



**Report Type:** Combined Stage 1 & 2 Environmental Site Assessment  
**Site Address:** Proposed Inner Sydney High School, Cleveland Street, Surry Hills, NSW  
**Report Number:** 2187/ER-1-1 (Revision 2)  
**Report Date:** 12<sup>th</sup> May 2017

**Prepared for**

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12<sup>th</sup> May 2017

NSW Department of Education and Communities  
C/o Root Projects Australia  
Level 5, 27 – 31 Macquarie Place  
Sydney, NSW, 2000

RE: COMBINED STAGE 1 & 2 ENVIRONMENTAL SITE ASSESSMENT – PROPOSED INNER SYDNEY HIGH SCHOOL, CLEVELAND STREET, SURRY HILLS, NSW

Alliance Geotechnical Pty Ltd (AG) hereby submits this Combined Stage 1 & 2 Environmental Site Assessment (ESA) of the above site.

This report documents the findings of all completed environmental tasks, including reviews of historical information, statutory notices and a site inspection to assess areas of environmental concern. Soil samples were collected to characterise the soils at the site for contamination assessment. Based on the desktop study findings, field observations and laboratory data, conclusions are drawn regarding the suitability of the proposed land use for the site, with recommendations for additional action, if necessary.

Should you require further information or clarification regarding any aspect of this report, please call the undersigned on 1800 288 188.

For and on behalf of,  
Alliance Geotechnical Pty Ltd



Benjamin Regan  
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Senior Environmental Consultant  
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## EXECUTIVE SUMMARY

Alliance Geotechnical Pty Ltd (AG) was engaged by NSW Department of Education and Communities c/o Root Projects Australia (the client), to conduct a combined Stage 1 & 2 Environmental Site Assessment (ESA) (contamination assessment) at the proposed inner Sydney high school (ISHS), Cleveland Street, Surry Hills, NSW (herein referred to as 'the site'), see **Figure 1**. The site was currently the Cleveland Street Intensive English High School and was legally identified as Lot 1 in DP 797483, Lot 1 in DP 797484 and Lot 8 in DP 821649 and covered an area of approximately 5,728 m<sup>2</sup> (see **Figure 2**). The investigation was completed in general accordance with the *National Environment Protection (Assessment of Site Contamination) Amendment Measure 2013* (NEPC 2013) and the *NSW State Environmental Planning Policy No. 55 – Remediation of Land* (SEPP 55).

At the time of reporting, the site was used as a school. The proposed development includes the following (refer to plans in **Appendix A**):

- Excavation of an underground basement within Lot 8 DP 821649 and construction of a multi-storey tower for continued use as a school; and
- Refurbishment of the remaining, heritage listed buildings at the site.

Based on the development plans, soil investigation works have been completed in the proposed new building footprint only. Due to the potential for contamination and the sensitive land use of the site, a combined Stage 1 & 2 Environmental Site Assessment was required to support the development application.

The objectives of this investigation were to:

- Assess the potential for soil and groundwater contamination at the site, based on a review of site setting and past land uses (i.e. site history); and
- Characterise the soil at the site and make a statement regarding the suitability of the site for the proposed land use.

The scope of works was outlined by the client in the NSW Department of Education and Communities Request for Quotation (RFQ) and included the following:

- Review the 11<sup>th</sup> August 2015 Perumal Pedavoli Architects Design Options Report and Land Survey Plan from Blume Consultant Surveyors;
- Search NSW EPA records for contamination at the site and adjoining park;
- Review Section 149 Certificate for site;
- Provide (where applicable) a definition of the EPA and Section 149 recorded information with regard to the Chalmers Street site and the park;
- Inspect the site and review available records / documents kept on-site. Discuss the existing use, activities and operation with facility management at the site and on the telephone;
- Discuss the site with the Heritage and Archaeology consultants to gain a broader understanding of past land use, activities and impacts;
- Identify the current ground water condition and ground water level over the site from a desk top;
- Identify the known and likely soil types at depth intervals from a desk top study and identify known or potential subterranean stability and hydrologic issues at the site;
- Based on the historical assessment, identify locations for borehole excavation. Complete an intrusive soil sampling investigation and have samples laboratory tested for a range of contaminants;

- In the instance where it can be established that contamination does exist within the site, provide an estimate on the volume and type of contaminated material; and
- Complete an Environmental Site Assessment (Contamination) and Geotechnical Assessment Report. The contamination assessment report has been completed in general accordance with NEPC (2013) and SEPP 55. The geotechnical investigation report has been completed under a separate cover.

Prior to 1856 the area of the school was part of an area known as 'Cleveland Paddock'. The original school building was constructed at the corner of Cleveland and Chalmers Street (formerly Castlereagh Street) on the eastern lot that comprises the site. In 1858, Cleveland and Chalmers Streets were elevated approximately 6 feet to the current elevation which included bulk fill earthworks. Between 1867 and 1909, the original school building was demolished, the southern lot that comprises the site was purchased and over the years a number of new buildings were constructed (including buildings of heritage significance). From 1909 to 1968 a number of smaller buildings were added (including buildings of fibro construction) and in 1958 a fire damaged a number of buildings. The buildings damaged by the fire were later demolished. In 1968 the western lot that comprises the site was purchased and a new building was constructed (i.e. Block 4, the concrete building). The site was used as a school from 1856 until present.

A suitably qualified and experienced environmental scientist from AG inspected the site on 21<sup>st</sup> January 2016 with the following observations made (refer to **Appendix B** for site photographs):

- The site appeared to comprise four main buildings, a bitumen courtyard / recreation area, a bitumen car park and multiple trees;
- The site buildings appeared to be constructed of brick, concrete, sandstone masonry and tile. During the investigation, the interior of the structures were inaccessible and were not included in the assessment. Other inaccessible areas included the heritage areas and the majority of the site surface as a result of bitumen covering;
- All site vegetation appeared to be in a good condition with no observed vegetation stress or plant die-off;
- No underground storage tanks (USTs), above-ground storage tanks (ASTs) or bulk storage of fuels, pesticides, or other hazardous materials was observed; and
- During borehole excavation, fill material was observed at all locations at depths ranging from near surface (0.1 m bgs i.e. below the bitumen layer) to 0.6 – 1.8 m bgs. Fill material was observed to consist of gravelly silty clay, gravelly silty sand and silty sand. No hydrocarbon odours were observed and no asbestos containing material (ACM) was observed. Foreign materials including gravels and minor ash and potential slag was observed in the fill material at all borehole locations.

Based on the findings of the historical assessment and site observations, it was concluded that the site had a moderate risk of soil and/or groundwater contamination. The historical assessment indicated the potential for fill material as a result of imported material / earthworks, removal of former buildings, burying of rubbish, a building fire and subsequent demolition of buildings in 1958 and the potential for hazardous building materials (lead paint, asbestos etc.) to have been used in current / former structures. Contamination at the site was likely to be limited to near surface soils and could potentially include localised areas of fill material.

Based on the proposed development including excavation of soils for basement construction and subsequent construction of a high rise school building, the risk of human health impacts on future site users is very low. It is more likely that any contamination at the site could pose a risk to site workers and site users (if the school is operational) during the proposed development works. It is recommended that a soil sampling program should be undertaken to assess the concentrations of COPCs in the site soils to determine whether the site is suitable

for the proposed land use, to classify the soils in the proposed basement excavation for off-site disposal and to ensure the site soils are appropriately managed during construction works.

AG contracted Eurofins MGT at Lane Cove, NSW as the primary laboratory and Envirolab Services at Chatswood, NSW as the secondary laboratory for the soil sample analysis. The laboratories were NATA accredited for the selected analyses. Laboratory analysis of samples was conducted with reference to AECs/COPCs discussed in **Section 5**. The completed analysis schedule is summarised in the table below:

AEC	Number of Samples Locations and Sample ID	Analysis Schedule (excluding QA/QC)
Fill material	8 soil bore locations (BH1 to BH8) including samples at multiple depths.	Heavy Metals – 8 samples PAHs – 8 samples Asbestos – 8 samples OCP/PCB – 8 samples TPH/BTEX – 8 soil samples

Laboratory results indicated that there were no exceedances of the adopted site assessment criteria with the exception of benzo(a)pyrene TEQ concentrations at BH1-0.1-0.3 (7.3 mg/kg), BH3-0.3-0.4 (5.1 mg/kg), BH4-0.3-0.4 (32 mg/kg), BH5-0.3-0.4 (15 mg/kg), BH6-0.3-0.4 (25 mg/kg) and BH8-0.3-0.4 (6.5 mg/kg) reported by the laboratory to be above the site assessment criteria (4 mg/kg).

Due to ash and suspected slag observed at all soil sample locations, the high benzo(a)pyrene concentrations were anticipated to be immobilised within the ash matrix. Soil samples BH4-0.3-0.4 and BH6-0.3-0.4 were analysed by the laboratory for TCLP-PAHs to identify the leachable concentration of the PAHs. The TCLP data indicated that the PAHs were immobilised and given that the soils were sealed with a bitumen hardstand, the soils did not pose a risk to human health.

The soil samples were also assessed in accordance with the *NSW EPA Waste Classification Guidelines* (NSW EPA 2014) and the fill material at all locations was classified as **General Solid Waste – Non Putrescible**.

It was concluded that based on the findings of this assessment and the Limitations in **Section 11**, and in accordance with NEPC (2013) and SEPP 55, the site was considered to be suitable for the proposed school land use. It is recommended that during any further development that the site soils are appropriately managed under a construction environmental management plan (CEMP) to mitigate potential exposure of PAHs to site workers. It is also recommended that the CEMP should include an unexpected finds protocol to identify appropriate controls and procedures in circumstances where previously unidentified contamination is encountered during redevelopment.

## 1.0 INTRODUCTION

### 1.1 Background

Alliance Geotechnical Pty Ltd (AG) was engaged by NSW Department of Education and Communities c/o Root Projects Australia (the client), to conduct a combined Stage 1 & 2 Environmental Site Assessment (ESA) (contamination assessment) at the proposed inner Sydney high school, Cleveland Street, Surry Hills, NSW (herein referred to as 'the site'), see **Figure 1**. The site was currently the Cleveland Street Intensive English High School and was legally identified as Lot 1 in DP 797483, Lot 1 in DP 797484 and Lot 8 in DP 821649 and covered an area of approximately 5728 m<sup>2</sup> (see **Figure 2**).

At the time of reporting, the site was used as a school. The proposed development includes the following (refer to plans in **Appendix A**):

- Excavation of an underground basement within Lot 8 DP 821649 and construction of a multi-storey tower for continued use as a school; and
- Refurbishment of the remaining, heritage listed buildings at the site.

Based on the development plans, soil investigation works have been completed in the proposed new building footprint only. Due to the potential for contamination and the sensitive land use of the site, a combined Stage 1 & 2 Environmental Site Assessment was required to support the development application.

This report documents the findings of all environmental tasks completed by AG, including a site history review, a site inspection and a review of soil & groundwater laboratory data. Based on the investigation, conclusions are drawn regarding the suitability of the site for the proposed development, with recommendations for additional action, if necessary. The investigation has been developed in general accordance with relevant guidelines made or approved by the NSW Environment Protection Authority (EPA) including NEPC (2013) and SEPP 55.

### 1.2 Objective

The investigation objectives include:

- Evaluation of potential Areas of Environmental Concern (AECs) and associated Contaminants of Potential Concern (COPCs) based on available historical information and a site inspection;
- Execute a soil sampling program to assess the AECs/COPCs; and
- Prepare a site environmental assessment to determine the suitability of the site for the proposed development.

### 1.3 Scope of Work

The scope of works was outlined by the client in the NSW Department of Education and Communities Request for Quotation (RFQ) and included the following:

- Review the 11<sup>th</sup> August 2015 Perumal Pedavoli Architects Design Options Report and Land Survey Plan from Blume Consultant Surveyors;
- Search NSW EPA records for contamination at the site and adjoining park;
- Review Section 149 Certificate for site;
- Provide (where applicable) a definition of the EPA and Section 149 recorded information with regard to the Chalmers Street site and the park;

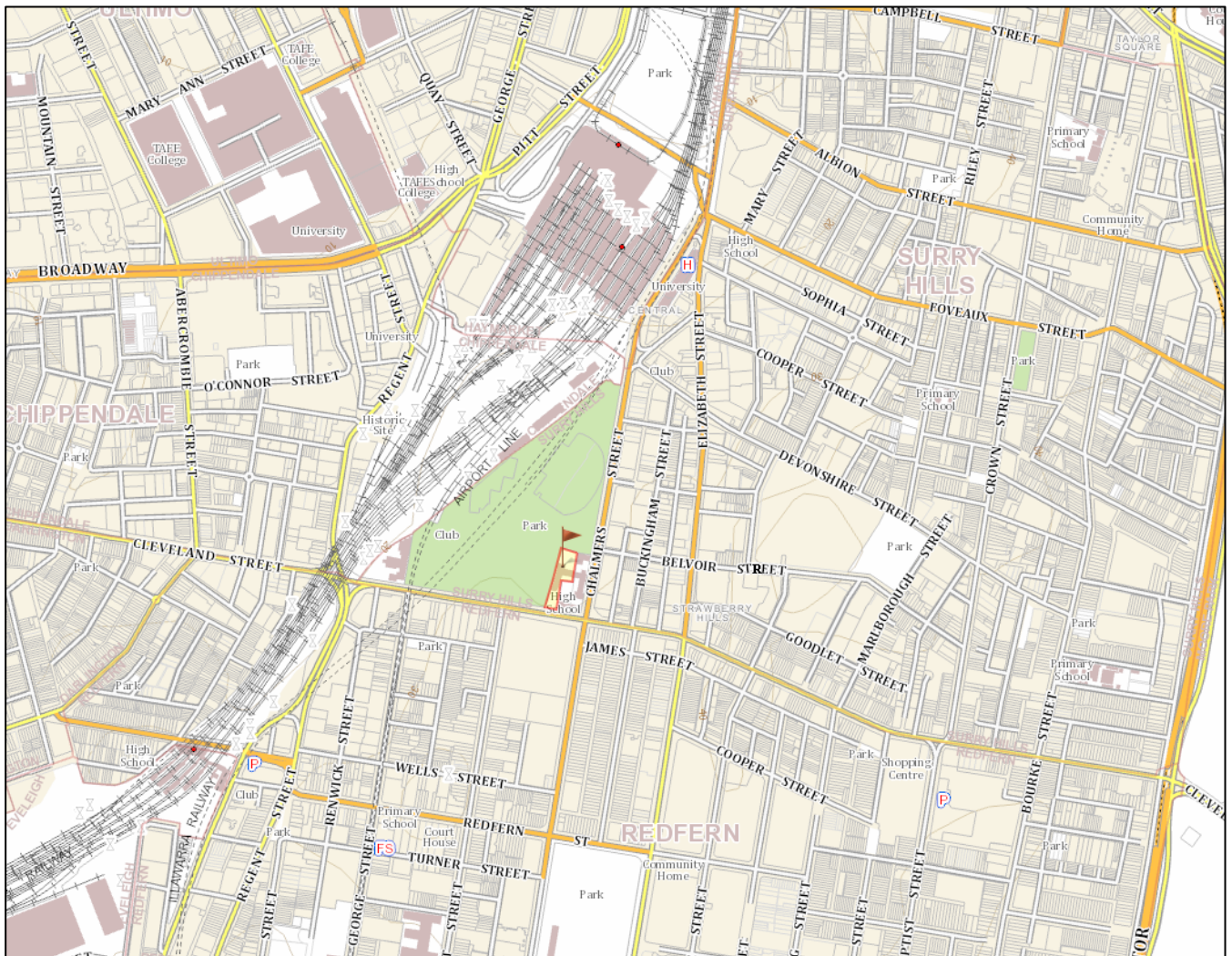


- Inspect the site and review available records / documents kept on-site. Discuss the existing use, activities and operation with facility management at the site and on the telephone;
- Discuss the site with the Heritage and Archaeology consultants to gain a broader understanding of past land use, activities and impacts;
- Identify the current ground water condition and ground water level over the site from a desk top;
- Identify the known and likely soil types at depth intervals from a desk top study and identify known or potential subterranean stability and hydrologic issues at the site;
- Based on the historical assessment, identify locations for borehole excavation. Complete an intrusive soil sampling investigation and have samples laboratory tested for a range of contaminants;
- In the instance where it can be established that contamination does exist within the site, provide an estimate on the volume and type of contaminated material; and
- Complete an Environmental Site Assessment (Contamination) and Geotechnical Assessment Report. The contamination assessment report has been completed in general accordance with NEPC (2013) and SEPP 55. The geotechnical investigation report has been completed under a separate cover.

## 2.0 SITE LOCATION AND IDENTIFICATION

### 2.1 Site Details

The site was located at 242 – 244 Cleveland Street, Surry Hills, NSW (Ref. **Figure 1**). It was further identified as Lot 1 in Deposited Plan (DP) 797483, Lot 1 in DP 797484 and Lot 8 in DP 821649. The approximate geographic coordinates of the centre of the site were -33.889136 E, 151.205812 N. The site was an irregular shaped parcel of land, and covered an area of approximately 5,728 m<sup>2</sup>. The area of soil investigation i.e. the area of the proposed new building was approximately 1,200 m<sup>2</sup>.



**Figure 1: Locality Map**



## 2.2 Site Features

The site consisted of four school buildings, a bitumen courtyard / recreation area, a bitumen car park and multiple trees. The site features are shown in **Figure 2** below and are discussed further in **Section 4**.

Photographs taken during the site inspection are included in **Appendix B**.



Figure 2: Site Layout and Features

### 3.0 SITE HISTORY

#### 3.1 Current and Proposed Land Use

The site is currently used as a school, refer to surveyors plans in **Appendix A**. The site is proposed to be redeveloped for continued use as a school. Due to the preliminary stage of the project, only design options for the proposed development were available (refer to Perumal Pedavoli Architects Design Options Report (PPA 2015<sup>1</sup>).

A review of PPA (2015) identified that design options included potential excavation of an underground basement for car parking and construction of a high-rise building (12 storeys).

#### 3.2 Surrounding Land Use

The current land use of the surrounding areas included:

- Recreational land use (Prince Alfred Park) to the north, including recreational grassed areas, a public swimming pool and gardens. The majority of vegetation within Prince Alfred Park did not show signs of plant stress or vegetation die-off. The area adjacent to the northern boundary of the park was Sydney Central Rail Station;
- Chalmers Street to the east, beyond which was commercial / residential land use (Cafes, homewares stores, other miscellaneous shops with office and residential units above street level);
- Cleveland Street to the south, beyond which was a large commercial building (Prince Alfred Park Building which included Australia Post and a number of smaller businesses within a large office block); and
- Recreational land use (Prince Alfred Park), which was mainly a large open grassed area.

Generally, there were no large scale industrial land uses, service stations or other sites with bulk storage of dangerous goods in the vicinity of the site (i.e. within an approximate 200 m radius). Therefore the risk of contamination migration from nearby properties was very low.

#### 3.3 Review of Section 149 Certificate

During this assessment, AG completed a review of the Planning Certificate under Section 149 (2) & (5) of the Environmental Planning and Assessment Act 1979 (herein referred to as the Section 149 Certificate) for the site. The Section 149 Certificate has been attached in **Appendix C** and the information within has been summarized below:

- The site was zoned B4 Mixed Use (Sydney Local Environmental Plan 2012). Home occupations were permitted without consent. The following land uses were permitted with consent: Boarding houses, Child care centres; Commercial premises; Community facilities; Educational establishments; Entertainment facilities; Function centres; Hotel or motel accommodation; Information and education facilities; Medical centres; Passenger transport facilities; Recreational facilities (indoor); Registered clubs; Respite day care centres; Restricted premises; Roads; Seniors housing; Shop top housing; Any other development not specified. Prohibited land uses included Extractive industries; heavy industrial storage establishments; Heavy industries.

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<sup>1</sup> Design Options Report, Perumal Pedavoli Architects (PPA), 11<sup>th</sup> August 2015 (PPA 2015)

- The site **is not** affected by a policy adopted by the Council that restricts the development of the land because of the likelihood of land slip, bushfire, flooding, tidal inundation, subsidence, acid sulphate soils or any other risk;
- The site **was not** declared to be **significantly contaminated land** within the meaning of the Contaminated Land Management Act 1997 (CLM Act 1997) as at the date when the certificate was issued;
- The site **was not** subject to a **management order** within the meaning of the Contaminated Land Management Act 1997 (CLM Act 1997) as at the date when the certificate was issued;
- The site **was not** the subject of an **approved voluntary management proposal** within the meaning of the Contaminated Land Management Act 1997 (CLM Act 1997) as at the date when the certificate was issued;
- The site **was not** the subject of an **ongoing management order** within the meaning of the Contaminated Land Management Act 1997 (CLM Act 1997) as at the date when the certificate was issued;
- As at the date when the certificate was issued, Council **has not** identified that a **site audit statement** within the meaning of the Contaminated Land Management Act 1997 (CLM Act 1997) has been received in respect of the site.
- Council records do not have sufficient information about the uses (including previous uses) of the site to confirm that the land has not been used for a purpose which would be likely to have contaminated the land. Parties should make their own enquiries as to whether the land may be contaminated.

### 3.4 Permits, Licenses, Approvals and Complaint History

A review of the NSW EPA List of Contaminated Sites was completed on 16<sup>th</sup> March 2016. The results indicated that the site (and Prince Alfred Park) was not the subject of any notifications to the NSW EPA under Section 60 of the Contaminated Land Management Act 1997 (CLM Act 1997). The results of the search are attached in **Appendix D**.

A review of the NSW EPA Record of Notices was completed on 16<sup>th</sup> March 2016. The results indicated that the site (and Prince Alfred Park) was not the subject of any notifications to the NSW Office of Environment and Heritage under Section 58 of the CLM Act 1997. The results of the search are attached in **Appendix D**.

A review of the public register under the Protection of the Environment Operations Act 1997 (the POEO Act) was completed on 16<sup>th</sup> March 2016. The results indicated that no environment protection licenses, penalty notices issued by the NSW EPA, convictions under the POEO Act or pollution studies and reduction programs applied to the site and/or Prince Alfred Park. The results of the search are attached in **Appendix D**.

### 3.5 Review of Heritage & Archaeology Consultants Reports

During this assessment, AG completed a review of *A History of Cleveland Street School – Final Report* (Kass 2002<sup>2</sup>). In summary:

- The land that the school was built on was a portion of a government owned area called Cleveland Paddock;

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<sup>2</sup> *A History of Cleveland Street School – Final Report*, Terry Kass, Historian and Heritage Consultant, March 2002 (Kass 2002).

- In 1856, an area was set aside for school construction (the site) and the original school building was constructed. The original structures were constructed with iron and were noted to be of poor quality. The property adjacent to the west of the school building was a Wesleyan Manse (i.e. church accommodation);
- The school bordered an area of Sydney known at the time as “The Sandhills”, the area between Sydney and Botany Bay. Deposition of sands, caused by windblown dusts, had caused low-lying areas including the site to be built up;
- In June 1857, a sewer which ran through the school grounds broke which caused damage. In addition, due to the sandy nature of the soil, the grounds were very wet and would not drain (refer to **Appendix A** for location of sewer);
- In February 1858, Council completed works (including earthworks) to raise the street levels of Cleveland & Chalmers Streets (adjacent to the school) by approximately 6 feet above the ground level of the school. The school was positioned in a hollow next to the street corner;
- In 1867, the school was re-built due to dilapidation of the original iron building and the increase in the number of students. The new school building was constructed with wood and sandstone on piers that elevated the school to street level. The building constructed at this time was the building in the south-eastern corner of the site. The cavity underneath the new building was initially used as a play area, but later as classrooms. During construction, temporary school buildings were erected in the area to the west (i.e. potentially in the area of the present day car park and area of proposed excavation);
- In 1891, the Wesleyan Manse to the west of the school was purchased and minor alterations were completed in the conversion of the building into the Girls School. During construction, an area of buried paper and rubbish was identified. Also, a retaining wall was constructed between the Girls School and Cleveland Street;
- In 1909, a new school building was constructed in the northern portion of the site.
- Many smaller additions were constructed between 1916 and 1945. A fire burnt out part of the school in 1958. In 1968, the area of the western portion of the site was purchased and a concrete building in the new portion of the site was constructed. The site continued use as a high school until 1981.

During the assessment, AG also completed a review of the site Draft Conservation Management Plan (CMP<sup>3</sup>) which was prepared in 2002. The CMP identified the school buildings as Blocks 1, 2, 3 & 4 (for Block references, see **Figure 2**) and identified the building materials used to construct each Block. Blocks 1 & 2 (i.e. the buildings constructed in 1867, 1891 & 1909) were identified as being of high heritage significance. Block 3, the building in the northern portion of the site constructed in 1909, was identified as being of moderate heritage significance. The conservation policy does not place any restrictions on intervention with Block 4 i.e. the western building.

### 3.6 Site History Summary

In summary, prior to 1856 the area of the school was part of an area known as ‘Cleveland Paddock’. The original school building was constructed at the corner of Cleveland and Chalmers Street (formerly Castlereagh Street) on the eastern lot that comprises the site. In 1858, Cleveland and Chalmers Streets were elevated approximately 6 feet to the current elevation which included bulk fill earthworks. Between 1867 and 1909, the original school building was demolished, the southern lot that comprises the site was purchased and over the years a number of new buildings were constructed (including buildings of heritage significance).

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<sup>3</sup> Draft Conservation Management Plan, Cleveland Street Intensive English Centre, 244 Cleveland Street, Surry Hills, Perumal, Murphy and Wu Heritage Consultants (PMW), April 2002 (PMW 2002).

From 1909 to 1968 a number of smaller buildings were added (including buildings of fibro construction) and in 1958 a fire damaged a number of buildings. The buildings damaged by the fire were later demolished. In 1968 the western lot that comprises the site was purchased and a new building was constructed (i.e. Block 4, the concrete building). The site was used as a school from 1856 until present.

## **4.0 SITE CONDITION AND SURROUNDING ENVIRONMENT**

### **4.1 Site Inspection**

A suitably qualified and experienced environmental scientist from AG inspected the site on 21<sup>st</sup> January 2016 with the following observations made (refer to **Appendix B** for site photographs):

- The site appeared to comprise four main buildings, a bitumen courtyard / recreation area, a bitumen car park and multiple trees;
- The site buildings appeared to be constructed of brick, concrete, sandstone masonry and tile. During the investigation, the interior of the structures were inaccessible and were not included in the assessment. Other inaccessible areas included the heritage areas and the majority of the site surface as a result of bitumen covering;
- All site vegetation appeared to be in a good condition with no observed vegetation stress or plant die-off;
- No underground storage tanks (USTs), above-ground storage tanks (ASTs) or bulk storage of fuels, pesticides, or other hazardous materials was observed; and
- During borehole excavation, fill material was observed at all locations at depths ranging from near surface (0.1 m bgs i.e. below the bitumen layer) to 0.6 – 1.8 m bgs. Fill material was observed to consist of gravelly silty clay, gravelly silty sand and silty sand. No hydrocarbon odours were observed and no asbestos containing material (ACM) was observed. Foreign materials including gravels and minor ash and potential slag was observed in the fill material at all borehole locations.

### **4.2 Topography and Site Drainage**

The site was located on a steady downslope towards the north of approximately 10-15 %. Information provided on the NSW Land & Property Information Spatial Information Exchange (SIX) (<https://maps.six.nsw.gov.au>) was consistent with this description and indicated that the property's elevation at the southern boundary (i.e. boundary with Cleveland Street) was approximately 30 m above sea level (i.e. 30 m Australian Height Datum (AHD)).

Due to the site being almost completely sealed with either buildings or bitumen pavement, precipitation is anticipated to be captured by the gutters and drainage systems. During the site history review and the site inspection, a stormwater drain was observed to transect the site. A number of stormwater grates were observed in the lower (northern) area of the site and are anticipated to capture the majority of site precipitation. A minor amount of precipitation is also anticipated to flow along the ground surface in the same direction as the site slope i.e. to the north, and is likely to flow into the neighbouring park.

### **4.3 Regional Geology and Soil Landscape**

Information on regional sub-surface conditions, referenced from Geological Survey of NSW / Department of Mineral Resources Sydney 1:100,000 Geological Series Sheet 9030 (GS NSW / DMR, 1983), indicated that the site overlies Quaternary Holocene medium to fine grained "marine" sand with podsols (Qhd).

Based on a review of NSW Department of Land & Water Conservation (DLWC) Acid Sulphate Soils Risk Map for Botany Bay, the site was not within an area of suspected Acid Sulphate Soils.



