion	mg/kg	0.1	Org-008	<0.1	[NT]	[NT]	LCS-1	92%
Fenitrothion	mg/kg	0.1	Org-008	<0.1	[NT]	[NT]	LCS-1	92%
Malathion	mg/kg	0.1	Org-008	<0.1	[NT]	[NT]	LCS-1	87%
Parathion	mg/kg	0.1	Org-008	<0.1	[NT]	[NT]	LCS-1	124%
Ronnel	mg/kg	0.1	Org-008	<0.1	[NT]	[NT]	[NR]	[NR]
Surrogate TCMX	%		Org-008	101	[NT]	[NT]	LCS-1	96%

QUALITY CONTROL PCBs in Soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			26/06/2015	[NT]	[NT]	LCS-1	26/06/2015
Date analysed	-			27/06/2015	[NT]	[NT]	LCS-1	27/06/2015
Aroclor 1016	mg/kg	0.1	Org-006	<0.1	[NT]	[NT]	[NR]	[NR]
Aroclor 1221	mg/kg	0.1	Org-006	<0.1	[NT]	[NT]	[NR]	[NR]
Aroclor 1232	mg/kg	0.1	Org-006	<0.1	[NT]	[NT]	[NR]	[NR]
Aroclor 1242	mg/kg	0.1	Org-006	<0.1	[NT]	[NT]	[NR]	[NR]
Aroclor 1248	mg/kg	0.1	Org-006	<0.1	[NT]	[NT]	[NR]	[NR]
Aroclor 1254	mg/kg	0.1	Org-006	<0.1	[NT]	[NT]	LCS-1	114%
Aroclor 1260	mg/kg	0.1	Org-006	<0.1	[NT]	[NT]	[NR]	[NR]
Surrogate TCLMX	%		Org-006	101	[NT]	[NT]	LCS-1	90%

QUALITY CONTROL Acid Extractable metals in soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date digested	-			26/06/2015	[NT]	[NT]	LCS-4	26/06/2015
Date analysed	-			26/06/2015	[NT]	[NT]	LCS-4	26/06/2015
Arsenic	mg/kg	4	Metals-020 ICP-AES	<4	[NT]	[NT]	LCS-4	107%
Cadmium	mg/kg	0.4	Metals-020 ICP-AES	<0.4	[NT]	[NT]	LCS-4	99%
Chromium	mg/kg	1	Metals-020 ICP-AES	<1	[NT]	[NT]	LCS-4	103%
Copper	mg/kg	1	Metals-020 ICP-AES	<1	[NT]	[NT]	LCS-4	102%
Lead	mg/kg	1	Metals-020 ICP-AES	<1	[NT]	[NT]	LCS-4	97%
Mercury	mg/kg	0.1	Metals-021 CV-AAS	<0.1	[NT]	[NT]	LCS-4	107%
Nickel	mg/kg	1	Metals-020 ICP-AES	<1	[NT]	[NT]	LCS-4	100%
Zinc	mg/kg	1	Metals-020 ICP-AES	<1	[NT]	[NT]	LCS-4	101%

Report Comments:

Asbestos ID was analysed by Approved Identifier:	Not applicable for this job
Asbestos ID was authorised by Approved Signatory:	Not applicable for this job

INS: Insufficient sample for this test	PQL: Practical Quantitation Limit	NT: Not tested
NA: Test not required	RPD: Relative Percent Difference	NA: Test not required
<: Less than	>: Greater than	LCS: Laboratory Control Sample

Quality Control Definitions

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

Duplicate: This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.

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

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

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

Laboratory Acceptance Criteria

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

Duplicates: <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.

Aileen Hie

From: Jake Cashman <JCashman@jkgroup.net.au>
Sent: Wednesday, 1 July 2015 12:29 PM
To: Aileen Hie
Subject: '129948-A - E28497K, Smithfield'

129948B
Std T/A
due 8/7

Aileen,

Can you please schedule the following TCLP analysis:

9 BH3 (0.1-0.4) for Lead.

Thanks again.

This email has been scanned by the Symantec Email Security.cloud service.
For more information please visit http://www.symanteccloud.com

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Aileen Hie

From: Jake Cashman <JCashman@jkgroup.net.au>
Sent: Wednesday, 1 July 2015 11:30 AM
To: Aileen Hie
Subject: 129948 - E28497K - Smithfield

Aileen,

Can I please schedule the following TCLP analyses:

		Depth	TCLP Required
2	BH1	1-1.2	Lead
5	BH2	0.07-0.27	Lead
16	BH5	0.02-0.1	Nickel
37	BH15	0.3-0.5	Lead
42	BH17	0.17-0.3	Lead
47	BH19	0.6-0.8	Lead
48	BH20	0.19-0.3	Lead

Regards,

Jake Cashman
Environmental Scientist

JCashman@jkgroup.net.au

www.jkgroup.net.au

Environmental Investigation Services
CONSULTING ENVIRONMENTAL ENGINEERS AND SCIENTISTS
PO Box 976, North Ryde BC NSW 1670
115 Wicks Rd, Macquarie Park NSW 2113
T: +612 9888 5000 F: +612 9888 5001

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

CERTIFICATE OF ANALYSIS 129948-B

Client:
Environmental Investigation Services
PO Box 976
North Ryde BC
NSW 1670

Attention: Jake Cashman

Sample log in details:

Your Reference:	**E28497K, Smithfield**
No. of samples:	Additional testing on soils
Date samples received / completed instructions received	23/06/15 / 01/07/15

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: / Issue Date:	8/07/15 / 6/07/15
Date of Preliminary Report:	Not Issued

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

Results Approved By:

Jacinta Hurst
Laboratory Manager

Metals in TCLP USEPA1311 Our Reference: Your Reference Depth Date Sampled Type of sample	UNITS ------------- ------------	129948-B-2 BH1 1-1.2 22/06/2015 Soil	129948-B-5 BH2 0.07-0.27 22/06/2015 Soil	129948-B-9 BH3 0.1-0.4 22/06/2015 Soil	129948-B-16 BH5 0.02-0.1 22/06/2015 Soil	129948-B-37 BH15 0.3-0.5 22/06/2015 Soil
Date extracted	-	06/07/2015	06/07/2015	06/07/2015	06/07/2015	06/07/2015
Date analysed	-	06/07/2015	06/07/2015	06/07/2015	06/07/2015	06/07/2015
pH of soil for fluid# determ.	pH units	9.3	9.3	9.0	9.3	8.9
pH of soil for fluid # determ. (acid)	pH units	1.4	1.4	1.4	1.5	1.5
Extraction fluid used	-	1	1	1	1	1
pH of final Leachate	pH units	5.0	5.0	5.1	5.1	5.0
Lead in TCLP	mg/L	0.90	1.7	0.1	[NA]	1.0
Nickel in TCLP	mg/L	[NA]	[NA]	[NA]	<0.02	[NA]

Metals in TCLP USEPA1311 Our Reference: Your Reference Depth Date Sampled Type of sample	UNITS ------------- ------------	129948-B-42 BH17 0.17-0.3 22/06/2015 Soil	129948-B-47 BH19 0.6-0.8 22/06/2015 Soil	129948-B-48 BH20 0.19-0.3 22/06/2015 Soil
Date extracted	-	06/07/2015	06/07/2015	06/07/2015
Date analysed	-	06/07/2015	06/07/2015	06/07/2015
pH of soil for fluid# determ.	pH units	9.5	9.4	9.5
pH of soil for fluid # determ. (acid)	pH units	1.5	1.4	1.4
Extraction fluid used	-	1	1	1
pH of final Leachate	pH units	5.1	5.2	5.3
Lead in TCLP	mg/L	0.55	1.4	1.4

Method ID	Methodology Summary
Inorg-004	Toxicity Characteristic Leaching Procedure (TCLP) using AS 4439 and USEPA 1311 and in house method INORG-004.
EXTRACT.7	Toxicity Characteristic Leaching Procedure (TCLP).
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.
Metals-020 ICP-AES	Determination of various metals by ICP-AES.

QUALITY CONTROL Metals in TCLP USEPA1311	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			06/07/2015	[NT]	[NT]	LCS-1	06/07/2015
Date analysed	-			06/07/2015	[NT]	[NT]	LCS-1	06/07/2015
Lead in TCLP	mg/L	0.03	Metals-020 ICP-AES	<0.03	[NT]	[NT]	LCS-1	93%
Nickel in TCLP	mg/L	0.02	Metals-020 ICP-AES	<0.02	[NT]	[NT]	LCS-1	93%

Report Comments:

Asbestos ID was analysed by Approved Identifier:	Not applicable for this job
Asbestos ID was authorised by Approved Signatory:	Not applicable for this job

INS: Insufficient sample for this test	PQL: Practical Quantitation Limit	NT: Not tested
NA: Test not required	RPD: Relative Percent Difference	NA: Test not required
<: Less than	>: Greater than	LCS: Laboratory Control Sample

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Laboratory Acceptance Criteria

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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.

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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: E28497K Date Results Required: 48/hr Page: 3	FROM: ENVIRONMENTAL INVESTIGATION SERVICES REAR OF 115 WICKS ROAD MACQUARIE PARK, NSW 2113 P: 02-9388 5000 F: 02-9888 5001 Attention: Jake Cashman

Location:	Smithfield						Sample Preserved in Esky on Ice											
Sampler:	JDC						Tests Required											
Date Sampled	Lab Ref:	Sample Number	Depth (m)	Sample Container	PID	Sample Description	Comba 6a	Combo 12a	Combo 5	Asbestos	Com 6a 5	BTEXN						
22/06/2015	51	[illegible]	—	G, P	—	—					X							
22/06/2015	52	F1	Surface	A	—	Fragment				X								
22/06/2015	53	FR	—	1 Vial	—	Water						X						
22/06/2015	54	TB	—	G	—	Sand						X						
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ENVIROLAB

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

Job No: 6530
Date Received: 25/6/15
Time Received: 11:00
Received by: MS
Temp: Cool/Ambient 10.1°C
Cooling: Ice/Icepack
Security: Intact/Broken/None

Remarks (comments/detection limits required):		Sample Containers: G - 250mg Glass Jar A - Ziplock Asbestos Bag P - Plastic Bag	129948	
Relinquished By: PT (EIS)	Date: 24/6/15 12:00	Time:	Received By: PT	Date: 24/6

Envirolab Services Pty Ltd - Melbourne
ABN 37 112 535 645 - 02
1 Dalmore Drive, Scoresby VIC 3179 Australia
Ph +613 9763 2500 Fax +613 9763 2633
melbourne@envirolab.com.au
www.envirolab.com.au

A division of Envirolab Group

CERTIFICATE OF ANALYSIS 6530

Client:
Environmental Investigation Services
PO Box 976
North Ryde BC
NSW 1670

Attention: Jake Cashman

Sample log in details:

Your Reference:	**E28497K - Smithfield**	
No. of samples:	1 Soil	
Date samples received / completed instructions received	25/06/2015	/ 25/06/2015

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: / Issue Date:	29/06/15	/ 29/06/15
Date of Preliminary Report:	Not Issued	

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

Results Approved By:

A Mathrick

Analisa Mathrick
Laboratory Supervisor

NATA
ACCREDITED FOR TECHNICAL COMPETENCE

vTRH(C6-C10)/BTEXN in Soil		
Our Reference:	UNITS	6530-1
Your Reference	-------------	DUPJDC2
Type of sample	------------	Soil
Date Sampled		22/06/2015
Date extracted	-	26/06/2015
Date analysed	-	27/06/2015
vTRH C_6 - C_9	mg/kg	<25
vTRH C_6 - C_{10}	mg/kg	<25
TRH 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	%	84

TRH Soil C10-C40 NEPM		
Our Reference:	UNITS	6530-1
Your Reference	-------------	DUP JDC2
Type of sample	------------	Soil
Date Sampled		22/06/2015
Date extracted	-	26/06/2015
Date analysed	-	27/06/2015
TRH C_{10} - C_{14}	mg/kg	<50
TRH C_{15} - C_{28}	mg/kg	<100
TRH C_{29} - C_{36}	mg/kg	<100
Total +ve TRH (C10-C36)	mg/kg	<50
TRH >C_{10}-C_{16}	mg/kg	<50
TRH >C_{10} - C_{16} less Naphthalene (F2)	mg/kg	<50
TRH >C_{16}-C_{34}	mg/kg	<100
TRH >C_{34}-C_{40}	mg/kg	<100
Total +ve TRH (>C10-C40)	mg/kg	<50
Surrogate o-Terphenyl	%	94

PAHs in Soil		
Our Reference:	UNITS	6530-1
Your Reference	-------------	DUP JDC2
Type of sample	------------	Soil
Date Sampled		22/06/2015
Date extracted	-	26/06/2015
Date analysed	-	28/06/2015
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-d_{14}	%	90

OCP in Soil Our Reference: Your Reference Type of sample Date Sampled	UNITS ------------- ------------	6530-1 DUP JDC2 Soil 22/06/2015
Date extracted	-	26/06/2015
Date analysed	-	28/06/2015
alpha-BHC	mg/kg	<0.1
Hexachlorobenzene	mg/kg	<0.1
beta-BHC	mg/kg	<0.1
gamma-BHC	mg/kg	<0.1
Heptachlor	mg/kg	<0.1
delta-BHC	mg/kg	<0.1
Aldrin	mg/kg	<0.1
Heptachlor Epoxide	mg/kg	<0.1
gamma-Chlordane	mg/kg	<0.1
alpha-chlordane	mg/kg	<0.1
Endosulfan I	mg/kg	<0.1
pp-DDE	mg/kg	<0.1
Dieldrin	mg/kg	<0.1
Endrin	mg/kg	<0.1
Endosulfan II	mg/kg	<0.1
pp-DDD	mg/kg	<0.1
Endrin Aldehyde	mg/kg	<0.1
pp-DDT	mg/kg	<0.1
Endosulfan Sulphate	mg/kg	<0.1
Methoxychlor	mg/kg	<0.1
Total +ve reported DDT+DDD+DDE	mg/kg	<0.1
Surrogate TCMX	%	100

OP in Soil		
Our Reference:	UNITS	6530-1
Your Reference	-------------	DUP JDC2
Type of sample	------------	Soil
Date Sampled		22/06/2015
Date extracted	-	26/06/2015
Date analysed	-	28/06/2015
Azinphos-methyl	mg/kg	<0.1
Bromophos-ethyl	mg/kg	<0.1
Chlorpyrifos	mg/kg	<0.1
Chlorpyrifos-methyl	mg/kg	<0.1
Diazinon	mg/kg	<0.1
Dichlorovos	mg/kg	<0.1
Dimethoate	mg/kg	<0.1
Ethion	mg/kg	<0.1
Fenitrothion	mg/kg	<0.1
Malathion	mg/kg	<0.1
Parathion	mg/kg	<0.1
Ronnel	mg/kg	<0.1
Surrogate TCMX	%	100

PCBs in Soil		
Our Reference:	UNITS	6530-1
Your Reference	-------------	DUP JDC2
Type of sample	------------	Soil
Date Sampled		22/06/2015
Date extracted	-	26/06/2015
Date analysed	-	28/06/2015
Aroclor 1016	mg/kg	<0.1
Aroclor 1221	mg/kg	<0.1
Aroclor 1232	mg/kg	<0.1
Aroclor 1242	mg/kg	<0.1
Aroclor 1248	mg/kg	<0.1
Aroclor 1254	mg/kg	<0.1
Aroclor 1260	mg/kg	<0.1
Total +ve PCBs (1016-1260)	mg/kg	<0.1
Surrogate TCLMX	%	100

Acid Extractable metals in soil		
Our Reference:	UNITS	6530-1
Your Reference	-------------	DUPJDC2
Type of sample	------------	Soil
Date Sampled		22/06/2015
Date digested	-	26/06/2015
Date analysed	-	26/06/2015
Arsenic	mg/kg	4
Cadmium	mg/kg	<0.4
Chromium	mg/kg	20
Copper	mg/kg	18
Lead	mg/kg	120
Mercury	mg/kg	<0.1
Nickel	mg/kg	16
Zinc	mg/kg	140

Moisture		
Our Reference:	UNITS	6530-1
Your Reference	-------------	DUPJDC2
Type of sample	------------	Soil
Date Sampled		22/06/2015
Date prepared	-	26/06/2015
Date analysed	-	29/06/2015
Moisture	%	16

Method ID	Methodology Summary
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.
Org-014	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-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 subset	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. 'TEQ PQL' values are assuming all contributing PAHs reported as <PQL are actually at the PQL. This is the most conservative approach and can give false positive TEQs given that PAHs that contribute to the TEQ calculation may not be present. 2. 'TEQ zero' values are assuming all contributing PAHs reported as <PQL are zero. This is the least conservative approach and is more susceptible to false negative TEQs when PAHs that contribute to the TEQ calculation are present but below PQL. 3. 'TEQ half PQL' values are assuming all contributing PAHs reported as <PQL are half the stipulated PQL. Hence a mid-point between the most and least conservative approaches above. Note, 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.
Org-006	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. 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-015	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS.
Metals-020 ICP-AES	Determination of various metals by ICP-AES.
Metals-021 CV-AAS	Determination of Mercury by Cold Vapour AAS.
Inorg-008	Moisture content determined by heating at 105 deg C for a minimum of 12 hours.

QUALITY CONTROL vTRH(C6-C10)/BTEXN in Soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			26/06/2015	[NT]	[NT]	LCS	26/06/2015
Date analysed	-			27/06/2015	[NT]	[NT]	LCS	27/06/2015
vTRH C_6 - C_9	mg/kg	25	Org-016	<25	[NT]	[NT]	LCS	118%
vTRH C_6 - C_{10}	mg/kg	25	Org-016	<25	[NT]	[NT]	LCS	99%
Benzene	mg/kg	0.2	Org-016	<0.2	[NT]	[NT]	LCS	107%
Toluene	mg/kg	0.5	Org-016	<0.5	[NT]	[NT]	LCS	105%
Ethylbenzene	mg/kg	1	Org-016	<1	[NT]	[NT]	LCS	106%
m+p-xylene	mg/kg	2	Org-016	<2	[NT]	[NT]	LCS	114%
o-Xylene	mg/kg	1	Org-016	<1	[NT]	[NT]	LCS	106%
naphthalene	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
Surrogate aaa-Trifluorotoluene	%		Org-016	97	[NT]	[NT]	LCS	111%

QUALITY CONTROL TRH Soil C10-C40 NEPM	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			26/06/2015	[NT]	[NT]	LCS	26/06/2015
Date analysed	-			27/06/2015	[NT]	[NT]	LCS	27/06/2015
TRH C_{10} - C_{14}	mg/kg	50	Org-003	<50	[NT]	[NT]	LCS	97%
TRH C_{15} - C_{28}	mg/kg	100	Org-003	<100	[NT]	[NT]	LCS	100%
TRH C_{29} - C_{36}	mg/kg	100	Org-003	<100	[NT]	[NT]	LCS	93%
TRH >C_{10}-C_{16}	mg/kg	50	Org-003	<50	[NT]	[NT]	LCS	97%
TRH >C_{16}-C_{34}	mg/kg	100	Org-003	<100	[NT]	[NT]	LCS	101%
TRH >C_{34}-C_{40}	mg/kg	100	Org-003	<100	[NT]	[NT]	LCS	93%
Surrogate o-Terphenyl	%		Org-003	78	[NT]	[NT]	LCS	98%

QUALITY CONTROL PAHs in Soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			26/06/2015	[NT]	[NT]	LCS	26/06/2015
Date analysed	-			28/06/2015	[NT]	[NT]	LCS	28/06/2015
Naphthalene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	LCS	97%
Acenaphthylene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	[NR]	[NR]
Acenaphthene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	[NR]	[NR]
Fluorene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	LCS	100%
Phenanthrene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	LCS	100%
Anthracene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	[NR]	[NR]

QUALITY CONTROL PAHs in Soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Fluoranthene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	LCS	93%
Pyrene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	LCS	104%
Benzo(a)anthracene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	[NR]	[NR]
Chrysene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	LCS	96%
Benzo(b,j&k) fluoranthene	mg/kg	0.2	Org-012 subset	<0.2	[NT]	[NT]	[NR]	[NR]
Benzo(a)pyrene	mg/kg	0.05	Org-012 subset	<0.05	[NT]	[NT]	LCS	84%
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	[NR]	[NR]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	[NR]	[NR]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	[NR]	[NR]
Surrogate p-Terphenyl-d_{14}	%		Org-012	86	[NT]	[NT]	LCS	88%

QUALITY CONTROL OCP in Soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			26/06/2015	[NT]	[NT]	LCS	26/06/2015
Date analysed	-			28/06/2015	[NT]	[NT]	LCS	28/06/2015
alpha-BHC	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	LCS	96%
Hexachlorobenzene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NR]	[NR]
beta-BHC	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	LCS	95%
gamma-BHC	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NR]	[NR]
Heptachlor	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	LCS	83%
delta-BHC	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NR]	[NR]
Aldrin	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	LCS	99%
Heptachlor Epoxide	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	LCS	85%
gamma-Chlordane	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	LCS	92%
alpha-chlordane	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NR]	[NR]
Endosulfan I	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NR]	[NR]
pp-DDE	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	LCS	93%
Dieldrin	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	LCS	79%
Endrin	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	LCS	63%
Endosulfan II	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NR]	[NR]
pp-DDD	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	LCS	104%
Endrin Aldehyde	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NR]	[NR]
pp-DDT	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NR]	[NR]
Endosulfan Sulphate	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	LCS	68%
Methoxychlor	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NR]	[NR]

QUALITY CONTROL OCP in Soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Surrogate TCMX	%		Org-012	96	[NT]	[NT]	LCS	94%

QUALITY CONTROL OP in Soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			26/06/2015	[NT]	[NT]	LCS	26/06/2015
Date analysed	-			28/06/2015	[NT]	[NT]	LCS	28/06/2015
Azinphos-methyl	mg/kg	0.1	Org-015	<0.1	[NT]	[NT]	[NR]	[NR]
Bromophos-ethyl	mg/kg	0.1	Org-015	<0.1	[NT]	[NT]	[NR]	[NR]
Chlorpyrifos	mg/kg	0.1	Org-015	<0.1	[NT]	[NT]	LCS	112%
Chlorpyrifos-methyl	mg/kg	0.1	Org-015	<0.1	[NT]	[NT]	LCS	109%
Diazinon	mg/kg	0.1	Org-015	<0.1	[NT]	[NT]	[NR]	[NR]
Dichlorovos	mg/kg	0.1	Org-015	<0.1	[NT]	[NT]	[NR]	[NR]
Dimethoate	mg/kg	0.1	Org-015	<0.1	[NT]	[NT]	[NR]	[NR]
Ethion	mg/kg	0.1	Org-015	<0.1	[NT]	[NT]	LCS	119%
Fenitrothion	mg/kg	0.1	Org-015	<0.1	[NT]	[NT]	LCS	104%
Malathion	mg/kg	0.1	Org-015	<0.1	[NT]	[NT]	[NR]	[NR]
Parathion	mg/kg	0.1	Org-015	<0.1	[NT]	[NT]	[NR]	[NR]
Ronnel	mg/kg	0.1	Org-015	<0.1	[NT]	[NT]	[NR]	[NR]
Surrogate TCMX	%		Org-015	96	[NT]	[NT]	LCS	94%

QUALITY CONTROL PCBs in Soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			26/06/2015	[NT]	[NT]	LCS	26/06/2015
Date analysed	-			28/06/2015	[NT]	[NT]	LCS	28/06/2015
Aroclor 1016	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NR]	[NR]
Aroclor 1221	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NR]	[NR]
Aroclor 1232	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NR]	[NR]
Aroclor 1242	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NR]	[NR]
Aroclor 1248	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NR]	[NR]
Aroclor 1254	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	LCS	115%
Aroclor 1260	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NR]	[NR]
Surrogate TCLMX	%		Org-015	96	[NT]	[NT]	LCS	94%

QUALITY CONTROL Acid Extractable metals in soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date digested	-			26/06/2015	[NT]	[NT]	LCS-1	26/06/2015
Date analysed	-			26/06/2015	[NT]	[NT]	LCS-1	26/06/2015
Arsenic	mg/kg	4	Metals-020 ICP-AES	<4	[NT]	[NT]	LCS-1	94%
Cadmium	mg/kg	0.4	Metals-020 ICP-AES	<0.4	[NT]	[NT]	LCS-1	96%
Chromium	mg/kg	1	Metals-020 ICP-AES	<1	[NT]	[NT]	LCS-1	97%
Copper	mg/kg	1	Metals-020 ICP-AES	<1	[NT]	[NT]	LCS-1	100%
Lead	mg/kg	1	Metals-020 ICP-AES	<1	[NT]	[NT]	LCS-1	97%
Mercury	mg/kg	0.1	Metals-021 CV-AAS	<0.1	[NT]	[NT]	LCS-1	101%
Nickel	mg/kg	1	Metals-020 ICP-AES	<1	[NT]	[NT]	LCS-1	98%
Zinc	mg/kg	1	Metals-020 ICP-AES	<1	[NT]	[NT]	LCS-1	99%

QUALITY CONTROL Moisture	UNITS	PQL	METHOD	Blank
Date prepared	-			[NT]
Date analysed	-			[NT]
Moisture	%	0.1	Inorg-008	[NT]

Report Comments:

Asbestos ID was analysed by Approved Identifier:	Not applicable for this job
Asbestos ID was authorised by Approved Signatory:	Not applicable for this job

INS: Insufficient sample for this test	PQL: Practical Quantitation Limit	NT: Not tested
NA: Test not required	RPD: Relative Percent Difference	NA: Test not required
<: Less than	>: Greater than	LCS: Laboratory Control Sample

Quality Control Definitions

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

Duplicate: This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.

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

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

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

Laboratory Acceptance Criteria

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batched 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.

