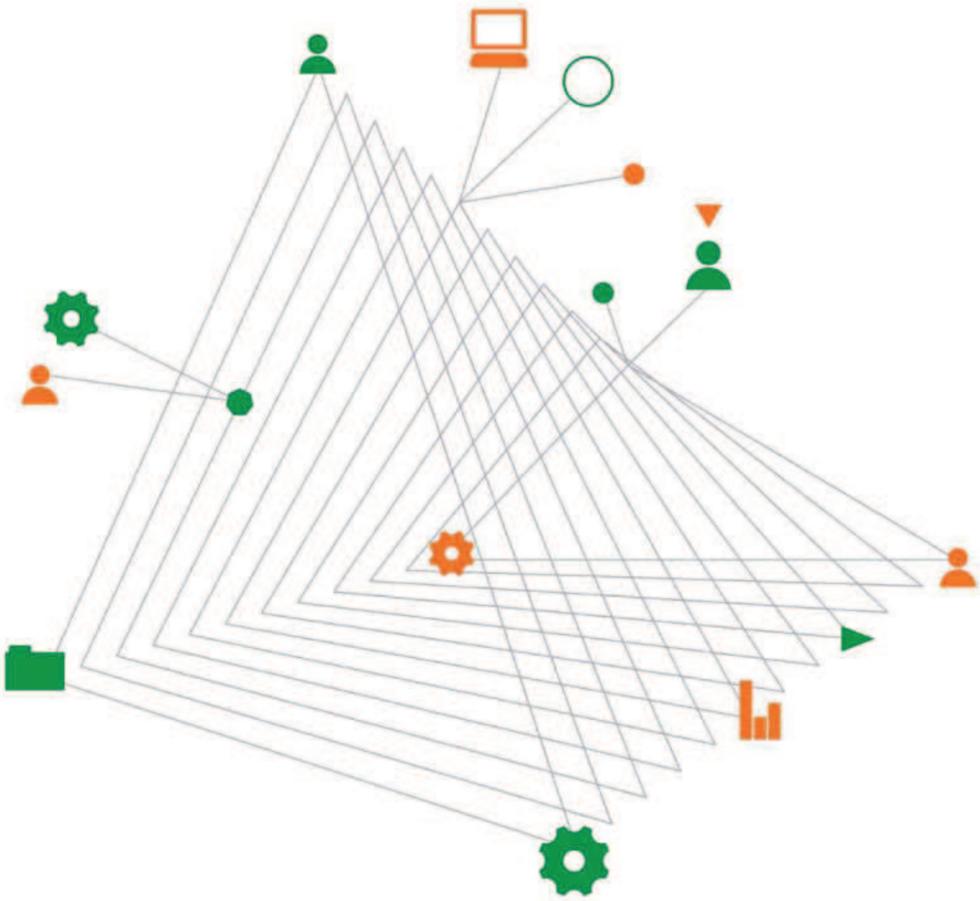
TOGA D&C Pty Ltd

Surry Hills Shopping Village

Preliminary Contamination and Geotechnical Site Assessment

18 June 2015



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Surry Hills Shopping Village

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For and on behalf of Coffey

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Quality information

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Executive summary of environmental findings

TOGA D&C Pty Ltd (TOGA) has submitted an Expression of Interest for the purchase of the Surry Hills Shopping Village, situated on Cleveland and Baptist Street, Redfern. TOGA is considering redevelopment of the site for mixed use, commercial and residential purposes. TOGA requested that Coffey Geotechnics Pty Ltd (Coffey) perform a limited environmental site assessment of the shopping centre site to supplement advice provided in an earlier desktop study (reference GEOTLCOV25397AA-AB dated 24 April 2015).

The work was commissioned by Mr Rob Thomas of TOGA in response to our proposal reference GEOTLCOV25397AA-AE dated 11 May 2015. Discussions with Mr Thomas indicate that the redevelopment may involve the construction of up to 200 apartments above a three level basement.

The objective of the assessment is to provide TOGA with advice on the contamination risks and opportunities related to the site.

Based on the limited results of this investigation, the soil contamination recorded in soil, groundwater or soil vapour does not indicate the presence of impacts that would preclude the redevelopment of the site for residential use, particularly if a significant quantity of fill material and shallow groundwater that is showing localised impact arising from dry cleaning chemical is removed during the redevelopment of the site.

Asbestos was identified at one location. However, based on findings at other similar sites in Sydney, it is considered that it is possible that a significant portion of fill material may be impacted with asbestos, whether in the form of fragments or fibres.

Chlorinated solvents were identified at concentrations above the drinking water criteria near the suspected source of chlorinated solvents plume in the vicinity of the dry cleaner. While the on-site, dissolved phase plume of chlorinated solvents may be managed as part of the redevelopment of the site, an off-site plume, should it exist, may require specific assessment and remediation including triggering the notification requirements under Section 60 of the Contaminated Land Management Act. While there isn't sufficient data to assess whether a part of the plume is present off site, based on the available information, there is a low likelihood of significant off-site chlorinated solvent contamination in groundwater.

Based on the limited results of this investigation, the groundwater beneath the site may require pH adjustment before discharge to sewer.

This report must be read in conjunction with the attached Important Information about your Coffey Report.

Table of contents

Tables

Figures

Appendix

1. Introduction

TOGA D&C Pty Ltd (TOGA) has submitted an Expression of Interest for the purchase of the Surry Hills Shopping Village, situated on Cleveland and Baptist Street, Redfern, and is considering redevelopment of the site for mixed use, commercial and residential purposes involving the construction of up to 200 apartments above a three level basement.

To this end TOGA requested Coffey Geotechnics Pty Ltd (Coffey) to perform a desktop geotechnical and environmental site assessment. This desktop assessment was prepared and submitted in our report reference GEOTLCOV25397AA-AB dated 24 April 2015.

Subsequently TOGA extended the commission to expand upon the environmental site assessment advice provided in the desktop study. The scope of work for this limited additional environmental assessment was presented in Coffey reference GEOTLCOV25397AA-AC dated 4 May 2015. The objective of the additional limited environmental site assessment was to provide TOGA with advice on the contamination risks and opportunities related to the site to assist its purchase decision.

This report presents the updated environmental assessment with the previous geotechnical desk study (updated to consider information from the environmental boreholes) to provide the current information in a single document. The additional scope of work carried out for the limited environmental assessment is explained in Section 5.1.

1.1. Objective and scope of investigation to date

The objective of the this preliminary study is to assess the presence of land contamination at the site, the potential impact on the proposed redevelopment of the site and comment on the likely general suitability of the site for future use.

To achieve the project objectives, Coffey carried out the following scope of work:

- Project planning and inception, including review of previous reports prepared for the site to assess potential areas of environmental concern (AEC) and chemicals of potential concern (COPC);
- Preparation of a limited Sampling, Analysis and Quality Plan (SAQP) using information gathered as part of the data review;
- Drilling 10 soil bores to depths between 0.5m and 6.0 m below ground surface (bgs);
- Collection of representative soil samples from each borehole location at regular intervals;
- Laboratory analysis of soil samples for grain size distribution and a suite of chemicals including heavy metals (As, Cd, Cr, Cu, Pb, Hg, Ni and Zn), total recoverable hydrocarbons (TRH), benzene, toluene, ethylbenzene and xylene (BTEX), polycyclic aromatic hydrocarbons (PAH), phenols, organochlorine pesticides (OCP), polychlorinated biphenyls (PCBs), total organic carbon (TOC), asbestos, electro-conductivity (EC), pH and cation exchange capacity (CEC); and
- Interpretation of data and preparation of this ESA report that summarises the results of the investigation works, discusses the potential impacts on the proposed redevelopment of the site and assesses the general suitability of the.

This report has been prepared in general accordance with industry and NSW EPA endorsed guidelines, particularly the *Guidelines for Consultants Reporting on Contaminated Sites* (NSW OEH, 2011).

2. The site

2.1. Location and characteristics

The site currently comprises three lots, occupied by a multi tenanted commercial shopping centre. The shopping centre consists of low rise, single storey structures, situated at the intersection of Cleveland Street and Baptist Street, Redfern. A site location plan is presented as Figure 1.

The shopping centre buildings occupy approximately 60% of the site, with external car parking occupying the remaining, southern section of the site. The site is bounded on three sides by roads, Cleveland Street to the north, Baptist Street to the east and Marriott Street to the west. Heritage terrace houses and gardens form the southern boundary. Vegetation across the site is limited to mature trees around the perimeter, with a number of young trees within the car park area.

The following table provides a summary of the land uses surrounding the site.

Table 1: Surrounding Land Uses

Direction	Land Uses
North	• Immediately to the north of the site is Cleveland Street. • Land to the north, beyond Cleveland Street, comprises various commercial buildings and a church.
East	• Immediately to the east of the site is Baptist Street • Land to the east, beyond Baptist Street, comprises various commercial buildings , NSW Mounted Police Stables and a BP Service Station approximately 50m from the site.
South	• Residential buildings.
West	• Marriot Street forms the western boundary of the site. • Land to the west, beyond Marriot Street, comprises residential properties, reserves and a car wash (on Cleveland Street).

Topographically the site sits on the eastern edge of a low ridgeline that runs from Darlinghurst in the north to Waterloo in the south. The area surrounding the site typically falls gently to the south and east, however, the site walkover indicated that the site itself falls from a high point at the Cleveland Street/Baptist Street intersection (at approximately RL35 m AHD) to a low point at the south western extent, approximately 6m lower. The shopping centre tenants' car park occupies the lowest point of the site, which is used as an on-site stormwater detention area (Photograph 1).

Photograph 1 – On-site detention area

Both Baptist Street and the parallel Marriott Street to the west, fall to the south at about 3% gradient, with Marriott Street about 2m lower. Ground levels within the shopping centre are generally flat, with ramps up to the Cleveland Street and Baptist Street exits. The Australia Post building at the south of the shopping centre is raised from the surrounding car parking, with the floor level about 1.5m higher than the Baptists Street level. The car parking area falls to the south west, with minor ‘steps’ in levels, with slight ramps and small retaining walls. Examples of the levels across the car park are shown in the Photographs 2 and 3.

Photograph 2 – Low height retaining structures

Photograph 3 – Ramp to the loading dock area

The site topography suggests that it has been subject to previous re-profiling/filling. It is unclear whether this work was performed prior to construction of the former industrial factories, or levelling took place prior to construction of the current shopping centre. However, based on the floor level of the former NSW Bank building (on the corner of Cleveland Street and Baptist Street) it would appear that the re-profiling was performed specifically for the construction of the shopping centre.

2.2. Ground information

2.2.1. Published information

The Sydney 1:100,000 Geological Sheet indicates that the site is underlain by Quaternary age “marine” sand of the Botany Basin sediments. The map indicates that the site sits close to the boundary of the lower Ashfield Shale and Hawkesbury Sandstone bedrock below the sand, indicating that bedrock conditions may comprise residual clay soils and weathered shale/sandstone bedrock.

The Botany Bay Acid Sulfate Soil Risk Map places the site is in an area of “No Known Occurrence”, indicating that acid sulfate soils are not known or expected to occur in these environments.

2.2.2. Coffey archive information

Review of Coffey archives identified other local investigations including:

- Geotechnical and contamination investigations for the CBD and South East Light Rail (boreholes along Devonshire Street)
- Environmental site assessment of 426 Cleveland Street (opposite the site)
- Geotechnical investigations (boreholes to 9m) for a residential development at Chalmers Street (500m to the west)
- Geotechnical investigations (boreholes to 7m) for a commercial development at Walker Street (300m north west)

Ground conditions for these projects were typically dune sands overlying sandstone and shale bedrock consistent with the published information. Boreholes drilled along Devonshire Street at a similar distance from the boundary of the sand deposits indicate sandstone bedrock.

Investigations to the west of the site indicates shale bedrock below sand deposits, with evidence suggesting the base of the shale dipping relatively steeply to the west, suggesting a thinning of the shale capping to the sandstone towards the east.

2.3. Site history review

2.3.1. Aerial photography

Selected historical aerial photographs of the site were reviewed for the period of 1943 to 2014. Findings are summarised in Table 2.

Table 2: Summary of historic land uses interpreted from aerial photographs

Year	Site Description	Surrounding Area Description
1943	The site appears covered in buildings/structures used for industrial/commercial purposes. Background research has found that the building owned by Wunderlich was constructed after 1919 and was used as a factory for architectural elements. A 1930 construction journal stated that asbestos cement sheeting was manufactured within the factory.	The site is bound by Cleveland St to the north. Commercial and residential property lies beyond Cleveland St. Baptist St and commercial buildings exist to the east of the site. Residential properties surround the site to the south and west. Marriot St is the western boundary of the site.
1951	No significant changes noted since the previous photograph.	No significant changes are noted since the previous photograph.
1961	No significant changes are noted since the previous photograph.	No significant changes are noted since the previous photograph.
1970	No significant changes are noted since the previous photograph.	No significant changes are noted since the previous photograph.
1978	No significant changes are noted since the previous photograph.	No significant changes are noted since the previous photograph.
1986	The photograph shows significant site changes. The southern section has been cleared for a carpark. There is a large retail/commercial building in the north of the site (the current shopping centre). A historic building remains in the north-east corner of the site. Background research undertaken stated that in 1979 the building was sold and set for demolition.	No significant changes are noted since the previous photograph.
1994	No significant changes noted since previous photograph.	No significant changes are noted since the previous photograph.
2000	The 2000 Google Earth image displayed no significant changes from the previous photograph.	No significant changes are noted since the previous photograph.
2007	No significant changes are noted since the previous photograph.	No significant changes are noted since the previous photograph.
2014	No significant changes are noted since the previous photograph.	No significant changes are noted since the previous photograph.

2.3.2. Contaminated land public register

Coffey undertook a search of the NSW EPA online contaminated land register on 11 April 2015. The search did not identify notices issued by the NSW EPA under the Contaminated Land Management Act (1997) pertaining to the site, or properties immediately surrounding the site.

The search identified a notice relating to properties within the surrounding suburb of Camperdown. As the site is located 1km or more from the site, it is assessed that the contamination issues relating to these properties are unlikely to affect the site.

2.3.3. History of Potentially Contaminating Activities

The results of this initial site contamination assessment indicate that the site was historically owned by Wunderlich, responsible for manufacturing architectural elements for many of Sydney's iconic structures. Details from a 1930 Construction and Real Estate Journal revealed that the Wunderlich factory specialised in asbestos cement sheets and slates manufacturing. The exact details of the manufacturing period of time remain unknown, however, desktop records suggest that factory/building was constructed before 1919 and demolished around 1979. Following demolition, the Surry Hills Shopping Village and carpark was constructed, generally as it stands today. Due to the historical activities carried out within the Wunderlich factory and the year in which demolition was undertaken, there is a high risk that ACM containing asbestos remain on-site in the form of factory wastes or demolition materials in fill. Given the reprofiling undertaken on-site during the construction of the shopping centre it is likely that contaminated material resulting from demolition remains on site.

Based on observations made during a site walkover, review of available records, discussions with dry cleaning staff, and the proposed development, the following AEC's were identified:

- The presence asbestos within fill materials on site which has derived from former manufacturing of asbestos products, or the remnants of these structures following demolition.
- Fill material of unknown quality of origin.
- Dry cleaners
- Nearby BP Service Station
- Transformers / Switchroom

Assessment of the suitability of the site for the proposed redevelopment of the site has been undertaken with reference to the decision making process presented in Figure 1 in Section 3 of *Managing Land Contamination, Planning Guidelines: SEPP 55 – Remediation of Land* (DUAP, 1998), which has been reproduced below.

2.4. Assessment of areas of environmental concern

Based on the site history review and the site walkover, a number of potential Areas of Environmental Concern (AECs) and associated Contaminants of Potential Concern (COPC) have been identified and are summarised in the following table.

Table 3: Areas of Environmental Concern

Potential Contaminating Activity/ Area of Environmental Concern	Contaminants of Potential Concern	Likelihood of Impact^	Comments

Potential Contaminating Activity/ Area of Environmental Concern	Contaminants of Potential Concern	Likelihood of Impact^	Comments
Potential remnants of activities and hazardous building material from historic buildings on site	Asbestos	High	The historical factory specialised in the manufacture of asbestos cement sheets and slates. This information was provided in 1930 and no details has been obtained regarding when this activity ceased. Asbestos containing materials (ACM) were likely to be present within the factory during the demolition and remained on site. Desktop research has revealed that the structure was demolished around 1979. The site walkover suggested that the site was cut and filled with the likely presence of demolition/ remnant material left on site containing ACM. Impacts associated with building rubble containing ACM (if present) would likely be within the near surface soils.
Potential contamination in fill	TPH, BTEX, PAH, Metals*, PCB, OCP and asbestos.	Moderate	The source and quality of fill material present on site is unknown however historical demolition material (as highlighted above) was possible used in the fill material.
BP Service Station (50m to the east of site)	TPH, BTEX, PAH, lead	Moderate	The service station was located in the same topographical plane as the site. However due to the age of the service station (observed to be relatively new) and nature of the geology, a moderate risk is presented to the site.
Dry Cleaning	VOCs	High to moderate	A brief discussion with a worker of the dry cleaners found it had been operation since 2000. All dry cleaning was carried out on-site.
Transformers and Switchroom	TPH, PCB, Asbestos	Moderate	Due to the age and nature of the transformers and switchboards there is a possibility that asbestos and PCB oils are present. The presence of oil was not observed during the site walkover.

Based on the findings of this desktop research, it was considered that there is moderate tohigh likelihood for ground contamination being present at the site. On this basis, it was recommended that a detailed site investigation is undertaken to assess potential ground contamination issues associated with the AECs identified. The objective of this investigation and associated land contamination assessment was to characterise and assess the extent and significance of contamination present (if any) in the context of the proposed development.

3. Site geotechnical model

3.1. Soil stratigraphy

The site geotechnical model presented in Table 4 was developed from the desk study information and has been updated to reflect the information from the borehole drilling for the subsequent environmental assessment (which revealed conditions generally consistent with the original ground model). Significant obstructions were encountered in the fill.

Table 4: Geotechnical Model

Geotechnical Unit	Description	Indicative thickness
Fill	Where re-profiling of the site has occurred, fill is likely to consist of sand, with possible demolition rubble, such as bricks, tiles, sheeting. Where fill has been imported, we cannot make an assumption of its properties	Likely to be between 0.5m and 3m thick
Dune sands	Sand, fine grained, loose to medium dense with some clay bands	Depending on the level of re-profiling, the sand is likely to be found to depths of between 4m and 5m.
Residual soil	Sandy clay, low plasticity, stiff to hard	Found at 2.5
Bedrock	Sandstone, fine to medium grained, likely contains interbeds of mudstone, grading from highly weathered to fresh, typically low to high strength, increasing with depth	To depths greater than the proposed basement level

Desktop investigations within the area suggested groundwater levels of between 2m and 6m below ground level, close to Chalmers Street and Elizabeth Street, generally at the sand/bedrock interface. These measurements, however, were taken at sites with shale bedrock at depth, on the western side of the local ridgeline.

The dune sands underlying the site are likely to be hydraulically connected to the Botany Basin sediments to the east, towards South Dowling Street and Moore Park. Groundwater measurements within the Botany Basin sediments at Moore Park, indicate generally static levels of approximately RL31m AHD. It is considered that groundwater levels across the site may be found at a similar level.

3.2. Groundwater

The boreholes and wells installed for the additional environmental investigation provided some site specific groundwater information.

Static water levels at the site ranged from 2.29 m below top of casing (mBTOC) in well MW4 to 2.897 mBTOC in MW2 when measured between 15 May and 1 June 2015. Because the wells were not surveyed as part of this investigation, the groundwater direction and gradient can only be approximately inferred. Based on the range of approximate elevations at the site (approximately 38 m AHD along Cleveland Street to the north, and 34 m AHD to the south), the groundwater is inferred to flow in a general southerly direction.

All four wells purged dry after one well volume, suggesting a slow recharge in the aquifer.

A review of the Botany groundwater management zones indicates that the site is located in Zone 2, where a ban applies on groundwater extraction for domestic use. While dewatering of the formation is not to be conducted for domestic use, it will require obtaining a licence from NSW Water Authority to extract groundwater.

4. Geotechnical discussion and recommendations

This discussion and recommendations in this section were previously presented in our earlier desktop report.

4.1. Suitability for development

Based on our site observations, preliminary geotechnical model, and experience on similar projects, the proposed development, including three level basement development is considered feasible from a geotechnical perspective. Provided appropriate additional site investigation, design assessments, and construction monitoring normally associated with this type of development are carried out, the risks to adjacent structures and services should be able to be managed.

4.2. Potential impacts of excavation

The site is adjacent to sensitive receptors, such as heritage houses to the west and south, and the RMS operated Cleveland Street. The location, footing type, layout and founding depth for adjacent structures and the nature and depth of sensitive buried services beyond the site boundaries should be determined before excavation commences. Where adjacent structures and services are located within the zone of influence of the excavation, the ground may experience horizontal and vertical movements from excavation induced ground movements. Potential impacts on sensitive structures and services should be assessed as part of excavation retention design.

Based on a proposed three level basement, potentially extending to 9m below ground level, we expect that the excavation will be through fill, dune sands and sandstone bedrock, with a minor amount of residual soil. Conventional excavation methods and plant should be able to be used to excavate the soil and very low to low strength rock materials. Use of high powered excavation plant fitted with rippers and rock breakers will be required for the excavations into higher strength rock, which is likely towards the lower basement levels. Rotary rock grinder or rock saw attachments to a hydraulic excavator may be required to avoid both over break and excessive vibrations below shoring and adjacent to vibration sensitive structures.

Appropriate investigations, designs, and monitoring will be required to assess the foundations of existing adjacent structures and services and to protect them from adverse impacts from ground movements and vibrations. Conventional retention systems and excavation methods should be able to be adopted to mitigate the risks to adjacent structures and services.

We recommend that prior to the commencement of the bulk excavation works dilapidation surveys of the adjacent structures be carried out to provide a baseline for excavation monitoring and management works.

Where dewatering, during construction or long term, is required an assessment of the likely impacts to neighbouring structures and infrastructure will be required. Settlements due to dewatering within the area are well documented, such as the impacts of the Eastern Distributor tunnel construction, and therefore should be considered in basement design. The magnitude of dewatering induced settlements will be dependent on a number of factors, including cut off wall design, construction and bedrock conditions.

4.3. Excavation support

4.3.1. Shoring

Shoring will be required to support the excavations in soil and some weathered rock. For this project shoring systems such as secant pile or diaphragm walls considered. Alternative methods such as sheet piling may be considered if at sufficient distance from the site boundaries. Anchors to walls should be inclined downwards to anchor into competent rock, where rock levels are within tolerable distance from ground surface. The use of temporary anchors under the adjoining streets and properties will require owner's permission. Permanent anchors are not recommended to extend outside of the site boundary, due to maintenance requirements and possible damage.

Anchors extending below Cleveland Street will require RMS permission, which may require significant time to attain. Alternative methods of retention, such as cantilevered structures or internal propping are possible, however, these methods are typically more expensive to construct or present greater logistical issues during construction.

Retaining walls/pile elements will have to be specifically sized and designed to support any adjacent structures or surcharge loads that lie within the excavation zone of influence which can be estimated by drawing a line at approximately 2H:1V from the base of the excavation to the ground surface behind the excavated face.

4.3.2. Rock face support

Vertical excavations in more competent sandstone bedrock should be practicable. Adverse jointing or weathering may be encountered and support in the form of shotcreting and pattern rock bolting may be required.

4.3.3. Excavation induced ground movements

The proposed excavation will induce ground movements, both laterally and vertically. Within a retained soil profile, the magnitude of adjacent ground movements will depend on the ground conditions, design lateral pressure, shoring system adopted, construction sequence and workmanship. Documented data has shown that for well-constructed shoring, vertical and lateral movements may be in the order of 0.1% to 0.3% of the retained thickness of a medium dense sand soil.

It is typical that, where excavations are proposed adjacent to RMS roads, numerical analysis is required as part of Development Application conditions, to assess likely ground movements when designing the shoring system.

With no current details available on the size or position of the basement, it is not possible to assess the likely impact of excavation on the surround buildings. However, where it is important to limit adjacent ground movements due to the presence of nearby structures supported on high level footings, the use of a relatively stiff shoring with bracing and/or tie-back anchors designed to resist higher than active earth pressures may be required. We suggest that such cases be specifically addressed during detailed design when details of adjacent footings and loadings are known.

Based on experience of deep basements in Sydney, typical lateral movements due to excavations in rock are of the order of 0.5 mm to 2 mm per metre of excavation, depending on rock quality and presence of bedding seams. Measurements of lateral ground movements due to stress relief have been made at distances of up to 1.5 to 2 times the basement depth from the edge of excavations. Stress relief ground movements are unlikely to be significant at distances greater than twice the excavation depth. However, these approximations will be affected by local geological structures and should only be used as a rough guide. The potentially damaging effects of stress redistribution on structures in the vicinity of the proposed basement excavation should be assessed as part of the detailed design process.

4.4. Building foundations

Basement excavation of up to 9m may be necessary for a three level basement. At this level, we expect to encounter sandstone bedrock across much of the site. Where sandstone bedrock is present at footing level a minimum allowable bearing pressure of 1,000 kPa is likely, however, with an appropriate, investigation including cored boreholes, higher design parameters are likely to be able to be assigned to the bedrock.

Reduced allowable bearing capacity would be assigned for the dune sand deposits, and may be suitable for lightly loaded structures, however, for the size and nature of the development proposed, it is recommended that footings be extended to bedrock.

4.5. Groundwater

The construction of a basement at the site will be highly dependent on groundwater conditions, particularly static levels and permeability of soils and bedrock. Groundwater inflows into basement excavations will be dependent on a number of factors, including groundwater level, size, location and depth of excavation, wall depth and permeability, defects in the rock mass (e.g. fractures) intersected by the excavation. These variables are not known in sufficient detail to allow estimation of groundwater inflows.

Where a hydrostatic cut off wall is constructed, such as a secant pile wall, diaphragm wall or similar, socketed into relatively low permeability sandstone bedrock, a drained basement may be possible. Such a basement would require discharge of seepage from a below floor drainage and sump, potentially to sewer or stormwater.

As part of further site investigations groundwater inflow assessment and quality/chemistry testing will be necessary to obtain regulatory approvals for discharge to sewer or stormwater.

The options of disposal of groundwater to stormwater or sewer are discussed in Section 5.4.3, based on the results of the groundwater monitoring conducted as part of this investigation.

5. Contamination assessment

This section updates the assessment previous presented in our desktop report.

5.1. Program of field investigation

The program of field investigation undertaken at the site is detailed in Table 5 below.

Table 5: Programme of fieldworks undertaken

Date	Field works
13 May 2015	Drilling of boreholes BH01 to BH05 using a drill rig and of boreholes BH06 to BH08 by hand auger. Installation and development of three monitoring wells at locations BH01/MW1, BH02/MW2 and BH05/MW3.
15 May 2015	Groundwater monitoring and sampling of wells MW1 to MW3. Hand auger of location BH09 and sub-slab soil vapour sampling of locations SV1 and SV2.
28 May 2015	Drilling of borehole BH10 using a drill rig and installation and development of well BH10/MW4.
1 June 2015	Groundwater monitoring and sampling of well MW4.

The field works were conducted according to Coffey SOPs. The details of the procedures are presented in Appendix F.

5.3. Assessment criteria

5.3.1. Contamination assessment criteria

The soil, groundwater and soil vapour investigation levels (SILs) presented in the following reference are the primary criteria used in NSW when setting acceptance criteria for chemical contaminants in soil:

- Schedule B(1) 'Guideline on the Investigation Levels for Soil and Groundwater' of the *National Environment Protection (Assessment of Site Contamination) Measure as amended* (NEPC, 2013).
- CRC Contamination Assessment and Remediation of the Environment (CRC CARE) Technical Report No. 10: Health Screening Levels for Petroleum Hydrocarbons in Soil and Groundwater (2011).

Future use of the site for residential purposes has been considered for the purpose of this investigation. The details of the soil, groundwater and soil vapour assessment criteria considered for potential future residential use are presented in Appendix E.

5.3.2. Waste classification criteria

Additional assessment criteria were considered with respect to the management of the fill material during the proposed redevelopment of the site.

Soil - Waste classification criteria

Soil results were assessed against waste classification criteria provided by NSW EPA.

- NSW EPA (2014) Waste Classification Guidelines Part 1: Classifying Waste, www.epa.nsw.gov.au

Soil results were also assessed against Kurnell Landfill Environmental Protection Licence Other Limits criteria for resource recovery waste storage.

5.3.3. Groundwater

Groundwater - Disposal to storm water network

Disposal to storm water was assessed in a first instance against the NEPM (2013) marine water ecosystem protection criteria, as the marine environment is the most likely receptor of the storm water in the area of the site.

Groundwater - Disposal to sewer

Because the site may require dewatering during the construction works, groundwater at the site was assessed against criteria provided by Sydney Water for Trade Waste.

- Sydney Water (2014) Industrial Customers, Acceptance standards and charging rates for 2014-15. www.sydneywater.com.au

When contacted by phone on 4 June 2015, Sydney Water indicated that the sewer treatment plant for the Surry Hills area discharges its effluent into the marine environment, and that the limit for the TDS is 10,000 mg/L.

5.4. Field observations and analytical results

Borelogs are included in Appendix A. Laboratory reports and chain of custody documentation are included in Appendix C. The QA/QC assessment of the investigation and analytical results is detailed in Appendix D.

5.4.1. Soil field observations

Based on observations made during the drilling of the soil bores, at least two types of fill material are present at the site:

- Fill #1: silty sand to sand, coarse grained, brown, with traces of gravel
- Fill #2: silty sand, medium to coarse grained, dark grey

Both types of fill materials were present at all locations drilled to the natural soil. Their vertical distribution was with Fill #1 generally present at depths to 1-1.5 mbgs, and Fill #2 present at depths from 1.5 to the natural soil (at depths of 2-3 mbgs).

5.4.2. Soil analytical results

Soil analytical results are presented in Tables 1 to 5 attached.

Petroleum hydrocarbons (long fraction hydrocarbons >C16-C34, polycyclic aromatics such as benzo(a)pyrene) and metals were detected in the majority of samples of the fill material analysed, indicating their widespread distribution across the site.

Asbestos was present at location BH07 (at depths of 0.2 and 0.5 mbgs). Asbestos in both samples was described as "chrysotile, amosite and crocidolite asbestos detected in weathered fibre cement fragments and in the form of loose fibre bundles". No respirable asbestos fibres were detected. Asbestos was not detected in any of the 15 other samples collected at 9 other locations and analysed.

Other COPC (volatile hydrocarbons such as BTEX and light chain petroleum hydrocarbons, polychlorinated biphenyls (PCB), phenols, organochlorine pesticide (OCP)) were not detected in samples analysed.

Chlorinated hydrocarbons were not detected in the soil sample analysed at location BH10 at a depth of 3 mbgs, in the vicinity of the dry cleaner.

Environmental criteria

Petroleum hydrocarbons (TRH >C16-C34 and benzo(a)pyrene) and a number of metals (copper, lead, nickel, zinc) were detected in fill samples at concentrations greater than the ecological screening levels (ESL) or ecological investigation levels (EIL).

Health criteria

One exceedance of the health investigation levels (HIL) was recorded, for carcinogenic PAHs at location BH04 (at a depth of 0.5mbgs).

Waste classification

Soil analytical results assessed against waste classification criteria are presented in Tables 2 and 3 attached.

Based on CT1 and CT2 (no leaching) waste classification criteria, the concentrations of lead or benzo(a)pyrene exceed the CT2 criteria for restricted solid waste in three samples, and the CT1 criteria for general solid waste in nine samples analysed.

Based on SCC1&TCLP1 and SCC2&TCLP2 (leaching) waste classification criteria, the concentrations of lead and benzo(a)pyrene were below the SCC1&TCLP1 criteria for general solid waste in all samples analysed.

In samples BH07 (at 0.2 and 0.5 mbgs), the detection of asbestos classified the soil in those samples as special waste (asbestos).

Based on Kurnell Landfill EPL, two samples exceeded the limits for zinc and total PAHs for resource recovery waste storage. It is noted that these two samples exceeded CT2 criteria for restricted solid waste.

The results of the UCL 95% of lead and benzo(a)pyrene calculated on a selection of seven samples (including two samples exceeding CT1 criteria) were below the CT1 and Kurnell Landfill other limits for resource recovery waste storage (see results in Table 5 attached).

5.4.3. Groundwater

Groundwater quality parameters recorded in the field and analytical results are presented in Tables 5 and 6.

The pH measured in the field indicated slightly acidic conditions in the groundwater beneath the site. The salinity of the groundwater was moderate, as indicated by the concentrations of total dissolved solids estimated from the field-measured electro-conductivity.

Petroleum hydrocarbons were detected at concentrations below the nominated criteria in samples MW3 and MW4.

Concentrations of metals (arsenic, copper, lead, nickel and/or zinc) were measured in groundwater at concentrations exceeding the nominated criteria.

Chlorinated solvents (tetrachloroethylene, trichloroethylene and cis-dichloroethylene) were measured at concentrations below the nominated criteria in sample MW4, near the dry cleaner.

Tetrachloroethylene was detected at a concentration greater than the laboratory level of reporting (>LOR) in samples MW1 and MW3 located respectively 75 m and 130 m to the south (and inferred to be down-gradient) of the dry cleaner.

Assessment of disposal of groundwater to stormwater

Copper, lead, nickel and zinc exceeded the marine water ecosystem protection criteria which are likely to be the assessment criteria for disposal of groundwater into the stormwater network.

Assessment of disposal of groundwater to sewer

Groundwater analytical results assessed against the Sydney Water trade waste agreement criteria are presented in table 7 attached.

The pH of the groundwater was below the range of pH acceptable for discharge to sewer.

All other analytes were measured at concentrations below the criteria for discharge to sewer, including tetrachloroethylene in well MW4.

5.4.4. Soil Vapour

Sub-slab soil vapour analytical results are presented in Tables 7.

Chlorinated hydrocarbons were detected in sub-slab soil vapour sample SV01 located inside the mall approximately 10m to the south-west of the dry cleaner. Tetrachloroethylene was measured at a concentration exceeding the HIL for residential in SV01.

Chlorinated hydrocarbons were not detected in sub-slab soil vapour sample SV02 located inside the mall at approximately 80m to the south of the dry cleaner.

Petroleum hydrocarbons were not detected in samples SV01 and SV02.

5.5. Discussion

5.5.1. General condition of the site

Based on the limited results of this investigation, the soil contamination recorded in soil, groundwater or soil vapour do not indicate the presence of impacts that would preclude the redevelopment of the site for residential use, taking into account that significant quantity of fill material and shallow groundwater that is showing localised impact arising dry cleaning chemical are removed during the redevelopment of the site.

5.5.2. Chlorinated solvents

Chlorinated solvents were identified in soil vapour and groundwater in the vicinity of the dry cleaner suggesting that the dry cleaner is likely to have been the source of impact. Typically, the most common source of chlorinated solvents at dry cleaners is due to leakage at the connection to the sewer. It appears that the sewer waste from the dry cleaner at the site is connected to the sewer running east under Baptist Street.

Due to access constraints, it was not possible to install a well in the immediate vicinity of the sewer connection of the dry cleaner, of the footpath of Baptist Street. Well MW4 located approximately 15 m to the south of the sewer connection.

Well MW4 inferred to be located down gradient from the sewer connection recorded dissolved concentrations of tetrachloroethylene, trichloroethylene and cis-dichloroethylene.

While greater than the criteria for drinking water, the concentration of tetrachloroethylene in MW4 (290 µg/L) is well below the solubility limit of tetrachloroethylene, as such is not indicative of free phase product near the suspected source of impact.

The detection of tetrachloroethylene at wells MW1 at a concentration of 2 µg/L distance of up 130 m from the dry cleaner suggests that there is a plume of tetrachlroehylene beneath the site. While the on-site, dissolved phase plume of chlorinated solvents may be managed as part of the redevelopment of the site, an off-site plume, should it exist, may require specific assessment and remediation including triggering the notification requirements under Section 60 of the Contaminated Land Management Act.

Based on the limited results of this investigation, the concentrations recorded in groundwater should not prevent the discharge of groundwater to public sewer via a trade waste agreement. It is noted that the groundwater may require pH adjustment prior to discharge to sewer.

The soil vapour impact detected in the sampling location located within the mall, inside the shopping centre, may be due to soil or groundwater impact. It is expected that most of the impacted material would be removed during the proposed redevelopment scenario being considered by Toga..

Further investigation is however recommended to assess whether chlorinated solvents are occurring offsite (see Section 5.7 below).

5.5.3. Asbestos

During this preliminary investigation, asbestos was detected at only one location. It is important to note that asbestos detection through sampling from boreholes tend to generally under detect asbestos in soil and experience at similar sites have shown that a significant fraction of fill could be impacted by asbestos. It is particularly worth noting that part of the site was historically used in the manufacture of asbestos cement sheeting and subsequently those buildings were demolished and the site reprofiled.

On the basis of the above, at this stage it would be prudent to assume that asbestos may be present in the fill material at other locations. Further investigation is recommended to assess the presence of asbestos at additional locations across the site (see Section 5.7 below).

The portion of asbestos contaminated fill is to be classified as general solid waste, to be managed as asbestos waste.

Based on the presence of asbestos at other sites in Sydney, a reasonable estimate would be that up to 25% of the fill material present at the site is likely to be contaminated with asbestos.

5.5.4. Waste classification

Based on the limited results of this investigation, it was not possible to clearly correlate high concentrations of lead or benzo(a)pyrene with one particular type of fill material.

However, no sample of fill classified as restricted solid waste, based on lead and benzo(a)pyrene concentrations.

Based on criteria other than asbestos, the fill was considered to be generally classified as general solid waste (SCC1 & TCLP1).

One third of the samples classified as general solid waste (CT1) and complied with the Kurnell Landfill EPL for resource recovery waste storage limits.