## 4.4 Hydrogeology

A review of the NSW Office of Water groundwater database indicated that four (4) registered groundwater bores were located within a 500 m radius of the site. Groundwater bore information was supplied by the NSW Office of Water and is shown in **Appendix D**. The groundwater bore information is summarised in **Table 4.1** below:

**Table 4.1: Groundwater Monitoring Bore Information**

Groundwater Bore ID	Distance from site (m)	Total Depth (m bgs)	Standing Water Level (m bgs)	Geology
GW109500	400 m north-west	ND	ND	ND
GW102476	400 m north-east	4.00	ND	ND
GW071907	500 m south-west	180.00	11.600	0.0 – 8.5 m – Sandy clay and clay 8.5 – 24.0 m – Shale 24.0 – 180 m – Sandstone and quartz sandstone
GW105525	500 m south-east	5.49	2.745	0.0 – 2.75 m – Sandy clay, soil land fill 2.75 – 5.49 m – Unconsolidated sand

\*ND = No data

Based on the information above, the standing water level at the site is expected to be between 2.75 and 11.6 m below ground surface. Bore holes opened mechanically across the site for viewing of the soil profile and collection of soil samples were excavated to a maximum depth of 11 m below ground surface (bgs). Slight groundwater seepage was observed during excavation of boreholes BH1 and BH7 (increased moisture was observed at depths of 8.4 m at both locations).

## 5.0 CONCEPTUAL SITE MODEL

This initial conceptual site model has been prepared in accordance with guidance provided in *Section 4 of Schedule B2 of the National Environment Protection (Assessment of Site Contamination) Amendment Measure 2013* (NEPC 2013) and the *NSW EPA Guidelines for Consultants Reporting on Contaminated Sites* (EPA 1997).

### 5.1 Known and Potential Sources of Contamination

Based on the historical information and site observations, the following potential sources of contamination (Areas of Environmental Concern (AECs)) were identified:

- Fill material of unknown origin including in-situ soils in the vicinity of former site structures;
- The potential for ash and slag contamination as a result of the building fire in 1958; and
- The potential for hazardous materials (lead paint, asbestos etc.) within near surface soils as a result of these materials to have been used in construction.

The contaminants of potential concern (COPCs) at the site included the following:

- Heavy metals;
- Total Petroleum Hydrocarbons (TPH);
- Benzene, Toluene, Ethylbenzene and Xylene (BTEX);
- Polycyclic Aromatic Hydrocarbons (PAH);
- Polychlorinated Biphenyls (PCBs); and
- Asbestos.

### 5.2 Potentially Affected Media

The following media are considered to be potentially contaminated as a result of the known and potential contamination at the site:

- Fill material; and
- Natural soils underlying the fill material due to the potential for contaminants in the fill material to leach downwards.

Groundwater was not anticipated to be a potentially contaminated media due to the low permeability of the clayey material observed at the site and the anticipated depth to groundwater (approximately 8.4 m bgs). The actual occurrence of groundwater contamination is highly dependent on the concentrations of contaminants in site fill material or the potential for migration from off-site sources.

### 5.3 Human and Ecological Receptors

Given the proposed land use of the site with the majority of the site sealed with either bitumen or the proposed building, the potential human receptors include:

- Future users/occupants of the site may potentially be exposed to COPCs through inhalation of vapours associated with impacted soils / groundwater; and
- Workers conducting activities at the site (including during redevelopment and any future maintenance activities), may potentially be exposed to COPCs through:
  - direct contact with impacted soils within excavations; and/or

- Ingestion of impacted soils; and/or
- Inhalation of dusts/fibres/vapours associated with impacted soils / groundwater.

The potential ecological receptors include the existing trees at the site. Based on the observed trees being in a good condition with no observed plant stress, the soil in the vicinity of these trees are not likely to exceed the ecological assessment criteria (refer to **Section 7**). It is anticipated that the proposed development will not include landscaped areas, refer to surveyors plans in **Appendix A**.

#### **5.4 Potential and Complete Exposure Pathways**

Based on the COPCs identified, potential exposure pathways at the site include:

- Potential dermal, inhalation and oral exposure to impacted soils present at shallow depths and/or accessible by future excavations at the site; and
- Potential dermal and oral exposure to groundwater and/or seepage water within excavations.

#### **5.5 Discussion**

Based on the findings of the historical assessment and site observations, it was concluded that the site had a moderate risk of soil and/or groundwater contamination. The historical assessment indicated the potential for fill material as a result of imported material / earthworks, removal of former buildings, burying of rubbish, a building fire and subsequent demolition of buildings in 1958 and the potential for hazardous building materials (lead paint, asbestos etc.) to have been used in current / former structures. Contamination at the site was likely to be limited to near surface soils and could potentially include localised areas of fill material.

Based on the proposed development including excavation of soils for basement construction and subsequent construction of a high rise school building, the risk of human health impacts on future site users is very low. It is more likely that any contamination at the site could pose a risk to site workers and site users (if the school is operational) during the proposed development works. It is recommended that a soil sampling program should be undertaken to assess the concentrations of COPCs in the site soils to determine whether the site is suitable for the proposed land use, to classify the soils in the proposed basement excavation for off-site disposal and to ensure the site soils are appropriately managed during construction works.

## 6.0 SAMPLING AND ANALYSIS QUALITY PLAN

### 6.1 Data Quality Objectives

The data quality objectives (DQOs) of the Environmental Site Assessment have been developed to define the type and quality of data in order to meet the project objectives. The DQOs were based generally in accordance with the seven step DQO process, as defined in Australian Standards AS 4482.1-1997 *Guide to the Sampling and Investigation of Potentially Contaminated Soil Part 1: Non-Volatile and Semi-Volatile Compounds*. The DQOs developed for the investigation include:

- Step 1: State the Problem
- Step 2: Identify the Decision
- Step 3: Identify Inputs to the Decision
- Step 4: Define the Study Boundaries
- Step 5: Develop a Decision Rule
- Step 6: Specify Limits on Decision Errors
- Step 7: Optimise the Design for Obtaining Data

The DQOs developed for the investigation are discussed in **Sections 6.1.1 to 6.1.7** below.

#### 6.1.1 State the Problem

The contamination status of the site was unknown. The site history indicated the potential for soil contamination which required a soil sampling investigation.

#### 6.1.2 Identify the Decision

The decisions that are required to be made in accordance with the *NSW EPA Guidelines for the NSW Site Auditor Scheme* (DEC 2006) include the following:

- Does this assessment follow the NSW EPA Guidelines for Consultants Reporting on Contaminated Sites (NSW EPA 1997)?
- Have any contaminant odours emanating from site soils been adequately addressed?
- Have soils been assessed against health and ecological based investigation levels?
- Have the human health impacts of chemical mixtures been assessed?
- Is there any evidence of, or the potential for, migration of contaminants from the site been appropriately addressed and reported to the site owner or occupier? and
- Is a site management strategy required?

#### 6.1.3 Identify Inputs to the Decision

The inputs to the decision have been discussed in the previous sections of this report including:

- Site condition and surrounding environment (Refer to **Section 4**);
- Geology, hydrogeology and acid sulphate soils (Refer to **Section 4**);
- Site history (Refer to **Section 3**); and

- The initial conceptual site model (CSM, refer to **Section 5**).

#### **6.1.4 Define the Study Boundaries**

The site was located at 242 – 244 Cleveland Street, Surry Hills, NSW (Ref. **Figure 1**). It was further identified as Lot 1 in Deposited Plan (DP) 797483, Lot 1 in DP 797484 and Lot 8 in DP 821649. The approximate geographic coordinates of the centre of the site were -33.889136 E, 151.205812 N. The site covered an area of approximately 5,728 m<sup>2</sup>, however the area of soil investigation i.e. the area of the proposed new building was approximately 1,200 m<sup>2</sup>. The maximum vertical limit of the investigation was 11 m bgs.

#### **6.1.5 Develop a Decision Rule**

Soil laboratory analytical data were compared against the site assessment criteria presented in the *National Environment Protection (Assessment of Site Contamination) Amendment Measure 2013* (NEPC 2013). The investigation levels and screening levels are applicable to the first stage (Tier 1 Risk Assessment) of site assessment, and are the concentrations of a contaminant above which further appropriate investigation and evaluation will be required.

Due to the proposed basement excavation, the soil laboratory analytical data were also compared to the *NSW EPA Waste Classification Guidelines 2014* (NSW EPA 2014).

#### **6.1.6 Specify Limits on Decision Errors**

The purpose of this step is to specify the decision-makers acceptable limits on decision errors, which are used to establish performance goals for limiting uncertainties in the data. The following ranges of possible parameter values where the consequences of decision errors are relatively minor have been adopted:

- The upper 95% confidence limit on the average concentration for each analyte (calculated for samples collected from consistent soil horizons, stratigraphy or material types) must be below the adopted criterion;
- No single analyte shall exceed 250% of the adopted criterion; and
- The standard deviation of the results must be below 50 % of the criterion.

#### **6.1.7 Optimise the Design for Obtaining Data**

The total area of the proposed excavation was approximately 1,200 m<sup>2</sup>. In accordance with the *NSW EPA Sampling Design Guidelines* (EPA 1995), the minimum number of sampling points required for site characterisation based on detecting circular hotspots by using a systematic sampling pattern was seven (7). Based on the total area of the site being approximately 5,728 m<sup>2</sup> and due to the majority of the site soils being covered with bitumen and buildings, a total of eight (8) sample locations was considered to be more appropriate and was considered to be a practical approach.

### **6.2 Field Works**

AEC and COPC were identified and a soil & groundwater sampling programme was designed to detail site conditions. Investigation boreholes and a groundwater monitoring well were targeted towards the AECs in accordance with the *NSW EPA Sample Design Guidelines* (NSW EPA 1995).

Boreholes were mechanically excavated using a solid flight auger and the soil samples were collected via the methodology in **Section 6.3**.

### 6.3 Soil Sampling Methodology

Upon inspection and logging of the in-situ material, eight (8) boreholes were mechanically excavated using a drill rig and solid flight auger. The soil samples were recovered by technicians from Alliance Geotechnical Pty Ltd and sent to a NATA accredited laboratory (Eurofins MGT) for analysis. The samples were recovered directly from the hand auger tip and transferred directly into laboratory supplied 250mL glass jars and sealed with Teflon lids. The sealed jars were placed into a chilled container and immediately transported to Eurofins MGT, under stringent Chain of Custody (COC) procedures. Soil samples were also transferred to laboratory supplied zip-lock bags and were submitted to the laboratory for asbestos analysis. The decontamination process of sampling equipment included:

- Removal of soils adhering to the object by scrubbing with a brush.
- Washing the object thoroughly in a solution of phosphate free detergent (Decon 90).
- Rinsing the object thoroughly with potable water and drying the object with a clean cloth.

### 6.4 Laboratory Analysis

AG contracted Eurofins MGT at Lane Cove, NSW as the primary laboratory and Envirolab Services in Chatswood, NSW as the secondary laboratory for the soil sample analysis. The laboratories were NATA accredited for the selected analyses. Laboratory analysis of samples was conducted with reference to AECs/COPCs discussed in **Section 5**. The completed analysis schedule is summarised in **Table 6.1** below:

**Table 6.1: Analytical Schedule**

AEC	Number of Samples Locations and Sample ID	Analysis Schedule (excluding QA/QC)
Fill material	8 soil bore locations (BH1 to BH8) including samples at multiple depths.	Heavy Metals – 8 samples PAHs – 8 samples Asbestos – 8 samples OCP/PCB – 8 samples TPH/BTEX – 8 soil samples

## 7.0 SITE ASSESSMENT CRITERIA

Based on the proposed land use of the site as a school and in accordance with the decision process for urban redevelopment sites (DEC 2006), concentrations of contaminants in soil samples will be compared against the site assessment criteria presented below in **Tables 7.1 and 7.2**, sourced from the following:

- Health based investigation levels Residential (with no accessible soils) – NEPC (2013) HIL B;
- Health Screening Levels (HSLs) for vapour intrusion, sandy soils for Residential land uses at various depths; and
- Management Limits for hydrocarbons, urban residential and public open space land uses, coarse grained soil (NEPC 2013).

**Table 7.1: Human Health Based Soil Criteria and Hydrocarbon Management Limits (all units in mg/kg)**

	Limit of Reporting	Health Investigation / Screening Levels – Residential B	Management Limits Residential, parkland and public open space Coarse Grained Soils
<b>METALS</b>			
Arsenic	4.0	500	-
Cadmium	0.4	150	-
Chromium	1.0	500	-
Copper	1.0	30 000	-
Lead	1.0	1200	-
Mercury	0.1	120	-
Nickel	1.0	1200	-
Zinc	1.0	60 000	-
<b>POLYCYCLIC AROMATIC HYDROCARBONS</b>			
Carcinogenic PAHs (as B(a)P TEQ)	0.028	4	-
Total PAHs	0.4	400	-
Naphthalene	0.1	NL	-
<b>BTEX <sup>(4)</sup></b>			
Benzene	1.0	0.5	-
Toluene	1.0	160	-
Ethylbenzene	1.0	55	-
Total Xylenes	3.0	40	-
<b>TOTAL RECOVERABLE HYDROCARBONS</b>			
F1 C6 – C10 <sup>(5)</sup>	25	45	700
F2 > C10 – C16 <sup>(6)</sup>	25	110	1000
F3 > C16 – C34	50	-	2500
F4 > C34 – C40	100	-	10,000
<b>ORGANOCHLORINE PESTICIDES</b>			
DDT + DDE + DDD	0.05	600	-
Aldrin & Dieldrin	0.05	10	-
Chlordane	0.1	90	-
Endosulfan	0.05	400	-
Endrin	0.05	20	-
Heptachlor	0.05	10	-
HCB	0.05	15	-
Methoxychlor	0.2	500	-
Mirex	0.05	20	-
Toxaphene	1	30	-

<sup>(4)</sup> Assumes 0 – 1m depth

<sup>(5)</sup> (Less BTEX)

<sup>(6)</sup> (Less Naphthalene)

	Limit of Reporting	Health Investigation / Screening Levels – Residential B	Management Limits Residential, parkland and public open space Coarse Grained Soils
<b>ASBESTOS</b>			
Bonded ACM	-	0.04 %	-
Fibrous asbestos or asbestos fines	-	0.001 %	-
All forms of asbestos	-	No visible asbestos on surface	-

Due to the current site including a few scattered trees and the proposed development including no additional areas of landscaping, ecological assessment criteria were not required.



## 8.0 QUALITY ASSURANCE / QUALITY CONTROL

The field sampling and handling procedures across the site produced QA/QC results (refer to **Table 3** for QA/QC data) which indicated that the soil data collected was of acceptable quality and suitable for use in site characterisation.

The laboratory completed an extensive QA/QC assessment including matrix spikes, laboratory control samples, laboratory duplicates and laboratory blanks (refer to laboratory reports in **Appendix G**). The NATA certified laboratory reports indicated that the laboratory was generally achieving levels of performance within its recommended control limits during the period when the samples from this program were analysed.

On this basis of the results and the laboratory QA/QC program, the soil data is of an acceptable quality upon which to draw conclusions regarding the environmental condition of the site.

## 9.0 RESULTS

### 9.1 Soil Observations

A total of eight (8) boreholes were mechanically excavated and soil samples were collected at the locations identified in **Figure 3**. Fill material was observed at all sample locations, and consisted of gravelly silty clay, gravelly silty sand and silty sand. No hydrocarbon odours were observed and no asbestos containing material (ACM) was observed. Foreign materials including gravels and minor ash and potential slag was observed in the fill material at all borehole locations. Natural soils were observed at depths generally ranging from 0.6 to 1.8 m bgs. Borehole Logs are provided in **Appendix F**.

### 9.2 Soil Analytical Results

The soil sampling locations are shown on **Figure 3**. Detailed laboratory reports and chain of custody documentation is provided in **Appendix G**. Laboratory results are discussed in the following sections in relation to the adopted assessment criteria in **Section 7**.

#### 9.2.1 Heavy Metals

A total of 8 primary soil samples were analysed by the laboratory for heavy metals. There were no exceedances of the human health site assessment criteria.

The fill material was also assessed in accordance with the *NSW EPA Waste Classification Guidelines* (NSW EPA 2014). Concentrations of heavy metals were reported by the laboratory to be within the criteria for General Solid Waste (CT1) with the exception of the following:

- Lead in all soil samples (lead concentrations ranged from 140 – 450 mg/kg) with the exception of BH7-0.1-0.5 (16 mg/kg); and
- Nickel in soil sample BH1-0.1-0.3 (56 mg/kg) and BH7-0.1-0.5 (71 mg/kg).

Leachate analysis of Nickel in soil sample BH1-0.1-0.3 and Lead in sample BH2-0.3-0.4 indicated that the waste classification of the fill material with respect to heavy metals was **General Solid Waste – Non Putrescible**.

#### 9.2.2 PAHs

A total of 8 primary soil samples were analysed by the laboratory for polycyclic aromatic hydrocarbon (PAHs). There were no exceedances of the human health site assessment criteria with the exception of benzo(a)pyrene TEQ concentrations at BH1-0.1-0.3 (7.3 mg/kg), BH3-0.3-0.4 (5.1 mg/kg), BH4-0.3-0.4 (32 mg/kg), BH5-0.3-0.4 (15 mg/kg), BH6-0.3-0.4 (25 mg/kg) and BH8-0.3-0.4 (6.5 mg/kg) reported by the laboratory to be above the site assessment criteria (4 mg/kg).

Due to ash and suspected slag observed at all soil sample locations, the high benzo(a)pyrene concentrations are anticipated to be immobilised within the ash matrix. Soil samples BH4-0.3-0.4 and BH6-0.3-0.4 were analysed by the laboratory for TCLP-PAHs to identify the leachable concentration of the PAHs. The TCLP data indicated that the PAHs were immobilised and given that the soils were sealed with a bitumen hardstand, the soils did not pose a risk to human health.

In accordance with the *NSW EPA Waste Classification Guidelines* (NSW EPA 2014) and the *NSW EPA General Immobilisation Approval for Ash, ash contaminated natural excavated materials or coal contaminated natural excavated materials* (Approval 1999/05), the fill material was classified as **General Solid Waste – Non Putrescible**.

### **9.2.3 Asbestos**

A total of 8 primary soil samples were analysed by the laboratory for asbestos. No asbestos was identified in any of the soil samples analysed. No suspected ACM was observed within fill material during borehole excavation.

### **9.2.4 OCP/OPP/PCB**

A total of 8 primary soil samples were analysed by the laboratory for organochlorine and organophosphate pesticides (OCP/OPP) and polychlorinated biphenyls (PCBs). There were no exceedances of the human health or site assessment criteria. There were also no reported exceedances of the laboratory limit of reporting (LOR).

### **9.2.5 TPH/BTEX**

A total of 8 primary soil samples were analysed by the laboratory for total petroleum hydrocarbons (TPH) and benzene, toluene, ethylbenzene and xylenes (BTEX). There were no exceedances of the human health site assessment criteria.

## 10.0 CONCLUSIONS AND RECOMMENDATIONS

Laboratory results indicated that there were no exceedances of the adopted site assessment criteria with the exception of benzo(a)pyrene TEQ concentrations at BH1-0.1-0.3 (7.3 mg/kg), BH3-0.3-0.4 (5.1 mg/kg), BH4-0.3-0.4 (32 mg/kg), BH5-0.3-0.4 (15 mg/kg), BH6-0.3-0.4 (25 mg/kg) and BH8-0.3-0.4 (6.5 mg/kg) reported by the laboratory to be above the adopted site assessment criteria (4 mg/kg).

Due to ash and suspected slag observed at all soil sample locations, the high benzo(a)pyrene concentrations are anticipated to be immobilised within the ash matrix. Soil samples BH4-0.3-0.4 and BH6-0.3-0.4 were analysed by the laboratory for TCLP-PAHs to identify the leachable concentration of the PAHs. The TCLP data indicated that the PAHs were immobilised and given that the soils were sealed with a bitumen hardstand, the soils did not pose a risk to human health.

The soil samples were also assessed in accordance with the *NSW EPA Waste Classification Guidelines* (NSW EPA 2014) and the fill material at all locations was classified as **General Solid Waste – Non Putrescible**.

It was concluded that based on the findings of this assessment and the Limitations in **Section 11**, and in accordance with NEPC (2013) and SEPP 55, the site was suitable for the proposed school land use. It is recommended that during any further development that the site soils are appropriately managed under a construction environmental management plan (CEMP) to mitigate potential exposure of PAHs to site workers. It is also recommended that the CEMP should include an unexpected finds protocol to identify appropriate controls and procedures in circumstances where previously unidentified contamination is encountered during redevelopment.

## 11.0 STATEMENT OF LIMITATIONS

This Detailed Site Investigation Report should be read in conjunction with any previous investigations and evaluated the likelihood of the site contamination resulting from previous uses of the site. Limited sampling and laboratory analysis were undertaken as part of the investigations reviewed, as described herein. Ground conditions between sampling locations and media may vary, and this should be considered when extrapolating between sampling points. Chemical analytes are based on the information detailed in the site history. Further chemicals or categories of chemicals may exist at the site, which were not identified in the site history and which may not be expected at the site.

Changes to the subsurface conditions may occur subsequent to the investigations described herein, through natural processes or through the intentional or accidental addition of contaminants. The conclusions and recommendations reached in this report are based on the information obtained at the time of the investigations.

This report does not provide a complete assessment of the environmental status of the site or material investigated, and it is limited to the scope defined herein. Should information become available regarding conditions at the site including previously unknown sources of contamination, AG reserves the right to review the report in the context of the additional information.

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Should you require additional information or clarification regarding any aspect of this report, please call the undersigned on 1800 188 288.

For and on behalf of,  
Alliance Geotechnical Pty Ltd



Benjamin Regan  
B. Eng. (Environmental)  
Senior Environmental Consultant  
Alliance Geotechnical Pty Ltd

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## FIGURES





**Alliance Geotechnical Pty Ltd**

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**Figure 1 – Site Location**



Not to Scale

Key



Site Location

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Project: Inner Sydney High School

Location: 242-244 Cleveland Street, Surry Hills, NSW

Job Number: 2187

Report Number: 2187-ER-1-1

Report Date: 18/03/2016



**Figure 2 – Site Features**



Not to Scale



**Key**



Site Boundary

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**Figure 3 – Sample Locations**



Not to Scale



**Key**



Site Boundary

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**Job Number:** 2187  
**Report Number:** 2187-ER-1-1  
**Report Date:** 18/03/2016

## **TABLES**

**Table 1**  
**Inner Sydney High School**  
**Soil Results - Heavy Metals, TPH/BTEX, PAH and Asbestos**  
**2187-ER-1-1**

Table 1 Inner Sydney High School Soil Results - Heavy Metals, TPH/BTEX, PAH and Asbestos 2187-ER-1-1				Reference		S16-Ja11100	S16-Ja11101	S16-Ja11102	S16-Ja11103	S16-Ja11104	S16-Ja11105	S16-Ja11106	S16-Ja11107	
				Sample ID		BH1_0.1-0.3	BH2_0.3-0.4	BH3_0.3-0.4	BH4_0.3-0.4	BH5_0.3-0.4	BH6_0.3-0.4	BH7_0.1-0.5	BH8_0.3-0.4	
				Date Sampled		21-01-16	21-01-16	21-01-16	21-01-16	21-01-16	21-01-16	21-01-16	21-01-16	
				Sample Matrix		Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	
Group	Analyte	Units	PQL	NEPM HIL B / HSL A&B	DATASET MINIMUM	DATASET MAXIMUM								
Metals	Arsenic	mg/kg	2	500	3.2	27	5.4	27	3.2	3.3	6.5	9.3	< 2	4
	Cadmium	mg/kg	0.4	150	0.4	0.7	0.7	< 0.4	0.4	< 0.4	< 0.4	< 0.4	< 0.4	< 0.4
	Chromium	mg/kg	5	500	7.3	66	60	26	13	7.3	15	9.5	66	10
	Copper	mg/kg	5	30000	25	2200	73	2200	37	25	57	38	57	27
	Lead	mg/kg	5	1200	16	450	410	450	150	190	270	140	16	220
	Mercury	mg/kg	0.05	120	0.32	2.4	2.1	2.4	0.46	0.32	0.81	0.59	< 0.05	1.6
	Nickel	mg/kg	5	1200	8.2	71	56	18	11	< 5	8.2	8.9	71	9.1
	Zinc	mg/kg	5	60000	58	2400	780	2400	290	87	130	58	73	310
PAHS	Acenaphthene	mg/kg	< 0.5		1.6	1.7	< 0.5	< 0.5	< 0.5	1.6	< 0.5	1.7	< 0.5	< 0.5
	Acenaphthylene	mg/kg	< 0.5		0.9	13	< 0.5	< 0.5	< 0.5	13	0.9	11	< 0.5	< 0.5
	Anthracene	mg/kg	< 0.5		0.9	14	1.1	< 0.5	0.9	14	3	12	< 0.5	1.3
	Benz(a)anthracene	mg/kg	< 0.5		1.6	24	3.6	1.6	3.1	24	8.5	19	< 0.5	4.8
	Benzo(a)pyrene	mg/kg	< 0.5		1.8	22	5.1	1.8	3.5	22	10	17	< 0.5	4.7
	Benzo(a)pyrene TEQ (lower bound) *	mg/kg	< 0.5	4	2.3	32	7.3	2.3	5.1	32	15	25	< 0.5	6.2
	Benzo(a)pyrene TEQ (medium bound) *	mg/kg	0.6	4	0.6	32	7.3	2.6	5.1	32	15	25	0.6	6.5
	Benzo(a)pyrene TEQ (upper bound) *	mg/kg	1.2	4	1.2	32	7.3	2.8	5.1	32	15	25	1.2	6.7
	Benzo(b&j)fluoranthene	mg/kg	< 0.5		1.1	21	3.8	1.1	3	21	10	13	< 0.5	5.2
	Benzo(g,h,i)perylene	mg/kg	< 0.5		1	8.8	3	1	1.7	8.8	4.9	6.7	< 0.5	1.6
	Benzo(k)fluoranthene	mg/kg	< 0.5		1.3	14	3.1	1.3	2	14	6.8	11	< 0.5	3.2
	Chrysene	mg/kg	< 0.5		1.4	19	3.3	1.4	2.8	19	8.2	15	< 0.5	4.1
	Dibenz(a,h)anthracene	mg/kg	< 0.5		0.6	3.4	0.8	< 0.5	0.6	3.4	1.7	2.7	< 0.5	< 0.5
	Fluoranthene	mg/kg	< 0.5		0.8	62	5.9	2.7	5.1	62	17	50	0.8	8.1
	Fluorene	mg/kg	< 0.5		0.5	9.7	< 0.5	< 0.5	< 0.5	9.7	0.5	9	< 0.5	< 0.5
	Indeno(1,2,3-cd)pyrene	mg/kg	< 0.5		0.8	8.4	2.5	0.8	1.4	8.4	4.3	6.4	< 0.5	1.5
	Naphthalene	mg/kg	< 0.5		1.8	4.9	< 0.5	< 0.5	< 0.5	1.8	< 0.5	4.9	< 0.5	< 0.5
	Phenanthrene	mg/kg	< 0.5		0.5	59	2.6	1.4	1.9	59	10	53	0.5	3.5
	Pyrene	mg/kg	< 0.5		0.8	50	5.8	2.6	5.4	50	17	40	0.8	8.2
	Total PAH*	mg/kg	< 0.5	400	2.1	330	41	16	31	330	100	270	2.1	46
TPH/BTEX	TRH >C10-C16	mg/kg	50		78	110	< 50	< 50	< 50	110	< 50	78	< 50	< 50
	TRH >C10-C16 less Naphthalene (F2)	mg/kg	50	110	74	110	< 50	< 50	< 50	110	< 50	74	< 50	< 50
	TRH >C16-C34	mg/kg	100		140	2000	660	140	500	2000	640	1300	310	410
	TRH >C34-C40	mg/kg	100		140	730	410	250	250	260	160	140	730	230
	TRH C6-C10	mg/kg	20		0	0	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20
	TRH C6-C10 less BTEX (F1)	mg/kg	20	45	0	0	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20
	Benzene	mg/kg	0.1	0.5	0	0	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
	Toluene	mg/kg	0.1	160	0	0	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
	Ethylbenzene	mg/kg	0.1	55	0	0	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
	Xylenes - Total	mg/kg	0.3	40	0	0	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Asbestos	Asbestos (NEPC 2013 / WA DOH 2009)	-	-	0.04%	-	-	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected

NEPM Table 1A (1) Column B Residential B Land Uses 2013

NEPM HSL A & B - Urban Residential & Public Open Space (coarse soils)