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: E28497K Date Results Required: ~~STANDARD~~ 48 hr Page: 1 of 3	ENVIRONMENTAL INVESTIGATION SERVICES REAR OF 115 WICKS ROAD MACQUARIE PARK, NSW 2113 P: 02-9888 5000 F: 02-9888 5001 Attention: ~~asmith~~@jkgroup.net.au rMuller

EIS

Location: Smithfield

Sampler: AS

Sample Preserved in Esky on Ice

Tests Required

Date Sampled	Lab Ref:	Sample Number	Depth (m)	Sample Container	PID	Sample Description	Combo 2	Combo 3a	Combo 6	Combo 6a	8 Metals	PAHs	TRH/BTEX	BTEX	Asbestos			
23/02/2017	1	BH101	0.1-0.2	G, A		Fill-sandy gravel												
↓	2	↓	0.5-0.95	G, A		Fill-silty clay		X										
	3		1.5-1.95	G, A		silty clay												
	4		2.4-2.6	G		silty clay												
	5	BH102	0.2-0.4	G, A		Fill-sand												
	6	↓	0.5-0.95	G,A		Fill-silty clay		X	#7 No Bag N.R									
	7		1.5-1.95	G,A		silty clay												
	8	BH103	0.1-0.2	G,A		Fill-clayey sand		X	#8 No Jar N.R									
	9	↓	0.5-0.95	G,A		Fill-silty clay												
	10		1.5-1.95	G		silty clay												
	11	BH104	0.07-0.2	G,A		Fill- sandy gravel												
	12	↓	0.5-~~0.95~~ 0.7 NR	G,A		Fill-silty clay		X										
	13		1.2-1.3	G/B		silty clay												
	14	BH105	0.05-0.2	G,A		Fill-sandy gravel												
	15	↓	0.5-0.6	G,A		Fill-silty clay		X										
	16		1.4-1.5	G		silty clay												
	17	BH106	0.2-0.3	G,A		Fill-sand		X										
	18	↓ NR	~~0.5-0.1~~ 0.6-0.7	G,A		Fill-silty clay												
	19	NR	~~1.1-1.2~~ 1.3-1.4	G		silty clay												
	20	BH107	0.2-0.3	G,A		Fill-sand												
	21	↓	0.5-0.6	G,A		Fill-silty sandy clay		X	#21 No Bag N.R									
	22		1.2-1.3	G/B		silty clay			#22 Bag Included									
	23	BH108	0.2-0.3	G,A		Fill-sand												
	24	↓	0.4-0.5	G,A		Fill-silty clay		X										
↓	25		1.2-1.3	G		silty clay												

ENVIROLAB — Envirolab Services, 12 Ashley St, Chatswood NSW 2067, Ph: (02) 9910 6200
Job No: 162502
Date Received: 24-02-17
Time Received: 14:00
Received by: NR
Temp: Cool/Ambient
Cooling: Ice/Icepack
Security: Intact/Broken/None

Remarks (comments/detection limits required):
SEE SHEET 3

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

Relinquished By:	Date:	Time:	Received By:	Date:
ASN	24/2/17	14:00	Nick	24/2/17

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: E28497K Date Results Required: ~~STANDARD~~ 48hr Page: 2 of 3	EIS ENVIRONMENTAL INVESTIGATION SERVICES REAR OF 115 WICKS ROAD MACQUARIE PARK, NSW 2113 P: 02-9888 5000 F: 02-9888 5001 Attention: ~~asmith~~@jkgroup.net.au rMuller

Location: Smithfield

Sampler: AS

Sample Preserved in Esky on Ice

Tests Required

Date Sampled	Lab Ref:	Sample Number	Depth (m)	Sample Container	PID	Sample Description	Combo 2	Combo 3a	Combo 6	Combo 6a	8 Metals	PAHs	TRH/BTEX	BTEX	Asbestos			
112532 23/02/2017	26	BH109	0.3-0.5	G,A		Fill-silty sandy clay												
↓	27	↓	0.9-1.1	G,A		Fill-silty sandy clay		X										
	28		1.9-2.1	G,A		Silty clay	#28 NO Bag											
	29		2.8-3.0	G		silty clay												
	30	BH110	0.3-0.5	G,A		Fill-silty clay		X										
	31	↓ NA	1.2-~~1.5~~ 1.4	G,A		Fill-silty clay												
	32	BH111	0.4-0.5	G,A		Fill-silty sandy clay		X										
	33	↓	1.2-1.3	G,A		Fill-silty sandy clay												
	34		1.5-1.6	G		silty clay												
	35	BH112	0.2-0.3	G,A		Fill-silty clay		X										
	36	↓	1.2-1.3	G		Silty clay												
	NR	BH113	0.5-0.6	G		Silty clay		X										
	NR	↓	1.2-1.3	G		Silty clay												
	37	BH114	0.2-0.3	G,A		Fill-sandy gravel		X										
	38	↓	1.2-1.3	G		Silty clay												
	39	BH115	0.5-0.6	G		Silty clay		X										
	40	↓	1.2-1.3	G		Silty clay												
	41	BH116	0.3-0.5	G,A		Fill-silty clay		X										
	42	↓	0.9-1.1	G,A		Fill-silty clay	#42 NO Bag											
	43		2.6-2.8	G		Silty clay												
	44	BH117	0.15-0.2	G,A		Fill-Sand		X										
	45	BH118	0.15-0.25	G,A		Fill-sand												
	46	↓	0.4-0.5	G,A		Fill-clayey sand		X										
↓	47	↓	0.8-0.9	G,A		Fill-clayey sand												

Remarks (comments/detection limits required):

SEE SHEET 3

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

Relinquished By:	Date:	Time:	Received By:	Date:
[signature]	24/2/17	14:00.	Nick	24/2/17

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:**	**E28497K** ~~STANDARD~~ 48 hr 3 of 3	**FROM:** **ENVIRONMENTAL INVESTIGATION SERVICES** **REAR OF 115 WICKS ROAD** **MACQUARIE PARK, NSW 2113** **P: 02-9888 5000 F: 02-9888 5001** **Attention:** ~~asmith~~@jkgroup.net.au rmuller

Location: Smithfield

Sampler: AS

Sample Preserved in Esky on Ice

Tests Required

Date Sampled	Lab Ref:	Sample Number	Depth (m)	Sample Container	PID	Sample Description	Combo 2	Combo 3a	Combo 6	Combo 6a	8 Metals	PAHs	TRH/BTEX	BTEX	Asbestos	COMBO 3		
162502																		
24/02/2017	48	BH119	0-0.2	G,A		Fill-Silty Sand		X										
↓	49	↓	0.4-0.5	G,A		Fill-Silty Sand												
↓	50	BH120	0-0.2	G,A		Fill-Silty Sand		X										
↓	51	↓ MM	0.5-~~0.6~~ 0.55	G,A		Fill-Silty Sand												
23/02/2017	~~52~~	DUPAS1	-	G												X		
24/02/2017	53	DUPAS2	-	G												X		
23/02/2017	54	TB1	-	G										X				
24/02/2017	55	TB2	-	G										X				
23-2-17	56	FCF1	Surface	A		Fragment									X			
Extras	57	BH102	0.1-0.2	G														
	58	BH10	1.9-2.0	G														
	59	BH10	2.9-3.0	G														
	60	BH12	1.1-1.2	G,B														
	61	BH12	0.5-0.6	G														

Remarks (comments/detection limits required):
PLEASE SEND DUPAS1 TO OTHER LAB AS INTER-LAB DUPLICATE

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

Relinquished By:	Date:	Time:	Received By:	Date:
[signature]	24/2/17	1600	Nick	24/2/17

SAMPLE RECEIPT ADVICE

Client Details	
Client	Environmental Investigation Services
Attention	Rob Muller

Sample Login Details	
Your Reference	E28497K, Smithfield
Envirolab Reference	**162502**
Date Sample Received	24/02/2017
Date Instructions Received	24/02/2017
Date Results Expected to be Reported	**28/02/2017**

Sample Condition	
Samples received in appropriate condition for analysis	YES
No. of Samples Provided	1 Material, 60 Soils
Turnaround Time Requested	48hr
Temperature on receipt (°C)	22.4
Cooling Method	Ice Pack
Sampling Date Provided	YES

Comments
Samples will be held for 1 month for water samples and 2 months for soil samples from date of receipt of samples

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@envirolabservices.com.au	Email: jhurst@envirolabservices.com.au

Sample and Testing Details on following page

ENVIROLAB SERVICES

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

Sample Id	*vTRH(C6-C10)/BTEXN in Soil*	*svTRH (C10-C40) in Soil*	*PAHs in Soil*	*Acid Extractable metals in soil*	*Asbestos ID - soils*	*Asbestos ID - materials*	*On Hold*
BH101-0.1-0.2							✓
BH101-0.5-0.95	✓	✓	✓	✓	✓		
BH101-1.5-1.95							✓
BH101-2.4-2.6							✓
BH102-0.2-0.4							✓
BH102-0.5-0.95	✓	✓	✓	✓	✓		
BH102-1.5-1.95							✓
BH103-0.1-0.2							✓
BH103-0.5-0.95	✓	✓	✓	✓	✓		
BH103-1.5-1.95							✓
BH104-0.07-0.2							✓
BH104-0.5-0.95	✓	✓	✓	✓	✓		
BH104-1.2-1.3							✓
BH105-0.05-0.2							✓
BH105-0.5-0.6	✓	✓	✓	✓	✓		
BH105-1.4-1.5							✓
BH106-0.2-0.3	✓	✓	✓	✓	✓		
BH106-0.5-0.1							✓
BH106-1.1-1.2							✓
BH107-0.2-0.3							✓
BH107-0.5-0.6	✓	✓	✓	✓	✓		
BH107-1.2-1.3							✓
BH108-0.2-0.3							✓
BH108-0.4-0.5	✓	✓	✓	✓	✓		
BH108-1.2-1.3							✓
BH109-0.3-0.5							✓
BH109-0.9-1.1	✓	✓	✓	✓	✓		
BH109-1.9-2.1							✓
BH109-2.8-3.0							✓
BH110-0.3-0.5	✓	✓	✓	✓	✓		
BH110-1.2-1.5							✓
BH111-0.4-0.5	✓	✓	✓	✓	✓		
BH111-1.2-1.3							✓
BH111-1.5-1.6							✓
BH112-0.2-0.3	✓	✓	✓	✓	✓		
BH112-1.2-1.3							✓
BH114-0.2-0.3	✓	✓	✓	✓	✓		
BH114-1.2-1.3							✓
BH115-0.5-0.6	✓	✓	✓	✓	✓		
BH115-1.2-1.3							✓
BH116-0.3-0.5	✓	✓	✓	✓	✓		

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

Sample Id	*vTRH(C6-C10)/BTEXN in Soil*	*svTRH (C10-C40) in Soil*	*PAHs in Soil*	*Acid Extractable metals in soil*	*Asbestos ID - soils*	*Asbestos ID - materials*	*On Hold*
BH116-0.9-1.1							✓
BH116-2.6-2.8							✓
BH117-0.15-0.2	✓	✓	✓	✓	✓		
BH118-0.15-0.25							✓
BH118-0.4-0.5	✓	✓	✓	✓	✓		
BH118-0.8-0.9							✓
BH119-0.0-0.2	✓	✓	✓	✓	✓		
BH119-0.4-0.5							✓
BH120-0.0-0.2	✓	✓	✓	✓	✓		
BH120-0.5-0.6							✓
DUPAS1							✓
DUPAS2	✓	✓	✓	✓			
TB1	✓						
TB2	✓						
FCF1-Surface						✓	
BH102-0.1-0.2							✓
BH10-1.9-2.0							✓
BH10-2.9-3.0							✓
BH12-1.1-1.2							✓
BH113-0.5-0.6	✓	✓	✓	✓	✓		

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

12 Ashley Street, Chatswood, NSW 2067
tel: +61 2 9910 6200

email: sydney@envirolab.com.au
envirolab.com.au

Envirolab Services Pty Ltd - Sydney | ABN 37 112 535 645

CERTIFICATE OF ANALYSIS **162502**

Client:

Environmental Investigation Services
PO Box 976
North Ryde BC
NSW 1670

Attention: Rob Muller

Sample log in details:

Your Reference:	**E28497K, Smithfield**
No. of samples:	1 Material, 60 Soils
Date samples received / completed instructions received	24/02/17 / 24/02/17

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: / Issue Date:	28/02/17 / 28/02/17
Date of Preliminary Report:	Not Issued

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

Results Approved By:

David Springer
General Manager

vTRH(C6-C10)/BTEXN in Soil						
Our Reference:	UNITS	162502-2	162502-6	162502-9	162502-12	162502-15
Your Reference	-------------	BH101	BH102	BH103	BH104	BH105
Depth	------------	0.5-0.95	0.5-0.95	0.5-0.95	0.5-0.95	0.5-0.6
Type of sample		Soil	Soil	Soil	Soil	Soil
Date Sampled		23/02/2017	23/02/2017	23/02/2017	23/02/2017	23/02/2017
Date extracted	-	27/02/2017	27/02/2017	27/02/2017	27/02/2017	27/02/2017
Date analysed	-	28/02/2017	28/02/2017	28/02/2017	28/02/2017	28/02/2017
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
Total +ve Xylenes	mg/kg	<1	<1	<1	<1	<1
naphthalene	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	103	107	99	97	114

vTRH(C6-C10)/BTEXN in Soil						
Our Reference:	UNITS	162502-17	162502-21	162502-24	162502-27	162502-30
Your Reference	-------------	BH106	BH107	BH108	BH109	BH110
Depth	------------	0.2-0.3	0.5-0.6	0.4-0.5	0.9-1.1	0.3-0.5
Type of sample		Soil	Soil	Soil	Soil	Soil
Date Sampled		23/02/2017	23/02/2017	23/02/2017	23/02/2017	23/02/2017
Date extracted	-	27/02/2017	27/02/2017	27/02/2017	27/02/2017	27/02/2017
Date analysed	-	28/02/2017	28/02/2017	28/02/2017	28/02/2017	28/02/2017
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
Total +ve Xylenes	mg/kg	<1	<1	<1	<1	<1
naphthalene	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	97	109	105	109	104

vTRH(C6-C10)/BTEXN in Soil						
Our Reference:	UNITS	162502-32	162502-35	162502-37	162502-39	162502-41
Your Reference	-------------	BH111	BH112	BH114	BH115	BH116
Depth	------------	0.4-0.5	0.2-0.3	0.2-0.3	0.5-0.6	0.3-0.5
Type of sample		Soil	Soil	Soil	Soil	Soil
Date Sampled		23/02/2017	23/02/2017	23/02/2017	23/02/2017	23/02/2017
Date extracted	-	27/02/2017	27/02/2017	27/02/2017	27/02/2017	27/02/2017
Date analysed	-	28/02/2017	28/02/2017	28/02/2017	28/02/2017	28/02/2017
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
Total +ve Xylenes	mg/kg	<1	<1	<1	<1	<1
naphthalene	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	111	105	119	112	116

vTRH(C6-C10)/BTEXN in Soil						
Our Reference:	UNITS	162502-44	162502-46	162502-48	162502-50	162502-53
Your Reference	-------------	BH117	BH118	BH119	BH120	DUPAS2
Depth	------------	0.15-0.2	0.4-0.5	0.0-0.2	0.0-0.2	-
Type of sample		Soil	Soil	Soil	Soil	Soil
Date Sampled		23/02/2017	23/02/2017	24/02/2017	24/02/2017	24/02/2017
Date extracted	-	27/02/2017	27/02/2017	27/02/2017	27/02/2017	27/02/2017
Date analysed	-	28/02/2017	28/02/2017	28/02/2017	28/02/2017	28/02/2017
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
Total +ve Xylenes	mg/kg	<1	<1	<1	<1	<1
naphthalene	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	105	109	122	117	118

vTRH(C6-C10)/BTEXN in Soil				
Our Reference:	UNITS	162502-54	162502-55	162502-61
Your Reference	-------------	TB1	TB2	BH113
Depth	------------	-	-	0.5-0.6
Type of sample		Soil	Soil	Soil
Date Sampled		23/02/2017	24/02/2017	23/02/2017
Date extracted	-	27/02/2017	27/02/2017	27/02/2017
Date analysed	-	28/02/2017	28/02/2017	28/02/2017
TRH C_6 - C_9	mg/kg	[NA]	[NA]	<25
TRH C_6 - C_{10}	mg/kg	[NA]	[NA]	<25
vTPH C_6 - C_{10} less BTEX (F1)	mg/kg	[NA]	[NA]	<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
Total +ve Xylenes	mg/kg	[NA]	[NA]	<1
naphthalene	mg/kg	[NA]	[NA]	<1
Surrogate aaa-Trifluorotoluene	%	117	117	94

svTRH (C10-C40) in Soil						
Our Reference:	UNITS	162502-2	162502-6	162502-9	162502-12	162502-15
Your Reference	-------------	BH101	BH102	BH103	BH104	BH105
Depth	------------	0.5-0.95	0.5-0.95	0.5-0.95	0.5-0.95	0.5-0.6
Type of sample		Soil	Soil	Soil	Soil	Soil
Date Sampled		23/02/2017	23/02/2017	23/02/2017	23/02/2017	23/02/2017
Date extracted	-	27/02/2017	27/02/2017	27/02/2017	27/02/2017	27/02/2017
Date analysed	-	27/02/2017	27/02/2017	27/02/2017	27/02/2017	27/02/2017
TRHC $_{10}$ - C $_{14}$	mg/kg	<50	<50	<50	<50	<50
TRHC $_{15}$ - C $_{28}$	mg/kg	<100	<100	<100	<100	540
TRHC $_{29}$ - C $_{36}$	mg/kg	<100	<100	<100	<100	1,200
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	1,400
TRH>C $_{34}$-C $_{40}$	mg/kg	<100	<100	<100	<100	640
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	<50	<50	2,100
Surrogate o-Terphenyl	%	91	92	87	92	97

svTRH (C10-C40) in Soil						
Our Reference:	UNITS	162502-17	162502-21	162502-24	162502-27	162502-30
Your Reference	-------------	BH106	BH107	BH108	BH109	BH110
Depth	------------	0.2-0.3	0.5-0.6	0.4-0.5	0.9-1.1	0.3-0.5
Type of sample		Soil	Soil	Soil	Soil	Soil
Date Sampled		23/02/2017	23/02/2017	23/02/2017	23/02/2017	23/02/2017
Date extracted	-	27/02/2017	27/02/2017	27/02/2017	27/02/2017	27/02/2017
Date analysed	-	27/02/2017	27/02/2017	27/02/2017	27/02/2017	28/02/2017
TRHC $_{10}$ - C $_{14}$	mg/kg	<50	<50	<50	<50	<50
TRHC $_{15}$ - C $_{28}$	mg/kg	<100	<100	<100	<100	210
TRHC $_{29}$ - C $_{36}$	mg/kg	<100	<100	<100	<100	180
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	330
TRH>C $_{34}$-C $_{40}$	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	<50	<50	330
Surrogate o-Terphenyl	%	88	89	88	87	92

svTRH (C10-C40) in Soil						
Our Reference:	UNITS	162502-32	162502-35	162502-37	162502-39	162502-41
Your Reference	-------------	BH111	BH112	BH114	BH115	BH116
Depth	------------	0.4-0.5	0.2-0.3	0.2-0.3	0.5-0.6	0.3-0.5
Type of sample		Soil	Soil	Soil	Soil	Soil
Date Sampled		23/02/2017	23/02/2017	23/02/2017	23/02/2017	23/02/2017
Date extracted	-	27/02/2017	27/02/2017	27/02/2017	27/02/2017	27/02/2017
Date analysed	-	28/02/2017	28/02/2017	28/02/2017	28/02/2017	28/02/2017
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	%	85	88	87	85	85

svTRH (C10-C40) in Soil						
Our Reference:	UNITS	162502-44	162502-46	162502-48	162502-50	162502-53
Your Reference	-------------	BH117	BH118	BH119	BH120	DUPAS2
Depth	------------	0.15-0.2	0.4-0.5	0.0-0.2	0.0-0.2	-
Type of sample		Soil	Soil	Soil	Soil	Soil
Date Sampled		23/02/2017	23/02/2017	24/02/2017	24/02/2017	24/02/2017
Date extracted	-	27/02/2017	27/02/2017	27/02/2017	27/02/2017	27/02/2017
Date analysed	-	28/02/2017	28/02/2017	28/02/2017	28/02/2017	28/02/2017
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	83	90	86	82

svTRH (C10-C40) in Soil		
Our Reference:	UNITS	162502-61
Your Reference	-------------	BH113
Depth	------------	0.5-0.6
Type of sample		Soil
Date Sampled		23/02/2017
Date extracted	-	27/02/2017
Date analysed	-	28/02/2017
TRHC $_{10}$ - C $_{14}$	mg/kg	<50
TRHC $_{15}$ - C $_{28}$	mg/kg	<100
TRHC $_{29}$ - 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	%	88

PAHs in Soil						
Our Reference:	UNITS	162502-2	162502-6	162502-9	162502-12	162502-15
Your Reference	-------------	BH101	BH102	BH103	BH104	BH105
Depth	------------	0.5-0.95	0.5-0.95	0.5-0.95	0.5-0.95	0.5-0.6
Type of sample		Soil	Soil	Soil	Soil	Soil
Date Sampled		23/02/2017	23/02/2017	23/02/2017	23/02/2017	23/02/2017
Date extracted	-	27/02/2017	27/02/2017	27/02/2017	27/02/2017	27/02/2017
Date analysed	-	27/02/2017	27/02/2017	27/02/2017	27/02/2017	27/02/2017
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
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
Total +ve PAH's	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Surrogate p-Terphenyl-d14	%	96	100	107	104	93

PAHs in Soil						
Our Reference:	UNITS	162502-17	162502-21	162502-24	162502-27	162502-30
Your Reference	-------------	BH106	BH107	BH108	BH109	BH110
Depth	------------	0.2-0.3	0.5-0.6	0.4-0.5	0.9-1.1	0.3-0.5
Type of sample		Soil	Soil	Soil	Soil	Soil
Date Sampled		23/02/2017	23/02/2017	23/02/2017	23/02/2017	23/02/2017
Date extracted	-	27/02/2017	27/02/2017	27/02/2017	27/02/2017	27/02/2017
Date analysed	-	27/02/2017	27/02/2017	27/02/2017	27/02/2017	27/02/2017
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	0.3	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	<0.1	0.3	<0.1
Pyrene	mg/kg	<0.1	<0.1	<0.1	0.4	<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	0.06	<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
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
Total +ve PAH's	mg/kg	<0.05	<0.05	<0.05	1.2	<0.05
Surrogate p-Terphenyl-d14	%	103	98	98	98	97

PAHs in Soil						
Our Reference:	UNITS	162502-32	162502-35	162502-37	162502-39	162502-41
Your Reference	-------------	BH111	BH112	BH114	BH115	BH116
Depth	------------	0.4-0.5	0.2-0.3	0.2-0.3	0.5-0.6	0.3-0.5
Type of sample		Soil	Soil	Soil	Soil	Soil
Date Sampled		23/02/2017	23/02/2017	23/02/2017	23/02/2017	23/02/2017
Date extracted	-	27/02/2017	27/02/2017	27/02/2017	27/02/2017	27/02/2017
Date analysed	-	27/02/2017	27/02/2017	27/02/2017	27/02/2017	27/02/2017
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	0.5	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	0.4	<0.1	<0.1
Phenanthrene	mg/kg	0.1	0.9	3.8	<0.1	<0.1
Anthracene	mg/kg	0.1	0.2	0.8	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	1.6	3.2	<0.1	<0.1
Pyrene	mg/kg	<0.1	2.3	3.7	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	1	1.4	<0.1	<0.1
Chrysene	mg/kg	<0.1	1.1	1.5	<0.1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	1	2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	0.99	1.1	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	0.5	0.5	<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	0.6	0.5	<0.1	<0.1
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	1.4	1.6	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	1.4	1.6	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	1.4	1.6	<0.5	<0.5
Total +ve PAH's	mg/kg	0.3	11	19	<0.05	<0.05
Surrogate p-Terphenyl-d14	%	100	93	89	106	101

PAHs in Soil						
Our Reference:	UNITS	162502-44	162502-46	162502-48	162502-50	162502-53
Your Reference	-------------	BH117	BH118	BH119	BH120	DUPAS2
Depth	------------	0.15-0.2	0.4-0.5	0.0-0.2	0.0-0.2	-
Type of sample		Soil	Soil	Soil	Soil	Soil
Date Sampled		23/02/2017	23/02/2017	24/02/2017	24/02/2017	24/02/2017
Date extracted	-	27/02/2017	27/02/2017	27/02/2017	27/02/2017	27/02/2017
Date analysed	-	27/02/2017	27/02/2017	27/02/2017	27/02/2017	27/02/2017
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	0.2
Pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	0.2
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
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
Total +ve PAH's	mg/kg	<0.05	<0.05	<0.05	<0.05	0.52
Surrogate p-Terphenyl-d14	%	109	104	102	103	98

PAHs in Soil		
Our Reference:	UNITS	162502-61
Your Reference	-------------	BH113
Depth	------------	0.5-0.6
Type of sample		Soil
Date Sampled		23/02/2017
Date extracted	-	27/02/2017
Date analysed	-	27/02/2017
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
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
Total +ve PAH's	mg/kg	<0.05
Surrogate p-Terphenyl-d14	%	102

Acid Extractable metals in soil						
Our Reference:	UNITS	162502-2	162502-6	162502-9	162502-12	162502-15
Your Reference	-------------	BH101	BH102	BH103	BH104	BH105
Depth	------------	0.5-0.95	0.5-0.95	0.5-0.95	0.5-0.95	0.5-0.6
Type of sample		Soil	Soil	Soil	Soil	Soil
Date Sampled		23/02/2017	23/02/2017	23/02/2017	23/02/2017	23/02/2017
Date prepared	-	27/02/2017	27/02/2017	27/02/2017	27/02/2017	27/02/2017
Date analysed	-	27/02/2017	27/02/2017	27/02/2017	27/02/2017	27/02/2017
Arsenic	mg/kg	6	4	6	4	10
Cadmium	mg/kg	0.7	<0.4	<0.4	<0.4	0.9
Chromium	mg/kg	21	11	10	12	17
Copper	mg/kg	53	15	20	18	37
Lead	mg/kg	840	13	23	160	410
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	0.2
Nickel	mg/kg	9	5	4	7	14
Zinc	mg/kg	750	15	24	150	460

Acid Extractable metals in soil						
Our Reference:	UNITS	162502-17	162502-21	162502-24	162502-27	162502-30
Your Reference	-------------	BH106	BH107	BH108	BH109	BH110
Depth	------------	0.2-0.3	0.5-0.6	0.4-0.5	0.9-1.1	0.3-0.5
Type of sample		Soil	Soil	Soil	Soil	Soil
Date Sampled		23/02/2017	23/02/2017	23/02/2017	23/02/2017	23/02/2017
Date prepared	-	27/02/2017	27/02/2017	27/02/2017	27/02/2017	27/02/2017
Date analysed	-	27/02/2017	27/02/2017	27/02/2017	27/02/2017	27/02/2017
Arsenic	mg/kg	<4	<4	6	5	<4
Cadmium	mg/kg	<0.4	<0.4	<0.4	0.4	0.7
Chromium	mg/kg	7	11	14	14	14
Copper	mg/kg	7	10	28	23	32
Lead	mg/kg	10	16	650	580	620
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	4	5	12	7	6
Zinc	mg/kg	15	18	880	660	720

Acid Extractable metals in soil Our Reference: Your Reference Depth Type of sample Date Sampled	UNITS ------------- ------------	162502-32 BH111 0.4-0.5 Soil 23/02/2017	162502-35 BH112 0.2-0.3 Soil 23/02/2017	162502-37 BH114 0.2-0.3 Soil 23/02/2017	162502-39 BH115 0.5-0.6 Soil 23/02/2017	162502-41 BH116 0.3-0.5 Soil 23/02/2017
Date prepared	-	27/02/2017	27/02/2017	27/02/2017	27/02/2017	27/02/2017
Date analysed	-	27/02/2017	27/02/2017	27/02/2017	27/02/2017	27/02/2017
Arsenic	mg/kg	6	<4	<4	<4	6
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	0.6
Chromium	mg/kg	13	45	8	9	13
Copper	mg/kg	42	36	23	11	24
Lead	mg/kg	250	33	19	14	780
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	13	49	14	4	7
Zinc	mg/kg	340	59	32	21	980

Acid Extractable metals in soil Our Reference: Your Reference Depth Type of sample Date Sampled	UNITS ------------- ------------	162502-44 BH117 0.15-0.2 Soil 23/02/2017	162502-46 BH118 0.4-0.5 Soil 23/02/2017	162502-48 BH119 0.0-0.2 Soil 24/02/2017	162502-50 BH120 0.0-0.2 Soil 24/02/2017	162502-53 DUPAS2 - Soil 24/02/2017
Date prepared	-	27/02/2017	27/02/2017	27/02/2017	27/02/2017	27/02/2017
Date analysed	-	27/02/2017	27/02/2017	27/02/2017	27/02/2017	27/02/2017
Arsenic	mg/kg	5	4	4	6	4
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	0.6
Chromium	mg/kg	10	21	16	24	17
Copper	mg/kg	8	18	18	20	28
Lead	mg/kg	75	83	50	44	740
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	3	17	11	15	12
Zinc	mg/kg	81	83	89	72	940