Based on UCL 95% calculations (see Table 5 attached), the fill material could be considered as recoverable resource at seven sampling locations out of a total of 17 locations investigated.

There was no clear pattern in the horizontal or vertical distribution of the resource recovery waste, and the proportion of recoverable resource in the fill material was found to range from 0% (at locations BH1, BH4, BH8) to 100% (at location BH3) across the site.

Based on the limited results of this investigation, it was considered that a total of approximately 25% of the fill material at the site could be acceptable as recyclable material by landfills generally (e.g. Kurnell landfill).

5.6. Conclusions

- Based on the limited results of this investigation, the soil contamination recorded in soil, groundwater or soil vapour does not indicate the presence of impacts that would preclude the redevelopment of the site for residential use, particularly if a significant quantity of fill material and shallow groundwater that is showing localised impact arising from dry cleaning chemical is removed during the redevelopment of the site.

- Asbestos was identified at one location. However, based on findings at other similar sites in Sydney, it is considered that it is possible that a significant portion of fill material may be impacted with asbestos, whether in the form of fragments or fibres.

- Chlorinated solvents were identified at concentrations above the drinking water criteria near the suspected source of chlorinated solvents plume in the vicinity of the dry cleaner. While the on-site, dissolved phase plume of chlorinated solvents may be managed as part of the redevelopment of the site, an off-site plume, should it exist, may require specific assessment and remediation including triggering the notification requirements under Section 60 of the Contaminated Land Management Act. While there isn't sufficient data to assess whether a part of the plume is present off site, based on the available information, there is a low likelihood of significant off-site chlorinated solvent contamination in groundwater.

- Based on the limited results of this investigation, the groundwater beneath the site may require pH adjustment before discharge to sewer.

5.7. Further site investigations

We recommend that geotechnical site investigations and land contamination investigations be carried out to support planning and design as well as the development consent process, which is likely to require the demonstration of the suitability of the site for the development as per the state environmental planning policy. Such investigations could also be designed to collect additional information required to adequately classify the spoil for offsite disposal purposes.

For a site of this size development with a three level basement structure, up to five levels above ground, we expect that geotechnical investigations would comprise the drilling of at least six boreholes. Depending on the proposed loads, some boreholes should be cored to 3 m below the proposed basement level. The aim of such investigation would be to assess the depth and consistency/strength of the soil profile, depths and quality of the bedrock across the site, and provide data for the design.

Standpipes should be installed into selected boreholes to assess groundwater levels across the site and to perform groundwater inflow testing. Furthermore, water samples can be collected for water quality/chemistry testing if required. Based on the known flooding of the southern area of the site, continuous groundwater monitoring using down hole data loggers over a minimum two month period is recommended.

Coffey recommend that additional contamination investigation to refine the horizontal and vertical distribution of the waste classification of the fill material across the site.

Additional environmental investigation is recommended in the area of the dry cleaner to delineate the plume of dissolved chlorinated hydrocarbons off site to the east across Baptist Street.

Contamination investigations should be coordinated with geotechnical investigations to take advantage of geotechnical boreholes. However, the density and depth of these investigations will be different from the geotechnical assessment to meet regulatory guidelines.

6. Limitations

The initial geotechnical and environmental assessment and recommendations presented in this report are based on a desk study limited to regional information, and subsurface investigation data from outside of the site boundaries. Subsurface conditions can be complex, vary over relatively short distances and over time. Additional, site specific investigations will be required to support detailed design. Detailed design and construction should not proceed on the basis of this desk study report without further advice from Coffey.

Whilst the preliminary contamination investigation has indicated that the site is likely to be suitable for the proposed development subject to the identified contamination impacts being addressed during redevelopment, it is important to note that the investigation undertaken does not meet the NSW EPA sampling requirements based on detection of a maximum allowable hotspot size.

The attached document entitled “Important Information about Your Coffey Report” forms an integral part of this report and presents additional information about the uses and limitations of the report.

Important information about your **Coffey** Environmental Report

Introduction

This report has been prepared by Coffey for you, as Coffey's client, in accordance with our agreed purpose, scope, schedule and budget.

The report has been prepared using accepted procedures and practices of the consulting profession at the time it was prepared, and the opinions, recommendations and conclusions set out in the report are made in accordance with generally accepted principles and practices of that profession.

The report is based on information gained from environmental conditions (including assessment of some or all of soil, groundwater, vapour and surface water) and supplemented by reported data of the local area and professional experience. Assessment has been scoped with consideration to industry standards, regulations, guidelines and your specific requirements, including budget and timing. The characterisation of site conditions is an interpretation of information collected during assessment, in accordance with industry practice,

This interpretation is not a complete description of all material on or in the vicinity of the site, due to the inherent variation in spatial and temporal patterns of contaminant presence and impact in the natural environment. Coffey may have also relied on data and other information provided by you and other qualified individuals in preparing this report. Coffey has not verified the accuracy or completeness of such data or information except as otherwise stated in the report. For these reasons the report must be regarded as interpretative, in accordance with industry standards and practice, rather than being a definitive record.

Your report has been written for a specific purpose

Your report has been developed for a specific purpose as agreed by us and applies only to the site or area investigated. Unless otherwise stated in the report, this report cannot be applied to an adjacent site or area, nor can it be used when the nature of the specific purpose changes from that which we agreed.

For each purpose, a tailored approach to the assessment of potential soil and groundwater contamination is required. In most cases, a key objective is to identify, and if possible quantify, risks that both recognised and potential contamination pose in the context of the agreed purpose. Such risks may be financial (for example, clean up costs or constraints on site use) and/or physical (for example, potential health risks to users of the site or the general public).

Limitations of the Report

The work was conducted, and the report has been prepared, in response to an agreed purpose and scope, within time and budgetary constraints, and in reliance on certain data and information made available to Coffey.

The analyses, evaluations, opinions and conclusions presented in this report are based on that purpose and scope, requirements, data or information, and they could change if such requirements or data are inaccurate or incomplete.

This report is valid as of the date of preparation. The condition of the site (including subsurface conditions) and extent or nature of contamination or other environmental hazards can change over time, as a result of either natural processes or human influence. Coffey should be kept appraised of any such events and should be consulted for further investigations if any changes are noted, particularly during construction activities where excavations often reveal subsurface conditions.

In addition, advancements in professional practice regarding contaminated land and changes in applicable statues and/or guidelines may affect the validity of this report. Consequently, the currency of conclusions and recommendations in this report should be verified if you propose to use this report more than 6 months after its date of issue.

The report does not include the evaluation or assessment of potential geotechnical engineering constraints of the site.

Interpretation of factual data

Environmental site assessments identify actual conditions only at those points where samples are taken and on the date collected. Data derived from indirect field measurements, and sometimes other reports on the site, are interpreted by geologists, engineers or scientists to provide an opinion about overall site conditions, their likely impact with respect to the report purpose and recommended actions.

Variations in soil and groundwater conditions may occur between test or sample locations and actual conditions may differ from those inferred to exist. No environmental assessment program, no matter how comprehensive, can reveal all subsurface details and anomalies. Similarly, no professional, no matter how well qualified, can reveal what is hidden by earth, rock or changed through time.

The actual interface between different materials may be far more gradual or abrupt than assumed based on the facts obtained. Nothing can be done to change the actual site conditions which exist, but steps can be taken to reduce the impact of unexpected conditions.

For this reason, parties involved with land acquisition, management and/or redevelopment should retain the services of a suitably qualified and experienced environmental consultant through the development and use of the site to identify variances, conduct additional tests if required, and recommend solutions to unexpected conditions or other unrecognised features encountered on site. Coffey would be pleased to assist with any investigation or advice in such circumstances.

Recommendations in this report

This report assumes, in accordance with industry practice, that the site conditions recognised through discrete sampling are representative of actual conditions throughout the investigation area. Recommendations are based on the resulting interpretation.

Should further data be obtained that differs from the data on which the report recommendations are based (such as through excavation or other additional assessment), then the recommendations would need to be reviewed and may need to be revised.

Report for benefit of client

Unless otherwise agreed between us, the report has been prepared for your benefit and no other party. Other parties should not rely upon the report or the accuracy or completeness of any recommendation and should make their own enquiries and obtain independent advice in relation to such matters.

Coffey assumes no responsibility and will not be liable to any other person or organisation for, or in relation to, any matter dealt with or conclusions expressed in the report, or for any loss or damage suffered by any other person or organisation arising from matters dealt with or conclusions expressed in the report.

To avoid misuse of the information presented in your report, we recommend that Coffey be consulted before the report is provided to another party who may not be familiar with the background and the purpose of the report. In particular, an environmental disclosure report for a property vendor may not be suitable for satisfying the needs of that property's purchaser. This report should not be applied for any purpose other than that stated in the report.

Interpretation by other professionals

Costly problems can occur when other professionals develop their plans based on misinterpretations of a report. To help avoid misinterpretations, a suitably qualified and experienced environmental consultant should be retained to explain the implications of the report to other professionals referring to the report and then review plans and specifications produced to see how other professionals have incorporated the report findings.

Given Coffey prepared the report and has familiarity with the site, Coffey is well placed to provide such assistance. If another party is engaged to interpret the recommendations of the report, there is a risk that the contents of the report may be misinterpreted and Coffey disowns any responsibility for such misinterpretation.

Data should not be separated from the report

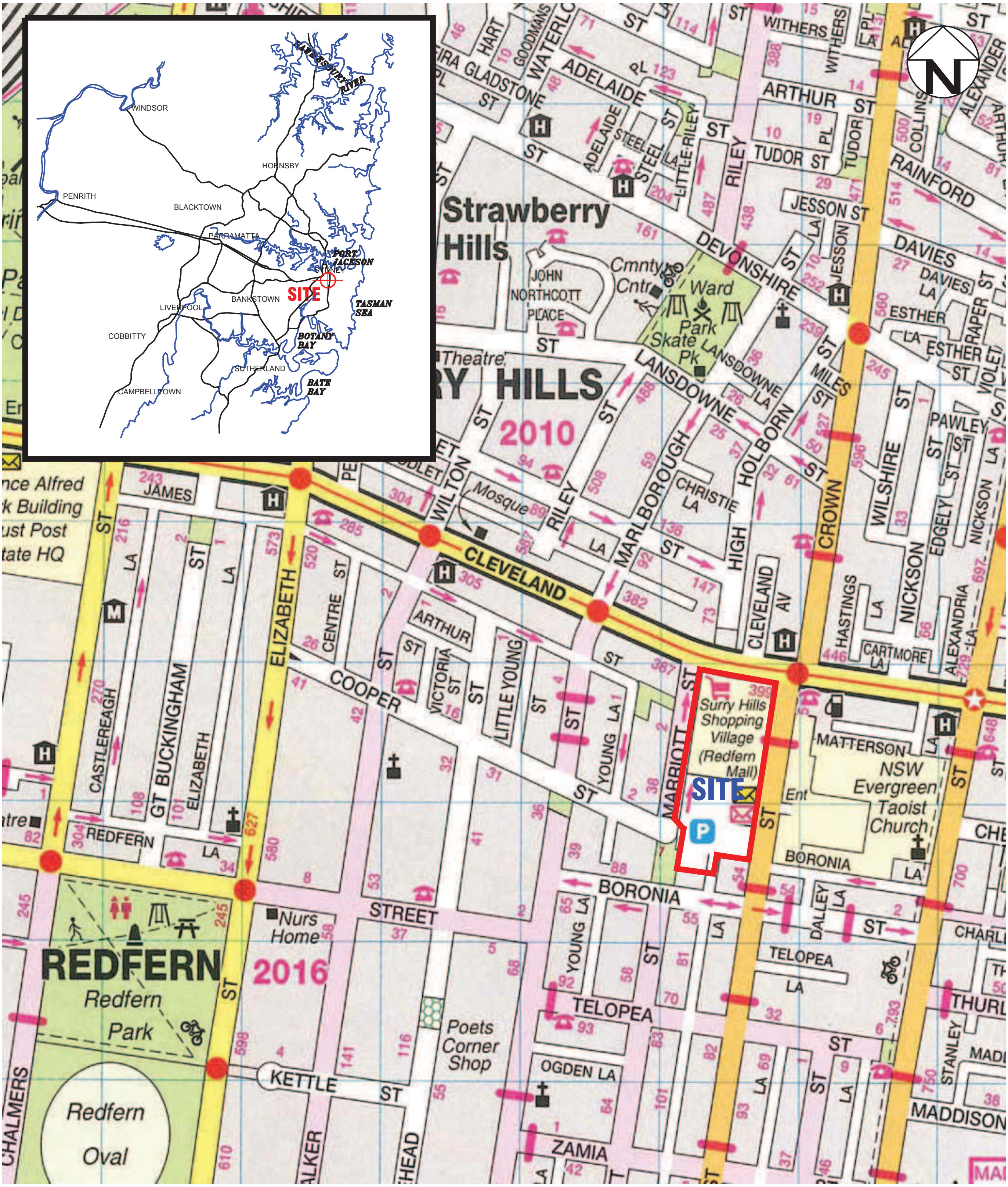
The report as a whole presents the findings of the site assessment and the report should not be copied in part or altered in any way. Logs, figures, laboratory data, drawings, etc. are customarily included in our reports and are developed by scientists or engineers based on their interpretation of field logs, field testing and laboratory evaluation of samples. This information should not under any circumstances be redrawn for inclusion in other documents or separated from the report in any way.

This report should be reproduced in full. No responsibility is accepted for use of any part of this report in any other context or for any other purpose or by third parties.

Responsibility

Environmental reporting relies on interpretation of factual information using professional judgement and opinion and has a level of uncertainty attached to it, which is much less exact than other design disciplines. This has often resulted in claims being lodged against consultants, which are unfounded. As noted earlier, the recommendations and findings set out in this report should only be regarded as interpretive and should not be taken as accurate and complete information about all environmental media at all depths and locations across the site.

Figures



SOURCE: UBD STREET DIRECTORY GREGORYS SYDNEY, NEW SOUTH WALES 48TH EDITION, 2013, MAP:15

50 0 50 100 150 200 250

Scale (metres) 1:5000

drawn	MV	coffey	client:	TOGA D&C PTY LTD
approved	DG		project:	PRELIMINARY CONTAMINATION AND GEOTECHNICAL SITE ASSESSMENT SURRY HILLS SHOPPING VILLAGE, SURRY HILLS, NSW
date	18/06//15		title:	SITE LOCATION PLAN
scale	AS SHOWN			
original size	A4		project no: GEOTLCOV25397AA-AF-R01	figure no: FIGURE 1 — rev: A

PLOT DATE: 18/06/2015 1:10:27 PM DWG FILE: F:\GEOTECHNICS\1.PROJECTS\GEOTLCOV253\GEOTLCOV25397AA SURRY HILLS SHOPPING CENTRE\CADEN\GEOTLCOV25397AA-AF-R01.DWG

revision

no.	description	drawn	approved	date
A	ORIGINAL ISSUE			

LEGEND

- SITE BOUNDARY
- 1:100 SITE SLOPE
- S SEWER
- MW MONITORING WELL LOCATION
- BH BORE HOLE LOCATION
- SV SOIL VAPOUR POINT

8 0 8 24 40

Approx. Scale (metres) 1:800

drawn	MV
approved	DG
date	18/06//15
scale	AS SHOWN
original size	A3

coffey

client:	TOGA D&C PTY LTD
project:	PRELIMINARY CONTAMINATION AND GEOTECHNICAL SITE ASSESSMENT SURRY HILLS SHOPPING VILLAGE, SURRY HILLS, NSW
title:	SITE LAYOUT AND SAMPLING LOCATIONS
project no:	GEOTLCOV25397AA-AF-R01
figure no:	FIGURE 2
rev:	A

PLOT DATE: 18/06/2015 1:16:14 PM DWG FILE: F:\GEOTECHNICS\1.PROJECTS\GEOTLCOV253\GEOTLCOV25397AA SURRY HILLS SHOPPING CENTRE\CAD\ENV\GEOTLCOV25397AA-AF-R01.DWG

revision	no.	description	drawn	approved	date
	A	ORIGINAL ISSUE			

LEGEND

- SITE BOUNDARY
- 1:100 SITE SLOPE
- FILL THICKNESS — metres
- DEPTH TO BEDROCK — mbgs
- MW MONITORING WELL LOCATION
- BH BORE HOLE LOCATION
- SV SOIL VAPOUR POINT

8 0 8 24 40

Approx. Scale (metres) 1:800

drawn	MV
approved	DG
date	18/06//15
scale	AS SHOWN
original size	A3

coffey

client:	TOGA D&C PTY LTD
project:	PRELIMINARY CONTAMINATION AND GEOTECHNICAL SITE ASSESSMENT SURRY HILLS SHOPPING VILLAGE, SURRY HILLS, NSW
title:	FILL MATERIAL THICKNESS / DEPTH TO BEDROCK
project no:	GEOTLCOV25397AA-AF-R01
figure no:	FIGURE 3
rev:	A

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revision

no.	description	drawn	approved	date
A	ORIGINAL ISSUE			

LEGEND

- SITE BOUNDARY
- 1:100 SITE SLOPE
- MW MONITORING WELL LOCATION
- BH BORE HOLE LOCATION
- SV SOIL VAPOUR POINT
- mg/kg MILLIGRAM PER KILOGRAM

DEPTH	ANALYTE
metres	mg/kg

8 0 8 24 40

Approx. Scale (metres) 1:800

drawn	MV
approved	DG
date	18/06//15
scale	AS SHOWN
original size	A3

coffey

client: TOGA D&C PTY LTD

project: PRELIMINARY CONTAMINATION AND GEOTECHNICAL SITE ASSESSMENT SURRY HILLS SHOPPING VILLAGE, SURRY HILLS, NSW

title: SOIL ANALYTICAL RESULTS (MAY 2015)

project no: GEOTLCOV25397AA-AF-R01 | figure no: FIGURE 4 | rev: A

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PLOT DATE: 18/06/2015 1:18:06 PM DWG FILE: F:\GEOTECHNICS\1.PROJECTS\GEOTLCOV253\GEOTLCOV25397AA SURRY HILLS SHOPPING CENTRE\CAD\ENV\GEOTLCOV25397AA-AF-R01.DWG

revision

no.	description	drawn	approved	date
A	ORIGINAL ISSUE			

LEGEND

SITE BOUNDARY

1:100 SITE SLOPE

MW MONITORING WELL LOCATION

DEPTH TO TOP OF CASING	MBTOC

MBTOC METRES BELOW TOP OF CASING

8 0 8 24 40

Approx. Scale (metres) 1:800

drawn	MV
approved	DG
date	18/06//15
scale	AS SHOWN
original size	A3

coffey

client:	TOGA D&C PTY LTD
project:	PRELIMINARY CONTAMINATION AND GEOTECHNICAL SITE ASSESSMENT SURRY HILLS SHOPPING VILLAGE, SURRY HILLS, NSW
title:	DEPTH TO GROUNDWATER (MAY 2015)

project no:	figure no:	rev:
GEOTLCOV25397AA-AF-R01	FIGURE 5	A

LEGEND

(red line)	SITE BOUNDARY
MW	MONITORING WELL LOCATION
SV	SOIL VAPOUR POINT
GROUNDWATER ANALYTE mg/L	GROUNDWATER MARINE WATER ECOSYSTEM PROTECTION EXCEEDANCE
SOIL VAPOUR ANALYTE mg/m³	SUB-SLAB SOIL VAPOUR EXCEEDANCE
mg/L	MILLIGRAM PER LITRE
mg/m³	MILLIGRAM PER CUBIC METRE

revision

no.	description	drawn	approved	date
A	ORIGINAL ISSUE			

8 0 8 24 40

Approx. Scale (metres) 1:800

drawn	MV
approved	DG
date	18/06//15
scale	AS SHOWN
original size	A3

coffey

client: TOGA D&C PTY LTD

project: PRELIMINARY CONTAMINATION AND GEOTECHNICAL SITE ASSESSMENT SURRY HILLS SHOPPING VILLAGE, SURRY HILLS, NSW

title: GROUNDWATER AND SOIL VAPOUR EXCEEDANCES (MAY 2015)

project no: GEOTLCOV25397AA-AF-R01 | figure no: FIGURE 6 | rev: A

PLOT DATE: 18/06/2015 1:18:33 PM DWG FILE: F:\GEOTECHNICS\1 PROJECTS\GEOTLCOV25397AA SURRY HILLS SHOPPING CENTRE\CADD\ENV\GEOTLCOV25397AA-AF-R01.DWG

Tables

Table 1
Soil Analytical Results
Land Use Assessment Criteria

LocCode	Sampled_Date-Time	Map ID	SampleCode	Field_ID	Asbestos	Monocylic aromatic hydrocarbons EPAVic	Organochlorine pesticides EPAVic	Other organochlorine pesticides EPAVic	Polycylic aromatic hydrocarbons EPAVic	BTEX: Benzene	BTEX: Toluene	BTEX: Ethylbenzene	BTEX: Xylene (m & p)	BTEX: Xylene (o)	BTEX: Xylene Total	BTEX: Naphthalene
						mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL										0.1	0.1	0.1	0.2	0.1	0.3	0.5
NEPM 2013 Residential Soil HSL A/B for Vapour Intrusion, 0m to <1m, Sand										0.5	160	55			40	3
NEPM 2013 EIL																10
NEPM 2013 ESLs Urban residential and public open space, Coarse Soil										50	70	85			105	
NEPM 2013 HILs Residential B Soil																
NEPM 2013 Mgmt Limits Residential, Coarse Soil																
HA5_0.1	13/05/2015	BH6_0.1	S15-My14531	HA5_0.1	Absent	<0.6	<1.15	<0.9	6.1	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<0.5
HA5_0.3	14/05/2015	BH6_0.3	S15-My14538	HA5_0.3	Absent	<0.6	-	-	11.6	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<0.5
HA6_0.2	13/05/2015	BH7_0.2	S15-My14532	HA6_0.2	Present	0.45	<1.15	<0.9	4.45	<0.1	<0.1	<0.1	0.2	0.1	0.3	<0.5
HA6_0.5	13/05/2015	BH7_0.5	S15-My14533	HA6_0.5	Present	0.4	-	-	15.8	0.1	0.1	<0.1	<0.2	<0.1	<0.3	<0.5
HA7_0.1	13/05/2015	BH8_0.1	S15-My14534	HA7_0.1	Absent	<0.6	-	-	12.2	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<0.5
	13/05/2015	QC1	S15-My14535	QC1		<0.6	-	-	16	<0.1	<0.1	<0.1	<0.5	<0.2	<0.1	<0.3
	13/05/2015	QC1A	ES1522078001	QC1A		<2.2	-	-	25.05	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
HA7_0.3	14/05/2015	BH8_0.3	S15-My14539	HA7_0.3	Absent	<0.6	-	-	27.45	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<0.5
HA8_0.2	13/05/2015	BH9_0.2	S15-My14540	HA8_0.2	Absent	<0.6	<1.15	<0.9	12.1	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<0.5
MW1_0.5	13/05/2015	BH1_0.5	S15-My14517	MW1_0.5	Absent	<0.6	<1.15	<0.9	12.9	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<0.5
MW1_2.0	13/05/2015	BH1_2.0	S15-My14519	MW1_2.0	Absent	<0.6	-	-	26.05	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<0.5
MW2_0.5	13/05/2015	BH2B_0.5	S15-My14521	MW2_0.5	Absent	<0.6	<1.15	<0.9	<7.5	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<0.5
MW2_1.0	13/05/2015	BH2B_1.0	S15-My14522	MW2_1.0	Absent	<0.6	-	-	17.85	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<0.5
MW3_0.5	13/05/2015	BH3A_0.5	S15-My14525	MW3_0.5	Absent	<0.6	<1.15	<0.9	<7.5	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<0.5
MW3_1.0	13/05/2015	BH3A_1.0	S15-My14526	MW3_1.0	Absent	<0.6	-	-	<7.5	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<0.5
MW4_0.5	13/05/2015	BH4_0.5	S15-My14528	MW4_0.5	Absent	0.5	<1.15	<0.9	155.9	0.2	0.1	<0.1	<0.2	<0.1	<0.3	<0.5
MW4_1.0	13/05/2015	BH4_1.0	S15-My14529	MW4_1.0	Absent	<0.6	-	-	40.55	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<0.5
	29/05/2015	BH10_1.0	S15-My26640	BH10_1.0	Absent	0.35	<1.15	<0.9	8.3	0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<0.5
	29/05/2015	BH10_2.0	S15-My26641	BH10_2.0	Absent	0.35	<1.15	<0.9	11.45	0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<0.5
	29/05/2015	BH10_3.0	S15-My26642	BH10_3.0		-	-	-	-	-	-	-	-	-	-	-
	29/05/2015	QC5	S15-My26643	QC5		<0.6	-	-	<7.5	<0.1	<0.1	<0.1	<0.5	<0.2	<0.1	<0.3
	29/05/2015	QC5A	ES1523062001	QC5A		<2.2	-	-	<7.5	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5

Map ID	TRH: TRH C6-C10 less BTEX (F1)	TRH: TRH >C10-C16 less Naphthalene (F2)	TRH: TRH C6 - C10	TRH: TPH >C10 - C16	TRH: TRH >C16 - C34	TRH: TRH >C34 - C40	TRH: TRH C6 - C9	TRH: TRH C10 - C14	TRH: TRH C15 - C28	TRH: TRH C29 - C36	TRH: TRH C10 - C36 (Sum of total)	Inorganics: Moisture Content (dried @ 103°C)	Inorganics: pH (aqueous extract)	Metals: Arsenic	Metals: Cadmium	Metals: Chromium	Metals: Copper	Metals: Lead	Metals: Mercury	Metals: Nickel	Metals: Zinc
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	%	pH_Units	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL	20	50	20	50	100	100	20	20	50	50	50	0.1	0.1	2	0.4	5	5	5	0.05	5	5
NEPM 2013 Residential Soil HSL A/B for Vapour Intrusion, 0m to <1m, Sand	45	110																			
NEPM 2013 EIL														40			20	470		5	15
NEPM 2013 ESLs Urban residential and public open space, Coarse Soil			180	120	300	2800															
NEPM 2013 HILs Residential B Soil														500	150		30,000	1200	120	1200	60,000
NEPM 2013 Mgmt Limits Residential, Coarse Soil			700	1000	2500	10,000															
BH6_0.1	<20	<50	<20	<50	140	<100	<20	<20	77	86	160	9.1	-	29	<0.4	47	45	130	0.09	28	160
BH6_0.3	<20	<50	<20	<50	360	130	<20	39	160	240	440	6.1	-	24	<0.4	40	63	120	0.09	21	150
BH7_0.2	<20	<50	<20	<50	<100	<100	<20	<20	60	57	120	7.8	-	2.3	<0.4	5.6	37	63	0.24	<5	130
BH7_0.5	<20	<50	<20	<50	160	<100	<20	<20	100	85	190	8.3	-	2.7	<0.4	8.8	63	120	0.18	<5	200
BH8_0.1	<20	<50	<20	<50	450	190	<20	<20	250	290	540	8.2	-	4.3	0.4	13	76	370	0.34	8.7	340
QC1	<20	<50	<20	<50	480	200	<20	<20	270	320	590	11	-	4.6	<0.4	25	93	410	0.35	13	470
QC1A	<10	<50	<10	<50	370	170	<10	<50	240	210	450	8.4	-	<5	<1	11	73	345	0.3	9	278
BH8_0.3	<20	<50	<20	<50	280	<100	<20	<20	170	160	330	10	-	8.8	1	17	150	650	0.77	9.9	530
BH9_0.2	<20	<50	<20	<50	<100	<100	<20	<20	<50	<50	<50	9.1	-	2.9	<0.4	19	16	97	0.22	12	65
BH1_0.5	<20	<50	<20	<50	<100	<100	<20	<20	64	<50	64	11	8.6	5.3	0.6	25	120	890	0.62	5.7	740
BH1_2.0	<20	<50	<20	<50	140	<100	<20	<20	120	<50	120	14	-	4.8	<0.4	45	99	250	1.1	10	210
BH2B_0.5	<20	<50	<20	<50	<100	<100	<20	<20	<50	<50	<50	8.1	-	<2	<0.4	11	7.9	22	<0.05	<5	11
BH2B_1.0	<20	<50	<20	<50	<100	<100	<20	<20	71	<50	71	8.5	-	2.2	<0.4	55	14	81	0.11	<5	83
BH3A_0.5	<20	<50	<20	<50	<100	<100	<20	<20	<50	<50	<50	6.6	-	<2	<0.4	20	12	9	<0.05	30	24
BH3A_1.0	<20	<50	<20	<50	<100	<100	<20	<20	<50	<50	<50	8.2	-	<2	<0.4	44	8.9	17	<0.05	12	14
BH4_0.5	<20	<50	<20	<50	600	<100	<20	<20	500	180	680	12	-	3.2	<0.4	13	20	180	0.23	<5	240
BH4_1.0	<20	<50	<20	<50	190	<100	<20	<20	150	65	220	13	-	5.2	<0.4	13	13	100	0.23	<5	120
BH10_1.0	<20	<50	<20	<50	<100	<100	<20	<20	<50	<50	<50	11	-	21	0.8	7.2	23	160	0.49	11	410
BH10_2.0	<20	<50	<20	<50	<100	<100	<20	<20	<50	<50	<50	8.6	-	2.1	<0.4	<5	7.4	90	0.44	<5	180
BH10_3.0	-	-	-	-	-	-	-	-	-	-	-	12	-	-	-	-	-	-	-	-	-
QC5	<20	<50	<20	<50	<100	<100	<20	<20	<50	<50	<50	8.9	-	5.9	<0.4	7.7	<5	12	0.09	<5	18
QC5A	<10	<50	<10	<50	<100	<100	<10	<50	<100	<100	<50	11.5	-	6	<1	16	<5	26	0.2	<2	28

Notes:

- NEPM 2013 Residential Soil HSL A/B for Vapour Intrusion, 0m to <1m, Sand
- NEPM 2013 EIL
- NEPM 2013 ESLs Urban residential and public open space, Coarse Soil
- NEPM 2013 HILs Residential B Soil
- NEPM 2013 Mgmt Limits Residential, Coarse Soil

OCP

LocCode	Sampled_Date-Time	Map ID	SampleCode	Field_ID	4,4-DDE	a-BHC	Aldrin	b-BHC	Chlordane	d-BHC	DDD	DDT	Dieldrin	Endosulfan I	Endosulfan II	Endosulfan sulphate	Endrin	Endrin aldehyde	Endrin ketone	g-BHC (Lindane)	Heptachlor	Heptachlor epoxide	Hexachlorobenzene	Methoxychlor	Toxaphene
					mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL					0.05	0.05	0.05	0.05	0.1	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.2	1
NEPM 2013 Residential Soil HSL A/B for Vapour Intrusion, 0m to <1m, Sand																									
NEPM 2013 EIL												3													
NEPM 2013 ESLs Urban residential and public open space, Coarse Soil																									
NEPM 2013 HILs Residential B Soil									90								20				10		15	500	30
NEPM 2013 Mgmt Limits Residential, Coarse Soil																									
HA5_0.1	13/05/2015	BH6_0.1	S15-My14531	HA5_0.1	<0.05	<0.05	<0.05	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<1
HA5_0.3	14/05/2015	BH6_0.3	S15-My14538	HA5_0.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HA6_0.2	13/05/2015	BH7_0.2	S15-My14532	HA6_0.2	<0.05	<0.05	<0.05	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<1
HA6_0.5	13/05/2015	BH7_0.5	S15-My14533	HA6_0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HA7_0.1	13/05/2015	BH8_0.1	S15-My14534	HA7_0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	13/05/2015	QC1	S15-My14535	QC1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	13/05/2015	QC1A	ES1522078001	QC1A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HA7_0.3	14/05/2015	BH8_0.3	S15-My14539	HA7_0.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HA8_0.2	13/05/2015	BH9_0.2	S15-My14540	HA8_0.2	<0.05	<0.05	<0.05	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<1
MW1_0.5	13/05/2015	BH1_0.5	S15-My14517	MW1_0.5	<0.05	<0.05	<0.05	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<1
MW1_2.0	13/05/2015	BH1_2.0	S15-My14519	MW1_2.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW2_0.5	13/05/2015	BH2B_0.5	S15-My14521	MW2_0.5	<0.05	<0.05	<0.05	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<1
MW2_1.0	13/05/2015	BH2B_1.0	S15-My14522	MW2_1.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW3_0.5	13/05/2015	BH3A_0.5	S15-My14525	MW3_0.5	<0.05	<0.05	<0.05	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<1
MW3_1.0	13/05/2015	BH3A_1.0	S15-My14526	MW3_1.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW4_0.5	13/05/2015	BH4_0.5	S15-My14528	MW4_0.5	<0.05	<0.05	<0.05	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<1
MW4_1.0	13/05/2015	BH4_1.0	S15-My14529	MW4_1.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	29/05/2015	BH10_1.0	S15-My26640	BH10_1.0	<0.05	<0.05	<0.05	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<1
	29/05/2015	BH10_2.0	S15-My26641	BH10_2.0	<0.05	<0.05	<0.05	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<1
	29/05/2015	BH10_3.0	S15-My26642	BH10_3.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	29/05/2015	QC5	S15-My26643	QC5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	29/05/2015	QC5A	ES1523062001	QC5A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

PAH

Map ID	Acenaphthene	Acenaphthylene	Anthracene	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(a)pyrene TEQ (lower bound) *	Benzo(a)pyrene TEQ (medium bound) *	Benzo(a)pyrene TEQ (upper bound) *	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Chrysene	Benzo[b+j]fluoranthene	Dibenz(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-c,d)pyrene	Phenanthrene	Pyrene	Total PAHs
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	MG/KG	MG/KG	MG/KG	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
NEPM 2013 Residential Soil HSL A/B for Vapour Intrusion, 0m to <1m, Sand																			
NEPM 2013 EIL																			
NEPM 2013 ESLs Urban residential and public open space, Coarse Soil					0.7														
NEPM 2013 HILs Residential B Soil																			400
NEPM 2013 Mgmt Limits Residential, Coarse Soil																			
BH6_0.1	<0.5	<0.5	<0.5	0.5	<0.5	<0.5	0.7	1.2	<0.5	0.6	0.5	0.6	<0.5	1	<0.5	<0.5	<0.5	1	4.2
BH6_0.3	<0.5	<0.5	<0.5	1.1	1.3	1.7	1.9	2.2	0.8	1.1	1	0.9	<0.5	1.8	<0.5	0.7	0.5	1.8	11
BH7_0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	<0.5	<0.5	<0.5	0.6	1.2
BH7_0.5	<0.5	<0.5	<0.5	1.4	1.7	2.2	2.4	2.7	1	1.2	1.4	1	<0.5	2.8	<0.5	0.9	1.3	2.6	15
BH8_0.1	<0.5	<0.5	<0.5	1.1	1	1.4	1.7	1.9	1	1.1	1	1.2	<0.5	2	<0.5	0.8	0.7	2	12
QC1	<0.5	<0.5	<0.5	1.6	1.2	1.8	2	2.3	1.3	1.3	1.4	1.5	<0.5	2.9	<0.5	1.1	0.8	2.9	16
QC1A	<0.5	<0.5	0.6	2.5	2.3	-	-	-	1.5	1	2.5	2.8	<0.5	4.9	<0.5	1.2	1.9	5.4	26.6
BH8_0.3	<0.5	0.7	0.9	<0.5	2.7	3.7	4	4.3	2.6	3.5	3.3	3.7	<0.5	6.8	<0.5	2.3	2.8	0.6	30
BH9_0.2	<0.5	<0.5	<0.5	1.1	1	1.4	1.6	1.9	0.9	1.1	1.1	0.7	<0.5	2	<0.5	0.8	0.6	2	11
BH1_0.5	<0.5	<0.5	<0.5	1.1	0.9	1.4	1.6	1.9	0.8	1.2	1.2	1.4	<0.5	2.3	<0.5	0.7	1	2.2	13
BH1_2.0	<0.5	0.5	0.8	2.3	2.1	3.3	3.3	3.3	1.2	1.8	2	1.2	0.5	5.2	<0.5	1.1	3.2	4.6	27
BH2B_0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
BH2B_1.0	<0.5	<0.5	0.7	1.5	1.6	2.1	2.4	2.6	0.7	0.8	1.4	2.1	<0.5	3.5	<0.5	0.6	2.8	3	19
BH3A_0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
BH3A_1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
BH4_0.5	<0.5	4.1	26	12	6.2	12	12	12	6.1	8.4	11	9.1	2.5	25	3.1	6	25	20	160
BH4_1.0	<0.5	1.3	1.7	3.4	2.1	3.1	3.3	3.6	1.8	2.5	3.3	1.8	<0.5	8.4	0.8	1.7	6	6.8	42
BH10_1.0	<0.5	<0.5	<0.5	0.8	0.8	1	1.3	1.6	<0.5	0.7	0.7	0.8	<0.5	1.3	<0.5	<0.5	0.7	1.3	7.1
BH10_2.0	<0.5	<0.5	0.6	1.1	0.8	1	1.3	1.6	<0.5	0.7	0.8	0.6	<0.5	2.1	<0.5	<0.5	1.8	1.8	10
BH10_3.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QC5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
QC5A	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5