**Table 2**  
**Inner Sydney High School**  
**Soil Results - OCPs/OPPs and /PCBs**  
**2187-ER-1-1**

				Reference	S16-Ja11100	S16-Ja11101	S16-Ja11102	S16-Ja11103	S16-Ja11104	S16-Ja11105	S16-Ja11106	S16-Ja11107
				Sample ID	BH1_0.1-0.3	BH2_0.3-0.4	BH3_0.3-0.4	BH4_0.3-0.4	BH5_0.3-0.4	BH6_0.3-0.4	BH7_0.1-0.5	BH8_0.3-0.4
				Date Sampled	21-01-16	21-01-16	21-01-16	21-01-16	21-01-16	21-01-16	21-01-16	21-01-16
				Sample Matrix	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
Group	Analyte	Units	PQL	NEPM HIL B	DATASET MINIMUM	DATASET MAXIMUM						
OCPs	4,4'-DDD	mg/kg	0.5	600	0	0	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
	4,4'-DDE	mg/kg	0.5		0	0	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
	4,4'-DDT	mg/kg	0.5		0	0	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
	a-BHC	mg/kg	0.15		0	0	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
	Aldrin	mg/kg	0.5	5	0	0	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
	b-BHC	mg/kg	0.5	0	0	0	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
	Chlordanes - Total	mg/kg	0.5	90	0	0	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
	d-BHC	mg/kg	1	0	0	0	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
	Dieldrin	mg/kg	0.5	5	0	0	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
	Endosulfan I	mg/kg	0.5	400	0	0	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
	Endosulfan II	mg/kg	0.5		0	0	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
	Endosulfan sulphate	mg/kg	0.5	0	0	0	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
	Endrin	mg/kg	0.5	20	0	0	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
	Endrin aldehyde	mg/kg	0.5	0	0	0	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
	Endrin ketone	mg/kg	0.5	0	0	0	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
	g-BHC (Lindane)	mg/kg	0.5	0	0	0	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
	Heptachlor	mg/kg	0.5	10	0	0	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
	Heptachlor epoxide	mg/kg	0.5	0	0	0	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
	Hexachlorobenzene	mg/kg	0.5	15	0	0	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
	Methoxychlor	mg/kg	0.5	500	0	0	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
	Toxaphene	mg/kg	0.4	30	0	0	< 1	< 1	< 1	< 1	< 1	< 1
OPPs	Chlorpyrifos	mg/kg	< 0.5	340	0	0	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
	Coumaphos	mg/kg	< 0.5	0	0	0	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
	Demeton (total)	mg/kg	< 1	0	0	0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
	Diazinon	mg/kg	< 0.5	0	0	0	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
	Dichlorvos	mg/kg	< 0.5	0	0	0	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
	Dimethoate	mg/kg	< 0.5	0	0	0	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
	Disulfoton	mg/kg	< 0.5	0	0	0	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
	Ethoprop	mg/kg	< 0.5	0	0	0	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
	Fenitrothion	mg/kg	< 0.5	0	0	0	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
	Fensulfothion	mg/kg	< 0.5	0	0	0	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
	Fenthion	mg/kg	< 0.5	0	0	0	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
	Malathion	mg/kg	< 0.5	0	0	0	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
	Methyl azinphos	mg/kg	< 0.5	0	0	0	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
	Methyl parathion	mg/kg	< 0.5	0	0	0	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
	Mevinphos	mg/kg	< 0.5	0	0	0	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
	Monocrotophos	mg/kg	< 10	0	0	0	< 10	< 10	< 10	< 10	< 10	< 10
	Parathion	mg/kg	< 0.5	0	0	0	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
	Phorate	mg/kg	< 0.5	0	0	0	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
	Profenofos	mg/kg	< 0.5	0	0	0	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
	Prothiofos	mg/kg	< 0.5	0	0	0	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
	Ronnel	mg/kg	< 0.5	0	0	0	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
	Stirophos	mg/kg	< 0.5	0	0	0	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
	Trichloronate	mg/kg	< 0.5	0	0	0	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
PCBs	Aroclor-1016	mg/kg	< 0.5	0	0	0	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
	Aroclor-1232	mg/kg	< 0.5	0	0	0	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
	Aroclor-1242	mg/kg	< 0.5	0	0	0	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
	Aroclor-1248	mg/kg	< 0.5	0	0	0	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
	Aroclor-1254	mg/kg	< 0.5	0	0	0	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
	Aroclor-1260	mg/kg	< 0.5	0	0	0	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
	Total PCB*	mg/kg	< 0.5	1	0	0	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5

**Table 3**  
**Inner Sydney High School**  
**Table 3 - Data Quality Assessment**  
**2187-ER-1-1**

<b>Reference</b>	S16-Ja11105	140510	
<b>Sample ID</b>	BH6_0.3-0.4	QC01	<b>RPD %</b>
<b>Date Sampled</b>	21-01-16	21-01-16	
<b>Sample Matrix</b>	Soil	Soil	

<b>Group</b>	<b>Analyte</b>				
<b>Metals</b>	Arsenic		9.3	37	-119.7
	Cadmium		< 0.4	<0.4	0.0
	Chromium		9.5	9	5.4
	Copper		38	36	5.4
	Lead		140	78	56.9
	Mercury		0.59	0.5	16.5
	Nickel		8.9	8	10.7
	Zinc		58	65	-11.4
<b>PAH</b>	Acenaphthene		1.7	1.8	-5.7
	Acenaphthylene		11	10	9.5
	Anthracene		12	14	-15.4
	Benz(a)anthracene		19	20	-5.1
	Benzo(a)pyrene		17	17	0.0
	Benzo(a)pyrene TEQ (lower bound) *		25	24	4.1
	Benzo(a)pyrene TEQ (medium bound) *		25	24	4.1
	Benzo(a)pyrene TEQ (upper bound) *		25	24	4.1
	Benzo(b&j)fluoranthene		13	-	0.0
	Benzo(g,h,i)perylene		6.7	6.7	0.0
	Benzo(k)fluoranthene		11	-	0.0
	Chrysene		15	21	-33.3
	Dibenz(a,h)anthracene		2.7	1.7	45.5
	Fluoranthene		50	45	10.5
	Fluorene		9	7.2	22.2
	Indeno(1,2,3-cd)pyrene		6.4	7.8	-19.7
	Naphthalene		4.9	6	-20.2
	Phenanthrene		53	53	0.0
	Pyrene		40	37	7.8
	Total PAH*		270	270	0.0
<b>TPH/BTEX</b>	TRH C6-C10 less BTEX (F1)		< 20	<25	0.0
	TRH >C10-C16 less Naphthalene (F2)		74	120	-47.4
	TRH >C16-C34 (F3)		1300	1200	8.0
	TRH > C34-C40 (F4)		140	200	-35.3
	Benzene		< 0.1	<0.2	0.0
	Toluene		< 0.1	<0.5	0.0
	Ethylbenzene		< 0.1	<1	0.0
	Xylenes - Total		< 0.3	<3	0.0

## **APPENDIX A**

### **PROPOSED PLANS**



## APPENDIX B

### SITE PHOTOGRAPHS



**Photograph 1:** The bitumen car park with the western building of the site, looking north. The area to the left (west) of the building was the Prince Alfred Park.



**Photograph 2:** The bitumen courtyard / recreation area in the centre of the site with the heritage buildings of the school in the background.





**Photograph 3:** The north-western corner of the site, looking north-west. The drill rig was in the location of borehole BH5.



**Photograph 4:** A typical image of site geology, BH5.

## **APPENDIX C**

### **COUNCIL SECTION 149 CERTIFICATES**

ROBERTS DAY NSW PTY LTD  
UNIT 4, 17 RANDALL ST  
SURRY HILLS NSW 2010

## PLANNING CERTIFICATE

*Under Section 149 of the Environmental Planning and Assessment Act, 1979*

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<b>Applicant:</b>	ROBERTS DAY NSW PTY LTD
<b>Applicant's reference:</b>	DEC-ISH
<b>Address of property:</b>	244 Cleveland Street , SURRY HILLS NSW 2010
<b>Owner:</b>	MINISTER FOR EDUCATION
<b>Description of land:</b>	Lot 1 DP 797483, Lot 1 DP 797484, Part Lot 8 DP 821649
<b>Certificate No.:</b>	2015308110
<b>Certificate Date:</b>	12/11/15
<b>Receipt No:</b>	37473
<b>Fee:</b>	\$80.00
<b>Paid:</b>	11/11/15

Title information, description, dimensions and area of land are provided from data supplied by the Valuer General and shown where available.



Issuing Officer  
per **Monica Barone**  
*Chief Executive Officer*

### CERTIFICATE ENQUIRIES:

Ph: 9265 9333  
Fax: 9265 9415

**PLANNING CERTIFICATE UNDER SECTION 149 (2) OF THE ENVIRONMENTAL  
PLANNING AND ASSESSMENT ACT, 1979**

**MATTERS AFFECTING THE LAND AS PRESCRIBED BY SCHEDULE 4 -  
ENVIRONMENTAL PLANNING & ASSESSMENT REGULATION, 2000, CLAUSES (1) - (2).**

**DEVELOPMENT CONTROLS**

*The following information must be read in conjunction with and subject to all other provisions of the environmental planning instruments specified in this certificate.*

**ZONING**

**Zone B4 Mixed Use (Sydney Local Environmental Plan 2012)**

**1 Objectives of zone**

- To provide a mixture of compatible land uses.
- To integrate suitable business, office, residential, retail and other development in accessible locations so as to maximise public transport patronage and encourage walking and cycling.
- To ensure uses support the viability of centres.

**2 Permitted without consent**

Home occupations

**3 Permitted with consent**

Boarding houses; Child care centres; Commercial premises; Community facilities; Educational establishments; Entertainment facilities; Function centres; Hotel or motel accommodation; Information and education facilities; Medical centres; Passenger transport facilities; Recreation facilities (indoor); Registered clubs; Respite day care centres; Restricted premises; Roads; Seniors housing; Shop top housing; Any other development not specified in item 2 or 4

**4 Prohibited**

Extractive industries; Heavy industrial storage establishments; Heavy industries

**PROPOSED ZONING**

This property is not affected by a draft zone.

**LOCAL PLANNING CONTROLS**

**Sydney Local Environmental Plan 2012 (as amended) – Published 14 December 2012  
NSW Legislation Website.**

**Sydney Development Control Plan 2012 (as amended) - (commenced 14.12.2012)**

**Planning Proposal - Amendment to Sydney Local Environmental Plan 2012 – Minor  
Policy and Housekeeping Amendments 2014**

**The Planning Proposal seeks to amend the *Sydney Local Environmental Plan 2012* by implementing minor policy and housekeeping amendments that align future development and the objectives of the City's Sustainable Sydney 2030, and improve the operation and accuracy of the plan by permitting additional uses to a site, correcting errors, refining definitions, correcting descriptions, removing barriers and updating details.**

## HERITAGE

### **Item of Environmental Heritage**

*(Sydney Local Environmental Plan 2012)*

This property has been listed as an Item of Environmental Heritage

### **State Heritage Register (Amendment To Heritage Act, 1977 Gazetted 2/4/99)**

This property may be identified as being of state heritage significance, and entered on the State Heritage Register.

To confirm whether the site is listed under the Heritage Act 1977 a Section 167 Certificate should be obtained from the NSW Heritage Office by contacting the NSW Heritage office on (02) 9873 8500 for an application from or by downloading the application form from [www.heritage.nsw.gov.au](http://www.heritage.nsw.gov.au)

## STATE PLANNING INSTRUMENTS

*Full copies of State Environmental Planning Policies are available online at [www.planning.nsw.gov.au](http://www.planning.nsw.gov.au).*

### **State Environmental Planning Policy No. 19 – Bushland in Urban Areas**

This is a policy to protect and preserve bushland within certain urban areas, as part of the natural heritage or for recreational, educational and scientific purposes. This policy is designed to protect bushland in public open space zones and reservations, and to ensure that bush preservation is given a high priority when local environmental plans for urban development are prepared.

### **State Environmental Planning Policy No. 32 – Urban Consolidation**

This policy implements the principles of urban consolidation, including the orderly, economic use and development of land. The policy enables urban land which is no longer required for the purpose for which it is currently zoned or used to be redeveloped for multi-unit housing and related development.

### **State Environmental Planning Policy No. 33 – Hazardous and Offensive Development**

This policy aims to amend the definitions of hazardous and offensive industries; to render ineffective any environmental planning instruments not defining hazardous or offensive as per this policy; to control development of hazardous and offensive industries.

### **State Environmental Planning Policy No. 55 – Remediation of Land**

This policy provides planning controls for the remediation of contaminated land. The policy states that land must not be developed if it is unsuitable for a proposed use because it is contaminated. If the land is unsuitable, remediation must take place before the land is developed. The policy makes remediation permissible across the State, defines when consent is required, requires all remediation to comply with standards, ensures land is investigated if contamination is suspected, and requires councils to be notified of all remediation proposals. To assist councils and developers, the Department, in conjunction with the Environment Protection Authority, has prepared Managing Land Contamination: Planning Guidelines.

**State Environmental Planning Policy No. 64 – Advertising and Signage**

This policy aims to ensure that signage (including advertising):

Is compatible with the desired amenity and visual character of an area, and

- Provides effective communications in suitable locations, and
- Is of a high quality design and finish.

To this end the policy regulates signage (but not content) under Part 4 of the Act and provides limited time consents for the display of certain advertisements. The policy does not apply to signage that is exempt development under an environmental planning instrument. It does apply to all signage that can be displayed with or without consent and is visible from any public place or reserve, except as provided by the policy.

This policy should be read in conjunction with the Sydney Local Environmental Plan 2005, the City of Sydney Signage and Advertising Structures Development Control Plan 2005 and State Environmental Planning Policy No. 60 where these apply.

**State Environmental Planning Policy No. 65 – Design Quality of Residential Flat Buildings**

This policy aims to improve the design quality of flats of three or more storeys with four or more self contained dwellings. The policy sets out a series of design principles for local councils to consider when assessing development proposals for residential flat development. The policy also creates a role for an independent design review panel and requires the involvement of a qualified designer in the design and approval process.

**State Environmental Planning Policy No.70 – Affordable Housing (Revised Schemes) (Gazetted 31.05.02)**

The policy identifies that there is a need for affordable housing in the City of Sydney, describes the kinds of households for which affordable housing may be provided and makes a requirement with respect to the imposition of conditions relating to the provision of affordable housing (provided other requirements under the Act are met).

**State Environmental Planning Policy (Housing for Seniors or People with a Disability) 2004**

This Policy does not apply to land described in Schedule 1 (Environmentally sensitive land), or land that is zoned for industrial purposes, or land to which an interim heritage order made under the *Heritage Act 1997* by the Minister administering that Act applies, or land to which a listing on the State Heritage Register kept under the *Heritage Act 1997* applies.

The Policy aims to encourage the provision of housing (including residential care facilities) that will increase the supply and diversity of residences that meet the needs of seniors or people with a disability, and make efficient use of existing infrastructure and services, and be of good design.

**State Environmental Planning Policy (Building Sustainability Index: BASIX) 2004**

Aims to ensure consistency in the implementation of the BASIX scheme throughout the State. This Policy achieves its aim by overriding provisions of other environmental planning instruments and development control plans that would otherwise add to, subtract from or modify any obligations arising under the BASIX scheme.

**State Environmental Planning Policy (Major Development) 2005**

This Policy aims to identify development of economic, social or environmental significance to the State or regions of the State so as to provide a consistent and comprehensive assessment and decision making process for that development.

NB: This SEPP also contains exempt & complying provisions

**State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007**

This Policy aims to provide for the proper management and development of mineral, petroleum and extractive material resources for the social and economic welfare of the State.



**State Environmental Planning Policy (Temporary Structures and Places of Public Entertainment) 2007**

This Policy aims to ensure that suitable provision is made for ensuring the safety of persons using temporary structures or places of public entertainment.

**State Environmental Planning Policy (Infrastructure) 2007**

This Policy aims to facilitate the effective delivery of infrastructure across the state.

NB: This SEPP also contains exempt & complying provisions

**State Environmental Planning Policy (Repeal of Concurrence and Referral Provisions) 2008**

This Policy is an 'amending instrument' that removes or modifies referral and concurrence clauses within local environmental plans (LEPs), regional environmental plans (REPs) and State environmental planning policies (SEPPs).

**State Environmental Planning Policy (Exempt and Complying Development Codes) 2008**

This Policy Streamlines assessment processes for development that complies with specified development standards. The policy provides exempt and complying development codes that have State-wide application, identifying, in the General Exempt Development Code, types of development that are of minimal environmental impact that may be carried out without the need for development consent; and, in the General Housing Code, types of complying development that may be carried out in accordance with a complying development certificate as defined in the Environmental Planning and Assessment Act 1979.

**State Environmental Planning Policy (Affordable Rental Housing) 2009**

Establishes a consistent planning regime for the provision of affordable rental housing. The policy provides incentives for new affordable rental housing, facilitates the retention of existing affordable rentals, and expands the role of not-for-profit providers. It also aims to support local centres by providing housing for workers close to places of work, and facilitate development of housing for the homeless and other disadvantaged people. NOTE: Does not apply to land at Green Square or at Ultimo Pyrmont, or on southern employment land.

**State Environmental Planning Policy (Urban Renewal) 2010**

The aims of this Policy are as follows:

- (a) to establish the process for assessing and identifying sites as urban renewal precincts,
- (b) to facilitate the orderly and economic development and redevelopment of sites in and around urban renewal precincts,
- (c) to facilitate delivery of the objectives of any applicable government State, regional or metropolitan strategies connected with the renewal of urban areas that are accessible by public transport.

**State Environmental Planning Policy (State and Regional Development) 2011**

The aims of this Policy are as follows:

- (a) to identify development that is State significant development,
- (b) to identify development that is State significant infrastructure and critical State significant infrastructure,
- (c) to confer functions on joint regional planning panels to determine development applications.

**Sydney Regional Environmental Plan (Sydney Harbour Catchment) 2005**

This plan applies to land within the Sydney Harbour Catchment, as shown edged heavy black on the Sydney Harbour Catchment Map, being part of the Sydney Region declared by order published in Gazette No 38 of 7 April 1989 at page 1841.

This plan has the following aims with respect to the Sydney Harbour Catchment:

to ensure that the catchment, foreshores, waterways and islands of Sydney Harbour are recognised, protected and maintained: as outstanding natural asset, and as a public asset of national and heritage significance, for existing and future generations; to ensure a healthy, sustainable environment on land and water; to achieve a high quality urban environment; to



ensure a prosperous working waterfront and an effective transport corridor, to encourage a culturally rich and vibrant place for people; to ensure accessibility to and along Sydney Harbour and its foreshores; to ensure the protection, maintenance and rehabilitation of watercourses, wetlands, riparian lands, remnant vegetation and ecological connectivity, to provide a consolidated, simplified and updated legislative framework for future planning.

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**OTHER MATTERS AFFECTING THE LAND AS PRESCRIBED BY SCHEDULE 4 -  
E. P. & A. REGULATION, 2000. CLAUSES (3) - (10)**

**(3) Complying Development**

- (1) The extent to which the land is land on which complying development may be carried out under each of the codes for complying development because of the provisions of clauses 1.17A (1) (c) to (e), (2), (3) and (4), 1.18(1)(c3) and 1.19 of *State Environmental Planning Policy (Exempt and Complying Development Codes) 2008*.
- (2) The extent to which complying development may not be carried out on that land because of the provisions of clauses 1.17A (1) (c) to (e), (2), (3) and (4), 1.18(1)(c3) and 1.19 of that Policy and the reasons why it may not be carried out under those clauses.
- (3) If the council does not have sufficient information to ascertain the extent to which complying development may or may not be carried out on the land, a statement that a restriction applies to the land, but it may not apply to all of the land, and that council does not have sufficient information to ascertain the extent to which complying development may or may not be carried out on the land.

**Note: All Exempt and Complying Development Codes:** Council does not have sufficient information to ascertain the extent of a land based exclusion on a property. Despite any statement preventing the carrying out of complying development in the Codes listed below, complying development may still be carried out providing the development is not on the land affected by the exclusion and meets the requirements and standards of *State Environmental Planning Policy (Exempt and Complying Development Codes) 2008*.

**General Housing Code & Commercial and Industrial (New Buildings and Additions) Code**

Complying development **may not** be carried out on the land under the General Housing Code & the Commercial and Industrial (New Buildings and Additions) Code if because of the provisions of clause 1.17A, 1.18(1)(c3) & 1.19 (Land-based requirements for exempt and complying development) any of the following statements are **YES**

▪ Clause 1.19(5)d. Land that is significantly contaminated land within the meaning of the Contaminated Land Management Act 1997. (Applies only to the Commercial and Industrial (New Buildings and Additions) Code.	NO
▪ Clause 1.17A(d). Has been identified as a property that comprises, or on which there is, an item that is listed on the State Heritage Register under the <i>Heritage Act 1977</i> or that is subject to an interim heritage order under the <i>Heritage Act 1977</i> .	NO
▪ Clause 1.17A(d) & 1.18(1)(c3). Has been identified as a property that comprises, or on which there is, a heritage item or draft heritage item.	YES
▪ Clause 1.17A(c). Has been identified as being within a wilderness area (identified under the <i>Wilderness Act 1987</i> .	NO
▪ Clause 1.17A(e) & 1.19(1)e or 1.19(5)f. Has been identified as land that is within an environmentally sensitive area or by an environmental planning instrument as being within a buffer area, a river front area, an ecologically sensitive area, environmentally sensitive land or a protected area	NO
▪ Clause 1.19(1)a.or 1.19(5)a Has been identified as being within a heritage conservation area or a draft heritage conservation area.	NO
▪ Clause 1.19(1)b or 1.19(5)b. Has been identified as being land that is reserved for a public purpose in an environmental planning instrument.	NO
▪ Clause 1.19(1)c or 1.19(5)c. Has been identified as being on an Acid Sulfate Soils Map as being Class 1 or Class 2.	NO
▪ Clause 1.19(1)d or 1.19(5)e. Has been identified as land that is subject to a biobanking agreement under part 7A of the threatened Species Conservation Act 1995 or a property vegetation plan under the Native Vegetation Act 2003.	NO
▪ Clause 1.19(1)f or 1.19(5)g. Has been identified by an environmental planning instrument, a development control plan or a policy adopted by the Council as being or affected by a coastline hazard, a coastal hazard or a coastal erosion hazard.	NO
▪ Clause 1.19(1)g or 1.19(5)h. Has been identified as being land in a foreshore area.	NO
▪ Clause 1.19(1)h. Has been identified as land that is in the 25 ANEF contour or a higher ANEF contour. (Applies only to the General Housing Code)	NO
▪ Clause 1.19(1)j or 1.19(5)i. Has been identified as unsewered land within a drinking water catchment.	NO
▪ Clause 1.19(1)i. Has been identified as land that is declared to be a special area under the Sydney Water Catchment Management Act 1998.	NO

### Housing Alterations Code

Complying development under the Housing Alterations Code **may not** be carried out on the land.

Reason why:

Refer to 1.17A & 1.18 (1) (c3) State Environmental Planning Policy (Except and Complying Development Codes) 2008:

clause 1.17A(d) or 1.18 (1) (c3) applies

**Commercial and Industrial Alterations Code**

Complying development under the Commercial and Industrial Alterations Code **may not** be carried out on the land.

Reason why:

Refer to 1.17A & 1.18 (1) (c3) State Environmental Planning Policy (Except and Complying Development Codes) 2008:

clause 1.17A(d) or 1.18 (1) (c3) applies

**Subdivisions Code**

Complying development under the Subdivisions Code **may not** be carried out on the land.

Reason why:

Refer to 1.17A & 1.18 (1) (c3) State Environmental Planning Policy (Except and Complying Development Codes) 2008:

clause 1.17A(d) or 1.18 (1) (c3) applies

**Rural Housing Code**

The Rural Housing Code does not apply to this Local Government Area.

**General Development Code**

Complying development under the General Development Code **may not** be carried out on the land.

Reason why:

Refer to 1.17A & 1.18 (1) (c3) State Environmental Planning Policy (Except and Complying Development Codes) 2008:

clause 1.17A(d) or 1.18 (1) (c3) applies

**Demolition Code**

Complying development under the Demolition Code **may not** be carried out on the land.

Reason why:

Refer to 1.17A & 1.18 (1) (c3) State Environmental Planning Policy (Except and Complying Development Codes) 2008:

clause 1.17A(d) or 1.18 (1) (c3) applies

(4) Coastal Protection Act, 1979

The council has not been notified by the department of public works that the land is affected by the operation of section 38 or 39 of the coastal protection act, 1979.

(4A) Certain information relating to beaches and coasts

(1) In relation to a coastal council an order has **not** been made under Part 4D of the coastal Protection Act 1979 in relation to temporary coastal protection works (within the meaning of that Act) on the land (or on public land adjacent to that land).

(2) In relation to a coastal council : Council has **not** been notified under section 55X of the Coastal Protection Act 1979 that temporary coastal protection works (within the meaning of that Act) have been placed on the land (or on public land adjacent to that land)

(4B) Annual charges under Local Government Act 1993 for coastal protection services that relate to existing coastal protection works

In relation to a coastal council : The owner (or any previous owner) of the land has not consented in writing to the land being subject to annual charges under section 496B of the Local Government Act 1993 for coastal protection services that relate to existing coastal protection works (within the meaning of section 553B of that Act).

**Note.** "Existing coastal protection works" are works to reduce the impact of coastal hazards on land (such as seawalls, revetments, groynes and beach nourishment) that existed before the commencement of section 553B of the Local Government Act 1993.

(5) Mine Subsidence District

This land has not been proclaimed to be a mine subsidence district within the meaning of section 15 of the mine subsidence compensation act, 1961.

(6) Road Widening and/or Road Realignment affected by (a) Division 2 of Part 3 of the Roads act 1993 or (c) any resolution of council or other authority.

This land **is not** affected by road widening and/or road realignment under section 25 of the Roads Act, 1993 and/or resolution of Council or any other authority.

(6) Road Widening and/or Road Realignment Affected by (b) any environmental planning instrument.

This land **is not** affected by any road widening or road realignment under any planning instrument.

(7) Council and other public authorities policies on hazard risk restrictions:

(a) The land **is not** affected by a policy adopted by the Council that that restricts the development of the land because of the likelihood of land slip, bushfire, flooding, tidal inundation, subsidence, acid sulphate soils or any other risk; and

(b) The land **is not** affected by a policy adopted by any other public authority and notified to the council for the express purpose of its adoption by that authority being referred to on planning certificate issued by Council, that restricts the development of the land because of the likelihood of land slip, bushfire, flooding, tidal inundation, subsidence, acid sulphate soils or any other risk.

**(7A) Flood related development controls information.**

The development on this land or part of this land is subject to flood related development controls refer to Clause 7.15 of Sydney Local Environment Plan 2012 and Section 3.7 of Sydney Development Control Plan 2012.

**(8) Land reserved for acquisition**

No environmental planning instrument, or proposed environmental planning instrument applying to the land, provides for the acquisition of the land by a public authority, as referred to in section 27 of the Act.

**(9) Contribution plans**

The following Contributions Plans apply to properties within the City of Sydney local government area. Contributions plans marked **YES** may apply to this property:

▪ Central Sydney Development Contributions Plan 2013 – in operation 9 <sup>th</sup> July 2013	<b>YES</b>
▪ Ultimo Pyrmont Section 94 Contributions Plan (approved C.S.P.C 15 <sup>th</sup> December 1994 and Council 19 <sup>th</sup> December 1994)	<b>NO</b>
▪ City of Sydney Development Contributions Plan 2006 – in operation 7 <sup>th</sup> April 2007	<b>NO</b>
▪ Redfern Waterloo Authority Contributions Plan 2006 – in operation 16 <sup>th</sup> May 2007 ▪ Redfern Waterloo Authority Affordable Housing Contributions Plan – in operation 16 <sup>th</sup> May 2007	<b>NO</b>

**(9A) Biodiversity certified land**

The land has not been certified as biodiversity certified land.

**(10) Biobanking Agreement**

Council has not been notified of a biobanking agreement under Part 7A of the Threatened Species Conservation Act 1995.

**(11) Bush fire prone land**

The land has not been identified as Bush fire prone land.

**(12) Property vegetation plans**

Not Applicable.

**(13) Orders under Trees (Disputes Between Neighbours) Act 2006**

Council has not been notified of an order which has been made under the *Trees (Disputes Between Neighbours) Act 2006* to carry out work in relation to a tree on the land.

(14) Directions under Part 3A

Not Applicable.

(15) Site compatibility certificates and conditions for seniors housing

(a) The land to which the certificate relates is not subject to a current site compatibility certificate (seniors housing), of which Council is aware, in respect of proposed development on the land.

(b) The land to which the certificate relates is not subject to any condition of consent to a development application granted after 11 October 2007 required by State Environmental Planning Policy (Housing for Seniors or People with a Disability) 2004.

(16) Site compatibility certificates for infrastructure

The land to which the certificate relates is not subject to a valid site compatibility certificate (infrastructure), of which Council is aware, in respect of proposed development on the land.

(17) Site compatibility certificates and conditions for affordable rental housing

(a) The land to which the certificate relates is not subject to a current site compatibility certificate (affordable rental housing), of which Council is aware, in respect of proposed development on the land.

(b) The land to which the certificate relates is not subject to any terms of a kind referred to in clause 17(1) or 37(1) of State Environmental Planning Policy (Affordable Rental Housing) 2009 that have been imposed as a condition of consent to a development application in respect of the land.

(18) Paper subdivision information

Not Applicable.

(19) Site verification certificates

The land to which the certificate relates is not subject to a valid site verification certificate of which Council is aware.

**Note.** The following matters are prescribed by section 59 (2) of the Contaminated Land Management Act 1997 as additional matters to be specified in a planning certificate:

(a) The land to which the certificate relates **is not** declared to be **significantly contaminated land** within the meaning of that act as at the date when the certificate is issued.

(b) The land to which the certificate relates **is not** subject to a **management order** within the meaning of that act as at the date when the certificate is issued.

(c) The land to which the certificate relates **is not** the subject of an **approved voluntary management proposal** within the meaning of that act at the date the certificate is issued.