Acid Extractable metals in soil				
Our Reference:	UNITS	162502-61	162502-62	162502-63
Your Reference	-------------	BH113	BH101 - [TRIPLICATE]	BH112 - [TRIPLICATE]
Depth	------------	0.5-0.6	0.5-0.95	0.2-0.3
Type of sample		Soil	Soil	Soil
Date Sampled		23/02/2017	23/02/2017	23/02/2017
Date prepared	-	27/02/2017	27/02/2017	27/02/2017
Date analysed	-	27/02/2017	27/02/2017	27/02/2017
Arsenic	mg/kg	6	<4	4
Cadmium	mg/kg	<0.4	<0.4	<0.4
Chromium	mg/kg	13	13	57
Copper	mg/kg	9	26	39
Lead	mg/kg	23	360	88
Mercury	mg/kg	<0.1	<0.1	<0.1
Nickel	mg/kg	3	7	54
Zinc	mg/kg	30	390	140

Moisture						
Our Reference:	UNITS	162502-2	162502-6	162502-9	162502-12	162502-15
Your Reference	-------------	BH101	BH102	BH103	BH104	BH105
Depth	------------	0.5-0.95	0.5-0.95	0.5-0.95	0.5-0.95	0.5-0.6
Type of sample		Soil	Soil	Soil	Soil	Soil
Date Sampled		23/02/2017	23/02/2017	23/02/2017	23/02/2017	23/02/2017
Date prepared	-	27/02/2017	27/02/2017	27/02/2017	27/02/2017	27/02/2017
Date analysed	-	28/02/2017	28/02/2017	28/02/2017	28/02/2017	28/02/2017
Moisture	%	16	15	12	11	17

Moisture						
Our Reference:	UNITS	162502-17	162502-21	162502-24	162502-27	162502-30
Your Reference	-------------	BH106	BH107	BH108	BH109	BH110
Depth	------------	0.2-0.3	0.5-0.6	0.4-0.5	0.9-1.1	0.3-0.5
Type of sample		Soil	Soil	Soil	Soil	Soil
Date Sampled		23/02/2017	23/02/2017	23/02/2017	23/02/2017	23/02/2017
Date prepared	-	27/02/2017	27/02/2017	27/02/2017	27/02/2017	27/02/2017
Date analysed	-	28/02/2017	28/02/2017	28/02/2017	28/02/2017	28/02/2017
Moisture	%	12	16	14	14	14

Moisture						
Our Reference:	UNITS	162502-32	162502-35	162502-37	162502-39	162502-41
Your Reference	-------------	BH111	BH112	BH114	BH115	BH116
Depth	------------	0.4-0.5	0.2-0.3	0.2-0.3	0.5-0.6	0.3-0.5
Type of sample		Soil	Soil	Soil	Soil	Soil
Date Sampled		23/02/2017	23/02/2017	23/02/2017	23/02/2017	23/02/2017
Date prepared	-	27/02/2017	27/02/2017	27/02/2017	27/02/2017	27/02/2017
Date analysed	-	28/02/2017	28/02/2017	28/02/2017	28/02/2017	28/02/2017
Moisture	%	16	12	10	14	14

Moisture						
Our Reference:	UNITS	162502-44	162502-46	162502-48	162502-50	162502-53
Your Reference	-------------	BH117	BH118	BH119	BH120	DUPAS2
Depth	------------	0.15-0.2	0.4-0.5	0.0-0.2	0.0-0.2	-
Type of sample		Soil	Soil	Soil	Soil	Soil
Date Sampled		23/02/2017	23/02/2017	24/02/2017	24/02/2017	24/02/2017
Date prepared	-	27/02/2017	27/02/2017	27/02/2017	27/02/2017	27/02/2017
Date analysed	-	28/02/2017	28/02/2017	28/02/2017	28/02/2017	28/02/2017
Moisture	%	6.8	12	6.5	6.4	19

Moisture		
Our Reference:	UNITS	162502-61
Your Reference	-------------	BH113
Depth	------------	0.5-0.6
Type of sample		Soil
Date Sampled		23/02/2017
Date prepared	-	27/02/2017
Date analysed	-	28/02/2017
Moisture	%	20

Asbestos ID - soils						
Our Reference:	UNITS	162502-2	162502-6	162502-9	162502-12	162502-15
Your Reference	-------------	BH101	BH102	BH103	BH104	BH105
Depth	------------	0.5-0.95	0.5-0.95	0.5-0.95	0.5-0.95	0.5-0.6
Type of sample		Soil	Soil	Soil	Soil	Soil
Date Sampled		23/02/2017	23/02/2017	23/02/2017	23/02/2017	23/02/2017
Date analysed	-	28/02/2017	28/02/2017	28/02/2017	28/02/2017	28/02/2017
Sample mass tested	g	Approx 55g	Approx 25g	Approx 45g	Approx 20g	Approx 25g
Sample Description	-	Brown coarse-grained soil & rocks	Brown clayey soil	Brown coarse-grained soil & rocks	Brown coarse-grained soil & rocks	Brown coarse-grained soil & rocks
Asbestos ID in soil	-	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

Asbestos ID - soils						
Our Reference:	UNITS	162502-17	162502-21	162502-24	162502-27	162502-30
Your Reference	-------------	BH106	BH107	BH108	BH109	BH110
Depth	------------	0.2-0.3	0.5-0.6	0.4-0.5	0.9-1.1	0.3-0.5
Type of sample		Soil	Soil	Soil	Soil	Soil
Date Sampled		23/02/2017	23/02/2017	23/02/2017	23/02/2017	23/02/2017
Date analysed	-	28/02/2017	28/02/2017	28/02/2017	28/02/2017	28/02/2017
Sample mass tested	g	Approx 35g	Approx 20g	Approx 35g	Approx 30g	Approx 50g
Sample Description	-	Brown coarse-grained soil & rocks	Brown coarse-grained soil & rocks	Brown coarse-grained soil & rocks	Brown coarse-grained soil & rocks	Brown coarse-grained soil & rocks
Asbestos ID in soil	-	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

Asbestos ID - soils						
Our Reference:	UNITS	162502-32	162502-35	162502-37	162502-39	162502-41
Your Reference	-------------	BH111	BH112	BH114	BH115	BH116
Depth	------------	0.4-0.5	0.2-0.3	0.2-0.3	0.5-0.6	0.3-0.5
Type of sample		Soil	Soil	Soil	Soil	Soil
Date Sampled		23/02/2017	23/02/2017	23/02/2017	23/02/2017	23/02/2017
Date analysed	-	28/02/2017	28/02/2017	28/02/2017	28/02/2017	28/02/2017
Sample mass tested	g	Approx 45g	Approx 30g	Approx 30g	Approx 30g	Approx 35g
Sample Description	-	Brown coarse-grained soil & rocks	Brown coarse-grained soil & rocks	Grey coarse-grained soil & rocks	Brown coarse-grained soil & rocks	Brown coarse-grained soil & rocks
Asbestos ID in soil	-	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

Asbestos ID - soils						
Our Reference:	UNITS	162502-44	162502-46	162502-48	162502-50	162502-61
Your Reference	-------------	BH117	BH118	BH119	BH120	BH113
Depth	------------	0.15-0.2	0.4-0.5	0.0-0.2	0.0-0.2	0.5-0.6
Type of sample		Soil	Soil	Soil	Soil	Soil
Date Sampled		23/02/2017	23/02/2017	24/02/2017	24/02/2017	23/02/2017
Date analysed	-	28/02/2017	28/02/2017	28/02/2017	28/02/2017	28/02/2017
Sample mass tested	g	Approx 30g	Approx 35g	15.23g	Approx 15g	Approx 35g
Sample Description	-	Brown sandy soil & rocks	Brown coarse-grained soil & rocks	Brown coarse-grained soil & rocks	Brown fine-grained soil & rocks	Brown coarse-grained soil & rocks
Asbestos ID in soil	-	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	Chrysotile asbestos detected Amosite asbestos detected Crocidolite asbestos detected 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

Asbestos ID - materials		
Our Reference:	UNITS	162502-56
Your Reference	-------------	FCF1
Depth	------------	Surface
Type of sample		Material
Date Sampled		23/02/2017
Date analysed	-	28/02/2017
Mass / Dimension of Sample	-	100x50x7mm
Sample Description	-	Grey compressed fibre cement material
Asbestos ID in materials	-	No asbestos detected Organic fibres detected

Method ID	Methodology Summary
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.
Org-014	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-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-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. For soil results:- 1. 'TEQ PQL' values are assuming all contributing PAHs reported as <PQL are actually at the PQL. This is the most conservative approach and can give false positive TEQs given that PAHs that contribute to the TEQ calculation may not be present. 2. 'TEQ zero' values are assuming all contributing PAHs reported as <PQL are zero. This is the least conservative approach and is more susceptible to false negative TEQs when PAHs that contribute to the TEQ calculation are present but below PQL. 3. 'TEQ half PQL' values are assuming all contributing PAHs reported as <PQL are half the stipulated PQL. Hence a mid-point between the most and least conservative approaches above. Note, 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.
Metals-020	Determination of various metals by ICP-AES.
Metals-021	Determination of Mercury by Cold Vapour AAS.
Inorg-008	Moisture content determined by heating at 105+/-5 °C for a minimum of 12 hours.
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.

QUALITY CONTROL vTRH(C6-C10)/BTEXN in Soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			27/02/2017	162502-2	27/02/2017 || 27/02/2017	LCS-6	27/02/2017
Date analysed	-			28/02/2017	162502-2	28/02/2017 || 28/02/2017	LCS-6	28/02/2017
TRHC_6 - C_9	mg/kg	25	Org-016	<25	162502-2	<25 || <25	LCS-6	111%
TRHC_6 - C_{10}	mg/kg	25	Org-016	<25	162502-2	<25 || <25	LCS-6	111%
Benzene	mg/kg	0.2	Org-016	<0.2	162502-2	<0.2 || <0.2	LCS-6	92%
Toluene	mg/kg	0.5	Org-016	<0.5	162502-2	<0.5 || <0.5	LCS-6	112%
Ethylbenzene	mg/kg	1	Org-016	<1	162502-2	<1 || <1	LCS-6	115%
m+p-xylene	mg/kg	2	Org-016	<2	162502-2	<2 || <2	LCS-6	118%
o-Xylene	mg/kg	1	Org-016	<1	162502-2	<1 || <1	LCS-6	119%
naphthalene	mg/kg	1	Org-014	<1	162502-2	<1 || <1	[NR]	[NR]
Surrogate aaa-Trifluorotoluene	%		Org-016	102	162502-2	103 || 96 || RPD: 7	LCS-6	111%

QUALITY CONTROL svTRH (C10-C40) in Soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			27/02/2017	162502-2	27/02/2017 || 27/02/2017	LCS-6	27/02/2017
Date analysed	-			27/02/2017	162502-2	27/02/2017 || 27/02/2017	LCS-6	27/02/2017
TRHC_{10} - C_{14}	mg/kg	50	Org-003	<50	162502-2	<50 || <50	LCS-6	111%
TRHC_{15} - C_{28}	mg/kg	100	Org-003	<100	162502-2	<100 || <100	LCS-6	104%
TRHC_{29} - C_{36}	mg/kg	100	Org-003	<100	162502-2	<100 || <100	LCS-6	91%
TRH>C_{10}-C_{16}	mg/kg	50	Org-003	<50	162502-2	<50 || <50	LCS-6	111%
TRH>C_{16}-C_{34}	mg/kg	100	Org-003	<100	162502-2	<100 || <100	LCS-6	104%
TRH>C_{34}-C_{40}	mg/kg	100	Org-003	<100	162502-2	<100 || <100	LCS-6	91%
Surrogate o-Terphenyl	%		Org-003	88	162502-2	91 || 88 || RPD: 3	LCS-6	100%

QUALITY CONTROL PAHs in Soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			27/02/2017	162502-2	27/02/2017 || 27/02/2017	LCS-6	27/02/2017
Date analysed	-			27/02/2017	162502-2	27/02/2017 || 27/02/2017	LCS-6	27/02/2017
Naphthalene	mg/kg	0.1	Org-012	<0.1	162502-2	<0.1 || <0.1	LCS-6	98%
Acenaphthylene	mg/kg	0.1	Org-012	<0.1	162502-2	<0.1 || <0.1	[NR]	[NR]
Acenaphthene	mg/kg	0.1	Org-012	<0.1	162502-2	<0.1 || <0.1	[NR]	[NR]
Fluorene	mg/kg	0.1	Org-012	<0.1	162502-2	<0.1 || <0.1	LCS-6	102%
Phenanthrene	mg/kg	0.1	Org-012	<0.1	162502-2	<0.1 || <0.1	LCS-6	118%
Anthracene	mg/kg	0.1	Org-012	<0.1	162502-2	<0.1 || <0.1	[NR]	[NR]
Fluoranthene	mg/kg	0.1	Org-012	<0.1	162502-2	<0.1 || <0.1	LCS-6	113%
Pyrene	mg/kg	0.1	Org-012	<0.1	162502-2	<0.1 || <0.1	LCS-6	112%
Benzo(a)anthracene	mg/kg	0.1	Org-012	<0.1	162502-2	<0.1 || <0.1	[NR]	[NR]
Chrysene	mg/kg	0.1	Org-012	<0.1	162502-2	<0.1 || <0.1	LCS-6	101%
Benzo(b,j+k) fluoranthene	mg/kg	0.2	Org-012	<0.2	162502-2	<0.2 || <0.2	[NR]	[NR]

QUALITY CONTROL PAHs in Soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Benzo(a)pyrene	mg/kg	0.05	Org-012	<0.05	162502-2	<0.05 || <0.05	LCS-6	105%
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-012	<0.1	162502-2	<0.1 || <0.1	[NR]	[NR]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-012	<0.1	162502-2	<0.1 || <0.1	[NR]	[NR]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-012	<0.1	162502-2	<0.1 || <0.1	[NR]	[NR]
Surrogate p-Terphenyl-d14	%		Org-012	100	162502-2	96 || 102 || RPD: 6	LCS-6	112%

QUALITY CONTROL Acid Extractable metals in soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date prepared	-			27/02/2017	162502-2	27/02/2017 || 27/02/2017	LCS-6	27/02/2017
Date analysed	-			27/02/2017	162502-2	27/02/2017 || 27/02/2017	LCS-6	27/02/2017
Arsenic	mg/kg	4	Metals-020	<4	162502-2	6 || 5 || RPD: 18	LCS-6	122%
Cadmium	mg/kg	0.4	Metals-020	<0.4	162502-2	0.7 || 0.5 || RPD: 33	LCS-6	108%
Chromium	mg/kg	1	Metals-020	<1	162502-2	21 || 15 || RPD: 33	LCS-6	113%
Copper	mg/kg	1	Metals-020	<1	162502-2	53 || 39 || RPD: 30	LCS-6	116%
Lead	mg/kg	1	Metals-020	<1	162502-2	840 || 450 || RPD: 60	LCS-6	111%
Mercury	mg/kg	0.1	Metals-021	<0.1	162502-2	<0.1 || <0.1	LCS-6	87%
Nickel	mg/kg	1	Metals-020	<1	162502-2	9 || 8 || RPD: 12	LCS-6	104%
Zinc	mg/kg	1	Metals-020	<1	162502-2	750 || 520 || RPD: 36	LCS-6	108%

QUALITY CONTROL vTRH(C6-C10)/BTEXN in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	162502-35	27/02/2017 || 27/02/2017	162502-6	27/02/2017
Date analysed	-	162502-35	28/02/2017 || 28/02/2017	162502-6	28/02/2017
TRH C_6 - C_9	mg/kg	162502-35	<25 || <25	162502-6	114%
TRH C_6 - C_{10}	mg/kg	162502-35	<25 || <25	162502-6	114%
Benzene	mg/kg	162502-35	<0.2 || <0.2	162502-6	95%
Toluene	mg/kg	162502-35	<0.5 || <0.5	162502-6	114%
Ethylbenzene	mg/kg	162502-35	<1 || <1	162502-6	119%
m+p-xylene	mg/kg	162502-35	<2 || <2	162502-6	121%
o-Xylene	mg/kg	162502-35	<1 || <1	162502-6	123%
naphthalene	mg/kg	162502-35	<1 || <1	[NR]	[NR]
Surrogate aaa-Trifluorotoluene	%	162502-35	105 || 102 || RPD: 3	162502-6	113%

QUALITY CONTROL svTRH (C10-C40) in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	162502-35	27/02/2017 || 27/02/2017	162502-6	27/02/2017
Date analysed	-	162502-35	28/02/2017 || 28/02/2017	162502-6	27/02/2017
TRHC $_{10}$ - C $_{14}$	mg/kg	162502-35	<50 || <50	162502-6	114%
TRHC $_{15}$ - C $_{28}$	mg/kg	162502-35	<100 || 100	162502-6	100%
TRHC $_{29}$ - C $_{36}$	mg/kg	162502-35	<100 || <100	162502-6	105%
TRH>C $_{10}$-C $_{16}$	mg/kg	162502-35	<50 || <50	162502-6	114%
TRH>C $_{16}$-C $_{34}$	mg/kg	162502-35	<100 || 150	162502-6	100%
TRH>C $_{34}$-C $_{40}$	mg/kg	162502-35	<100 || <100	162502-6	105%
Surrogate o-Terphenyl	%	162502-35	88 || 94 || RPD: 7	162502-6	92%

QUALITY CONTROL PAHs in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	162502-35	27/02/2017 || 27/02/2017	162502-6	27/02/2017
Date analysed	-	162502-35	27/02/2017 || 27/02/2017	162502-6	27/02/2017
Naphthalene	mg/kg	162502-35	<0.1 || <0.1	162502-6	98%
Acenaphthylene	mg/kg	162502-35	<0.1 || <0.1	[NR]	[NR]
Acenaphthene	mg/kg	162502-35	0.1 || 0.1 || RPD: 0	[NR]	[NR]
Fluorene	mg/kg	162502-35	<0.1 || <0.1	162502-6	101%
Phenanthrene	mg/kg	162502-35	0.9 || 1.9 || RPD: 71	162502-6	101%
Anthracene	mg/kg	162502-35	0.2 || 0.4 || RPD: 67	[NR]	[NR]
Fluoranthene	mg/kg	162502-35	1.6 || 3.1 || RPD: 64	162502-6	102%
Pyrene	mg/kg	162502-35	2.3 || 4.5 || RPD: 65	162502-6	105%
Benzo(a)anthracene	mg/kg	162502-35	1 || 2.0 || RPD: 67	[NR]	[NR]
Chrysene	mg/kg	162502-35	1.1 || 2.1 || RPD: 62	162502-6	93%
Benzo(b,j+k)fluoranthene	mg/kg	162502-35	1 || 2.5 || RPD: 86	[NR]	[NR]
Benzo(a)pyrene	mg/kg	162502-35	0.99 || 2.0 || RPD: 68	162502-6	102%
Indeno(1,2,3-c,d)pyrene	mg/kg	162502-35	0.5 || 0.8 || RPD: 46	[NR]	[NR]
Dibenzo(a,h)anthracene	mg/kg	162502-35	0.1 || 0.2 || RPD: 67	[NR]	[NR]
Benzo(g,h,i)perylene	mg/kg	162502-35	0.6 || 1 || RPD: 50	[NR]	[NR]
Surrogate p-Terphenyl-d14	%	162502-35	93 || 90 || RPD: 3	162502-6	106%

QUALITY CONTROL Acid Extractable metals in soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date prepared	-	162502-35	27/02/2017 || 27/02/2017	162502-6	27/02/2017
Date analysed	-	162502-35	27/02/2017 || 27/02/2017	162502-6	27/02/2017
Arsenic	mg/kg	162502-35	<4 || <4	162502-6	87%
Cadmium	mg/kg	162502-35	<0.4 || <0.4	162502-6	94%
Chromium	mg/kg	162502-35	45 || 21 || RPD: 73	162502-6	98%
Copper	mg/kg	162502-35	36 || 50 || RPD: 33	162502-6	108%
Lead	mg/kg	162502-35	33 || 31 || RPD: 6	162502-6	89%
Mercury	mg/kg	162502-35	<0.1 || <0.1	162502-6	86%
Nickel	mg/kg	162502-35	49 || 33 || RPD: 39	162502-6	91%
Zinc	mg/kg	162502-35	59 || 60 || RPD: 2	162502-6	93%

QUALITY CONTROL vTRH(C6-C10)/BTEXN in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	162502-50	27/02/2017 || 27/02/2017	LCS-7	27/02/2017
Date analysed	-	162502-50	28/02/2017 || 28/02/2017	LCS-7	28/02/2017
TRH C_6 - C_9	mg/kg	162502-50	<25 || <25	LCS-7	111%
TRH C_6 - C_{10}	mg/kg	162502-50	<25 || <25	LCS-7	111%
Benzene	mg/kg	162502-50	<0.2 || <0.2	LCS-7	92%
Toluene	mg/kg	162502-50	<0.5 || <0.5	LCS-7	112%
Ethylbenzene	mg/kg	162502-50	<1 || <1	LCS-7	115%
m+p-xylene	mg/kg	162502-50	<2 || <2	LCS-7	118%
o-Xylene	mg/kg	162502-50	<1 || <1	LCS-7	119%
naphthalene	mg/kg	162502-50	<1 || <1	[NR]	[NR]
Surrogate aaa-Trifluorotoluene	%	162502-50	117 || 112 || RPD: 4	LCS-7	111%

Report Comments:

Acid Extractable Metals in Soil: The laboratory RPD acceptance criteria has been exceeded for 162502-2 for Pb. Therefore a triplicate result has been issued as laboratory sample number 162502-62.

Acid Extractable Metals in Soil: The laboratory RPD acceptance criteria has been exceeded for 162502-35 for Cr. Therefore a triplicate result has been issued as laboratory sample number 162502-63.

PAH_S:
The RPD for duplicate results is accepted due to the non homogenous nature of the sample/s.

Asbestos: A portion of the supplied sample was sub-sampled for asbestos analysis according to Envirolab procedures. We cannot guarantee that this sub-sample is indicative of the entire sample. Envirolab recommends supplying 40-50g of sample in its own container.
Note: Samples 162502-9, 12 & 39 were sub-sampled from jars provided by the client.

Sample 162502-48; Chrysotile, Amosite and Crocidolite asbestos identified in matted material, it is estimated to be 1.05g/kg in 15.23g of soil (i.e. > reporting limit for the method of 0.1g/kg).

Asbestos ID was analysed by Approved Identifier:	Paul Ching, Matt Tang
Asbestos ID was authorised by Approved Signatory:	Paul Ching

INS: Insufficient sample for this test	PQL: Practical Quantitation Limit	NT: Not tested
NR: Test not required	RPD: Relative Percent Difference	NA: Test not required
<: Less than	>: Greater than	LCS: Laboratory Control Sample

Quality Control Definitions

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

Duplicate: This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.

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

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

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

Laboratory Acceptance Criteria

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

Duplicates: <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.

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: E28497K Date Results Required: ~~STANDARD~~ 48 hr Page: 3 of 3	**FROM:** EIS ENVIRONMENTAL INVESTIGATION SERVICES REAR OF 115 WICKS ROAD MACQUARIE PARK, NSW 2113 P: 02-9888 5000 F: 02-9888 5001 Attention: ~~asmith@jkgroup.net.au~~ rMuller

Location: Smithfield — Sample Preserved in Esky on Ice

Sampler: AS — Tests Required

162502

Date Sampled	Lab Ref:	Sample Number	Depth (m)	Sample Container	PID	Sample Description	Combo 2	Combo 3a	Combo 6	Combo 6a	8 Metals	PAHs	TRH/BTEX	BTEX	Asbestos	COMBO 3		
24/02/2017	48	BH119	0-0.2	G,A		Fill-Silty Sand		X										
↓	49	↓	0.4-0.5	G,A		Fill-Silty Sand												
	50	BH120	0-0.2	G,A		Fill-Silty Sand		X										
	51	↓	~~0.5-0.6~~ 0.55	G,A		Fill-Silty Sand												
23/02/2017	52	DUPAS1	-	G												X		
24/02/2017	53	DUPAS2	-	G												X		
23/02/2017	54	TB1	-	G										X				
24/02/2017	55	TB2		G										X				
23-2-17	56	FCF1	Surface	A		Fragment									X			
	57	BH102	0.1-0.2	G														
	58	BH10	1.9-2.0	G														
	59	BH10	2.9-3.0	G														
	60	BH12	1.1-1.2	G,B														
	61	BH12	0.5-0.6	G														

ENVIROLAB

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

Job No: 10235
Date Received: 28/2/17
Time Received: 11:30
Received by: MS
Temp: Cool/Ambient 23.2°C
Cooling: Ice/Icepack
Security: Intact/Broken/None

Remarks (comments/detection limits required):	Sample Containers:
PLEASE SEND DUPAS1 TO OTHER LAB AS INTER-LAB DUPLICATE	G - 250mg Glass Jar A - Ziplock Asbestos Bag P - Plastic Bag

Relinquished By:	Date:	Time:	Received By:	Date:
[signature]	24/2/17	1400	Nick	24/2/17

Envirolab Services Pty Ltd - Melbourne
ABN 37 112 535 645 -02
1 Dalmore Drive, Scoresby, VIC 3179 Australia
Ph +613 9763 2500 Fax +613 9763 2633
melbourne@envirolab.com.au
www.envirolab.com.au

A division of Envirolab Group

SAMPLE RECEIPT ADVICE

Client Details	
Client	Environmental Investigation Services
Attention	Rob Muller

Sample Login Details	
Your Reference	E28497K - Smithfield
Envirolab Reference	**10235**
Date Sample Received	28/02/2017
Date Instructions Received	28/02/2017
Date Results Expected to be Reported	**02/03/2017**

Sample Condition	
Samples received in appropriate condition for analysis	YES
No. of Samples Provided	1 Soil
Turnaround Time Requested	48hr
Temperature on receipt (°C)	23.3C
Cooling Method	Ice Pack
Sampling Date Provided	YES

Comments
Samples will be held for 1 month for water samples and 2 months for soil samples from date of receipt of samples

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

Sample and Testing Details on following page

Envirolab Services Pty Ltd - Melbourne
ABN 37 112 535 645 -02
1 Dalmore Drive, Scoresby, VIC 3179 Australia
Ph +613 9763 2500 Fax +613 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*	*Acid Extractable metals in soil*
DUPAS1	✓	✓	✓	✓

1 Dalmore Drive, Scoresby, Victoria 3179
tel: +61 3 9763 2500

email: melbourne@envirolab.com.au
envirolab.com.au

Envirolab Services Pty Ltd - Melbourne | ABN 37 112 535 645 - 002

CERTIFICATE OF ANALYSIS **10235**

Client:
Environmental Investigation Services
PO Box 976
North Ryde BC
NSW 1670

Attention: Rob Muller

Sample log in details:

Your Reference:	**E28497K - Smithfield**	
No. of samples:	1 Soil	
Date samples received / completed instructions received	28/02/2017	/ 28/02/2017

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: / Issue Date:	2/03/17	/ 2/03/17
Date of Preliminary Report:	Not Issued	

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

ACCREDITED FOR TECHNICAL COMPETENCE

vTRH(C6-C10)/BTEXN in Soil		
Our Reference:	UNITS	10235-1
Your Reference	-------------	DUPAS1
Date Sampled	------------	23/02/2017
Type of sample		Soil
Date extracted	-	28/02/2017
Date analysed	-	28/02/2017
vTRH C_6 - C_9	mg/kg	<25
vTRH C_6 - C_{10}	mg/kg	<25
TRH 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	%	96

TRH Soil C10-C40 NEPM		
Our Reference:	UNITS	10235-1
Your Reference	-------------	DUPAS1
Date Sampled	------------	23/02/2017
Type of sample		Soil
Date extracted	-	28/02/2017
Date analysed	-	01/03/2017
TRHC $_{10}$ - C $_{14}$	mg/kg	<50
TRHC $_{15}$ - C $_{28}$	mg/kg	370
TRHC $_{29}$ - C $_{36}$	mg/kg	340
Total +ve TRH (C10-C36)	mg/kg	710
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	610
TRH>C $_{34}$-C $_{40}$	mg/kg	170
Total +ve TRH (>C10-C40)	mg/kg	790
Surrogate o-Terphenyl	%	102

PAHs in Soil		
Our Reference:	UNITS	10235-1
Your Reference	-------------	DUPAS1
Date Sampled	------------	23/02/2017
Type of sample		Soil
Date extracted	-	28/02/2017
Date analysed	-	02/03/2017
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	0.06
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	0.06
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-d_{14}	%	120

Acid Extractable metals in soil Our Reference: Your Reference Date Sampled Type of sample	UNITS ------------- ------------	10235-1 DUPAS1 23/02/2017 Soil
Date digested	-	28/02/2017
Date analysed	-	28/02/2017
Arsenic	mg/kg	7
Cadmium	mg/kg	1
Chromium	mg/kg	37
Copper	mg/kg	60
Lead	mg/kg	1,000
Mercury	mg/kg	0.2
Nickel	mg/kg	20
Zinc	mg/kg	1,300

Moisture Our Reference: Your Reference Date Sampled Type of sample	UNITS ------------- ------------	10235-1 DUPAS1 23/02/2017 Soil
Date prepared	-	28/02/2017
Date analysed	-	01/03/2017
Moisture	%	15

Method ID	Methodology Summary
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.
Org-014	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-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. For soil results:- 1. ‘TEQ PQL’ values are assuming all contributing PAHs reported as <PQL are actually at the PQL. This is the most conservative approach and can give false positive TEQs given that PAHs that contribute to the TEQ calculation may not be present. 2. ‘TEQ zero’ values are assuming all contributing PAHs reported as <PQL are zero. This is the least conservative approach and is more susceptible to false negative TEQs when PAHs that contribute to the TEQ calculation are present but below PQL. 3. ‘TEQ half PQL’ values are assuming all contributing PAHs reported as <PQL are half the stipulated PQL. Hence a mid-point between the most and least conservative approaches above. Note, 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.
Metals-020 ICP-AES	Determination of various metals by ICP-AES.
Metals-021 CV-AAS	Determination of Mercury by Cold Vapour AAS.
Inorg-008	Moisture content determined by heating at 105 deg C for a minimum of 12 hours.