Map ID	PAH/Phenols	Polychlorinated Biphenyls						
	Carcinogenic PAHs as B(a)P TPE	Arochlor 1016	Arochlor 1232	Arochlor 1242	Arochlor 1248	Arochlor 1254	Arochlor 1260	PCBs (Sum of total)
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL		0.5	0.5	0.5	0.5	0.5	0.5	0.1
NEPM 2013 Residential Soil HSL A/B for Vapour Intrusion, 0m to <1m, Sand								
NEPM 2013 EIL								
NEPM 2013 ESLs Urban residential and public open space, Coarse Soil								
NEPM 2013 HILs Residential B Soil	4							1
NEPM 2013 Mgmt Limits Residential, Coarse Soil								
BH6_0.1	0.7025	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
BH6_0.3	1.948	-	-	-	-	-	-	-
BH7_0.2	<1.21	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
BH7_0.5	2.424	-	-	-	-	-	-	-
BH8_0.1	1.69	-	-	-	-	-	-	-
QC1	2.027	-	-	-	-	-	-	-
QC1A	3.34	-	-	-	-	-	-	-
BH8_0.3	3.984	-	-	-	-	-	-	-
BH9_0.2	1.64	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
BH1_0.5	1.61	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
BH1_2.0	3.272	-	-	-	-	-	-	-
BH2B_0.5	<1.21	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
BH2B_1.0	2.371	-	-	-	-	-	-	-
BH3A_0.5	<1.21	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
BH3A_1.0	<1.21	-	-	-	-	-	-	-
BH4_0.5	12.42	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
BH4_1.0	3.341	-	-	-	-	-	-	-
BH10_1.0	1.315	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
BH10_2.0	1.326	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
BH10_3.0	-	-	-	-	-	-	-	-
QC5	<1.21	-	-	-	-	-	-	-
QC5A	<1.21	-	-	-	-	-	-	-

Notes:

NEPM 2013 Residential Soil HSL A/B for Vapou
NEPM 2013 EIL
NEPM 2013 ESLs Urban residential and public c
NEPM 2013 HILs Residential B Soil
NEPM 2013 Mgmt Limits Residential, Coarse Sc

Table 1
Soil Analytical Results
Land Use Assessment Criteria

					Polychlorinated Biphenyls																																		
					1,1,1,2-tetrachloroethane	1,1,1-trichloroethane	1,1,2,2-tetrachloroethane	1,1,2-trichloroethane	1,1-dichloroethane	1,1-dichloroethene	1,2,3-trichloropropane	1,2-dibromoethane	1,2-dichlorobenzene	1,2-dichloroethane	1,2-dichloropropane	1,3-dichlorobenzene	1,3-dichloropropane	1,4-dichlorobenzene	Bromodichloromethane	Bromoform	Bromomethane	Carbon tetrachloride	Chlorobenzene	Chlorodibromomethane	Chloroform	Chloromethane	cis-1,2-dichloroethene	cis-1,3-dichloropropene	Dibromomethane	Dichloromethane	Iodomethane	Trichloroethene	Tetrachloroethene	trans-1,2-dichloroethene	trans-1,3-dichloropropene	Trichlorofluoromethane	Vinyl chloride	Chlorinated hydrocarbons EPAVic	Other chlorinated hydrocarbons EPAVic
					mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL					0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5		
NEPM 2013 Residential Soil HSL A/B for Vapour Intrusion, 0m to <1m, Sand																																							
NEPM 2013 EIL																																							
NEPM 2013 ESLs Urban residential and public open space, Coarse Soil																																							
NEPM 2013 HILs Residential B Soil																																							
NEPM 2013 Mgmt Limits Residential, Coarse Soil																																							
LocCode	**Sampled_Date-Time**	**Map ID**	**SampleCode**	**Field_ID**																																			
HA5_0.1	13/05/2015	BH6_0.1	S15-My14531	HA5_0.1			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HA5_0.3	14/05/2015	BH6_0.3	S15-My14538	HA5_0.3			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HA6_0.2	13/05/2015	BH7_0.2	S15-My14532	HA6_0.2			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HA6_0.5	13/05/2015	BH7_0.5	S15-My14533	HA6_0.5			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HA7_0.1	13/05/2015	BH8_0.1	S15-My14534	HA7_0.1			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	13/05/2015	QC1	S15-My14535	QC1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	13/05/2015	QC1A	ES1522078001	QC1A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HA7_0.3	14/05/2015	BH8_0.3	S15-My14539	HA7_0.3			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HA8_0.2	13/05/2015	BH9_0.2	S15-My14540	HA8_0.2			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW1_0.5	13/05/2015	BH1_0.5	S15-My14517	MW1_0.5			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW1_2.0	13/05/2015	BH1_2.0	S15-My14519	MW1_2.0			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW2_0.5	13/05/2015	BH2B_0.5	S15-My14521	MW2_0.5			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW2_1.0	13/05/2015	BH2B_1.0	S15-My14522	MW2_1.0			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW3_0.5	13/05/2015	BH3A_0.5	S15-My14525	MW3_0.5			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW3_1.0	13/05/2015	BH3A_1.0	S15-My14526	MW3_1.0			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW4_0.5	13/05/2015	BH4_0.5	S15-My14528	MW4_0.5			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW4_1.0	13/05/2015	BH4_1.0	S15-My14529	MW4_1.0			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	29/05/2015	BH10_1.0	S15-My26640	BH10_1.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	29/05/2015	BH10_2.0	S15-My26641	BH10_2.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	29/05/2015	BH10_3.0	S15-My26642	BH10_3.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<7	<6.5
	29/05/2015	QC5	S15-My26643	QC5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	29/05/2015	QC5A	ES1523062001	QC5A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Notes:

	NEPM 2013 Residential Soil HSL A/B for Vapou
	NEPM 2013 EIL
	NEPM 2013 ESLs Urban residential and public (
	NEPM 2013 HILs Residential B Soil
	NEPM 2013 Mgmt Limits Residential, Coarse Sc

Field Duplicates (SOIL)
Filter: Lab_Report_Nu

			Lab Repor	457842	457842		457842	Interlab_D		459646	Interlab_D	
			Field ID	BH8_0.1	QC1	RPD	BH8_0.1	QC1A	RPD	QC5	QC5A	RPD
			Sampled D	13/05/2015	13/05/2015		13/05/2015	13/05/2015		29/05/2015	29/05/2015	
Chem_Gro	**ChemNam**	**Units**	**EQL**									
BTEX	Benzene	mg/kg	0.1 (Primar	<0.1	<0.1	0	<0.1	<0.2	0	<0.1	<0.2	0
	Ethylbenze	mg/kg	0.1 (Primar	<0.1	<0.1	0	<0.1	<0.5	0	<0.1	<0.5	0
	Toluene	mg/kg	0.1 (Primar	<0.1	<0.1	0	<0.1	<0.5	0	<0.1	<0.5	0
	Naphthaler	mg/kg	0.5 (Primar	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
	Naphthaler	mg/kg	0.5 (Primar	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
	Xylene (m	mg/kg	0.2 (Primar	<0.2	<0.2	0	<0.2	<0.5	0	<0.2	<0.5	0
	Xylene (o)	mg/kg	0.1 (Primar	<0.1	<0.1	0	<0.1	<0.5	0	<0.1	<0.5	0
	Xylene Tot	mg/kg	0.3 (Primar	<0.3	<0.3	0	<0.3	<0.5	0	<0.3	<0.5	0
TRH	TRH C6-C	mg/kg	20 (Primar	<20.0	<20.0	0	<20.0	<10.0	0	<20.0	<10.0	0
	TRH >C10	mg/kg	50	<50.0	<50.0	0	<50.0	<50.0	0	<50.0	<50.0	0
	TRH C6 - (	mg/kg	20 (Primar	<20.0	<20.0	0	<20.0	<10.0	0	<20.0	<10.0	0
	TPH >C10	mg/kg	50	<50.0	<50.0	0	<50.0	<50.0	0	<50.0	<50.0	0
	TRH >C16	mg/kg	100	450.0	480.0	6	450.0	370.0	20	<100	<100	0
	TRH >C34	mg/kg	100	190.0	200.0	5	190.0	170.0	11	<100	<100	0
	TRH C6 - (	mg/kg	20 (Primar	<20.0	<20.0	0	<20.0	<10.0	0	<20.0	<50.0	0
	TRH C10 -	mg/kg	20 (Primar	<20.0	<20.0	0	<20.0	<50.0	0	<20.0	<50.0	0
	TRH C15 -	mg/kg	50 (Primar	250.0	270.0	8	250.0	240.0	4	<100	<100	0
	TRH C29 -	mg/kg	50 (Primar	290.0	320.0	10	290.0	210.0	32	<100	<100	0
	TRH C10 -	mg/kg	50	540.0	590.0	9	540.0	450.0	18	<100	<100	0
Inorganics	Moisture C	%	0.1	8.2	11.0	29	8.2			8.9		
Metals	Arsenic	mg/kg	2 (Primary	4.3	4.6	7	4.3	<5.0	0	5.9	6	2
	Cadmium	mg/kg	0.4 (Primar	0.4	<0.4	0	0.4	<1.0	0	<0.4	<1	0
	Chromium	mg/kg	5 (Primary	13.0	25.0	63	13.0	11.0	17	7.7	16	70
	Copper	mg/kg	5	76.0	93.0	20	76.0	73.0	4	<5	<5	0
	Lead	mg/kg	5	370.0	410.0	10	370.0	345.0	7	12	26	74
	Mercury	mg/kg	0.05 (Prima	0.34	0.35	3	0.34	0.3	13	0.09	0.2	76
	Nickel	mg/kg	5 (Primary	8.7	13.0	40	8.7	9.0	3	<5	<2	0
	Zinc	mg/kg	5	**340.0**	**470.0**	**32**	340.0	278.0	20	18	28	43
PAH	Acenaphth	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
	Acenaphth	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
	Anthracene	mg/kg	0.5	<0.5	<0.5	0	<0.5	0.6	18	<0.5	<0.5	0
	Benzo(a)ar	mg/kg	0.5	1.1	1.6	37	1.1	2.5	78	<0.5	<0.5	0
	Benzo(a)py	mg/kg	0.5	1.0	1.2	18	1.0	2.3	79	<0.5	<0.5	0
	Benzo(a)py	mg/kg	0.5	1.4	1.8	25	1.4			<0.5	-	
	Benzo(a)py	mg/kg	0.5	1.7	2.0	16	1.7			0.6	-	
	Benzo(a)py	mg/kg	0.5	1.9	2.3	19	1.9			1.2	-	
	Benzo(g,h,	mg/kg	0.5	1.0	1.3	26	1.0	1.5	40	<0.5	<0.5	0
	Benzo(k)flu	mg/kg	0.5	1.1	1.3	17	1.1	1.0	10	<0.5	<0.5	0
	Chrysene	mg/kg	0.5	1.0	1.4	33	1.0	2.5	86	<0.5	<0.5	0
	Benzo[b+j]	mg/kg	0.5	1.2	1.5	22	1.2	2.8	80	<0.5	<0.5	0
	Dibenz(a,h	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
	Fluoranthe	mg/kg	0.5	2.0	2.9	37	2.0	4.9	84	<0.5	<0.5	0
	Fluorene	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
	Indeno(1,2	mg/kg	0.5	0.8	1.1	32	0.8	1.2	40	<0.5	<0.5	0
	Phenanthre	mg/kg	0.5	0.7	0.8	13	0.7	1.9	92	<0.5	<0.5	0
	Pyrene	mg/kg	0.5	2.0	2.9	37	**2.0**	**5.4**	**92**	<0.5	<0.5	0
	Total PAHs	mg/kg	0.5	12.0	16.0	29	**12.0**	**26.6**	**76**	<0.5	<0.5	0

*RPDs have only been considered where a concentration is greater than 0 times the EQL.
**High RPDs are in bold (Acceptable RPDs for each EQL multiplier range are: 200 (0-10 x EQL); 50 (10-20 x EQL); 30 (> 20 x EQL))
***Interlab Duplicates are matched on a per compound basis as methods vary between laboratories. Any methods in the row header relate to those used in the primary laboratory

Table 3
Soil Analytical Results
Waste Classification Criteria

LocCode	Sampled_Date-Time	SampleCode	Map ID	Soil Colour	Field_ID					PAH/Phenols (SIM)			BTEX							
						Monocylic aromatic hydrocarbons EPAVic	Organochlorine pesticides EPAVic	Other organochlorine pesticides EPAVic	Polycylic aromatic hydrocarbons EPAVic	Benzo(a)pyrene TEQ (half LOR)	Benzo(a)pyrene TEQ (LOR)	Benzo(a)pyrene TEQ (zero)	Benzene	Ethylbenzene	Toluene	Naphthalene	Xylene (m & p)	Xylene (o)	Xylene Total	Total BTEX
						mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL													0.1	0.1	0.1	0.5	0.2	0.1	0.3	
NSW 2008 General Solid Waste (CT1 - No Leaching)													10	600	288				1000	
NSW 2008 Restricted Solid Waste (CT2 - No Leaching)													40	2400	1152				4000	
Kurnell Landfill EPL other limits for Resource Recovery Waste Storage																				
	13/05/2015	S15-My14517	BH1_0.5	brown	MW1_0.5	<0.6	<1.15	<0.9	12.9	-	-	-	<0.1	<0.1	<0.1	<0.5	<0.2	<0.1	<0.3	-
	13/05/2015	S15-My14519	BH1_2.0	grey	MW1_2.0	<0.6	-	-	26.05	-	-	-	<0.1	<0.1	<0.1	<0.5	<0.2	<0.1	<0.3	-
	13/05/2015	S15-My14521	BH2B_0.5	brown	MW2_0.5	<0.6	<1.15	<0.9	<7.5	-	-	-	<0.1	<0.1	<0.1	<0.5	<0.2	<0.1	<0.3	-
	13/05/2015	S15-My14522	BH2B_1.0	grey	MW2_1.0	<0.6	-	-	17.85	-	-	-	<0.1	<0.1	<0.1	<0.5	<0.2	<0.1	<0.3	-
	13/05/2015	S15-My14525	BH3A_0.5	brown	MW3_0.5	<0.6	<1.15	<0.9	<7.5	-	-	-	<0.1	<0.1	<0.1	<0.5	<0.2	<0.1	<0.3	-
	13/05/2015	S15-My14526	BH3A_1.0	grey	MW3_1.0	<0.6	-	-	<7.5	-	-	-	<0.1	<0.1	<0.1	<0.5	<0.2	<0.1	<0.3	-
	13/05/2015	S15-My14528	BH4_0.5	grey	MW4_0.5	0.5	<1.15	<0.9	155.9	-	-	-	0.2	<0.1	0.1	<0.5	<0.2	<0.1	<0.3	-
	13/05/2015	S15-My14529	BH4_1.0	brown	MW4_1.0	<0.6	-	-	40.55	-	-	-	<0.1	<0.1	<0.1	<0.5	<0.2	<0.1	<0.3	-
	13/05/2015	S15-My14531	BH6_0.1	brown	HA5_0.1	<0.6	<1.15	<0.9	6.1	-	-	-	<0.1	<0.1	<0.1	<0.5	<0.2	<0.1	<0.3	-
	14/05/2015	S15-My14538	BH6_0.3	brown	HA5_0.3	<0.6	-	-	11.6	-	-	-	<0.1	<0.1	<0.1	<0.5	<0.2	<0.1	<0.3	-
	13/05/2015	S15-My14532	BH7_0.2	brown	HA6_0.2	0.45	<1.15	<0.9	4.45	-	-	-	<0.1	<0.1	<0.1	<0.5	0.2	0.1	0.3	-
	13/05/2015	S15-My14533	BH7_0.5	brown	HA6_0.5	0.4	-	-	15.8	-	-	-	0.1	<0.1	0.1	<0.5	<0.2	<0.1	<0.3	-
	13/05/2015	S15-My14534	BH8_0.1	brown	HA7_0.1	<0.6	-	-	12.2	-	-	-	<0.1	<0.1	<0.1	<0.5	<0.2	<0.1	<0.3	-
	14/05/2015	S15-My14539	BH8_0.3	brown	HA7_0.3	<0.6	-	-	27.45	-	-	-	<0.1	<0.1	<0.1	<0.5	<0.2	<0.1	<0.3	-
	13/05/2015	S15-My14540	BH9_0.2	grey / brown	HA8_0.2	<0.6	<1.15	<0.9	12.1	-	-	-	<0.1	<0.1	<0.1	<0.5	<0.2	<0.1	<0.3	-
	29/05/2015	S15-My26640	BH10_1.0	brown	BH10_1.0	0.35	<1.15	<0.9	8.3				0.1	<0.1	<0.1	<0.5	<0.2	<0.1	<0.3	
	29/05/2015	S15-My26641	BH10_2.0	brown	BH10_2.0	0.35	<1.15	<0.9	11.45				0.1	<0.1	<0.1	<0.5	<0.2	<0.1	<0.3	
	29/05/2015	S15-My26642	BH10_3.0	residual	BH10_3.0	-	-	-	-				-	-	-	-	-	-	-	

Map ID	TRH										
	TRH C6-C10 less BTEX (F1)	TRH >C10-C16 less Naphthalene (F2)	TRH C6 - C10	TPH >C10 - C16	TRH >C16 - C34	TRH >C34 - C40	TRH C6 - C9	TRH C10 - C14	TRH C15 - C28	TRH C29 - C36	TRH C10 - C36 (Sum of total)
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL	10	50	10	50	100	100	10	20	50	50	50
NSW 2008 General Solid Waste (CT1 - No Leaching)											
NSW 2008 Restricted Solid Waste (CT2 - No Leaching)											
Kurnell Landfill EPL other limits for Resource Recovery Waste Storage							150				1600
BH1_0.5	<20	<50	<20	<50	<100	<100	<20	<20	64	<50	64
BH1_2.0	<20	<50	<20	<50	140	<100	<20	<20	120	<50	120
BH2B_0.5	<20	<50	<20	<50	<100	<100	<20	<20	<50	<50	<50
BH2B_1.0	<20	<50	<20	<50	<100	<100	<20	<20	71	<50	71
BH3A_0.5	<20	<50	<20	<50	<100	<100	<20	<20	<50	<50	<50
BH3A_1.0	<20	<50	<20	<50	<100	<100	<20	<20	<50	<50	<50
BH4_0.5	<20	<50	<20	<50	600	<100	<20	<20	500	180	680
BH4_1.0	<20	<50	<20	<50	190	<100	<20	<20	150	65	220
BH6_0.1	<20	<50	<20	<50	140	<100	<20	<20	77	86	160
BH6_0.3	<20	<50	<20	<50	360	130	<20	39	160	240	440
BH7_0.2	<20	<50	<20	<50	<100	<100	<20	<20	60	57	120
BH7_0.5	<20	<50	<20	<50	160	<100	<20	<20	100	85	190
BH8_0.1	<20	<50	<20	<50	450	190	<20	<20	250	290	540
BH8_0.3	<20	<50	<20	<50	280	<100	<20	<20	170	160	330
BH9_0.2	<20	<50	<20	<50	<100	<100	<20	<20	<50	<50	<50
BH10_1.0	<20	<50	<20	<50	<100	<100	<20	<20	<50	<50	<50
BH10_2.0	<20	<50	<20	<50	<100	<100	<20	<20	<50	<50	<50
BH10_3.0	-	-	-	-	-	-	-	-	-	-	-

Map ID	TPH	Inorganics			Metals							
	C10 - C40 (Sum of total)	Moisture	Moisture Content (dried @ 103°C)	pH (aqueous extract)	Arsenic	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Zinc
	mg/kg	%	%	pH_Units	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL			0.1	0.1	2	0.4	2	5	5	0.05	2	5
NSW 2008 General Solid Waste (CT1 - No Leaching)					100	20			100	4	40	
NSW 2008 Restricted Solid Waste (CT2 - No Leaching)					400	80			400	16	160	
Kurnell Landfill EPL other limits for Resource Recovery Waste Storage					40	2		200		1.5		600
BH1_0.5	-	-	11	8.6	5.3	0.6	25	120	890	0.62	5.7	740
BH1_2.0	-	-	14	-	4.8	<0.4	45	99	250	1.1	10	210
BH2B_0.5	-	-	8.1	-	<2	<0.4	11	7.9	22	<0.05	<5	11
BH2B_1.0	-	-	8.5	-	2.2	<0.4	55	14	81	0.11	<5	83
BH3A_0.5	-	-	6.6	-	<2	<0.4	20	12	9	<0.05	30	24
BH3A_1.0	-	-	8.2	-	<2	<0.4	44	8.9	17	<0.05	12	14
BH4_0.5	-	-	12	-	3.2	<0.4	13	20	180	0.23	<5	240
BH4_1.0	-	-	13	-	5.2	<0.4	13	13	100	0.23	<5	120
BH6_0.1	-	-	9.1	-	29	<0.4	47	45	130	0.09	28	160
BH6_0.3	-	-	6.1	-	24	<0.4	40	63	120	0.09	21	150
BH7_0.2	-	-	7.8	-	2.3	<0.4	5.6	37	63	0.24	<5	130
BH7_0.5	-	-	8.3	-	2.7	<0.4	8.8	63	120	0.18	<5	200
BH8_0.1	-	-	8.2	-	4.3	0.4	13	76	370	0.34	8.7	340
BH8_0.3	-	-	10	-	8.8	1	17	150	650	0.77	9.9	530
BH9_0.2	-	-	9.1	-	2.9	<0.4	19	16	97	0.22	12	65
BH10_1.0			11	-	21	0.8	7.2	23	160	0.49	11	410
BH10_2.0			8.6	-	2.1	<0.4	<5	7.4	90	0.44	<5	180
BH10_3.0			12	-	-	-	-	-	-	-	-	-

Notes:

(green)	NSW 2008 General Solid Waste (CT1 - No Leaching)
(pink)	NSW 2008 Restricted Solid Waste (CT2 - No Leaching)
(blue)	Kurnell Landfill EPL other limits for Resource Recovery Waste Storage

OCP

LocCode	Sampled_Date-Time	SampleCode	Map ID	Soil Colour	Field_ID	4,4-DDE	a-BHC	Aldrin	b-BHC	Chlordane	d-BHC	DDD	DDT	Dieldrin	Endosulfan I	Endosulfan II	Endosulfan sulphate	Endrin	Endrin aldehyde	Endrin ketone	g-BHC (Lindane)	Heptachlor	Heptachlor epoxide	Hexachlorobenzene	Methoxychlor	Toxaphene
						mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL						0.05	0.05	0.05	0.05	0.1	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.2	1
NSW 2008 General Solid Waste (CT1 - No Leaching)																										
NSW 2008 Restricted Solid Waste (CT2 - No Leaching)																										
Kurnell Landfill EPL other limits for Resource Recovery Waste Storage																										
	13/05/2015	S15-My14517	BH1_0.5	brown	MW1_0.5	<0.05	<0.05	<0.05	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<1
	13/05/2015	S15-My14519	BH1_2.0	grey	MW1_2.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	13/05/2015	S15-My14521	BH2B_0.5	brown	MW2_0.5	<0.05	<0.05	<0.05	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<1
	13/05/2015	S15-My14522	BH2B_1.0	grey	MW2_1.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	13/05/2015	S15-My14525	BH3A_0.5	brown	MW3_0.5	<0.05	<0.05	<0.05	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<1
	13/05/2015	S15-My14526	BH3A_1.0	grey	MW3_1.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	13/05/2015	S15-My14528	BH4_0.5	grey	MW4_0.5	<0.05	<0.05	<0.05	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<1
	13/05/2015	S15-My14529	BH4_1.0	brown	MW4_1.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	13/05/2015	S15-My14531	BH6_0.1	brown	HA5_0.1	<0.05	<0.05	<0.05	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<1
	14/05/2015	S15-My14538	BH6_0.3	brown	HA5_0.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	13/05/2015	S15-My14532	BH7_0.2	brown	HA6_0.2	<0.05	<0.05	<0.05	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<1
	13/05/2015	S15-My14533	BH7_0.5	brown	HA6_0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	13/05/2015	S15-My14534	BH8_0.1	brown	HA7_0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	14/05/2015	S15-My14539	BH8_0.3	brown	HA7_0.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	13/05/2015	S15-My14540	BH9_0.2	grey / brown	HA8_0.2	<0.05	<0.05	<0.05	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<1
	29/05/2015	S15-My26640	BH10_1.0	brown	BH10_1.0	<0.05	<0.05	<0.05	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<1
	29/05/2015	S15-My26641	BH10_2.0	brown	BH10_2.0	<0.05	<0.05	<0.05	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<1
	29/05/2015	S15-My26642	BH10_3.0	residual	BH10_3.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

PAH / PAH/Phenols / Polychlorinated Biphenyls

Map ID	Acenaphthene	Acenaphthylene	Anthracene	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(a)pyrene TEQ (lower bound) *	Benzo(a)pyrene TEQ (medium bound) *	Benzo(a)pyrene TEQ (upper bound) *	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Chrysene	Benzo[b+j]fluoranthene	Dibenz(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-c,d)pyrene	Phenanthrene	Pyrene	Total PAHs	Carcinogenic PAHs as B(a)P TPE	Aroclor 1016	Aroclor 1232	Aroclor 1242	Aroclor 1248	Aroclor 1254	Aroclor 1260	PCBs (Sum of total)
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	MG/KG	MG/KG	MG/KG	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5		0.5	0.5	0.5	0.5	0.5	0.5	0.1
NSW 2008 General Solid Waste (CT1 - No Leaching)					0.8																						
NSW 2008 Restricted Solid Waste (CT2 - No Leaching)					3.2																						
Kurnell Landfill EPL other limits for Resource Recovery Waste Storage																			80		1	1	1	1	1	1	1
BH1_0.5	<0.5	<0.5	<0.5	1.1	0.9	1.4	1.6	1.9	0.8	1.2	1.2	1.4	<0.5	2.3	<0.5	0.7	1	2.2	13	1.61	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
BH1_2.0	<0.5	0.5	0.8	2.3	2.1	3.3	3.3	3.3	1.2	1.8	2	1.2	0.5	5.2	<0.5	1.1	3.2	4.6	27	3.272	-	-	-	-	-	-	-
BH2B_0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.21	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
BH2B_1.0	<0.5	<0.5	0.7	1.5	1.6	2.1	2.4	2.6	0.7	0.8	1.4	2.1	<0.5	3.5	<0.5	0.6	2.8	3	19	2.371	-	-	-	-	-	-	-
BH3A_0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.21	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
BH3A_1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.21	-	-	-	-	-	-	-
BH4_0.5	<0.5	4.1	26	12	6.2	12	12	12	6.1	8.4	11	9.1	2.5	25	3.1	6	25	20	160	12.42	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
BH4_1.0	<0.5	1.3	1.7	3.4	2.1	3.1	3.3	3.6	1.8	2.5	3.3	1.8	<0.5	8.4	0.8	1.7	6	6.8	42	3.341	-	-	-	-	-	-	-
BH6_0.1	<0.5	<0.5	<0.5	0.5	<0.5	<0.5	0.7	1.2	<0.5	0.6	0.5	0.6	<0.5	1	<0.5	<0.5	<0.5	1	4.2	0.7025	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
BH6_0.3	<0.5	<0.5	<0.5	1.1	1.3	1.7	1.9	2.2	0.8	1.1	1	0.9	<0.5	1.8	<0.5	0.7	0.5	1.8	11	1.948	-	-	-	-	-	-	-
BH7_0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	<0.5	<0.5	<0.5	0.6	1.2	<1.21	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
BH7_0.5	<0.5	<0.5	<0.5	1.4	1.7	2.2	2.4	2.7	1	1.2	1.4	1	<0.5	2.8	<0.5	0.9	1.3	2.6	15	2.424	-	-	-	-	-	-	-
BH8_0.1	<0.5	<0.5	<0.5	1.1	1	1.4	1.7	1.9	1	1.1	1	1.2	<0.5	2	<0.5	0.8	0.7	2	12	1.69	-	-	-	-	-	-	-
BH8_0.3	<0.5	0.7	0.9	<0.5	2.7	3.7	4	4.3	2.6	3.5	3.3	3.7	<0.5	6.8	<0.5	2.3	2.8	0.6	30	3.984	-	-	-	-	-	-	-
BH9_0.2	<0.5	<0.5	<0.5	1.1	1	1.4	1.6	1.9	0.9	1.1	1.1	0.7	<0.5	2	<0.5	0.8	0.6	2	11	1.64	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
BH10_1.0	<0.5	<0.5	<0.5	0.8	0.8	1	1.3	1.6	<0.5	0.7	0.7	0.8	<0.5	1.3	<0.5	<0.5	0.7	1.3	7.1	1.315	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
BH10_2.0	<0.5	<0.5	0.6	1.1	0.8	1	1.3	1.6	<0.5	0.7	0.8	0.6	<0.5	2.1	<0.5	<0.5	1.8	1.8	10	1.326	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
BH10_3.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Notes:

- (green) NSW 2008 General Solid Waste (CT1 - No Leaching)
- (pink) NSW 2008 Restricted Solid Waste (CT2 - No Leaching)
- (blue) Kurnell Landfill EPL other limits for Resource Recovery W

Table 3
Soil Analytical Results
Waste Classification Criteria

LocCode	Sampled_Date-Time	SampleCode	Map ID	Soil Colour	Field_ID
	13/05/2015	S15-My14517	BH1_0.5	brown	MW1_0.5
	13/05/2015	S15-My14519	BH1_2.0	grey	MW1_2.0
	13/05/2015	S15-My14521	BH2B_0.5	brown	MW2_0.5
	13/05/2015	S15-My14522	BH2B_1.0	grey	MW2_1.0
	13/05/2015	S15-My14525	BH3A_0.5	brown	MW3_0.5
	13/05/2015	S15-My14526	BH3A_1.0	grey	MW3_1.0
	13/05/2015	S15-My14528	BH4_0.5	grey	MW4_0.5
	13/05/2015	S15-My14529	BH4_1.0	brown	MW4_1.0
	13/05/2015	S15-My14531	BH6_0.1	brown	HA5_0.1
	14/05/2015	S15-My14538	BH6_0.3	brown	HA5_0.3
	13/05/2015	S15-My14532	BH7_0.2	brown	HA6_0.2
	13/05/2015	S15-My14533	BH7_0.5	brown	HA6_0.5
	13/05/2015	S15-My14534	BH8_0.1	brown	HA7_0.1
	14/05/2015	S15-My14539	BH8_0.3	brown	HA7_0.3
	13/05/2015	S15-My14540	BH9_0.2	grey / brown	HA8_0.2
	29/05/2015	S15-My26640	BH10_1.0	brown	BH10_1.0
	29/05/2015	S15-My26641	BH10_2.0	brown	BH10_2.0
	29/05/2015	S15-My26642	BH10_3.0	residual	BH10_3.0

	1,1,1,2-tetrachloroethane	1,1,1-trichloroethane	1,1,2,2-tetrachloroethane	1,1,2-trichloroethane	1,1-dichloroethane	1,1-dichloroethene	1,2,3-trichloropropane	1,2-dibromoethane	1,2-dichlorobenzene	1,2-dichloroethane	1,2-dichloropropane	1,3-dichlorobenzene
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
NSW 2008 General Solid Waste (CT1 - No Leaching)												
NSW 2008 Restricted Solid Waste (CT2 - No Leaching)												
Kurnell Landfill EPL other limits for Resource Recovery Waste Storage												
S15-My14517	-	-	-	-	-	-	-	-	-	-	-	-
S15-My14519	-	-	-	-	-	-	-	-	-	-	-	-
S15-My14521	-	-	-	-	-	-	-	-	-	-	-	-
S15-My14522	-	-	-	-	-	-	-	-	-	-	-	-
S15-My14525	-	-	-	-	-	-	-	-	-	-	-	-
S15-My14526	-	-	-	-	-	-	-	-	-	-	-	-
S15-My14528	-	-	-	-	-	-	-	-	-	-	-	-
S15-My14529	-	-	-	-	-	-	-	-	-	-	-	-
S15-My14531	-	-	-	-	-	-	-	-	-	-	-	-
S15-My14538	-	-	-	-	-	-	-	-	-	-	-	-
S15-My14532	-	-	-	-	-	-	-	-	-	-	-	-
S15-My14533	-	-	-	-	-	-	-	-	-	-	-	-
S15-My14534	-	-	-	-	-	-	-	-	-	-	-	-
S15-My14539	-	-	-	-	-	-	-	-	-	-	-	-
S15-My14540	-	-	-	-	-	-	-	-	-	-	-	-
S15-My26640	-	-	-	-	-	-	-	-	-	-	-	-
S15-My26641	-	-	-	-	-	-	-	-	-	-	-	-
S15-My26642	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5

	1,3-dichloropropane	1,4-dichlorobenzene	Bromodichloromethane	Bromoform	Bromomethane	Carbon tetrachloride	Chlorobenzene	Chlorodibromomethane	Chloroform	Chloromethane	cis-1,2-dichloroethene	cis-1,3-dichloropropene
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
NSW 2008 General Solid Waste (CT1 - No Leaching)												
NSW 2008 Restricted Solid Waste (CT2 - No Leaching)												
Kurnell Landfill EPL other limits for Resource Recovery Waste Storage												
S15-My14517	-	-	-	-	-	-	-	-	-	-	-	-
S15-My14519	-	-	-	-	-	-	-	-	-	-	-	-
S15-My14521	-	-	-	-	-	-	-	-	-	-	-	-
S15-My14522	-	-	-	-	-	-	-	-	-	-	-	-
S15-My14525	-	-	-	-	-	-	-	-	-	-	-	-
S15-My14526	-	-	-	-	-	-	-	-	-	-	-	-
S15-My14528	-	-	-	-	-	-	-	-	-	-	-	-
S15-My14529	-	-	-	-	-	-	-	-	-	-	-	-
S15-My14531	-	-	-	-	-	-	-	-	-	-	-	-
S15-My14538	-	-	-	-	-	-	-	-	-	-	-	-
S15-My14532	-	-	-	-	-	-	-	-	-	-	-	-
S15-My14533	-	-	-	-	-	-	-	-	-	-	-	-
S15-My14534	-	-	-	-	-	-	-	-	-	-	-	-
S15-My14539	-	-	-	-	-	-	-	-	-	-	-	-
S15-My14540	-	-	-	-	-	-	-	-	-	-	-	-
S15-My26640	-	-	-	-	-	-	-	-	-	-	-	-
S15-My26641	-	-	-	-	-	-	-	-	-	-	-	-
S15-My26642	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5

	Dibromomethane	Dichloromethane	Iodomethane	Trichloroethene	Tetrachloroethene	trans-1,2-dichloroethene	trans-1,3-dichloropropene	Trichlorofluoromethane	Vinyl chloride	Chlorinated hydrocarbons EPAVic	Other chlorinated hydrocarbons EPAVic
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5		
NSW 2008 General Solid Waste (CT1 - No Leaching)											
NSW 2008 Restricted Solid Waste (CT2 - No Leaching)											
Kurnell Landfill EPL other limits for Resource Recovery Waste Storage											
S15-My14517	-	-	-	-	-	-	-	-	-	-	-
S15-My14519	-	-	-	-	-	-	-	-	-	-	-
S15-My14521	-	-	-	-	-	-	-	-	-	-	-
S15-My14522	-	-	-	-	-	-	-	-	-	-	-
S15-My14525	-	-	-	-	-	-	-	-	-	-	-
S15-My14526	-	-	-	-	-	-	-	-	-	-	-
S15-My14528	-	-	-	-	-	-	-	-	-	-	-
S15-My14529	-	-	-	-	-	-	-	-	-	-	-
S15-My14531	-	-	-	-	-	-	-	-	-	-	-
S15-My14538	-	-	-	-	-	-	-	-	-	-	-
S15-My14532	-	-	-	-	-	-	-	-	-	-	-
S15-My14533	-	-	-	-	-	-	-	-	-	-	-
S15-My14534	-	-	-	-	-	-	-	-	-	-	-
S15-My14539	-	-	-	-	-	-	-	-	-	-	-
S15-My14540	-	-	-	-	-	-	-	-	-	-	-
S15-My26640	-	-	-	-	-	-	-	-	-	-	-
S15-My26641	-	-	-	-	-	-	-	-	-	-	-
S15-My26642	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<7	<6.5

Notes:

NSW 2008 General Solid Waste (CT1 - No Leaching)
NSW 2008 Restricted Solid Waste (CT2 - No Leaching)
Kurnell Landfill EPL other limits for Resource Recovery W

Table 4
Soil Leachability Analytical Results
Waste Classification Criteria

					Lead				Benzo(a)pyrene			
					mg/L	mg/kg	mg/L	mg/kg	mg/L	mg/kg	mg/L	mg/kg
EQL					0.01	5	0.01	5	0.001	0.5	0.001	0.5
NSW 2008 General Solid Waste (SCC1 & TCLP1 - Leaching)					5	1500			0.04	10		
NSW 2008 Restricted Solid Waste (SCC2 & TCLP2 - Leaching)							20	6000			0.16	23
LocCode	**Sampled_Date-Time**		**SampleCode**	**Field_ID**								
	13/05/2015	BH1_0.5	S15-My14517	MW1_0.5	1	890	1	890	<0.001	0.9	<0.001	0.9
	13/05/2015	BH1_2.0	S15-My14519	MW1_2.0	0.11	250	0.11	250	<0.001	2.1	<0.001	2.1
	13/05/2015	BH2B_1.0	S15-My14522	MW2_1.0	-	81	-	81	<0.001	1.6	<0.001	1.6
	13/05/2015	BH4_0.5	S15-My14528	MW4_0.5	0.08	180	0.08	180	<0.001	6.2	<0.001	6.2
	13/05/2015	BH4_1.0	S15-My14529	MW4_1.0	-	100	-	100	<0.001	2.1	<0.001	2.1
	13/05/2015	BH6_0.1	S15-My14531	HA5_0.1	0.02	130	0.02	130	-	<0.5	-	<0.5
	13/05/2015	BH7_0.5	S15-My14533	HA6_0.5	0.05	120	0.05	120	<0.001	1.7	<0.001	1.7
	13/05/2015	BH8_0.1	S15-My14534	HA7_0.1	0.14	370	0.14	370	<0.001	1	<0.001	1
	13/05/2015	BH9_0.2	S15-My14540	HA8_0.2	-	97	-	97	<0.001	1	<0.001	1
	14/05/2015	BH6_0.3	S15-My14538	HA5_0.3	0.06	120	0.06	120	<0.001	1.3	<0.001	1.3
	14/05/2015	BH8_0.3	S15-My14539	HA7_0.3	0.18	650	0.18	650	<0.001	2.7	<0.001	2.7
	29/05/2015	BH10_1.0	S15-My26640		0.03	160	0.03	160	-	-	-	-

NSW 2008 General Solid Waste (SCC1 & TCLP1 - Leaching)
NSW 2008 Restricted Solid Waste (SCC2 & TCLP2 - Leaching)

Table 5
Soil Analytical Results
UCL95% Waste Classification Criteria

LocCode	Sampled_Date	SampleCode	Map ID	Type	Field_ID	Lead	Benzo(a)pyrene
						mg/kg	mg/kg
EQL						5	0.5
NSW 2008 General Solid Waste (CT1 - No Leaching)						100	0.8
NSW 2008 Restricted Solid Waste (CT2 - No Leaching)						400	3.2
	13/05/2015	S15-My14517	BH1_0.5	brown	MW1_0.5	890	0.9
	13/05/2015	S15-My14519	BH1_2.0	grey	MW1_2.0	250	2.1
	13/05/2015	S15-My14521	BH2B_0.5	brown	MW2_0.5	22	0.25
	13/05/2015	S15-My14522	BH2B_1.0	grey	MW2_1.0	81	1.6
	13/05/2015	S15-My14525	BH3A_0.5	brown	MW3_0.5	9	0.25
	13/05/2015	S15-My14526	BH3A_1.0	grey	MW3_1.0	17	0.25
	13/05/2015	S15-My14528	BH4_0.5	grey	MW4_0.5	180	6.2
	13/05/2015	S15-My14529	BH4_1.0	brown	MW4_1.0	100	2.1
	13/05/2015	S15-My14531	BH6_0.1	brown	HA5_0.1	130	0.25
	14/05/2015	S15-My14538	BH6_0.3	brown	HA5_0.3	120	1..3
	13/05/2015	S15-My14532	BH7_0.2	brown	HA6_0.2	63	0.25
	13/05/2015	S15-My14533	BH7_0.5	brown	HA6_0.5	120	1.7
	13/05/2015	S15-My14534	BH8_0.1	brown	HA7_0.1	370	1
	14/05/2015	S15-My14539	BH8_0.3	brown	HA7_0.3	650	2.7
	13/05/2015	S15-My14540	BH9_0.2	grey / brown	HA8_0.2	97	1
	29/05/2015	S15-My26640	BH10_1.0	brown	BH10_1.0	160	0.8
	29/05/2015	S15-My26641	BH10_2.0	brown	BH10_2.0	90	0.8

Note:

Samples classified as CT1 based on 95% UCL for both lead and benzo(a)pyrene
(95%ucl lead = 92.8mg/kg and 95%ucl benzo(a)pyrene = 0.65mg/kg)

Table 6
Groundwater Gauging and Water Quality Parameters

Well ID	Date Measured	Time Measured	Event	Depth to Water* (mbtoc)	Total well Depth* (mbtoc)	Dissolved Oxygen (mg/L)	Electrical Conductivity (uS/cm)	pH	Redox Potential (mV)	Temperature (oC)	Total Dissolved Solids (TDS)** (mg/L)	Purge Volume (L)	Comments
MW1	15/05/2015	AM	Pre sampling	2.495	4.29	3.25	865	6.27	49	22.2	562	7	Well running dry after 7 L, cloudy brown water, no sheen, no odour.
MW2	15/05/2015	AM	Pre sampling	2.897	4.77	0.3	101	6.35	30	23.5	66	2.5	Well running dry after 2.5 L, cloudy brown water, no sheen, no odour.
MW3	15/05/2015	AM	Pre sampling	2.660	3.5	0.77	883	6.15	31	22.9	574	2	Well running dry after 2 L, cloudy brown water, no sheen, no odour.
MW4	1/06/2015	AM	Pre sampling	2.290	2.970	Not enough water purged to records field parameters						2	Well running dry after 2 L, cloudy brown water, no sheen, no odour.