(d) The land to which the certificate relates **is not** the subject of an **ongoing maintenance order** within the meaning of that act as at the date when the certificate is issued.

(e) As at the date when the certificate is issued, Council **has not** identified that a **site audit statement** within the meaning of that act has been received in respect of the land the subject of the certificate.

**PLANNING CERTIFICATE SECTION 149(2) INFORMATION:**

*Information provided in accordance with planning certificate section 149 (2) has been taken from council's records and advice from other authorities but council disclaims all liability for any omission or inaccuracy in the information. Specific inquiry should be made where doubt exists.*

**PLANNING CERTIFICATE UNDER SECTION 149 (5) OF THE ENVIRONMENTAL  
PLANNING AND ASSESSMENT ACT, 1979**

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*PLANNING CERTIFICATE SECTION 149 (5) ADVICE is current as at 12:00 noon two working days prior to the date of issue of this certificate. The following matters have been considered & details provided where information exists: easements in favour of council; parking permit scheme; heritage floor space restrictions; low-rental residential building; foreshore building line; tree preservation order.*

**Contaminated Land Potential:**

Council records do not have sufficient information about the uses (including previous uses) of the land which is the subject of this section 149 certificate to confirm that the land has not been used for a purpose which would be likely to have contaminated the land. Parties should make their own enquiries as to whether the land may be contaminated.

**Hazard Risk Restriction:**

The City of Sydney Local Environmental Plan 2012 incorporates Acid Sulfate soil maps. Development on the land identified in those maps should have regard to Division 4 clause 7.16 of the LEP.

**Construction Noise and View Loss Advice:**

Intending purchasers are advised that the subject property may be affected by construction noise and loss or diminution of views as a result of surrounding development.

**City of Sydney Tree Preservation Order 2004 (TPO)**

This order applies to all land where South Sydney Local Environmental Plan 1998 applies and the City of Sydney Council or the Central Sydney Planning Committee is the relevant consent authority under the *Environmental Planning & Assessment Act 1979*. Contact Council's Contract and Asset Management section for more information.

**Outstanding Notice & Order information**

In relation to this property, there **is not** an outstanding Order or Notice of Intention to issue an Order relating to Fire Safety (being an Order or Notice of Intention to issue an Order of type 6, 10, 11 under Section 121B of the Environmental Planning and Assessment Act, 1979). Further information about the Order or Notice of Intention to issue an Order may be obtained by applying for a certificate under Section 121ZP of the Environmental Planning and Assessment Act and Section 735A of the Local Government Act.

In relation to this property, there **is not** an outstanding Order or Notice of Intention to issue an Order (being an Order or Notice of Intention to issue an Order of a type other than relating to fire safety). Further information about the Order or Notice of Intention to issue an Order may be obtained by applying for a certificate under Section 121ZP of the Environmental Planning and Assessment Act and Section 735A of the Local Government Act.

**Residential & Visitor Parking Permit Schemes**

The City of Sydney co-ordinates a Resident Permit Parking Scheme and a Visitor Permit Parking scheme. This property may be restricted from participating in either scheme. Eligibility may change after the date of this certificate, as parking supply and other traffic demands change. For more information contact Council's call centre on 9265 9333.



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## **ADVICE FROM OTHER BODIES**

### **Sydney Ports Corporation Advice**

Some land in the City of Sydney located in the vicinity of the White Bay, Glebe Island and Darling Harbour ports may be affected by noise from port operations.

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*Advice provided in accordance with planning certificate section 149 (5) is supplied in good faith. Council accepts no liability for the validity of the advice given. (see section 149 (6) of the Environmental Planning and Assessment Act, 1979).*

***For information regarding outstanding notices and orders a CERTIFICATE FOR OUTSTANDING NOTICES OF INTENTION AND/OR AN ORDER UNDER SECTION 735A OF THE LOCAL GOVERNMENT ACT, 1993 AND SECTION 121ZP OF THE ENVIRONMENTAL PLANNING AND ASSESSMENT ACT, 1979 may be applied for at Sydney City Council.***

*Planning certificate section 149 (2), local planning controls are available for inspection at the following locations:*

### **General Enquiries :**

**Telephone: 02 9265 9333**

**Facsimile: 02 9265 9415**

### **Town Hall House**

Level 2,  
Town Hall House,  
456 Kent Street,  
Sydney.  
8am – 6pm, Monday - Friday

### **Glebe Customer Service Centre**

Glebe Library,  
186 Glebe Point Road,  
Glebe  
9am – 5pm, Monday – Friday

### **Neighbourhood Service Centre Kings Cross**

50 Darlinghurst Road,  
Potts Point  
9am – 5pm, Monday – Friday  
9am – 12pm, Saturday

### **Neighbourhood Service Centre Redfern**

158 Redfern Street  
Redfern  
9am-5pm Monday – Friday  
9am – 12 Noon Saturday

### **Green Square Customer Service Centre**

The Tote,  
100 Joynton Avenue,  
Zetland  
10am-6pm Monday – Friday

*State planning controls are available for inspection at the following locations:*

**Sydney Harbour Foreshore Authority** (former Sydney Cove Authority and Darling Harbour Authority),  
Level 6,  
66 Harrington Street,  
The Rocks.

**Department of Planning & Infrastructure Information Centre**  
23-33 Bridge Street,  
Sydney NSW 2000

*Where planning certificate section 149 (5) matters are supplied, complete details are available by writing to:*

*Chief Executive Officer,  
City of Sydney,  
G.P.O. Box 1591,  
Sydney, NSW 2000*

End of Document

## APPENDIX D

### NSW EPA SEARCH RESULTS

#### List of NSW Contaminated Sites under Section 60 of the CLM Act 1997

	Location	Activity	Regulation
SUFFOLK PARK	Suffolk Park dip site Cnr Broken Head Road & Beech DRIVE	Cattle Dip	Regulation under CLM Act not required
SURRY HILLS	Woolworths Petrol Surry Hills 475 Cleveland STREET	Service Station	Under assessment
SURRY HILLS	Legion Cabs (Trading) Cooperative 69 - 81 Foveaux STREET	Service Station	Under assessment
SURRY HILLS	Ausgrid Road Reserve Mary STREET	Other Industry	Regulation under CLM Act not required
SUTHERLAND	United Service Station and Sutherland Reservoir 1 to 3 Oxford STREET	Service Station	Contamination currently regulated under CLM Act

#### Record of Notices under Section 58 of the CLM Act 1997

### Search results

Your search for: Suburb: SURRY HILLS

did not find any records in our database.

#### Search of the POEO Public Register

Your search for: **General Search** with the following criteria

**Suburb - SURRY HILLS**

returned 6 results

[Export to excel](#)

1 of 1 Pages

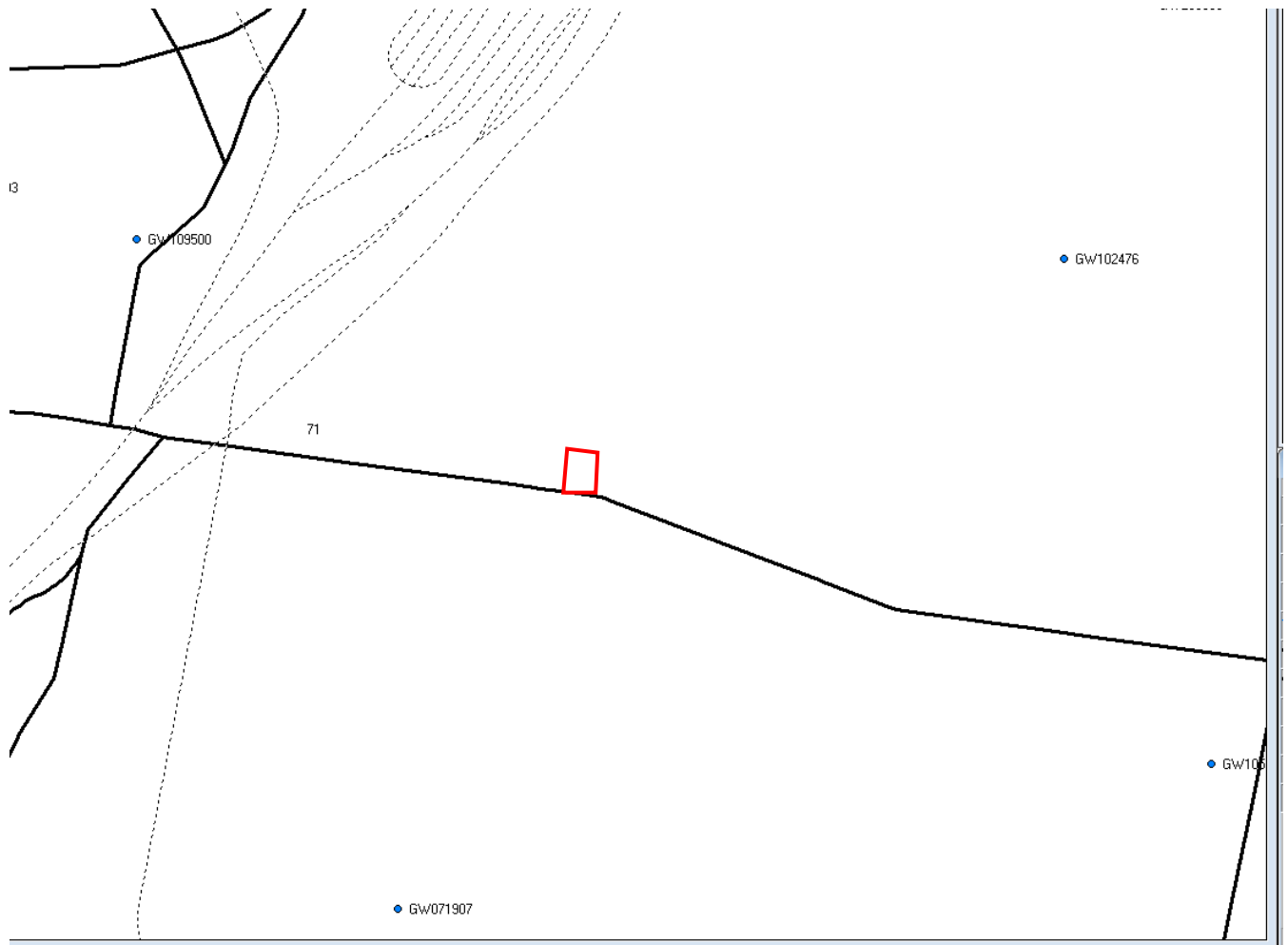
[Search Again](#)

Number	Name	Location	Type	Status	Issued date
<a href="#">1521925</a>	Airport Motorway Limited	Between Mort and Thurlow Street, SURRY HILLS, NSW 2010	s.55 Licence Refusal	Issued	12 May 2014
<a href="#">6924</a>	METROPOLITAN ELECTROPLATERS PTY LTD	123 RESERVOIR ROAD, SURRY HILLS, NSW 2010	POEO licence	Surrendered	26 Jun 2000
<a href="#">7237</a>	NATIONWIDE NEWS PTY. LIMITED	2 HOLT STREET, SURRY HILLS, NSW 2010	POEO licence	Surrendered	20 Sep 2000
<a href="#">7009</a>	PALLOYS PTY LTD	74-84 FOVEAUX STREET, SURRY HILLS, NSW 2010	POEO licence	Surrendered	26 Jun 2000
<a href="#">1049628</a>	PALLOYS PTY LTD	74-84 FOVEAUX STREET, SURRY HILLS, NSW 2010	s.58 Licence Variation	Issued	07 Jul 2005
<a href="#">12236</a>	THE PRETERM FOUNDATION	1-5 Randle Street, SURRY HILLS, NSW 2010	POEO licence	No longer in force	17 Dec 2004

16 March 2016

## APPENDIX E

### REGISTERED GROUNDWATER BORES WITHIN 1.5 KM OF THE SITE



# NSW Office of Water

## Work Summary

GW109500

Licence: 10BL601554

Licence Status: ACTIVE

Authorised Purpose(s):  
Intended Purpose(s): V1

Work Type:  
Work Status:  
Construct.Method:  
Owner Type:

Commenced Date:  
Completion Date: 01/03/2007

Final Depth:  
Drilled Depth:

Contractor Name: Terratest Pty Ltd  
Driller:  
Assistant Driller:

Property: BROADWAY BREWERY 26 BROADWAY  
CHIPPENDALE 2008 NSW  
GWMA:  
GW Zone:

Standing Water Level:  
Salinity:  
Yield:

### Site Details

Site Chosen By:

County  
Form A: CUMBE  
Licensed: CUMBERLA

Parish  
CUMBE.1  
ALEXANDR

Cadastre  
1/76719  
Whole Lot 1/76719

Region: 10 - Sydney South Coast  
River Basin: - Unknown  
Area/District:

CMA Map:  
Grid Zone: ?

Scale:

Elevation: 0.00 m (A.H.D.)  
Elevation Source:

Northing: 6248974.0  
Easting: 333698.0

Latitude: 33°53'11.4"S  
Longitude: 151°12'06.0"E

GS Map: -

MGA Zone: 56

Coordinate Source:

### Construction

Negative depths indicate Above Ground Level; C-Cemented; SL-Slot Length; A-Aperture; GS-Grain Size; Q-Quantity; PL-Placement of Gravel Pack; PC-Pressure Cemented; S-Sump; CE-Centralisers

Hole	Pipe	Component	Type	From (m)	To (m)	Outside Diameter (mm)	Inside Diameter (mm)	Interval	Details
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### Water Bearing Zones

From (m)	To (m)	Thickness (m)	WBZ Type	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Hole Depth (m)	Duration (hr)	Salinity (mg/L)
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### Geologists Log

#### Drillers Log

From (m)	To (m)	Thickness (m)	Drillers Description	Geological Material	Comments
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### Remarks

\*\*\* End of GW109500 \*\*\*

Warning To Clients: This raw data has been supplied to the NSW Office of Water by drillers, licensees and other sources. The NOW does not verify the accuracy of this data. The data is presented for use by you at your own risk. You should consider verifying this data before relying on it. Professional hydrogeological advice should be sought in interpreting and using this data.

# NSW Office of Water

## Work Summary

GW105525

Licence: 10BL159952

Licence Status: CONVERTED

Authorised Purpose(s):  
Intended Purpose(s): J

Work Type:  
Work Status:  
Construct.Method:  
Owner Type:

Commenced Date:  
Completion Date: 18/11/2003

Final Depth: 5.49 m  
Drilled Depth: 5.49 m

Contractor Name:  
Driller:  
Assistant Driller:

Property: N/A  
GWMA:  
GW Zone:

Standing Water Level: 2.745  
Salinity:  
Yield: 1.000

### Site Details

Site Chosen By:

County  
Form A: CUMBE  
Licensed: CUMBERLA

Parish  
CUMBE.1  
ALEXANDR

Cadastre  
2 785520  
Whole Lot 2/785520

Region: 10 - Sydney South Coast  
River Basin: 213 - SYDNEY COAST - GEORGES  
RIVER  
Area/District:

CMA Map: 9130-3S  
Grid Zone: ?

Scale:

Elevation: 0.00 m (A.H.D.)  
Elevation Source: Unknown

Northing: 6248227.0  
Easting: 335025.0

Latitude: 33°53'36.4"S  
Longitude: 151°12'57.2"E

GS Map: -

MGA Zone: 56

Coordinate Source:

### Construction

Negative depths indicate Above Ground Level; C-Cemented; SL-Slot Length; A-Aperture; GS-Grain Size; Q-Quantity; PL-Placement of Gravel Pack; PC-Pressure Cemented; S-Sump; CE-Centralisers

Hole	Pipe	Component	Type	From (m)	To (m)	Outside Diameter (mm)	Inside Diameter (mm)	Interval	Details
1	1	Casing	Steel	0.00	4.49	42	38		Glued

### Water Bearing Zones

From (m)	To (m)	Thickness (m)	WBZ Type	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Hole Depth (m)	Duration (hr)	Salinity (mg/L)
2.75	5.49	2.75	Unknown	2.75		1.00			

### Geologists Log

#### Drillers Log

From (m)	To (m)	Thickness (m)	Drillers Description	Geological Material	Comments
0.00	2.75	2.75	SANDY CLAY, SOIL LAND FILL	Sandy Clay	
2.75	5.49	2.74	UNCONSOLIDATED ALL SANDS	Sand	

### Remarks

10/11/2010: Karla Abbs 10-Nov-2010; Removed invalid codes and updated drillers log

\*\*\* End of GW105525 \*\*\*

Warning To Clients: This raw data has been supplied to the NSW Office of Water by drillers, licensees and other sources. The NOW does not verify the accuracy of this data. The data is presented for use by you at your own risk. You should consider verifying this data before relying on it. Professional hydrogeological advice should be sought in interpreting and using this data.

# NSW Office of Water

## Work Summary

GW102476

Licence: 10BL157882

Licence Status: ABANDONED

Authorised Purpose(s):  
Intended Purpose(s): V1

Work Type:

Work Status:

Construct.Method:

Owner Type:

Commenced Date:  
Completion Date: 01/01/1999

Final Depth: 4.00 m  
Drilled Depth:

Contractor Name:

Driller:

Assistant Driller:

Property: N/A  
GWMA:  
GW Zone:

Standing Water Level:  
Salinity:  
Yield:

### Site Details

Site Chosen By:

County Parish Cadastre  
Form A:  
Licensed: CUMBERLA ALEXANDR Whole Lot

Region: 10 - Sydney South Coast  
River Basin: - Unknown  
Area/District:

CMA Map:  
Grid Zone: ? Scale:

Elevation: 0.00 m (A.H.D.)  
Elevation Source:

Northing: 6248965.0  
Easting: 334832.0

Latitude: 33°53'12.3"S  
Longitude: 151°12'50.2"E

GS Map: -

MGA Zone: 56

Coordinate Source:

### Construction

Negative depths indicate Above Ground Level; C-Cemented; SL-Slot Length; A-Aperture; GS-Grain Size; Q-Quantity; PL-Placement of Gravel Pack; PC-Pressure Cemented; S-Sump; CE-Centralisers

Hole	Pipe	Component	Type	From (m)	To (m)	Outside Diameter (mm)	Inside Diameter (mm)	Interval	Details
1	1	Casing	P.V.C.	0.00	0.00	50			

### Water Bearing Zones

From (m)	To (m)	Thickness (m)	WBZ Type	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Hole Depth (m)	Duration (hr)	Salinity (mg/L)
----------	--------	---------------	----------	------------	------------	-------------	----------------	---------------	-----------------

### Geologists Log

#### Drillers Log

From (m)	To (m)	Thickness (m)	Drillers Description	Geological Material	Comments
----------	--------	---------------	----------------------	---------------------	----------

### Remarks

01/01/1999: Form A Remarks:  
CANCELLED ON LAS  
BORE BACKFILLED  
INFORMATION FROM AG APPLICATION ONLY

\*\*\* End of GW102476 \*\*\*

Warning To Clients: This raw data has been supplied to the NSW Office of Water by drillers, licensees and other sources. The NOW does not verify the accuracy of this data. The data is presented for use by you at your own risk. You should consider verifying this data before relying on it. Professional hydrogeological advice should be sought in interpreting and using this data.



# NSW Office of Water

## Work Summary

GW071907

Licence: 10BL152224

Licence Status: CANCELLED

Authorised Purpose(s):  
Intended Purpose(s): Y

Work Type:  
Work Status:  
Construct.Method:  
Owner Type:

Commenced Date:  
Completion Date: 15/05/2008

Final Depth: 180.00 m  
Drilled Depth: 180.00 m

Contractor Name:  
Driller:  
Assistant Driller:

Property: REDFERN PARK CHALMERS ST  
REDFERN 2016 NSW

Standing Water Level: 11.600

GWMA:  
GW Zone:

Salinity:  
Yield: 0.100

### Site Details

Site Chosen By:

County  
Form A: CUMBE  
Licensed: CUMBERLA

Parish  
CUMBE.1  
ALEXANDR

Cadastre  
1 135313  
Whole Lot 1//135313

Region: 10 - Sydney South Coast  
River Basin: 213 - SYDNEY COAST - GEORGES  
RIVER  
Area/District:

CMA Map: 9130-3S  
Grid Zone: ?

Scale:

Elevation: 30.00 m (A.H.D.)  
Elevation Source: EST.CONTOUR 8-15M.

Northing: 6247997.0  
Easting: 334034.0

Latitude: 33°53'43.3"S  
Longitude: 151°12'18.5"E

GS Map: -

MGA Zone: 56

Coordinate Source: GPS Multi-b

### Construction

Negative depths indicate Above Ground Level; C-Cemented; SL-Slot Length; A-Aperture; GS-Grain Size; Q-Quantity; PL-Placement of Gravel Pack; PC-Pressure Cemented; S-Sump; CE-Centralisers

Hole	Pipe	Component	Type	From (m)	To (m)	Outside Diameter (mm)	Inside Diameter (mm)	Interval	Details
1	1	Casing	Pvc Class 9	-0.30	57.70	140			Held in Clamp, Screwed and Glued
1	1	Casing	Steel	-0.30	17.70	156			Driven into small hole, Welded

### Water Bearing Zones

From (m)	To (m)	Thickness (m)	WBZ Type	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Hole Depth (m)	Duration (hr)	Salinity (mg/L)
24.50	24.70	0.20	Unknown			0.10	30.00		152.00
55.00	55.50	0.50	Unknown			0.30	60.00		190.00
82.00	85.00	3.00	Unknown			0.10	90.00		206.00
138.00	154.00	16.00	Unknown		11.60	0.10	162.00		345.00

### Geologists Log

#### Drillers Log

From (m)	To (m)	Thickness (m)	Drillers Description	Geological Material	Comments
0.00	3.00	3.00	SANDY CLAY	Sandy Clay	
3.00	8.50	5.50	CLAY	Clay	
8.50	24.00	15.50	SHALE	Shale	
24.00	24.50	0.50	SANDSTONE GREY	Sandstone	
24.50	24.70	0.20	SANDSTONE GREY FRACTURED	Sandstone	
24.70	44.00	19.30	SANDSTONE GREY	Sandstone	
44.00	55.00	11.00	SANDSTONE QUARTZ	Sandstone	

55.00	55.50	0.50	SANDSTONE GREY FRACTURED	Sandstone	
55.50	82.00	26.50	SANDSTONE GREY	Sandstone	
82.00	85.00	3.00	SANDSTONE QUARTZ	Sandstone	
85.00	128.00	43.00	SANDSTONE GREY	Sandstone	
128.00	130.00	2.00	SANDSTONE QUARTZ	Sandstone	
130.00	138.00	8.00	SANDSTONE GREY	Sandstone	
138.00	154.00	16.00	SANDSTONE QUARTZ	Sandstone	
154.00	180.00	26.00	SANDSTONE GREY	Sandstone	

## Remarks

24/09/2008: Previously 10BL152224.

02/09/2009: Previous Lic No:10BL602472.

19/11/2012: Nat Carling, 19-Nov-2012; Corrected owner type & added work name. Added Rock Type codes to driller's log.

\*\*\* End of GW071907 \*\*\*

Warning To Clients: This raw data has been supplied to the NSW Office of Water by drillers, licensees and other sources. The NOW does not verify the accuracy of this data. The data is presented for use by you at your own risk. You should consider verifying this data before relying on it. Professional hydrogeological advice should be sought in interpreting and using this data.

## **APPENDIX F**

### **BORE HOLE LOGS**

BH No: BH 1

PAGE 1 OF 2

Job No: 2187

# Borehole Log

Client: NSW Department of Education

Started: 21-1-16

Project: Proposed ISHS Redevelopment Project

Finished: 21-1-16

Location: 200 Chalmers Street, Surry Hills, NSW

Borehole Size: 100mm diameter

Rig Type: Com MC-T200 Driller: M Rana

Angle From Horizontal:

Logged: LM

RL Surface: 27.1

Contractor: Terratest Pty Ltd

Bearing: ---

Checked: TD

Method	Water	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description	Samples Tests Remarks	Moisture Condition	Consistency/Density Index	Additional Observations
ADT		26	2			ASPHALTIC CONCRETE 50mm thickness FILL: Roadbase, dark grey, fine to coarse crushed rock gravel, trace of clay and silt, well compacted	Enviro Sample	D		PAVEMENT
						FILL: Gravelly Silty Clay, mixed with some sand, brown and grey with red mottling, fine to coarse gravel, clay of medium plasticity, appears poorly compacted	Enviro Sample	M		FILL
							SPT 3, 3, 4 N=7			
					SP	SAND, fine to medium, brown and yellow, trace of fine gravel	Enviro Sample	M	L	AEOLIAN
					Cl - CH	Sandy Silty CLAY, brown/red and grey, medium to high plasticity, with fine to coarse gravel, trace of organics (roots)	SPT 5, 6, 6 N=12	M	St	ALLUVIAL
					CH	Silty CLAY, red and brown with grey mottling, high plasticity, with fine to coarse ironstone gravel	SPT 5, 7, 12 N=19	M	Vst	RESIDUAL
	Very Slight Seepage	20	6			INTERBEDDED Shaley Clay and extremely weathered Siltstone / Shale, grey and brown, with some orange/yellow bands		M		INTERBEDDED SOIL/ROCK
						SHALE, extremely weathered, brown and grey, with frequent clay bands, extremely low strength		M		BEDROCK
						SHALE, highly weathered, grey and dark grey, with frequent shaley clay bands, very low strength		M		
		16	10			Borehole BH 1 continued as cored hole				
		12								

BH No: BH 1

PAGE 2 OF 2

Job No: 2187

# Cored Borehole Log

Client: NSW Department of Education

Started: 21-1-16

Project: Proposed ISHS Redevelopment Project

Finished: 21-1-16

Location: 200 Chalmers Street, Surry Hills, NSW

Borehole Size: 100mm diameter

Rig Type: Com MC-T200 Driller: M Rana

Angle From Horizontal:


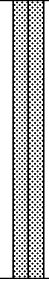
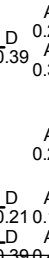

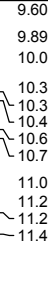
Logged: LM

RL Surface: 27.1

Contractor: Terratest Pty Ltd

Bearing: ---

Checked: TD

Method	Water	RL (m)	Depth (m)	Graphic Log	Material Description	Weathering	Estimated Strength	Is <sub>(50)</sub> MPa D- diam- etral A- axial	RQD %	Defect Spacing mm	Additional Data
		26									
			2								
		24									
			4								
		22									
			6								
		20									
			8								
		18									
					Continued from non-cored borehole						
NMLC		16	10		SHALE, highly weathered, dark grey, with some grey laminations SHALE, highly weathered, dark grey, with grey laminations	HW					9.60, EW Seam, 60mm t. 9.89, Joint, 30°, planar 10.06, Joint, 20°, planar 10.30, Joint, 40°, planar 10.33, Joint, 40°, planar 10.40, Joint, 50°, planar 10.63, Joint, 45°, planar 10.70, Crushed Seam 200mm 11.05, Joint, 30°, curved 11.20, Joint, 45°, planar 11.29, EW Seam, 80mm t. 11.46, Clay Seam, 25mm t.
			12		BH 1 terminated at 11.81m						

BH No: BH 7  
PAGE 1 OF 2  
Job No: 2187

# Borehole Log

**Client:** NSW Department of Education **Started:** 21-1-16  
**Project:** Proposed ISHS Redevelopment Project **Finished:** 21-1-16  
**Location:** 200 Chalmers Street, Surry Hills, NSW **Borehole Size:** 100mm diameter  
**Rig Type:** Com MC-T200 **Driller:** M Rana **Angle From Horizontal:** **Logged:** LM  
**RL Surface:** 28.5 **Contractor:** Terratest Pty Ltd **Bearing:** --- **Checked:** TD

Method	Water	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description	Samples Tests Remarks	Moisture Condition	Consistency/Density Index	Additional Observations
ADT	Very Slight Seepage	28				ASPHALTIC CONCRETE 50mm thickness FILL: Roadbase, dark grey, fine to coarse crushed rock gravel, with sand and silt, trace of clay, well compacted	Enviro Sample	D		PAVEMENT
						FILL: Mixture of Gravelly Silty Sand, dark brown and grey, with some fine to coarse sandstone gravel, and with some fragments of brick, appears poorly compacted	Enviro Sample SPT 4, 2, 4 N=6	M		FILL
			2		CH	Silty CLAY, red and brown with grey mottling, high plasticity, with fine to coarse ironstone gravel	Enviro Sample	M	St	RESIDUAL
		26					SPT 3, 4, 6 N=10		Vst	
			4		CI	Silty CLAY, grey with brown mottling, medium plasticity, with some layers of extremely weathered brown and grey shale		M	Vst H	
		24				INTERBEDDED Shaley Clay and extremely weathered Siltstone, light grey, with brown bands	SPT 7, 14, 20 N=34	M		INTERBEDDED SOIL/ROCK
			6							
		22				SHALE, extremely weathered, brown and grey, with frequent clay bands, extremely low strength		M		BEDROCK
			8			SHALE, highly weathered, grey and dark grey, with frequent shaley clay bands, very low strength		M		
		20				Borehole BH 7 continued as cored hole				
			10							
		18								
			12							



# EXPLANATORY NOTES - DRILL & EXCAVATION LOGS

## GENERAL

Information obtained from site investigations is recorded on log sheets. The "Cored Drill Hole Log" presents data from an operation where a core barrel has been used to recover material - commonly rock. The "Non-Core Drill Hole - Geological Log" presents data from an operation where coring has not been used and information is based on a combination of regular sampling and insitu testing. The material penetrated in non-core drilling is commonly soil but may include rock. The "Excavation - Geological Log" presents data and drawings from exposures of soil and rock resulting from excavation of pits, trenches, etc.