QUALITY CONTROL vTRH(C6-C10)/BTEXN in Soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			28/02/2017	[NT]	[NT]	LCS-1	28/02/2017
Date analysed	-			28/02/2017	[NT]	[NT]	LCS-1	28/02/2017
vTRH C_6 - C_9	mg/kg	25	Org-016	<25	[NT]	[NT]	LCS-1	103%
vTRH C_6 - C_{10}	mg/kg	25	Org-016	<25	[NT]	[NT]	LCS-1	103%
Benzene	mg/kg	0.2	Org-016	<0.2	[NT]	[NT]	LCS-1	95%
Toluene	mg/kg	0.5	Org-016	<0.5	[NT]	[NT]	LCS-1	100%
Ethylbenzene	mg/kg	1	Org-016	<1	[NT]	[NT]	LCS-1	104%
m+p-xylene	mg/kg	2	Org-016	<2	[NT]	[NT]	LCS-1	107%
o-Xylene	mg/kg	1	Org-016	<1	[NT]	[NT]	LCS-1	104%
Naphthalene	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
Surrogate aaa-Trifluorotoluene	%		Org-016	106	[NT]	[NT]	LCS-1	105%

QUALITY CONTROL TRH Soil C10-C40 NEPM	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			28/02/2017	[NT]	[NT]	LCS-1	28/02/2017
Date analysed	-			01/03/2017	[NT]	[NT]	LCS-1	01/03/2017
TRH C_{10} - C_{14}	mg/kg	50	Org-003	<50	[NT]	[NT]	LCS-1	109%
TRH C_{15} - C_{28}	mg/kg	100	Org-003	<100	[NT]	[NT]	LCS-1	114%
TRH C_{29} - C_{36}	mg/kg	100	Org-003	<100	[NT]	[NT]	LCS-1	120%
TRH >C_{10}-C_{16}	mg/kg	50	Org-003	<50	[NT]	[NT]	LCS-1	109%
TRH >C_{16}-C_{34}	mg/kg	100	Org-003	<100	[NT]	[NT]	LCS-1	114%
TRH >C_{34}-C_{40}	mg/kg	100	Org-003	<100	[NT]	[NT]	LCS-1	120%
Surrogate o-Terphenyl	%		Org-003	90	[NT]	[NT]	LCS-1	119%

QUALITY CONTROL PAHs in Soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			28/02/2017	[NT]	[NT]	LCS-1	28/02/2017
Date analysed	-			02/03/2017	[NT]	[NT]	LCS-1	02/03/2017
Naphthalene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	LCS-1	96%
Acenaphthylene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	LCS-1	98%
Acenaphthene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NR]	[NR]
Fluorene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	LCS-1	100%
Phenanthrene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	LCS-1	98%
Anthracene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NR]	[NR]
Fluoranthene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	LCS-1	100%
Pyrene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	LCS-1	98%
Benzo(a)anthracene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NR]	[NR]
Chrysene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	LCS-1	120%

QUALITY CONTROL PAHs in Soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Benzo(b,j&k) fluoranthene	mg/kg	0.2	Org-012	<0.2	[NT]	[NT]	[NR]	[NR]
Benzo(a)pyrene	mg/kg	0.05	Org-012	<0.05	[NT]	[NT]	LCS-1	110%
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NR]	[NR]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NR]	[NR]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NR]	[NR]
Surrogate p-Terphenyl-d_{14}	%		Org-012	92	[NT]	[NT]	LCS-1	100%

QUALITY CONTROL Acid Extractable metals in soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date digested	-			28/02/2017	[NT]	[NT]	LCS-1	28/02/2017
Date analysed	-			28/02/2017	[NT]	[NT]	LCS-1	28/02/2017
Arsenic	mg/kg	4	Metals-020 ICP-AES	<4	[NT]	[NT]	LCS-1	102%
Cadmium	mg/kg	0.4	Metals-020 ICP-AES	<0.4	[NT]	[NT]	LCS-1	104%
Chromium	mg/kg	1	Metals-020 ICP-AES	<1	[NT]	[NT]	LCS-1	104%
Copper	mg/kg	1	Metals-020 ICP-AES	<1	[NT]	[NT]	LCS-1	106%
Lead	mg/kg	1	Metals-020 ICP-AES	<1	[NT]	[NT]	LCS-1	104%
Mercury	mg/kg	0.1	Metals-021 CV-AAS	<0.1	[NT]	[NT]	LCS-1	113%
Nickel	mg/kg	1	Metals-020 ICP-AES	<1	[NT]	[NT]	LCS-1	102%
Zinc	mg/kg	1	Metals-020 ICP-AES	<1	[NT]	[NT]	LCS-1	102%

QUALITY CONTROL Moisture	UNITS	PQL	METHOD	Blank
Date prepared	-			[NT]
Date analysed	-			[NT]
Moisture	%	0.1	Inorg-008	[NT]

Report Comments:

Asbestos ID was analysed by Approved Identifier:	Not applicable for this job
Asbestos ID was authorised by Approved Signatory:	Not applicable for this job

INS: Insufficient sample for this test	PQL: Practical Quantitation Limit	NT: Not tested
NR: Test not required	RPD: Relative Percent Difference	NA: Test not required
<: Less than	>: Greater than	LCS: Laboratory Control Sample

Quality Control Definitions

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

Duplicate: This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.

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

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

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

Laboratory Acceptance Criteria

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batched 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.

Aileen Hie

From: Rob Muller <RMuller@jkgroup.net.au>
Sent: Tuesday, 28 February 2017 4:25 PM
To: Aileen Hie
Subject: Additional analysis: batch #162502

162502 A.
Due 2/3

Hi Aileen,

Could you please arrange for the following additional analysis from batch #162502, with 48 hour fast turnaround.

TCLP

Sample	Depth	Lab ID	Analysis required
BH101	0.5-0.95	162502-2	TCLP lead
BH104	0.5-0.95	162502-12	TCLP lead
BH105	0.5-0.6	162502-15	TCLP lead
BH108	0.4-0.5	162502-24	TCLP lead
BH109	0.9-1.1	162502-27	TCLP lead
BH110	0.3-0.5	162502-30	TCLP lead
BH111	0.4-0.5	162502-32	TCLP lead
BH112	0.2-0.3	162502-35	TCLP nickel & PAHs
BH114	0.2-0.3	162502-37	TCLP PAHs
BH116	0.3-0.5	162502-41	TCLP lead

Combo #3

Sample	Depth	Lab ID	Analysis required
BH101	0.1-0.2	162502-1	Combo #3
BH101	1.5-1.95	162502-3	Combo #3
BH105	1.4-0.5	162502-16	Combo #3
BH108	1.2-1.3	162502-25	Combo #3
BH109	1.9-2.1	162502-28	Combo #3
BH110	1.2-1.5	162502-31	Combo #3
BH111	1.2-1.3	162502-33	Combo #3
BH112	1.2-1.3	162502-36	Combo #3
BH114	1.2-1.3	162502-38	Combo #3
BH116	0.9-1.1	162502-42	Combo #3

pH/EC/CEC

Sample	Depth	Lab ID	Analysis required
BH104	1.2-1.3	162502-13	pH/EC/CEC
BH115	1.2-1.3	162502-40	pH/EC/CEC

Muchas gracias.

Regards,

Rob Muller
Senior Environmental Scientist

T: +612 9888 5000
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Envirolab Services Pty Ltd
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12 Ashley St Chatswood NSW 2067
ph 02 9910 6200 fax 02 9910 6201
enquiries@envirolabservices.com.au
www.envirolabservices.com.au

SAMPLE RECEIPT ADVICE

Client Details	
Client	Environmental Investigation Services
Attention	Rob Muller

Sample Login Details	
Your Reference	E28497K, Smithfield
Envirolab Reference	**162502-A**
Date Sample Received	24/02/2017
Date Instructions Received	28/02/2017
Date Results Expected to be Reported	**02/03/2017**

Sample Condition	
Samples received in appropriate condition for analysis	YES
No. of Samples Provided	1 Material, 60 Soils
Turnaround Time Requested	48hr
Temperature on receipt (°C)	22.4
Cooling Method	Ice Pack
Sampling Date Provided	YES

Comments
Samples will be held for 1 month for water samples and 2 months for soil samples from date of receipt of samples

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@envirolabservices.com.au	Email: jhurst@envirolabservices.com.au

Sample and Testing Details on following page

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Sample Id	*vTRH(C6-C10)/BTEXN in Soil*	*svTRH (C10-C40) in Soil*	*PAHs in Soil*	*Acid Extractable metals in soil*	*Electrical Conductivity 1:5 soil:water*	*pH 1:5 soil:water*	*CEC*	*Metals in TCLP USEPA1311*	*PAHs in TCLP (USEPA 1311)*	*On Hold*
BH101-0.1-0.2	✓	✓	✓	✓						
BH101-0.5-0.95								✓		
BH101-1.5-1.95	✓	✓	✓	✓						
BH101-2.4-2.6										✓
BH102-0.2-0.4										✓
BH102-0.5-0.95										✓
BH102-1.5-1.95										✓
BH103-0.1-0.2										✓
BH103-0.5-0.95										✓
BH103-1.5-1.95										✓
BH104-0.07-0.2										✓
BH104-0.5-0.95								✓		
BH104-1.2-1.3					✓	✓	✓			
BH105-0.05-0.2										✓
BH105-0.5-0.6								✓		
BH105-1.4-1.5	✓	✓	✓	✓						
BH106-0.2-0.3										✓
BH106-0.5-0.1										✓
BH106-1.1-1.2										✓
BH107-0.2-0.3										✓
BH107-0.5-0.6										✓
BH107-1.2-1.3										✓
BH108-0.2-0.3										✓
BH108-0.4-0.5								✓		
BH108-1.2-1.3	✓	✓	✓	✓						
BH109-0.3-0.5										✓
BH109-0.9-1.1								✓		
BH109-1.9-2.1	✓	✓	✓	✓						
BH109-2.8-3.0										✓
BH110-0.3-0.5								✓		
BH110-1.2-1.5	✓	✓	✓	✓						

ENVIROLAB SERVICES

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Sample Id	*vTRH(C6-C10)/BTEXN in Soil*	*svTRH (C10-C40) in Soil*	*PAHs in Soil*	*Acid Extractable metals in soil*	*Electrical Conductivity 1:5 soil:water*	*pH 1:5 soil:water*	*CEC*	*Metals in TCLP USEPA1311*	*PAHs in TCLP (USEPA 1311)*	*On Hold*
BH111-0.4-0.5								✓		
BH111-1.2-1.3	✓	✓	✓	✓						
BH111-1.5-1.6										✓
BH112-0.2-0.3								✓	✓	
BH112-1.2-1.3	✓	✓	✓	✓						
BH114-0.2-0.3								✓	✓	
BH114-1.2-1.3	✓	✓	✓	✓						
BH115-0.5-0.6										✓
BH115-1.2-1.3					✓	✓	✓			
BH116-0.3-0.5								✓		
BH116-0.9-1.1	✓	✓	✓	✓						
BH116-2.6-2.8										✓
BH117-0.15-0.2										✓
BH118-0.15-0.25										✓
BH118-0.4-0.5										✓
BH118-0.8-0.9										✓
BH119-0.0-0.2										✓
BH119-0.4-0.5										✓
BH120-0.0-0.2										✓
BH120-0.5-0.6										✓
DUPAS1										✓
DUPAS2										✓
TB1										✓
TB2										✓
FCF1-Surface										✓
BH102-0.1-0.2										✓
BH10-1.9-2.0										✓
BH10-2.9-3.0										✓
BH12-1.1-1.2										✓
BH113-0.5-0.6										✓
BH101 - [TRIPLICATE]-0.5-0.95										✓
BH112 - [TRIPLICATE]-0.2-0.3										✓

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Envirolab Services Pty Ltd - Sydney | ABN 37 112 535 645

CERTIFICATE OF ANALYSIS 162502-A

Client:

Environmental Investigation Services
PO Box 976
North Ryde BC
NSW 1670

Attention: Rob Muller

Sample log in details:

Your Reference:	**E28497K, Smithfield**
No. of samples:	1 Material, 60 Soils
Date samples received / completed instructions received	24/02/17 / 28/02/17

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: / Issue Date:	2/03/17 / 2/03/17
Date of Preliminary Report:	Not Issued

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

Results Approved By:

David Springer
General Manager

ACCREDITED FOR TECHNICAL COMPETENCE

vTRH(C6-C10)/BTEXN in Soil						
Our Reference:	UNITS	162502-A-1	162502-A-3	162502-A-16	162502-A-25	162502-A-28
Your Reference	-------------	BH101	BH101	BH105	BH108	BH109
Depth	------------	0.1-0.2	1.5-1.95	1.4-1.5	1.2-1.3	1.9-2.1
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	01/03/2017	01/03/2017	01/03/2017	01/03/2017	01/03/2017
Date analysed	-	02/03/2017	02/03/2017	02/03/2017	02/03/2017	02/03/2017
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
Total +ve Xylenes	mg/kg	<1	<1	<1	<1	<1
naphthalene	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	94	94	92	89	97

vTRH(C6-C10)/BTEXN in Soil						
Our Reference:	UNITS	162502-A-31	162502-A-33	162502-A-36	162502-A-38	162502-A-42
Your Reference	-------------	BH110	BH111	BH112	BH114	BH116
Depth	------------	1.2-1.5	1.2-1.3	1.2-1.3	1.2-1.3	0.9-1.1
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	01/03/2017	01/03/2017	01/03/2017	01/03/2017	01/03/2017
Date analysed	-	02/03/2017	02/03/2017	02/03/2017	02/03/2017	02/03/2017
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
Total +ve Xylenes	mg/kg	<1	<1	<1	<1	<1
naphthalene	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	87	89	92	90	88

svTRH (C10-C40) in Soil						
Our Reference:	UNITS	162502-A-1	162502-A-3	162502-A-16	162502-A-25	162502-A-28
Your Reference	-------------	BH101	BH101	BH105	BH108	BH109
Depth	------------	0.1-0.2	1.5-1.95	1.4-1.5	1.2-1.3	1.9-2.1
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	01/03/2017	01/03/2017	01/03/2017	01/03/2017	01/03/2017
Date analysed	-	02/03/2017	02/03/2017	02/03/2017	02/03/2017	02/03/2017
TRHC $_{10}$ - C $_{14}$	mg/kg	<50	<50	<50	<50	<50
TRHC $_{15}$ - C $_{28}$	mg/kg	<100	<100	<100	<100	<100
TRHC $_{29}$ - 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	91	90	86

svTRH (C10-C40) in Soil						
Our Reference:	UNITS	162502-A-31	162502-A-33	162502-A-36	162502-A-38	162502-A-42
Your Reference	-------------	BH110	BH111	BH112	BH114	BH116
Depth	------------	1.2-1.5	1.2-1.3	1.2-1.3	1.2-1.3	0.9-1.1
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	01/03/2017	01/03/2017	01/03/2017	01/03/2017	01/03/2017
Date analysed	-	02/03/2017	02/03/2017	02/03/2017	02/03/2017	02/03/2017
TRHC $_{10}$ - C $_{14}$	mg/kg	<50	<50	<50	<50	<50
TRHC $_{15}$ - C $_{28}$	mg/kg	<100	<100	<100	<100	<100
TRHC $_{29}$ - 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	%	87	87	89	88	89

PAHs in Soil						
Our Reference:	UNITS	162502-A-1	162502-A-3	162502-A-16	162502-A-25	162502-A-28
Your Reference	-------------	BH101	BH101	BH105	BH108	BH109
Depth	------------	0.1-0.2	1.5-1.95	1.4-1.5	1.2-1.3	1.9-2.1
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	01/03/2017	01/03/2017	01/03/2017	01/03/2017	01/03/2017
Date analysed	-	01/03/2017	01/03/2017	01/03/2017	01/03/2017	01/03/2017
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
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
Total +ve PAH's	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Surrogate p-Terphenyl-d14	%	110	110	108	101	111

PAHs in Soil Our Reference: Your Reference Depth Type of sample	UNITS ------------ - ------------	162502-A-31 BH110 1.2-1.5 Soil	162502-A-33 BH111 1.2-1.3 Soil	162502-A-36 BH112 1.2-1.3 Soil	162502-A-38 BH114 1.2-1.3 Soil	162502-A-42 BH116 0.9-1.1 Soil
Date extracted	-	01/03/2017	01/03/2017	01/03/2017	01/03/2017	01/03/2017
Date analysed	-	01/03/2017	01/03/2017	01/03/2017	01/03/2017	01/03/2017
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
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
Total +ve PAH's	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Surrogate p-Terphenyl-d14	%	110	112	110	111	111

Acid Extractable metals in soil Our Reference: Your Reference Depth Type of sample	UNITS ------------ - ------------	162502-A-1 BH101 0.1-0.2 Soil	162502-A-3 BH101 1.5-1.95 Soil	162502-A-16 BH105 1.4-1.5 Soil	162502-A-25 BH108 1.2-1.3 Soil	162502-A-28 BH109 1.9-2.1 Soil
Date prepared	-	01/03/2017	01/03/2017	01/03/2017	01/03/2017	01/03/2017
Date analysed	-	01/03/2017	01/03/2017	01/03/2017	01/03/2017	01/03/2017
Arsenic	mg/kg	<4	4	5	6	8
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	48	10	11	14	12
Copper	mg/kg	43	5	20	10	17
Lead	mg/kg	49	14	12	23	15
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	53	2	5	3	4
Zinc	mg/kg	190	5	19	24	20

Acid Extractable metals in soil Our Reference: Your Reference Depth Type of sample	UNITS ------------ - ------------	162502-A-31 BH110 1.2-1.5 Soil	162502-A-33 BH111 1.2-1.3 Soil	162502-A-36 BH112 1.2-1.3 Soil	162502-A-38 BH114 1.2-1.3 Soil	162502-A-42 BH116 0.9-1.1 Soil
Date prepared	-	01/03/2017	01/03/2017	01/03/2017	01/03/2017	01/03/2017
Date analysed	-	01/03/2017	01/03/2017	01/03/2017	01/03/2017	01/03/2017
Arsenic	mg/kg	5	5	7	7	<4
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	35	12	16	14	9
Copper	mg/kg	30	36	14	14	16
Lead	mg/kg	290	480	18	16	39
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	16	10	6	3	1
Zinc	mg/kg	500	710	13	13	35

Acid Extractable metals in soil Our Reference: Your Reference Depth Type of sample	UNITS ------------ - ------------	162502-A-64 BH101 - [TRIPLICATE] 0.1-0.2 Soil
Date prepared	-	01/03/2017
Date analysed	-	01/03/2017
Arsenic	mg/kg	<4
Cadmium	mg/kg	<0.4
Chromium	mg/kg	56
Copper	mg/kg	41
Lead	mg/kg	27
Mercury	mg/kg	<0.1
Nickel	mg/kg	57
Zinc	mg/kg	120

Moisture Our Reference: Your Reference Depth Type of sample	UNITS ------------- - ------------	162502-A-1 BH101 0.1-0.2 Soil	162502-A-3 BH101 1.5-1.95 Soil	162502-A-16 BH105 1.4-1.5 Soil	162502-A-25 BH108 1.2-1.3 Soil	162502-A-28 BH109 1.9-2.1 Soil
Date prepared	-	01/03/2017	01/03/2017	01/03/2017	01/03/2017	01/03/2017
Date analysed	-	02/03/2017	02/03/2017	02/03/2017	02/03/2017	02/03/2017
Moisture	%	6.5	13	16	16	15

Moisture Our Reference: Your Reference Depth Type of sample	UNITS ------------- - ------------	162502-A-31 BH110 1.2-1.5 Soil	162502-A-33 BH111 1.2-1.3 Soil	162502-A-36 BH112 1.2-1.3 Soil	162502-A-38 BH114 1.2-1.3 Soil	162502-A-42 BH116 0.9-1.1 Soil
Date prepared	-	01/03/2017	01/03/2017	01/03/2017	01/03/2017	01/03/2017
Date analysed	-	02/03/2017	02/03/2017	02/03/2017	02/03/2017	02/03/2017
Moisture	%	18	16	19	16	17

Misc Inorg - Soil			
Our Reference:	UNITS	162502-A-13	162502-A-40
Your Reference	------------- -	BH104	BH115
Depth	------------	1.2-1.3	1.2-1.3
Type of sample		Soil	Soil
Date prepared	-	02/03/2017	02/03/2017
Date analysed	-	02/03/2017	02/03/2017
pH 1:5 soil:water	pH Units	7.0	6.0
Electrical Conductivity 1:5 soil:water	µS/cm	150	23

CEC			
Our Reference:	UNITS	162502-A-13	162502-A-40
Your Reference	-------------	BH104	BH115
Depth	------------	1.2-1.3	1.2-1.3
Type of sample		Soil	Soil
Date prepared	-	02/03/2017	02/03/2017
Date analysed	-	02/03/2017	02/03/2017
Exchangeable Ca	meq/100g	1.2	0.3
Exchangeable K	meq/100g	0.2	0.2
Exchangeable Mg	meq/100g	1.8	3.5
Exchangeable Na	meq/100g	0.71	1.0
Cation Exchange Capacity	meq/100g	3.9	5.0

Metals in TCLP USEPA1311 Our Reference: Your Reference Depth Type of sample	UNITS ------------ - ------------	162502-A-2 BH101 0.5-0.95 Soil	162502-A-12 BH104 0.5-0.95 Soil	162502-A-15 BH105 0.5-0.6 Soil	162502-A-24 BH108 0.4-0.5 Soil	162502-A-27 BH109 0.9-1.1 Soil
Date extracted	-	01/03/2017	01/03/2017	01/03/2017	01/03/2017	01/03/2017
Date analysed	-	01/03/2017	01/03/2017	01/03/2017	01/03/2017	01/03/2017
pH of soil for fluid# determ.	pH units	8.8	8.6	8.7	8.4	8.6
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	5.0	5.1	5.0
Lead in TCLP	mg/L	1.9	1.6	0.33	0.3	1.0

Metals in TCLP USEPA1311 Our Reference: Your Reference Depth Type of sample	UNITS ------------ - ------------	162502-A-30 BH110 0.3-0.5 Soil	162502-A-32 BH111 0.4-0.5 Soil	162502-A-35 BH112 0.2-0.3 Soil	162502-A-37 BH114 0.2-0.3 Soil	162502-A-41 BH116 0.3-0.5 Soil
Date extracted	-	01/03/2017	01/03/2017	01/03/2017	01/03/2017	01/03/2017
Date analysed	-	01/03/2017	01/03/2017	01/03/2017	01/03/2017	01/03/2017
pH of soil for fluid# determ.	pH units	8.7	9.3	9.2	9.1	8.4
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	5.1	5.0	4.9
Lead in TCLP	mg/L	1.9	0.82	[NA]	[NA]	0.76
Nickel in TCLP	mg/L	[NA]	[NA]	0.04	[NA]	[NA]

PAHs in TCLP (USEPA 1311)			
Our Reference:	UNITS	162502-A-35	162502-A-37
Your Reference	-------------	BH112	BH114
Depth	------------	0.2-0.3	0.2-0.3
Type of sample		Soil	Soil
Date extracted	-	01/03/2017	01/03/2017
Date analysed	-	02/03/2017	02/03/2017
Naphthalene in TCLP	mg/L	<0.001	<0.001
Acenaphthylene in TCLP	mg/L	<0.001	<0.001
Acenaphthene in TCLP	mg/L	<0.001	<0.001
Fluorene in TCLP	mg/L	<0.001	<0.001
Phenanthrene in TCLP	mg/L	<0.001	<0.001
Anthracene in TCLP	mg/L	<0.001	<0.001
Fluoranthene in TCLP	mg/L	<0.001	<0.001
Pyrene in TCLP	mg/L	<0.001	<0.001
Benzo(a)anthracene in TCLP	mg/L	<0.001	<0.001
Chrysene in TCLP	mg/L	<0.001	<0.001
Benzo(bjk)fluoranthene in TCLP	mg/L	<0.002	<0.002
Benzo(a)pyrene in TCLP	mg/L	<0.001	<0.001
Indeno(1,2,3-c,d)pyrene - TCLP	mg/L	<0.001	<0.001
Dibenzo(a,h)anthracene in TCLP	mg/L	<0.001	<0.001
Benzo(g,h,i)perylene in TCLP	mg/L	<0.001	<0.001
Total +ve PAH's	mg/L	NIL (+)VE	NIL (+)VE
Surrogate p-Terphenyl-d14	%	130	106

Method ID	Methodology Summary
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.
Org-014	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-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-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. For soil results:- 1. 'TEQ PQL' values are assuming all contributing PAHs reported as <PQL are actually at the PQL. This is the most conservative approach and can give false positive TEQs given that PAHs that contribute to the TEQ calculation may not be present. 2. 'TEQ zero' values are assuming all contributing PAHs reported as <PQL are zero. This is the least conservative approach and is more susceptible to false negative TEQs when PAHs that contribute to the TEQ calculation are present but below PQL. 3. 'TEQ half PQL' values are assuming all contributing PAHs reported as <PQL are half the stipulated PQL. Hence a mid-point between the most and least conservative approaches above. Note, 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.
Metals-020	Determination of various metals by ICP-AES.
Metals-021	Determination of Mercury by Cold Vapour AAS.
Inorg-008	Moisture content determined by heating at 105+/-5 °C for a minimum of 12 hours.
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-002	Conductivity and Salinity - measured using a conductivity cell at 25°C in accordance with APHA latest edition 2510 and Rayment & Lyons.
Metals-009	Determination of exchangeable cations and cation exchange capacity in soils using 1M Ammonium Chloride exchange and ICP-AES analytical finish.
Inorg-004	Toxicity Characteristic Leaching Procedure (TCLP) using in house method INORG-004.
EXTRACT.7	Toxicity Characteristic Leaching Procedure (TCLP) using Zero Headspace Extraction (zHE) using AS4439 and USEPA 1311.