Notes:

* : mbtoc : m below top of casing. Because wells were installed with a flush gatic, the water level in mbtoc is approximately 0.05 m below ground surface (mbgs).

** : TDS calculated from EC using formula EC(uS/cm) x 0.650 = TDS (mg/L)

				Amino Aliphatics		Amino Aromatics		Anilines			BTEX						
				N-nitrosodi-n-butylamine	N-nitrosodi-n-propylamine	2-naphthylamine	Diphenylamine	2-nitroaniline	3-nitroaniline	Aniline	Benzene	Ethylbenzene	Toluene	Naphthalene	Xylene (m & p)	Xylene (o)	Xylene Total
				µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL				2	2	2	2	4	4	2	1	1	1	1	2	1	3
NEPM 2013 GILs, Drinking Water(B)											1	300	800				600
NEPM 2013 GILs, Fresh Waters(A)										8	950			16		350	
NEPM 2013 GILs, Marine Waters(A)											500			50			
NEPM 2013 Residential GW HSL A/B Vapour Intrusion, 2m to <4m, Sand											800						
Field_ID	**WellCode**	**Sampled_Date-Ti**	**SampleCode**														
MW1		14/05/2015	S15-My14400	<2	<2	<2	<2	<4	<2	<2	<1	<1	<1	<1	<2	<1	<3
MW2		14/05/2015	S15-My14401	<2	<2	<2	<2	<4	<2	<2	<1	<1	<1	<1	<2	<1	<3
MW3		14/05/2015	S15-My14402	<2	<2	<2	<2	<4	<2	<2	<1	<1	<1	<1	<2	<1	<3
MW4		2/06/2015	S15-Jn01430	-	-	-	-	-	-	-	<1	<1	<1	<1	<2	<1	<3

	TRH											Chlorinated Hydrocarbons		Explosives	Halogenated Benzenes	MAH			
	TRH C6-C10 less BTEX (F1)	TRH >C10-C16 less Naphthalene (F2)	TRH C6 - C10	TPH >C10 - C16	TRH >C16 - C34	TRH >C34 - C40	TRH C6 - C9	TRH C10 - C14	TRH C15 - C28	TRH C29 - C36	TRH C10 - C36 (Sum of total)	Hexachlorocyclopentadiene	Hexachloroethane	Nitrobenzene	Pentachlorobenzene	1,2,4-trimethylbenzene	1,3,5-trimethylbenzene	Isopropylbenzene	Styrene
	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL	0.02	0.05	0.02	0.05	0.1	0.1	20	50	100	100	100	4	2	2	2	1	1	1	1
NEPM 2013 GILs, Drinking Water(B)																			30
NEPM 2013 GILs, Fresh Waters(A)													290						
NEPM 2013 GILs, Marine Waters(A)																			
NEPM 2013 Residential GW HSL A/B Vapour Intrusion, 2m to <4m, Sand	1	1																	
Field_ID																			
MW1	<0.02	<0.05	<0.02	<0.05	<0.1	<0.1	<20	<50	<100	<100	<100	<4	<2	<2	<2	<1	<1	<1	<1
MW2	<0.02	<0.05	<0.02	<0.05	<0.1	<0.1	<20	<50	<100	<100	<100	<4	<2	<2	<2	<1	<1	<1	<1
MW3	<0.02	<0.05	<0.02	<0.05	1.5	0.4	<20	<50	700	900	1600	<4	<2	<2	<2	<1	<1	<1	<1
MW4	0.54	<0.05	0.54	<0.05	<0.1	<0.1	540	<50	<100	<100	<100	-	-	-	-	-	-	-	-

	Metals								Nitroaromatics		OCP												
	Arsenic	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Zinc	4-aminobiphenyl	Pentachloronitrobenzene	4,4-DDE	Aldrin	d-BHC	DDD	DDT	Dieldrin	Endosulfan sulphate	Endrin	Endrin aldehyde	Endrin ketone	g-BHC (Lindane)	Heptachlor	Heptachlor epoxide
	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL	0.005	0.0005	0.005	0.005	0.005	0.0001	0.005	0.005	2	2	2	2	2	2	4	2	2	2	2	2	2	2	2
NEPM 2013 GILs, Drinking Water(B)	0.01	0.002		2	0.01	0.001	0.02			30					9						10		0.3
NEPM 2013 GILs, Fresh Waters(A)		0.0002		0.0014	0.0034	0.00006	0.011	0.008							0.006			0.01			0.2	0.01	
NEPM 2013 GILs, Marine Waters(A)		0.0007		0.0013	0.0044	0.0001	0.007	0.015										0.004					
NEPM 2013 Residential GW HSL A/B Vapour Intrusion, 2m to <4m, Sand																							
Field_ID																							
MW1	<0.005	<0.0005	<0.005	<0.005	<0.005	<0.0001	<0.005	0.041	<2	<2	<2	<2	<2	<2	<4	<2	<2	<2	<2	<2	<2	<2	<2
MW2	0.011	<0.0005	0.041	0.07	0.15	<0.0001	0.014	0.12	<2	<2	<2	<2	<2	<2	<4	<2	<2	<2	<2	<2	<2	<2	<2
MW3	<0.005	<0.0005	0.006	<0.005	0.017	<0.0001	<0.005	0.064	<2	<2	<2	<2	<2	<2	<4	<2	<2	<2	<2	<2	<2	<2	<2
MW4	0.003	0.0001	0.002	0.004	<0.001	<0.0001	0.001	0.016	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Notes

- NEPM 2013 GILs, Drinking Water(B)
- NEPM 2013 GILs, Fresh Waters(A)
- NEPM 2013 GILs, Marine Waters(A)
- NEPM 2013 Residential GW HSL A/B Vapour Intrusion, 2m to <4m, Sand

Field_ID	WellCode	Sampled_Date-Ti	SampleCode			OPP																						
				Hexachlorobenzene	Methoxychlor	Azinophos methyl	Chlorpyrifos	Coumaphos	Demeton-O	Demeton-S	Diazinon	Dichlorvos	Dimethoate	Disulfoton	Ethoprop	Fenitrothion	Fensulfothion	Fenthion	Malathion	Methyl parathion	Mevinphos (Phosdrin)	Monocrotophos	Parathion	Phorate	Prothiofos	Ronnel	Stirophos	Trichloronate
				µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL				2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	20	2	2	2	2	2	2
NEPM 2013 GILs, Drinking Water(B)						30	10				4	5	7	4	1	7		7	70	0.7	6		20					
NEPM 2013 GILs, Fresh Waters(A)							0.01				0.01		0.15			0.2			0.05				0.004					
NEPM 2013 GILs, Marine Waters(A)							0.009																					
NEPM 2013 Residential GW HSL A/B Vapour Intrusion, 2m to <4m, Sand																												
MW1		14/05/2015	S15-My14400	<2	<1	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<20	<2	<2	<2	<2	<2	<2
MW2		14/05/2015	S15-My14401	<2	<1	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<20	<2	<2	<2	<2	<2	<2
MW3		14/05/2015	S15-My14402	<2	<1	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<20	<2	<2	<2	<2	<2	<2
MW4		2/06/2015	S15-Jn01430	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Field_ID	WellCode	Sampled_Date-Ti	SampleCode	PAH																			
				2-chloronaphthalene	2-methylnaphthalene	3-methylcholanthrene	Acenaphthene	Acenaphthylene	Acetophenone	Anthracene	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Chrysene	Benzo[b+j]fluoranthene	Dibenz(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-c,d)pyrene	Phenanthrene	Pyrene	Total PAHs
				µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	mg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL				2	2	2	1	1	2	1	1	1	1	1	1	0.001	1	1	1	1	1	1	1
NEPM 2013 GILs, Drinking Water(B)												0.01											
NEPM 2013 GILs, Fresh Waters(A)																							
NEPM 2013 GILs, Marine Waters(A)																							
NEPM 2013 Residential GW HSL A/B Vapour Intrusion, 2m to <4m, Sand																							
MW1		14/05/2015	S15-My14400	<2	<2	<2	<1	<1	<2	<1	<1	<1	<1	<1	<1	<0.001	<1	<1	<1	<1	<1	<1	<1
MW2		14/05/2015	S15-My14401	<2	<2	<2	<1	<1	<2	<1	<1	<1	<1	<1	<1	<0.001	<1	<1	<1	<1	<1	<1	<1
MW3		14/05/2015	S15-My14402	<2	<2	<2	<1	<1	<2	<1	<1	<1	<1	<1	<1	<0.001	<1	10	<1	<1	<1	10	20
MW4		2/06/2015	S15-Jn01430	-	-	-	<1	<1	-	<1	<1	<1	<1	<1	<1	<0.001	<1	<1	<1	<1	<1	<1	<1

Field_ID	WellCode	Sampled_Date-Ti	SampleCode	Pesticides	Phenol								Phthalates				
				Profenofos	2-chlorophenol	2-methylphenol	2-nitrophenol	3-&4-methylphenol	4-chloro-3-methylphenol	4-nitrophenol	Pentachlorophenol	Phenol	Bis(2-ethylhexyl) phthalate	Butyl benzyl phthalate	Diethylphthalate	Dimethyl phthalate	Di-n-butyl phthalate
				µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL				2	2	2	2	4	2	2	10	2	20	2	2	2	2
NEPM 2013 GILs, Drinking Water(B)				0.3	300						10		10				
NEPM 2013 GILs, Fresh Waters(A)					340						3.6	320			1000	3700	10
NEPM 2013 GILs, Marine Waters(A)											11	400					
NEPM 2013 Residential GW HSL A/B Vapour Intrusion, 2m to <4m, Sand																	
MW1		14/05/2015	S15-My14400	<2	<2	<2	<2	<4	<2	<2	<10	<2	<20	<2	<2	<2	<2
MW2		14/05/2015	S15-My14401	<2	<2	<2	<2	<4	<2	<2	<10	<2	<20	<2	<2	<2	<2
MW3		14/05/2015	S15-My14402	<2	<2	<2	<2	<4	<2	<2	<10	<2	<20	<2	<2	<2	<2
MW4		2/06/2015	S15-Jn01430	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Notes

NEPM 2013 GILs, Drinking Water(B)
NEPM 2013 GILs, Fresh Waters(A)
NEPM 2013 GILs, Marine Waters(A)
NEPM 2013 Residential GW HSL A/B Vap

Table 7
Groundwater Analytical Results
Beneficial Uses Criteria

Field_ID	WellCode	Sampled_Date-Tir	SampleCode	Di-n-octyl phthalate	Solvents: Methyl Ethyl Ketone	Solvents: 4-Methyl-2-pentanone	Solvents: Carbon disulfide	SVOCs: 4-bromophenyl phenyl ether	SVOCs: 4-chlorophenyl phenyl ether	SVOCs: Bis(2-chloroethoxy) methane	SVOCs: Bis(2-chloroethyl)ether	SVOCs: Carbazole	SVOCs: Dibenzofuran	SVOCs: N-nitrosopiperidine
				µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL				2	1	1	1	2	2	2	2	2	2	2
NEPM 2013 GILs, Drinking Water(B)														
NEPM 2013 GILs, Fresh Waters(A)														
NEPM 2013 GILs, Marine Waters(A)														
NEPM 2013 Residential GW HSL A/B Vapour Intrusion, 2m to <4m, Sand														
MW1		14/05/2015	S15-My14400	<2	<1	<1	<1	<2	<2	<2	<2	<2	<2	<2
MW2		14/05/2015	S15-My14401	<2	<1	<1	<1	<2	<2	<2	<2	<2	<2	<2
MW3		14/05/2015	S15-My14402	<2	<1	<1	<1	<2	<2	<2	<2	<2	<2	<2
MW4		2/06/2015	S15-Jn01430	-	-	-	-	-	-	-	-	-	-	-

VHC (continued)

Field_ID	1,1,1,2-tetrachloroethane	1,1,1-trichloroethane	1,1,2,2-tetrachloroethane	1,1,2-trichloroethane	1,1-dichloroethane	1,1-dichloroethene	1,2,3-trichloropropane	1,2-dibromoethane	1,2-dichlorobenzene	1,2-dichloroethane	1,2-dichloropropane	1,3-dichlorobenzene	1,3-dichloropropane	1,4-dichlorobenzene	4-chlorotoluene	Bromobenzene	Bromochloromethane	Bromodichloromethane	Bromoform	Bromomethane
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL	1	1	5	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
NEPM 2013 GILs, Drinking Water(B)						30			1500	3				40						1
NEPM 2013 GILs, Fresh Waters(A)				6500					160			260		60						
NEPM 2013 GILs, Marine Waters(A)				1900																
NEPM 2013 Residential GW HSL A/B Vapour Intrusion, 2m to <4m, Sand																				
MW1	<1	<1	<5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
MW2	<1	<1	<5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
MW3	<1	<1	<5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
MW4	<1	<1	<5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	-	-	-	<1	<1	<1

Field_ID	Carbon tetrachloride	Chlorobenzene	Chlorodibromomethane	Chloroethane	Chloroform	Chloromethane	cis-1,2-dichloroethene	cis-1,3-dichloropropene	Dibromomethane	Dichlorodifluoromethane	Dichloromethane	Hexachlorobutadiene	Iodomethane	Trichloroethene	Tetrachloroethene	trans-1,2-dichloroethene	trans-1,3-dichloropropene	Trichlorofluoromethane	Vinyl chloride
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL	1	1	1	1	5	1	1	1	5	1	1	2	1	1	1	1	1	1	1
NEPM 2013 GILs, Drinking Water(B)	3	300			3						4	0.7			50				0.3
NEPM 2013 GILs, Fresh Waters(A)																			
NEPM 2013 GILs, Marine Waters(A)																			
NEPM 2013 Residential GW HSL A/B Vapour Intrusion, 2m to <4m, Sand																			
MW1	<1	<1	<1	<1	<5	<1	<1	<1	<5	<1	<1	<2	<1	<1	2	<1	<1	<1	<1
MW2	<1	<1	<1	<1	<5	<1	<1	<1	<5	<1	<1	<2	<1	<1	<1	<1	<1	<1	<1
MW3	<1	<1	<1	<1	<5	<1	<1	<1	<5	<1	<1	<2	<1	<1	1	<1	<1	<1	<1
MW4	<1	<1	<1	-	<5	<1	63	<1	<5	-	<1	-	<1	89	290	<1	<1	<1	<1

Notes

NEPM 2013 GILs, Drinking Water(B)
NEPM 2013 GILs, Fresh Waters(A)
NEPM 2013 GILs, Marine Waters(A)
NEPM 2013 Residential GW HSL A/B Vap

Field Duplicates (WATER)
Filter: SDG in('851','801','3/06/2015','353','7662','26/05/2015','0351-52')

			SDG	7662	7662		851	Interlab_D	
			Field ID	MW2	DUP01	**RPD**	BH10/MW4	QC8	**RPD**
			Sampled Date/Time	14/05/2015	14/05/2015		2/06/2015	2/06/2015	
Chem_Group	**ChemName**	**Units**	**EQL**						
Amino Aliphatics	N-nitrosodi-n-butylamine	µg/l	2	<2.0	<2.0	0			
	N-nitrosodi-n-propylamine	µg/l	2	<2.0	<2.0	0			
Amino Aromatics	2-naphthylamine	µg/l	2	<2.0	<2.0	0			
	Diphenylamine	µg/l	2	<2.0	<2.0	0			
Anilines	2-nitroaniline	µg/l	4	<4.0	<4.0	0			
	3-nitroaniline	µg/l	4	<2.0	<2.0	0			
	Aniline	µg/l	2	<2.0	<2.0	0			
BTEX	Benzene	µg/l	1	<1.0	<1.0	0	<1.0	1.0	0
	Ethylbenzene	µg/l	1 (Primary): 2 (Interlab)	<1.0	<1.0	0	<1.0	<2.0	0
	Toluene	µg/l	1 (Primary): 2 (Interlab)	<1.0	<1.0	0	<1.0	<2.0	0
	Naphthalene	µg/l	20 (Primary): 5 (Interlab)	<20.0	<20.0	0	<20.0	<1.0	0
	Naphthalene	µg/l	1 (Primary): 5 (Interlab)	<1.0	<1.0	0	<1.0	<1.0	0
	Xylene (m & p)	µg/l	2	<2.0	<2.0	0	<2.0	<2.0	0
	Xylene (o)	µg/l	1 (Primary): 2 (Interlab)	<1.0	<1.0	0	<1.0	<2.0	0
	Xylene Total	µg/l	3 (Primary): 2 (Interlab)	<3.0	<3.0	0	<3.0	<2.0	0
TRH	TRH C6-C10 less BTEX (F1)	mg/l	0.02	<0.02	<0.02	0	**0.54**	**0.37**	**37**
	TRH >C10-C16 less Naphthalene (F2)	mg/l	0.05 (Primary): 0.1 (Interlab)	<0.05	<0.05	0	<0.05	<0.1	0
	TRH C6 - C10	mg/l	0.02	<0.02	<0.02	0	**0.54**	**0.37**	**37**
	TPH >C10 - C16	mg/l	0.05 (Primary): 0.1 (Interlab)	<0.05	<0.05	0	<0.05	<0.1	0
	TRH >C16 - C34	mg/l	0.1	<0.1	<0.1	0	<0.1	<0.1	0
	TRH >C34 - C40	mg/l	0.1	<0.1	<0.1	0	<0.1	<0.1	0
	TRH C6 - C9	µg/l	20	<20.0	<20.0	0	**540.0**	**370.0**	**37**
	TRH C10 - C14	µg/l	50	<50.0	<50.0	0	<50.0	<50.0	0
	TRH C15 - C28	µg/l	100	<100.0	<100.0	0	<100.0	<100.0	0
	TRH C29 - C36	µg/l	100 (Primary): 50 (Interlab)	<100.0	<100.0	0	<100.0	<50.0	0
	TRH C10 - C36 (Sum of total)	µg/l	100 (Primary): 50 (Interlab)	<100.0	<100.0	0	<100.0	<50.0	0
Chlorinated Hydrocarbons	Hexachlorocyclopentadiene	µg/l	4	<4.0	<4.0	0			
	Hexachloroethane	µg/l	2	<2.0	<2.0	0			
Explosives	Nitrobenzene	µg/l	2	<2.0	<2.0	0			
Halogenated Benzenes	Pentachlorobenzene	µg/l	2	<2.0	<2.0	0			
MAH	1,2,4-trimethylbenzene	µg/l	1	<1.0	<1.0	0			
	1,3,5-trimethylbenzene	µg/l	1	<1.0	<1.0	0			
	Isopropylbenzene	µg/l	1	<1.0	<1.0	0			
	Styrene	µg/l	1	<1.0	<1.0	0			
Metals	Arsenic	mg/l	0.005	0.011	0.009	20			
	Cadmium	mg/l	0.0005	<0.0005	<0.0005	0			
	Chromium	mg/l	0.005	0.041	0.032	25			
	Copper	mg/l	0.005	0.07	0.054	26			
	Lead	mg/l	0.005	0.15	0.12	22			
	Mercury	mg/l	0.0001	<0.0001	<0.0001	0			
	Nickel	mg/l	0.005	0.014	0.012	15			
	Zinc	mg/l	0.005	0.12	0.094	24			
Nitroaromatics	4-aminobiphenyl	µg/l	2	<2.0	<2.0	0			
	Pentachloronitrobenzene	µg/l	2	<2.0	<2.0	0			
OCP	4,4-DDE	µg/l	2	<2.0	<2.0	0			
	Aldrin	µg/l	2	<2.0	<2.0	0			
	d-BHC	µg/l	2	<2.0	<2.0	0			
	DDD	µg/l	2	<2.0	<2.0	0			
	DDT	µg/l	4	<4.0	<4.0	0			
	Dieldrin	µg/l	2	<2.0	<2.0	0			
	Endosulfan sulphate	µg/l	2	<2.0	<2.0	0			
	Endrin	µg/l	2	<2.0	<2.0	0			
	Endrin aldehyde	µg/l	2	<2.0	<2.0	0			
	Endrin ketone	µg/l	2	<2.0	<2.0	0			
	g-BHC (Lindane)	µg/l	2	<2.0	<2.0	0			
	Heptachlor	µg/l	2	<2.0	<2.0	0			
	Heptachlor epoxide	µg/l	2	<2.0	<2.0	0			
	Hexachlorobenzene	µg/l	2	<2.0	<2.0	0			
	Methoxychlor	µg/l	1	<1.0	<1.0	0			
OPP	Azinophos methyl	µg/l	2	<2.0	<2.0	0			
	Chlorpyrifos	µg/l	2	<2.0	<2.0	0			
	Coumaphos	µg/l	2	<2.0	<2.0	0			
	Demeton-O	µg/l	2	<2.0	<2.0	0			
	Demeton-S	µg/l	2	<2.0	<2.0	0			
	Diazinon	µg/l	2	<2.0	<2.0	0			
	Dichlorvos	µg/l	2	<2.0	<2.0	0			
	Dimethoate	µg/l	2	<2.0	<2.0	0			
	Disulfoton	µg/l	2	<2.0	<2.0	0			
	Ethoprop	µg/l	2	<2.0	<2.0	0			
	Fenitrothion	µg/l	2	<2.0	<2.0	0			
	Fensulfothion	µg/l	2	<2.0	<2.0	0			
	Fenthion	µg/l	2	<2.0	<2.0	0			
	Malathion	µg/l	2	<2.0	<2.0	0			
	Methyl parathion	µg/l	2	<2.0	<2.0	0			
	Mevinphos (Phosdrin)	µg/l	2	<2.0	<2.0	0			
	Monocrotophos	µg/l	20	<20.0	<20.0	0			
	Parathion	µg/l	2	<2.0	<2.0	0			
	Phorate	µg/l	2	<2.0	<2.0	0			
	Prothiofos	µg/l	2	<2.0	<2.0	0			
	Ronnel	µg/l	2	<2.0	<2.0	0			
	Stirophos	µg/l	2	<2.0	<2.0	0			
	Trichloronate	µg/l	2	<2.0	<2.0	0			
PAH	2-chloronaphthalene	µg/l	2	<2.0	<2.0	0			
	2-methylnaphthalene	µg/l	2	<2.0	<2.0	0			
	3-methylcholanthrene	µg/l	2	<2.0	<2.0	0			
	Acenaphthene	µg/l	1	<1.0	<1.0	0	<1.0	<1.0	0
	Acenaphthylene	µg/l	1	<1.0	<1.0	0	<1.0	<1.0	0
	Acetophenone	µg/l	2	<2.0	<2.0	0			
	Anthracene	µg/l	1	<1.0	<1.0	0	<1.0	<1.0	0
	Benzo(a)anthracene	µg/l	1	<1.0	<1.0	0	<1.0	<1.0	0
	Benzo(a)pyrene	µg/l	1 (Primary): 0.5 (Interlab)	<1.0	<1.0	0	<1.0	<0.5	0
	Benzo(g,h,i)perylene	µg/l	1	<1.0	<1.0	0	<1.0	<1.0	0
	Benzo(k)fluoranthene	µg/l	1	<1.0	<1.0	0	<1.0	<1.0	0
	Chrysene	µg/l	1	<1.0	<1.0	0	<1.0	<1.0	0
	Benzo[b+j]fluoranthene	mg/l	0.001	<0.001	<0.001	0	<0.001	<0.001	0
	Dibenz(a,h)anthracene	µg/l	1	<1.0	<1.0	0	<1.0	<1.0	0
	Fluoranthene	µg/l	1	<1.0	<1.0	0	<1.0	<1.0	0
	Fluorene	µg/l	1	<1.0	<1.0	0	<1.0	<1.0	0

Field Duplicates (WATER)
Filter: SDG in('851','801','3/06/2015','353','7662','26/05/2015','0351-52')

			SDG	7662	7662		851	Interlab_D	
			Field ID	MW2	DUP01	**RPD**	BH10/MW4	QC8	**RPD**
			Sampled Date/Time	14/05/2015	14/05/2015		2/06/2015	2/06/2015	
Chem_Group	**ChemName**	**Units**	**EQL**						
	Indeno(1,2,3-c,d)pyrene	µg/l	1	<1.0	<1.0	0	<1.0	<1.0	0
	Phenanthrene	µg/l	1	<1.0	<1.0	0	<1.0	<1.0	0
	Pyrene	µg/l	1	<1.0	<1.0	0	<1.0	<1.0	0
	Total PAHs	µg/l	1	<1.0	<1.0	0			
Pesticides	Profenofos	µg/l	2	<2.0	<2.0	0			
Phenol	2-chlorophenol	µg/l	2	<2.0	<2.0	0			
	2-methylphenol	µg/l	2	<2.0	<2.0	0			
	2-nitrophenol	µg/l	2	<2.0	<2.0	0			
	3-&4-methylphenol	µg/l	4	<4.0	<4.0	0			
	4-chloro-3-methylphenol	µg/l	2	<2.0	<2.0	0			
	4-nitrophenol	µg/l	2	<2.0	<2.0	0			
	Pentachlorophenol	µg/l	10	<10.0	<10.0	0			
	Phenol	µg/l	2	<2.0	<2.0	0			
Phthalates	Bis(2-ethylhexyl) phthalate	µg/l	20	<20.0	<20.0	0			
	Butyl benzyl phthalate	µg/l	2	<2.0	<2.0	0			
	Diethylphthalate	µg/l	2	<2.0	<2.0	0			
	Dimethyl phthalate	µg/l	2	<2.0	<2.0	0			
	Di-n-butyl phthalate	µg/l	2	<2.0	<2.0	0			
	Di-n-octyl phthalate	µg/l	2	<2.0	<2.0	0			
Solvents	Methyl Ethyl Ketone	µg/l	1	<1.0	<1.0	0			
	4-Methyl-2-pentanone	µg/l	1	<1.0	<1.0	0			
	Carbon disulfide	µg/l	1	<1.0	<1.0	0			
SVOCs	4-bromophenyl phenyl ether	µg/l	2	<2.0	<2.0	0			
	4-chlorophenyl phenyl ether	µg/l	2	<2.0	<2.0	0			
	Bis(2-chloroethoxy) methane	µg/l	2	<2.0	<2.0	0			
	Bis(2-chloroethyl)ether	µg/l	2	<2.0	<2.0	0			
	Carbazole	µg/l	2	<2.0	<2.0	0			
	Dibenzofuran	µg/l	2	<2.0	<2.0	0			
	N-nitrosopiperidine	µg/l	2	<2.0	<2.0	0			
VHC	1,1,1,2-tetrachloroethane	µg/l	1 (Primary): 5 (Interlab)				<1.0	<5.0	0
	1,1,1,2-tetrachloroethane	µg/l	1	<1.0	<1.0	0			
	1,1,1-trichloroethane	µg/l	1 (Primary): 5 (Interlab)				<1.0	<5.0	0
	1,1,1-trichloroethane	µg/l	1	<1.0	<1.0	0			
	1,1,2,2-tetrachloroethane	µg/l	5	<5.0	<5.0	0	<5.0	<5.0	0
	1,1,2-trichloroethane	µg/l	1	<1.0	<1.0	0			
	1,1,2-trichloroethane	µg/l	1 (Primary): 5 (Interlab)				<1.0	<5.0	0
	1,1-dichloroethane	µg/l	1 (Primary): 5 (Interlab)				<1.0	<5.0	0
	1,1-dichloroethane	µg/l	1	<1.0	<1.0	0			
	1,1-dichloroethene	µg/l	1 (Primary): 5 (Interlab)				<1.0	<5.0	0
	1,1-dichloroethene	µg/l	1	<1.0	<1.0	0			
	1,2,3-trichloropropane	µg/l	1 (Primary): 5 (Interlab)				<1.0	<5.0	0
	1,2,3-trichloropropane	µg/l	1	<1.0	<1.0	0			
	1,2-dibromoethane	µg/l	1 (Primary): 5 (Interlab)				<1.0	<5.0	0
	1,2-dibromoethane	µg/l	1	<1.0	<1.0	0			
	1,2-dichlorobenzene	µg/l	1 (Primary): 5 (Interlab)				<1.0	<5.0	0
	1,2-dichlorobenzene	µg/l	1	<1.0	<1.0	0			
	1,2-dichloroethane	µg/l	1 (Primary): 5 (Interlab)				<1.0	<5.0	0
	1,2-dichloroethane	µg/l	1	<1.0	<1.0	0			
	1,2-dichloropropane	µg/l	1 (Primary): 5 (Interlab)				<1.0	<5.0	0
	1,2-dichloropropane	µg/l	1	<1.0	<1.0	0			
	1,3-dichlorobenzene	µg/l	1 (Primary): 5 (Interlab)				<1.0	<5.0	0
	1,3-dichlorobenzene	µg/l	1	<1.0	<1.0	0			
	1,3-dichloropropane	µg/l	1 (Primary): 5 (Interlab)				<1.0	<5.0	0
	1,3-dichloropropane	µg/l	1	<1.0	<1.0	0			
	1,4-dichlorobenzene	µg/l	1 (Primary): 5 (Interlab)				<1.0	<5.0	0
	1,4-dichlorobenzene	µg/l	1	<1.0	<1.0	0			
	4-chlorotoluene	µg/l	1	<1.0	<1.0	0			
	Bromobenzene	µg/l	1	<1.0	<1.0	0			
	Bromochloromethane	µg/l	1	<1.0	<1.0	0			
	Bromodichloromethane	µg/l	1	<1.0	<1.0	0			
	Bromodichloromethane	µg/l	1 (Primary): 5 (Interlab)				<1.0	<5.0	0
	Bromoform	µg/l	1 (Primary): 5 (Interlab)				<1.0	<5.0	0
	Bromoform	µg/l	1	<1.0	<1.0	0			
	Bromomethane	µg/l	1 (Primary): 50 (Interlab)				<1.0	<50.0	0
	Bromomethane	µg/l	1	<1.0	<1.0	0			
	Carbon tetrachloride	µg/l	1 (Primary): 5 (Interlab)				<1.0	<5.0	0
	Carbon tetrachloride	µg/l	1	<1.0	<1.0	0			
	Chlorobenzene	µg/l	1 (Primary): 5 (Interlab)				<1.0	<5.0	0
	Chlorobenzene	µg/l	1	<1.0	<1.0	0			
	Chlorodibromomethane	µg/l	1 (Primary): 5 (Interlab)				<1.0	<5.0	0
	Chlorodibromomethane	µg/l	1	<1.0	<1.0	0			
	Chloroethane	µg/l	1	<1.0	<1.0	0			
	Chloroform	µg/l	5	<5.0	<5.0	0	<5.0	<5.0	0
	Chloromethane	µg/l	1	<1.0	<1.0	0			
	Chloromethane	µg/l	1 (Primary): 50 (Interlab)				<1.0	<50.0	0
	cis-1,2-dichloroethene	µg/l	1 (Primary): 5 (Interlab)				63.0	54.0	15
	cis-1,2-dichloroethene	µg/l	1	<1.0	<1.0	0			
	cis-1,3-dichloropropene	µg/l	1 (Primary): 5 (Interlab)				<1.0	<5.0	0
	cis-1,3-dichloropropene	µg/l	1	<1.0	<1.0	0			
	Dibromomethane	µg/l	5	<5.0	<5.0	0	<5.0	<5.0	0
	Dichlorodifluoromethane	µg/l	1	<1.0	<1.0	0			
	Dichloromethane	µg/l	1	<1.0	<1.0	0			
	Hexachlorobutadiene	µg/l	2	<2.0	<2.0	0			
	Iodomethane	µg/l	1 (Primary): 5 (Interlab)				<1.0	<5.0	0
	Iodomethane	µg/l	1	<1.0	<1.0	0			
	Trichloroethene	µg/l	1	<1.0	<1.0	0			
	Trichloroethene	µg/l	1 (Primary): 5 (Interlab)				89.0	69.0	25
	Tetrachloroethene	µg/l	1 (Primary): 5 (Interlab)				290.0	234.0	21
	Tetrachloroethene	µg/l	1	<1.0	<1.0	0			
	trans-1,2-dichloroethene	µg/l	1 (Primary): 5 (Interlab)				<1.0	<5.0	0
	trans-1,2-dichloroethene	µg/l	1	<1.0	<1.0	0			
	trans-1,3-dichloropropene	µg/l	1 (Primary): 5 (Interlab)				<1.0	<5.0	0
	trans-1,3-dichloropropene	µg/l	1	<1.0	<1.0	0			
	Trichlorofluoromethane	µg/l	1 (Primary): 50 (Interlab)				<1.0	<50.0	0
	Trichlorofluoromethane	µg/l	1	<1.0	<1.0	0			
	Vinyl chloride	µg/l	1	<1.0	<1.0	0			
	Vinyl chloride	µg/l	1 (Primary): 50 (Interlab)				<1.0	<50.0	0

*RPDs have only been considered where a concentration is greater than 0 times the EQL.
**High RPDs are in bold (Acceptable RPDs for each EQL multiplier range are: 200 (0-10 x EQL); 50 (10-20 x EQL); 30 (> 20 x EQL))
***Interlab Duplicates are matched on a per compound basis as methods vary between laboratories. Any methods in the row header relate to those used in the primary laboratory

Table 9
Groundwater Analytical Results
Sydney Water Trade Waste Agreement Limits

Field_ID	WellCode	Sampled_Date-Time	SampleCode	Water quality		Amino Aliphatics		Amino Aromatics		Anilines			BTEX						
				pH	Total Dissolved Solids (TDS)**	N-nitrosodi-n-butylamine	N-nitrosodi-n-propylamine	2-naphthylamine	Diphenylamine	2-nitroaniline	3-nitroaniline	Aniline	Benzene	Toluene	Ethylbenzene	Naphthalene	Xylene (m & p)	Xylene (o)	Xylene Total
						µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL						2	2	2	2	4	4	2	1	1	1	1	2	1	3
TWA				7 - 10	10,000								100	500	1,000				1,000
MW1		14/05/2015	S15-My14400	6.3	562	<2	<2	<2	<2	<4	<2	<2	<1	<1	<1	<1	<2	<1	<3
MW2		14/05/2015	S15-My14401	6.4	66	<2	<2	<2	<2	<4	<2	<2	<1	<1	<1	<1	<2	<1	<3
MW3		14/05/2015	S15-My14402	6.2	574	<2	<2	<2	<2	<4	<2	<2	<1	<1	<1	<1	<2	<1	<3
MW4		2/06/2015	S15-Jn01430	-	-	-	-	-	-	-	-	-	<1	<1	<1	<1	<2	<1	<3