The heading of the log sheets contains information on Project Identification, Hole or Pit Identification, Location and Elevation. The main section of the logs contains information on methods and conditions, material substance description and structure presented as a series of columns in relation to depth below the ground surface which is plotted on the left side of the log sheet. The common depth scale is 8m per drill log sheet and about 3-5m for excavation logs sheets.

As far as is practicable the data contained on the log sheets is factual. Some interpretation is inevitable in the identification of material boundaries in areas of partial sampling, the location of areas of core loss, description and classification of material, estimation of strength and identification of drilling induced fractures. Material description and classifications are based on SAA Site Investigation Code AS 1726 - 1993 with some modifications as defined below.

These notes contain an explanation of the terms and abbreviations commonly used on the log sheets.

## DRILLING

### Drilling & Casing

<b>AS</b>	Auger Screwing
<b>AD/V</b>	Auger Drilling with V-Bit
<b>AD/T</b>	Auger Drilling with TC Bit
<b>WB</b>	Wash-bore drilling
<b>RR</b>	Rock Roller
<b>NMLC</b>	NMLC core barrel
<b>NQ</b>	NQ core barrel
<b>HMLC</b>	HMLC core barrel
<b>HQ</b>	HQ core barrel

### Drilling Fluid/Water

The drilling fluid used is identified and loss of return to the surface estimated as a percentage.

### Drilling Penetration/Drill Depth

Core lifts are identified by a line and depth with core loss per run as a percentage. Ease of penetration in non-core drilling is abbreviated as follows:

<b>VE</b>	Very Easy
<b>E</b>	Easy
<b>F</b>	Firm
<b>H</b>	Hard
<b>VH</b>	Very Hard

### Groundwater Levels

Date of measurement is shown.



Standing water level measured in completed borehole



Level taken during or immediately after drilling

### Samples/Tests

<b>D</b>	Disturbed
<b>U</b>	Undisturbed
<b>C</b>	Core Sample
<b>SPT</b>	Standard Penetration Test
<b>N</b>	Result of SPT (*sample taken)
<b>VS</b>	Vane Shear Test
<b>IMP</b>	Borehole Impression Device
<b>PBT</b>	Plate Bearing Test
<b>PZ</b>	Piezometer Installation
<b>HP</b>	Hand Penetrometer Test

## EXCAVATION LOGS

Explanatory notes are provided at the bottom of drill log sheets. Information about the origin, geology and pedology may be entered in the "Structure and other Observations" column. The depth of the base of excavation (for the logged section) at the appropriate depth in the "Material Description" column. Refusal of excavation plant is noted should it occur. A sketch of the exposure may be added.

### MATERIAL DESCRIPTION - SOIL

**Classification Symbol** - In accordance with the Unified Classification System (AS 1726-1993, Appendix A, Table A1)

**Material Description** - In accordance with AS 1726-1993, Appendix A2.3

### Moisture Condition

<b>D</b>	Dry, looks and feels dry
<b>M</b>	Moist, No free water on remoulding
<b>W</b>	Wet, free water on remoulding

**Consistency** - In accordance with AS 1726-1993, Appendix A2.5

<b>VS</b>	Very Soft	< 25kPa
<b>S</b>	Soft	25 - 50kPa
<b>F</b>	Firm	50 - 100kPa
<b>St</b>	Stiff	100 - 200kPa
<b>VSt</b>	Very Stiff	200 - 400kPa
<b>H</b>	Hard	≥ 400kPa

Strength figures quoted are the approximate range of Unconfined Compressive Strength for each class.

**Density Index.** (%) is estimated or is based on SPT results. Approximate N Value correlation is shown in right column.

<b>VL</b>	Very Loose	< 15%	0 - 4
<b>L</b>	Loose	15 - 35%	4 - 10
<b>MD</b>	Medium Dense	35 - 65%	10 - 30
<b>D</b>	Dense	65 - 85%	30 - 50
<b>VD</b>	Very Dense	> 85%	> 50



## ***MATERIAL DESCRIPTION -ROCK***

### **Material Description**

Identification of rock type, composition and texture based on visual features in accordance with AS 1726-1993, Appendix A3.1-A3.3 and Tables A6a, A6b and A7.

### **Core Loss**

Is shown at the bottom of the run unless otherwise indicated.

### **Bedding**

Description	Spacing (mm)
Thinly Laminated	< 6
Laminated	6 - 20
Very Thinly Bedded	20 - 60
Thinly Bedded	60 - 200
Medium Bedded	200 - 600
Thickly Bedded	600 - 2000
Very Thickly Bedded	> 2000

***Weathering*** - No distinction is made between weathering and alteration. Weathering classification assists in identification but does not imply engineering properties.

<b>Fresh (F)</b>	Rock substance unaffected by weathering
<b>Slightly Weathered (SW)</b>	Rock substance partly stained or discoloured. Colour and texture of fresh rock recognisable.
<b>Moderately Weathered (MW)</b>	Staining or discolouration extends throughout rock substance. Fresh rock colour not recognisable.
<b>Highly Weathered (HW)</b>	Stained or discoloured throughout. Signs of chemical or physical alteration. Rock texture retained.
<b>Extremely Weathered (EW)</b>	Rock texture evident but material has soil properties and can be remoulded.

***Strength*** - The following terms are used to described rock strength:

Rock Strength Class	Abbreviation	Point Load Strength Index, $I_s(50)$ (MPa)
Extremely Low	EL	< 0.03
Very Low	VL	0.03 to 0.1
Low	L	0.1 to 0.3
Medium	M	0.3 to 1
High	H	1 to 3
Very High	VH	3 to 10
Extremely High	EH	≥ 10

Strengths are estimated and where possible supported by Point Load Index Testing of representative samples. Test results are plotted on the graphical estimated strength by using:

- Diametral Point Load Test
- Axial Point Load Test

Where the estimated strength log covers more than one range it indicates the rock strength varies between the limits shown.

## ***MATERIALS STRUCTURE/FRACTURES***

### **ROCK**

***Natural Fracture Spacing*** - A plot of average fracture spacing excluding defects known or suspected to be due to drilling, core boxing or testing. Closed or cemented joints, drilling breaks and handling breaks are not included in the Natural Fracture Spacing.

***Visual Log*** - A diagrammatic plot of defects showing type, spacing and orientation in relation to core axis.

Defects		
	————	Defects open in-situ or clay sealed
	-----	Defects closed in-situ
	.....	Breaks through rock substance

***Additional Data*** - Description of individual defects by type, orientation, in-filling, shape and roughness in accordance with AS 1726-1993, Appendix A Table A10, notes and Figure A2.

Type		
	BP	Bedding Parting
	JT	Joint
	SM	Seam
	FZ	Fracture Zone
	SZ	Shear Zone
	VN	Vein
	FL	Foliation
	CL	Cleavage
	DL	Drill Lift
	HB	Handling break
	DB	Drilling break

***Orientation*** - angle relative to the plane normal to the core axis.

Infilling		
	CN	Clean
	X	Carbonaceous
	Clay	Clay
	KT	Chlorite
	CA	Calcite
	Fe	Iron Oxide
	Qz	Quartz
	MS	Secondary Mineral
	MU	Unidentified Mineral
Shape		
	PR	Planar
	CU	Curved
	UN	Undulose
	ST	Stepped
	IR	Irregular
	DIS	Discontinuous
Roughness		
	POL	Polished
	SL	Slickensided
	S	Smooth
	RF	Rough
	VR	Very Rough

### **SOIL**

***Structures*** - Fissuring and other defects are described in accordance with AS 1726-1993, Appendix A2.6, using the terminology for rock defects.

***Origin*** - Where practicable an assessment is provided of the probable origin of the soil, eg fill, topsoil, alluvium, colluvium, residual soil.



Job No:	2187
Hole No:	<b>BH6</b>
Date:	21-01-16
Logged:	MD

Surface RL:	Approximately 30m AHD
-------------	-----------------------

Test Method:	Bore Hole
--------------	-----------

Depth (m)	Graphic Log	Classification	Description	PID	Samples	Additional Comments
0.00		Fill	Asphalt	-		
0.05		Fill	Roadbase	-		
0.30		Fill	Silty sand, brown/yellow, loose, fine to medium particle size, dry to damp with trace gravel.	-	BH6-0.3-0.4 QA1	No Odour
0.60		Natural	Silty sandy clay, brown/orange, high plasticity, stiff and moist.	-	BH6-1.4-1.5	No Odour
2.00		Natural	Silty clay, brown/red, high plasticity, very stiff and moist with trace ironstone.		BH6-2.4-2.5	No Odour

*Borehole Terminated at 2.5m*

## Weathering

CW - Completely Weathered  
EW - Extremely Weathered  
HW - Highly Weathered  
MW - Moderately Weathered  
SW - Slightly Weathered  
F - Fresh



# Alliance Geotechnical

ENGINEERING | ENVIRONMENTAL | TESTING

Your On-Site Geotechnical & Environmental Specialists

Job No: 2187

Hole No: BH5

Date: 21-01-16

Logged: MD

Client: Department of Education and Communities

Surface RL: Approximately 30m AHD

Location: Cleveland Street, Surry Hills, NSW

Test Method: Bore Hole

Depth (m)	Graphic Log	Classification	Description	PID	Samples	Additional Comments
0.00		Fill	Asphalt	-		
0.05		Fill	Roadbase	-		
0.10		Fill	Silty sandy clay, dark brown/grey, moderate plasticity, soft to firm and dry to damp with medium coarse gravel.	-	BH5-0.3-0.4	No Odour
1.00		Natural	Silty sandy clay, brown/grey, moderate plasticity, firm to stiff and moist.	-	BH5-1.0-1.1	No Odour
1.40		Natural	Silty sandy clay, brown/yellow/grey, high plasticity, very stiff and moist.		BH5-2.0-2.1	No Odour

*Borehole Terminated at 2.0m*

## Strength

s - Soft  
f - Firm  
st - Stiff  
vst - Very Stiff  
h - Hard

## Relative Density

VL - Very Loose  
L - Loose  
MD - Medium Dense  
D - Dense  
VD - Very Dense

## Moisture

D - Dry  
SM - Slightly Moist  
M - Moist  
VM - Very Moist  
W - Wet

## Weathering

CW - Completely Weathered  
EW - Extremely Weathered  
HW - Highly Weathered  
MW - Moderately Weathered  
SW - Slightly Weathered  
F - Fresh



# Alliance Geotechnical

ENGINEERING | ENVIRONMENTAL | TESTING

Your On-Site Geotechnical & Environmental Specialists

Job No: 2187

Hole No: BH4

Date: 21-01-16

Logged: MD

Client: Department of Education and Communities

Surface RL: Approximately 30m AHD

Location: Cleveland Street, Surry Hills, NSW

Test Method: Bore Hole

Depth (m)	Graphic Log	Classification	Description	PID	Samples	Additional Comments
0.00		Fill	Asphalt	-		
0.05		Fill	Roadbase	-		
0.30		Fill	Silty gravelly clay, brown, low to moderate plasticity, fine to medium coarse gravel, moist and soft.	-	BH4-0.3-0.4	No Odour
1.50		Natural	Silty sandy clay, brown/orange, moderate plasticity, moist and stiff.	-	BH4-1.4-1.5 BH4-2.5-2.6	No Odour

Borehole Terminated at 2.6m

## Strength

s - Soft  
f - Firm  
st - Stiff  
vst - Very Stiff  
h - Hard

## Relative Density

VL - Very Loose  
L - Loose  
MD - Medium Dense  
D - Dense  
VD - Very Dense

## Moisture

D - Dry  
SM - Slightly Moist  
M - Moist  
VM - Very Moist  
W - Wet

## Weathering

CW - Completely Weathered  
EW - Extremely Weathered  
HW - Highly Weathered  
MW - Moderately Weathered  
SW - Slightly Weathered  
F - Fresh



# Alliance Geotechnical

ENGINEERING | ENVIRONMENTAL | TESTING

Your On-Site Geotechnical & Environmental Specialists

Job No:	2187
Hole No:	BH3
Date:	21-01-16
Logged:	MD

Client: Department of Education and Communities

Surface RL: Approximately 30m AHD

Location: Cleveland Street, Surry Hills, NSW

Test Method: Bore Hole

Depth (m)	Graphic Log	Classification	Description	PID	Samples	Additional Comments
0.00		Fill	Silty sand, dark brown, loose, fine to medium particle size and damp (topsoil).	-		
0.30		Fill	Silty sand, dark brown, loose, fine to medium particle size and damp with tree roots and bitumenous gravels.	-	BH3-0.3-0.4	No Odour

*Borehole Terminated at 0.5m*

## Strength

s - Soft  
f - Firm  
st - Stiff  
vst - Very Stiff  
h - Hard

## Relative Density

VL - Very Loose  
L - Loose  
MD - Medium Dense  
D - Dense  
VD - Very Dense

## Moisture

D - Dry  
SM - Slightly Moist  
M - Moist  
VM - Very Moist  
W - Wet

## Weathering

CW - Completely Weathered  
EW - Extremely Weathered  
HW - Highly Weathered  
MW - Moderately Weathered  
SW - Slightly Weathered  
F - Fresh



Job No:	2187
Hole No:	<b>BH2</b>
Date:	21-01-16
Logged:	MD

Surface RL:	Approximately 30m AHD
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Test Method:	Bore Hole
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Depth (m)	Graphic Log	Classification	Description	PID	Samples	Additional Comments
0.00		Fill	Asphalt	—		
0.05		Fill	Roadbase	—		
0.15		Fill	Silty sand, dark brown/grey, moist, fine to medium particle size and loose with trace gravels.	—	BH2-0.3-0.4	No Odour
0.30		Fill	Silty clay, dark brown/grey, low plasticity, soft and moist with bitumenous gravels and glass.	—	BH2-1.4-1.5	No Odour
1.8		Natural	Silty sandy clay, brown/yellow, high plasticity, stiff and moist	—	BH2-2.5-2.6	No Odour

*Borehole Terminated at 2.7m*

## Weathering

CW - Completely Weathered  
EW - Extremely Weathered  
HW - Highly Weathered  
MW - Moderately Weathered  
SW - Slightly Weathered  
F - Fresh



Job No:	2187
Hole No:	<b>BH8</b>
Date:	21-01-16
Logged:	MD

Surface RL:	Approximately 30m AHD
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Test Method:	Bore Hole
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*Borehole Terminated at 2.7m*

*Borehole Terminated at 2.7m*

## Weathering

CW - Completely Weathered  
EW - Extremely Weathered  
HW - Highly Weathered  
MW - Moderately Weathered  
SW - Slightly Weathered  
F - Fresh

## **APPENDIX G**

### **LABORATORY REPORTS AND CHAIN OF CUSTODY DOCUMENTATION**



# Certificate of Analysis

Alliance Geotechnical  
10 Welder Road  
Seven Hills  
NSW 2147



NATA Accredited  
Accreditation Number 1261  
Site Number 1254

Accredited for compliance with ISO/IEC 17025.  
The results of the tests, calibrations and/or  
measurements included in this document are traceable  
to Australian/national standards.

Attention: Michael Dunesky

Report 486352-S  
Project name SURRY HILLS  
Received Date Jan 21, 2016

Client Sample ID			BH1_0.1-0.3	BH2_0.3-0.4	BH3_0.3-0.4	BH4_0.3-0.4
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins   mgt Sample No.			S16-Ja11100	S16-Ja11101	S16-Ja11102	S16-Ja11103
Date Sampled			Jan 21, 2016	Jan 21, 2016	Jan 21, 2016	Jan 21, 2016
Test/Reference	LOR	Unit				
<b>Total Recoverable Hydrocarbons - 1999 NEPM Fractions</b>						
TRH C6-C9	20	mg/kg	< 20	< 20	< 20	< 20
TRH C10-C14	20	mg/kg	< 20	< 20	< 20	45
TRH C15-C28	50	mg/kg	320	55	160	1400
TRH C29-C36	50	mg/kg	560	140	500	800
TRH C10-36 (Total)	50	mg/kg	880	200	660	2200
<b>BTEX</b>						
Benzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Toluene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Ethylbenzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
m&p-Xylenes	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
o-Xylene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Xylenes - Total	0.3	mg/kg	< 0.3	< 0.3	< 0.3	< 0.3
4-Bromofluorobenzene (surr.)	1	%	88	87	84	87
<b>Total Recoverable Hydrocarbons - 2013 NEPM Fractions</b>						
Naphthalene <sup>N02</sup>	0.5	mg/kg	< 0.5	< 0.5	< 0.5	1.2
TRH C6-C10	20	mg/kg	< 20	< 20	< 20	< 20
TRH C6-C10 less BTEX (F1) <sup>N04</sup>	20	mg/kg	< 20	< 20	< 20	< 20
TRH >C10-C16 less Naphthalene (F2) <sup>N01</sup>	50	mg/kg	< 50	< 50	< 50	110
<b>Polycyclic Aromatic Hydrocarbons</b>						
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	7.3	2.3	5.1	32
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	7.3	2.6	5.1	32
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	7.3	2.8	5.1	32
Acenaphthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	1.6
Acenaphthylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	13
Anthracene	0.5	mg/kg	1.1	< 0.5	0.9	14
Benz(a)anthracene	0.5	mg/kg	3.6	1.6	3.1	24
Benzo(a)pyrene	0.5	mg/kg	5.1	1.8	3.5	22
Benzo(b&j)fluoranthene <sup>N07</sup>	0.5	mg/kg	3.8	1.1	3.0	21
Benzo(g,h,i)perylene	0.5	mg/kg	3.0	1.0	1.7	8.8
Benzo(k)fluoranthene	0.5	mg/kg	3.1	1.3	2.0	14
Chrysene	0.5	mg/kg	3.3	1.4	2.8	19
Dibenz(a,h)anthracene	0.5	mg/kg	0.8	< 0.5	0.6	3.4
Fluoranthene	0.5	mg/kg	5.9	2.7	5.1	62
Fluorene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	9.7
Indeno(1,2,3-cd)pyrene	0.5	mg/kg	2.5	0.8	1.4	8.4
Naphthalene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	1.8

Client Sample ID			BH1_0.1-0.3 Soil	BH2_0.3-0.4 Soil	BH3_0.3-0.4 Soil	BH4_0.3-0.4 Soil
Sample Matrix			S16-Ja11100	S16-Ja11101	S16-Ja11102	S16-Ja11103
Eurofins   mgt Sample No.			Jan 21, 2016	Jan 21, 2016	Jan 21, 2016	Jan 21, 2016
Date Sampled						
Test/Reference	LOR	Unit				
<b>Polycyclic Aromatic Hydrocarbons</b>						
Phenanthrene	0.5	mg/kg	2.6	1.4	1.9	59
Pyrene	0.5	mg/kg	5.8	2.6	5.4	50
Total PAH*	0.5	mg/kg	41	16	31	330
2-Fluorobiphenyl (surr.)	1	%	98	94	88	110
p-Terphenyl-d14 (surr.)	1	%	102	103	99	101
<b>Organochlorine Pesticides</b>						
Chlordanes - Total	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
4,4'-DDD	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
4,4'-DDE	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
4,4'-DDT	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
a-BHC	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Aldrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
b-BHC	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
d-BHC	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Dieldrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endosulfan I	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endosulfan II	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endosulfan sulphate	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endrin aldehyde	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endrin ketone	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
g-BHC (Lindane)	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Heptachlor	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Heptachlor epoxide	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Hexachlorobenzene	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Methoxychlor	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Toxaphene	1	mg/kg	< 1	< 1	< 1	< 1
Dibutylchlorendate (surr.)	1	%	117	120	129	105
Tetrachloro-m-xylene (surr.)	1	%	107	98	102	108
<b>Polychlorinated Biphenyls (PCB)</b>						
Aroclor-1016	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Aroclor-1232	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Aroclor-1242	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Aroclor-1248	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Aroclor-1254	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Aroclor-1260	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Total PCB*	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Dibutylchlorendate (surr.)	1	%	117	120	129	105
<b>Organophosphorus Pesticides (OP)</b>						
Chlorpyrifos	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Coumaphos	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Demeton (total)	1	mg/kg	< 1.0	< 1.0	< 1.0	< 1.0
Diazinon	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Dichlorvos	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Dimethoate	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Disulfoton	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Ethoprop	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Fenitrothion	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Fensulfotthion	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5

Client Sample ID Sample Matrix Eurofins   mgt Sample No. Date Sampled Test/Reference	LOR	Unit	BH1_0.1-0.3 Soil S16-Ja11100 Jan 21, 2016	BH2_0.3-0.4 Soil S16-Ja11101 Jan 21, 2016	BH3_0.3-0.4 Soil S16-Ja11102 Jan 21, 2016	BH4_0.3-0.4 Soil S16-Ja11103 Jan 21, 2016
<b>Organophosphorus Pesticides (OP)</b>						
Fenthion	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Methyl azinphos	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Malathion	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Methyl parathion	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Mevinphos	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Monocrotophos	10	mg/kg	< 10	< 10	< 10	< 10
Parathion	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Phorate	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Profenofos	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Prothiofos	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Ronnel	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Stirophos	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Trichloronate	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Triphenylphosphate (surr.)	1	%	115	122	109	83
<b>Total Recoverable Hydrocarbons - 2013 NEPM Fractions</b>						
TRH >C10-C16	50	mg/kg	< 50	< 50	< 50	110
TRH >C16-C34	100	mg/kg	660	140	500	2000
TRH >C34-C40	100	mg/kg	410	250	250	260
<b>Heavy Metals</b>						
Arsenic	2	mg/kg	5.4	27	3.2	3.3
Cadmium	0.4	mg/kg	0.7	< 0.4	0.4	< 0.4
Chromium	5	mg/kg	60	26	13	7.3
Copper	5	mg/kg	73	2200	37	25
Lead	5	mg/kg	410	450	150	190
Mercury	0.05	mg/kg	2.1	2.4	0.46	0.32
Nickel	5	mg/kg	56	18	11	< 5
Zinc	5	mg/kg	780	2400	290	87
<b>% Moisture</b>						
	1	%	8.8	11	13	11

Client Sample ID Sample Matrix Eurofins   mgt Sample No. Date Sampled Test/Reference	LOR	Unit	BH5_0.3-0.4 Soil S16-Ja11104 Jan 21, 2016	BH6_0.3-0.4 Soil S16-Ja11105 Jan 21, 2016	BH7_0.1-0.5 Soil S16-Ja11106 Jan 21, 2016	BH8_0.3-0.4 Soil S16-Ja11107 Jan 21, 2016
<b>Total Recoverable Hydrocarbons - 1999 NEPM Fractions</b>						
TRH C6-C9	20	mg/kg	< 20	< 20	< 20	< 20
TRH C10-C14	20	mg/kg	< 20	26	< 20	< 20
TRH C15-C28	50	mg/kg	490	1100	73	280
TRH C29-C36	50	mg/kg	250	420	420	260
TRH C10-36 (Total)	50	mg/kg	740	1500	490	540
<b>BTEX</b>						
Benzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Toluene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Ethylbenzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
m&p-Xylenes	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
o-Xylene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Xylenes - Total	0.3	mg/kg	< 0.3	< 0.3	< 0.3	< 0.3
4-Bromofluorobenzene (surr.)	1	%	88	90	89	86

Client Sample ID			BH5_0.3-0.4 Soil	BH6_0.3-0.4 Soil	BH7_0.1-0.5 Soil	BH8_0.3-0.4 Soil
Sample Matrix			S16-Ja11104	S16-Ja11105	S16-Ja11106	S16-Ja11107
Eurofins   mgt Sample No.			Jan 21, 2016	Jan 21, 2016	Jan 21, 2016	Jan 21, 2016
Date Sampled						
Test/Reference	LOR	Unit				
<b>Total Recoverable Hydrocarbons - 2013 NEPM Fractions</b>						
Naphthalene <sup>N02</sup>	0.5	mg/kg	< 0.5	4.0	< 0.5	< 0.5
TRH C6-C10	20	mg/kg	< 20	< 20	< 20	< 20
TRH C6-C10 less BTEX (F1) <sup>N04</sup>	20	mg/kg	< 20	< 20	< 20	< 20
TRH >C10-C16 less Naphthalene (F2) <sup>N01</sup>	50	mg/kg	< 50	74	< 50	< 50
<b>Polycyclic Aromatic Hydrocarbons</b>						
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	15	25	< 0.5	6.2
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	15	25	0.6	6.5
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	15	25	1.2	6.7
Acenaphthene	0.5	mg/kg	< 0.5	1.7	< 0.5	< 0.5
Acenaphthylene	0.5	mg/kg	0.9	11	< 0.5	< 0.5
Anthracene	0.5	mg/kg	3.0	12	< 0.5	1.3
Benz(a)anthracene	0.5	mg/kg	8.5	19	< 0.5	4.8
Benzo(a)pyrene	0.5	mg/kg	10	17	< 0.5	4.7
Benzo(b&j)fluoranthene <sup>N07</sup>	0.5	mg/kg	10	13	< 0.5	5.2
Benzo(g,h,i)perylene	0.5	mg/kg	4.9	6.7	< 0.5	1.6
Benzo(k)fluoranthene	0.5	mg/kg	6.8	11	< 0.5	3.2
Chrysene	0.5	mg/kg	8.2	15	< 0.5	4.1
Dibenz(a,h)anthracene	0.5	mg/kg	1.7	2.7	< 0.5	< 0.5
Fluoranthene	0.5	mg/kg	17	50	0.8	8.1
Fluorene	0.5	mg/kg	0.5	9.0	< 0.5	< 0.5
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	4.3	6.4	< 0.5	1.5
Naphthalene	0.5	mg/kg	< 0.5	4.9	< 0.5	< 0.5
Phenanthrene	0.5	mg/kg	10	53	0.5	3.5
Pyrene	0.5	mg/kg	17	40	0.8	8.2
Total PAH*	0.5	mg/kg	100	270	2.1	46
2-Fluorobiphenyl (surr.)	1	%	109	107	90	86
p-Terphenyl-d14 (surr.)	1	%	99	97	101	100
<b>Organochlorine Pesticides</b>						
Chlordanes - Total	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
4,4'-DDD	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
4,4'-DDE	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
4,4'-DDT	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
a-BHC	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Aldrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
b-BHC	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
d-BHC	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Dieldrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endosulfan I	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endosulfan II	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endosulfan sulphate	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endrin aldehyde	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endrin ketone	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
g-BHC (Lindane)	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Heptachlor	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Heptachlor epoxide	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Hexachlorobenzene	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Methoxychlor	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Toxaphene	1	mg/kg	< 1	< 1	< 1	< 1

Client Sample ID			BH5_0.3-0.4 Soil	BH6_0.3-0.4 Soil	BH7_0.1-0.5 Soil	BH8_0.3-0.4 Soil
Sample Matrix						
Eurofins   mgt Sample No.			S16-Ja11104	S16-Ja11105	S16-Ja11106	S16-Ja11107
Date Sampled			Jan 21, 2016	Jan 21, 2016	Jan 21, 2016	Jan 21, 2016
Test/Reference	LOR	Unit				
<b>Organochlorine Pesticides</b>						
Dibutylchlorendate (surr.)	1	%	105	108	116	123
Tetrachloro-m-xylene (surr.)	1	%	105	118	78	81
<b>Polychlorinated Biphenyls (PCB)</b>						
Aroclor-1016	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Aroclor-1232	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Aroclor-1242	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Aroclor-1248	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Aroclor-1254	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Aroclor-1260	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Total PCB*	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Dibutylchlorendate (surr.)	1	%	105	108	116	123
<b>Organophosphorus Pesticides (OP)</b>						
Chlorpyrifos	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Coumaphos	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Demeton (total)	1	mg/kg	< 1.0	< 1.0	< 1.0	< 1.0
Diazinon	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Dichlorvos	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Dimethoate	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Disulfoton	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Ethoprop	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Fenitrothion	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Fensulfothion	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Fenthion	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Methyl azinphos	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Malathion	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Methyl parathion	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Mevinphos	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Monocrotophos	10	mg/kg	< 10	< 10	< 10	< 10
Parathion	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Phorate	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Profenofos	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Prothiofos	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Ronnel	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Stirophos	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Trichloronate	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Triphenylphosphate (surr.)	1	%	97	81	119	111
<b>Total Recoverable Hydrocarbons - 2013 NEPM Fractions</b>						
TRH >C10-C16	50	mg/kg	< 50	78	< 50	< 50
TRH >C16-C34	100	mg/kg	640	1300	310	410
TRH >C34-C40	100	mg/kg	160	140	730	230
<b>Heavy Metals</b>						
Arsenic	2	mg/kg	6.5	9.3	< 2	4.0
Cadmium	0.4	mg/kg	< 0.4	< 0.4	< 0.4	< 0.4
Chromium	5	mg/kg	15	9.5	66	10
Copper	5	mg/kg	57	38	57	27
Lead	5	mg/kg	270	140	16	220
Mercury	0.05	mg/kg	0.81	0.59	< 0.05	1.6
Nickel	5	mg/kg	8.2	8.9	71	9.1
Zinc	5	mg/kg	130	58	73	310

<b>Client Sample ID</b>			<b>BH5_0.3-0.4</b>	<b>BH6_0.3-0.4</b>	<b>BH7_0.1-0.5</b>	<b>BH8_0.3-0.4</b>
<b>Sample Matrix</b>			<b>Soil</b>	<b>Soil</b>	<b>Soil</b>	<b>Soil</b>
<b>Eurofins   mgt Sample No.</b>			<b>S16-Ja11104</b>	<b>S16-Ja11105</b>	<b>S16-Ja11106</b>	<b>S16-Ja11107</b>
<b>Date Sampled</b>			<b>Jan 21, 2016</b>	<b>Jan 21, 2016</b>	<b>Jan 21, 2016</b>	<b>Jan 21, 2016</b>
<b>Test/Reference</b>	<b>LOR</b>	<b>Unit</b>				
% Moisture	1	%	8.0	4.5	4.5	8.8

## Sample History

Where samples are submitted/analysed over several days, the last date of extraction and analysis is reported.  
A recent review of our LIMS has resulted in the correction or clarification of some method identifications. Due to this, some of the method reference information on reports has changed. However, no substantive change has been made to our laboratory methods, and as such there is no change in the validity of current or previous results (regarding both quality and NATA accreditation).