Method ID	Methodology Summary
Metals-020 ICP-AES	Determination of various metals by ICP-AES.
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.
Org-012	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS.

QUALITY CONTROL vTRH(C6-C10)/BTEXN in Soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			01/03/2017	162502-A-1	01/03/2017 || 01/03/2017	LCS-9	01/03/2017
Date analysed	-			02/03/2017	162502-A-1	02/03/2017 || 02/03/2017	LCS-9	02/03/2017
TRHC_6 - C_9	mg/kg	25	Org-016	<25	162502-A-1	<25 || <25	LCS-9	104%
TRHC_6 - C_{10}	mg/kg	25	Org-016	<25	162502-A-1	<25 || <25	LCS-9	104%
Benzene	mg/kg	0.2	Org-016	<0.2	162502-A-1	<0.2 || <0.2	LCS-9	82%
Toluene	mg/kg	0.5	Org-016	<0.5	162502-A-1	<0.5 || <0.5	LCS-9	95%
Ethylbenzene	mg/kg	1	Org-016	<1	162502-A-1	<1 || <1	LCS-9	111%
m+p-xylene	mg/kg	2	Org-016	<2	162502-A-1	<2 || <2	LCS-9	117%
o-Xylene	mg/kg	1	Org-016	<1	162502-A-1	<1 || <1	LCS-9	120%
naphthalene	mg/kg	1	Org-014	<1	162502-A-1	<1 || <1	[NR]	[NR]
Surrogate aaa-Trifluorotoluene	%		Org-016	96	162502-A-1	94 || 92 || RPD: 2	LCS-9	103%

QUALITY CONTROL svTRH (C10-C40) in Soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			01/03/2017	162502-A-1	01/03/2017 || 01/03/2017	LCS-9	01/03/2017
Date analysed	-			01/03/2017	162502-A-1	02/03/2017 || 02/03/2017	LCS-9	02/03/2017
TRHC_{10} - C_{14}	mg/kg	50	Org-003	<50	162502-A-1	<50 || <50	LCS-9	105%
TRHC_{15} - C_{28}	mg/kg	100	Org-003	<100	162502-A-1	<100 || <100	LCS-9	106%
TRHC_{29} - C_{36}	mg/kg	100	Org-003	<100	162502-A-1	<100 || <100	LCS-9	106%
TRH>C_{10}-C_{16}	mg/kg	50	Org-003	<50	162502-A-1	<50 || <50	LCS-9	105%
TRH>C_{16}-C_{34}	mg/kg	100	Org-003	<100	162502-A-1	<100 || <100	LCS-9	106%
TRH>C_{34}-C_{40}	mg/kg	100	Org-003	<100	162502-A-1	<100 || <100	LCS-9	106%
Surrogate o-Terphenyl	%		Org-003	88	162502-A-1	88 || 90 || RPD: 2	LCS-9	87%

QUALITY CONTROL PAHs in Soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			01/03/2017	162502-A-1	01/03/2017 || 01/03/2017	LCS-9	01/03/2017
Date analysed	-			01/03/2017	162502-A-1	01/03/2017 || 01/03/2017	LCS-9	01/03/2017
Naphthalene	mg/kg	0.1	Org-012	<0.1	162502-A-1	<0.1 || <0.1	LCS-9	99%
Acenaphthylene	mg/kg	0.1	Org-012	<0.1	162502-A-1	<0.1 || <0.1	[NR]	[NR]
Acenaphthene	mg/kg	0.1	Org-012	<0.1	162502-A-1	<0.1 || <0.1	[NR]	[NR]
Fluorene	mg/kg	0.1	Org-012	<0.1	162502-A-1	<0.1 || <0.1	LCS-9	102%
Phenanthrene	mg/kg	0.1	Org-012	<0.1	162502-A-1	<0.1 || <0.1	LCS-9	118%
Anthracene	mg/kg	0.1	Org-012	<0.1	162502-A-1	<0.1 || <0.1	[NR]	[NR]
Fluoranthene	mg/kg	0.1	Org-012	<0.1	162502-A-1	<0.1 || <0.1	LCS-9	119%
Pyrene	mg/kg	0.1	Org-012	<0.1	162502-A-1	<0.1 || <0.1	LCS-9	119%
Benzo(a)anthracene	mg/kg	0.1	Org-012	<0.1	162502-A-1	<0.1 || <0.1	[NR]	[NR]
Chrysene	mg/kg	0.1	Org-012	<0.1	162502-A-1	<0.1 || <0.1	LCS-9	101%
Benzo(b,j+k) fluoranthene	mg/kg	0.2	Org-012	<0.2	162502-A-1	<0.2 || <0.2	[NR]	[NR]

QUALITY CONTROL PAHs in Soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Benzo(a)pyrene	mg/kg	0.05	Org-012	<0.05	162502-A-1	<0.05 || <0.05	LCS-9	115%
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-012	<0.1	162502-A-1	<0.1 || <0.1	[NR]	[NR]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-012	<0.1	162502-A-1	<0.1 || <0.1	[NR]	[NR]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-012	<0.1	162502-A-1	<0.1 || <0.1	[NR]	[NR]
Surrogate p-Terphenyl-d14	%		Org-012	117	162502-A-1	110 || 112 || RPD: 2	LCS-9	112%

QUALITY CONTROL Acid Extractable metals in soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date prepared	-			01/03/2017	162502-A-1	01/03/2017 || 01/03/2017	LCS-9	01/03/2017
Date analysed	-			01/03/2017	162502-A-1	01/03/2017 || 01/03/2017	LCS-9	01/03/2017
Arsenic	mg/kg	4	Metals-020	<4	162502-A-1	<4 || <4	LCS-9	118%
Cadmium	mg/kg	0.4	Metals-020	<0.4	162502-A-1	<0.4 || <0.4	LCS-9	101%
Chromium	mg/kg	1	Metals-020	<1	162502-A-1	48 || 42 || RPD: 13	LCS-9	109%
Copper	mg/kg	1	Metals-020	<1	162502-A-1	43 || 28 || RPD: 42	LCS-9	110%
Lead	mg/kg	1	Metals-020	<1	162502-A-1	49 || 19 || RPD: 88	LCS-9	106%
Mercury	mg/kg	0.1	Metals-021	<0.1	162502-A-1	<0.1 || <0.1	LCS-9	105%
Nickel	mg/kg	1	Metals-020	<1	162502-A-1	53 || 43 || RPD: 21	LCS-9	101%
Zinc	mg/kg	1	Metals-020	<1	162502-A-1	190 || 84 || RPD: 77	LCS-9	101%

QUALITY CONTROL Misc Inorg - Soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date prepared	-			02/03/2017	[NT]	[NT]	LCS-9	02/03/2017
Date analysed	-			02/03/2017	[NT]	[NT]	LCS-9	02/03/2017
pH 1:5 soil:water	pH Units		Inorg-001	[NT]	[NT]	[NT]	LCS-9	101%
Electrical Conductivity 1:5 soil:water	µS/cm	1	Inorg-002	<1	[NT]	[NT]	LCS-9	110%

QUALITY CONTROL CEC	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date prepared	-			02/03/2017	[NT]	[NT]	LCS-9	02/03/2017
Date analysed	-			02/03/2017	[NT]	[NT]	LCS-9	02/03/2017
Exchangeable Ca	meq/100g	0.1	Metals-009	<0.1	[NT]	[NT]	LCS-9	102%
Exchangeable K	meq/100g	0.1	Metals-009	<0.1	[NT]	[NT]	LCS-9	109%
Exchangeable Mg	meq/100g	0.1	Metals-009	<0.1	[NT]	[NT]	LCS-9	100%
Exchangeable Na	meq/100g	0.1	Metals-009	<0.1	[NT]	[NT]	LCS-9	101%

QUALITY CONTROL Metals in TCLP USEPA1311	UNITS	PQL	METHOD	Blank
Date extracted	-			01/03/2017
Date analysed	-			01/03/2017
Lead in TCLP	mg/L	0.03	Metals-020 ICP-AES	<0.03
Nickel in TCLP	mg/L	0.02	Metals-020 ICP-AES	<0.02

QUALITY CONTROL PAHs in TCLP (USEPA 1311)	UNITS	PQL	METHOD	Blank
Date extracted	-			01/03/2017
Date analysed	-			01/03/2017
Naphthalene in TCLP	mg/L	0.001	Org-012	<0.001
Acenaphthylene in TCLP	mg/L	0.001	Org-012	<0.001
Acenaphthene in TCLP	mg/L	0.001	Org-012	<0.001
Fluorene in TCLP	mg/L	0.001	Org-012	<0.001
Phenanthrene in TCLP	mg/L	0.001	Org-012	<0.001
Anthracene in TCLP	mg/L	0.001	Org-012	<0.001
Fluoranthene in TCLP	mg/L	0.001	Org-012	<0.001
Pyrene in TCLP	mg/L	0.001	Org-012	<0.001
Benzo(a)anthracene in TCLP	mg/L	0.001	Org-012	<0.001
Chrysene in TCLP	mg/L	0.001	Org-012	<0.001
Benzo(bjk)fluoranthene in TCLP	mg/L	0.002	Org-012	<0.002
Benzo(a)pyrene in TCLP	mg/L	0.001	Org-012	<0.001
Indeno(1,2,3-c,d)pyrene - TCLP	mg/L	0.001	Org-012	<0.001
Dibenzo(a,h)anthracene in TCLP	mg/L	0.001	Org-012	<0.001
Benzo(g,h,i)perylene in TCLP	mg/L	0.001	Org-012	<0.001
Surrogate p-Terphenyl-d14	%		Org-012	114

QUALITY CONTROL Metals in TCLP USEPA1311	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	162502-A-2	01/03/2017 || 01/03/2017	LCS-W1	01/03/2017
Date analysed	-	162502-A-2	01/03/2017 || 01/03/2017	LCS-W1	01/03/2017
Lead in TCLP	mg/L	162502-A-2	1.9 || 1.8 || RPD: 5	LCS-W1	95%
Nickel in TCLP	mg/L	[NT]	[NT]	LCS-W1	96%

QUALITY CONTROL PAHs in TCLP (USEPA 1311)	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	[NT]	[NT]	LCS-W1	01/03/2017
Date analysed	-	[NT]	[NT]	LCS-W1	01/03/2017
Naphthalene in TCLP	mg/L	[NT]	[NT]	LCS-W1	100%
Acenaphthylene in TCLP	mg/L	[NT]	[NT]	[NR]	[NR]
Acenaphthene in TCLP	mg/L	[NT]	[NT]	[NR]	[NR]
Fluorene in TCLP	mg/L	[NT]	[NT]	LCS-W1	118%
Phenanthrene in TCLP	mg/L	[NT]	[NT]	LCS-W1	120%
Anthracene in TCLP	mg/L	[NT]	[NT]	[NR]	[NR]
Fluoranthene in TCLP	mg/L	[NT]	[NT]	LCS-W1	117%
Pyrene in TCLP	mg/L	[NT]	[NT]	LCS-W1	120%
Benzo(a)anthracene in TCLP	mg/L	[NT]	[NT]	[NR]	[NR]
Chrysene in TCLP	mg/L	[NT]	[NT]	LCS-W1	117%
Benzo(bjk)fluoranthene in TCLP	mg/L	[NT]	[NT]	[NR]	[NR]
Benzo(a)pyrene in TCLP	mg/L	[NT]	[NT]	LCS-W1	80%
Indeno(1,2,3-c,d)pyrene - TCLP	mg/L	[NT]	[NT]	[NR]	[NR]
Dibenzo(a,h)anthracene in TCLP	mg/L	[NT]	[NT]	[NR]	[NR]
Benzo(g,h,i)perylene in TCLP	mg/L	[NT]	[NT]	[NR]	[NR]
Surrogate p-Terphenyl-d14	%	[NT]	[NT]	LCS-W1	101%

QUALITY CONTROL Metals in TCLP USEPA1311	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	[NT]	[NT]	162502-A-12	01/03/2017
Date analysed	-	[NT]	[NT]	162502-A-12	01/03/2017
Lead in TCLP	mg/L	[NT]	[NT]	162502-A-12	92%
Nickel in TCLP	mg/L	[NT]	[NT]	162502-A-12	95%

Report Comments:

Acid Extractable Metals in Soil: The laboratory RPD acceptance criteria has been exceeded for 162502-A-1 for Pb and Zn. Therefore a triplicate result has been issued as laboratory sample number 162502-A-64.

Asbestos ID was analysed by Approved Identifier:	Not applicable for this job
Asbestos ID was authorised by Approved Signatory:	Not applicable for this job

INS: Insufficient sample for this test	PQL: Practical Quantitation Limit	NT: Not tested
NR: Test not required	RPD: Relative Percent Difference	NA: Test not required
<: Less than	>: Greater than	LCS: Laboratory Control Sample

Quality Control Definitions

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

Duplicate: This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.

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

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

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

Laboratory Acceptance Criteria

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

Duplicates: <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.

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: E28497K Date Results Required: STANDARD Page: 1 of 1	EIS ENVIRONMENTAL INVESTIGATION SERVICES REAR OF 115 WICKS ROAD MACQUARIE PARK, NSW 2113 P: 02-9888 5000 F: 02-9888 5001 Attention: asmith@jkgroup.net.au

Location: Smithfield

Sampler: AS

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			
28/02/2017	1	MW101	G1, G2, V, H, PVCx2	0	Groundwater		X		X								
↓	2	MW102	G1, G2, V, H, PVCx2	0	↓		X		X								
	3	MW103	G1, G2, V, H, PVCx2	0			X		X								
	4	DUPGW1 DUPAS1	G1, G2, V, H, PVCx2	0			X										
28-2-17	5	TB	V		water								X				
28-2-17	6	TS											X				

ENVIROLAB

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

Job No: 162672

Date Received: 28/2/2017
Time Received: 16.20
Received by: PR
Temp: Cool/Ambient 4.1
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 G2 - 1L Amber Glass Bottle
V - BTEX Vial H - HNO3 Wash PVC
PVC - HDPE Plastic Bottles

Relinquished By:	Date:	Time:	Received By:	Date:
AS	28-2-17 1500	16.20	PR ELS	28/2/2017

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

SAMPLE RECEIPT ADVICE

Client Details	
Client	Environmental Investigation Services
Attention	A Smith

Sample Login Details	
Your Reference	E28497K, Smithfield
Envirolab Reference	**162672**
Date Sample Received	28/02/2017
Date Instructions Received	28/02/2017
Date Results Expected to be Reported	**07/03/2017**

Sample Condition	
Samples received in appropriate condition for analysis	YES
No. of Samples Provided	6 waters
Turnaround Time Requested	Standard
Temperature on receipt (°C)	4.1
Cooling Method	Ice
Sampling Date Provided	YES

Comments
Samples will be held for 1 month for water samples and 2 months for soil samples from date of receipt of samples

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@envirolabservices.com.au	Email: jhurst@envirolabservices.com.au

Sample and Testing Details on 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
enquiries@envirolabservices.com.au
www.envirolabservices.com.au

Sample Id	*vTRH(C6-C10)/BTEXN in Water*	*svTRH (C10-C40) in Water*	*PAHs in Water - Low Level*	*HM in water - dissolved*	*Electrical Conductivity*	*pH*
MW101	✓	✓	✓	✓	✓	✓
MW102	✓	✓	✓	✓	✓	✓
MW103	✓	✓	✓	✓	✓	✓
DUPAS1	✓	✓	✓	✓		
TB	✓					
TS	✓					

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

12 Ashley Street, Chatswood, NSW 2067
tel: +61 2 9910 6200
email: sydney@envirolab.com.au
envirolab.com.au
Envirolab Services Pty Ltd - Sydney | ABN 37 112 535 645

CERTIFICATE OF ANALYSIS 162672

Client:
Environmental Investigation Services
PO Box 976
North Ryde BC
NSW 1670

Attention: A Smith

Sample log in details:

Your Reference:	**E28497K, Smithfield**
No. of samples:	6 waters
Date samples received / completed instructions received	28/02/17 / 28/02/17

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: / Issue Date:	3/03/17 / 3/03/17
Date of Preliminary Report:	Not Issued

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:

David Springer
General Manager

ACCREDITED FOR TECHNICAL COMPETENCE

vTRH(C6-C10)/BTEXN in Water						
Our Reference:	UNITS	162672-1	162672-2	162672-3	162672-4	162672-5
Your Reference	-------------	MW101	MW102	MW103	DUPAS1	TB
Date Sampled	------------	28/02/2017	28/02/2017	28/02/2017	28/02/2017	28/02/2017
Type of sample		WATER	WATER	WATER	WATER	WATER
Date extracted	-	01/03/2017	01/03/2017	01/03/2017	01/03/2017	01/03/2017
Date analysed	-	02/03/2017	02/03/2017	02/03/2017	02/03/2017	02/03/2017
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	%	108	104	105	105	105
Surrogate toluene-d8	%	100	97	100	98	98
Surrogate 4-BFB	%	88	91	90	90	88

vTRH(C6-C10)/BTEXN in Water		
Our Reference:	UNITS	162672-6
Your Reference	-------------	TS
Date Sampled	------------	28/02/2017
Type of sample		WATER
Date extracted	-	01/03/2017
Date analysed	-	02/03/2017
Benzene	µg/L	88%
Toluene	µg/L	86%
Ethylbenzene	µg/L	83%
m+p-xylene	µg/L	86%
o-xylene	µg/L	86%
Surrogate Dibromofluoromethane	%	101
Surrogate toluene-d8	%	100
Surrogate 4-BFB	%	96

svTRH (C10-C40) in Water					
Our Reference:	UNITS	162672-1	162672-2	162672-3	162672-4
Your Reference	-------------	MW101	MW102	MW103	DUPAS1
Date Sampled	------------	28/02/2017	28/02/2017	28/02/2017	28/02/2017
Type of sample		WATER	WATER	WATER	WATER
Date extracted	-	01/03/2017	01/03/2017	01/03/2017	01/03/2017
Date analysed	-	01/03/2017	01/03/2017	01/03/2017	01/03/2017
TRHC $_{10}$ - C $_{14}$	µg/L	<50	<50	<50	<50
TRHC $_{15}$ - C $_{28}$	µg/L	<100	<100	<100	<100
TRHC $_{29}$ - 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	%	89	71	83	88

PAHs in Water - Low Level					
Our Reference:	UNITS	162672-1	162672-2	162672-3	162672-4
Your Reference	------------- -	MW101	MW102	MW103	DUPAS1
Date Sampled	------------	28/02/2017	28/02/2017	28/02/2017	28/02/2017
Type of sample		WATER	WATER	WATER	WATER
Date extracted	-	02/03/2017	02/03/2017	02/03/2017	02/03/2017
Date analysed	-	02/03/2017	02/03/2017	02/03/2017	02/03/2017
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	%	109	87	101	106

HM in water - dissolved Our Reference: Your Reference Date Sampled Type of sample	UNITS ------------- ------------	162672-1 MW101 28/02/2017 WATER	162672-2 MW102 28/02/2017 WATER	162672-3 MW103 28/02/2017 WATER	162672-4 DUPAS1 28/02/2017 WATER
Date prepared	-	01/03/2017	01/03/2017	01/03/2017	01/03/2017
Date analysed	-	01/03/2017	01/03/2017	01/03/2017	01/03/2017
Arsenic-Dissolved	µg/L	14	6	7	5
Cadmium-Dissolved	µg/L	1	<0.1	0.2	<0.1
Chromium-Dissolved	µg/L	<1	<1	<1	<1
Copper-Dissolved	µg/L	3	2	<1	1
Lead-Dissolved	µg/L	<1	<1	<1	<1
Mercury-Dissolved	µg/L	<0.05	<0.05	<0.05	<0.05
Nickel-Dissolved	µg/L	140	3	9	3
Zinc-Dissolved	µg/L	130	82	78	81

Miscellaneous Inorganics				
Our Reference:	UNITS	162672-1	162672-2	162672-3
Your Reference	-------------	MW101	MW102	MW103
Date Sampled	------------	28/02/2017	28/02/2017	28/02/2017
Type of sample		WATER	WATER	WATER
Date prepared	-	28/02/2017	28/02/2017	28/02/2017
Date analysed	-	28/02/2017	28/02/2017	28/02/2017
pH	pH Units	6.3	6.8	6.9
Electrical Conductivity	µS/cm	24,000	6,200	14,000

Method ID	Methodology Summary
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-013	Water samples are analysed directly by purge and trap GC-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.
Metals-022	Determination of various metals by ICP-MS.
Metals-021	Determination of Mercury by Cold Vapour AAS.
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-002	Conductivity and Salinity - measured using a conductivity cell at 25°C in accordance with APHA latest edition 2510 and Rayment & Lyons.

QUALITY CONTROL vTRH(C6-C10)/BTEXN in Water	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			01/03/2017	[NT]	[NT]	LCS-W1	01/03/2017
Date analysed	-			02/03/2017	[NT]	[NT]	LCS-W1	02/03/2017
TRHC$_6$ - C$_9$	µg/L	10	Org-016	<10	[NT]	[NT]	LCS-W1	96%
TRHC$_6$ - C$_{10}$	µg/L	10	Org-016	<10	[NT]	[NT]	LCS-W1	96%
Benzene	µg/L	1	Org-016	<1	[NT]	[NT]	LCS-W1	98%
Toluene	µg/L	1	Org-016	<1	[NT]	[NT]	LCS-W1	96%
Ethylbenzene	µg/L	1	Org-016	<1	[NT]	[NT]	LCS-W1	94%
m+p-xylene	µg/L	2	Org-016	<2	[NT]	[NT]	LCS-W1	97%
o-xylene	µg/L	1	Org-016	<1	[NT]	[NT]	LCS-W1	97%
Naphthalene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
Surrogate Dibromofluoromethane	%		Org-016	104	[NT]	[NT]	LCS-W1	101%
Surrogate toluene-d8	%		Org-016	99	[NT]	[NT]	LCS-W1	100%
Surrogate 4-BFB	%		Org-016	90	[NT]	[NT]	LCS-W1	98%

QUALITY CONTROL svTRH (C10-C40) in Water	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			01/03/2017	[NT]	[NT]	LCS-W1	01/03/2017
Date analysed	-			01/03/2017	[NT]	[NT]	LCS-W1	01/03/2017
TRHC$_{10}$ - C$_{14}$	µg/L	50	Org-003	<50	[NT]	[NT]	LCS-W1	118%
TRHC$_{15}$ - C$_{28}$	µg/L	100	Org-003	<100	[NT]	[NT]	LCS-W1	110%
TRHC$_{29}$ - C$_{36}$	µg/L	100	Org-003	<100	[NT]	[NT]	LCS-W1	112%
TRH>C$_{10}$ - C$_{16}$	µg/L	50	Org-003	<50	[NT]	[NT]	LCS-W1	118%
TRH>C$_{16}$ - C$_{34}$	µg/L	100	Org-003	<100	[NT]	[NT]	LCS-W1	110%
TRH>C$_{34}$ - C$_{40}$	µg/L	100	Org-003	<100	[NT]	[NT]	LCS-W1	112%
Surrogate o-Terphenyl	%		Org-003	70	[NT]	[NT]	LCS-W1	95%

QUALITY CONTROL PAHs in Water - Low Level	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			02/03/2017	[NT]	[NT]	LCS-W2	02/03/2017
Date analysed	-			02/03/2017	[NT]	[NT]	LCS-W2	02/03/2017
Naphthalene	µg/L	0.2	Org-012	<0.2	[NT]	[NT]	LCS-W2	78%
Acenaphthylene	µg/L	0.1	Org-012	<0.1	[NT]	[NT]	[NR]	[NR]
Acenaphthene	µg/L	0.1	Org-012	<0.1	[NT]	[NT]	[NR]	[NR]
Fluorene	µg/L	0.1	Org-012	<0.1	[NT]	[NT]	LCS-W2	81%
Phenanthrene	µg/L	0.1	Org-012	<0.1	[NT]	[NT]	LCS-W2	90%
Anthracene	µg/L	0.1	Org-012	<0.1	[NT]	[NT]	[NR]	[NR]
Fluoranthene	µg/L	0.1	Org-012	<0.1	[NT]	[NT]	LCS-W2	84%
Pyrene	µg/L	0.1	Org-012	<0.1	[NT]	[NT]	LCS-W2	81%

QUALITY CONTROL PAHs in Water - Low Level	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Benzo(a)anthracene	µg/L	0.1	Org-012	<0.1	[NT]	[NT]	[NR]	[NR]
Chrysene	µg/L	0.1	Org-012	<0.1	[NT]	[NT]	LCS-W2	79%
Benzo(b,j+k) fluoranthene	µg/L	0.2	Org-012	<0.2	[NT]	[NT]	[NR]	[NR]
Benzo(a)pyrene	µg/L	0.1	Org-012	<0.1	[NT]	[NT]	LCS-W2	90%
Indeno(1,2,3-c,d)pyrene	µg/L	0.1	Org-012	<0.1	[NT]	[NT]	[NR]	[NR]
Dibenzo(a,h)anthracene	µg/L	0.1	Org-012	<0.1	[NT]	[NT]	[NR]	[NR]
Benzo(g,h,i)perylene	µg/L	0.1	Org-012	<0.1	[NT]	[NT]	[NR]	[NR]
Surrogate p-Terphenyl-d14	%		Org-012	98	[NT]	[NT]	LCS-W2	80%

QUALITY CONTROL HM in water - dissolved	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date prepared	-			01/03/2017	162672-1	01/03/2017 || 01/03/2017	LCS-W1	01/03/2017
Date analysed	-			01/03/2017	162672-1	01/03/2017 || 01/03/2017	LCS-W1	01/03/2017
Arsenic-Dissolved	µg/L	1	Metals-022	<1	162672-1	14 || 15 || RPD: 7	LCS-W1	100%
Cadmium-Dissolved	µg/L	0.1	Metals-022	<0.1	162672-1	1 || 0.9 || RPD: 11	LCS-W1	107%
Chromium-Dissolved	µg/L	1	Metals-022	<1	162672-1	<1 || <1	LCS-W1	98%
Copper-Dissolved	µg/L	1	Metals-022	<1	162672-1	3 || 3 || RPD: 0	LCS-W1	95%
Lead-Dissolved	µg/L	1	Metals-022	<1	162672-1	<1 || <1	LCS-W1	104%
Mercury-Dissolved	µg/L	0.05	Metals-021	<0.05	162672-1	<0.05 || [N/T]	LCS-W1	99%
Nickel-Dissolved	µg/L	1	Metals-022	<1	162672-1	140 || 150 || RPD: 7	LCS-W1	96%
Zinc-Dissolved	µg/L	1	Metals-022	<1	162672-1	130 || 130 || RPD: 0	LCS-W1	101%

QUALITY CONTROL Miscellaneous Inorganics	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date prepared	-			28/02/2017	162672-1	28/02/2017 || 28/02/2017	LCS-W1	28/02/2017
Date analysed	-			28/02/2017	162672-1	28/02/2017 || 28/02/2017	LCS-W1	28/02/2017
pH	pH Units		Inorg-001	[NT]	162672-1	6.3 || 6.3 || RPD: 0	LCS-W1	102%
Electrical Conductivity	µS/cm	1	Inorg-002	<1	162672-1	24000 || 24000 || RPD: 0	LCS-W1	104%

QUALITY CONTROL HM in water - dissolved	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date prepared	-	[NT]	[NT]	162672-2	01/03/2017
Date analysed	-	[NT]	[NT]	162672-2	01/03/2017
Arsenic-Dissolved	µg/L	[NT]	[NT]	162672-2	102%
Cadmium-Dissolved	µg/L	[NT]	[NT]	162672-2	105%
Chromium-Dissolved	µg/L	[NT]	[NT]	162672-2	98%
Copper-Dissolved	µg/L	[NT]	[NT]	162672-2	89%
Lead-Dissolved	µg/L	[NT]	[NT]	162672-2	93%
Mercury-Dissolved	µg/L	[NT]	[NT]	[NR]	[NR]
Nickel-Dissolved	µg/L	[NT]	[NT]	162672-2	91%

QUALITY CONTROL HM in water - dissolved	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Zinc-Dissolved	µg/L	[NT]	[NT]	162672-2	94%

Report Comments:

Asbestos ID was analysed by Approved Identifier:	Not applicable for this job
Asbestos ID was authorised by Approved Signatory:	Not applicable for this job

INS: Insufficient sample for this test	PQL: Practical Quantitation Limit	NT: Not tested
NR: Test not required	RPD: Relative Percent Difference	NA: Test not required
<: Less than	>: Greater than	LCS: Laboratory Control Sample

Quality Control Definitions

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

Duplicate: This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.