Field_ID	WellCode	Sampled_Date-Time	SampleCode	TRH											Chlorinated Hydrocarbons		Explosives	Halogenated Benzenes
				TRH C6-C10 less BTEX (F1)	TRH >C10-C16 less Naphthalene (F2)	TRH C6 - C10	TPH >C10 - C16	TRH >C16 - C34	TRH >C34 - C40	TRH C6 - C9	TRH C10 - C14	TRH C15 - C28	TRH C29 - C36	TRH C10 - C36 (Sum of total)	Hexachlorocyclopentadiene	Hexachloroethane	Nitrobenzene	Pentachlorobenzene
				mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL				0.02	0.05	0.02	0.05	0.1	0.1	20	50	100	100	100	4	2	2	2
TWA														10,000				
MW1		14/05/2015	S15-My14400	<0.02	<0.05	<0.02	<0.05	<0.1	<0.1	<20	<50	<100	<100	<100	<4	<2	<2	<2
MW2		14/05/2015	S15-My14401	<0.02	<0.05	<0.02	<0.05	<0.1	<0.1	<20	<50	<100	<100	<100	<4	<2	<2	<2
MW3		14/05/2015	S15-My14402	<0.02	<0.05	<0.02	<0.05	1.5	0.4	<20	<50	700	900	1600	<4	<2	<2	<2
MW4		2/06/2015	S15-Jn01430	0.54	<0.05	0.54	<0.05	<0.1	<0.1	540	<50	<100	<100	<100	-	-	-	-

Field_ID	WellCode	Sampled_Date-Time	SampleCode	MAH				Metals								Nitroaromatics		OCP											
				1,2,4-trimethylbenzene	1,3,5-trimethylbenzene	Isopropylbenzene	Styrene	Arsenic	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Zinc	4-aminobiphenyl	Pentachloronitrobenzene	4,4-DDE	Aldrin	d-BHC	DDD	DDT	Dieldrin	Endosulfan sulphate	Endrin	Endrin aldehyde	Endrin ketone	g-BHC (Lindane)	Heptachlor
				µg/L	µg/L	µg/L	µg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL				1	1	1	1	0.005	0.0005	0.005	0.005	0.005	0.0001	0.005	0.005	2	2	2	2	2	2	4	2	2	2	2	2	2	2
TWA								1	1	3	5	2	0.03	3	5			100	100	100	100	100	100	100	100	100	100	100	100
MW1		14/05/2015	S15-My14400	<1	<1	<1	<1	<0.005	<0.0005	<0.005	<0.005	<0.005	<0.0001	<0.005	0.041	<2	<2	<2	<2	<2	<2	<4	<2	<2	<2	<2	<2	<2	<2
MW2		14/05/2015	S15-My14401	<1	<1	<1	<1	0.011	<0.0005	0.041	0.07	0.15	<0.0001	0.014	0.12	<2	<2	<2	<2	<2	<2	<4	<2	<2	<2	<2	<2	<2	<2
MW3		14/05/2015	S15-My14402	<1	<1	<1	<1	<0.005	<0.0005	0.006	<0.005	0.017	<0.0001	<0.005	0.064	<2	<2	<2	<2	<2	<2	<4	<2	<2	<2	<2	<2	<2	<2
MW4		2/06/2015	S15-Jn01430	-	-	-	-	0.003	0.0001	0.002	0.004	<0.001	<0.0001	0.001	0.016	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Notes

Sydney Water, Acceptance standards amd chrging rates for 2012-13

Table 9
Groundwater Analytical Results
Sydney Water Trade Waste Agreement Limits

Field_ID	WellCode	Sampled_Date-Time	SampleCode				OPP																						
				Heptachlor epoxide	Hexachlorobenzene	Methoxychlor	Azinophos methyl	Chlorpyrifos	Coumaphos	Demeton-O	Demeton-S	Diazinon	Dichlorvos	Dimethoate	Disulfoton	Ethoprop	Fenitrothion	Fensulfothion	Fenthion	Malathion	Methyl parathion	Mevinphos (Phosdrin)	Monocrotophos	Parathion	Phorate	Prothiofos	Ronnel	Stirophos	Trichloronate
				µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL				2	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	20	2	2	2	2	2	2
TWA				100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
MW1		14/05/2015	S15-My14400	<2	<2	<1	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<20	<2	<2	<2	<2	<2	<2
MW2		14/05/2015	S15-My14401	<2	<2	<1	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<20	<2	<2	<2	<2	<2	<2
MW3		14/05/2015	S15-My14402	<2	<2	<1	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<20	<2	<2	<2	<2	<2	<2
MW4		2/06/2015	S15-Jn01430	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Field_ID	WellCode	Sampled_Date-Time	SampleCode	PAH																			
				2-chloronaphthalene	2-methylnaphthalene	3-methylcholanthrene	Acenaphthene	Acenaphthylene	Acetophenone	Anthracene	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Chrysene	Benzo[b+j]fluoranthene	Dibenz(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-c,d)pyrene	Phenanthrene	Pyrene	Total PAHs
				µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	mg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL				2	2	2	1	1	2	1	1	1	1	1	1	0.001	1	1	1	1	1	1	1
TWA																							5000
MW1		14/05/2015	S15-My14400	<2	<2	<2	<1	<1	<2	<1	<1	<1	<1	<1	<1	<0.001	<1	<1	<1	<1	<1	<1	<1
MW2		14/05/2015	S15-My14401	<2	<2	<2	<1	<1	<2	<1	<1	<1	<1	<1	<1	<0.001	<1	<1	<1	<1	<1	<1	<1
MW3		14/05/2015	S15-My14402	<2	<2	<2	<1	<1	<2	<1	<1	<1	<1	<1	<1	<0.001	<1	10	<1	<1	<1	10	20
MW4		2/06/2015	S15-Jn01430	-	-	-	<1	<1	-	<1	<1	<1	<1	<1	<1	<0.001	<1	<1	<1	<1	<1	<1	<1

Field_ID	WellCode	Sampled_Date-Time	SampleCode	Pesticides	Phenol								Phthalates					
				Profenofos	2-chlorophenol	2-methylphenol	2-nitrophenol	3-&4-methylphenol	4-chloro-3-methylphenol	4-nitrophenol	Pentachlorophenol	Phenol	Bis(2-ethylhexyl) phthalate	Butyl benzyl phthalate	Diethylphthalate	Dimethyl phthalate	Di-n-butyl phthalate	Di-n-octyl phthalate
				µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL				2	2	2	2	4	2	2	10	2	20	2	2	2	2	2
TWA												1000						
MW1		14/05/2015	S15-My14400	<2	<2	<2	<2	<4	<2	<2	<10	<2	<20	<2	<2	<2	<2	<2
MW2		14/05/2015	S15-My14401	<2	<2	<2	<2	<4	<2	<2	<10	<2	<20	<2	<2	<2	<2	<2
MW3		14/05/2015	S15-My14402	<2	<2	<2	<2	<4	<2	<2	<10	<2	<20	<2	<2	<2	<2	<2
MW4		2/06/2015	S15-Jn01430	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Notes

Sydney Water, Acceptance standards am

Table 9
Groundwater Analytical Results
Sydney Water Trade Waste Agreement Limits

				Solvents			SVOCs						
				Methyl Ethyl Ketone	4-Methyl-2-pentanone	Carbon disulfide	4-bromophenyl phenyl ether	4-chlorophenyl phenyl ether	Bis(2-chloroethoxy) methane	Bis(2-chloroethyl)ether	Carbazole	Dibenzofuran	N-nitrosopiperidine
				µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL				1	1	1	2	2	2	2	2	2	2
TWA													
Field_ID	**WellCode**	**Sampled_Date-Time**	**SampleCode**										
MW1		14/05/2015	S15-My14400	<1	<1	<1	<2	<2	<2	<2	<2	<2	<2
MW2		14/05/2015	S15-My14401	<1	<1	<1	<2	<2	<2	<2	<2	<2	<2
MW3		14/05/2015	S15-My14402	<1	<1	<1	<2	<2	<2	<2	<2	<2	<2
MW4		2/06/2015	S15-Jn01430	-	-	-	-	-	-	-	-	-	-

	VHC															
	1,1,1,2-tetrachloroethane	1,1,1-trichloroethane	1,1,2,2-tetrachloroethane	1,1,2-trichloroethane	1,1-dichloroethane	1,1-dichloroethene	1,2,3-trichloropropane	1,2-dibromoethane	1,2-dichlorobenzene	1,2-dichloroethane	1,2-dichloropropane	1,3-dichlorobenzene	1,3-dichloropropane	1,4-dichlorobenzene	4-chlorotoluene	Bromobenzene
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL	1	1	5	1	1	1	1	1	1	1	1	1	1	1	1	1
TWA																
Field_ID																
MW1	<1	<1	<5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
MW2	<1	<1	<5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
MW3	<1	<1	<5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
MW4	<1	<1	<5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	-	-

	VHC																						
	Bromochloromethane	Bromodichloromethane	Bromoform	Bromomethane	Carbon tetrachloride	Chlorobenzene	Chlorodibromomethane	Chloroethane	Chloroform	Chloromethane	cis-1,2-dichloroethene	cis-1,3-dichloropropene	Dibromomethane	Dichlorodifluoromethane	Dichloromethane	Hexachlorobutadiene	Iodomethane	Trichloroethene	Tetrachloroethene	trans-1,2-dichloroethene	trans-1,3-dichloropropene	Trichlorofluoromethane	Vinyl chloride
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL	1	1	1	1	1	1	1	1	5	1	1	1	5	1	1	2	1	1	1	1	1	1	1
TWA									100									100	300				
Field_ID																							
MW1	<1	<1	<1	<1	<1	<1	<1	<1	<5	<1	<1	<1	<5	<1	<1	<2	<1	<1	2	<1	<1	<1	<1
MW2	<1	<1	<1	<1	<1	<1	<1	<1	<5	<1	<1	<1	<5	<1	<1	<2	<1	<1	<1	<1	<1	<1	<1
MW3	<1	<1	<1	<1	<1	<1	<1	<1	<5	<1	<1	<1	<5	<1	<1	<2	<1	<1	1	<1	<1	<1	<1
MW4	-	<1	<1	<1	<1	<1	<1	-	<5	<1	63	<1	<5	-	<1	-	<1	89	290	<1	<1	<1	<1

Notes

Sydney Water, Acceptance standards am

Table 10
Soil Vapour Analytical Results
Beneficial Uses Criteria

				BTEX						TRH						VHC				
				Benzene	Ethylbenzene	Toluene	Naphthalene	Xylene (m & p)	Xylene (o)	TRH C6-C10 less BTEX (F1)	TRH >C10-C16 less Naphthalene (F2)	TRH C6 - C10	TPH >C10 - C16	TRH C6 - C9	TRH C10 - C14	1,1,1-trichloroethane	cis-1,2-dichloroethene	Trichloroethene	Tetrachloroethene	Vinyl chloride
				mg/m3	mg/m3	mg/m3	mg/m3	mg/m3	mg/m3	mg/m3	mg/m3	mg/m3	mg/m3	mg/m3	mg/m3	mg/m3	mg/m3	mg/m3	mg/m3	mg/m3
EQL				0.1	0.22	0.19	0.1	0.43	0.22	20	40	20	40	20	35	0.27	0.02	0.0054	0.34	0.0051
HSL-A/B, 0 to <1m, sand				1	330	1300	0.8	840		180	130									
HIL-B																60	0.05	0.02	2	0.03
Field_ID	**LocCode**	**WellCode**	**Sampled_Date-Time**																	
SV01	#9680		15/05/2015	<0.1	<0.22	<0.19	<0.1	<0.43	<0.22	<20	<40	<20	<40	<20	<35	<0.27	<0.02	0.0102	8.34	<0.0051
SV02	#9678		15/05/2015	<0.1	<0.22	<0.19	<0.1	<0.43	<0.22	<20	<40	<20	<40	<20	<35	<0.27	<0.02	<0.0054	<0.34	<0.0051

Notes: HSL-B, 0 to <1m, sand (NEPM 2013 Commercial/Ind D Soil Vapour HSL for Vapour Intrusion, 0 to <1m, Sand)
HIL-B (NEPM HIL-B Residential 2013 Soil Vapour)

QA/QC Rinsates and Trip Blanks Water Analytical Results

Field Blanks (WATER)
Filter: SDG in('851','80

			SDG	851	801	851	6/03/2015
			Field ID	QC9	QC6	QC10	QC7
			Sampled_	2/06/2015	29/05/2015	2/06/2015	29/05/2015
			Sample Ty	Rinsate	Rinsate	Trip_B	Trip_B
Chem_Gro	**ChemNam**	**Units**	**EQL**				
BTEX	Benzene	µg/l	1	<1	<1	<1	<1
	Ethylbenze	µg/l	1	<1	<1	<1	<1
	Toluene	µg/L	1	<1	<1	<1	<1
	Naphthaler	µg/L	1	<20	<20		<20
	Xylene (m	µg/l	2	<2	<2	<2	<2
	Xylene (o)	µg/L	1	<1	<1	<1	<1
	Xylene Tot	µg/l	2	<3	<3	<3	<3
	Total BTEX	mg/l	0.001				
Metals	Arsenic	mg/l	0.001		<0.005		
	Arsenic (Fi	mg/l	0.001	<0.001			
	Cadmium	mg/l	0.0001		<0.0005		
	Cadmium (	mg/l	0.0001	<0.0001			
	Chromium	mg/l	0.001		<0.005		
	Chromium	mg/l	0.001	<0.001			
	Copper	mg/l	0.001		<0.005		
	Copper (Fi	mg/l	0.001	<0.001			
	Lead	mg/l	0.001		<0.005		
	Lead (Filter	mg/l	0.001	<0.001			
	Mercury	mg/l	0.0001		<0.0001		
	Mercury (F	mg/l	0.0001	<0.0001			
	Nickel	mg/l	0.001		<0.005		
	Nickel (Filte	mg/l	0.001	<0.001			
	Zinc	mg/l	0.005		<0.005		
	Zinc (Filter	mg/l	0.005	<0.005			
PAH	2-chlorona	µg/l	2				
	2-methylna	µg/l	2				
	3-methylch	µg/l	2				
	Acenaphth	µg/l	1	<1	<1		
	Acenaphth	µg/l	1	<1	<1		
	Acetophen	µg/l	2				
	Anthracene	µg/l	1	<1	<1		
	Benzo(a)ar	µg/L	1	<1	<1		
	Benzo(a)py	µg/l	0.5	<1	<1		
	Benzo(g,h,	µg/l	1	<1	<1		
	Benzo(k)flu	µg/l	1	<1	<1		
	Chrysene	µg/l	1	<1	<1		
	Benzo[b+j]f	mg/l	0.001	<0.001	<0.001		
	Dibenz(a,h	µg/l	1	<1	<1		
	Fluoranthe	µg/l	1	<1	<1		
	Fluorene	µg/l	1	<1	<1		
	Indeno(1,2	µg/l	1	<1	<1		
	Phenanthre	µg/l	1	<1	<1		
	Pyrene	µg/l	1	<1	<1		
	Total PAHs	µg/l	1	<1	<1		

QA/QC Rinsates and Trip Blanks Water Analytical Results

Field Blanks (WATER)
Filter: SDG in('851','80

			SDG	851	801	851	6/03/2015
			Field ID	QC9	QC6	QC10	QC7
			Sampled_	2/06/2015	29/05/2015	2/06/2015	29/05/2015
			Sample Ty	Rinsate	Rinsate	Trip_B	Trip_B
Chem_Gro	**ChemNam**	**Units**	**EQL**				
TRH	TRH C6-C1	mg/l	0.02	<0.02	<0.02		<0.02
	TRH >C10-	mg/l	0.05	<0.05	<0.05		
	TRH C6 - C	mg/l	0.02	<0.02	<0.02		<0.02
	TPH >C10	mg/l	0.05	<0.05	<0.05		
	TRH >C16	mg/l	0.1	<0.1	<0.1		
	TRH >C34	mg/l	0.1	<0.1	<0.1		
	TRH C6 - C	µg/l	20	<20	<20	<20	<20
	TRH C10 -	µg/l	50	<50	<50		
	TRH C15 -	µg/l	100	<100	<100		
	TRH C29 -	µg/l	50	<100	<100		
	TRH C10 -	µg/l	50	<100	<100		

Appendix A – Borelogs

coffey

Engineering Log - Borehole

Borehole No.	BH02A
Sheet	1 of 1
Office Job No.:	GEOTLCOV25397AA
Client:	TOGA GROUP
Principal:	
Project:	Limited Contamination Site Assessment
Borehole Location:	Surry Hills Shopping Village, Surry Hills NSW
Date started:	13.5.2015
Date completed:	13.5.2015
Logged by:	KA
Checked by:	MG

drill model and mounting: XL TRUCKED | Easting: | slope: -90° | R.L. Surface:

hole diameter: 120mm mm | Northing | bearing: | datum:

drilling information | **material substance**

method	penetration 1 2 3	water	PID	notes samples, tests, etc	RL	depth metres	graphic log	classification symbol	material: soil type: plasticity or particle characteristics, colour, secondary and minor components.	moisture condition	consistency/ density index	pocket penetrometer kPa 100 200 300 400	structure and additional observations
									ASPHALT:	D			Asphalt
									FILL: SAND, coarse grained, brown, with trace of gravel.	M			Fill
						0.5							
						1.0			**FILL:** Sandy GRAVEL, coarse grained, dark grey.				
									Borehole BH02A terminated at 1.2m				Refusal at 1.2m.
						1.5							
						2.0							

method
- DT diatube
- PT push tube
- SS soild stem flight auger
- HS hollow stem flight auger
- VT V Bit, T Bit
- AH air hammer
- CP cable percussive
- HA hand auger
- NDD non-destructive digging
- RC rock corer

penetration
1 2 3 4
no resistance ranging to refusal

water
- 10/1/98 water level on date shown
- water inflow
- water outflow

notes, samples, tests
- U_{50} undisturbed sample 50mm diameter
- U_{63} undisturbed sample 63mm diameter
- D disturbed sample
- N standard penetration test (SPT)
- N* SPT - sample recovered
- Nc SPT with solid cone
- V vane shear (kPa)
- P pressuremeter
- Bs bulk sample
- E environmental sample
- R refusal

classification symbols and soil description
based on unified classification system

moisture
- D dry
- M moist
- W wet
- Wp plastic limit
- W_L liquid limit

consistency/density index
- VS very soft
- S soft
- F firm
- St stiff
- VSt very stiff
- H hard
- Fb friable
- VL very loose
- L loose
- MD medium dense
- D dense
- VD very dense

BOREHOLE + PID GEOTLCOV25397AA.GPJ COFFEY.GDT 26.5.15

Form GEO 5.3 Issue 3 Rev.2

coffey

Engineering Log - Borehole

Borehole No.	**BH04**
Sheet	1 of 1
Office Job No.:	GEOTLCOV25397AA
Date started:	13.5.2015
Date completed:	13.5.2015
Logged by:	KA
Checked by:	MG

Client: *TOGA GROUP*

Principal:

Project: *Limited Contamination Site Assessment*

Borehole Location: *Surry Hills Shopping Village, Surry Hills NSW*

drill model and mounting:	XL TRUCKED	Easting:		slope:	-90°	R.L. Surface:	
hole diameter:	120mm mm	Northing		bearing:		datum:	

drilling information / **material substance**

method	penetration 1 2 3	water	PID	notes samples, tests, etc	RL	depth metres	graphic log	classification symbol	material (soil type: plasticity or particle characteristics, colour, secondary and minor components.)	moisture condition	consistency/ density index	pocket penetro-meter kPa (100 200 300 400)	structure and additional observations
				E + 1.4ppm					**ASPHALT:**	D			Asphalt
				E + 0.3ppm					**FILL:** SAND, coarse grained, brown, trace of gravel.	M			Fill
				E + 0.3ppm		0.5			**FILL:** Silty SAND, medium - coarse grained, dark grey.				
									FILL: SAND, coarse grained, brown.				
						1.0							
						1.5			Borehole BH04 terminated at 1.5m				refusal at 1.5m due to sewer location.
						2.0							

method
DT diatube
PT push tube
SS soild stem flight auger
HS hollow stem flight auger
VT V Bit, T Bit
AH air hammer
CP cable percussive
HA hand auger
NDD non-destructive digging
RC rock corer

penetration
1 2 3 4
no resistance ranging to refusal

water
10/1/98 water level on date shown
water inflow
water outflow

notes, samples, tests
U_{50} undisturbed sample 50mm diameter
U_{63} undisturbed sample 63mm diameter
D disturbed sample
N standard penetration test (SPT)
N* SPT - sample recovered
Nc SPT with solid cone
V vane shear (kPa)
P pressuremeter
Bs bulk sample
E environmental sample
R refusal

classification symbols and soil description
based on unified classification system

moisture
D dry
M moist
W wet
Wp plastic limit
W_L liquid limit

consistency/density index
VS very soft
S soft
F firm
St stiff
VSt very stiff
H hard
Fb friable
VL very loose
L loose
MD medium dense
D dense
VD very dense

coffey

Engineering Log - Borehole

Borehole No.	**BH06**
Sheet	1 of 1
Office Job No.:	*GEOTLCOV25397AA*
Date started:	*13.5.2015*
Date completed:	*13.5.2015*
Logged by:	*KA*
Checked by:	*MG*

Client: *TOGA GROUP*

Principal:

Project: *Limited Contamination Site Assessment*

Borehole Location: *Surry Hills Shopping Village, Surry Hills NSW*

drill model and mounting:	HAND AUGER	Easting:	slope: -90°		R.L. Surface:
hole diameter:	120mm mm	Northing	bearing:		datum:

drilling information | **material substance**

method	penetration 1 2 3	water	PID	notes samples, tests, etc	RL	depth metres	graphic log	classification symbol	material (soil type: plasticity or particle characteristics, colour, secondary and minor components.)	moisture condition	consistency/ density index	pocket penetro-meter kPa (100 200 300 400)	structure and additional observations
HA				E + 74ppm					**FILL:** Silty SAND, medium to coarse grained, brown, with trace of gravel.	D			Fill
									Borehole BH06 terminated at 0.4m				refusal at 4.0m.
						0.5							
						1.0							
						1.5							
						2.0							

method
DT diatube
PT push tube
SS soild stem flight auger
HS hollow stem flight auger
VT V Bit, T Bit
AH air hammer
CP cable percussive
HA hand auger
NDD non-destructive digging
RC rock corer

penetration
1 2 3 4
no resistance ranging to refusal

water
10/1/98 water level on date shown
water inflow
water outflow

notes, samples, tests
U_{50} undisturbed sample 50mm diameter
U_{63} undisturbed sample 63mm diameter
D disturbed sample
N standard penetration test (SPT)
N* SPT - sample recovered
Nc SPT with solid cone
V vane shear (kPa)
P pressuremeter
Bs bulk sample
E environmental sample
R refusal

classification symbols and soil description
based on unified classification system

moisture
D dry
M moist
W wet
Wp plastic limit
W_L liquid limit

consistency/density index
VS very soft
S soft
F firm
St stiff
VSt very stiff
H hard
Fb friable
VL very loose
L loose
MD medium dense
D dense
VD very dense

coffey

Engineering Log - Borehole

Borehole No.	BH07
Sheet	1 of 1
Office Job No.:	GEOTLCOV25397AA

Client:	TOGA GROUP	Date started:	13.5.2015
Principal:		Date completed:	13.5.2015
Project:	Limited Contamination Site Assessment	Logged by:	KA
Borehole Location:	Surry Hills Shopping Village, Surry Hills NSW	Checked by:	MG

drill model and mounting:	HAND AUGER	Easting:		slope:	-90°	R.L. Surface:	
hole diameter:	120mm mm	Northing		bearing:		datum:	

drilling information | **material substance**

method	penetration 1 2 3	water	PID	notes samples, tests, etc	RL	depth metres	graphic log	classification symbol	material soil type: plasticity or particle characteristics, colour, secondary and minor components.	moisture condition	consistency/ density index	pocket penetro-meter kPa 100 200 300 400	structure and additional observations
HA				E					**FILL:** Silty SAND, medium to coarse grained, brown, with tree roots with some gravel.	D			Fill
				E		0.5							
									Borehole BH07 terminated at 0.8m				Refusal at 0.8m, hole refusal.
						1.0							
						1.5							
						2.0							

method

DT	diatube
PT	push tube
SS	soild stem flight auger
HS	hollow stem flight auger
VT	V Bit, T Bit
AH	air hammer
CP	cable percussive
HA	hand auger
NDD	non-destructive digging
RC	rock corer

penetration

1 2 3 4

no resistance ranging to refusal

water

10/1/98 water level on date shown

water inflow

water outflow

notes, samples, tests

U_{50}	undisturbed sample 50mm diameter
U_{63}	undisturbed sample 63mm diameter
D	disturbed sample
N	standard penetration test (SPT)
N*	SPT - sample recovered
Nc	SPT with solid cone
V	vane shear (kPa)
P	pressuremeter
Bs	bulk sample
E	environmental sample
R	refusal

classification symbols and soil description

based on unified classification system

moisture

D	dry
M	moist
W	wet
Wp	plastic limit
W_L	liquid limit

consistency/density index

VS	very soft
S	soft
F	firm
St	stiff
VSt	very stiff
H	hard
Fb	friable
VL	very loose
L	loose
MD	medium dense
D	dense
VD	very dense

Engineering Log - Borehole

Borehole No.	***BH08***
Sheet	1 of 1
Office Job No.:	***GEOTLCOV25397AA***
Client:	***TOGA GROUP***
Date started:	***13.5.2015***
Principal:	
Date completed:	***13.5.2015***
Project:	***Limited Contamination Site Assessment***
Logged by:	***KA***
Borehole Location:	***Surry Hills Shopping Village, Surry Hills NSW***
Checked by:	***MG***

drill model and mounting:	HAND AUGER	Easting:		slope:	-90°	R.L. Surface:	
hole diameter:	120mm mm	Northing		bearing:		datum:	

drilling information / **material substance**

method	penetration 1 2 3	water	PID	notes samples, tests, etc	RL	depth metres	graphic log	classification symbol	material — soil type: plasticity or particle characteristics, colour, secondary and minor components.	moisture condition	consistency/ density index	pocket penetro-meter kPa (100 200 300 400)	structure and additional observations
HA				E + 0.9ppm					**FILL:** Silty SAND, medium to coarse grained, brown, with trace of gravel, with tree roots.				Fill
				E + (QC1,QC1A)									
									Borehole BH08 terminated at 0.4m				refusal due to tree roots, refusal at 0.4m.
						0.5							
						1.0							
						1.5							
						2.0							

method

DT	diatube
PT	push tube
SS	soild stem flight auger
HS	hollow stem flight auger
VT	V Bit, T Bit
AH	air hammer
CP	cable percussive
HA	hand auger
NDD	non-destructive digging
RC	rock corer

penetration

1 2 3 4

no resistance ranging to refusal

water

10/1/98 water level on date shown

water inflow

water outflow

notes, samples, tests

U_{50}	undisturbed sample 50mm diameter
U_{63}	undisturbed sample 63mm diameter
D	disturbed sample
N	standard penetration test (SPT)
N*	SPT - sample recovered
Nc	SPT with solid cone
V	vane shear (kPa)
P	pressuremeter
Bs	bulk sample
E	environmental sample
R	refusal

classification symbols and soil description

based on unified classification system

moisture

D	dry
M	moist
W	wet
Wp	plastic limit
W_L	liquid limit

consistency/density index

VS	very soft
S	soft
F	firm
St	stiff
VSt	very stiff
H	hard
Fb	friable
VL	very loose
L	loose
MD	medium dense
D	dense
VD	very dense

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Engineering Log - Borehole

Borehole No.	**BH09**
Sheet	1 of 1
Office Job No.:	*GEOTLCOV25397AA*
Client:	*TOGA GROUP*
Principal:	
Project:	*Limited Contamination Site Assessment*
Borehole Location:	*Surry Hills Shopping Village, Surry Hills NSW*
Date started:	*13.5.2015*
Date completed:	*13.5.2015*
Logged by:	*MR*
Checked by:	*MG*

drill model and mounting:	HAND AUGER	Easting:		slope:	-90°	R.L. Surface:	
hole diameter:	120mm mm	Northing		bearing:		datum:	

drilling information / **material substance**

method	penetration 1 2 3	water	PID	notes samples, tests, etc	RL	depth metres	graphic log	classification symbol	material soil type: plasticity or particle characteristics, colour, secondary and minor components.	moisture condition	consistency/ density index	pocket penetro-meter kPa 100 200 300 400	structure and additional observations
HA				E + 1.6ppm					**FILL:** SAND, grey brown, trace of gravel and brick fragments.	M			
									Borehole BH09 terminated at 0.3m				refusal at 0.3m.
						0.5							
						1.0							
						1.5							
						2.0							

method

DT	diatube
PT	push tube
SS	soild stem flight auger
HS	hollow stem flight auger
VT	V Bit, T Bit
AH	air hammer
CP	cable percussive
HA	hand auger
NDD	non-destructive digging
RC	rock corer

penetration

1 2 3 4

no resistance ranging to refusal

water

10/1/98 water level on date shown

water inflow

water outflow

notes, samples, tests

U_{50}	undisturbed sample 50mm diameter
U_{63}	undisturbed sample 63mm diameter
D	disturbed sample
N	standard penetration test (SPT)
N*	SPT - sample recovered
Nc	SPT with solid cone
V	vane shear (kPa)
P	pressuremeter
Bs	bulk sample
E	environmental sample
R	refusal

classification symbols and soil description

based on unified classification system

moisture

D	dry
M	moist
W	wet
Wp	plastic limit
W_L	liquid limit

consistency/density index

VS	very soft
S	soft
F	firm
St	stiff
VSt	very stiff
H	hard
Fb	friable
VL	very loose
L	loose
MD	medium dense
D	dense
VD	very dense

Engineering Log - Borehole

Borehole No.	BH3A
Sheet	1 of 1
Office Job No.:	GEOTLCOV25397AA
Client:	TOGA GROUP
Principal:	
Project:	Limited Contamination Site Assessment
Borehole Location:	Surry Hills Shopping Village, Surry Hills NSW
Date started:	13.5.2015
Date completed:	13.5.2015
Logged by:	KA
Checked by:	MG

drill model and mounting:	XL TRUCKED	Easting:		slope:	-90°	R.L. Surface:	
hole diameter:	120mm mm	Northing		bearing:		datum:	

drilling information / **material substance**

method	penetration 1 2 3	water	PID	notes samples, tests, etc	RL	depth metres	graphic log	classification symbol	material: soil type: plasticity or particle characteristics, colour, secondary and minor components.	moisture condition	consistency/ density index	pocket penetro-meter kPa 100 200 300 400	structure and additional observations
ADT				E + 0.3ppm					**ASPHALT:**				Asphalt
				E + 0.8ppm		0.5			**FILL:** Silty SAND, medium to coarse grained, brown with some gravel.				Fill
				E		1.0							
						1.5			**FILL:** Silty SAND, medium to coarse grained, brown with dark grey, trace of gravel.				
						2.0			Borehole BH3A terminated at 1.7m				Refusal at 1.7m.

method
- DT diatube
- PT push tube
- SS soild stem flight auger
- HS hollow stem flight auger
- VT V Bit, T Bit
- AH air hammer
- CP cable percussive
- HA hand auger
- NDD non-destructive digging
- RC rock corer

penetration
1 2 3 4
no resistance ranging to refusal

water
- 10/1/98 water level on date shown
- water inflow
- water outflow

notes, samples, tests
- U_{50} undisturbed sample 50mm diameter
- U_{63} undisturbed sample 63mm diameter
- D disturbed sample
- N standard penetration test (SPT)
- N* SPT - sample recovered
- Nc SPT with solid cone
- V vane shear (kPa)
- P pressuremeter
- Bs bulk sample
- E environmental sample
- R refusal

classification symbols and soil description
based on unified classification system

moisture
- D dry
- M moist
- W wet
- Wp plastic limit
- W_L liquid limit

consistency/density index
- VS very soft
- S soft
- F firm
- St stiff
- VSt very stiff
- H hard
- Fb friable
- VL very loose
- L loose
- MD medium dense
- D dense
- VD very dense

Engineering Log - Borehole

Borehole No.	BH3B
Sheet	1 of 1
Office Job No.:	GEOTLCOV25397AA
Client:	TOGA GROUP
Principal:	
Project:	Limited Contamination Site Assessment
Borehole Location:	Surry Hills Shopping Village, Surry Hills NSW
Date started:	13.5.2015
Date completed:	13.5.2015
Logged by:	KA
Checked by:	MG

drill model and mounting:	XL TRUCKED	Easting:	slope: -90°	R.L. Surface:	
hole diameter:	120mm mm	Northing	bearing:	datum:	

drilling information / **material substance**

method	penetration 1 2 3	water	PID	notes samples, tests, etc	RL	depth metres	graphic log	classification symbol	material: soil type: plasticity or particle characteristics, colour, secondary and minor components.	moisture condition	consistency/ density index	pocket penetro-meter kPa 100 200 300 400	structure and additional observations
ADT									**ASPHALT:**				Asphalt
									FILL: Sitly SAND, medium to coarse grained, with some gravel.				Fill
						0.5							
						1.0							
						1.5			**FILL:** Silty SAND, medium to coarse grained, dark grey, wiht trace of gravel.				
									Borehole BH3B terminated at 1.65m				Refusal at 1.65m.
						2.0							

method

DT	diatube
PT	push tube
SS	soild stem flight auger
HS	hollow stem flight auger
VT	V Bit, T Bit
AH	air hammer
CP	cable percussive
HA	hand auger
NDD	non-destructive digging
RC	rock corer

penetration

1 2 3 4 — no resistance ranging to refusal

water

10/1/98 water level on date shown

water inflow

water outflow

notes, samples, tests

U_{50}	undisturbed sample 50mm diameter
U_{63}	undisturbed sample 63mm diameter
D	disturbed sample
N	standard penetration test (SPT)
N*	SPT - sample recovered
Nc	SPT with solid cone
V	vane shear (kPa)
P	pressuremeter
Bs	bulk sample
E	environmental sample
R	refusal

classification symbols and soil description

based on unified classification system

moisture

D	dry
M	moist
W	wet
Wp	plastic limit
W_L	liquid limit

consistency/density index

VS	very soft
S	soft
F	firm
St	stiff
VSt	very stiff
H	hard
Fb	friable
VL	very loose
L	loose
MD	medium dense
D	dense
VD	very dense

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Engineering Log - Monitoring Well

Borehole No.	**BH01/MW01**
Sheet	1 of 1
Office Job No.:	**GEOTLCOV25397AA**
Date started:	**13.5.2015**
Date completed:	**13.5.2015**
Logged by:	**KA**
Checked by:	**MG**

Client: ***TOGA GROUP***

Principal:

Project: ***Limited Contamination Site Assessment***

Borehole Location: ***Surry Hills Shopping Village, Surry Hills NSW***

drill model & mounting:	XL TRUCKED	Easting:	slope: -90°		R.L. Surface:
hole diameter:	120mm	Northing:	bearing:		datum:

drilling information | **material substance**

method	penetration 1 2 3	water	PID	notes samples, tests, etc	well details	RL	depth metres	graphic log	classification symbol	material soil type: plasticity or particle characteristics, colour, secondary and minor components.	moisture condition	consistency/ density index	structure and additional observations
ADTDT				E + 1.0ppm						**CONCRETE:**			Concrete
				E + 1.3ppm						**FILL:** SAND, coarse grained, brown, with trace of gravel/silt, fragments of brick.	M		Fill
				E + 1.5ppm			1			**FILL:** Clayey SAND, medium grained, brown, with trace of gravel.			
							2			**FILL:** Sandy GRAVEL, coarse grained angular, dark grey.			
										FILL: Silty CLAY: dark grey, with trace of gravel.		L	
		3.0m					3		SP	**SAND:** coarse grained, brown, pale grey.	W		Alluvium/Aeolian
							4						
							5						
										Borehole terminated at 5.4m			Refusal at 5.4m, top of bedrock
							6						
							7						
							8						

method

DT	diatube
PT	push tube
SS	soild stem flight auger
HS	hollow stem flight auger
VT	V Bit, T Bit
AH	air hammer
CP	cable percussive
HA	hand auger
NDD	non-destructive digging
RC	rock corer

penetration

1 2 3 4

no resistance ranging to refusal

water

10/1/98 water level on date shown

water inflow

water outflow

notes, samples, tests

U_{50}	undisturbed sample 50mm diameter
D	disturbed sample
N	standard penetration test (SPT)
N*	SPT - sample recovered
Nc	SPT with solid cone
P	pressure meter
Bs	bulk sample
R	refusal
E	environmental sample
PID	PID measurement
WS	water sample
PZ	piezometer
ALT	air lift test

classification symbols and soil description

based on unified classification system

moisture

D	dry
M	moist
W	wet
Wp	plastic limit
W_L	liquid limit

consistency/density index

VS	very soft
S	soft
F	firm
St	stiff
VSt	very stiff
H	hard
Fb	friable
VL	very loose
L	loose
MD	medium dense
D	dense
VD	very dense

coffey

Engineering Log - Monitoring Well

Borehole No.	**BH02B/MW02**
Sheet	1 of 1
Office Job No.:	*GEOTLCOV25397AA*

Client:	*TOGA GROUP*	Date started:	*13.5.2015*
Principal:		Date completed:	*13.5.2015*
Project:	*Limited Contamination Site Assessment*	Logged by:	*KA*
Borehole Location:	*Surry Hills Shopping Village, Surry Hills NSW*	Checked by:	*MG*

drill model & mounting: XL TRUCKED	Easting:	slope:	-90°	R.L. Surface:	
hole diameter: 120mm	Northing:	bearing:		datum:	

drilling information / material substance

method	penetration 1 2 3	water	PID	notes samples, tests, etc	well details	RL	depth metres	graphic log	classification symbol	material: soil type: plasticity or particle characteristics, colour, secondary and minor components.	moisture condition	consistency/ density index	structure and additional observations
ADT							0.0			**ASPHALT:**	D		Asphalt
										FILL: SAND, coarse grained, brown, with trace of gravel.	M		Fill
				E			1			**FILL:** Sandy GRAVEL, coarse grained, dark grey with trace of brick fragments.			
							2		SP	**SAND:** coarse grained, dark grey, with some silt.		L	Alluvium/Aeolian
		2.8m					3		CL	**Silty CLAY:** low-medium plasticity, dark grey.	W	S	
							4		SW	**Silty SAND:** fine-medium grained, dark grey, with trace of clay.	W	L	
							5						
							6						
							7			Borehole terminated at 6.4m			Hole drilled to top of bedrock at 6.4m.
							8						

method
DT diatube
PT push tube
SS soild stem flight auger
HS hollow stem flight auger
VT V Bit, T Bit
AH air hammer
CP cable percussive
HA hand auger
NDD non-destructive digging
RC rock corer

penetration
1 2 3 4
no resistance ranging to refusal

water
10/1/98 water level on date shown
water inflow
water outflow

notes, samples, tests
U_{50} undisturbed sample 50mm diameter
D disturbed sample
N standard penetration test (SPT)
N* SPT - sample recovered
Nc SPT with solid cone
P pressure meter
Bs bulk sample
R refusal
E environmental sample
PID PID measurement
WS water sample
PZ piezometer
ALT air lift test

classification symbols and soil description
based on unified classification system

moisture
D dry
M moist
W wet
Wp plastic limit
W_L liquid limit

consistency/density index
VS very soft
S soft
F firm
St stiff
VSt very stiff
H hard
Fb friable
VL very loose
L loose
MD medium dense
D dense
VD very dense