If the date and time of sampling are not provided, the Laboratory will not be responsible for compromised results should testing be performed outside the recommended holding time.

Description	Testing Site	Extracted	Holding Time
Total Recoverable Hydrocarbons - 1999 NEPM Fractions - Method: TRH C6-C36 - LTM-ORG-2010	Sydney	Jan 22, 2016	14 Day
BTEX - Method: TRH C6-C40 - LTM-ORG-2010	Sydney	Jan 22, 2016	14 Day
Total Recoverable Hydrocarbons - 2013 NEPM Fractions - Method: TRH C6-C40 - LTM-ORG-2010	Sydney	Jan 22, 2016	14 Day
Polycyclic Aromatic Hydrocarbons - Method: E007 Polyaromatic Hydrocarbons (PAH)	Sydney	Jan 22, 2016	14 Day
Total Recoverable Hydrocarbons - 2013 NEPM Fractions - Method: TRH C6-C40 - LTM-ORG-2010	Sydney	Jan 22, 2016	14 Day
Metals M8 - Method: LTM-MET-3040_R0 TOTAL AND DISSOLVED METALS AND MERCURY IN WATERS BY ICP-MS	Sydney	Jan 22, 2016	28 Day
<b>Eurofins   mgt Suite B15</b>			
Organochlorine Pesticides - Method: E013 Organochlorine Pesticides (OC)	Sydney	Jan 22, 2016	14 Day
Polychlorinated Biphenyls (PCB) - Method: E013 Polychlorinated Biphenyls (PCB)	Sydney	Jan 22, 2016	28 Day
Organophosphorus Pesticides (OP) - Method: E014 Organophosphorus Pesticides (OP)	Sydney	Jan 22, 2016	14 Day
% Moisture - Method: LTM-GEN-7080 Moisture	Sydney	Jan 21, 2016	14 Day

**Company Name:** Alliance Geotechnical  
**Address:** 10 Welder Road  
Seven Hills  
NSW 2147  
**Project Name:** SURRY HILLS

**Order No.:**  
**Report #:** 486352  
**Phone:** 02 9675 1777  
**Fax:** 02 9675 1888

**Received:** Jan 21, 2016 4:35 PM  
**Due:** Jan 29, 2016  
**Priority:** 5 Day  
**Contact Name:** Michael Dunesky

Eurofins | mgt Client Manager: Charl Du Preez

Sample Detail					Asbestos Absence / Presence	HOLD	Eurofins   mgt Suite B15	Moisture Set	Eurofins   mgt Suite B7
Laboratory where analysis is conducted									
Melbourne Laboratory - NATA Site # 1254 & 14271									
Sydney Laboratory - NATA Site # 18217					X	X	X	X	X
Brisbane Laboratory - NATA Site # 20794									
External Laboratory									
Sample ID	Sample Date	Sampling Time	Matrix	LAB ID					
BH1_0.1-0.3	Jan 21, 2016		Soil	S16-Ja11100	X		X	X	X
BH2_0.3-0.4	Jan 21, 2016		Soil	S16-Ja11101	X		X	X	X
BH3_0.3-0.4	Jan 21, 2016		Soil	S16-Ja11102	X		X	X	X
BH4_0.3-0.4	Jan 21, 2016		Soil	S16-Ja11103	X		X	X	X
BH5_0.3-0.4	Jan 21, 2016		Soil	S16-Ja11104	X		X	X	X
BH6_0.3-0.4	Jan 21, 2016		Soil	S16-Ja11105	X		X	X	X
BH7_0.1-0.5	Jan 21, 2016		Soil	S16-Ja11106	X		X	X	X
BH8_0.3-0.4	Jan 21, 2016		Soil	S16-Ja11107	X		X	X	X
BH1_0.5-1.0	Jan 21, 2016		Soil	S16-Ja11108		X			
BH1_1.5-2.5	Jan 21, 2016		Soil	S16-Ja11109		X			



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Sample Detail					Asbestos Absence / Presence	HOLD	Eurofins   mgt Suite B15	Moisture Set	Eurofins   mgt Suite B7
Laboratory where analysis is conducted									
Melbourne Laboratory - NATA Site # 1254 & 14271									
Sydney Laboratory - NATA Site # 18217					X	X	X	X	X
Brisbane Laboratory - NATA Site # 20794									
External Laboratory									
BH2_1.4-1.5	Jan 21, 2016		Soil	S16-Ja11110		X			
BH2_2.5-2.6	Jan 21, 2016		Soil	S16-Ja11111		X			
BH4_1.4-1.5	Jan 21, 2016		Soil	S16-Ja11112		X			
BH4_2.5-2.6	Jan 21, 2016		Soil	S16-Ja11113		X			
BH5_1.0-1.1	Jan 21, 2016		Soil	S16-Ja11114		X			
BH5_2.0-2.1	Jan 21, 2016		Soil	S16-Ja11115		X			
BH6_1.4-1.5	Jan 21, 2016		Soil	S16-Ja11116		X			
BH6_2.4-2.5	Jan 21, 2016		Soil	S16-Ja11117		X			
BH7_0.5-1.0	Jan 21, 2016		Soil	S16-Ja11118		X			
BH7_1.5-2.0	Jan 21, 2016		Soil	S16-Ja11119		X			
BH8_1.4-1.5	Jan 21, 2016		Soil	S16-Ja11120		X			

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Sample Detail					Asbestos Absence / Presence	HOLD	Eurofins   mgt Suite B15	Moisture Set	Eurofins   mgt Suite B7
Laboratory where analysis is conducted									
Melbourne Laboratory - NATA Site # 1254 & 14271									
Sydney Laboratory - NATA Site # 18217					X	X	X	X	X
Brisbane Laboratory - NATA Site # 20794									
External Laboratory									
BH8_2.5-2.6	Jan 21, 2016		Soil	S16-Ja11121		X			
QA2/QC2	Jan 21, 2016		Soil	S16-Ja11123		X			
BH7_1.0-1.4	Jan 21, 2016		Soil	S16-Ja11124		X			

## Internal Quality Control Review and Glossary

### General

1. Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples are included in this QC report where applicable. Additional QC data may be available on request.
2. All soil results are reported on a dry basis, unless otherwise stated.
3. Actual LORs are matrix dependant. Quoted LORs may be raised where sample extracts are diluted due to interferences.
4. Results are uncorrected for matrix spikes or surrogate recoveries.
5. SVOC analysis on waters are performed on homogenised, unfiltered samples, unless noted otherwise.
6. Samples were analysed on an 'as received' basis. 7. This report replaces any interim results previously issued.

### Holding Times

Please refer to 'Sample Preservation and Container Guide' for holding times (QS3001).

For samples received on the last day of holding time, notification of testing requirements should have been received at least 6 hours prior to sample receipt deadlines as stated on the Sample Receipt Advice.

If the Laboratory did not receive the information in the required timeframe, and regardless of any other integrity issues, suitably qualified results may still be reported.

Holding times apply from the date of sampling, therefore compliance to these may be outside the laboratory's control.

**\*\*NOTE:** pH duplicates are reported as a range NOT as RPD

### Units

**mg/kg:** milligrams per Kilogram

**ug/l:** micrograms per litre

**ppb:** Parts per billion

**org/100ml:** Organisms per 100 millilitres

**MPN/100mL:** Most Probable Number of organisms per 100 millilitres

**mg/l:** milligrams per litre

**ppm:** Parts per million

**%:** Percentage

**NTU:** Nephelometric Turbidity Units

### Terms

<b>Dry</b>	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
<b>LOR</b>	Limit of Reporting.
<b>SPIKE</b>	Addition of the analyte to the sample and reported as percentage recovery.
<b>RPD</b>	Relative Percent Difference between two Duplicate pieces of analysis.
<b>LCS</b>	Laboratory Control Sample - reported as percent recovery
<b>CRM</b>	Certified Reference Material - reported as percent recovery
<b>Method Blank</b>	In the case of solid samples these are performed on laboratory certified clean sands. In the case of water samples these are performed on de-ionised water.
<b>Surr - Surrogate</b>	The addition of a like compound to the analyte target and reported as percentage recovery.
<b>Duplicate</b>	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
<b>Batch Duplicate</b>	A second piece of analysis from a sample outside of the clients batch of samples but run within the laboratory batch of analysis.
<b>Batch SPIKE</b>	Spike recovery reported on a sample from outside of the clients batch of samples but run within the laboratory batch of analysis.
<b>USEPA</b>	United States Environmental Protection Agency
<b>APHA</b>	American Public Health Association
<b>ASLP</b>	Australian Standard Leaching Procedure (AS4439.3)
<b>TCLP</b>	Toxicity Characteristic Leaching Procedure
<b>COC</b>	Chain of Custody
<b>SRA</b>	Sample Receipt Advice
<b>CP</b>	Client Parent - QC was performed on samples pertaining to this report
<b>NCP</b>	Non-Client Parent - QC performed on samples not pertaining to this report, QC is representative of the sequence or batch that client samples were analysed within
<b>TEQ</b>	Toxic Equivalency Quotient

### QC - Acceptance Criteria

RPD Duplicates: Global RPD Duplicates Acceptance Criteria is 30% however the following acceptance guidelines are equally applicable:

Results <10 times the LOR : No Limit

Results between 10-20 times the LOR : RPD must lie between 0-50%

Results >20 times the LOR : RPD must lie between 0-30%

Surrogate Recoveries : Recoveries must lie between 50-150% - Phenols 20-130%.

### QC Data General Comments

1. Where a result is reported as a less than (<), higher than the nominated LOR, this is due to either matrix interference, extract dilution required due to interferences or contaminant levels within the sample, high moisture content or insufficient sample provided.
2. Duplicate data shown within this report that states the word "BATCH" is a Batch Duplicate from outside of your sample batch, but within the laboratory sample batch at a 1:10 ratio. The Parent and Duplicate data shown is not data from your samples.
3. Organochlorine Pesticide analysis - where reporting LCS data, Toxaphene & Chlordane are not added to the LCS.
4. Organochlorine Pesticide analysis - where reporting Spike data, Toxaphene is not added to the Spike.
5. Total Recoverable Hydrocarbons - where reporting Spike & LCS data, a single spike of commercial Hydrocarbon products in the range of C12-C30 is added and it's Total Recovery is reported in the C10-C14 cell of the Report.
6. pH and Free Chlorine analysed in the laboratory - Analysis on this test must begin within 30 minutes of sampling. Therefore laboratory analysis is unlikely to be completed within holding time. Analysis will begin as soon as possible after sample receipt.
7. Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of Recovery the term "INT" appears against that analyte.
8. Polychlorinated Biphenyls are spiked only using Aroclor 1260 in Matrix Spikes and LCS.
9. For Matrix Spikes and LCS results a dash " - " in the report means that the specific analyte was not added to the QC sample.
10. Duplicate RPDs are calculated from raw analytical data thus it is possible to have two sets of data.

## Quality Control Results

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
<b>Method Blank</b>							
<b>Total Recoverable Hydrocarbons - 1999 NEPM Fractions</b>							
TRH C6-C9	mg/kg	< 20			20	Pass	
TRH C10-C14	mg/kg	< 20			20	Pass	
TRH C15-C28	mg/kg	< 50			50	Pass	
TRH C29-C36	mg/kg	< 50			50	Pass	
<b>Method Blank</b>							
<b>BTEX</b>							
Benzene	mg/kg	< 0.1			0.1	Pass	
Toluene	mg/kg	< 0.1			0.1	Pass	
Ethylbenzene	mg/kg	< 0.1			0.1	Pass	
m&p-Xylenes	mg/kg	< 0.2			0.2	Pass	
o-Xylene	mg/kg	< 0.1			0.1	Pass	
Xylenes - Total	mg/kg	< 0.3			0.3	Pass	
<b>Method Blank</b>							
<b>Total Recoverable Hydrocarbons - 2013 NEPM Fractions</b>							
Naphthalene	mg/kg	< 0.5			0.5	Pass	
TRH C6-C10	mg/kg	< 20			20	Pass	
<b>Method Blank</b>							
<b>Polycyclic Aromatic Hydrocarbons</b>							
Acenaphthene	mg/kg	< 0.5			0.5	Pass	
Acenaphthylene	mg/kg	< 0.5			0.5	Pass	
Anthracene	mg/kg	< 0.5			0.5	Pass	
Benz(a)anthracene	mg/kg	< 0.5			0.5	Pass	
Benzo(a)pyrene	mg/kg	< 0.5			0.5	Pass	
Benzo(b&j)fluoranthene	mg/kg	< 0.5			0.5	Pass	
Benzo(g,h,i)perylene	mg/kg	< 0.5			0.5	Pass	
Benzo(k)fluoranthene	mg/kg	< 0.5			0.5	Pass	
Chrysene	mg/kg	< 0.5			0.5	Pass	
Dibenz(a,h)anthracene	mg/kg	< 0.5			0.5	Pass	
Fluoranthene	mg/kg	< 0.5			0.5	Pass	
Fluorene	mg/kg	< 0.5			0.5	Pass	
Indeno(1,2,3-cd)pyrene	mg/kg	< 0.5			0.5	Pass	
Naphthalene	mg/kg	< 0.5			0.5	Pass	
Phenanthrene	mg/kg	< 0.5			0.5	Pass	
Pyrene	mg/kg	< 0.5			0.5	Pass	
<b>Method Blank</b>							
<b>Organochlorine Pesticides</b>							
Chlordanes - Total	mg/kg	< 0.1			0.1	Pass	
4,4'-DDD	mg/kg	< 0.05			0.05	Pass	
4,4'-DDE	mg/kg	< 0.05			0.05	Pass	
4,4'-DDT	mg/kg	< 0.05			0.05	Pass	
a-BHC	mg/kg	< 0.05			0.05	Pass	
Aldrin	mg/kg	< 0.05			0.05	Pass	
b-BHC	mg/kg	< 0.05			0.05	Pass	
d-BHC	mg/kg	< 0.05			0.05	Pass	
Dieldrin	mg/kg	< 0.05			0.05	Pass	
Endosulfan I	mg/kg	< 0.05			0.05	Pass	
Endosulfan II	mg/kg	< 0.05			0.05	Pass	
Endosulfan sulphate	mg/kg	< 0.05			0.05	Pass	
Endrin	mg/kg	< 0.05			0.05	Pass	
Endrin aldehyde	mg/kg	< 0.05			0.05	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Endrin ketone	mg/kg	< 0.05			0.05	Pass	
g-BHC (Lindane)	mg/kg	< 0.05			0.05	Pass	
Heptachlor	mg/kg	< 0.05			0.05	Pass	
Heptachlor epoxide	mg/kg	< 0.05			0.05	Pass	
Hexachlorobenzene	mg/kg	< 0.05			0.05	Pass	
Methoxychlor	mg/kg	< 0.2			0.2	Pass	
Toxaphene	mg/kg	< 1			1	Pass	
<b>Method Blank</b>							
<b>Polychlorinated Biphenyls (PCB)</b>							
Aroclor-1016	mg/kg	< 0.5			0.5	Pass	
Aroclor-1232	mg/kg	< 0.5			0.5	Pass	
Aroclor-1242	mg/kg	< 0.5			0.5	Pass	
Aroclor-1248	mg/kg	< 0.5			0.5	Pass	
Aroclor-1254	mg/kg	< 0.5			0.5	Pass	
Aroclor-1260	mg/kg	< 0.5			0.5	Pass	
Total PCB*	mg/kg	< 0.5			0.5	Pass	
<b>Method Blank</b>							
<b>Organophosphorus Pesticides (OP)</b>							
Chlorpyrifos	mg/kg	< 0.5			0.5	Pass	
Coumaphos	mg/kg	< 0.5			0.5	Pass	
Diazinon	mg/kg	< 0.5			0.5	Pass	
Dichlorvos	mg/kg	< 0.5			0.5	Pass	
Dimethoate	mg/kg	< 0.5			0.5	Pass	
Disulfoton	mg/kg	< 0.5			0.5	Pass	
Ethoprop	mg/kg	< 0.5			0.5	Pass	
Fenitrothion	mg/kg	< 0.5			0.5	Pass	
Fensulfothion	mg/kg	< 0.5			0.5	Pass	
Fenthion	mg/kg	< 0.5			0.5	Pass	
Methyl azinphos	mg/kg	< 0.5			0.5	Pass	
Malathion	mg/kg	< 0.5			0.5	Pass	
Methyl parathion	mg/kg	< 0.5			0.5	Pass	
Mevinphos	mg/kg	< 0.5			0.5	Pass	
Monocrotophos	mg/kg	< 10			10	Pass	
Parathion	mg/kg	< 0.5			0.5	Pass	
Phorate	mg/kg	< 0.5			0.5	Pass	
Profenofos	mg/kg	< 0.5			0.5	Pass	
Prothiofos	mg/kg	< 0.5			0.5	Pass	
Ronnel	mg/kg	< 0.5			0.5	Pass	
Trichloronate	mg/kg	< 0.5			0.5	Pass	
<b>Method Blank</b>							
<b>Total Recoverable Hydrocarbons - 2013 NEPM Fractions</b>							
TRH >C10-C16	mg/kg	< 50			50	Pass	
TRH >C16-C34	mg/kg	< 100			100	Pass	
TRH >C34-C40	mg/kg	< 100			100	Pass	
<b>Method Blank</b>							
<b>Heavy Metals</b>							
Arsenic	mg/kg	< 2			2	Pass	
Cadmium	mg/kg	< 0.4			0.4	Pass	
Chromium	mg/kg	< 5			5	Pass	
Copper	mg/kg	< 5			5	Pass	
Lead	mg/kg	< 5			5	Pass	
Mercury	mg/kg	< 0.05			0.05	Pass	
Nickel	mg/kg	< 5			5	Pass	
Zinc	mg/kg	< 5			5	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
<b>LCS - % Recovery</b>							
<b>Total Recoverable Hydrocarbons - 1999 NEPM Fractions</b>							
TRH C6-C9	%	82			70-130	Pass	
TRH C10-C14	%	97			70-130	Pass	
<b>LCS - % Recovery</b>							
<b>BTEX</b>							
Benzene	%	104			70-130	Pass	
Toluene	%	90			70-130	Pass	
Ethylbenzene	%	88			70-130	Pass	
m&p-Xylenes	%	89			70-130	Pass	
o-Xylene	%	90			70-130	Pass	
Xylenes - Total	%	90			70-130	Pass	
<b>LCS - % Recovery</b>							
<b>Total Recoverable Hydrocarbons - 2013 NEPM Fractions</b>							
Naphthalene	%	97			70-130	Pass	
TRH C6-C10	%	86			70-130	Pass	
<b>LCS - % Recovery</b>							
<b>Polycyclic Aromatic Hydrocarbons</b>							
Acenaphthene	%	100			70-130	Pass	
Acenaphthylene	%	72			70-130	Pass	
Anthracene	%	124			70-130	Pass	
Benz(a)anthracene	%	76			70-130	Pass	
Benzo(a)pyrene	%	96			70-130	Pass	
Benzo(b&j)fluoranthene	%	97			70-130	Pass	
Benzo(g,h,i)perylene	%	84			70-130	Pass	
Benzo(k)fluoranthene	%	103			70-130	Pass	
Chrysene	%	118			70-130	Pass	
Dibenz(a,h)anthracene	%	85			70-130	Pass	
Fluoranthene	%	98			70-130	Pass	
Fluorene	%	95			70-130	Pass	
Indeno(1,2,3-cd)pyrene	%	81			70-130	Pass	
Naphthalene	%	100			70-130	Pass	
Phenanthrene	%	70			70-130	Pass	
Pyrene	%	97			70-130	Pass	
<b>LCS - % Recovery</b>							
<b>Organochlorine Pesticides</b>							
Chlordanes - Total	%	118			70-130	Pass	
4,4'-DDD	%	111			70-130	Pass	
4,4'-DDE	%	115			70-130	Pass	
4,4'-DDT	%	113			70-130	Pass	
a-BHC	%	112			70-130	Pass	
Aldrin	%	117			70-130	Pass	
b-BHC	%	114			70-130	Pass	
d-BHC	%	123			70-130	Pass	
Dieldrin	%	116			70-130	Pass	
Endosulfan I	%	115			70-130	Pass	
Endosulfan II	%	118			70-130	Pass	
Endosulfan sulphate	%	118			70-130	Pass	
Endrin	%	118			70-130	Pass	
Endrin aldehyde	%	128			70-130	Pass	
Endrin ketone	%	118			70-130	Pass	
g-BHC (Lindane)	%	112			70-130	Pass	
Heptachlor	%	127			70-130	Pass	
Heptachlor epoxide	%	115			70-130	Pass	

Test				Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Hexachlorobenzene				%	109			70-130	Pass	
Methoxychlor				%	105			70-130	Pass	
Toxaphene				%	115			70-130	Pass	
LCS - % Recovery										
Polychlorinated Biphenyls (PCB)										
Aroclor-1248				%	86			70-130	Pass	
LCS - % Recovery										
Organophosphorus Pesticides (OP)										
Chlorpyrifos				%	124			70-130	Pass	
Dimethoate				%	130			70-130	Pass	
Disulfoton				%	126			70-130	Pass	
Methyl azinphos				%	104			70-130	Pass	
Methyl parathion				%	129			70-130	Pass	
Parathion				%	126			70-130	Pass	
Phorate				%	117			70-130	Pass	
LCS - % Recovery										
Total Recoverable Hydrocarbons - 2013 NEPM Fractions										
TRH >C10-C16				%	98			70-130	Pass	
LCS - % Recovery										
Heavy Metals										
Arsenic				%	103			70-130	Pass	
Cadmium				%	108			70-130	Pass	
Chromium				%	101			70-130	Pass	
Copper				%	105			70-130	Pass	
Lead				%	109			70-130	Pass	
Mercury				%	110			70-130	Pass	
Nickel				%	104			70-130	Pass	
Zinc				%	103			70-130	Pass	
Test		Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery										
Total Recoverable Hydrocarbons - 1999 NEPM Fractions					Result 1					
TRH C6-C9		S16-Ja09869	NCP	%	78			70-130	Pass	
TRH C10-C14		S16-Ja09869	NCP	%	104			70-130	Pass	
Spike - % Recovery										
BTEX					Result 1					
Benzene		S16-Ja09869	NCP	%	105			70-130	Pass	
Toluene		S16-Ja09869	NCP	%	88			70-130	Pass	
Ethylbenzene		S16-Ja09869	NCP	%	85			70-130	Pass	
m&p-Xylenes		S16-Ja09869	NCP	%	87			70-130	Pass	
o-Xylene		S16-Ja09869	NCP	%	86			70-130	Pass	
Xylenes - Total		S16-Ja09869	NCP	%	86			70-130	Pass	
Spike - % Recovery										
Total Recoverable Hydrocarbons - 2013 NEPM Fractions					Result 1					
Naphthalene		S16-Ja09869	NCP	%	85			70-130	Pass	
TRH C6-C10		S16-Ja09869	NCP	%	82			70-130	Pass	
Spike - % Recovery										
Organochlorine Pesticides					Result 1					
Chlordanes - Total		S16-Ja08829	NCP	%	106			70-130	Pass	
4,4'-DDD		S16-Ja08829	NCP	%	110			70-130	Pass	
4,4'-DDE		S16-Ja08829	NCP	%	103			70-130	Pass	
4,4'-DDT		S16-Ja08829	NCP	%	102			70-130	Pass	
a-BHC		S16-Ja08829	NCP	%	104			70-130	Pass	
Aldrin		S16-Ja08829	NCP	%	105			70-130	Pass	
b-BHC		S16-Ja08829	NCP	%	103			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
d-BHC	S16-Ja08829	NCP	%	116			70-130	Pass	
Dieldrin	S16-Ja08829	NCP	%	107			70-130	Pass	
Endosulfan I	S16-Ja08829	NCP	%	103			70-130	Pass	
Endosulfan II	S16-Ja08829	NCP	%	107			70-130	Pass	
Endosulfan sulphate	S16-Ja08829	NCP	%	108			70-130	Pass	
Endrin	S16-Ja08829	NCP	%	108			70-130	Pass	
Endrin aldehyde	S16-Ja08829	NCP	%	127			70-130	Pass	
Endrin ketone	S16-Ja08829	NCP	%	124			70-130	Pass	
g-BHC (Lindane)	S16-Ja08829	NCP	%	106			70-130	Pass	
Heptachlor	S16-Ja08829	NCP	%	128			70-130	Pass	
Heptachlor epoxide	S16-Ja08829	NCP	%	103			70-130	Pass	
Hexachlorobenzene	S16-Ja08829	NCP	%	99			70-130	Pass	
Methoxychlor	S16-Ja08829	NCP	%	112			70-130	Pass	
<b>Spike - % Recovery</b>									
<b>Polychlorinated Biphenyls (PCB)</b>				Result 1					
Aroclor-1248	S16-Ja11569	NCP	%	87			70-130	Pass	
<b>Spike - % Recovery</b>									
<b>Total Recoverable Hydrocarbons - 2013 NEPM Fractions</b>				Result 1					
TRH >C10-C16	S16-Ja09869	NCP	%	107			70-130	Pass	
<b>Spike - % Recovery</b>									
<b>Heavy Metals</b>				Result 1					
Chromium	S16-Ja09772	NCP	%	99			70-130	Pass	
Copper	S16-Ja09772	NCP	%	82			70-130	Pass	
Zinc	S16-Ja09772	NCP	%	107			70-130	Pass	
<b>Spike - % Recovery</b>									
<b>Organophosphorus Pesticides (OP)</b>				Result 1					
Chlorpyrifos	S16-Ja11101	CP	%	126			70-130	Pass	
Dimethoate	S16-Ja11101	CP	%	124			70-130	Pass	
Disulfoton	S16-Ja11101	CP	%	127			70-130	Pass	
Methyl azinphos	S16-Ja11101	CP	%	122			70-130	Pass	
Methyl parathion	S16-Ja11101	CP	%	119			70-130	Pass	
Phorate	S16-Ja11101	CP	%	128			70-130	Pass	
<b>Spike - % Recovery</b>									
<b>Polycyclic Aromatic Hydrocarbons</b>				Result 1					
Acenaphthene	S16-Ja11106	CP	%	106			70-130	Pass	
Acenaphthylene	S16-Ja11106	CP	%	71			70-130	Pass	
Anthracene	S16-Ja11106	CP	%	105			70-130	Pass	
Benz(a)anthracene	S16-Ja11106	CP	%	91			70-130	Pass	
Benzo(a)pyrene	S16-Ja11106	CP	%	96			70-130	Pass	
Benzo(b&j)fluoranthene	S16-Ja11106	CP	%	71			70-130	Pass	
Benzo(g,h,i)perylene	S16-Ja11106	CP	%	73			70-130	Pass	
Benzo(k)fluoranthene	S16-Ja11106	CP	%	105			70-130	Pass	
Chrysene	S16-Ja11106	CP	%	107			70-130	Pass	
Dibenz(a,h)anthracene	S16-Ja11106	CP	%	79			70-130	Pass	
Fluoranthene	S16-Ja11106	CP	%	96			70-130	Pass	
Fluorene	S16-Ja11106	CP	%	101			70-130	Pass	
Indeno(1,2,3-cd)pyrene	S16-Ja11106	CP	%	70			70-130	Pass	
Naphthalene	S16-Ja11106	CP	%	106			70-130	Pass	
Phenanthrene	S16-Ja11106	CP	%	93			70-130	Pass	
Pyrene	S16-Ja11106	CP	%	100			70-130	Pass	
<b>Spike - % Recovery</b>									
<b>Heavy Metals</b>				Result 1					
Arsenic	S16-Ja11106	CP	%	90			70-130	Pass	
Cadmium	S16-Ja11106	CP	%	98			70-130	Pass	



Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Lead	S16-Ja11106	CP	%	120			70-130	Pass	
Mercury	S16-Ja11106	CP	%	102			70-130	Pass	
Nickel	S16-Ja11106	CP	%	129			70-130	Pass	
Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
<b>Duplicate</b>									
<b>Total Recoverable Hydrocarbons - 1999 NEPM Fractions</b>				Result 1	Result 2	RPD			
TRH C6-C9	S16-Ja09868	NCP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH C10-C14	S16-Ja11189	NCP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH C15-C28	S16-Ja11189	NCP	mg/kg	190	150	22	30%	Pass	
TRH C29-C36	S16-Ja11189	NCP	mg/kg	260	220	15	30%	Pass	
<b>Duplicate</b>									
<b>BTEX</b>				Result 1	Result 2	RPD			
Benzene	S16-Ja09868	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Toluene	S16-Ja09868	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Ethylbenzene	S16-Ja09868	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
m&p-Xylenes	S16-Ja09868	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
o-Xylene	S16-Ja09868	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Xylenes - Total	S16-Ja09868	NCP	mg/kg	< 0.3	< 0.3	<1	30%	Pass	
<b>Duplicate</b>									
<b>Total Recoverable Hydrocarbons - 2013 NEPM Fractions</b>				Result 1	Result 2	RPD			
Naphthalene	S16-Ja09868	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
TRH C6-C10	S16-Ja09868	NCP	mg/kg	< 20	< 20	<1	30%	Pass	
<b>Duplicate</b>									
<b>Polycyclic Aromatic Hydrocarbons</b>				Result 1	Result 2	RPD			
Acenaphthene	S16-Ja09874	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Acenaphthylene	S16-Ja09874	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Anthracene	S16-Ja09874	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benz(a)anthracene	S16-Ja09874	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(a)pyrene	S16-Ja09874	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(b&j)fluoranthene	S16-Ja09874	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(g,h,i)perylene	S16-Ja09874	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(k)fluoranthene	S16-Ja09874	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Chrysene	S16-Ja09874	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Dibenz(a,h)anthracene	S16-Ja09874	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fluoranthene	S16-Ja09874	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fluorene	S16-Ja09874	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Indeno(1,2,3-cd)pyrene	S16-Ja09874	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Naphthalene	S16-Ja09874	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Phenanthrene	S16-Ja09874	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Pyrene	S16-Ja09874	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
<b>Duplicate</b>									
<b>Organochlorine Pesticides</b>				Result 1	Result 2	RPD			
Chlordanes - Total	S16-Ja11100	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
4,4'-DDD	S16-Ja11100	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
4,4'-DDE	S16-Ja11100	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
4,4'-DDT	S16-Ja11100	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
a-BHC	S16-Ja11100	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Aldrin	S16-Ja11100	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
b-BHC	S16-Ja11100	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
d-BHC	S16-Ja11100	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Dieldrin	S16-Ja11100	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan I	S16-Ja11100	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan II	S16-Ja11100	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan sulphate	S16-Ja11100	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	

Duplicate								
Organochlorine Pesticides				Result 1	Result 2	RPD		
Endrin	S16-Ja11100	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Endrin aldehyde	S16-Ja11100	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Endrin ketone	S16-Ja11100	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
g-BHC (Lindane)	S16-Ja11100	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Heptachlor	S16-Ja11100	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Heptachlor epoxide	S16-Ja11100	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Hexachlorobenzene	S16-Ja11100	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Methoxychlor	S16-Ja11100	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Duplicate								
Polychlorinated Biphenyls (PCB)				Result 1	Result 2	RPD		
Aroclor-1016	S16-Ja11100	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Aroclor-1232	S16-Ja11100	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Aroclor-1242	S16-Ja11100	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Aroclor-1248	S16-Ja11100	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Aroclor-1254	S16-Ja11100	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Aroclor-1260	S16-Ja11100	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Duplicate								
Organophosphorus Pesticides (OP)				Result 1	Result 2	RPD		
Chlorpyrifos	S16-Ja11100	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Coumaphos	S16-Ja12584	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Diazinon	S16-Ja11100	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Dichlorvos	S16-Ja11100	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Dimethoate	S16-Ja12584	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Disulfoton	S16-Ja11100	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Ethoprop	S16-Ja11100	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Fenitrothion	S16-Ja11100	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Fensulfthion	S16-Ja11100	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Fenthion	S16-Ja11100	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Methyl azinphos	S16-Ja11100	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Malathion	S16-Ja12584	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Methyl parathion	S16-Ja11100	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Mevinphos	S16-Ja11100	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Monocrotophos	S16-Ja12584	NCP	mg/kg	< 10	< 10	<1	30%	Pass
Parathion	S16-Ja12584	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Phorate	S16-Ja11100	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Profenofos	S16-Ja12584	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Prothiofos	S16-Ja12584	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Ronnel	S16-Ja11100	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Trichloronate	S16-Ja11100	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Duplicate								
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD		
TRH >C10-C16	S16-Ja11189	NCP	mg/kg	< 50	< 50	<1	30%	Pass
TRH >C16-C34	S16-Ja11189	NCP	mg/kg	360	290	21	30%	Pass
TRH >C34-C40	S16-Ja11189	NCP	mg/kg	< 100	< 100	<1	30%	Pass
Duplicate								
Heavy Metals				Result 1	Result 2	RPD		
Arsenic	S16-Ja11105	CP	mg/kg	9.3	10	9.0	30%	Pass
Cadmium	S16-Ja11105	CP	mg/kg	< 0.4	< 0.4	<1	30%	Pass
Chromium	S16-Ja11105	CP	mg/kg	9.5	8.8	8.0	30%	Pass
Copper	S16-Ja11105	CP	mg/kg	38	36	7.0	30%	Pass
Lead	S16-Ja11105	CP	mg/kg	140	130	8.0	30%	Pass
Mercury	S16-Ja11105	CP	mg/kg	0.59	0.54	9.0	30%	Pass
Nickel	S16-Ja11105	CP	mg/kg	8.9	8.8	1.0	30%	Pass
Zinc	S16-Ja11105	CP	mg/kg	58	56	4.0	30%	Pass

Duplicate									
					Result 1	Result 2	RPD		
% Moisture	S16-Ja111107	CP	%		8.8	9.4	6.0	30%	Pass

## Comments

### Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	No
Sample correctly preserved	Yes
Appropriate sample containers have been used	Yes
Sample containers for volatile analysis received with minimal headspace	Yes
Samples received within HoldingTime	Yes
Some samples have been subcontracted	No

### Qualifier Codes/Comments

Code	Description
N01	F2 is determined by arithmetically subtracting the "naphthalene" value from the ">C10-C16" value. The naphthalene value used in this calculation is obtained from volatiles (Purge & Trap analysis).
N02	Where we have reported both volatile (P&T GCMS) and semivolatile (GCMS) naphthalene data, results may not be identical. Provided correct sample handling protocols have been followed, any observed differences in results are likely to be due to procedural differences within each methodology. Results determined by both techniques have passed all QAQC acceptance criteria, and are entirely technically valid.
N04	F1 is determined by arithmetically subtracting the "Total BTEX" value from the "C6-C10" value. The "Total BTEX" value is obtained by summing the concentrations of BTEX analytes. The "C6-C10" value is obtained by quantitating against a standard of mixed aromatic/aliphatic analytes.
N07	Please note:- These two PAH isomers closely co-elute using the most contemporary analytical methods and both the reported concentration (and the TEQ) apply specifically to the total of the two co-eluting PAHs

### Authorised By

Charl Du Preez	Analytical Services Manager
Bob Symons	Senior Analyst-Inorganic (NSW)
Ivan Taylor	Senior Analyst-Metal (NSW)
Rhys Thomas	Senior Analyst-Asbestos (NSW)
Ryan Hamilton	Senior Analyst-Organic (NSW)
Ryan Hamilton	Senior Analyst-Volatile (NSW)



**Glenn Jackson**

**National Operations Manager**

Final report - this Report replaces any previously issued Report

- Indicates Not Requested

\* Indicates NATA accreditation does not cover the performance of this service

Uncertainty data is available on request

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# Certificate of Analysis



**NATA Accredited**  
**Accreditation Number 1261**  
**Site Number 18217**

Accredited for compliance with ISO/IEC 17025.  
 The results of the tests, calibrations and/or  
 measurements included in this document are  
 traceable to Australian/national standards.

**Alliance Geotechnical**  
**10 Welder Road**  
**Seven Hills**  
**NSW 2147**

**Attention:** Michael Dunesky  
**Report** 486352-AID  
**Project Name** SURRY HILLS  
**Received Date** Jan 21, 2016  
**Date Reported** Jan 29, 2016

## Methodology:

Asbestos ID	Conducted in accordance with the Australian Standard AS 4964 – 2004: Method for the Qualitative Identification of Asbestos in Bulk Samples and in-house Method LTM-ASB-8020 by polarised light microscopy (PLM) and dispersion staining (DS) techniques. Bulk samples include building materials, soils and ores.
Subsampling Soil Samples	The whole sample submitted is first dried and then sieved through a 10mm sieve followed by a 2mm sieve. All fibrous matter viz greater than 10mm, greater than 2mm as well as the material passing through the 2mm sieve are retained and analysed for the presence of asbestos. If the sub 2mm fraction is greater than approximately 30 to 60g then a sub-sampling routine based on ISO 3082:2009(E) Iron ores - Sampling and Sample preparation procedures is employed. Depending on the nature and size of the soil sample, the sub-2 mm residue material may need to be sub-sampled for trace analysis in accordance with AS 4964-2004.
Bonded asbestos-containing material (ACM)	The material is first examined and any fibres isolated and where required interfering organic fibres or matter may be removed by treating the sample for several hours at a temperature not exceeding $400 \pm 30^{\circ}\text{C}$ . The resultant material is then ground and examined in accordance with AS 4964-2004.
Limit of Reporting	The nominal detection limit of the AS4964 method is around 0.01%. The examination of large sample sizes (at least 500 ml is recommended) may improve the likelihood of identifying asbestos material in the greater than 2 mm fraction. The NEPM screening level of 0.001% w/w asbestos in soil for FA and AF (i.e. non-bonded/friable asbestos) only applies where the FA and AF are able to be quantified by gravimetric procedures. This screening level is not applicable to free fibres. NOTE: NATA News, September 2011 – page 34, states, "Weighing of fibres is problematic and can lead to loss of fibres and potential exposure for laboratory analysts. To request laboratories to report information which is outside the scope of AS 4964-2004 and the scope of their accreditation is misleading and is most unwise" therefore such values reported are outside the scope of Eurofins   mgt NATA accreditation as designated by an asterisk.

**Project Name** SURRY HILLS  
**Project ID**  
**Date Sampled** Jan 21, 2016  
**Report** 486352-AID

Client Sample ID	Eurofins   mgt Sample No.	Date Sampled	Sample Description	Result
BH1_0.1-0.3	16-Ja11100	Jan 21, 2016	Approximate Sample 622g Sample consisted of: Grey-brown coarse grain soil and rocks	No asbestos detected. Organic fibre detected. No respirable fibres detected.
BH2_0.3-0.4	16-Ja11101	Jan 21, 2016	Approximate Sample 802g Sample consisted of: Brown coarse grain soil and rocks	No asbestos detected. Organic fibre detected. No respirable fibres detected.
BH3_0.3-0.4	16-Ja11102	Jan 21, 2016	Approximate Sample 428g Sample consisted of: Brown coarse grain soil and rocks	No asbestos detected. Organic fibre detected. No respirable fibres detected.
BH4_0.3-0.4	16-Ja11103	Jan 21, 2016	Approximate Sample 637g Sample consisted of: Grey-brown coarse grain soil and rocks	No asbestos detected. Organic fibre detected. No respirable fibres detected.
BH5_0.3-0.4	16-Ja11104	Jan 21, 2016	Approximate Sample 1033g Sample consisted of: Brown coarse grain soil and rocks	No asbestos detected. Organic fibre detected. No respirable fibres detected.
BH6_0.3-0.4	16-Ja11105	Jan 21, 2016	Approximate Sample 340g Sample consisted of: Brown coarse grain soil and rocks	No asbestos detected. Organic fibre detected. No respirable fibres detected.
BH7_0.1-0.5	16-Ja11106	Jan 21, 2016	Approximate Sample 331g Sample consisted of: Grey-brown coarse grain soil and rocks	No asbestos detected. Organic fibre detected. No respirable fibres detected.
BH8_0.3-0.4	16-Ja11107	Jan 21, 2016	Approximate Sample 1107g Sample consisted of: Brown coarse grain soil and rocks	No asbestos detected. Organic fibre detected. No respirable fibres detected.

### Sample History

Where samples are submitted/analysed over several days, the last date of extraction and analysis is reported. A recent review of our LIMS has resulted in the correction or clarification of some method identifications. Due to this, some of the method reference information on reports has changed. However, no substantive change has been made to our laboratory methods, and as such there is no change in the validity of current or previous results (regarding both quality and NATA accreditation).

If the date and time of sampling are not provided, the Laboratory will not be responsible for compromised results should testing be performed outside the recommended holding time.

Description	Testing Site	Extracted	Holding Time
Asbestos - LTM-ASB-8020	Sydney	Jan 25, 2016	Indefinite

**Company Name:** Alliance Geotechnical  
**Address:** 10 Welder Road  
Seven Hills  
NSW 2147  
**Project Name:** SURRY HILLS

**Order No.:**  
**Report #:** 486352  
**Phone:** 02 9675 1777  
**Fax:** 02 9675 1888

**Received:** Jan 21, 2016 4:35 PM  
**Due:** Jan 29, 2016  
**Priority:** 5 Day  
**Contact Name:** Michael Dunesky

Eurofins | mgt Client Manager: Charl Du Preez

Sample Detail					Asbestos Absence / Presence	HOLD	Eurofins   mgt Suite B15	Moisture Set	Eurofins   mgt Suite B7
Laboratory where analysis is conducted									
Melbourne Laboratory - NATA Site # 1254 & 14271									
Sydney Laboratory - NATA Site # 18217					X	X	X	X	X
Brisbane Laboratory - NATA Site # 20794									
External Laboratory									
Sample ID	Sample Date	Sampling Time	Matrix	LAB ID					
BH1_0.1-0.3	Jan 21, 2016		Soil	S16-Ja11100	X		X	X	X
BH2_0.3-0.4	Jan 21, 2016		Soil	S16-Ja11101	X		X	X	X
BH3_0.3-0.4	Jan 21, 2016		Soil	S16-Ja11102	X		X	X	X
BH4_0.3-0.4	Jan 21, 2016		Soil	S16-Ja11103	X		X	X	X
BH5_0.3-0.4	Jan 21, 2016		Soil	S16-Ja11104	X		X	X	X
BH6_0.3-0.4	Jan 21, 2016		Soil	S16-Ja11105	X		X	X	X
BH7_0.1-0.5	Jan 21, 2016		Soil	S16-Ja11106	X		X	X	X
BH8_0.3-0.4	Jan 21, 2016		Soil	S16-Ja11107	X		X	X	X
BH1_0.5-1.0	Jan 21, 2016		Soil	S16-Ja11108		X			
BH1_1.5-2.5	Jan 21, 2016		Soil	S16-Ja11109		X			



**Company Name:** Alliance Geotechnical  
**Address:** 10 Welder Road  
Seven Hills  
NSW 2147  
**Project Name:** SURRY HILLS

**Order No.:**  
**Report #:** 486352  
**Phone:** 02 9675 1777  
**Fax:** 02 9675 1888

**Received:** Jan 21, 2016 4:35 PM  
**Due:** Jan 29, 2016  
**Priority:** 5 Day  
**Contact Name:** Michael Dunesky

Eurofins | mgt Client Manager: Charl Du Preez

Sample Detail					Asbestos Absence / Presence	HOLD	Eurofins   mgt Suite B15	Moisture Set	Eurofins   mgt Suite B7
<b>Laboratory where analysis is conducted</b>									
<b>Melbourne Laboratory - NATA Site # 1254 &amp; 14271</b>									
<b>Sydney Laboratory - NATA Site # 18217</b>					X	X	X	X	X
<b>Brisbane Laboratory - NATA Site # 20794</b>									
<b>External Laboratory</b>									
BH2_1.4-1.5	Jan 21, 2016		Soil	S16-Ja11110		X			
BH2_2.5-2.6	Jan 21, 2016		Soil	S16-Ja11111		X			
BH4_1.4-1.5	Jan 21, 2016		Soil	S16-Ja11112		X			
BH4_2.5-2.6	Jan 21, 2016		Soil	S16-Ja11113		X			
BH5_1.0-1.1	Jan 21, 2016		Soil	S16-Ja11114		X			
BH5_2.0-2.1	Jan 21, 2016		Soil	S16-Ja11115		X			
BH6_1.4-1.5	Jan 21, 2016		Soil	S16-Ja11116		X			
BH6_2.4-2.5	Jan 21, 2016		Soil	S16-Ja11117		X			
BH7_0.5-1.0	Jan 21, 2016		Soil	S16-Ja11118		X			
BH7_1.5-2.0	Jan 21, 2016		Soil	S16-Ja11119		X			
BH8_1.4-1.5	Jan 21, 2016		Soil	S16-Ja11120		X			

**Company Name:** Alliance Geotechnical  
**Address:** 10 Welder Road  
Seven Hills  
NSW 2147  
**Project Name:** SURRY HILLS

**Order No.:**  
**Report #:** 486352  
**Phone:** 02 9675 1777  
**Fax:** 02 9675 1888

**Received:** Jan 21, 2016 4:35 PM  
**Due:** Jan 29, 2016  
**Priority:** 5 Day  
**Contact Name:** Michael Dunesky

**Eurofins | mgt Client Manager: Charl Du Preez**

Sample Detail					Asbestos Absence / Presence	HOLD	Eurofins   mgt Suite B15	Moisture Set	Eurofins   mgt Suite B7
<b>Laboratory where analysis is conducted</b>									
<b>Melbourne Laboratory - NATA Site # 1254 &amp; 14271</b>									
<b>Sydney Laboratory - NATA Site # 18217</b>					X	X	X	X	X
<b>Brisbane Laboratory - NATA Site # 20794</b>									
<b>External Laboratory</b>									
BH8_2.5-2.6	Jan 21, 2016		Soil	S16-Ja11121		X			
QA2/QC2	Jan 21, 2016		Soil	S16-Ja11123		X			
BH7_1.0-1.4	Jan 21, 2016		Soil	S16-Ja11124		X			

## Internal Quality Control Review and Glossary

### General

1. QC data may be available on request.
2. All soil results are reported on a dry basis, unless otherwise stated.
3. Samples were analysed on an 'as received' basis.
4. This report replaces any interim results previously issued.

### Holding Times

Please refer to 'Sample Preservation and Container Guide' for holding times (QS3001).

For samples received on the last day of holding time, notification of testing requirements should have been received at least 6 hours prior to sample receipt deadlines as stated on the Sample Receipt Advice.

If the Laboratory did not receive the information in the required timeframe, and regardless of any other integrity issues, suitably qualified results may still be reported.

Holding times apply from the date of sampling, therefore compliance to these may be outside the laboratory's control.

### Units

% w/w: weight for weight basis	grams per kilogram
Filter loading:	fibres/100 graticule areas
Reported Concentration:	fibres/mL
Flowrate:	L/min

### Terms

<b>Dry</b>	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
<b>LOR</b>	Limit of Reporting.
<b>COC</b>	Chain of custody
<b>SRA</b>	Sample Receipt Advice
<b>ISO</b>	International Standards Organisation
<b>AS</b>	Australian Standards
<b>WA DOH</b>	Western Australia Department of Health
<b>NOHSC</b>	National Occupational Health and Safety Commission
<b>ACM</b>	Bonded asbestos-containing material means any material containing more than 1% asbestos and comprises asbestos-containing-material which is in sound condition, although possibly broken or fragmented, and where the asbestos is bound in a matrix such as cement or resin. Common examples of ACM include but are not limited to: pipe and boiler insulation, sprayed-on fireproofing, troweled-on acoustical plaster, floor tile and mastic, floor linoleum, transite shingles, roofing materials, wall and ceiling plaster, ceiling tiles, and gasket materials. This term is restricted to material that cannot pass a 7 mm x 7 mm sieve. This sieve size is selected because it approximates the thickness of common asbestos cement sheeting and for fragments to be smaller than this would imply a high degree of damage and hence potential for fibre release.
<b>FA</b>	FA comprises friable asbestos material and includes severely weathered cement sheet, insulation products and woven asbestos material. This type of friable asbestos is defined here as asbestos material that is in a degraded condition such that it can be broken or crumbled by hand pressure. This material is typically unbonded or was previously bonded and is now significantly degraded (crumbling).
<b>PACM</b>	Presumed Asbestos-Containing Material means thermal system insulation and surfacing material found in buildings, vessels, and vessel sections constructed no later than 1980 that are assumed to contain greater than one percent asbestos but have not been sampled or analyzed to verify or negate the presence of asbestos.
<b>AF</b>	Asbestos fines (AF) are defined as free fibres, or fibre bundles, smaller than 7mm. It is the free fibres which present the greatest risk to human health, although very small fibres (< 5 microns in length) are not considered to be such a risk. AF also includes small fragments of bonded ACM that pass through a 7 mm x 7 mm sieve. (Note that for bonded ACM fragments to pass through a 7 mm x 7 mm sieve implies a substantial degree of damage which increases the potential for fibre release.)
<b>AC</b>	Asbestos cement means a mixture of cement and asbestos fibres (typically 90:10 ratios).

## Comments

### Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	No
Sample correctly preserved	Yes
Appropriate sample containers have been used	Yes
Sample containers for volatile analysis received with minimal headspace	Yes
Samples received within HoldingTime	Yes
Some samples have been subcontracted	No

### Qualifier Codes/Comments

Code	Description
N/A	Not applicable

## Authorised by:

Rhys Thomas

Senior Analyst-Asbestos (NSW)



**Glenn Jackson**  
National Operations Manager

Final Report – this report replaces any previously issued Report

- Indicates Not Requested

\* Indicates NATA accreditation does not cover the performance of this service

Uncertainty data is available on request

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## CHAIN OF CUSTODY RECORD

☐ Eurofins | mgt  
Sydney LabUnit 13 Building F, 16 Mars Road, Lane Cove West, NSW 2146  
P +61 2 9551 8400  
E EuroSampleSyd@eurofins.com.au☐ Eurofins | mgt  
Brisbane LabUnit 1, 21 Smalwood Place, Murrumbidgee, QLD 4172  
P +61 7 5512 4000  
E EuroSampleBris@eurofins.com.au☐ Eurofins | mgt  
Melbourne Lab27 Kingston Train Centre, Oakleigh, VIC 3166  
P +61 3 9594 5000  
E EuroSampleMel@eurofins.com.au

Company		Alliance Geo		Purchase Order		Project Manager		Project Name		Sunny Hills			
Address				Eurofins   mgt Quote No		Project No		Electronic Results Format					
Contact Name		Michael Dueshy		Analysis (Please Where results are requested, please specify "Total" or "Filtered")		Asbestos ID		Email for Results		office@allgeo.com.au			
Contact Phone No								Turn Around Requirements		<input type="checkbox"/> 1 DAY* <input checked="" type="checkbox"/> 5 DAY (Std.) <input type="checkbox"/> 2 DAY* <input type="checkbox"/> Other ( ) <input type="checkbox"/> 3 DAY* * Surcharges apply			
Special Direction								Containers		Method of Shipment			
Relinquished by (Signature)		[Signature]						1L Plastic 250mL Plastic 125mL Plastic 200mL Amber Glass 40mL vial 125mL Amber Glass Jar		<input type="checkbox"/> Courier (# ) <input type="checkbox"/> Hand Delivered <input type="checkbox"/> Postal			
(Time / Date)		21/1/16								Sample Comments / DG Hazard Warning			
No	Client Sample ID	Date	Matrix										
1	BH1-0.1-0.3												
2	BH1-0.5-1.0												
3	BH1-1.5-2.5												
4	BH2-0.3-0.4												
5	BH2-1.4-1.5												
6	BH2-2.5-2.6												
7	BH3-0.3-0.4												
8	BH4-0.3-0.4												
9	BH4-1.4-1.5												
10	BH4-2.5-2.6												
11	BH5-0.3-0.4												
12	BH5-1.0-1.1												
Laboratory Use Only		Received By	Elkn hg	SYD   BNE   MEL   PER   ADL   NEW   DAR		Date	21/01/16	Time	16:35	Signature	[Signature]	Temperature	
		Received By		SYD   BNE   MEL   PER   ADL   NEW   DAR		Date	___/___/___	Time	___:___	Signature		Report No	426352



## CHAIN OF CUSTODY RECORD

ABN 50 005 085 521

☐ Eurofins | mgt  
Sydney LabUnit F3 Building 1 16 Mars Road Lane Cove NSW 1585  
P +61 2 9550 8400  
E EuroSampleNSA@eurofins.com.au☐ Eurofins | mgt  
Brisbane LabUnit 1 21 Smallwood Place Marano QLD 4172  
P +61 7 492 4400  
E EuroSampleQLD@eurofins.com.au☐ Eurofins | mgt  
Melbourne Lab2 Hargrave Street Glen Waverley VIC 3146  
P +61 3 8564 5400 F +61 3 8564 5400  
E EuroSampleAdg@eurofins.com.au

Company		Alliance Geo		Purchase Order		Project Manager		Project Name		Surry Hills			
Address				Eurofins   mgt Quote No		Project No		Electronic Results Format					
Contact Name		Michael Dinesh		Analysis (Note: Where results are requested, please specify 'Total' or 'Filtered')  BIS B7 Asbestos ID Send QC1 & CQC to SGS				Email for Results		office@allgeo.com.au			
Contact Phone No								Turn Around Requirements		<input type="checkbox"/> 1 DAY* <input type="checkbox"/> 2 DAY* <input type="checkbox"/> 3 DAY* * Surcharges apply <input checked="" type="checkbox"/> DAY (Std.) <input type="checkbox"/> Other ( )			
Special Direction								Containers		Method of Shipment			
Relinquished by (Signature) (Time / Date)		M. Dinesh 24/1/16						1L Plastic 250mL Plastic 125mL Plastic 200mL Amber Glass 40mL vial 125mL Amber Glass Jar		<input type="checkbox"/> Courier (# ) <input type="checkbox"/> Hand Delivered <input type="checkbox"/> Postal			
No	Client Sample ID	Date	Matrix	Sample Comments / DG Hazard Warning									
1	BH5-2.0-2.1												
2	BH6-0.3-0.4												
3	BH6-1.4-1.5												
4	BH6-2.4-2.5												
5	BH7-0.1-0.5												
6	BH7-0.5-1.0												
7	BH7-1.5-2.0												
8	BH8-0.3-0.4												
9	BH8-1.4-1.5												
10	BH8-2.5-2.6												
11	QA1/QC1												
12	QA2/QC2												
Laboratory Use Only		Received By	Elkn hgh	SYD   BNE   MEL   PER   ADL   NEW   DAR		Date	21/01/16	Time	16:35	Signature	[Signature]	Temperature	486352
		Received By		SYD   BNE   MEL   PER   ADL   NEW   DAR		Date	___/___/___	Time	___:___	Signature		Report No	



## Sample Receipt Advice

Company name: **Alliance Geotechnical**

Contact name: **Michael Dunesky**

Project name: **SURRY HILLS**

COC number: **Not provided**

Turn around time: **5 Day**

Date/Time received: **Jan 21, 2016 4:35 PM**

Eurofins | mgt reference: **486352**

## Sample information

- ☒ A detailed list of analytes logged into our LIMS, is included in the attached summary table.
- ☒ All samples have been received as described on the above COC.
- ☒ COC has been completed correctly.
- ☒ Attempt to chill was evident.
- ☒ Appropriately preserved sample containers have been used.
- ☒ All samples were received in good condition.
- ☒ Samples have been provided with adequate time to commence analysis in accordance with the relevant holding times.
- ☒ Appropriate sample containers have been used.
- ☒ Some samples have been subcontracted.
- N/A Custody Seals intact (if used).

## Notes

Extra sample received BH7\_1.0-1.4 placed on hold | Sample QA1/QC1 forwarded to SGS

## Contact notes

If you have any questions with respect to these samples please contact:

Charl Du Preez on Phone : +61 (2) 9900 8400 or by e.mail: charldupreez@eurofins.com.au

Results will be delivered electronically via e.mail to Michael Dunesky - michael@allgeo.com.au.

## Certificate of Analysis

**Alliance Geotechnical**  
**10 Welder Road**  
**Seven Hills**  
**NSW 2147**



**NATA Accredited**  
**Accreditation Number 1261**  
**Site Number 18217**

Accredited for compliance with ISO/IEC 17025.  
The results of the tests, calibrations and/or  
measurements included in this document are traceable  
to Australian/national standards.