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

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

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

Laboratory Acceptance Criteria

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

Duplicates: <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.

Aileen Hie

From: Rob Muller <RMuller@jkgroup.net.au>
Sent: Tuesday, 7 March 2017 8:34 AM
To: Aileen Hie
Subject: pH - batch #162502

Hi Aileen,

Could you please analyse the following samples from batch #162502 for soil pH, with same-day turnaround:

1 • BH101 (0.1-0.2);
5 • BH102 (0.2-0.4);
23 • BH108 (0.2-0.3);
39 • BH115 (0.5-0.6);
41 • BH116 (0.3-0.5);
48 • BH119 (0.0-0.2).

Envirolab Ref: 162502B
Due: 7/3/17
same day T/A.

Thanks,

Regards,

Rob Muller
Senior Environmental Scientist

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

ENVIRONMENTAL INVESTIGATION SERVICES
CONSULTING ENVIRONMENTAL ENGINEERS AND SCIENTISTS
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12 Ashley Street, Chatswood, NSW 2067
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Envirolab Services Pty Ltd - Sydney | ABN 37 112 535 645

CERTIFICATE OF ANALYSIS 162502-B

Client:
Environmental Investigation Services
PO Box 976
North Ryde BC
NSW 1670

Attention: Rob Muller

Sample log in details:

Your Reference:	**E28497K, Smithfield**
No. of samples:	Additional Testing on 6 Soils
Date samples received / completed instructions received	24/02/17 / 07/03/17

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: / Issue Date:	7/03/17 / 7/03/17
Date of Preliminary Report:	Not Issued

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:

David Springer
General Manager

Misc Inorg - Soil						
Our Reference:	UNITS	162502-B-1	162502-B-5	162502-B-23	162502-B-39	162502-B-41
Your Reference	-------------	BH101	BH102	BH108	BH115	BH116
Depth	------------	0.1-0.2	0.2-0.4	0.2-0.3	0.5-0.6	0.3-0.5
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	07/03/2017	07/03/2017	07/03/2017	07/03/2017	07/03/2017
Date analysed	-	07/03/2017	07/03/2017	07/03/2017	07/03/2017	07/03/2017
pH 1:5 soil:water	pH Units	9.5	10.5	10.3	6.4	9.0

Misc Inorg - Soil		
Our Reference:	UNITS	162502-B-48
Your Reference	-------------	BH119
Depth	------------	0.0-0.2
Type of sample		Soil
Date prepared	-	07/03/2017
Date analysed	-	07/03/2017
pH 1:5 soil:water	pH Units	6.6

Method ID	Methodology Summary
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.

QUALITY CONTROL Misc Inorg - Soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date prepared	-			07/03/2017	[NT]	[NT]	LCS-1	07/03/2017
Date analysed	-			07/03/2017	[NT]	[NT]	LCS-1	07/03/2017
pH 1:5 soil:water	pH Units		Inorg-001	[NT]	[NT]	[NT]	LCS-1	102%

Report Comments:

Asbestos ID was analysed by Approved Identifier:	Paul Ching, Matt Tang
Asbestos ID was authorised by Approved Signatory:	Paul Ching

INS: Insufficient sample for this test	PQL: Practical Quantitation Limit	NT: Not tested
NR: Test not required	RPD: Relative Percent Difference	NA: Test not required
<: Less than	>: Greater than	LCS: Laboratory Control Sample

Quality Control Definitions

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

Duplicate: This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.

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

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

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

Laboratory Acceptance Criteria

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

Duplicates: <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.

Appendix C: Report Explanatory Notes

STANDARD SAMPLING PROCEDURE (SSP)

These protocols specify the basic procedures to be used when sampling soils or groundwater for environmental site assessments undertaken by EIS.

The purpose of these protocols is to provide standard methods for: sampling, decontamination procedures for sampling equipment, sample preservation, sample storage and sample handling. Deviations from these procedures must be recorded.

Soil Sampling

- Prepare a borehole/test pit log or made a note of the sample description for stockpiles.
- Layout sampling equipment on clean plastic sheeting to prevent direct contact with ground surface. The work area should be at a distance from the drill rig/excavator such that the machine can operate in a safe manner.
- Ensure all sampling equipment has been decontaminated prior to use.
- Remove any surface debris from the immediate area of the sampling location.
- Collect samples and place in glass jar with a Teflon seal. This should be undertaken as quickly as possible to prevent the loss of any volatiles. If possible, fill the glass jars completely.
- Collect samples for asbestos analysis and place in a zip-lock plastic bag.
- Label the sampling containers with the EIS job number, sample location (egg. BH1), sampling depth interval and date. If more than one sample container is used, this should also be indicated (egg. 2 = Sample jar 1 of 2 jars).
- Photoionisation detector (PID) screening of volatile organic compounds (VOCs) should be undertaken on samples using the soil sample headspace method. Headspace measurements are taken following equilibration of the headspace gasses in partly filled zip-lock plastic bags. PID headspace data is recorded on the borehole/test pit log and the chain of custody forms.
- Record the lithology of the sample and sample depth on the borehole/test pit log generally in accordance with AS1726-1993[29].
- Store the sample in a sample container cooled with ice or chill packs. On completion of the sampling the sample container should be delivered to the lab immediately or stored in the refrigerator prior to delivery to the lab. All samples are preserved in accordance with the standards outlined in the report.
- Check for the presence of groundwater after completion of each borehole using an electronic dip metre or water whistle. Boreholes should be left open until the end of fieldwork. All groundwater levels in the boreholes should be rechecked on the completion of the fieldwork.
- Backfill the boreholes/test pits with the excavation cuttings or clean sand prior to leaving the site.

Decontamination Procedures for Soil Sampling Equipment

- All sampling equipment should be decontaminated between every sampling location. This excludes single use PVC tubing used for push tubes etc. Equipment and materials required for the decontamination include:
  - Phosphate free detergent (Decon 90);
  - Potable water;
  - Stiff brushes; and
  - Plastic sheets.

---

[29] Standards Australia, (1993), *Geotechnical Site Investigations.* (AS1726-1993)

- Ensure the decontamination materials are clean prior to proceeding with the decontamination.
- Fill both buckets with clean potable water and add phosphate free detergent to one bucket.
- In the bucket containing the detergent, scrub the sampling equipment until all the material attached to the equipment has been removed.
- Rinse sampling equipment in the bucket containing potable water.
- Place cleaned equipment on clean plastic sheets.

If all materials are not removed by this procedure, high-pressure water cleaning is recommended. If any equipment is not completely decontaminated by both these processes, then the equipment should not be used until it has been thoroughly cleaned.

Groundwater Sampling

Groundwater samples are more sensitive to contamination than soil samples and therefore adhesion to this protocol is particularly important to obtain reliable, reproducible results. The recommendations detailed in AS/NZS 5667.1:1998 are considered to form a minimum standard.

The basis of this protocol is to maintain the security of the borehole and obtain accurate and representative groundwater samples. The following procedure should be used for collection of groundwater samples from previously installed groundwater monitoring wells.

- After monitoring well installation, at least three bore volumes should be pumped from the monitoring wells (well development) to remove any water introduced during the drilling process and/or the water that is disturbed during installation of the monitoring well. This should be completed prior to purging and sampling.
- Groundwater monitoring wells should then be left to recharge for at least three days before purging and sampling. Prior to purging or sampling, the condition of each well should observed and any anomalies recorded on the field data sheets. The following information should be noted: the condition of the well, noting any signs of damage, tampering or complete destruction; the condition and operation of the well lock; the condition of the protective casing and the cement footing (raised or cracked); and, the presence of water between protective casing and well.
- Take the groundwater level from the collar of the piezometer/monitoring well using an electronic dip meter. The collar level should be taken (if required) during the site visit using a dumpy level and staff.
- Purging and sampling of piezometers/monitoring wells is done on the same site visit when using micro-purge (or other low flow) techniques.
- Layout and organize all equipment associated with groundwater sampling in a location where they will not interfere with the sampling procedure and will not pose a risk of contaminating samples. Equipment generally required includes:
  - Micropore filtration system or Stericup single-use filters (for heavy metals samples);
  - Filter paper for Micropore filtration system; Bucket with volume increments;
  - Sample containers: teflon bottles with 1 ml nitric acid, 75mL glass vials with 1 mL hydrochloric acid, 1 L amber glass bottles;
  - Bucket with volume increments;
  - Flow cell;
  - pH/EC/Eh/T meters;
  - Plastic drums used for transportation of purged water;
  - Esky and ice;
  - Nitrile gloves;
  - Distilled water (for cleaning);
  - Electronic dip meter;

- Low flow pump pack and associated tubing; and
- Groundwater sampling forms.

- If single-use stericup filtration is not used, clean the Micropore filtration system thoroughly with distilled water prior to use and between each sample. Filter paper should be changed between samples. 0.45um filter paper should be placed below the glass fibre filter paper in the filtration system.
- Ensure all non-disposable sampling equipment is decontaminated or that new disposable equipment is available prior to any work commencing at a new location. The procedure for decontamination of groundwater equipment is outlined at the end of this section.
- Disposable gloves should be used whenever samples are taken to protect the sampler and to assist in avoidance of contamination.
- Groundwater samples are obtained from the monitoring wells using low flow/micro-purge sampling equipment to reduce the disturbance of the water column and loss of volatiles.
- During pumping to purge the well, the pH, temperature, conductivity, dissolved oxygen, redox potential and groundwater levels are monitored (where possible) using calibrated field instruments to assess the development of steady state conditions. Steady state conditions are generally 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%.
- All measurements are recorded on specific data sheets.
- Once steady state conditions are considered to have been achieved, groundwater samples are obtained directly from the pump tubing and placed in appropriate glass bottles, BTEX vials or plastic bottles.
- All samples are preserved in accordance with water sampling requirements detailed in the NEPM 2013 and placed in an insulated container with ice. Groundwater samples are preserved by immediate storage in an insulated sample container with ice as outlined in the report text.
- Record the sample on the appropriate log in accordance with AS1726:1993. At the end of each water sampling complete a chain of custody form.

Decontamination Procedures for Groundwater Sampling Equipment

- All equipment associated with the groundwater sampling procedure (other than single-use items) should be decontaminated between every sampling location.
- The following equipment and materials are required for the decontamination procedure:
  - Phosphate free detergent;
  - Potable water;
  - Distilled water; and
  - Plastic Sheets or bulk bags (plastic bags).
- Fill one bucket with clean potable water and phosphate free detergent, and one bucket with distilled water.
- Flush potable water and detergent through pump head. Wash sampling equipment and pump head using brushes in the bucket containing detergent until all materials attached to the equipment are removed.
- Flush pump head with distilled water.
- Change water and detergent solution after each sampling location.
- Rinse sampling equipment in the bucket containing distilled water.
- Place cleaned equipment on clean plastic sheets.
- If all materials are not removed by this procedure that equipment should not be used until it has been thoroughly cleaned

QA/QC DEFINITIONS

The QA/QC terms used in this report are defined below. The definitions are in accordance with US EPA publication SW-846, entitled *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods* (1994[30]) methods and those described in *Environmental Sampling and Analysis, A Practical Guide,* (H. Keith 1991[31]).

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

When assessing laboratory data it should be borne in mind that values at or near the PQL have two important limitations.

"The uncertainty of the measurement value can approach, and even equal, the reported value. Secondly, confirmation of the analytes reported is virtually impossible unless identification uses highly selective methods. These issues diminish when reliably measurable amounts of analytes are present. Accordingly, legal and regulatory actions should be limited to data at or above the reliable detection limit" Keith 1991.

Precision
The degree to which data generated from repeated measurements differ from one another due to random errors. Precision is measured using the standard deviation or Relative Percent Difference (RPD). Acceptable targets for precision in this report will be less than 50% RPD for concentrations greater than ten times the PQL, less than 75% RPD for concentrations between five and ten times the PQL and less than 100% RPD for concentrations that are less than five times the PQL.

Accuracy
Accuracy is a measure of the agreement between an experimental result and the true value of the parameter being measured. The assessment of accuracy for an analysis can be achieved through the analysis of known reference materials or assessed by the analysis of surrogates, field blanks, trip spikes and matrix spikes.

The proximity of an averaged result to the true value, where all random errors have been statistically removed. Accuracy is measured by percent recovery. Acceptable limits for accuracy generally lie between 70% to 130% recoveries. Certain laboratory methods may allow for values that lie outside these limits.

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

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[30] US EPA, (1994), *SW-846: Test Methods for Evaluating Solid Waste, Physical/Chemical Methods.* (US EPA SW-846)
[31] Keith., H, (1991), *Environmental Sampling and Analysis, A Practical Guide.*

Completeness

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

- Chain-of-custody forms; Sample receipt form;
- All sample results reported; All blank data reported;
- All laboratory duplicate and RPDs calculated;
- All surrogate spike data reported;
- All matrix spike and lab control spike (LCS) data reported and RPDs calculated;
- Spike recovery acceptable limits reported; and
- NATA stamp on reports.

Comparability

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

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

Blanks

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

Matrix Spikes

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

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

Surrogate Spikes

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

Duplicates

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

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

Appendix D: Field Work Documents

Thermo Fisher
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RENTALS

Equipment Certification Report – In-situ SmarTroll Water Quality Meter

This Water Quality Meter has been performance checked and calibrated as follows:

Sensor	Concentration	Span 1	Span 2	Traceability Lot #	Pass?
pH	pH 7.00 / pH 4.00	7.00 pH	4.00 pH	**290052/287695**	☑
Conductivity	12,880 uS/cm	N/A uS/cm	12.88 uS/cm	NL1785	☑
Dissolved Oxygen	Sodium Sulphite / Air	0 % in Sodium Sulphite	100 % Saturation in Air	NJ1314 (DI) 16022346 (SS)	☑
Redox (ORP) *	Electrode operability test	240mV +/- 10%	240 mV	9674	☑

☑ Battery Status 100%
☑ Electrical Safety Tag attached (AS/NZS 3760)

Tag No: SMART-3

Valid to: 28/02/2017

☑ Temperature 23.5 °C
☐ Electrodes Cleaned and checked

Date: 27/02/2017

Signed: [signature]

Please check that the following items are received and that all items are cleaned and decontaminated before return. A minimum $30 cleaning / service / repair charge may be applied to any unclean or damaged items. Items not returned will be billed for at the full replacement cost.

Sent	Returned	Item
☑	☐	iPod Touch 5 with waterproof casing
☑	☐	pH sensor/Redox (ORP) sensor
☑	☐	Conductivity/TDS sensor
☑	☐	Dissolved oxygen sensor
☑	☐	Red caps for probe and Bluetooth battery pack
☑	☐	Connector cable 4.6 m
☑	☐	Bluetooth Battery Pack Serial #: 41440
☑	☐	Spare 4 AA batteries
☑	☐	AC charger with USB cable
☑	☐	Car changer with USB cable
☑	☐	Instruction Manual
☑	☐	Quick Guide
☑	☐	Calibration cup with vented cap and sponge
☑	☐	Storage cap with sponge
☑	☐	SS Protective Shroud
☑	☐	SmarTROLL MP Flow Cell
☑	☐	Check to confirm electrical safety (tag must be valid)
☑	☐	

Date: 27/02/2017

Signed: [signature]

TFS Reference	CS006364	Return Date: / /	
Customer Reference		Return Time:	
Equipment ID	SMART – 3	Condition on return:	
Equipment Serial No.	362992		

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Groundwater Sampling Report

EIS

Client:	Bunnings Pty Ltd	**Job No.:**	E28297K
Project:		**Well No.:**	MW101
Location:	15 Sturt Rd Smithfield	**Depth (m):**	5.8

WELL FINISH

✓ Gatic Cover	Standpipe	PVC Pipe

WELL PURGE DETAILS:

Method:	Peristaltic pump	**SWL – Before:**	4.05
Date:	28.2.17	**Time – Before:**	
Undertaken By:	AS	**Total Vol Removed:**	4.5
Pump Program No:	–	**PID (ppm):**	0

PURGING / SAMPLING MEASUREMENTS

Time (min)	CMP	Vol (L)	SWL (m)	Temp (°C)	DO (mg/L)	EC (µS/cm) SP Cond	pH	Eh (mV)
5	3.23	0.5	4.12	24.26	4.92	29936	5.84	165.1
10	3.05	0.9	4.23	24.18	0.97	29886	5.81	107.1
15	2.72	1.5	4.30	24.06	0.71	29814	5.81	70.1
16	2.72	1.7	4.34	24.08	0.70	29817	5.84	76.1
17	2.72	1.8	4.36	24.11	0.73	29826	5.84	54.7
18	2.72	1.9	4.36	24.11	0.72	29786	5.86	51.7
19	2.72	2.0	4.37	24.11	0.71	29794	5.84	51.0
20	2.72	2.1	4.37	24.11	0.72	29784	5.86	49.6
Sampling								

Containers Used/Comments Clear, no odour, no sheen, no free phase w/IP, (3xvial, 2x Glass, 1x Metals, 2xPVC)

Tested By: AS	**Remarks:**
Date Tested: 28.2	- All measurements are corrected to ground level
Checked By:	- SWL is an abbreviation for standing water level
Date:	- Steady state conditions - difference in the pH less than 0.2 units and difference in conductivity less than 10%

water parameters taken with Thermo-Fisher SmarTROLL 3.

Groundwater Sampling Report

EIS

DUPAS 1

Client:	Bunnings	**Job No.:**	E28497K
Project:		**Well No.:**	~~MW2~~ MW107
Location:	15 Stuart Rd Smithfield	**Depth (m):**	5.8

WELL FINISH

✓	**Gatic Cover**		**Standpipe**		**PVC Pipe**

WELL PURGE DETAILS:

Method:	P. Pump	**SWL – Before:**	1.95
Date:	28-2-17	**Time – Before:**	
Undertaken By:	AS	**Total Vol Removed:**	~6.4L
Pump Program No:	–	**PID (ppm):**	

PURGING / SAMPLING MEASUREMENTS

Time (min)	CMP	Vol (L)	SWL (m)	Temp (°C)	DO (mg/L)	EC (µS/cm)	pH	Eh (mV)
3	3.15	0.5	1.97	24.3	5.70	7876	6.41	216.3
5	3.15	0.6	2.05	24.3	5.08	7896	6.41	216.6
10	3.15	1.2	2.13	24.5	3.69	7942	6.41	217.9
15	2.90	1.5	2.19	24.6	3.67	7907	6.41	224.4
16	2.90	1.6	2.20	24.6	3.67	7898	6.40	227.3
17	2.90	1.6	2.25	24.7	3.67	7879	6.40	231.3
18	2.90	1.7	2.26	24.7	3.68	7864	6.40	234.9
19	2.90	1.8	2.27	24.7	3.67	7860	6.40	235.1
20	2.90	1.8	2.30	24.7	3.65	7866	6.40	234.3

Containers Used/Comments Clear, no odour, no sheen, no free phase w/ip

3x Vial 2x Amber 2x PVC 1x Metals

Tested By:	AS	**Remarks:**
Date Tested:	28-2-17	- All measurements are corrected to ground level
Checked By:		- SWL is an abbreviation for standing water level
Date:		- Steady state conditions - difference in the pH less than 0.2 units and difference in conductivity less than 10%

Groundwater Sampling Report

EIS

Client:	Bunnings	**Job No.:**	E28497K.
Project:		**Well No.:**	MW103
Location:	15 Stuart St Smithfield	**Depth (m):**	5.8

WELL FINISH

✓	**Gatic Cover**		**Standpipe**		**PVC Pipe**

WELL PURGE DETAILS:

Method:	P. Pump	**SWL – Before:**	2.87
Date:	28-2-17	**Time – Before:**	
Undertaken By:	AS	**Total Vol Removed:**	~4.4
Pump Program No:	–	**PID (ppm):**	0

PURGING / SAMPLING MEASUREMENTS

Time (min)	CMP	Vol (L)	SWL (m)	Temp (°C)	DO (mg/L)	SP EC (μS/cm)	pH	Eh (mV)
3	3.12	0.5	2.91	26.8	4.87	19461	6.28	284.6
5	3.12	0.6	2.92	27.02	4.31	19565	6.25	252.4
10	3.17	1.2	3.13	27.16	3.29	19666	6.25	271.1
15	3.17	1.5	3.20	27.20	3.31	19652	6.25	271.2
16	3.17	1.6	3.20	27.26	3.63	19583	6.25	270.2
17	3.10	1.6	3.25	27.10	3.64	19587	6.25	275.3
18	2.90	1.7	3.27	27.15	3.64	19576	6.29	275.3
19	2.90	1.7	3.27	27.20	3.70	19580	6.25	277.6
20	2.90	1.8	3.30	27.15	3.70	19570	6.25	275.6

Containers Used/Comments Clear, no odour, no sheen, no free phase w/ip

2xPVC 2xGlass 3xVials 1xMetals

Tested By: AS	
Date Tested: 28-2-17	
Checked By:	
Date:	

Remarks:

- All measurements are corrected to ground level
- 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%

EIS

Groundwater Monitoring Well Development Report

Client:	Bunnings Pty Ltd	Job No.:	E28497K
Project:		Well No.:	MW101
Location:	15 Sturt St Smithfield	Depth (m):	5.8m

WELL FINISH DETAILS					
	Gatic Cover		Standpipe		PVC Pipe

WELL DEVELOPMENT DETAILS			
Method:	Blue Pump	SWL – Before: (m)	4.3
Date:	24/02/2017	Time – Before:	
Undertaken By:	AS	SWL – After: (m)	Dry
Total Vol. Removed:	Pumped dry- Approx 8L	Time – After:	
PID Reading (ppm):			
Comments:			

DEVELOPMENT MEASUREMENTS

Volume Removed (L)	Temp (°C)	DO (mg/L)	EC (µS/m)	pH	Eh (mV)

Comments: Slight turb first 2L then clear, no odour, no sheen no free phase w/IP

Tested By:	AS
Date Tested:	24/2/17
Checked By:	
Date:	

Remarks:
- 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%
- Minimum 3 monitoring well volumes are purged

EIS

Groundwater Monitoring Well Development Report

Client:	Bunnings Pty Ltd	**Job No.:**	E28497K
Project:		**Well No.:**	MW102
Location:	15 Sturt St Smithfield	**Depth (m):**	5.8m

WELL FINISH DETAILS

	Gatic Cover		**Standpipe**		**PVC Pipe**

WELL DEVELOPMENT DETAILS

Method:	Blue Pump	**SWL – Before: (m)**	2.85
Date:	24/02/2017	**Time – Before:**	
Undertaken By:	AS	**SWL – After: (m)**	Dry
Total Vol. Removed:	Pumped dry- Approx 10	**Time – After:**	
PID Reading (ppm):			
Comments:			

DEVELOPMENT MEASUREMENTS

Volume Removed (L)	Temp (°C)	DO (mg/L)	EC (µS/m)	pH	Eh (mV)

Comments: clear, no odour, no sheen, no free phase with IP

Tested By:	AS
Date Tested:	24/2/17
Checked By:	
Date:	

Remarks:

- 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%
- Minimum 3 monitoring well volumes are purged

EIS

Groundwater Monitoring Well Development Report

Client:	Bunnings Pty Ltd	**Job No.:**	E28497K
Project:		**Well No.:**	MW103
Location:	15 Sturt St Smithfield	**Depth (m):**	5.8m

WELL FINISH DETAILS

	Gatic Cover		**Standpipe**		**PVC Pipe**

WELL DEVELOPMENT DETAILS

Method:	Blue Pump	**SWL – Before: (m)**	4.9
Date:	24/02/2017	**Time – Before:**	
Undertaken By:	AS	**SWL – After: (m)**	Dry
Total Vol. Removed:	Pumped dry- Approx 8L	**Time – After:**	
PID Reading (ppm):			

Comments:

DEVELOPMENT MEASUREMENTS

Volume Removed (L)	Temp (°C)	DO (mg/L)	EC (µS/m)	pH	Eh (mV)

Comments: ~~cle~~ first 2-3L turbid, then clear, no odour, no sheen no free phase w/IP

Tested By:	AS	**Remarks:**
Date Tested:	24/2/17	- All measurements are corrected to ground level
Checked By:		- All stated Volumes are in Litres
Date:		- 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% - Minimum 3 monitoring well volumes are purged

ENVIRONMENTAL INVESTIGATION SERVICES

REPORT

TO

BUNNINGS GROUP LIMITED

ON

ENVIRONMENTAL MANAGEMENT PLAN (EMP)

FOR

RETAIL WAREHOUSE

AT

15 STURT STREET, SMITHFIELD, NSW

13 MARCH 2017 REF: E28497K EMP

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 Distribution Record			
Report Reference	**Report Status/Revision**	**Distribution**	**Report Date**
E28497K EMP		Bunnings Group	13 March 2017

Report prepared by:

Rob Muller
Senior Environmental Scientist

Report reviewed by:

Adrian Kingswell
Principal Environmental Scientist

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

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

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

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

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1 INTRODUCTION

Bunnings Group Limited ('the client') commissioned Environmental Investigation Services (EIS)[1] to prepare an Environmental Management Plan (EMP) for the retail development located at 15 Sturt Street, Smithfield NSW ('the site'). The site location is shown on Figure 1 and the EMP is limited to the site area as shown on Figure 2.

This EMP identifies the areas of the site where on-going management of contamination risks are required and documents management procedures for these areas. Contingency measures are also included in the event that future subsurface works are necessary at the site. Provided that the cap is maintained as specified in this EMP the contaminants identified at the site are not considered to represent a risk to human health.