Engineering Log - Monitoring Well

Borehole No.	**BH05/MW03**
Sheet	1 of 1
Office Job No.:	*GEOTLCOV25397AA*
Client:	*TOGA GROUP*
Principal:	
Project:	*Limited Contamination Site Assessment*
Borehole Location:	*Surry Hills Shopping Village, Surry Hills NSW*
Date started:	*13.5.2015*
Date completed:	*13.5.2015*
Logged by:	*KA*
Checked by:	*MG*

drill model & mounting:	XL TRUCKED	Easting:		slope:	-90°	R.L. Surface:	
hole diameter:	120mm	Northing:		bearing:		datum:	

drilling information / **material substance**

method	penetration 1 2 3	water	PID	notes samples, tests, etc	well details	RL	depth metres	graphic log	classification symbol	material: soil type: plasticity or particle characteristics, colour, secondary and minor components.	moisture condition	consistency/ density index	structure and additional observations
ADT							0			**ASPHALT:**	D		Asphalt
				E + 0.9ppm			1			**FILL:** Silty SAND, coarse grained, brown, with trace of gravel	M		Fill
							2		SW	**Silty SAND:** medium to coarse grained, dark grey.		L	Alluvium/Aeolian
		2.7m					3		SP	**SAND:** coarse grained, brown.	W		
							4		CL	**Silty CLAY:** low - medium plasticity, dark grey.		S	
									SW	**Silty SAND:** medium - coarse grained, dark grey.		L	
							5			Borehole terminated at 5m			
							6						
							7						
							8						

method

DT	diatube
PT	push tube
SS	soild stem flight auger
HS	hollow stem flight auger
VT	V Bit, T Bit
AH	air hammer
CP	cable percussive
HA	hand auger
NDD	non-destructive digging
RC	rock corer

penetration

1 2 3 4 — no resistance ranging to refusal

water

10/1/98 water level on date shown

water inflow

water outflow

notes, samples, tests

U_{50}	undisturbed sample 50mm diameter
D	disturbed sample
N	standard penetration test (SPT)
N*	SPT - sample recovered
Nc	SPT with solid cone
P	pressure meter
Bs	bulk sample
R	refusal
E	environmental sample
PID	PID measurement
WS	water sample
PZ	piezometer
ALT	air lift test

classification symbols and soil description

based on unified classification system

moisture

D	dry
M	moist
W	wet
Wp	plastic limit
W_L	liquid limit

consistency/density index

VS	very soft
S	soft
F	firm
St	stiff
VSt	very stiff
H	hard
Fb	friable
VL	very loose
L	loose
MD	medium dense
D	dense
VD	very dense

Engineering Log - Monitoring Well

Borehole No.	*BH10/MW04*
Sheet	1 of 1
Office Job No.:	*GEOTLCOV25397AA*
Client:	*TOGA GROUP*
Date started:	*28.5.2015*
Principal:	
Date completed:	*29.5.2015*
Project:	*Limited Contamination Site Assessment*
Logged by:	*AF*
Borehole Location:	*Surry Hills Shopping Village, Surry Hills NSW*
Checked by:	

drill model & mounting: XL TC BIT	Easting:	slope:	-90°	R.L. Surface:	
hole diameter: 120mm	Northing:	bearing:		datum:	

drilling information / **material substance**

method	penetration 1 2 3	water	PID	notes samples, tests, etc	well details	RL	depth metres	graphic log	classification symbol	material: soil type: plasticity or particle characteristics, colour, secondary and minor components.	moisture condition	consistency/density index	structure and additional observations
RC										**CONCRETE:** (120mm)			PAVEMENT
SST				E+0.1ppm						**FILL:** SAND, medium coarse, pale brown, some gravel			FILL
				E+0.1ppm			0.5			**FILL:** Clayey SAND, fine-medium grained, brown, pale brown,			FILL
				E+0.1ppm			1.0						
							1.5			**FILL:** SAND, fine-medium grained, pale grey, grey	D		
				E+0.1ppm			2.0			**FILL:** SAND, fine-medium grained, brown and dark brown with some clay	D		
							2.5		SC	**Sandy CLAY:** fine medium grained, pale orange, pale brown	Wp	MD	Residual soil
				E+0.9ppm (QC5,QC5A)			3.0		SC	**Sandy CLAY:** pale orange, pale brown, white, mottled, some rock fabric (sandstone)		MD	Residual soil
							3.5			Borehole terminated at 3.2m			Refusal
							4.0						

method

DT	diatube
PT	push tube
SS	soild stem flight auger
HS	hollow stem flight auger
VT	V Bit, T Bit
AH	air hammer
CP	cable percussive
HA	hand auger
NDD	non-destructive digging
RC	rock corer

penetration

1 2 3 4

no resistance ranging to refusal

water

10/1/98 water level on date shown

water inflow

water outflow

notes, samples, tests

U_{50}	undisturbed sample 50mm diameter
D	disturbed sample
N	standard penetration test (SPT)
N*	SPT - sample recovered
Nc	SPT with solid cone
P	pressure meter
Bs	bulk sample
R	refusal
E	environmental sample
PID	PID measurement
WS	water sample
PZ	piezometer
ALT	air lift test

classification symbols and soil description

based on unified classification system

moisture

D	dry
M	moist
W	wet
Wp	plastic limit
W_L	liquid limit

consistency/density index

VS	very soft
S	soft
F	firm
St	stiff
VSt	very stiff
H	hard
Fb	friable
VL	very loose
L	loose
MD	medium dense
D	dense
VD	very dense

Appendix B – Dial Before You Dig

Application No. 9128105 Created on 28/05/2015 12:36:57

H.S.73c.

METROPOLITAN WATER SEWERAGE AND DRAINAGE BOARD

DIAGRAM OF SANITARY DRAINAGE

Diagram No. 195725

Municipality of South Syney (Surry Hills) SEWER AVAILABLE

SYMBOLS AND ABBREVIATIONS

◻	Boundary Trap	R.V.	Reflux Valve	I.P.	Induct Pipe	Bsn.	Basin
■	Pit	—o—	Cleaning Eye	M.F.	Mica Flap	Shr.	Shower
G.I.	Grease Interceptor	oVert.	Vertical Pipe	T.	Tubs	W.I.P.	Wrought Iron Pipe
■	Gully	oV.P.	Vent. Pipe	K.S.	Kitchen Sink	C.I.P.	Cast Iron Pipe
P.T.	P. Trap	oS.V.P.	Soil Vent Pipe	W.C.	Water Closet	F.W.	Floor Waste
R.S.	Reflux Sink	D.C.C.	Down Cast Cowl	B.W.	Bath Waste		

Existing drainage shown by black lines. Scale : 40 Feet to an Inch ~~New drainage shown by full blue lines.~~

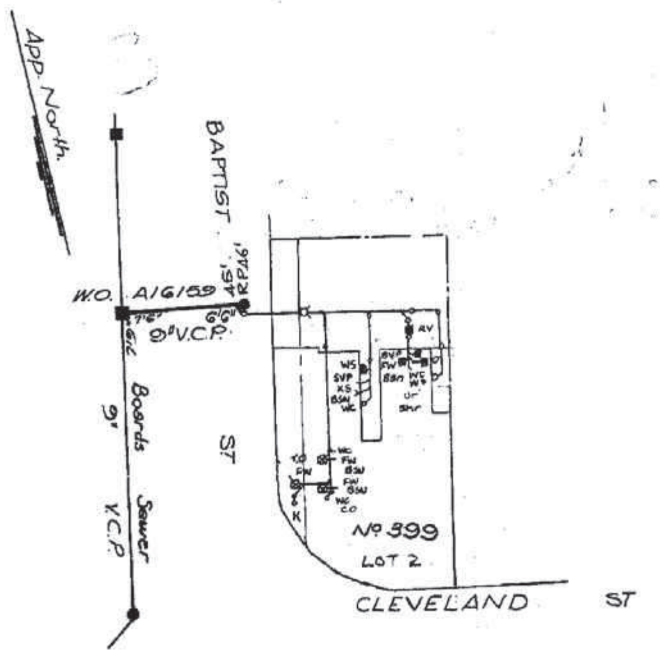
~~This diagram is the property of the Proprietor and is to be returned to him on completion of the work.~~

~~Certificates for drainage and sanitary plumbing may be obtained on application at the office of the Board by the Drainer or Plumber concerned.~~

~~The Board accepts no responsibility for the suitability of the diagram in relation to the eventual position of the Board's sewer When the sewer becomes available it will be necessary to apply for a revised diagram~~

This work must be carried out in accordance with the Board's By-laws and Regulations. (4" dia. pipes may be used in lieu of 6" dia. pipes as shown on this diagram if the property owner so desires, provided that the relative levels of the sewer and house fixtures will permit of the pipes being laid with regulation grades and cover. For further information consult Board's Inspector)

This work will be tested from ....



W.O. A16159 ~ Gaz. 18·9·81

~~1333-343~~

SHEET No 786

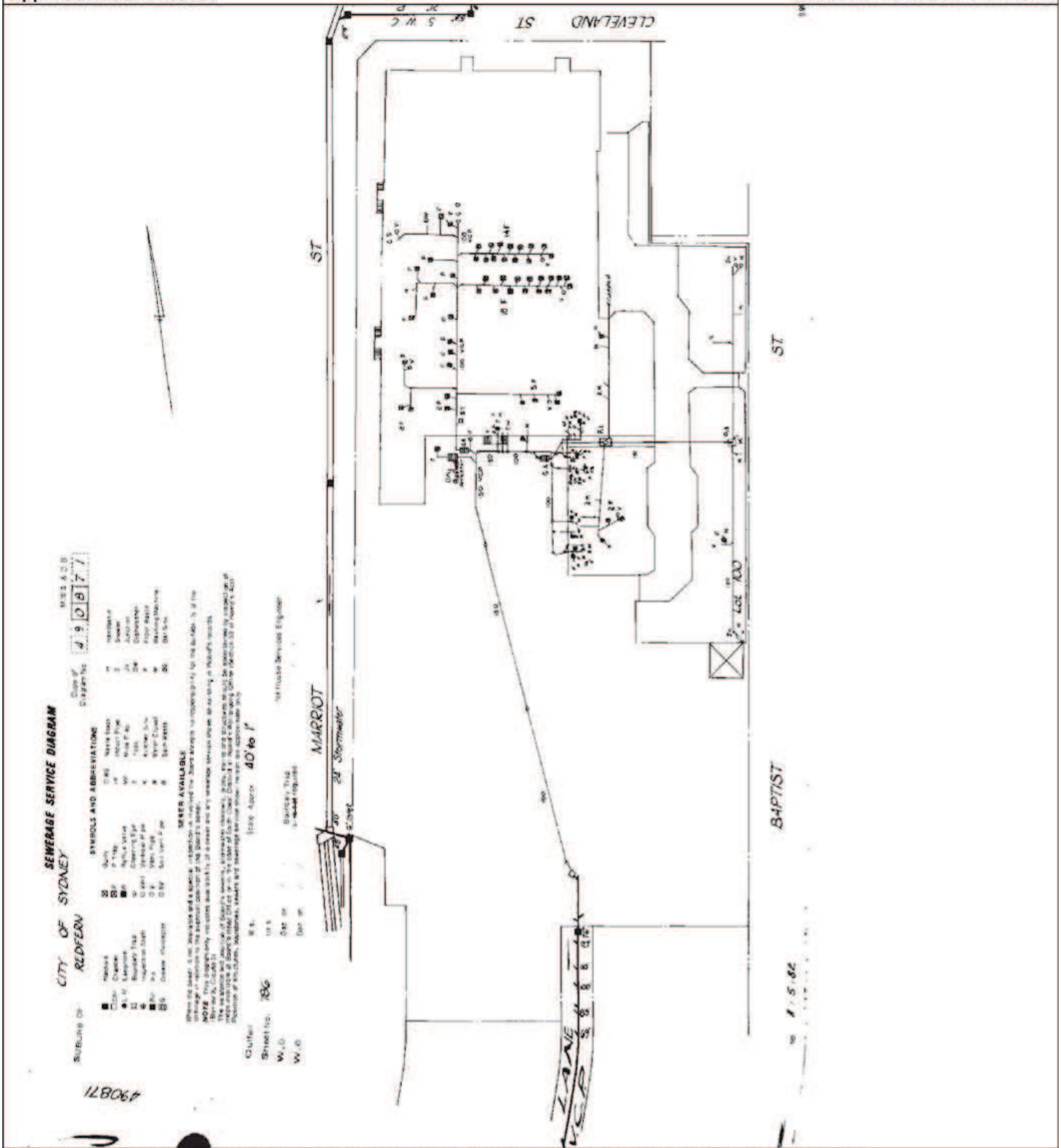
........................19...
for Engineer-in-Chief

OFFICE USE ONLY

	DESIGN	Date	Inspector	SUPERVISION First Visit	Passed	Date
...W.C. ...B.W. ...Shr.	Designed by .... Inspector	/ /	This helio must be returned as soon as possible or NOT LATER THAN B.T.R.	/ / .... Inspector	/ /	/ /
...Bsn ...K.S. ...T. ...Plg. Dge.Int. Dge.Ext.	Examined by .... Chief Inspector	/ /	S.W.	Checked with Design and Diagram .... Chief Inspector		/ /

NOTE This diagram only indicates availability of a sewer and any sewerage service shown as existing in Sydney Water's records. The existence and position of Sydney Water's sewers, stormwater channels, pipes, mains and structures should be ascertained by inspection of maps available at any of Sydney Water's Customer Centres. Position of structures, boundaries, sewers and sewerage services shown hereon are approximately only.

Application No. 9128129 Created on 28/05/2015 12:48:23



NOTE This diagram only indicates availability of a sewer and any sewerage service shown as existing in Sydney Water's records. The existence and position of Sydney Water's sewers, stormwater channels, pipes, mains and structures should be ascertained by inspection of maps available at any of Sydney Water's Customer Centres. Position of structures, boundaries, sewers and sewerage services shown hereon are approximately only.

Appendix C – Laboratory Analytical Reports

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

coffey

Consigning Office: CHATSWOOD
Report Results to: ~~[illegible]~~ daniel guille
Invoices to: Chatswood office
Mobile: ~~[illegible]~~ 0450 655 263
Phone:
Email: ~~[illegible]~~ daniel.guille @coffey.com
Email: @coffey.com

Project No: GEOTLCOV25397AA Task No:
Project Name: SURRY HILL VILLAGE Laboratory: Eurofins
Sampler's Name: MANAIA REILLY Project Manager: DANIEL GUILLE
Special Instructions:
Relevant agreements: Eurofins COF_ENAUABTF00952AA_MSA1 , ALS COF_ENAUABTF00952AA_MSA2 and SGS COF_ENAUABTF00952AA_MSA3

Lab No.	Sample ID	Sample Date	Time	Matrix (Soil...etc)	Container Type & Preservative*	T-A-T (specify)	Suite B7	BTEX	CAH	METALS	OCP/PCB	CEC/pH	ASBESTOS	NOTES
	MW1 - 0.2	13/5/15		SOIL	1 jar	2 day								
	MW1 - 0.5	↓		↓	↓	↓	X				X	X	X	
	MW1 - 1.0													
	MW1 - 2.0						X						X	
	MW2 - 0.2													
	MW2 - 0.5						X				X		X	
	MW2 - 1.0						X						X	
	MW2 - 2.0													
	MW3 - 0.2													
	MW3 - 0.5						X				X		X	
	MW3 - 1.0						X						X	
	MW4 - 0.2													
	MW4 - 0.5						X				X		X	
	MW4 - 1.0						X						X	
	MW4 - 2.0													
	HA5 - 0.1						X				X		X	
	HA6 - 0.2						X				X		X	
	HA6 - 0.5						X						X	15 MAY 2015 16:49

RELINQUISHED BY		RECEIVED BY	
Name: Daniel Guille	Date: 15/05/2015	Name: Glen Ng	Date: 15/5/15
Coffey Environments	Time: 1630	Company: Eurofins mgt	Time: 1640
Name: NGUYEN	Date:	Name:	Date:
Company:	Time: Z 8	Company:	Time:

Sample Receipt Advice: (Lab Use Only)
All Samples Recieved in Good Condition ☐
All Documentation is in Proper Order ☐
Samples Received Properly Chilled ☐
Lab. Ref/Batch No. 457842

*Container Type & Preservation Codes: P - Plastic, G- Glass Bottle, J - Glass Jar, V- Vial, Z - Ziplock Bag, N - Nitric Acid Preserved, C - Hydrochloric Acid Preserved, S - Sulphuric Acid Preserved, I - Ice, ST - Sodium Thiosulfate, NP - No Preservative, OP - Other Preservative

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 0352

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

coffey

Consigning Office: CHATSWOOD
Report Results to: ~~[illegible]~~ Mobile: ~~[illegible]~~ Email: ~~[illegible]~~ @coffey.com
Invoices to: Phone: Email: @coffey.com

Project No: GEOTELOV25397AA Task No:
Project Name: Surry Hills Village Laboratory: MGT Eurofins
Sampler's Name: Manuela Rahl Project Manager: Daniel Gillese
Special Instructions:

Relevant agreements: Eurofins COF_ENAUABTF00952AA_MSA1 ALS COF_ENAUABTF00952AA_MSA2 and SGS COF_ENAUABTF00952AA_MSA3

Analysis Request Section

Lab No.	Sample ID	Sample Date	Time	Matrix (Soil...etc)	Container Type & Preservative*	T-A-T (specify)	Suite B7	BTEX	PAH	METALS	OCP/PCB	CEC/pH	ASBESTOS	Suite B1	C6-C10/BTEX	NOTES
	HA7-0.1	13/5/15		Soil	1 jar	2 day	X						X			
	QC1	↓		↓			X									
	~~QC1a~~															
	Rin Blank QC2	↓		WATER		2 day								X		
	Trip Blank QC3	↓		↓											X	
	HA5-0.3	14/5/15		soil	1 jar	2 day	X						X			
	HA7-0.3	13/5/15		↓	↓	↓	X						X			
	HA8-0.2	13/5/15					X				X		X			

15 MAY 2015 16:49

RELINQUISHED BY		RECEIVED BY	
Name: Daniel [signature] Coffey Environments	Date: 15/05/2015 Time: 16 30	Name: Elenita Company: Eurofins mgt	Date: 150515 Time: 16:49
Name: N GUYEN Company:	Date: Time: 28	Name: Company:	Date: Time:

Sample Receipt Advice: (Lab Use Only)
All Samples Recieved in Good Condition ☐
All Documentation is in Proper Order ☐
Samples Received Properly Chilled ☐
Lab. Ref/Batch No. 457842

*Container Type & Preservation Codes: P - Plastic, G- Glass Bottle, J - Glass Jar, V- Vial, Z - Ziplock Bag, N - Nitric Acid Preserved, C - Hydrochloric Acid Preserved, S - Sulphuric Acid Preserved, I - Ice, ST - Sodium Thiosulfate, NP - No Preservative, OP - Other Preservative

eurofins | mgt

Certificate of Analysis

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.

Coffey Geotechnics Pty Ltd Chatswood
Level 18, Tower B, Citadel Tower 799 Pacific Highway
Chatswood
NSW 2067

Attention: **Daniel Guille**

Report **457842-W**
Project name SURRY HILLS VILLAGE
Project ID GEOTLCOV25397AA
Received Date May 15, 2015

Client Sample ID			**RIN BLANK**	**TRIP BLANK**
Sample Matrix			**Water**	**Water**
Eurofins | mgt Sample No.			**S15-My14536**	**S15-My14537**
Date Sampled			**May 13, 2015**	**May 13, 2015**
Test/Reference	LOR	Unit		
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				
TRH C6-C9	0.02	mg/L	< 0.02	< 0.02
TRH C10-C14	0.05	mg/L	< 0.05	-
TRH C15-C28	0.1	mg/L	< 0.1	-
TRH C29-C36	0.1	mg/L	< 0.1	-
TRH C10-36 (Total)	0.1	mg/L	< 0.1	-
BTEX				
Benzene	0.001	mg/L	< 0.001	< 0.001
Toluene	0.001	mg/L	< 0.001	< 0.001
Ethylbenzene	0.001	mg/L	< 0.001	< 0.001
m&p-Xylenes	0.002	mg/L	< 0.002	< 0.002
o-Xylene	0.001	mg/L	< 0.001	< 0.001
Xylenes - Total	0.003	mg/L	< 0.003	< 0.003
4-Bromofluorobenzene (surr.)	1	%	74	73
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				
Naphthalene[N02]	0.02	mg/L	< 0.02	-
TRH C6-C10	0.02	mg/L	< 0.02	-
TRH C6-C10	0.02	mg/L	-	< 0.02
TRH C6-C10 less BTEX (F1)[N04]	0.02	mg/L	< 0.02	-
TRH C6-C10 less BTEX (F1)[N04]	0.02	mg/L	-	< 0.02
TRH >C10-C16	0.05	mg/L	< 0.05	-
TRH >C10-C16 less Naphthalene (F2)[N01]	0.05	mg/L	< 0.05	-
TRH >C16-C34	0.1	mg/L	< 0.1	-
TRH >C34-C40	0.1	mg/L	< 0.1	-
Volatile Organics				
Naphthalene[N02]	0.02	mg/L	-	< 0.02

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	Sydney	May 15, 2015	7 Day
- Method: TRH C6-C36 - LTM-ORG-2010			
BTEX	Sydney	May 15, 2015	14 Day
- Method: TRH C6-C40 - LTM-ORG-2010			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Sydney	May 15, 2015	7 Day
- Method: TRH C6-C40 - LTM-ORG-2010			
Volatile Organics	Sydney	May 15, 2015	7 Day
- Method: E016 Volatile Organic Compounds (VOC)			

Company Name:	Coffey Geotechnics Pty Ltd Chatswood	**Order No.:**		**Received:**	May 15, 2015 4:49 PM
Address:	Level 18, Tower B, Citadel Tower 799 Pacific Highway Chatswood NSW 2067	**Report #:**	457842	**Due:**	May 19, 2015
		Phone:	+61 2 9406 1000	**Priority:**	2 Day
		Fax:	+61 2 9406 1002	**Contact Name:**	Daniel Guille
Project Name:	SURRY HILLS VILLAGE				
Project ID:	GEOTLCOV25397AA				

Eurofins | mgt Client Manager: Charl Du Preez

Sample Detail					Asbestos Absence /Presence	HOLD	pH (1:5 Aqueous extract)	Organochlorine Pesticides	Polychlorinated Biphenyls (PCB)	Eurofins | mgt Suite 7	Eurofins | mgt Suite 1	BTEX and Volatile TRH	Moisture Set	Cation Exchange Capacity
Laboratory where analysis is conducted														
Melbourne Laboratory - NATA Site # 1254 & 14271														X
Sydney Laboratory - NATA Site # 18217					X	X	X	X	X	X	X	X	X	X
Brisbane Laboratory - NATA Site # 20794														
External Laboratory														
Sample ID	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**										
MW1_0.2	May 13, 2015		Soil	S15-My14516		X								
MW1_0.5	May 13, 2015		Soil	S15-My14517	X		X	X	X	X			X	X
MW1_1.0	May 13, 2015		Soil	S15-My14518		X								
MW1_2.0	May 13, 2015		Soil	S15-My14519	X					X			X	
MW2_0.2	May 13, 2015		Soil	S15-My14520		X								
MW2_0.5	May 13, 2015		Soil	S15-My14521	X			X	X	X			X	
MW2_1.0	May 13, 2015		Soil	S15-My14522	X					X			X	
MW2_2.0	May 13, 2015		Soil	S15-My14523		X								
MW3_0.2	May 13, 2015		Soil	S15-My14524		X								

Melbourne
3-5 Kingston Town Close
Oakleigh VIC 3166
Phone : +61 3 8564 5000
NATA # 1261
Site # 1254 & 14271

Sydney
Unit F3, Building F
16 Mars Road
Lane Cove West NSW 2066
Phone : +61 2 9900 8400
NATA # 1261 Site # 18217

Brisbane
1/21 Smallwood Place
Murarrie QLD 4172
Phone : +61 7 3902 4600
NATA # 1261 Site # 20794

Company Name: Coffey Geotechnics Pty Ltd Chatswood
Address: Level 18, Tower B, Citadel Tower 799 Pacific Highway
Chatswood
NSW 2067

Project Name: SURRY HILLS VILLAGE
Project ID: GEOTLCOV25397AA

Order No.:
Report #: 457842
Phone: +61 2 9406 1000
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Received: May 15, 2015 4:49 PM
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Priority: 2 Day
Contact Name: Daniel Guille

Eurofins | mgt Client Manager: Charl Du Preez

Sample Detail					Asbestos Absence /Presence	HOLD	pH (1:5 Aqueous extract)	Organochlorine Pesticides	Polychlorinated Biphenyls (PCB)	Eurofins | mgt Suite 7	Eurofins | mgt Suite 1	BTEX and Volatile TRH	Moisture Set	Cation Exchange Capacity
Laboratory where analysis is conducted														
Melbourne Laboratory - NATA Site # 1254 & 14271														X
Sydney Laboratory - NATA Site # 18217					X	X	X	X	X	X	X	X	X	X
Brisbane Laboratory - NATA Site # 20794														
External Laboratory														
MW3_0.5	May 13, 2015		Soil	S15-My14525	X			X	X	X			X	
MW3_1.0	May 13, 2015		Soil	S15-My14526	X					X			X	
MW4_0.2	May 13, 2015		Soil	S15-My14527		X								
MW4_0.5	May 13, 2015		Soil	S15-My14528	X			X	X	X			X	
MW4_1.0	May 13, 2015		Soil	S15-My14529	X					X			X	
MW4_2.0	May 13, 2015		Soil	S15-My14530		X								
HA5_0.1	May 13, 2015		Soil	S15-My14531	X			X	X	X			X	
HA6_0.2	May 13, 2015		Soil	S15-My14532	X			X	X	X			X	
HA6_0.5	May 13, 2015		Soil	S15-My14533	X					X			X	
HA7_0.1	May 13, 2015		Soil	S15-My14534	X					X			X	

Company Name: Coffey Geotechnics Pty Ltd Chatswood
Address: Level 18, Tower B, Citadel Tower 799 Pacific Highway
Chatswood
NSW 2067

Project Name: SURRY HILLS VILLAGE
Project ID: GEOTLCOV25397AA

Order No.:
Report #: 457842
Phone: +61 2 9406 1000
Fax: +61 2 9406 1002

Received: May 15, 2015 4:49 PM
Due: May 19, 2015
Priority: 2 Day
Contact Name: Daniel Guille

Eurofins | mgt Client Manager: Charl Du Preez

Sample Detail					Asbestos Absence /Presence	HOLD	pH (1:5 Aqueous extract)	Organochlorine Pesticides	Polychlorinated Biphenyls (PCB)	Eurofins | mgt Suite 7	Eurofins | mgt Suite 1	BTEX and Volatile TRH	Moisture Set	Cation Exchange Capacity
Laboratory where analysis is conducted														
Melbourne Laboratory - NATA Site # 1254 & 14271														X
Sydney Laboratory - NATA Site # 18217					X	X	X	X	X	X	X	X	X	X
Brisbane Laboratory - NATA Site # 20794														
External Laboratory														
QC1	May 13, 2015		Soil	S15-My14535						X			X	
RIN BLANK	May 13, 2015		Water	S15-My14536							X			
TRIP BLANK	May 13, 2015		Water	S15-My14537								X		
HA5_0.3	May 14, 2015		Soil	S15-My14538	X					X			X	
HA7_0.3	May 14, 2015		Soil	S15-My14539	X					X			X	
HA8_0.2	May 13, 2015		Soil	S15-My14540	X			X	X	X			X	

Eurofins | mgt 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

Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
LOR	Limit of Reporting.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
LCS	Laboratory Control Sample - reported as percent recovery
CRM	Certified Reference Material - reported as percent recovery
Method Blank	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.
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
Batch Duplicate	A second piece of analysis from a sample outside of the clients batch of samples but run within the laboratory batch of analysis.
Batch SPIKE	Spike recovery reported on a sample from outside of the clients batch of samples but run within the laboratory batch of analysis.
USEPA	United States Environmental Protection Agency
APHA	American Public Health Association
ASLP	Australian Standard Leaching Procedure (AS4439.3)
TCLP	Toxicity Characteristic Leaching Procedure
COC	Chain of Custody
SRA	Sample Receipt Advice
CP	Client Parent - QC was performed on samples pertaining to this report
NCP	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
TEQ	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, Toxophene & Chlordane are not added to the LCS.
4. Organochlorine Pesticide analysis - where reporting Spike data, Toxophene 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 Arochlor 1260 in Matrix Spikes and LCS's.
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 RPD's 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
Method Blank							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	mg/L	< 0.02			0.02	Pass	
TRH C10-C14	mg/L	< 0.05			0.05	Pass	
TRH C15-C28	mg/L	< 0.1			0.1	Pass	
TRH C29-C36	mg/L	< 0.1			0.1	Pass	
Method Blank							
BTEX							
Benzene	mg/L	< 0.001			0.001	Pass	
Toluene	mg/L	< 0.001			0.001	Pass	
Ethylbenzene	mg/L	< 0.001			0.001	Pass	
m&p-Xylenes	mg/L	< 0.002			0.002	Pass	
o-Xylene	mg/L	< 0.001			0.001	Pass	
Xylenes - Total	mg/L	< 0.003			0.003	Pass	
Method Blank							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	mg/L	< 0.02			0.02	Pass	
TRH C6-C10	mg/L	< 0.02			0.02	Pass	
TRH C6-C10 less BTEX (F1)	mg/L	< 0.02			0.02	Pass	
TRH >C10-C16	mg/L	< 0.05			0.05	Pass	
TRH >C16-C34	mg/L	< 0.1			0.1	Pass	
TRH >C34-C40	mg/L	< 0.1			0.1	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	%	83			70-130	Pass	
TRH C10-C14	%	101			70-130	Pass	
LCS - % Recovery							
BTEX							
Benzene	%	97			70-130	Pass	
Toluene	%	94			70-130	Pass	
Ethylbenzene	%	92			70-130	Pass	
m&p-Xylenes	%	94			70-130	Pass	
o-Xylene	%	93			70-130	Pass	
Xylenes - Total	%	94			70-130	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	%	106			70-130	Pass	
TRH C6-C10	%	93			70-130	Pass	
TRH >C10-C16	%	98			70-130	Pass	

Comments

Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	Yes
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.

Authorised By

Charl Du Preez	Analytical Services Manager
Ryan Hamilton	Senior Analyst-Organic (NSW)
Ryan Hamilton	Senior Analyst-Volatile (NSW)

Glenn Jackson
National Laboratory 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

Certificate of Analysis

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.

Coffey Geotechnics Pty Ltd Chatswood
Level 18, Tower B, Citadel Tower 799 Pacific Highway
Chatswood
NSW 2067

Attention: **Daniel Guille**

Report **457842-S**
Project name SURRY HILLS VILLAGE
Project ID GEOTLCOV25397AA
Received Date May 15, 2015

Client Sample ID			**MW1_0.5**	**MW1_2.0**	**MW2_0.5**	**MW2_1.0**
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins | mgt Sample No.			**S15-My14517**	**S15-My14519**	**S15-My14521**	**S15-My14522**
Date Sampled			**May 13, 2015**	**May 13, 2015**	**May 13, 2015**	**May 13, 2015**
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	20	mg/kg	< 20	< 20	< 20	< 20
TRH C10-C14	20	mg/kg	< 20	< 20	< 20	< 20
TRH C15-C28	50	mg/kg	64	120	< 50	71
TRH C29-C36	50	mg/kg	< 50	< 50	< 50	< 50
TRH C10-36 (Total)	50	mg/kg	64	120	< 50	71
BTEX						
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	%	77	78	75	76
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene[N02]	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
TRH C6-C10	20	mg/kg	< 20	< 20	< 20	< 20
TRH C6-C10 less BTEX (F1)[N04]	20	mg/kg	< 20	< 20	< 20	< 20
TRH >C10-C16	50	mg/kg	< 50	< 50	< 50	< 50
TRH >C10-C16 less Naphthalene (F2)[N01]	50	mg/kg	< 50	< 50	< 50	< 50
TRH >C16-C34	100	mg/kg	< 100	140	< 100	< 100
TRH >C34-C40	100	mg/kg	< 100	< 100	< 100	< 100
Polycyclic Aromatic Hydrocarbons						
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	1.4	3.3	< 0.5	2.1
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	1.6	3.3	0.6	2.4
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	1.9	3.3	1.2	2.6
Acenaphthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Acenaphthylene	0.5	mg/kg	< 0.5	0.5	< 0.5	< 0.5
Anthracene	0.5	mg/kg	< 0.5	0.8	< 0.5	0.7
Benz(a)anthracene	0.5	mg/kg	1.1	2.3	< 0.5	1.5
Benzo(a)pyrene	0.5	mg/kg	0.9	2.1	< 0.5	1.6
Benzo(b&j)fluoranthene[N07]	0.5	mg/kg	1.4	1.2	< 0.5	2.1
Benzo(g.h.i)perylene	0.5	mg/kg	0.8	1.2	< 0.5	0.7
Benzo(k)fluoranthene	0.5	mg/kg	1.2	1.8	< 0.5	0.8
Chrysene	0.5	mg/kg	1.2	2.0	< 0.5	1.4
Dibenz(a.h)anthracene	0.5	mg/kg	< 0.5	0.5	< 0.5	< 0.5

eurofins | mgt

Client Sample ID			MW1_0.5	MW1_2.0	MW2_0.5	MW2_1.0
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins | mgt Sample No.			S15-My14517	S15-My14519	S15-My14521	S15-My14522
Date Sampled			May 13, 2015	May 13, 2015	May 13, 2015	May 13, 2015
Test/Reference	LOR	Unit				
Polycyclic Aromatic Hydrocarbons						
Fluoranthene	0.5	mg/kg	2.3	5.2	< 0.5	3.5
Fluorene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	0.7	1.1	< 0.5	0.6
Naphthalene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Phenanthrene	0.5	mg/kg	1.0	3.2	< 0.5	2.8
Pyrene	0.5	mg/kg	2.2	4.6	< 0.5	3.0
Total PAH*	0.5	mg/kg	13	27	< 0.5	19
2-Fluorobiphenyl (surr.)	1	%	111	121	103	101
p-Terphenyl-d14 (surr.)	1	%	102	111	105	90
Organochlorine Pesticides						
Chlordanes - Total	0.1	mg/kg	< 0.1	-	< 0.1	-
4.4'-DDD	0.05	mg/kg	< 0.05	-	< 0.05	-
4.4'-DDE	0.05	mg/kg	< 0.05	-	< 0.05	-
4.4'-DDT	0.05	mg/kg	< 0.05	-	< 0.05	-
a-BHC	0.05	mg/kg	< 0.05	-	< 0.05	-
Aldrin	0.05	mg/kg	< 0.05	-	< 0.05	-
b-BHC	0.05	mg/kg	< 0.05	-	< 0.05	-
d-BHC	0.05	mg/kg	< 0.05	-	< 0.05	-
Dieldrin	0.05	mg/kg	< 0.05	-	< 0.05	-
Endosulfan I	0.05	mg/kg	< 0.05	-	< 0.05	-
Endosulfan II	0.05	mg/kg	< 0.05	-	< 0.05	-
Endosulfan sulphate	0.05	mg/kg	< 0.05	-	< 0.05	-
Endrin	0.05	mg/kg	< 0.05	-	< 0.05	-
Endrin aldehyde	0.05	mg/kg	< 0.05	-	< 0.05	-
Endrin ketone	0.05	mg/kg	< 0.05	-	< 0.05	-
g-BHC (Lindane)	0.05	mg/kg	< 0.05	-	< 0.05	-
Heptachlor	0.05	mg/kg	< 0.05	-	< 0.05	-
Heptachlor epoxide	0.05	mg/kg	< 0.05	-	< 0.05	-
Hexachlorobenzene	0.05	mg/kg	< 0.05	-	< 0.05	-
Methoxychlor	0.2	mg/kg	< 0.2	-	< 0.2	-
Toxaphene	1	mg/kg	< 1	-	< 1	-
Dibutylchlorendate (surr.)	1	%	118	-	111	-
Tetrachloro-m-xylene (surr.)	1	%	112	-	103	-
Polychlorinated Biphenyls (PCB)						
Aroclor-1016	0.5	mg/kg	< 0.5	-	< 0.5	-
Aroclor-1232	0.5	mg/kg	< 0.5	-	< 0.5	-
Aroclor-1242	0.5	mg/kg	< 0.5	-	< 0.5	-
Aroclor-1248	0.5	mg/kg	< 0.5	-	< 0.5	-
Aroclor-1254	0.5	mg/kg	< 0.5	-	< 0.5	-
Aroclor-1260	0.5	mg/kg	< 0.5	-	< 0.5	-
Total PCB*	0.1	mg/kg	< 0.5	-	< 0.5	-
Dibutylchlorendate (surr.)	1	%	118	-	111	-
Conductivity (1:5 aqueous extract at 25°C)	10	uS/cm	63	-	-	-
pH (1:5 Aqueous extract)	0.1	pH Units	8.6	-	-	-
% Moisture	0.1	%	11	14	8.1	8.5
Ion Exchange Properties						
Cation Exchange Capacity	0.05	meq/100g	16	-	-	-