**Attention:** **Benjamin Regan**

**Report** **490214-L**  
**Project name** **ADDITIONAL: SURRY HILLS**  
**Received Date** **Feb 23, 2016**

Client Sample ID			BH1-0.1-0.3	BH2-0.3-0.4	BH4-0.3-0.4	BH6-0.3-0.4
Sample Matrix			TCLP	TCLP	TCLP	TCLP
Eurofins   mgt Sample No.			S16-Fe21892	S16-Fe21893	S16-Fe21894	S16-Fe21895
Date Sampled			Jan 21, 2016	Jan 21, 2016	Jan 21, 2016	Jan 21, 2016
Test/Reference	LOR	Unit				
<b>Polycyclic Aromatic Hydrocarbons</b>						
Acenaphthene	0.001	mg/L	-	-	< 0.001	< 0.001
Acenaphthylene	0.001	mg/L	-	-	< 0.001	0.002
Anthracene	0.001	mg/L	-	-	< 0.001	< 0.001
Benz(a)anthracene	0.001	mg/L	-	-	< 0.001	< 0.001
Benzo(a)pyrene	0.001	mg/L	-	-	< 0.001	< 0.001
Benzo(b&j)fluoranthene <sup>N07</sup>	0.001	mg/L	-	-	< 0.001	< 0.001
Benzo(g,h,i)perylene	0.001	mg/L	-	-	< 0.001	< 0.001
Benzo(k)fluoranthene	0.001	mg/L	-	-	< 0.001	< 0.001
Chrysene	0.001	mg/L	-	-	< 0.001	< 0.001
Dibenz(a,h)anthracene	0.001	mg/L	-	-	< 0.001	< 0.001
Fluoranthene	0.001	mg/L	-	-	< 0.001	< 0.001
Fluorene	0.001	mg/L	-	-	< 0.001	< 0.001
Indeno(1.2.3-cd)pyrene	0.001	mg/L	-	-	< 0.001	< 0.001
Naphthalene	0.001	mg/L	-	-	< 0.001	0.002
Phenanthrene	0.001	mg/L	-	-	< 0.001	0.003
Pyrene	0.001	mg/L	-	-	< 0.001	< 0.001
Total PAH*	0.002	mg/L	-	-	< 0.001	0.007
2-Fluorobiphenyl (surr.)	1	%	-	-	77	74
p-Terphenyl-d14 (surr.)	1	%	-	-	94	101
<b>Heavy Metals</b>						
Lead	0.01	mg/L	-	0.16	-	-
Nickel	0.05	mg/L	< 0.05	-	-	-
<b>USA Leaching Procedure</b>						
Leachate Fluid <sup>C01</sup>		comment	1.0	1.0	1.0	1.0
pH (initial)	0.1	pH Units	9.0	8.8	9.1	6.7
pH (off)	0.1	pH Units	5.1	5.2	5.1	5.0
pH (USA HCl addition)	0.1	pH Units	2.6	2.5	2.4	2.4



<b>Client Sample ID</b>			<b>BH7-0.1-0.5</b>
<b>Sample Matrix</b>			<b>TCLP</b>
<b>Eurofins   mgt Sample No.</b>			<b>S16-Fe21896</b>
<b>Date Sampled</b>			<b>Jan 21, 2016</b>
Test/Reference	LOR	Unit	
<b>Heavy Metals</b>			
Nickel	0.05	mg/L	0.05
<b>USA Leaching Procedure</b>			
Leachate Fluid <sup>C01</sup>		comment	1.0
pH (initial)	0.1	pH Units	9.5
pH (off)	0.1	pH Units	5.7
pH (USA HCl addition)	0.1	pH Units	2.4

## Sample History

Where samples are submitted/analysed over several days, the last date of extraction and analysis is reported.

A recent review of our LIMS has resulted in the correction or clarification of some method identifications. Due to this, some of the method reference information on reports has changed. However, no substantive change has been made to our laboratory methods, and as such there is no change in the validity of current or previous results (regarding both quality and NATA accreditation).

If the date and time of sampling are not provided, the Laboratory will not be responsible for compromised results should testing be performed outside the recommended holding time.

Description	Testing Site	Extracted	Holding Time
Polycyclic Aromatic Hydrocarbons	Sydney	Feb 25, 2016	7 Day
- Method: E007 Polyaromatic Hydrocarbons (PAH)			
Heavy Metals	Sydney	Feb 24, 2016	180 Day
- Method: LTM-MET-3030 by ICP-OES (hydride ICP-OES for Mercury)			
USA Leaching Procedure	Sydney	Feb 24, 2016	14 Day
- Method: E019 TCLP Preparation			

**Company Name:** Alliance Geotechnical  
**Address:** 10 Welder Road  
Seven Hills  
NSW 2147  
**Project Name:** ADDITIONAL: SURRY HILLS

**Order No.:**  
**Report #:** 490214  
**Phone:** 02 9675 1777  
**Fax:** 02 9675 1888

**Received:** Feb 23, 2016 4:51 PM  
**Due:** Mar 1, 2016  
**Priority:** 5 Day  
**Contact Name:** Benjamin Regan

**Eurofins | mgt Client Manager: Charl Du Preez**

Sample Detail					Lead	Nickel	Polycyclic Aromatic Hydrocarbons	USA Leaching Procedure
Laboratory where analysis is conducted								
Melbourne Laboratory - NATA Site # 1254 & 14271								
Sydney Laboratory - NATA Site # 18217					X	X	X	X
Brisbane Laboratory - NATA Site # 20794								
External Laboratory								
Sample ID	Sample Date	Sampling Time	Matrix	LAB ID				
BH1-0.1-0.3	Jan 21, 2016		TCLP	S16-Fe21892		X		X
BH2-0.3-0.4	Jan 21, 2016		TCLP	S16-Fe21893	X			X
BH4-0.3-0.4	Jan 21, 2016		TCLP	S16-Fe21894			X	X
BH6-0.3-0.4	Jan 21, 2016		TCLP	S16-Fe21895			X	X
BH7-0.1-0.5	Jan 21, 2016		TCLP	S16-Fe21896		X		X

## Internal Quality Control Review and Glossary

### General

1. Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples are included in this QC report where applicable. Additional QC data may be available on request.
2. All soil results are reported on a dry basis, unless otherwise stated.
3. Actual LORs are matrix dependant. Quoted LORs may be raised where sample extracts are diluted due to interferences.
4. Results are uncorrected for matrix spikes or surrogate recoveries.
5. SVOC analysis on waters are performed on homogenised, unfiltered samples, unless noted otherwise.
6. Samples were analysed on an 'as received' basis. 7. This report replaces any interim results previously issued.

### Holding Times

Please refer to 'Sample Preservation and Container Guide' for holding times (QS3001).

For samples received on the last day of holding time, notification of testing requirements should have been received at least 6 hours prior to sample receipt deadlines as stated on the Sample Receipt Advice.

If the Laboratory did not receive the information in the required timeframe, and regardless of any other integrity issues, suitably qualified results may still be reported.

Holding times apply from the date of sampling, therefore compliance to these may be outside the laboratory's control.

**\*\*NOTE:** pH duplicates are reported as a range NOT as RPD

### Units

**mg/kg:** milligrams per Kilogram

**mg/l:** milligrams per litre

**ug/l:** micrograms per litre

**ppm:** Parts per million

**ppb:** Parts per billion

**%:** Percentage

**org/100ml:** Organisms per 100 millilitres

**NTU:** Nephelometric Turbidity Units

**MPN/100mL:** Most Probable Number of organisms per 100 millilitres

### Terms

<b>Dry</b>	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
<b>LOR</b>	Limit of Reporting.
<b>SPIKE</b>	Addition of the analyte to the sample and reported as percentage recovery.
<b>RPD</b>	Relative Percent Difference between two Duplicate pieces of analysis.
<b>LCS</b>	Laboratory Control Sample - reported as percent recovery
<b>CRM</b>	Certified Reference Material - reported as percent recovery
<b>Method Blank</b>	In the case of solid samples these are performed on laboratory certified clean sands. In the case of water samples these are performed on de-ionised water.
<b>Surr - Surrogate</b>	The addition of a like compound to the analyte target and reported as percentage recovery.
<b>Duplicate</b>	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
<b>Batch Duplicate</b>	A second piece of analysis from a sample outside of the clients batch of samples but run within the laboratory batch of analysis.
<b>Batch SPIKE</b>	Spike recovery reported on a sample from outside of the clients batch of samples but run within the laboratory batch of analysis.
<b>USEPA</b>	United States Environmental Protection Agency
<b>APHA</b>	American Public Health Association
<b>ASLP</b>	Australian Standard Leaching Procedure
<b>TCLP</b>	Toxicity Characteristic Leaching Procedure
<b>COC</b>	Chain of Custody
<b>SRA</b>	Sample Receipt Advice
<b>CP</b>	Client Parent - QC was performed on samples pertaining to this report
<b>NCP</b>	Non-Client Parent - QC performed on samples not pertaining to this report, QC is representative of the sequence or batch that client samples were analysed within
<b>TEQ</b>	Toxic Equivalency Quotient

### QC - Acceptance Criteria

RPD Duplicates: Global RPD Duplicates Acceptance Criteria is 30% however the following acceptance guidelines are equally applicable:

Results <10 times the LOR : No Limit

Results between 10-20 times the LOR : RPD must lie between 0-50%

Results >20 times the LOR : RPD must lie between 0-30%

Surrogate Recoveries : Recoveries must lie between 50-150% - Phenols 20-130%.

### QC Data General Comments

1. Where a result is reported as a less than (<), higher than the nominated LOR, this is due to either matrix interference, extract dilution required due to interferences or contaminant levels within the sample, high moisture content or insufficient sample provided.
2. Duplicate data shown within this report that states the word "BATCH" is a Batch Duplicate from outside of your sample batch, but within the laboratory sample batch at a 1:10 ratio. The Parent and Duplicate data shown is not data from your samples.
3. Organochlorine Pesticide analysis - where reporting LCS data, Toxaphene & Chlordane are not added to the LCS.
4. Organochlorine Pesticide analysis - where reporting Spike data, Toxaphene is not added to the Spike.
5. Total Recoverable Hydrocarbons - where reporting Spike & LCS data, a single spike of commercial Hydrocarbon products in the range of C12-C30 is added and it's Total Recovery is reported in the C10-C14 cell of the Report.
6. pH and Free Chlorine analysed in the laboratory - Analysis on this test must begin within 30 minutes of sampling. Therefore laboratory analysis is unlikely to be completed within holding time. Analysis will begin as soon as possible after sample receipt.
7. Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of Recovery the term "INT" appears against that analyte.
8. Polychlorinated Biphenyls are spiked only using Aroclor 1260 in Matrix Spikes and LCS.
9. For Matrix Spikes and LCS results a dash " - " in the report means that the specific analyte was not added to the QC sample.
10. Duplicate RPDs are calculated from raw analytical data thus it is possible to have two sets of data.

**Quality Control Results**

Test				Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
<b>Method Blank</b>										
<b>Polycyclic Aromatic Hydrocarbons</b>										
Acenaphthene				mg/L	< 0.001			0.001	Pass	
Acenaphthylene				mg/L	< 0.001			0.001	Pass	
Anthracene				mg/L	< 0.001			0.001	Pass	
Benz(a)anthracene				mg/L	< 0.001			0.001	Pass	
Benzo(a)pyrene				mg/L	< 0.001			0.001	Pass	
Benzo(b&j)fluoranthene				mg/L	< 0.001			0.001	Pass	
Benzo(g,h,i)perylene				mg/L	< 0.001			0.001	Pass	
Benzo(k)fluoranthene				mg/L	< 0.001			0.001	Pass	
Chrysene				mg/L	< 0.001			0.001	Pass	
Dibenz(a,h)anthracene				mg/L	< 0.001			0.001	Pass	
Fluoranthene				mg/L	< 0.001			0.001	Pass	
Fluorene				mg/L	< 0.001			0.001	Pass	
Indeno(1,2,3-cd)pyrene				mg/L	< 0.001			0.001	Pass	
Naphthalene				mg/L	< 0.001			0.001	Pass	
Phenanthrene				mg/L	< 0.001			0.001	Pass	
Pyrene				mg/L	< 0.001			0.001	Pass	
<b>Method Blank</b>										
<b>Heavy Metals</b>										
Lead				mg/L	0.01			0.01	Pass	
Nickel				mg/L	< 0.05			0.05	Pass	
Test	Lab Sample ID	QA Source	Units	Result 1				Acceptance Limits	Pass Limits	Qualifying Code
<b>Spike - % Recovery</b>										
<b>Heavy Metals</b>										
Lead	S16-Fe21893	CP	%	90				70-130	Pass	
Nickel	S16-Fe21893	CP	%	88				70-130	Pass	
Test	Lab Sample ID	QA Source	Units	Result 1				Acceptance Limits	Pass Limits	Qualifying Code
<b>Duplicate</b>										
<b>Heavy Metals</b>										
Lead	S16-Fe21892	CP	mg/L	0.21	0.22	8.0		30%	Pass	
Nickel	S16-Fe21892	CP	mg/L	< 0.05	< 0.05	<1		30%	Pass	
<b>Duplicate</b>										
<b>Heavy Metals</b>										
Lead	S16-Fe21621	NCP	mg/L	1500	**	10		30%	Pass	

## Comments

### Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	No
Sample correctly preserved	Yes
Appropriate sample containers have been used	Yes
Sample containers for volatile analysis received with minimal headspace	Yes
Samples received within HoldingTime	Yes
Some samples have been subcontracted	No

### Qualifier Codes/Comments

Code	Description
C01	Leachate Fluid Key: 1 - pH 5.0; 2 - pH 2.9; 3 - pH 9.2; 4 - Reagent (DI) water; 5 - Client sample, 6 - other
N07	Please note:- These two PAH isomers closely co-elute using the most contemporary analytical methods and both the reported concentration (and the TEQ) apply specifically to the total of the two co-eluting PAHs

## Authorised By

Charl Du Preez	Analytical Services Manager
Ivan Taylor	Senior Analyst-Metal (NSW)
Ryan Hamilton	Senior Analyst-Organic (NSW)



**Glenn Jackson**

### National Operations Manager

Final report - this Report replaces any previously issued Report

- Indicates Not Requested

\* Indicates NATA accreditation does not cover the performance of this service

Uncertainty data is available on request

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Admin Syd

490214

Siamak  
802

4:51pm  
23/02/16

**From:** Nibha Vaidya <NibhaVaidya@eurofins.com>  
**Sent:** Tuesday, 23 February 2016 4:51 PM  
**To:** EnviroSampleNSW  
**Subject:** FW: Eurofins | mgt Test Results, Invoice - Report 486352 : Site SURRY HILLS

Additional please

-----Original Message-----

**From:** Alliance Geotechnical [<mailto:benjamin@allgeo.com.au>]  
**Sent:** Tuesday, 23 February 2016 4:43 PM  
**To:** Andrew Black  
**Cc:** Nibha Vaidya; [charldupreez@eurofins.com.au](mailto:charldupreez@eurofins.com.au)  
**Subject:** RE: Eurofins | mgt Test Results, Invoice - Report 486352 : Site SURRY HILLS

Hi Andrew,

Can you please analyse the following samples for TCLP:

- BH1-0.1-0.3 for TCLP-Nickel;
- BH2-0.3-0.4 for TCLP-Lead;
- BH4-0.3-0.4 for TCLP-PAHs;
- BH6-0.3-0.4 for TCLP-PAHs; and
- BH7-0.1-0.5 for TCLP-Nickel.

Please analyse on a 5 day turnaround.

Kind regards,

Benjamin Regan

Benjamin Regan | BEng (Environmental) Hons | Senior Environmental Consultant Mobile – 0449 177 589 | PO Box 1028 St Marys NSW 1790  
Ph: 1800 288 188 | Fax: (02) 9838 8022 | Web: <http://allgeo.com.au>

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This communication is intended for use of the addressee(s) and may contain legally privileged and confidential information. If you are not the addressee you are notified that any transmission, distribution or replication of this message is strictly prohibited. The legal privilege and confidentiality attached to this email and its contents is not waived, lost or destroyed by reason of mistaken delivery to you. If you have received this message in error, please notify Alliance Geotechnical Pty Ltd immediately and permanently delete the email from your system.

-----Original Message-----

**From:** [AndrewBlack@eurofins.com](mailto:AndrewBlack@eurofins.com) [<mailto:AndrewBlack@eurofins.com>]

## Sample Receipt Advice

Company name: **Alliance Geotechnical**  
Contact name: Benjamin Regan  
Project name: **ADDITIONAL: SURRY HILLS**  
COC number: Not provided  
Turn around time: 5 Day  
Date/Time received: Feb 23, 2016 4:51 PM  
Eurofins | mgt reference: **490214**

### Sample information

- ☒ A detailed list of analytes logged into our LIMS, is included in the attached summary table.
- ☒ All samples have been received as described on the above COC.
- ☒ COC has been completed correctly.
- ☒ Attempt to chill was evident.
- ☒ Appropriately preserved sample containers have been used.
- ☒ All samples were received in good condition.
- ☒ Samples have been provided with adequate time to commence analysis in accordance with the relevant holding times.
- ☒ Appropriate sample containers have been used.
- ☒ Some samples have been subcontracted.
- N/A Custody Seals intact (if used).

### Notes

Additional from job 486352

### Contact notes

If you have any questions with respect to these samples please contact:

Charl Du Preez on Phone : +61 (2) 9900 8400 or by e.mail: charldupreez@eurofins.com.au

Results will be delivered electronically via e.mail to Benjamin Regan - benjamin@allgeo.com.au.





12 Ashley Street, Chatswood, NSW 2067  
tel: +61 2 9910 6200

email: [sydney@envirolab.com.au](mailto:sydney@envirolab.com.au)  
[envirolab.com.au](http://envirolab.com.au)

Envirolab Services Pty Ltd - Sydney | ABN 37 112 535 645

## CERTIFICATE OF ANALYSIS

140510

### Client:

**Alliance Geotechnical**  
PO Box 1028  
St Marys  
NSW 1790

**Attention:** Michael Dunesky

### Sample log in details:

Your Reference:	<u>Surry Hills</u>
No. of samples:	1 Soil
Date samples received / completed instructions received	22/01/2016 / 22/01/2016

### 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:	1/02/16 / 28/01/16
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

Envirolab Reference: 140510  
Revision No: R 00



vTRH(C6-C10)/BTEXN in Soil		
Our Reference:	UNITS	140510-1
Your Reference	-----	QC1
	-	
Type of sample	-----	Soil
Date extracted	-	25/01/2016
Date analysed	-	26/01/2016
TRHC <sub>6</sub> - C <sub>9</sub>	mg/kg	<25
TRHC <sub>6</sub> - C <sub>10</sub>	mg/kg	<25
vTPHC <sub>6</sub> - C <sub>10</sub> 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	3
Surrogate aaa-Trifluorotoluene	%	100

svTRH (C10-C40) in Soil		
Our Reference:	UNITS	140510-1
Your Reference	-----	QC1
	-	
Type of sample	-----	Soil
Date extracted	-	25/01/2016
Date analysed	-	26/01/2016
TRHC <sub>10</sub> - C <sub>14</sub>	mg/kg	<50
TRHC <sub>15</sub> - C <sub>28</sub>	mg/kg	940
TRHC <sub>29</sub> - C <sub>36</sub>	mg/kg	390
TRH>C <sub>10</sub> -C <sub>16</sub>	mg/kg	130
TRH>C <sub>10</sub> - C <sub>16</sub> less Naphthalene (F2)	mg/kg	120
TRH>C <sub>16</sub> -C <sub>34</sub>	mg/kg	1,200
TRH>C <sub>34</sub> -C <sub>40</sub>	mg/kg	200
Surrogate o-Terphenyl	%	109

PAHs in Soil		
Our Reference:	UNITS	140510-1
Your Reference	-----	QC1
	-	
Type of sample	-----	Soil
Date extracted	-	25/01/2016
Date analysed	-	26/01/2016
Naphthalene	mg/kg	6.0
Acenaphthylene	mg/kg	10
Acenaphthene	mg/kg	1.8
Fluorene	mg/kg	7.2
Phenanthrene	mg/kg	53
Anthracene	mg/kg	14
Fluoranthene	mg/kg	45
Pyrene	mg/kg	37
Benzo(a)anthracene	mg/kg	20
Chrysene	mg/kg	21
Benzo(b,j+k)fluoranthene	mg/kg	26
Benzo(a)pyrene	mg/kg	17
Indeno(1,2,3-c,d)pyrene	mg/kg	7.8
Dibenzo(a,h)anthracene	mg/kg	1.7
Benzo(g,h,i)perylene	mg/kg	6.7
Benzo(a)pyrene TEQ calc (zero)	mg/kg	24
Benzo(a)pyrene TEQ calc(half)	mg/kg	24
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	24
Total Positive PAHs	mg/kg	270
Surrogate <i>p</i> -Terphenyl-d14	%	118

Acid Extractable metals in soil		
Our Reference:	UNITS	140510-1
Your Reference	-----	QC1
	-	
Type of sample	-----	Soil
Date prepared	-	25/01/2016
Date analysed	-	25/01/2016
Arsenic	mg/kg	37
Cadmium	mg/kg	<0.4
Chromium	mg/kg	9
Copper	mg/kg	36
Lead	mg/kg	78
Mercury	mg/kg	0.5
Nickel	mg/kg	8
Zinc	mg/kg	65

Moisture		
Our Reference:	UNITS	140510-1
Your Reference	-----	QC1
	-	
Type of sample	-----	Soil
<hr/>		
Date prepared	-	25/01/2016
Date analysed	-	27/01/2016
Moisture	%	5.0

Asbestos ID - soils		
Our Reference:	UNITS	140510-1
Your Reference	-----	QC1
	-	
Type of sample	-----	Soil
Date analysed	-	27/01/2016
Sample mass tested	g	Approx 60
Sample Description	-	Brown coarse-grained soil & rocks
Asbestos ID in soil	-	No asbestos detected at reporting limit of 0.1g/kg
		Organic Fibre Detected
Trace Analysis	-	No asbestos detected

MethodID	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	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 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.



**Client Reference:      Surry Hills**

QUALITYCONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
vTRH(C6-C10)/BTEXN in Soil						Base II Duplicate II %RPD		
Date extracted	-			25/01/2016	[NT]	[NT]	LCS-3	25/01/2016
Date analysed	-			26/01/2016	[NT]	[NT]	LCS-3	26/01/2016
TRHC <sub>6</sub> - C <sub>9</sub>	mg/kg	25	Org-016	<25	[NT]	[NT]	LCS-3	110%
TRHC <sub>6</sub> - C <sub>10</sub>	mg/kg	25	Org-016	<25	[NT]	[NT]	LCS-3	110%
Benzene	mg/kg	0.2	Org-016	<0.2	[NT]	[NT]	LCS-3	109%
Toluene	mg/kg	0.5	Org-016	<0.5	[NT]	[NT]	LCS-3	112%
Ethylbenzene	mg/kg	1	Org-016	<1	[NT]	[NT]	LCS-3	109%
m+p-xylene	mg/kg	2	Org-016	<2	[NT]	[NT]	LCS-3	111%
o-Xylene	mg/kg	1	Org-016	<1	[NT]	[NT]	LCS-3	109%
naphthalene	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
Surrogate aaa-Trifluorotoluene	%		Org-016	103	[NT]	[NT]	LCS-3	104%
QUALITYCONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
svTRH (C10-C40) in Soil						Base II Duplicate II %RPD		
Date extracted	-			25/01/2016	[NT]	[NT]	LCS-3	25/01/2016
Date analysed	-			25/01/2016	[NT]	[NT]	LCS-3	25/01/2016
TRHC <sub>10</sub> - C <sub>14</sub>	mg/kg	50	Org-003	<50	[NT]	[NT]	LCS-3	101%
TRHC <sub>15</sub> - C <sub>28</sub>	mg/kg	100	Org-003	<100	[NT]	[NT]	LCS-3	110%
TRHC <sub>28</sub> - C <sub>36</sub>	mg/kg	100	Org-003	<100	[NT]	[NT]	LCS-3	95%
TRH>C <sub>10</sub> -C <sub>16</sub>	mg/kg	50	Org-003	<50	[NT]	[NT]	LCS-3	101%
TRH>C <sub>16</sub> -C <sub>34</sub>	mg/kg	100	Org-003	<100	[NT]	[NT]	LCS-3	110%
TRH>C <sub>34</sub> -C <sub>40</sub>	mg/kg	100	Org-003	<100	[NT]	[NT]	LCS-3	95%
Surrogate o-Terphenyl	%		Org-003	84	[NT]	[NT]	LCS-3	98%
QUALITYCONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
PAHs in Soil						Base II Duplicate II %RPD		
Date extracted	-			25/01/2016	[NT]	[NT]	LCS-3	25/01/2016
Date analysed	-			26/01/2016	[NT]	[NT]	LCS-3	26/01/2016
Naphthalene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	LCS-3	109%
Acenaphthylene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NR]	[NR]
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-3	108%
Phenanthrene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	LCS-3	107%
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-3	107%
Pyrene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	LCS-3	111%
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-3	121%
Benzo(b,j,k)fluoranthene	mg/kg	0.2	Org-012	<0.2	[NT]	[NT]	[NR]	[NR]

**Client Reference:      Surry Hills**

QUALITYCONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
PAHs in Soil						Base II Duplicate II %RPD		
Benzo(a)pyrene	mg/kg	0.05	Org-012	<0.05	[NT]	[NT]	LCS-3	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-d14	%		Org-012	111	[NT]	[NT]	LCS-3	113%
QUALITYCONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
Acid Extractable metals in soil						Base II Duplicate II %RPD		
Date prepared	-			25/01/2016	[NT]	[NT]	LCS-5	25/01/2016
Date analysed	-			25/01/2016	[NT]	[NT]	LCS-5	25/01/2016
Arsenic	mg/kg	4	Metals-020 ICP-AES	<4	[NT]	[NT]	LCS-5	109%
Cadmium	mg/kg	0.4	Metals-020 ICP-AES	<0.4	[NT]	[NT]	LCS-5	102%
Chromium	mg/kg	1	Metals-020 ICP-AES	<1	[NT]	[NT]	LCS-5	105%
Copper	mg/kg	1	Metals-020 ICP-AES	<1	[NT]	[NT]	LCS-5	108%
Lead	mg/kg	1	Metals-020 ICP-AES	<1	[NT]	[NT]	LCS-5	105%
Mercury	mg/kg	0.1	Metals-021 CV-AAS	<0.1	[NT]	[NT]	LCS-5	98%
Nickel	mg/kg	1	Metals-020 ICP-AES	<1	[NT]	[NT]	LCS-5	102%
Zinc	mg/kg	1	Metals-020 ICP-AES	<1	[NT]	[NT]	LCS-5	105%

**Report Comments:**

Asbestos: Excessive sample volume was provided for asbestos analysis. A portion of the supplied sample was sub-sampled according to Envirolab procedures. We cannot guarantee that this sub-sample is indicative of the entire sample. Envirolab recommends supplying 40-50g (50mL) of sample in its own container as per AS4964-2004.

Note: Samples 140510-1 were sub-sampled from bags provided by the client.

Asbestos ID was analysed by Approved Identifier: Lulu Scott

Asbestos ID was authorised by Approved Signatory: Lulu Scott

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.



# CHAIN OF CUSTODY RECORD

ABN 50 005 985 521

☐ Eurofins | mgt  
Sydney Lab

☐ Eurofins | mgt  
Brisbane Lab

☐ Eurofins | mgt  
Melbourne Lab

☐ Eurofins | mgt  
Melbourne Lab

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Company	Alliance Geo		Purchase Order			Project Manager			Project Name	Sorry Hills	
Address			Eurofins   mgt Quote No			Project No			Electronic Results Format		
Contact Name	Michael Dwyer		(Note: Where metals are requested, please specify "Total" or "Filtered")	8 Heavy Metals					Email for Results	office@alliancegeo.com.au	
Contact Phone No				TPH							
Special Direction			PAH								
Relinquished by (Signature)	M. Dwyer		BTX								
(Time / Date)	21/11/16		Asbestos ID								
No	Client Sample ID	Date	Matrix								
1	QCI										
2											
3											
4											
5											
6											
7											
8											
9											
10											
11											
12											
Laboratory Use Only	Received By	Elan Wai	SYD   BNE   MEL   PER   ADL   NEW   DAR	Date	21/11/16	Time	6:35	Signature	[Signature]	Temperature	
	Received By		SYD   BNE   MEL   PER   ADL   NEW   DAR	Date	— / — / —	Time	— : —	Signature		Report No	

EnviroLab Services  
12 Ashley St  
Chatswood NSW 2067  
Ph: (02) 9910 6200  
Job No: 140510  
Date Received: 22/10/16  
Time Received: 12:00  
Received by: D.F.  
Temp: ~~Cool~~ Ambient  
Cooling: Ice/~~Icepack~~  
Security: ~~None~~ Broken/None

Submission of samples to the laboratory will be deemed as acceptance of Eurofins | mgt Standard Terms and Conditions unless agreed otherwise. A copy of Eurofins | mgt Standard Terms and Conditions is available on request.

QC3009\_R14 Modified by S. Kojima Approved by T. Lalland Approved on 11 August 2015

Relin by Sean EF/MGT 22/11/16 10:00