This EMP should be reviewed and updated when remediation is complete and if site conditions change in the future.

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

EIS

2 EMP OUTLINE

2.1 Aims and Objectives

The aim of the EMP is to maintain the ongoing minimisation of risk to the health of site users following completion of the site remediation works.

The objective of the EMP is to document the management procedures to be implemented following the completion of the site remediation works. This will broadly involve the following:

- On-going maintenance of the containment barrier system; and
- A contingency plan to be implemented in the event of future subsurface works.

2.2 Applicable Area

The EMP applies to the entire site area as shown on the attached Figure 2.

2.3 Public Notification and Enforcement of EMP

On completion of remediation the EMP will be noted on the Cumberland Council Planning Certificate for the site under Section 149 of the *Environmental Planning and Assessment Act* (1979[2]).

This EMP must be enforced by Cumberland Council as a condition of any future development consent. The EMP should be periodically reviewed and updated (as required) in the event that the site conditions change.

2.4 Primary Point of Contact

Bunnings Group Ltd will primarily be responsible for the implementation of this EMP. The contact will be:

Bunnings Group Ltd
11 Shirley Street
Rose Hill
SYDNEY NSW 2142

Further details regarding roles and responsibilities are set out in **Section 5.1**.

2.5 Timeframe

The EMP will be in force until such a time that no asbestos contamination remains at the site, or until such time that it can be demonstrated that the asbestos contamination is present at

[2] *Environmental Planning and Assessment Act,* NSW Government (as amended), 1979 (EP&AA 1979)

concentrations below the criteria specified in relevant regulatory guidelines and does not warrant further management.

3 SITE IDENTIFICATION

3.1 Site Identification

Table 3-1: Site Identification Information

Site Owner:	Bunnings Group Ltd
Site Address:	15 Sturt Street, Smithfield, NSW
Lot & Deposited Plan:	Lot 12 in DP1004594
Current Land Use:	Commercial/Industrial
Local Government Authority:	Cumberland Council
Current Zoning:	IN1 – General Industrial
Site Area (m2):	29,600 m2
Geographical Location (MGA) (approx.):	N: 6253000 E: 310770
Site Location Plan:	Figure 1
Site Plan:	Figure 2

3.2 Site Description

The site is located in a predominantly commercial/industrial area of Smithfield. The site is bounded by Sturt Street to the east and the Cumberland Highway to the west and north. The site is located approximately 800m north of Prospect Creek and approximately 5km to the south-east of the Prospect Reservoir. The site location and site layout are shown on Figures 1, 3a and 3b.

The regional topographic setting is an approximately level region north of Prospect Creek. The site itself gently falls at approximately 2° toward the south-east away from the Cumberland Highway.

4 SITE CONTAMINATION ISSUES

4.1 Site Validation and Remediation

Previous investigations undertaken at the site identified the presence of asbestos in the soils. A Remedial Action Plan (RAP) was prepared by EIS (Ref: E28497Krpt2 dated 10 March 2017) to address the asbestos contamination issue in order to render the site suitable for commercial/industrial land use.

The preferred remediation strategy for the site included consolidation and isolation of the asbestos impacted soil beneath a properly designed barrier.

4.2 The Capping Layer

The capping layer will consist of either

- Paving (across the majority of the site) which can include asphalt or concrete; or
- A layer of geofabric and a layer of geogrid overlain by at least 200mm of clean topsoil and vegetation in the landscaped areas. The purpose of the geogrid is to prevent accidental disturbance of the underlying contaminate soil. The purpose of the geofabric is to provide a marker layer for the top of the contaminated fill and restrict potential dust generation if the topsoil is temporarily eroded.

4.3 Potential Contaminant Exposure Pathways

The primary exposure pathway for asbestos contamination is via inhalation of airborne asbestos fibres. This potential exposure pathway has been removed by paving the majority of the site and the capping of the landscaped areas. Provided that the paving and capped landscaped areas are maintained as specified in this EMP the contaminants identified at the site are not considered to represent a risk to human health.

5 SITE AND RISK MANAGEMENT

5.1 Roles and Responsibilities

The roles and responsibilities for the implementation of this EMP are outlined in the table below:

Table 5-1: Roles and Responsibilities

Role	Responsibility
Site Owner	**Bunnings Group Limited** Bunnings Group Ltd is required to provide this EMP to any employee or contractor who may have reason to disturb the cap. Bunnings Group Ltd is also responsible for inspecting and maintaining the existing containment barrier, and maintaining the inspection and works registers. The EMP should be periodically reviewed and updated (as required) in the event that the site conditions change.
Cumberland Council	This final copy of this EMP (reviewed after completion of the development) must be enforced by Cumberland Council as a condition of any future development consent.

5.2 Use of Management Areas

The remedial strategy for the site is based around the on-going maintenance of the barrier system. Regular (annual) inspections of the barrier system (capped area) by Bunnings Group Ltd should be logged. An example inspection log is included in Appendix B.

Disturbance of the cap should be avoided wherever possible. In the event that intrusive works cannot be avoided (i.e. during future construction activities), the *Contingency for Intrusive Works* (see **Section 5.3** below) must be implemented.

Site works should not take place without prior approval from Bunning s Group Ltd.

5.3 Contingency for Intrusive Works

All personnel involved in intrusive works (including designers/architects, tradespersons and site workers) should be provided with a complete copy of the EMP prior to the commencement of any work at the site.

5.3.1 Containment Barrier (Capped Area)

For any works that penetrate the the existing pavements or the geofabric marker layer in the landscaped areas (e.g. excavation for new services), the following procedures should be implemented during the works:

- Prior to the commencement of any works, a suitably qualified asbestos consultant should be engaged to make an assessment of the level of asbestos management required. The management requirements will vary based on the extent and nature of the intrusive works, and must consider PPE requirements, requirements to use licensed asbestos removal contractors and/or air monitoring requirements;
- Establish a fenced work zone to limit access to the works area by site users and/or other contractors. The zone should carry appropriate signage to indicate that asbestos removal works are in progress;
- The concrete pavement or clean topsoil can be excavated (as required) and kept separate from the underlying material. This material can be considered for on-site re-use. Any surplus material should be disposed of accordingly;
- Prior to excavation of the contaminated soils beneath the pavement or landscaped area, the surrounding areas should be covered with builder's plastic, or a similar material, to minimise the transfer of contaminated dust and/or soil to the surrounding areas;
- An in-situ waste classification should be undertaken on the material to be excavated, for the purpose of assigning a waste classification for off-site disposal purposes;
- In the event that the excavated material is to be considered for on-site re-use, a suitable assessment strategy should be developed by a qualified environmental consultant to ensure that the material to be re-used is suitable for that purpose (with regards to contamination);
- The excavation should then be completed to the required depth. All excavated material (as applicable) should be immediately transferred to a designated area in a suitable manner to reduce the spread of contaminated soil and associated dust. The material should be placed directly into a skip bin or truck. In the event that material needs to be stockpiled on site during the works, an appropriate barrier (e.g. builder's plastic) should be placed to avoid contact between the ground and the stockpile. The stockpiles should also be suitably bunded and covered to minimise run-off in the event of rainfall;
- If a new service is being installed the base and walls of the excavation should be lined with orange geofabric, the new service constructed, and the excavation reinstated with suitable clean validated recycled aggregate or VENM;
- The *Works Register* form (attached in Appendix C) should be filled out with a description of the works undertaken and a sketch of the area in which the works were completed. The form should be submitted to Bunnings Group Ltd on completion of the works.

5.4 Work Health and Safety

A job specific Work Health and Safety (WHS) plan should be developed prior to the commencement of any intrusive works at the site. The plan must consider the WHS requirements in relation to the asbestos contamination and the tasks to be performed.

6 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.

LIST OF IN-TEXT TABLES

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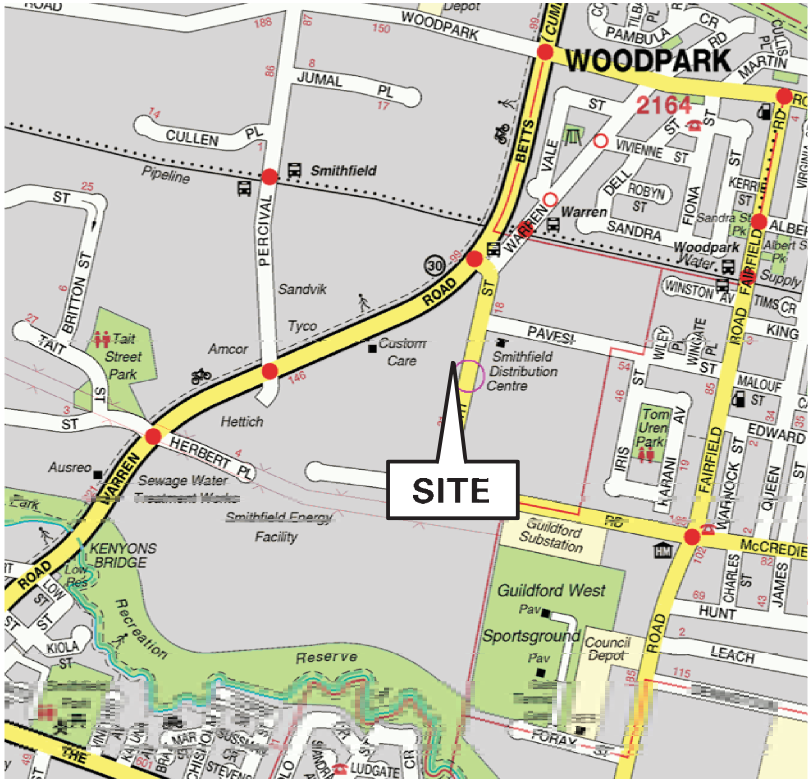
Table 5-1: Roles and Responsibilities 6

REPORT FIGURES



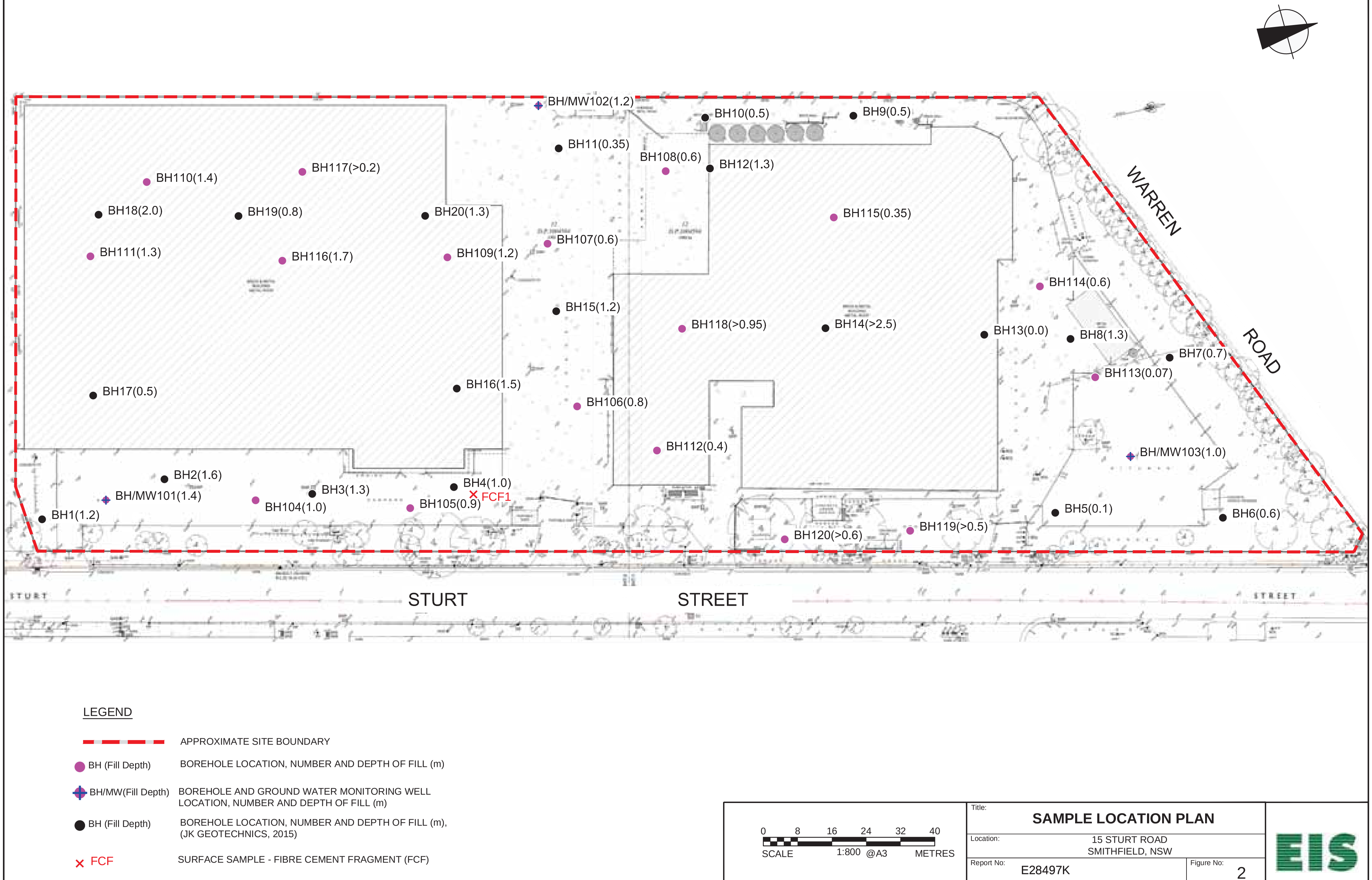
N

NOTES:
Figure has been recreated from UBD on disc (version 7.1) and http://maps.six.nsw.gov.au/.

Figure is not to scale. UBD Map ref: 229Q1 and 229Q2

Reference should be made to the report text for a full understanding of this plan.

EIS ENVIRONMENTAL INVESTIGATION SERVICES	Project Number: E28497K	Title: SITE LOCATION PLAN
	Figure: 1	Address: 15 STURT STREET, SMITHFIELD, NSW



0 8 16 24 32 40

SCALE 1:800 @A3 METRES

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

Title: **SAMPLE LOCATION PLAN**

Location: 15 STURT ROAD
SMITHFIELD, NSW

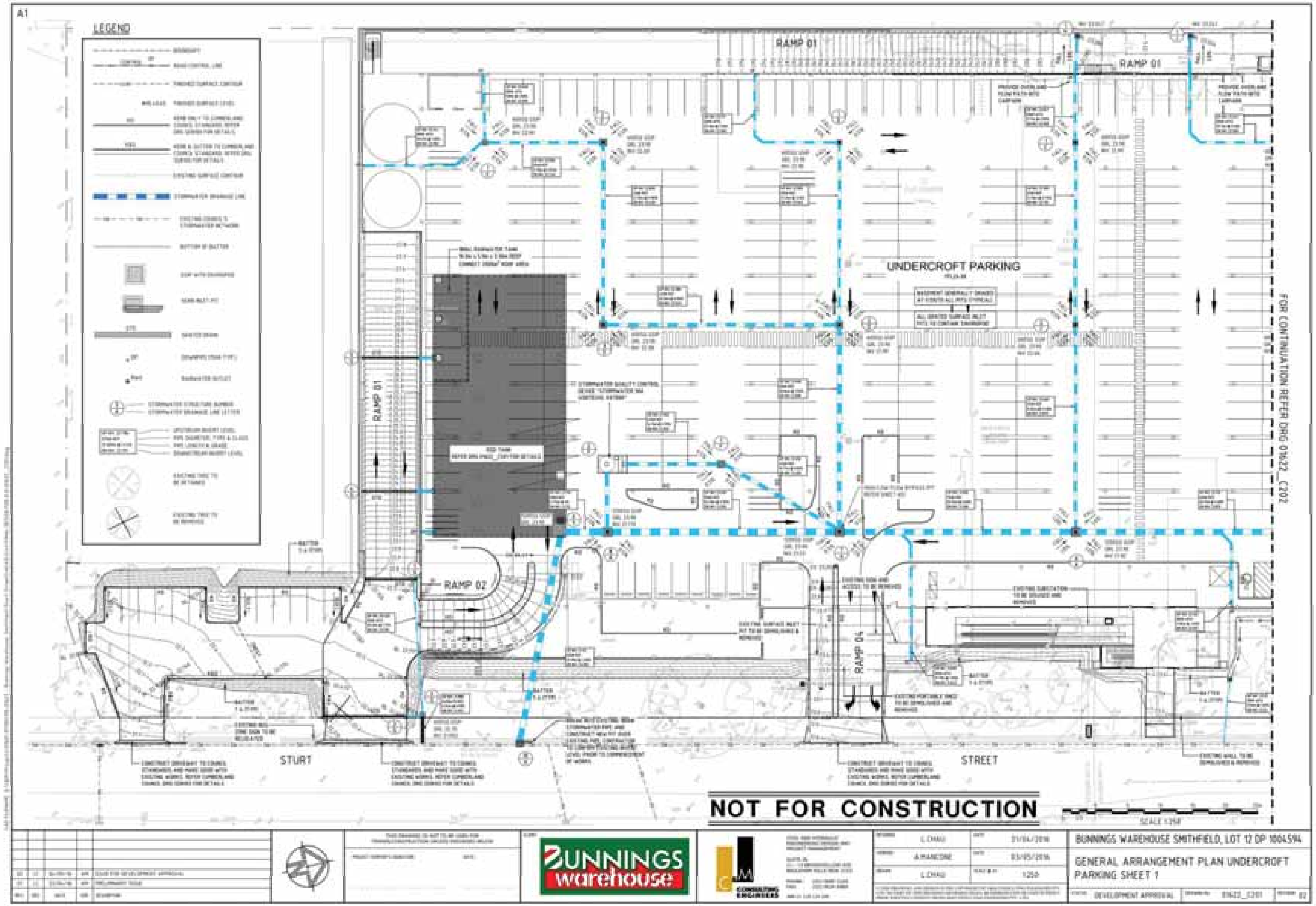
Report No: E28497K

Figure No: 2

ENVIRONMENTAL INVESTIGATION SERVICES

EIS

PLOT DATE: 7/03/2017 11:09:11 AM DWG FILE: S:\5 EIS\5C EIS JOBS\28000'S\E28497K SMITHFIELD\CAD\E28497K.DWG



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

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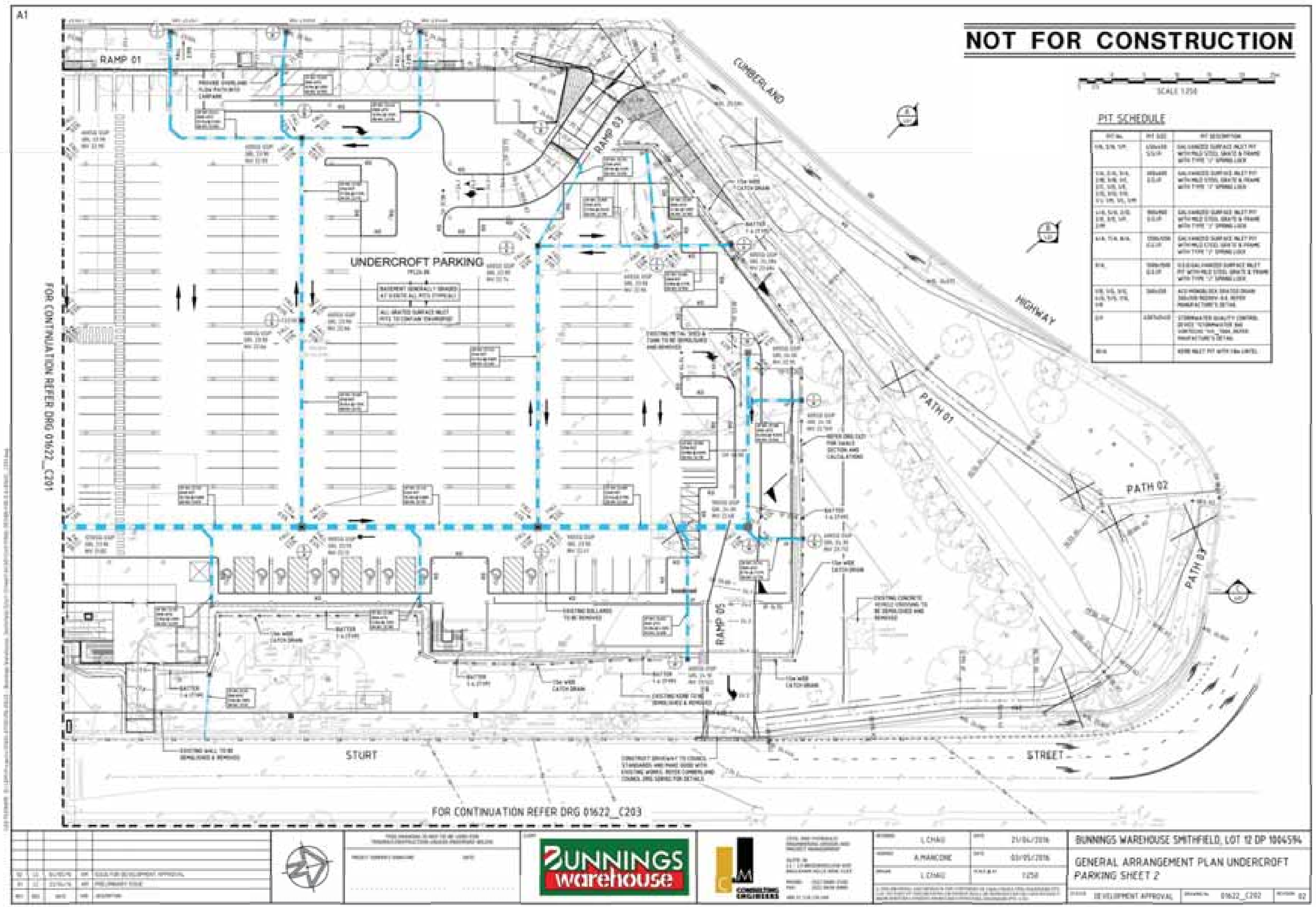
Proposed Development Plan
South Section
15 Strurt Street, Smithfield

PROJECT ID: E28497K EMP

F3a



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

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Proposed Development Plan North Section

15 Sturt Street, Smithfield

PROJECT ID: E28497K EMP

F3b

Appendix A: Inspection and Maintenance Log

Inspection and Maintenance Log

Inspection Date:	
Areas Inspected:	Landscaped areas: Yes / No Building areas: Yes / No Other areas (Specify):
Notes:	Were any areas of disturbance/damage observed: Yes / No Provide a description of the extent of damage/disturbance:
Corrective Actions:	Notify the Site Owner and the site occupants: Yes / No Document problem areas photographically: Yes / No Interim measures implemented: Yes / No (if yes, describe below) Contractor contacted to reinstate area to prior condition: Yes / No Corrective Action undertaken on (date):

Appendix B: Works Register Form

Works Register Form

Contractor:	
Date:	
Notes:	
Sketch of work area:	

ENVIRONMENTAL INVESTIGATION SERVICES

REPORT

TO

BUNNINGS GROUP PTY LTD

ON

HAZARDOUS BUILDING MATERIALS ASSESSMENT

FOR

PROPOSED DEMOLITION WORKS

AT

1-15 STURT STREET, SMITHFIELD, NSW

17 MARCH 2017 **REF: E27497Krpt-HAZ.rev1**

Postal Address: PO Box 976, North Ryde BC NSW 1670
Tel: 02 9888 5000 • Fax: 9888 5004
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Report prepared by: Harry Leonard
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Asbestos Assessor A, License No: 001028

Report reviewed by: Adrian Kingswell
Principal

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a) EIS's proposal in respect of the work covered by the Report;
b) The limitations defined in the client's brief to EIS; and
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Figure 1: Site Location Plan

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Appendix A: Hazardous Building Materials Register

Appendix B: Laboratory Reports and Chain of Custody Documents

1 INTRODUCTION

Bunnings Group Pty Ltd ('the client') commissioned Environmental Investigation Services (EIS)[1] to undertake a Hazardous Building Materials Assessment for the proposed demolition works at 1-15 Sturt Street, Smithfield, NSW.

The site location and general site layout is shown on Figure 1. The proposed development area is referred to as 'the site' in this report.

The assessment was undertaken generally in accordance with an EIS proposal (Ref: EP44435K) of 24/02/2017 and written acceptance from the client of 10/03/2017. The scope of this assessment was commissioned to satisfy the third recommendation point outlined on page 27 of the *Preliminary Waste Classification and Environmental Site Assessment* (EIS Ref: E28497Krpt[2]) dated 13 July 2015.

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

The document does not contain information regarding an assessment of risk, safe work procedures or control measures associated with hazardous building materials. In the event that hazardous building materials remain within the buildings/structures at the site a hazardous building materials management plan must be prepared.

1.1 Proposed Development Details

Based on information and plans provided by the client we understand that the proposed development includes the demolition of the existing warehouse structures and outbuildings on site for a new Bunnings Warehouse outlet.

1.2 Scope of Work

The scope of work included:

1. A detailed inspection of the existing building and structures;
2. Sampling of representative materials in accordance with the assessment criteria and inspection procedure outlined in Section 4;
3. Documentation of inspection finds including sample location, material type, condition, friability, photographic evidence and site location;
4. Laboratory analysis of selected representative materials; and
5. Preparation of a report presenting the results of the hazardous building materials assessment.

---

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

[2] EIS 2015 Report E28497Krpt to Bunnings Group Limited on *Preliminary Waste Classification and Environmental Site Assessment* for Due Diligence for Purchase of Property at 15 Sturt Street, Smithfield, NSW

2 SITE DESCRIPTION

Field work for this investigation was undertaken on the 13/03/2017. The site description at the time of the field work is outlined below.

The site location and general site layout is shown on Figure 1. The site is located to the west side of Sturt Street and bound by the Cumberland Highway to the north. At the time of the inspections, the site contained two large industrial buildings, a production building in the north of the site and a warehouse building in the south. The buildings were constructed of a combination of concrete panels and bricks. Two driveways entered the site from Sturt Street and connected with parking areas along the eastern and northern boundaries. A storage shed was also located in the northern section of the site and two security sheds located adjacent the entrance driveways along Sturt Street.

A general description of each building/structure is outlined below:

Production Building – It was estimated the building was constructed in the 1960's and generally contained a receiving dock, first aid room and redundant storage vats and machinery along the western wall and a laboratory, tea room, workshop, toilets and offices along the eastern wall. The building was of concrete and steel construction with corrugated metal and fibre cement sheet external walls, corrugated metal roof, fibre cement sheet and metal internal walls and concrete floors.

Warehouse Building – It was estimated the building was constructed in the 1980's and generally contained a large open storage area with a sales office, training room, technical office and despatch office in the north-eastern corner of the building. The building was of concrete and steel construction with corrugated metal external walls, metal eaves, corrugated metal roof, plaster and metal internal walls and concrete floors.

Storage shed – Located in the northern section of the site the shed was of corrugated metal construction on a concrete slab.

Security sheds – Located adjacent to the entrance driveway off Sturt Street. Each shed was of metal and timber construction and levelled on concrete brick piers.