Client Sample ID			MW1_0.5	MW1_2.0	MW2_0.5	MW2_1.0
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins | mgt Sample No.			S15-My14517	S15-My14519	S15-My14521	S15-My14522
Date Sampled			May 13, 2015	May 13, 2015	May 13, 2015	May 13, 2015
Test/Reference	LOR	Unit				
Heavy Metals						
Arsenic	2	mg/kg	5.3	4.8	< 2	2.2
Cadmium	0.4	mg/kg	0.6	< 0.4	< 0.4	< 0.4
Chromium	5	mg/kg	25	45	11	55
Copper	5	mg/kg	120	99	7.9	14
Lead	5	mg/kg	890	250	22	81
Mercury	0.05	mg/kg	0.62	1.1	< 0.05	0.11
Nickel	5	mg/kg	5.7	10	< 5	< 5
Zinc	5	mg/kg	740	210	11	83

Client Sample ID			MW3_0.5	MW3_1.0	MW4_0.5	MW4_1.0
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins | mgt Sample No.			S15-My14525	S15-My14526	S15-My14528	S15-My14529
Date Sampled			May 13, 2015	May 13, 2015	May 13, 2015	May 13, 2015
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	20	mg/kg	< 20	< 20	< 20	< 20
TRH C10-C14	20	mg/kg	< 20	< 20	< 20	< 20
TRH C15-C28	50	mg/kg	< 50	< 50	500	150
TRH C29-C36	50	mg/kg	< 50	< 50	180	65
TRH C10-36 (Total)	50	mg/kg	< 50	< 50	680	220
BTEX						
Benzene	0.1	mg/kg	< 0.1	< 0.1	0.2	< 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	%	77	77	78	73
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene[N02]	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
TRH C6-C10	20	mg/kg	< 20	< 20	< 20	< 20
TRH C6-C10 less BTEX (F1)[N04]	20	mg/kg	< 20	< 20	< 20	< 20
TRH >C10-C16	50	mg/kg	< 50	< 50	< 50	< 50
TRH >C10-C16 less Naphthalene (F2)[N01]	50	mg/kg	< 50	< 50	< 50	< 50
TRH >C16-C34	100	mg/kg	< 100	< 100	600	190
TRH >C34-C40	100	mg/kg	< 100	< 100	< 100	< 100
Polycyclic Aromatic Hydrocarbons						
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	< 0.5	< 0.5	12	3.1
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	0.6	0.6	12	3.3
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	1.2	1.2	12	3.6
Acenaphthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Acenaphthylene	0.5	mg/kg	< 0.5	< 0.5	4.1	1.3
Anthracene	0.5	mg/kg	< 0.5	< 0.5	26	1.7
Benz(a)anthracene	0.5	mg/kg	< 0.5	< 0.5	12	3.4
Benzo(a)pyrene	0.5	mg/kg	< 0.5	< 0.5	6.2	2.1
Benzo(b&j)fluoranthene[N07]	0.5	mg/kg	< 0.5	< 0.5	9.1	1.8
Benzo(g.h.i)perylene	0.5	mg/kg	< 0.5	< 0.5	6.1	1.8
Benzo(k)fluoranthene	0.5	mg/kg	< 0.5	< 0.5	8.4	2.5

Client Sample ID Sample Matrix Eurofins | mgt Sample No. Date Sampled Test/Reference	LOR	Unit	MW3_0.5 Soil S15-My14525 May 13, 2015	MW3_1.0 Soil S15-My14526 May 13, 2015	MW4_0.5 Soil S15-My14528 May 13, 2015	MW4_1.0 Soil S15-My14529 May 13, 2015
Polycyclic Aromatic Hydrocarbons						
Chrysene	0.5	mg/kg	< 0.5	< 0.5	11	3.3
Dibenz(a.h)anthracene	0.5	mg/kg	< 0.5	< 0.5	2.5	< 0.5
Fluoranthene	0.5	mg/kg	< 0.5	< 0.5	25	8.4
Fluorene	0.5	mg/kg	< 0.5	< 0.5	3.1	0.8
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	< 0.5	< 0.5	6.0	1.7
Naphthalene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Phenanthrene	0.5	mg/kg	< 0.5	< 0.5	25	6.0
Pyrene	0.5	mg/kg	< 0.5	< 0.5	20	6.8
Total PAH*	0.5	mg/kg	< 0.5	< 0.5	160	42
2-Fluorobiphenyl (surr.)	1	%	104	110	114	108
p-Terphenyl-d14 (surr.)	1	%	105	111	110	104
Organochlorine Pesticides						
Chlordanes - Total	0.1	mg/kg	< 0.1	-	< 0.1	-
4.4'-DDD	0.05	mg/kg	< 0.05	-	< 0.05	-
4.4'-DDE	0.05	mg/kg	< 0.05	-	< 0.05	-
4.4'-DDT	0.05	mg/kg	< 0.05	-	< 0.05	-
a-BHC	0.05	mg/kg	< 0.05	-	< 0.05	-
Aldrin	0.05	mg/kg	< 0.05	-	< 0.05	-
b-BHC	0.05	mg/kg	< 0.05	-	< 0.05	-
d-BHC	0.05	mg/kg	< 0.05	-	< 0.05	-
Dieldrin	0.05	mg/kg	< 0.05	-	< 0.05	-
Endosulfan I	0.05	mg/kg	< 0.05	-	< 0.05	-
Endosulfan II	0.05	mg/kg	< 0.05	-	< 0.05	-
Endosulfan sulphate	0.05	mg/kg	< 0.05	-	< 0.05	-
Endrin	0.05	mg/kg	< 0.05	-	< 0.05	-
Endrin aldehyde	0.05	mg/kg	< 0.05	-	< 0.05	-
Endrin ketone	0.05	mg/kg	< 0.05	-	< 0.05	-
g-BHC (Lindane)	0.05	mg/kg	< 0.05	-	< 0.05	-
Heptachlor	0.05	mg/kg	< 0.05	-	< 0.05	-
Heptachlor epoxide	0.05	mg/kg	< 0.05	-	< 0.05	-
Hexachlorobenzene	0.05	mg/kg	< 0.05	-	< 0.05	-
Methoxychlor	0.2	mg/kg	< 0.2	-	< 0.2	-
Toxaphene	1	mg/kg	< 1	-	< 1	-
Dibutylchlorendate (surr.)	1	%	121	-	125	-
Tetrachloro-m-xylene (surr.)	1	%	97	-	118	-
Polychlorinated Biphenyls (PCB)						
Aroclor-1016	0.5	mg/kg	< 0.5	-	< 0.5	-
Aroclor-1232	0.5	mg/kg	< 0.5	-	< 0.5	-
Aroclor-1242	0.5	mg/kg	< 0.5	-	< 0.5	-
Aroclor-1248	0.5	mg/kg	< 0.5	-	< 0.5	-
Aroclor-1254	0.5	mg/kg	< 0.5	-	< 0.5	-
Aroclor-1260	0.5	mg/kg	< 0.5	-	< 0.5	-
Total PCB*	0.1	mg/kg	< 0.5	-	< 0.5	-
Dibutylchlorendate (surr.)	1	%	121	-	125	-
% Moisture	0.1	%	6.6	8.2	12	13

Client Sample ID			MW3_0.5	MW3_1.0	MW4_0.5	MW4_1.0
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins | mgt Sample No.			S15-My14525	S15-My14526	S15-My14528	S15-My14529
Date Sampled			May 13, 2015	May 13, 2015	May 13, 2015	May 13, 2015
Test/Reference	LOR	Unit				
Heavy Metals						
Arsenic	2	mg/kg	< 2	< 2	3.2	5.2
Cadmium	0.4	mg/kg	< 0.4	< 0.4	< 0.4	< 0.4
Chromium	5	mg/kg	20	44	13	13
Copper	5	mg/kg	12	8.9	20	13
Lead	5	mg/kg	9.0	17	180	100
Mercury	0.05	mg/kg	< 0.05	< 0.05	0.23	0.23
Nickel	5	mg/kg	30	12	< 5	< 5
Zinc	5	mg/kg	24	14	240	120

Client Sample ID			HA5_0.1	HA6_0.2	HA6_0.5	HA7_0.1
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins | mgt Sample No.			S15-My14531	S15-My14532	S15-My14533	S15-My14534
Date Sampled			May 13, 2015	May 13, 2015	May 13, 2015	May 13, 2015
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	20	mg/kg	< 20	< 20	< 20	< 20
TRH C10-C14	20	mg/kg	< 20	< 20	< 20	< 20
TRH C15-C28	50	mg/kg	77	60	100	250
TRH C29-C36	50	mg/kg	86	57	85	290
TRH C10-36 (Total)	50	mg/kg	160	120	190	540
BTEX						
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	%	79	83	94	79
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene[N02]	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
TRH C6-C10	20	mg/kg	< 20	< 20	< 20	< 20
TRH C6-C10 less BTEX (F1)[N04]	20	mg/kg	< 20	< 20	< 20	< 20
TRH >C10-C16	50	mg/kg	< 50	< 50	< 50	< 50
TRH >C10-C16 less Naphthalene (F2)[N01]	50	mg/kg	< 50	< 50	< 50	< 50
TRH >C16-C34	100	mg/kg	140	< 100	160	450
TRH >C34-C40	100	mg/kg	< 100	< 100	< 100	190
Polycyclic Aromatic Hydrocarbons						
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	< 0.5	< 0.5	2.2	1.4
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	0.7	0.6	2.4	1.7
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	1.2	1.2	2.7	1.9
Acenaphthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Acenaphthylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benz(a)anthracene	0.5	mg/kg	0.5	< 0.5	1.4	1.1
Benzo(a)pyrene	0.5	mg/kg	< 0.5	< 0.5	1.7	1.0
Benzo(b&j)fluoranthene[N07]	0.5	mg/kg	0.6	< 0.5	1.0	1.2
Benzo(g.h.i)perylene	0.5	mg/kg	< 0.5	< 0.5	1.0	1.0
Benzo(k)fluoranthene	0.5	mg/kg	0.6	< 0.5	1.2	1.1

Client Sample ID Sample Matrix Eurofins | mgt Sample No. Date Sampled Test/Reference	LOR	Unit	HA5_0.1 Soil S15-My14531 May 13, 2015	HA6_0.2 Soil S15-My14532 May 13, 2015	HA6_0.5 Soil S15-My14533 May 13, 2015	HA7_0.1 Soil S15-My14534 May 13, 2015
Polycyclic Aromatic Hydrocarbons						
Chrysene	0.5	mg/kg	0.5	< 0.5	1.4	1.0
Dibenz(a.h)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Fluoranthene	0.5	mg/kg	1.0	0.6	2.8	2.0
Fluorene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	< 0.5	< 0.5	0.9	0.8
Naphthalene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Phenanthrene	0.5	mg/kg	< 0.5	< 0.5	1.3	0.7
Pyrene	0.5	mg/kg	1.0	0.6	2.6	2.0
Total PAH*	0.5	mg/kg	4.2	1.2	15	12
2-Fluorobiphenyl (surr.)	1	%	113	113	114	117
p-Terphenyl-d14 (surr.)	1	%	105	105	108	111
Organochlorine Pesticides						
Chlordanes - Total	0.1	mg/kg	< 0.1	< 0.1	-	-
4.4'-DDD	0.05	mg/kg	< 0.05	< 0.05	-	-
4.4'-DDE	0.05	mg/kg	< 0.05	< 0.05	-	-
4.4'-DDT	0.05	mg/kg	< 0.05	< 0.05	-	-
a-BHC	0.05	mg/kg	< 0.05	< 0.05	-	-
Aldrin	0.05	mg/kg	< 0.05	< 0.05	-	-
b-BHC	0.05	mg/kg	< 0.05	< 0.05	-	-
d-BHC	0.05	mg/kg	< 0.05	< 0.05	-	-
Dieldrin	0.05	mg/kg	< 0.05	< 0.05	-	-
Endosulfan I	0.05	mg/kg	< 0.05	< 0.05	-	-
Endosulfan II	0.05	mg/kg	< 0.05	< 0.05	-	-
Endosulfan sulphate	0.05	mg/kg	< 0.05	< 0.05	-	-
Endrin	0.05	mg/kg	< 0.05	< 0.05	-	-
Endrin aldehyde	0.05	mg/kg	< 0.05	< 0.05	-	-
Endrin ketone	0.05	mg/kg	< 0.05	< 0.05	-	-
g-BHC (Lindane)	0.05	mg/kg	< 0.05	< 0.05	-	-
Heptachlor	0.05	mg/kg	< 0.05	< 0.05	-	-
Heptachlor epoxide	0.05	mg/kg	< 0.05	< 0.05	-	-
Hexachlorobenzene	0.05	mg/kg	< 0.05	< 0.05	-	-
Methoxychlor	0.2	mg/kg	< 0.2	< 0.2	-	-
Toxaphene	1	mg/kg	< 1	< 1	-	-
Dibutylchlorendate (surr.)	1	%	110	111	-	-
Tetrachloro-m-xylene (surr.)	1	%	100	93	-	-
Polychlorinated Biphenyls (PCB)						
Aroclor-1016	0.5	mg/kg	< 0.5	< 0.5	-	-
Aroclor-1232	0.5	mg/kg	< 0.5	< 0.5	-	-
Aroclor-1242	0.5	mg/kg	< 0.5	< 0.5	-	-
Aroclor-1248	0.5	mg/kg	< 0.5	< 0.5	-	-
Aroclor-1254	0.5	mg/kg	< 0.5	< 0.5	-	-
Aroclor-1260	0.5	mg/kg	< 0.5	< 0.5	-	-
Total PCB*	0.1	mg/kg	< 0.5	< 0.5	-	-
Dibutylchlorendate (surr.)	1	%	110	111	-	-
% Moisture	0.1	%	9.1	7.8	8.3	8.2

Client Sample ID			HA5_0.1	HA6_0.2	HA6_0.5	HA7_0.1
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins | mgt Sample No.			S15-My14531	S15-My14532	S15-My14533	S15-My14534
Date Sampled			May 13, 2015	May 13, 2015	May 13, 2015	May 13, 2015
Test/Reference	LOR	Unit				
Heavy Metals						
Arsenic	2	mg/kg	29	2.3	2.7	4.3
Cadmium	0.4	mg/kg	< 0.4	< 0.4	< 0.4	0.4
Chromium	5	mg/kg	47	5.6	8.8	13
Copper	5	mg/kg	45	37	63	76
Lead	5	mg/kg	130	63	120	370
Mercury	0.05	mg/kg	0.09	0.24	0.18	0.34
Nickel	5	mg/kg	28	< 5	< 5	8.7
Zinc	5	mg/kg	160	130	200	340

Client Sample ID			QC1	HA5_0.3	HA7_0.3	HA8_0.2
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins | mgt Sample No.			S15-My14535	S15-My14538	S15-My14539	S15-My14540
Date Sampled			May 13, 2015	May 14, 2015	May 14, 2015	May 13, 2015
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	20	mg/kg	< 20	< 20	< 20	< 20
TRH C10-C14	20	mg/kg	< 20	39	< 20	< 20
TRH C15-C28	50	mg/kg	270	160	170	< 50
TRH C29-C36	50	mg/kg	320	240	160	< 50
TRH C10-36 (Total)	50	mg/kg	590	440	330	< 50
BTEX						
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	%	80	80	80	77
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene[N02]	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
TRH C6-C10	20	mg/kg	< 20	< 20	< 20	< 20
TRH C6-C10 less BTEX (F1)[N04]	20	mg/kg	< 20	< 20	< 20	< 20
TRH >C10-C16	50	mg/kg	< 50	< 50	< 50	< 50
TRH >C10-C16 less Naphthalene (F2)[N01]	50	mg/kg	< 50	< 50	< 50	< 50
TRH >C16-C34	100	mg/kg	480	360	280	< 100
TRH >C34-C40	100	mg/kg	200	130	< 100	< 100
Polycyclic Aromatic Hydrocarbons						
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	1.8	1.7	3.7	1.4
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	2.0	1.9	4.0	1.6
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	2.3	2.2	4.3	1.9
Acenaphthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Acenaphthylene	0.5	mg/kg	< 0.5	< 0.5	0.7	< 0.5
Anthracene	0.5	mg/kg	< 0.5	< 0.5	0.9	< 0.5
Benz(a)anthracene	0.5	mg/kg	1.6	1.1	< 0.5	1.1
Benzo(a)pyrene	0.5	mg/kg	1.2	1.3	2.7	1.0
Benzo(b&j)fluoranthene[N07]	0.5	mg/kg	1.5	0.9	3.7	0.7
Benzo(g.h.i)perylene	0.5	mg/kg	1.3	0.8	2.6	0.9
Benzo(k)fluoranthene	0.5	mg/kg	1.3	1.1	3.5	1.1

Client Sample ID			QC1	HA5_0.3	HA7_0.3	HA8_0.2
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins | mgt Sample No.			S15-My14535	S15-My14538	S15-My14539	S15-My14540
Date Sampled			May 13, 2015	May 14, 2015	May 14, 2015	May 13, 2015
Test/Reference	LOR	Unit				
Polycyclic Aromatic Hydrocarbons						
Chrysene	0.5	mg/kg	1.4	1.0	3.3	1.1
Dibenz(a.h)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Fluoranthene	0.5	mg/kg	2.9	1.8	6.8	2.0
Fluorene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	1.1	0.7	2.3	0.8
Naphthalene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Phenanthrene	0.5	mg/kg	0.8	0.5	2.8	0.6
Pyrene	0.5	mg/kg	2.9	1.8	0.6	2.0
Total PAH*	0.5	mg/kg	16	11	30	11
2-Fluorobiphenyl (surr.)	1	%	117	105	114	113
p-Terphenyl-d14 (surr.)	1	%	110	105	108	110
Organochlorine Pesticides						
Chlordanes - Total	0.1	mg/kg	-	-	-	< 0.1
4.4'-DDD	0.05	mg/kg	-	-	-	< 0.05
4.4'-DDE	0.05	mg/kg	-	-	-	< 0.05
4.4'-DDT	0.05	mg/kg	-	-	-	< 0.05
a-BHC	0.05	mg/kg	-	-	-	< 0.05
Aldrin	0.05	mg/kg	-	-	-	< 0.05
b-BHC	0.05	mg/kg	-	-	-	< 0.05
d-BHC	0.05	mg/kg	-	-	-	< 0.05
Dieldrin	0.05	mg/kg	-	-	-	< 0.05
Endosulfan I	0.05	mg/kg	-	-	-	< 0.05
Endosulfan II	0.05	mg/kg	-	-	-	< 0.05
Endosulfan sulphate	0.05	mg/kg	-	-	-	< 0.05
Endrin	0.05	mg/kg	-	-	-	< 0.05
Endrin aldehyde	0.05	mg/kg	-	-	-	< 0.05
Endrin ketone	0.05	mg/kg	-	-	-	< 0.05
g-BHC (Lindane)	0.05	mg/kg	-	-	-	< 0.05
Heptachlor	0.05	mg/kg	-	-	-	< 0.05
Heptachlor epoxide	0.05	mg/kg	-	-	-	< 0.05
Hexachlorobenzene	0.05	mg/kg	-	-	-	< 0.05
Methoxychlor	0.2	mg/kg	-	-	-	< 0.2
Toxaphene	1	mg/kg	-	-	-	< 1
Dibutylchlorendate (surr.)	1	%	-	-	-	95
Tetrachloro-m-xylene (surr.)	1	%	-	-	-	91
Polychlorinated Biphenyls (PCB)						
Aroclor-1016	0.5	mg/kg	-	-	-	< 0.5
Aroclor-1232	0.5	mg/kg	-	-	-	< 0.5
Aroclor-1242	0.5	mg/kg	-	-	-	< 0.5
Aroclor-1248	0.5	mg/kg	-	-	-	< 0.5
Aroclor-1254	0.5	mg/kg	-	-	-	< 0.5
Aroclor-1260	0.5	mg/kg	-	-	-	< 0.5
Total PCB*	0.1	mg/kg	-	-	-	< 0.5
Dibutylchlorendate (surr.)	1	%	-	-	-	95
% Moisture	0.1	%	11	6.1	10	9.1

Client Sample ID			QC1	HA5_0.3	HA7_0.3	HA8_0.2
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins | mgt Sample No.			S15-My14535	S15-My14538	S15-My14539	S15-My14540
Date Sampled			May 13, 2015	May 14, 2015	May 14, 2015	May 13, 2015
Test/Reference	LOR	Unit				
Heavy Metals						
Arsenic	2	mg/kg	4.6	24	8.8	2.9
Cadmium	0.4	mg/kg	< 0.4	< 0.4	1.0	< 0.4
Chromium	5	mg/kg	25	40	17	19
Copper	5	mg/kg	93	63	150	16
Lead	5	mg/kg	410	120	650	97
Mercury	0.05	mg/kg	0.35	0.09	0.77	0.22
Nickel	5	mg/kg	13	21	9.9	12
Zinc	5	mg/kg	470	150	530	65

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	Sydney	May 18, 2015	14 Day
- Method: TRH C6-C36 - LTM-ORG-2010			
BTEX	Sydney	May 18, 2015	14 Day
- Method: TRH C6-C40 - LTM-ORG-2010			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Sydney	May 18, 2015	14 Day
- Method: TRH C6-C40 - LTM-ORG-2010			
Polycyclic Aromatic Hydrocarbons	Sydney	May 18, 2015	14 Day
- Method: E007 Polyaromatic Hydrocarbons (PAH)			
Metals M8	Sydney	May 18, 2015	28 Day
- Method: LTM-MET-3040_R0 TOTAL AND DISSOLVED METALS AND MERCURY IN WATERS BY ICP-MS			
Organochlorine Pesticides	Sydney	May 18, 2015	14 Day
- Method: E013 Organochlorine Pesticides (OC)			
Polychlorinated Biphenyls (PCB)	Sydney	May 18, 2015	28 Day
- Method: E013 Polychlorinated Biphenyls (PCB)			
pH (1:5 Aqueous extract)	Sydney	May 18, 2015	7 Day
- Method: LTM-GEN-7090 pH in soil by ISE			
Conductivity (1:5 aqueous extract at 25°C)	Melbourne	May 19, 2015	7 Day
- Method: LM-LTM-INO-4010			
Ion Exchange Properties	Melbourne	May 19, 2015	
% Moisture	Sydney	May 15, 2015	14 Day
- Method: LTM-GEN-7080 Moisture			

Company Name: Coffey Geotechnics Pty Ltd Chatswood
Address: Level 18, Tower B, Citadel Tower 799 Pacific Highway
Chatswood
NSW 2067

Project Name: SURRY HILLS VILLAGE
Project ID: GEOTLCOV25397AA

Order No.:
Report #: 457842
Phone: +61 2 9406 1000
Fax: +61 2 9406 1002

Received: May 15, 2015 4:49 PM
Due: May 19, 2015
Priority: 2 Day
Contact Name: Daniel Guille

Eurofins | mgt Client Manager: Charl Du Preez

Sample Detail					Asbestos Absence /Presence	HOLD	pH (1:5 Aqueous extract)	Organochlorine Pesticides	Polychlorinated Biphenyls (PCB)	Eurofins | mgt Suite 7	Eurofins | mgt Suite 1	BTEX and Volatile TRH	Moisture Set	Cation Exchange Capacity
Laboratory where analysis is conducted														
Melbourne Laboratory - NATA Site # 1254 & 14271														X
Sydney Laboratory - NATA Site # 18217					X	X	X	X	X	X	X	X	X	X
Brisbane Laboratory - NATA Site # 20794														
External Laboratory														
Sample ID	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**										
MW1_0.2	May 13, 2015		Soil	S15-My14516		X								
MW1_0.5	May 13, 2015		Soil	S15-My14517	X		X	X	X	X			X	X
MW1_1.0	May 13, 2015		Soil	S15-My14518		X								
MW1_2.0	May 13, 2015		Soil	S15-My14519	X					X			X	
MW2_0.2	May 13, 2015		Soil	S15-My14520		X								
MW2_0.5	May 13, 2015		Soil	S15-My14521	X			X	X	X			X	
MW2_1.0	May 13, 2015		Soil	S15-My14522	X					X			X	
MW2_2.0	May 13, 2015		Soil	S15-My14523		X								
MW3_0.2	May 13, 2015		Soil	S15-My14524		X								

Melbourne
3-5 Kingston Town Close
Oakleigh VIC 3166
Phone : +61 3 8564 5000
NATA # 1261
Site # 1254 & 14271

Sydney
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Lane Cove West NSW 2066
Phone : +61 2 9900 8400
NATA # 1261 Site # 18217

Brisbane
1/21 Smallwood Place
Murarrie QLD 4172
Phone : +61 7 3902 4600
NATA # 1261 Site # 20794

Company Name: Coffey Geotechnics Pty Ltd Chatswood
Address: Level 18, Tower B, Citadel Tower 799 Pacific Highway
Chatswood
NSW 2067

Order No.:
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Fax: +61 2 9406 1002

Received: May 15, 2015 4:49 PM
Due: May 19, 2015
Priority: 2 Day
Contact Name: Daniel Guille

Project Name: SURRY HILLS VILLAGE
Project ID: GEOTLCOV25397AA

Eurofins | mgt Client Manager: Charl Du Preez

Sample Detail					Asbestos Absence /Presence	HOLD	pH (1:5 Aqueous extract)	Organochlorine Pesticides	Polychlorinated Biphenyls (PCB)	Eurofins | mgt Suite 7	Eurofins | mgt Suite 1	BTEX and Volatile TRH	Moisture Set	Cation Exchange Capacity
Laboratory where analysis is conducted														
Melbourne Laboratory - NATA Site # 1254 & 14271														X
Sydney Laboratory - NATA Site # 18217					X	X	X	X	X	X	X	X	X	X
Brisbane Laboratory - NATA Site # 20794														
External Laboratory														
MW3_0.5	May 13, 2015		Soil	S15-My14525	X			X	X	X			X	
MW3_1.0	May 13, 2015		Soil	S15-My14526	X					X			X	
MW4_0.2	May 13, 2015		Soil	S15-My14527		X								
MW4_0.5	May 13, 2015		Soil	S15-My14528	X			X	X	X			X	
MW4_1.0	May 13, 2015		Soil	S15-My14529	X					X			X	
MW4_2.0	May 13, 2015		Soil	S15-My14530		X								
HA5_0.1	May 13, 2015		Soil	S15-My14531	X			X	X	X			X	
HA6_0.2	May 13, 2015		Soil	S15-My14532	X			X	X	X			X	
HA6_0.5	May 13, 2015		Soil	S15-My14533	X					X			X	
HA7_0.1	May 13, 2015		Soil	S15-My14534	X					X			X	

Company Name:	Coffey Geotechnics Pty Ltd Chatswood	**Order No.:**		**Received:** May 15, 2015 4:49 PM
Address:	Level 18, Tower B, Citadel Tower 799 Pacific Highway	**Report #:**	457842	**Due:** May 19, 2015
	Chatswood	**Phone:**	+61 2 9406 1000	**Priority:** 2 Day
	NSW 2067	**Fax:**	+61 2 9406 1002	**Contact Name:** Daniel Guille
Project Name:	SURRY HILLS VILLAGE			
Project ID:	GEOTLCOV25397AA			

Eurofins | mgt Client Manager: Charl Du Preez

Sample Detail					Asbestos Absence /Presence	HOLD	pH (1:5 Aqueous extract)	Organochlorine Pesticides	Polychlorinated Biphenyls (PCB)	Eurofins | mgt Suite 7	Eurofins | mgt Suite 1	BTEX and Volatile TRH	Moisture Set	Cation Exchange Capacity
Laboratory where analysis is conducted														
Melbourne Laboratory - NATA Site # 1254 & 14271														X
Sydney Laboratory - NATA Site # 18217					X	X	X	X	X	X	X	X	X	X
Brisbane Laboratory - NATA Site # 20794														
External Laboratory														
QC1	May 13, 2015		Soil	S15-My14535						X			X	
RIN BLANK	May 13, 2015		Water	S15-My14536							X			
TRIP BLANK	May 13, 2015		Water	S15-My14537								X		
HA5_0.3	May 14, 2015		Soil	S15-My14538	X					X			X	
HA7_0.3	May 14, 2015		Soil	S15-My14539	X					X			X	
HA8_0.2	May 13, 2015		Soil	S15-My14540	X			X	X	X			X	

Eurofins | mgt 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

Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
LOR	Limit of Reporting.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
LCS	Laboratory Control Sample - reported as percent recovery
CRM	Certified Reference Material - reported as percent recovery
Method Blank	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.
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
Batch Duplicate	A second piece of analysis from a sample outside of the clients batch of samples but run within the laboratory batch of analysis.
Batch SPIKE	Spike recovery reported on a sample from outside of the clients batch of samples but run within the laboratory batch of analysis.
USEPA	United States Environmental Protection Agency
APHA	American Public Health Association
ASLP	Australian Standard Leaching Procedure (AS4439.3)
TCLP	Toxicity Characteristic Leaching Procedure
COC	Chain of Custody
SRA	Sample Receipt Advice
CP	Client Parent - QC was performed on samples pertaining to this report
NCP	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
TEQ	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, Toxophene & Chlordane are not added to the LCS.
4. Organochlorine Pesticide analysis - where reporting Spike data, Toxophene 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 Arochlor 1260 in Matrix Spikes and LCS's.
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 RPD's 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
Method Blank							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
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	
Method Blank							
BTEX							
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	
Method Blank							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	mg/kg	< 0.5			0.5	Pass	
TRH C6-C10	mg/kg	< 20			20	Pass	
TRH C6-C10 less BTEX (F1)	mg/kg	< 20			20	Pass	
TRH >C10-C16	mg/kg	< 50			50	Pass	
TRH >C16-C34	mg/kg	< 100			100	Pass	
TRH >C34-C40	mg/kg	< 100			100	Pass	
Method Blank							
Polycyclic Aromatic Hydrocarbons							
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	
Method Blank							
Organochlorine Pesticides							
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	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
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	
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	
Method Blank							
Polychlorinated Biphenyls (PCB)							
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	
Method Blank							
Conductivity (1:5 aqueous extract at 25°C)	uS/cm	< 10			10	Pass	
Method Blank							
Heavy Metals							
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	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	%	106			70-130	Pass	
TRH C10-C14	%	75			70-130	Pass	
LCS - % Recovery							
BTEX							
Benzene	%	99			70-130	Pass	
Toluene	%	95			70-130	Pass	
Ethylbenzene	%	95			70-130	Pass	
m&p-Xylenes	%	99			70-130	Pass	
o-Xylene	%	99			70-130	Pass	
Xylenes - Total	%	99			70-130	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	%	93			70-130	Pass	
TRH C6-C10	%	97			70-130	Pass	
TRH >C10-C16	%	74			70-130	Pass	
LCS - % Recovery							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	%	89			70-130	Pass	
Acenaphthylene	%	85			70-130	Pass	
Anthracene	%	86			70-130	Pass	
Benz(a)anthracene	%	78			70-130	Pass	

Test			Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Benzo(a)pyrene			%	90			70-130	Pass	
Benzo(b&j)fluoranthene			%	120			70-130	Pass	
Benzo(g.h.i)perylene			%	87			70-130	Pass	
Benzo(k)fluoranthene			%	99			70-130	Pass	
Chrysene			%	94			70-130	Pass	
Dibenz(a.h)anthracene			%	89			70-130	Pass	
Fluoranthene			%	88			70-130	Pass	
Fluorene			%	86			70-130	Pass	
Indeno(1.2.3-cd)pyrene			%	91			70-130	Pass	
Naphthalene			%	97			70-130	Pass	
Phenanthrene			%	91			70-130	Pass	
Pyrene			%	89			70-130	Pass	
LCS - % Recovery									
Organochlorine Pesticides									
Chlordanes - Total			%	98			70-130	Pass	
4.4'-DDD			%	96			70-130	Pass	
4.4'-DDE			%	97			70-130	Pass	
4.4'-DDT			%	96			70-130	Pass	
a-BHC			%	90			70-130	Pass	
Aldrin			%	101			70-130	Pass	
b-BHC			%	98			70-130	Pass	
d-BHC			%	89			70-130	Pass	
Dieldrin			%	101			70-130	Pass	
Endosulfan I			%	94			70-130	Pass	
Endosulfan II			%	98			70-130	Pass	
Endosulfan sulphate			%	100			70-130	Pass	
Endrin			%	101			70-130	Pass	
Endrin aldehyde			%	95			70-130	Pass	
Endrin ketone			%	99			70-130	Pass	
g-BHC (Lindane)			%	94			70-130	Pass	
Heptachlor			%	102			70-130	Pass	
Heptachlor epoxide			%	100			70-130	Pass	
Methoxychlor			%	97			70-130	Pass	
LCS - % Recovery									
Polychlorinated Biphenyls (PCB)									
Aroclor-1260			%	105			70-130	Pass	
LCS - % Recovery									
Heavy Metals									
Arsenic			%	95			70-130	Pass	
Cadmium			%	116			70-130	Pass	
Chromium			%	95			70-130	Pass	
Copper			%	95			70-130	Pass	
Lead			%	118			70-130	Pass	
Mercury			%	101			70-130	Pass	
Nickel			%	93			70-130	Pass	
Zinc			%	96			70-130	Pass	
Test	**Lab Sample ID**	**QA Source**	**Units**	**Result 1**			**Acceptance Limits**	**Pass Limits**	**Qualifying Code**
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic	S15-My14604	NCP	%	97			70-130	Pass	
Chromium	S15-My14604	NCP	%	91			70-130	Pass	
Copper	S15-My14604	NCP	%	77			70-130	Pass	
Nickel	S15-My14604	NCP	%	85			70-130	Pass	
Zinc	S15-My11923	NCP	%	80			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery									
Polycyclic Aromatic Hydrocarbons				Result 1					
Acenaphthene	S15-My09734	NCP	%	108			70-130	Pass	
Acenaphthylene	S15-My09734	NCP	%	106			70-130	Pass	
Anthracene	S15-My09734	NCP	%	112			70-130	Pass	
Benz(a)anthracene	S15-My09734	NCP	%	107			70-130	Pass	
Benzo(a)pyrene	S15-My09734	NCP	%	109			70-130	Pass	
Benzo(b&j)fluoranthene	S15-My09734	NCP	%	103			70-130	Pass	
Benzo(g.h.i)perylene	S15-My09734	NCP	%	96			70-130	Pass	
Benzo(k)fluoranthene	S15-My09734	NCP	%	109			70-130	Pass	
Chrysene	S15-My09734	NCP	%	106			70-130	Pass	
Dibenz(a.h)anthracene	S15-My09734	NCP	%	97			70-130	Pass	
Fluoranthene	S15-My09734	NCP	%	110			70-130	Pass	
Fluorene	S15-My09734	NCP	%	108			70-130	Pass	
Indeno(1.2.3-cd)pyrene	S15-My09734	NCP	%	97			70-130	Pass	
Naphthalene	S15-My09734	NCP	%	108			70-130	Pass	
Phenanthrene	S15-My09734	NCP	%	104			70-130	Pass	
Pyrene	S15-My09734	NCP	%	110			70-130	Pass	
Spike - % Recovery									
Organochlorine Pesticides				Result 1					
Chlordanes - Total	S15-My14521	CP	%	127			70-130	Pass	
4.4'-DDD	S15-My14521	CP	%	123			70-130	Pass	
4.4'-DDE	S15-My14521	CP	%	127			70-130	Pass	
4.4'-DDT	S15-My14521	CP	%	112			70-130	Pass	
a-BHC	S15-My14521	CP	%	119			70-130	Pass	
Aldrin	S15-My14521	CP	%	128			70-130	Pass	
b-BHC	S15-My14521	CP	%	121			70-130	Pass	
d-BHC	S15-My14521	CP	%	119			70-130	Pass	
Dieldrin	S15-My14521	CP	%	130			70-130	Pass	
Endosulfan I	S15-My14521	CP	%	113			70-130	Pass	
Endosulfan II	S15-My14521	CP	%	123			70-130	Pass	
Endosulfan sulphate	S15-My14521	CP	%	127			70-130	Pass	
Endrin	S15-My14521	CP	%	127			70-130	Pass	
Endrin aldehyde	S15-My14521	CP	%	112			70-130	Pass	
Endrin ketone	S15-My14521	CP	%	124			70-130	Pass	
g-BHC (Lindane)	S15-My14521	CP	%	120			70-130	Pass	
Heptachlor	S15-My14521	CP	%	128			70-130	Pass	
Heptachlor epoxide	S15-My14521	CP	%	124			70-130	Pass	
Methoxychlor	S15-My14521	CP	%	118			70-130	Pass	
Spike - % Recovery									
Polychlorinated Biphenyls (PCB)				Result 1					
Aroclor-1260	S15-My14521	CP	%	107			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1					
TRH C6-C9	S15-My14531	CP	%	100			70-130	Pass	
TRH C10-C14	S15-My14531	CP	%	89			70-130	Pass	
Spike - % Recovery									
BTEX				Result 1					
Benzene	S15-My14531	CP	%	90			70-130	Pass	
Toluene	S15-My14531	CP	%	91			70-130	Pass	
Ethylbenzene	S15-My14531	CP	%	91			70-130	Pass	
m&p-Xylenes	S15-My14531	CP	%	95			70-130	Pass	
o-Xylene	S15-My14531	CP	%	94			70-130	Pass	
Xylenes - Total	S15-My14531	CP	%	95			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1					
Naphthalene	S15-My14531	CP	%	90			70-130	Pass	
TRH C6-C10	S15-My14531	CP	%	97			70-130	Pass	
TRH >C10-C16	S15-My14531	CP	%	93			70-130	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Cadmium	S15-My14531	CP	%	117			70-130	Pass	
Lead	S15-My14531	CP	%	129			70-130	Pass	
Mercury	S15-My14531	CP	%	128			70-130	Pass	
Test	**Lab Sample ID**	**QA Source**	**Units**	**Result 1**			**Acceptance Limits**	**Pass Limits**	**Qualifying Code**
Duplicate									
Organochlorine Pesticides				Result 1	Result 2	RPD			
Chlordanes - Total	S15-My14517	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
4.4'-DDD	S15-My14517	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
4.4'-DDE	S15-My14517	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
4.4'-DDT	S15-My14517	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
a-BHC	S15-My14517	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Aldrin	S15-My14517	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
b-BHC	S15-My14517	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
d-BHC	S15-My14517	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Dieldrin	S15-My14517	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan I	S15-My14517	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan II	S15-My14517	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan sulphate	S15-My14517	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin	S15-My14517	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin aldehyde	S15-My14517	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin ketone	S15-My14517	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
g-BHC (Lindane)	S15-My14517	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Heptachlor	S15-My14517	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Heptachlor epoxide	S15-My14517	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Hexachlorobenzene	S15-My14517	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Methoxychlor	S15-My14517	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Toxaphene	S15-My14517	CP	mg/kg	< 1	< 1	<1	30%	Pass	
Duplicate									
Polychlorinated Biphenyls (PCB)				Result 1	Result 2	RPD			
Aroclor-1016	S15-My14517	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Aroclor-1232	S15-My14517	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Aroclor-1242	S15-My14517	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Aroclor-1248	S15-My14517	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Aroclor-1254	S15-My14517	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Aroclor-1260	S15-My14517	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
Conductivity (1:5 aqueous extract at 25°C)	S15-My14517	CP	uS/cm	63	57	10	30%	Pass	
pH (1:5 Aqueous extract)	S15-My12428	NCP	pH Units	6.7	6.8	pass	30%	Pass	
Duplicate									
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD			
Acenaphthene	S15-My09501	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Acenaphthylene	S15-My09501	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Anthracene	S15-My09501	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benz(a)anthracene	S15-My09501	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(a)pyrene	S15-My09501	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	