3 REGULATORY BACKGROUND INFORMATION

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

Guidelines/Regulations/Documents
Asbestos
National Code of Practice How to Manage and Control Asbestos in the Workplace, Safe Work Australia 2011
National Code of Practice How to Safely Remove Asbestos, Safe Work Australia 2011
Code of Practice for the Safe Removal of Asbestos 2nd Edition, National Occupational Health and Safety Commission: 2002 (2005)
Code of Practice for the Management and Control of Asbestos in Workplaces, National Occupational Health and Safety Commission: 2018 (2005)
Management Of Asbestos In The Non-Occupational Environment, Environmental Health Committee, Department of Health and Ageing, 2005
Working with Asbestos: Guide, WorkCover Authority of New South Wales, 2008
Asbestos: The survey guide, Health and Safety Executive, UK, 2010
SMF
National Standard for the Safe Use of Synthetic Mineral Fibres [National Occupational Health and Safety Commission:1004 (1990)]
National Code of Practice for the Safe Use of Synthetic Mineral Fibres [National Occupational Health and Safety Commission:2006 (1990)]
Lead
Guide to Lead Paint Management, Part 1: Industrial Applications, Australian Standard AS4361.1, 1995
Guide to Lead Paint Management, Part 2: Residential and Commercial Buildings, Australian Standard AS4361.2, 1998
National Standard for the Control of Inorganic Lead at Work, National Occupational Health and Safety Commission: 1012 (1994)
National Code of Practice for the Control and Safe Use of Inorganic Lead at Work, National Occupational Health and Safety Commission: 2015 (1994)
Guidance Note For Ceiling Dusts Containing Lead, WorkCover Authority of New South Wales
Code of Practice for Ceiling Dust Removal, Australian Dust Removalists Association, http://www.adra.com.au/cop.html
PCBs
Polychlorinated Biphenyls Management Plan, Environmental Protection & Heritage Council, Revised Edition, April 2003
Identification of PCB-Containing Capacitors, Australian and New Zealand Environment and Conservation Council (ANZECC), 1997
Polychlorinated Biphenyl (PCB) Chemical Control Order 1997, made under the *Environmentally Hazardous Chemicals Act 1985*
General

Guidelines/Regulations/Documents
Work Health and Safety Act, NSW Government 2011
Work Health and Safety Regulation, NSW Government 2011
Control of Workplace Hazardous Substances, Code of Practice, WorkCover Authority of NSW, 2006
National Code of Practice for the Control of Workplace Hazardous Substances, National Occupational Health and Safety Commission: 2007 (1994)
The Demolition of Structures, Australian Standard AS2601 (2001)

4 ASSESSMENT CRITERIA AND INSPECTION PROCEDURE

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

4.1 Asbestos Fibre Containing Materials

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

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

4.2 Lead Containing Materials

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

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

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

In accordance with the Australia Standard, AS4361.2 – 1998 "*Guide to Lead Paint Management, Part 2: Residential and Commercial Buildings*", a lead in paint concentration greater than 1.0% w/w is considered to be lead based paint.

Settled dust sampling involved the collection of settled dust from a known surface area by wet wipe. The area should preferably be 0.09m^2 (which corresponds to an area 30 cm × 30cm) and in any event not less than 0.01m^2, depending on the amount of dust present. The lead concentration mg/m^2 is calculated using the equation (µg/swab ÷ 0.09) ÷ 1000.

A non-alcoholic moistened wipe is folded to form a firm swab. The swab is placed flat onto the surface in one corner of the area to be sampled and rubbed across the entire area in an 'S' pattern. The wipe is re-folded so that the collected dust is on the inside and is again rubbed across the area at 90° to the first 'S'. The wipe is again folded with the dust inside and placed in the sterile sample container.

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

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

4.2.1 Lead Materials Assessment Criteria

As stated above, a lead in paint concentration greater than 1.0% w/w is considered to be lead based paint.

Australian Standard AS 4361.2-1998 *Guide to lead paint management Part 2: Residential and Commercial Buildings*, does not offer any general guidance on lead levels in dust but it does have surface dust lead loading values as acceptance levels after lead paint management activities. The acceptance levels for surface dust are:

- Interior floors 1 mg/m^2 (as lead);
- Interior window sills 5 mg/m^2 (as lead); and
- Exterior surfaces 8 mg/m^2 (as lead).

EIS uses the Australian Standard levels above as a guide in assessing lead dust risks. These figures can also be used to assess the risk of exposure from other lead sources.
The acceptance level of lead in dust for exterior surfaces of 8 mg/m^2 is considered the most appropriate guideline for comparison for lead in ceiling dust.

4.3 Polychlorinated Biphenyls (PCBs) Containing Electrical Equipment

The major use of PCBs in the electrical industry has been inside transformers and capacitors. Transformers may include relatively small transformers inside electrical mains/fuse cabinets. Capacitors containing PCBs were installed in numerous types of fluorescent light fittings during the 1950's, 60's and 70's. Representative samples of each type of electrical equipment identified within the existing structure were visually examined to assess whether the equipment is insulated with PCBs. Details on the make, type, capacitance, dimensions, date and power were recorded and checked with the ANZECC database of known PCB containing electrical equipment and the results of the review were noted.

4.4 Synthetic Mineral Fibre Containing Materials

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

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

5 RESULTS OF SITE INSPECTION

The results of the inspection are summarised in the following sections. For specific locations and details of materials identified during the inspection, please refer to the Hazardous Building Materials Register in Appendix A and the laboratory analysis report in Appendix B.

5.1 Asbestos

Asbestos containing materials were identified within both properties in the form of corrugated fibre cement sheeting, vinyl tiles and flat fibre cement sheeting.

Potential asbestos containing materials were also identified in electrical backing boards within sealed electrical switchboards throughout the site.

Refer to Section **6.1** of this report for recommendations on removal of asbestos materials.

5.2 Synthetic Mineral Fibre (SMF)

Materials containing SMF were identified in the form of foil backed insulation to the underside of the roof, insulation on hot water pipework and foil wrapped insulation on fixed and flexible air-conditioning ductwork. All materials were in good condition at the time of the inspection.

5.3 Lead Paint

Deteriorated paint systems containing elevated concentrations of lead were not identified within the scope and limitations of this report.

5.4 Lead Dust

Dust with elevated levels of lead was not identified within the scope and limitations of this report.

5.5 Polychlorinated Biphenyls (PCBs)

Fluorescent light fittings potentially housing PCB containing capacitors were identified in various areas throughout the site. The fittings were visually inspected at the time of the inspection. Refer to Section **6.3** of this report for recommendations on PCBs.

5.6 Site Access Limitations

Access to the roof and upper windows of the warehouse and production buildings was not possible due to height restrictions. All electrical switchboards and cabinets were generally locked or sealed with a fixed facia plate.

Access throughout the remainder of the site was generally unrestricted within the scope and limitations of the report.

6 COMMENTS AND RECOMMENDATIONS

6.1 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.

Prior to demolition work this document must be provided as a register to the demolition/building contractor.

All works associated with the disturbance and removal of asbestos containing materials must be undertaken by a Licenced *Class B* Asbestos Removalist.

The asbestos removalist must prepare an Asbestos Removal Control Plan for the proposed works and air monitoring should be undertaken during the proposed works.

An asbestos management plan must be prepared for the proposed works in areas containing asbestos.

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

If previously unidentified materials (suspected of containing asbestos) are identified during the demolition phase, works should cease and the material should be inspected and classified by an experienced consultant. The area should be isolated and barricaded until the material has been classified as non-hazardous or removed and the area cleared.

All asbestos containing materials (and materials presumed to contain asbestos) must be removed in accordance with the regulations and codes outlined in Section 3 of this report.

6.2 Lead Paint

Not identified within the scope and limitations of the report.

6.3 Lead in Accumulated Dust

Not identified within the scope and limitations of the report.

6.4 PCB Containing Electrical Equipment

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

Light fittings potentially housing a PCB containing metal capacitor were identified throughout the existing buildings on site. PCBs are a scheduled waste with strict guidelines regarding transport and handling. PCB work is to be conducted in accordance with the Environmental Protection & Heritage Council's Polychlorinated Biphenyls Management Plan, Revised Edition April 2003. This briefly includes:

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

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

6.5 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.

All SMF containing materials must be removed in accordance with the national Standard and code outlined in Section 3 of this report.

7 LIMITATIONS

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

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

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

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

Unless specifically noted, the survey did not cover:

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

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

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

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

Kind Regards

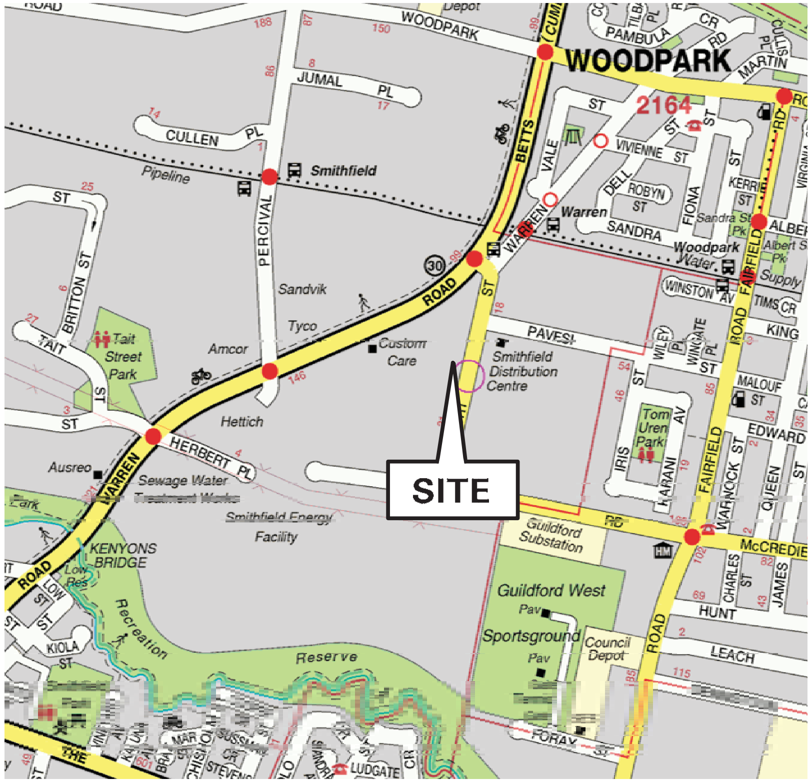
Harry Leonard
Environmental Scientist / Asbestos Assessor

Adrian Kingswell
Principal

Attachments:

1) Report Figures
2) Appendices

REPORT FIGURES



NOTES:
Figure has been recreated from UBD on disc (version 7.1) and http://maps.six.nsw.gov.au/.

Figure is not to scale. UBD Map ref: 229Q1 and 229Q2

Reference should be made to the report text for a full understanding of this plan.

EIS
ENVIRONMENTAL INVESTIGATION SERVICES

Project Number: E28497K	Title: SITE LOCATION PLAN
Figure: 1	Address: 15 STURT STREET, SMITHFIELD, NSW

Appendix A: Hazardous Building Materials Register

1-15 Sturt Street, Smithfield, NSW
Hazardous Building Materials Register - 16/03/2017

Location	Material Type	Sample ID	Laboratory result	Conditon	Friable / Non-Friable	Approximate extent	Recommendation	Is the area accessible	Photograph
ASBESTOS MATERIALS									
Production building, Internal, Western wall linings	Flat fibre cement sheet	S1	No asbestos detected	-	-	-	-	-	-
Production building, External, Western wall lining	Corrugated fibre cement sheet	S2	Chrysotile asbestos detected Amosite asbestos detected Crocidolite asbestos detected	Generally intact (some damaged areas)	Non-friable	>100m^2	Remove prior to demolition works	Yes	
Production building, External, Eastern side, Eaves and awnings	Flat fibre cement sheet	S3	Chrysotile asbestos detected Amosite asbestos detected Crocidolite asbestos detected	Generally intact	Non-friable	60m^2	Remove prior to demolition works	No (access via ladder only)	
Production building, External, Eastern side, Infill panels around air-conditioning units and above windows	Flat fibre cement sheet	NA - Similar to sample S3	Presumed to contain asbestos	Generally intact	Non-friable	10m^2	Remove prior to demolition works	No (access via ladder only)	
Production building, Internal, Eastern office area including toilets and laboratory, Wall linings	Flat fibre cement sheet	S4	No asbestos detected	-	-	-	-	-	-
Production building, Internal, Eastern office area including toilets and laboratory, Ceiling linings	Flat fibre cement sheet	S5	No asbestos detected	-	-	-	-	-	-

Location	Material Type	Sample ID	Laboratory result	Conditon	Friable / Non-Friable	Approximate extent	Recommendation	Is the area accessible	Photograph
Production building, Internal, Eastern office area, Floor covering	Mottled cream vinyl sheeting	S6	No asbestos detected SMF detected	-	-	-	-	-	-
ASBESTOS MATERIALS (Cont.)									
Production building, Internal, Eastern office area, North storage rooms, Floor covering	Green vinyl tiles	S7	Chrysotile asbestos detected	Generally intact	Non-friable	$10m^2$	Remove prior to demolition works	Yes	
Production building, Internal, Air-conditioning ductwork	Foil backed insualtion	S8	No asbestos detected SMF detected	-	-	-	-	-	-
Production building, Internal, Southern warehouse, Hot water pipework	Insulation	S9	No asbestos detected SMF detected	-	-	-	-	-	-
Production building, Internal, Electrical switchboards	Potential electrical backing board	NA - Metal cover	NA - Potential asbestos material	Unknown	Unknown	Unknown	Inspect prior to demolition works. Remove is suspected to contain asbestos	No (metal cover)	
Production building, Internal/External, Fire doors	Potential internal insulation	NA - Sealed units	NA - Potential asbestos material	Generally intact	Unknown	8 Units	Remove prior to demolition works	No (sealed units)	

Warehouse building, Internal, Eastern wall, Upper infill panels	Flat fibre cement sheet	NA - height restriction	NA - Potential asbestos material	Generally intact	Non-friable	40m^2	Remove prior to demolition works	No (height restriction)	
Location	**Material Type**	**Sample ID**	**Laboratory result**	**Conditon**	**Friable / Non-Friable**	**Approximate extent**	**Recommendation**	**Is the area accessible**	**Photograph**
ASBESTOS MATERIALS (Cont.)									
Warehouse building, Internal, North-east corner, Bathroom, Floor covering	Pink vinyl tile	S10	No asbestos detected	-	-	-	-	-	-
Warehouse building, Internal, North-east corner, Amenities entry foyer, Floor covering	Grey vinyl tile	S11	No asbestos detected	-	-	-	-	-	-
Warehouse building, Internal/External, Fire exit doors	Potential internal insulation	NA - Sealed units	NA - Potential asbestos material	Generally intact	Unknown	6 Units	Remove prior to demolition works	No (sealed units)	
Warehouse building, Internal, Electrical switchboards	Potential electrical backing board	NA - Metal cover	NA - Potential asbestos material	Unknown	Unknown	Unknown	Inspect prior to demolition works. Remove is suspected to contain asbestos	No (metal cover)	
Warehouse building, Internal, Concrete slab joins	Mastic	S12	No asbestos detected	-	-	-	-	-	-
Warehouse building, Internal, Air-conditioning ductwork	Foil wrapped insulation	S13	No asbestos detected SMF detected	-	-	-	-	-	-
Security sheds, External, Beneath shed, Concrete brick piers, Packers	Fibre cement sheet	S14	No asbestos detected	-	-	-	-	-	-

1-15 Sturt Street, Smithfield, NSW
Hazardous Building Materials Register - 16/03/2017

Location	Material Type	Sample ID	Laboratory result	Conditon	Friable / Non-Friable	Approximate extent	Recommendation	Is the area accessible	Photograph
SYNTHETIC MINERAL FIBRE (SMF)									
Production building, Internal, Eastern office area, Floor covering	Mottled cream vinyl sheeting	S6	No asbestos detected SMF detected	Generally intact	Non-friable	>100m^2	Maintain in current condition. Remove prior to demolition.	Yes	
Production building, Internal, Air-conditioning ductwork	Foil backed insualtion	S8	No asbestos detected SMF detected	Generally intact	Non-friable	>100m^2	Maintain in current condition. Remove prior to demolition.	No (access via ladder only)	
Production building, Internal, Underside of roof	Foil backed insulation	NA - Similar to sample S8	NA - Presumed to contain SMF	Generally intact	Non-friable	>100m^2	Maintain in current condition. Remove prior to demolition.	No (height retsricted)	

Location	Material Type	Sample ID	Laboratory result	Conditon	Friable / Non-Friable	Approximate extent	Recommendation	Is the area accessible	Photograph
SYNTHETIC MINERAL FIBRE (SMF) (Cont.)									
Production building, Internal, Southern warehouse, Hot water pipework	Insulation	S9	No asbestos detected SMF detected	Generally intact	Non-friable	$2m^2$	Maintain in current condition. Remove prior to demolition.	No (access via ladder only)	
Warehouse building, Internal, Air-conditioning ductwork	Foil wrapped insulation	S13	No asbestos detected SMF detected	Generally intact	Non-friable	>$100m^2$	Maintain in current condition. Remove prior to demolition.	No (access via ladder only)	
Warehouse building, Internal, Underside of roof	Foil backed insulation	NA - Similar to sample S13	NA - Presumed to contain SMF	Generally intact	Non-friable	>$100m^2$	Maintain in current condition. Remove prior to demolition.	No (height retsricted)	

1-15 Sturt Street, Smithfield, NSW
Hazardous Building Materials Register - 16/03/2017

Location	Material Type	Sample ID	Laboratory result	Conditon	Friable / Non-Friable	Approximate extent	Recommendation	Is the area accessible	Photograph
LEAD IN PAINT									
Production building, External, Eaves and awnings	Peeling white paint	LP1	0.09% (less than the criteria of 1.0%)	-	-	-	-	-	-
LEAD IN DUST									
Production building, Internal, General surfaces	Dust	D1	0.29 mg/m^2 (less than 8 mg/m^2)	-	-	-	-	-	-

1-15 Sturt Street, Smithfield, NSW
Hazardous Building Materials Register - 16/03/2017

Location	Material Type	Sample ID	Laboratory result	Conditon	Friable / Non-Friable	Approximate extent	Recommendation	Is the area accessible	Photograph
POLYCHLORINATED BIPHENYLS (PCBS)									
Production building, Throughout building	Twin tube fluorescent light fittings	NA - Visually inspected	NA - Potential age to contain PCBs	Generally intact	-	25 Units	Inspect by electrician prior to demolition	No (access via ladder only)	
Warehous building, Throughout building	Twin tube fluorescent light fittings	NA - Visually inspected	NA - Potential age to contain PCBs	Generally intact	-	20 Units	Inspect by electrician prior to demolition	No (access via ladder only)	
Security Sheds, Internal	Single tibe fluorescent light fittings	NA - Visually inspected	NA - Potential age to contain PCBs	Generally intact	-	4 Units	Inspect by electrician prior to demolition	No (access via ladder only)	

Appendix B: Laboratory Report and Chain of Custody Documents

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: E28497K Date Results Required: 48hr TA Page: 1 of 1	ENVIRONMENTAL INVESTIGATION SERVICES REAR OF 115 WICKS ROAD MACQUARIE PARK, NSW 2113 P: 02-9888 5000 F: 02-9888 5001 Attention: Harry Leonard

EIS

Location: Smithfield

Sampler: HL

Tests Required

Date Sampled	Lab Ref:	Sample Number	Sample Container	Sample Description	Asbestos	Lead (mg/kg)	Lead (µg/swab)						
13/3/17	1	S1	P	material	X								
	2	S2	P		X								
	3	S3	P		X								
	4	S4	P		X								
	5	S5	P		X								
	6	S6	P		X								
	7	S7	P		X								
	8	S8	P		X								
	9	S9	P		X								
	10	S10	P		X								
	11	S11	P		X								
	12	S12	P		X								
	13	S13	P		X								
	14	S14	P		X								
	15	LP1	P	paint		X							
	16	D1	P	dust (swab)			X						

Envirolab Services
12 Ashley St
Chatswood NSW 2067
Ph: (02) 9910 6200
ENVIROLAB
Job No: 163402
Date Received: 13.03.17
Time Received: 12.30
Received by: JC
Temp: Cool/Ambient
Cooling: Ice/Icepack
Security: Intact/Broken/None

Remarks (comments/detection limits required):

PLEASE REPORT LEAD IN PAINT AS mg/kg

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

Relinquished By:	Date:	Time:	Received By:	Date:
[signature]	13/3/2017.		[signature]	13.3.17

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

SAMPLE RECEIPT ADVICE

Client Details	
Client	Environmental Investigation Services
Attention	Harry Leonard

Sample Login Details	
Your Reference	E28497K, Smithfield
Envirolab Reference	**163402**
Date Sample Received	13/03/2017
Date Instructions Received	13/03/2017
Date Results Expected to be Reported	**15/03/2017**

Sample Condition	
Samples received in appropriate condition for analysis	YES
No. of Samples Provided	14 material, 1 paint, 1 swab
Turnaround Time Requested	48hr
Temperature on receipt (°C)	-
Cooling Method	None
Sampling Date Provided	YES

Comments
Samples will be held for 1 month for water samples and 2 months for soil samples from date of receipt of samples

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@envirolabservices.com.au	Email: jhurst@envirolabservices.com.au

Sample and Testing Details on 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
enquiries@envirolabservices.com.au
www.envirolabservices.com.au

Sample Id	*Asbestos ID - materials*	*Lead in Paint*	*Lead in swab*
S1	✓		
S2	✓		
S3	✓		
S4	✓		
S5	✓		
S6	✓		
S7	✓		
S8	✓		
S9	✓		
S10	✓		
S11	✓		
S12	✓		
S13	✓		
S14	✓		
LD1		✓	
D1			✓

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

12 Ashley Street, Chatswood, NSW 2067
tel: +61 2 9910 6200

email: sydney@envirolab.com.au
envirolab.com.au

Envirolab Services Pty Ltd - Sydney | ABN 37 112 535 645

CERTIFICATE OF ANALYSIS 163402

Client:

Environmental Investigation Services
PO Box 976
North Ryde BC
NSW 1670

Attention: Harry Leonard

Sample log in details:

Your Reference:	**E28497K, Smithfield**
No. of samples:	14 material, 1 paint, 1 swab
Date samples received / completed instructions received	13/03/17 / 13/03/17

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: / Issue Date:	15/03/17 / 15/03/17
Date of Preliminary Report:	Not Issued

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:

David Springer
General Manager

ACCREDITED FOR TECHNICAL COMPETENCE

Asbestos ID - materials						
Our Reference:	UNITS	163402-1	163402-2	163402-3	163402-4	163402-5
Your Reference	-------------	S1	S2	S3	S4	S5
Date Sampled	------------	13/03/2017	13/03/2017	13/03/2017	13/03/2017	13/03/2017
Type of sample		Material	Material	Material	Material	Material
Date analysed	-	14/03/2017	14/03/2017	14/03/2017	14/03/2017	14/03/2017
Mass / Dimension of Sample	-	40x20x5mm	30x15x7mm	30x29x4mm	55x50x5mm	35x15x5mm
Sample Description	-	Beige fibre cement material	Grey fibre cement material	Grey fibre cement material	Beige compressed fibre cement material	Beige fibre cement material
Asbestos ID in materials	-	No asbestos detected Organic fibre detected	Chrysotile asbestos detected Amosite asbestos detected Crocidolite asbestos detected	Chrysotile asbestos detected Amosite asbestos detected Crocidolite asbestos detected	No asbestos detected Organic fibre detected	No asbestos detected Organic fibre detected

Asbestos ID - materials						
Our Reference:	UNITS	163402-6	163402-7	163402-8	163402-9	163402-10
Your Reference	-------------	S6	S7	S8	S9	S10
Date Sampled	------------	13/03/2017	13/03/2017	13/03/2017	13/03/2017	13/03/2017
Type of sample		Material	Material	Material	Material	Material
Date analysed	-	14/03/2017	14/03/2017	14/03/2017	14/03/2017	14/03/2017
Mass / Dimension of Sample	-	85x61x2mm	60x45x3mm	60x30x3mm	95x40x7mm	120x65x3mm
Sample Description	-	Beige/Black flexi vinyl tile & adhesive	A)Green vinyl tile B)Adhesive	Beige vitreous fibrous insulation	White vitreous fibrous material & paint	Brown brittle vinyl tile
Asbestos ID in materials	-	No asbestos detected Synthetic mineral fibres detected	A)Chrysotile asbestos detected B)No asbestos detected	No asbestos detected Synthetic mineral fibres detected	No asbestos detected Synthetic mineral fibres detected	No asbestos detected Organic fibre detected

Asbestos ID - materials					
Our Reference:	UNITS	163402-11	163402-12	163402-13	163402-14
Your Reference	-------------	S11	S12	S13	S14
Date Sampled	------------	13/03/2017	13/03/2017	13/03/2017	13/03/2017
Type of sample		Material	Material	Material	Material
Date analysed	-	14/03/2017	14/03/2017	14/03/2017	14/03/2017
Mass / Dimension of Sample	-	95x72x2mm	20x12x9mm	65x35x2mm	45x35x5mm
Sample Description	-	Grey brittle vinyl tile	Grey rubbery mastic material	Yellow vitreous fibrous insulation	Beige compressed fibre cement material
Asbestos ID in materials	-	No asbestos detected Organic fibre detected	No asbestos detected	No asbestos detected Synthetic mineral fibres detected	No asbestos detected Organic fibre detected

Lead in Paint		
Our Reference:	UNITS	163402-15
Your Reference	------------- -	LD1
Date Sampled	------------	13/03/2017
Type of sample		Paint
Date prepared	-	14/03/2017
Date analysed	-	14/03/2017
Lead in paint	%w/w	0.09

Lead in swab		
Our Reference:	UNITS	163402-16
Your Reference	-------------	D1
Date Sampled	------------	13/03/2017
Type of sample		Swab
Date prepared	-	14/03/2017
Date analysed	-	14/03/2017
Lead in Swabs	µg/swab	26

Method ID	Methodology Summary
ASB-001	Asbestos ID - Qualitative identification of asbestos in bulk samples using Polarised Light Microscopy and Dispersion Staining Techniques including Synthetic Mineral Fibre and Organic Fibre as per Australian Standard 4964-2004.
Metals-004	Digestion of Paint chips/scrapings/liquids for Metals determination by ICP-AES/MS and or CV/AAS.
Metals-005	Digestion of Dust wipes/swabs and /or miscellaneous samples for Metals determination by ICP-AES/MS and/or CV-AAS

QUALITY CONTROL Lead in Paint	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date prepared	-			14/03/2017	[NT]	[NT]	LCS-1	14/03/2017
Date analysed	-			14/03/2017	[NT]	[NT]	LCS-1	14/03/2017
Lead in paint	%w/w	0.05	Metals-004	<0.05	[NT]	[NT]	LCS-1	103%

QUALITY CONTROL Lead in swab	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date prepared	-			14/03/2017	[NT]	[NT]	LCS-1	14/03/2017
Date analysed	-			14/03/2017	[NT]	[NT]	LCS-1	14/03/2017
Lead in Swabs	µg/swab	1	Metals-005	<1	[NT]	[NT]	LCS-1	106%

Report Comments:

Sample 163402-7; The supplied sample was sub-sampled (163402-7A & 163402-7B) in order to accurately report the analytical results representative of the entire sample, as per AS4964-2004.

Asbestos ID was analysed by Approved Identifier: Paul Ching
Asbestos ID was authorised by Approved Signatory: Paul Ching

INS: Insufficient sample for this test	PQL: Practical Quantitation Limit	NT: Not tested
NR: Test not required	RPD: Relative Percent Difference	NA: Test not required
<: Less than	>: Greater than	LCS: Laboratory Control Sample

Quality Control Definitions

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

Duplicate: This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.

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

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

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

Laboratory Acceptance Criteria

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

Duplicates: <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.