Duplicate									
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD			
Benzo(b&j)fluoranthene	S15-My09501	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(g.h.i)perylene	S15-My09501	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(k)fluoranthene	S15-My09501	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Chrysene	S15-My09501	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Dibenz(a.h)anthracene	S15-My09501	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fluoranthene	S15-My09501	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fluorene	S15-My09501	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Indeno(1.2.3-cd)pyrene	S15-My09501	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Naphthalene	S15-My09501	NCP	mg/kg	< 0.5	0.60	44	30%	Fail	Q15
Phenanthrene	S15-My09501	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Pyrene	S15-My09501	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1	Result 2	RPD			
TRH C6-C9	S15-My14529	CP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH C10-C14	S15-My14529	CP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH C15-C28	S15-My14529	CP	mg/kg	150	93	47	30%	Fail	Q15
TRH C29-C36	S15-My14529	CP	mg/kg	65	< 50	37	30%	Fail	Q15
Duplicate									
BTEX				Result 1	Result 2	RPD			
Benzene	S15-My14529	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Toluene	S15-My14529	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Ethylbenzene	S15-My14529	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
m&p-Xylenes	S15-My14529	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
o-Xylene	S15-My14529	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Xylenes - Total	S15-My14529	CP	mg/kg	< 0.3	< 0.3	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD			
Naphthalene	S15-My14529	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
TRH C6-C10	S15-My14529	CP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH C6-C10 less BTEX (F1)	S15-My14529	CP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH >C10-C16	S15-My14529	CP	mg/kg	< 50	< 50	<1	30%	Pass	
TRH >C16-C34	S15-My14529	CP	mg/kg	190	120	44	30%	Fail	Q15
TRH >C34-C40	S15-My14529	CP	mg/kg	< 100	< 100	<1	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
% Moisture	S15-My14529	CP	%	13	13	<1	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic	S15-My14529	CP	mg/kg	5.2	5.9	12	30%	Pass	
Cadmium	S15-My14529	CP	mg/kg	< 0.4	< 0.4	<1	30%	Pass	
Chromium	S15-My14529	CP	mg/kg	13	11	20	30%	Pass	
Copper	S15-My14529	CP	mg/kg	13	14	7.0	30%	Pass	
Lead	S15-My14529	CP	mg/kg	100	100	4.0	30%	Pass	
Mercury	S15-My14529	CP	mg/kg	0.23	0.24	1.0	30%	Pass	
Nickel	S15-My14529	CP	mg/kg	< 5	< 5	<1	30%	Pass	
Zinc	S15-My14529	CP	mg/kg	120	150	23	30%	Pass	

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Comments

Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	Yes
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
Q15	The RPD reported passes Eurofins | mgt's Acceptance Criteria as stipulated in SOP 05. Refer to Glossary Page of this report for further details

Authorised By

Charl Du Preez	Analytical Services Manager
Bob Symons	Senior Analyst-Inorganic (NSW)
Emily Rosenberg	Senior Analyst-Metal (VIC)
Huong Le	Senior Analyst-Inorganic (VIC)
Ivan Taylor	Senior Analyst-Metal (NSW)
Nibha Vaidya	Senior Analyst-Asbestos (NSW)
Ryan Hamilton	Senior Analyst-Organic (NSW)
Ryan Hamilton	Senior Analyst-Volatile (NSW)

Glenn Jackson
National Laboratory 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

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.

Coffey Geotechnics Pty Ltd Chatswood
Level 18, Tower B, Citadel Tower 799 Pacific Highway
Chatswood
NSW 2067

Attention:	Daniel Guille
Report	457842-AID
Project Name	SURRY HILLS VILLAGE
Project ID	GEOTLCOV25397AA
Received Date	May 15, 2015
Date Reported	May 19, 2015

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 ± 30°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 VILLAGE
Project ID	GEOTLCOV25397AA
Date Sampled	May 13, 2015 to May 14, 2015
Report	457842-AID

Client Sample ID	Eurofins | mgt Sample No.	Date Sampled	Sample Description	Result
MW1_0.5	15-My14517	May 13, 2015	Approximate Sample 101g Sample consisted of: Greyish brown coarse-grained soil and rocks	No asbestos detected. Organic fibre detected. No respirable fibres detected.
MW1_2.0	15-My14519	May 13, 2015	Approximate Sample 198g Sample consisted of: Dark brown coarse-grained soil and rocks	No asbestos detected. Organic fibre detected. No respirable fibres detected.
MW2_0.5	15-My14521	May 13, 2015	Approximate Sample 204g Sample consisted of: Beige-pink coarse-grained soil and rocks	No asbestos detected. Organic fibre detected. No respirable fibres detected.
MW2_1.0	15-My14522	May 13, 2015	Approximate Sample 204g Sample consisted of: Greyish brown coarse-grained soil and rocks	No asbestos detected. Organic fibre detected. No respirable fibres detected.
MW3_0.5	15-My14525	May 13, 2015	Approximate Sample 141g Sample consisted of: Brown coarse-grained soil and rocks	No asbestos detected. Organic fibre detected. No respirable fibres detected.
MW3_1.0	15-My14526	May 13, 2015	Approximate Sample 118g Sample consisted of: Beige-pink coarse-grained soil and rocks	No asbestos detected. Organic fibre detected. No respirable fibres detected.
MW4_0.5	15-My14528	May 13, 2015	Approximate Sample 123g Sample consisted of: Greyish brown coarse-grained soil and rocks	No asbestos detected. Organic fibre detected. No respirable fibres detected.
MW4_1.0	15-My14529	May 13, 2015	Approximate Sample 105g Sample consisted of: Brown coarse-grained soil and rocks	No asbestos detected. Organic fibre detected. No respirable fibres detected.
HA5_0.1	15-My14531	May 13, 2015	Approximate Sample 151g Sample consisted of: Dark brown coarse-grained soil and rocks	No asbestos detected. Organic fibre detected. No respirable fibres detected.

Client Sample ID	Eurofins | mgt Sample No.	Date Sampled	Sample Description	Result
HA6_0.2	15-My14532	May 13, 2015	Approximate Sample 141g Sample consisted of: Brown coarse-grained soil and rocks	Chrysotile, amosite and crocidolite asbestos detected in weathered fibre cement fragments and in the form of loose fibre bundles. Approximate raw weight of asbestos containing material = 0.2885g Organic fibre detected. No respirable fibres detected.
HA6_0.5	15-My14533	May 13, 2015	Approximate Sample 141g Sample consisted of: Brown coarse-grained soil and rocks	Chrysotile, amosite and crocidolite asbestos detected in weathered fibre cement fragments and in the form of loose fibre bundles. Approximate raw weight of asbestos containing material = 0.1020g Organic fibre detected. No respirable fibres detected.
HA7_0.1	15-My14534	May 13, 2015	Approximate Sample 166g Sample consisted of: Brown coarse-grained soil and rocks	No asbestos detected. Organic fibre detected. No respirable fibres detected.
HA5_0.3	15-My14538	May 14, 2015	Approximate Sample 98g Sample consisted of: Brown coarse-grained soil and rocks	No asbestos detected. Organic fibre detected. No respirable fibres detected.
HA7_0.3	15-My14539	May 14, 2015	Approximate Sample 215g Sample consisted of: Brown coarse-grained soil and rocks	No asbestos detected. Organic fibre detected. No respirable fibres detected.
HA8_0.2	15-My14540	May 13, 2015	Approximate Sample 198g Sample consisted of: Greyish brown coarse-grained 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	May 18, 2015	Indefinite

Company Name: Coffey Geotechnics Pty Ltd Chatswood
Address: Level 18, Tower B, Citadel Tower 799 Pacific Highway
Chatswood
NSW 2067

Order No.:
Report #: 457842
Phone: +61 2 9406 1000
Fax: +61 2 9406 1002

Received: May 15, 2015 4:49 PM
Due: May 19, 2015
Priority: 2 Day
Contact Name: Daniel Guille

Project Name: SURRY HILLS VILLAGE
Project ID: GEOTLCOV25397AA

Eurofins | mgt Client Manager: Charl Du Preez

Sample Detail					Asbestos Absence /Presence	HOLD	pH (1:5 Aqueous extract)	Organochlorine Pesticides	Polychlorinated Biphenyls (PCB)	Eurofins | mgt Suite 7	Eurofins | mgt Suite 1	BTEX and Volatile TRH	Moisture Set	Cation Exchange Capacity
Laboratory where analysis is conducted														
Melbourne Laboratory - NATA Site # 1254 & 14271														X
Sydney Laboratory - NATA Site # 18217					X	X	X	X	X	X	X	X	X	X
Brisbane Laboratory - NATA Site # 20794														
External Laboratory														
Sample ID	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**										
MW1_0.2	May 13, 2015		Soil	S15-My14516		X								
MW1_0.5	May 13, 2015		Soil	S15-My14517	X		X	X	X	X			X	X
MW1_1.0	May 13, 2015		Soil	S15-My14518		X								
MW1_2.0	May 13, 2015		Soil	S15-My14519	X					X			X	
MW2_0.2	May 13, 2015		Soil	S15-My14520		X								
MW2_0.5	May 13, 2015		Soil	S15-My14521	X			X	X	X			X	
MW2_1.0	May 13, 2015		Soil	S15-My14522	X					X			X	
MW2_2.0	May 13, 2015		Soil	S15-My14523		X								
MW3_0.2	May 13, 2015		Soil	S15-My14524		X								

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Sample Detail					Asbestos Absence /Presence	HOLD	pH (1:5 Aqueous extract)	Organochlorine Pesticides	Polychlorinated Biphenyls (PCB)	Eurofins | mgt Suite 7	Eurofins | mgt Suite 1	BTEX and Volatile TRH	Moisture Set	Cation Exchange Capacity
Laboratory where analysis is conducted														
Melbourne Laboratory - NATA Site # 1254 & 14271														X
Sydney Laboratory - NATA Site # 18217					X	X	X	X	X	X	X	X	X	X
Brisbane Laboratory - NATA Site # 20794														
External Laboratory														
MW3_0.5	May 13, 2015		Soil	S15-My14525	X			X	X	X			X	
MW3_1.0	May 13, 2015		Soil	S15-My14526	X					X			X	
MW4_0.2	May 13, 2015		Soil	S15-My14527		X								
MW4_0.5	May 13, 2015		Soil	S15-My14528	X			X	X	X			X	
MW4_1.0	May 13, 2015		Soil	S15-My14529	X					X			X	
MW4_2.0	May 13, 2015		Soil	S15-My14530		X								
HA5_0.1	May 13, 2015		Soil	S15-My14531	X			X	X	X			X	
HA6_0.2	May 13, 2015		Soil	S15-My14532	X			X	X	X			X	
HA6_0.5	May 13, 2015		Soil	S15-My14533	X					X			X	
HA7_0.1	May 13, 2015		Soil	S15-My14534	X					X			X	

Company Name:	Coffey Geotechnics Pty Ltd Chatswood	**Order No.:**		**Received:**	May 15, 2015 4:49 PM
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		Phone:	+61 2 9406 1000	**Priority:**	2 Day
		Fax:	+61 2 9406 1002	**Contact Name:**	Daniel Guille
Project Name:	SURRY HILLS VILLAGE				
Project ID:	GEOTLCOV25397AA				

Eurofins | mgt Client Manager: Charl Du Preez

Sample Detail					Asbestos Absence /Presence	HOLD	pH (1:5 Aqueous extract)	Organochlorine Pesticides	Polychlorinated Biphenyls (PCB)	Eurofins | mgt Suite 7	Eurofins | mgt Suite 1	BTEX and Volatile TRH	Moisture Set	Cation Exchange Capacity
Laboratory where analysis is conducted														
Melbourne Laboratory - NATA Site # 1254 & 14271														X
Sydney Laboratory - NATA Site # 18217					X	X	X	X	X	X	X	X	X	X
Brisbane Laboratory - NATA Site # 20794														
External Laboratory														
QC1	May 13, 2015		Soil	S15-My14535						X			X	
RIN BLANK	May 13, 2015		Water	S15-My14536							X			
TRIP BLANK	May 13, 2015		Water	S15-My14537								X		
HA5_0.3	May 14, 2015		Soil	S15-My14538	X					X			X	
HA7_0.3	May 14, 2015		Soil	S15-My14539	X					X			X	
HA8_0.2	May 13, 2015		Soil	S15-My14540	X			X	X	X			X	

Eurofins | mgt 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

Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
LOR	Limit of Reporting.
COC	Chain of custody
SRA	Sample Receipt Advice
ISO	International Standards Organisation
AS	Australian Standards
WA DOH	Western Australia Department of Health
NOHSC	National Occupational Health and Safety Commission
ACM	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.
FA	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).
PACM	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.
AF	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 substatntial degree of damage which increases the potential for fibre release.)
AC	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	Yes
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:

Nibha Vaidya Senior Analyst-Asbestos (NSW)

Glenn Jackson
National Laboratory 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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Company Name:	Coffey Geotechnics Pty Ltd Chatswood	**Order No.:**	
Address:	Level 18, Tower B, Citadel Tower 799 Pacific Highway Chatswood NSW 2067	**Report #:**	457842
		Phone:	+61 2 9406 1000
		Fax:	+61 2 9406 1002
Project Name:	SURRY HILLS VILLAGE	**Received:**	May 15, 2015 4:49 PM
Project ID:	GEOTLCOV25397AA	**Due:**	May 19, 2015
		Priority:	2 Day
		Contact Name:	Daniel Guille

Eurofins | mgt Client Manager: Charl Du Preez

Sample Detail					Asbestos Absence /Presence	HOLD	pH (1:5 Aqueous extract)	Organochlorine Pesticides	Polychlorinated Biphenyls (PCB)	Eurofins | mgt Suite 7	Eurofins | mgt Suite 1	BTEX and Volatile TRH	Moisture Set	Cation Exchange Capacity
Laboratory where analysis is conducted														
Melbourne Laboratory - NATA Site # 1254 & 14271														X
Sydney Laboratory - NATA Site # 18217					X	X	X	X	X	X	X	X	X	X
Brisbane Laboratory - NATA Site # 20794														
External Laboratory														
Sample ID	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**										
MW1_0.2	May 13, 2015		Soil	S15-My14516		X								
MW1_0.5	May 13, 2015		Soil	S15-My14517	X		X	X	X	X			X	X
MW1_1.0	May 13, 2015		Soil	S15-My14518		X								
MW1_2.0	May 13, 2015		Soil	S15-My14519	X					X			X	
MW2_0.2	May 13, 2015		Soil	S15-My14520		X								
MW2_0.5	May 13, 2015		Soil	S15-My14521	X			X	X	X			X	
MW2_1.0	May 13, 2015		Soil	S15-My14522	X					X			X	
MW2_2.0	May 13, 2015		Soil	S15-My14523		X								
MW3_0.2	May 13, 2015		Soil	S15-My14524		X								

Melbourne
3-5 Kingston Town Close
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Phone : +61 3 8564 5000
NATA # 1261
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Sydney
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Sample Detail					Asbestos Absence /Presence	HOLD	pH (1:5 Aqueous extract)	Organochlorine Pesticides	Polychlorinated Biphenyls (PCB)	Eurofins | mgt Suite 7	Eurofins | mgt Suite 1	BTEX and Volatile TRH	Moisture Set	Cation Exchange Capacity
Laboratory where analysis is conducted														
Melbourne Laboratory - NATA Site # 1254 & 14271														X
Sydney Laboratory - NATA Site # 18217					X	X	X	X	X	X	X	X	X	X
Brisbane Laboratory - NATA Site # 20794														
External Laboratory														
MW3_0.5	May 13, 2015		Soil	S15-My14525	X			X	X	X			X	
MW3_1.0	May 13, 2015		Soil	S15-My14526	X					X			X	
MW4_0.2	May 13, 2015		Soil	S15-My14527		X								
MW4_0.5	May 13, 2015		Soil	S15-My14528	X			X	X	X			X	
MW4_1.0	May 13, 2015		Soil	S15-My14529	X					X			X	
MW4_2.0	May 13, 2015		Soil	S15-My14530		X								
HA5_0.1	May 13, 2015		Soil	S15-My14531	X			X	X	X			X	
HA6_0.2	May 13, 2015		Soil	S15-My14532	X			X	X	X			X	
HA6_0.5	May 13, 2015		Soil	S15-My14533	X					X			X	
HA7_0.1	May 13, 2015		Soil	S15-My14534	X					X			X	

Company Name: Coffey Geotechnics Pty Ltd Chatswood
Address: Level 18, Tower B, Citadel Tower 799 Pacific Highway
Chatswood
NSW 2067

Order No.:
Report #: 457842
Phone: +61 2 9406 1000
Fax: +61 2 9406 1002

Received: May 15, 2015 4:49 PM
Due: May 19, 2015
Priority: 2 Day
Contact Name: Daniel Guille

Project Name: SURRY HILLS VILLAGE
Project ID: GEOTLCOV25397AA

Eurofins | mgt Client Manager: Charl Du Preez

Sample Detail					Asbestos Absence /Presence	HOLD	pH (1:5 Aqueous extract)	Organochlorine Pesticides	Polychlorinated Biphenyls (PCB)	Eurofins | mgt Suite 7	Eurofins | mgt Suite 1	BTEX and Volatile TRH	Moisture Set	Cation Exchange Capacity
Laboratory where analysis is conducted														
Melbourne Laboratory - NATA Site # 1254 & 14271														X
Sydney Laboratory - NATA Site # 18217					X	X	X	X	X	X	X	X	X	X
Brisbane Laboratory - NATA Site # 20794														
External Laboratory														
QC1	May 13, 2015		Soil	S15-My14535						X			X	
RIN BLANK	May 13, 2015		Water	S15-My14536							X			
TRIP BLANK	May 13, 2015		Water	S15-My14537								X		
HA5_0.3	May 14, 2015		Soil	S15-My14538	X					X			X	
HA7_0.3	May 14, 2015		Soil	S15-My14539	X					X			X	
HA8_0.2	May 13, 2015		Soil	S15-My14540	X			X	X	X			X	

Sample Receipt Advice

Company name:	**Coffey Geotechnics Pty Ltd Chatswood**
Contact name:	Daniel Guille
Project name:	SURRY HILLS VILLAGE
Project ID:	GEOTLCOV25397AA
COC number:	0351-52
Turn around time:	2 Day
Date/Time received:	May 15, 2015 4:49 PM
Eurofins | mgt reference:	**457842**

Sample information

☑ A detailed list of analytes logged into our LIMS, is included in the attached summary table.

☑ Sample Temperature of a random sample selected from the batch as recorded by Eurofins | mgt Sample Receipt : 7.6 degrees Celsius.

☑ 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.

☑ Sample containers for volatile analysis received with zero headspace.

☒ Some samples have been subcontracted.

N/A Custody Seals intact (if used).

Notes

Sample ID discrepancy: COC: MW4_2.0 JAR: MW5_2.0; COC: HA8_0.2 JAR: HA8_0.2 sample IDs as per COC

Contact notes

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

Charl Du Preez on Phone : or by e.mail: charldupreez@eurofins.com.au

Results will be delivered electronically via e.mail to Daniel Guille - daniel.guille@coffey.com.

Note: A copy of these results will also be delivered to the general Coffey Geotechnics Pty Ltd Chatswood email address.

eurofins | mgt

Certificate of Analysis

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.

Coffey Geotechnics Pty Ltd Chatswood
Level 18, Tower B, Citadel Tower 799 Pacific Highway
Chatswood
NSW 2067

Attention: **Daniel Guille**

Report **459031-L**
Project name ADDITIONAL: SURRY HILLS VILLAGE
Project ID GEOTLCOV25397AA
Received Date May 26, 2015

Client Sample ID			**MW1_0.5**	**MW1_2.0**	**MW2_1.0**	**MW4_0.5**
Sample Matrix			**TCLP**	**TCLP**	**TCLP**	**TCLP**
Eurofins | mgt Sample No.			**S15-My22817**	**S15-My22818**	**S15-My22819**	**S15-My22820**
Date Sampled			**May 13, 2015**	**May 13, 2015**	**May 13, 2015**	**May 13, 2015**
Test/Reference	LOR	Unit				
Benzo[a]pyrene						
Benzo(a)pyrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
p-Terphenyl-d14 (surr.)	1	%	70	73	71	51
2-Fluorobiphenyl (surr.)	1	%	111	103	107	70
Heavy Metals						
Lead	0.01	mg/L	1.0	0.11	-	0.08
USA Leaching Procedure						
Leachate Fluid[C01]		comment	1.0	1.0	1.0	1.0
pH (initial)	0.1	pH Units	8.4	8.9	8.9	8.9
pH (off)	0.1	pH Units	5.5	6.0	5.5	6.2
pH (USA HCl addition)	0.1	pH Units	2.2	2.2	2.1	2.2

Client Sample ID			**MW4_1.0**	**HA5_0.1**	**HA6_0.5**	**HA7_0.1**
Sample Matrix			**TCLP**	**TCLP**	**TCLP**	**TCLP**
Eurofins | mgt Sample No.			**S15-My22821**	**S15-My22822**	**S15-My22823**	**S15-My22824**
Date Sampled			**May 13, 2015**	**May 13, 2015**	**May 13, 2015**	**May 13, 2015**
Test/Reference	LOR	Unit				
Benzo[a]pyrene						
Benzo(a)pyrene	0.001	mg/L	< 0.001	-	< 0.001	< 0.001
p-Terphenyl-d14 (surr.)	1	%	62	-	58	50
2-Fluorobiphenyl (surr.)	1	%	98	-	90	75
Heavy Metals						
Lead	0.01	mg/L	-	0.02	0.05	0.14
USA Leaching Procedure						
Leachate Fluid[C01]		comment	1.0	1.0	1.0	1.0
pH (initial)	0.1	pH Units	9.3	7.9	7.5	7.2
pH (off)	0.1	pH Units	6.5	5.4	5.1	5.1
pH (USA HCl addition)	0.1	pH Units	2.2	2.2	2.1	2.1

Client Sample ID Sample Matrix Eurofins | mgt Sample No. Date Sampled Test/Reference	LOR	Unit	HA8_0.2 TCLP S15-My22825 May 13, 2015	HA5_0.3 TCLP S15-My22826 May 14, 2015	HA7_0.3 TCLP S15-My22827 May 14, 2015
Benzo[a]pyrene					
Benzo(a)pyrene	0.001	mg/L	< 0.001	< 0.001	< 0.001
p-Terphenyl-d14 (surr.)	1	%	70	50	72
2-Fluorobiphenyl (surr.)	1	%	105	71	109
Heavy Metals					
Lead	0.01	mg/L	-	0.06	0.18
USA Leaching Procedure					
Leachate Fluid[C01]		comment	1.0	1.0	1.0
pH (initial)	0.1	pH Units	9.3	8.2	8.4
pH (off)	0.1	pH Units	5.3	5.1	5.8
pH (USA HCl addition)	0.1	pH Units	2.1	2.2	2.3

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
Benzo[a]pyrene	Sydney	May 28, 2015	7 Day
- Method: E007 Benzo[a]pyrene			
Heavy Metals	Sydney	May 28, 2015	180 Day
- Method: E022 Acid Extractable metals in Soils			
USA Leaching Procedure	Sydney	May 28, 2015	14 Day
- Method: E019 TCLP Preparation			

Melbourne
3-5 Kingston Town Close
Oakleigh VIC 3166
Phone : +61 3 8564 5000
NATA # 1261
Site # 1254 & 14271

Sydney
Unit F3, Building F
16 Mars Road
Lane Cove West NSW 2066
Phone : +61 2 9900 8400
NATA # 1261 Site # 18217

Brisbane
1/21 Smallwood Place
Murarrie QLD 4172
Phone : +61 7 3902 4600
NATA # 1261 Site # 20794

Company Name: Coffey Geotechnics Pty Ltd Chatswood
Address: Level 18, Tower B, Citadel Tower 799 Pacific Highway
Chatswood
NSW 2067

Order No.:
Report #: 459031
Phone: +61 2 9406 1000
Fax: +61 2 9406 1002

Received: May 26, 2015 2:05 PM
Due: May 28, 2015
Priority: 2 Day
Contact Name: Daniel Guille

Project Name: ADDITIONAL: SURRY HILLS VILLAGE
Project ID: GEOTLCOV25397AA

Eurofins | mgt Client Manager: Charl Du Preez

Sample Detail					Lead	USA Leaching Procedure	Benzo[a]pyrene
Laboratory where analysis is conducted							
Melbourne Laboratory - NATA Site # 1254 & 14271							
Sydney Laboratory - NATA Site # 18217					X	X	X
Brisbane Laboratory - NATA Site # 20794							
External Laboratory							
Sample ID	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**			
MW1_0.5	May 13, 2015		TCLP	S15-My22817	X	X	X
MW1_2.0	May 13, 2015		TCLP	S15-My22818	X	X	X
MW2_1.0	May 13, 2015		TCLP	S15-My22819		X	X
MW4_0.5	May 13, 2015		TCLP	S15-My22820	X	X	X
MW4_1.0	May 13, 2015		TCLP	S15-My22821		X	X
HA5_0.1	May 13, 2015		TCLP	S15-My22822	X	X	
HA6_0.5	May 13, 2015		TCLP	S15-My22823	X	X	X
HA7_0.1	May 13, 2015		TCLP	S15-My22824	X	X	X
HA8_0.2	May 13, 2015		TCLP	S15-My22825		X	X

Company Name:	Coffey Geotechnics Pty Ltd Chatswood	**Order No.:**		**Received:**	May 26, 2015 2:05 PM
Address:	Level 18, Tower B, Citadel Tower 799 Pacific Highway Chatswood NSW 2067	**Report #:**	459031	**Due:**	May 28, 2015
		Phone:	+61 2 9406 1000	**Priority:**	2 Day
		Fax:	+61 2 9406 1002	**Contact Name:**	Daniel Guille
Project Name:	ADDITIONAL: SURRY HILLS VILLAGE				
Project ID:	GEOTLCOV25397AA				

Eurofins | mgt Client Manager: Charl Du Preez

Sample Detail					Lead	USA Leaching Procedure	Benzo[a]pyrene
Laboratory where analysis is conducted							
Melbourne Laboratory - NATA Site # 1254 & 14271							
Sydney Laboratory - NATA Site # 18217					X	X	X
Brisbane Laboratory - NATA Site # 20794							
External Laboratory							
HA5_0.3	May 14, 2015		TCLP	S15-My22826	X	X	X
HA7_0.3	May 14, 2015		TCLP	S15-My22827	X	X	X

Eurofins | mgt 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

Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
LOR	Limit of Reporting.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
LCS	Laboratory Control Sample - reported as percent recovery
CRM	Certified Reference Material - reported as percent recovery
Method Blank	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.
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
Batch Duplicate	A second piece of analysis from a sample outside of the clients batch of samples but run within the laboratory batch of analysis.
Batch SPIKE	Spike recovery reported on a sample from outside of the clients batch of samples but run within the laboratory batch of analysis.
USEPA	United States Environmental Protection Agency
APHA	American Public Health Association
ASLP	Australian Standard Leaching Procedure (AS4439.3)
TCLP	Toxicity Characteristic Leaching Procedure
COC	Chain of Custody
SRA	Sample Receipt Advice
CP	Client Parent - QC was performed on samples pertaining to this report
NCP	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
TEQ	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, Toxophene & Chlordane are not added to the LCS.
4. Organochlorine Pesticide analysis - where reporting Spike data, Toxophene 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 Arochlor 1260 in Matrix Spikes and LCS's.
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 RPD's are calculated from raw analytical data thus it is possible to have two sets of data.

Quality Control Results

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank									
Benzo[a]pyrene									
Benzo(a)pyrene			mg/L	< 0.001			0.001	Pass	
Test	**Lab Sample ID**	**QA Source**	**Units**	**Result 1**			**Acceptance Limits**	**Pass Limits**	**Qualifying Code**
Spike - % Recovery									
Heavy Metals				Result 1					
Lead	S15-My22818	CP	%	99			70-130	Pass	
Test	**Lab Sample ID**	**QA Source**	**Units**	**Result 1**			**Acceptance Limits**	**Pass Limits**	**Qualifying Code**
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Lead	S15-My22817	CP	mg/L	1.0	1.2	16	30%	Pass	
Duplicate									
Benzo[a]pyrene				Result 1	Result 2	RPD			
Benzo(a)pyrene	S15-My22818	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	

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Comments

Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	Yes
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

Authorised By

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

Glenn Jackson

National Laboratory 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

Company Name: Coffey Geotechnics Pty Ltd Chatswood
Address: Level 18, Tower B, Citadel Tower 799 Pacific Highway
Chatswood
NSW 2067

Project Name: ADDITIONAL: SURRY HILLS VILLAGE
Project ID: GEOTLCOV25397AA

Order No.:
Report #: 459031
Phone: +61 2 9406 1000
Fax: +61 2 9406 1002

Received: May 26, 2015 2:05 PM
Due: May 28, 2015
Priority: 2 Day
Contact Name: Daniel Guille

Eurofins | mgt Client Manager: Charl Du Preez

Sample Detail					Lead	USA Leaching Procedure	Benzo[a]pyrene
Laboratory where analysis is conducted							
Melbourne Laboratory - NATA Site # 1254 & 14271							
Sydney Laboratory - NATA Site # 18217					X	X	X
Brisbane Laboratory - NATA Site # 20794							
External Laboratory							
Sample ID	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**			
MW1_0.5	May 13, 2015		TCLP	S15-My22817	X	X	X
MW1_2.0	May 13, 2015		TCLP	S15-My22818	X	X	X
MW2_1.0	May 13, 2015		TCLP	S15-My22819		X	X
MW4_0.5	May 13, 2015		TCLP	S15-My22820	X	X	X
MW4_1.0	May 13, 2015		TCLP	S15-My22821		X	X
HA5_0.1	May 13, 2015		TCLP	S15-My22822	X	X	
HA6_0.5	May 13, 2015		TCLP	S15-My22823	X	X	X
HA7_0.1	May 13, 2015		TCLP	S15-My22824	X	X	X
HA8_0.2	May 13, 2015		TCLP	S15-My22825		X	X

Company Name: Coffey Geotechnics Pty Ltd Chatswood
Address: Level 18, Tower B, Citadel Tower 799 Pacific Highway
Chatswood
NSW 2067

Project Name: ADDITIONAL: SURRY HILLS VILLAGE
Project ID: GEOTLCOV25397AA

Order No.:
Report #: 459031
Phone: +61 2 9406 1000
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Received: May 26, 2015 2:05 PM
Due: May 28, 2015
Priority: 2 Day
Contact Name: Daniel Guille

Eurofins | mgt Client Manager: Charl Du Preez

Sample Detail					Lead	USA Leaching Procedure	Benzo[a]pyrene
Laboratory where analysis is conducted							
Melbourne Laboratory - NATA Site # 1254 & 14271							
Sydney Laboratory - NATA Site # 18217					X	X	X
Brisbane Laboratory - NATA Site # 20794							
External Laboratory							
HA5_0.3	May 14, 2015		TCLP	S15-My22826	X	X	X
HA7_0.3	May 14, 2015		TCLP	S15-My22827	X	X	X

Sample Receipt Advice

Company name:	**Coffey Geotechnics Pty Ltd Chatswood**
Contact name:	Daniel Guille
Project name:	ADDITIONAL: SURRY HILLS VILLAGE
Project ID:	GEOTLCOV25397AA
COC number:	Not provided
Turn around time:	2 Day
Date/Time received:	May 26, 2015 2:05 PM
Eurofins | mgt reference:	**459031**

Sample information

☑ A detailed list of analytes logged into our LIMS, is included in the attached summary table.

☑ Sample Temperature of a random sample selected from the batch as recorded by Eurofins | mgt Sample Receipt : 7.6 degrees Celsius.

☑ 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 457842

Contact notes

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

Charl Du Preez on Phone : or by e.mail: charldupreez@eurofins.com.au

Results will be delivered electronically via e.mail to Daniel Guille - daniel.guille@coffey.com.

Note: A copy of these results will also be delivered to the general Coffey Geotechnics Pty Ltd Chatswood email address.

Enquiries Syd

Subject: FW: Batch 457842 - GEOTLCOV25397AA SURRY HILSS VILLAGE - additional analyses

Importance: High

URGENT

From: *Daniel Guille [mailto:Daniel.Guille@coffey.com]*
Sent: *Tuesday, 26 May 2015 2:05 PM*
To: *Charl DuPreez*
Subject: *Batch 457842 - GEOTLCOV25397AA SURRY HILSS VILLAGE - additional analyses*
Importance: *High*

Hi Charl,

Please analyse the following samples for TCLP leachate of lead and/or benzo(a)pyrene with a 2 day TAT.

Sampled_Date-Time	SampleCode	Field_ID	TCLP Lead	TCLP Benzo(a)pyrene
13/05/2015	S15-My14517	MW1_0.5	X	X
13/05/2015	S15-My14519	MW1_2.0	X	X
13/05/2015	S15-My14522	MW2_1.0		X
13/05/2015	S15-My14528	MW4_0.5	X	X
13/05/2015	S15-My14529	MW4_1.0		X
13/05/2015	S15-My14531	HA5_0.1	X	
13/05/2015	S15-My14533	HA6_0.5	X	X
13/05/2015	S15-My14534	HA7_0.1	X	X
13/05/2015	S15-My14540	HA8_0.2		X
14/05/2015	S15-My14538	HA5_0.3	X	X
14/05/2015	S15-My14539	HA7_0.3	X	X

Sincerely,

Daniel Guille

Bot #459031

eurofins | mgt

Certificate of Analysis

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.

Coffey Geotechnics Pty Ltd Chatswood
Level 18, Tower B, Citadel Tower 799 Pacific Highway
Chatswood
NSW 2067

Attention: **Daniel Guille**

Report	**459646-W**
Project name	SURRY HILLS SHOPPING CENTRE
Project ID	GEOTLCOV25397AA
Received Date	May 29, 2015

Client Sample ID			**QC6**
Sample Matrix			**Water**
Eurofins | mgt Sample No.			**S15-My26644**
Date Sampled			**May 29, 2015**
Test/Reference	LOR	Unit	
Total Recoverable Hydrocarbons - 1999 NEPM Fractions			
TRH C6-C9	0.02	mg/L	< 0.02
TRH C10-C14	0.05	mg/L	< 0.05
TRH C15-C28	0.1	mg/L	< 0.1
TRH C29-C36	0.1	mg/L	< 0.1
TRH C10-36 (Total)	0.1	mg/L	< 0.1
BTEX			
Benzene	0.001	mg/L	< 0.001
Toluene	0.001	mg/L	< 0.001
Ethylbenzene	0.001	mg/L	< 0.001
m&p-Xylenes	0.002	mg/L	< 0.002
o-Xylene	0.001	mg/L	< 0.001
Xylenes - Total	0.003	mg/L	< 0.003
4-Bromofluorobenzene (surr.)	1	%	113
Total Recoverable Hydrocarbons - 2013 NEPM Fractions			
Naphthalene[N02]	0.02	mg/L	< 0.02
TRH C6-C10	0.02	mg/L	< 0.02
TRH C6-C10 less BTEX (F1)[N04]	0.02	mg/L	< 0.02
TRH >C10-C16	0.05	mg/L	< 0.05
TRH >C10-C16 less Naphthalene (F2)[N01]	0.05	mg/L	< 0.05
TRH >C16-C34	0.1	mg/L	< 0.1
TRH >C34-C40	0.1	mg/L	< 0.1
Polycyclic Aromatic Hydrocarbons			
Acenaphthene	0.001	mg/L	< 0.001
Acenaphthylene	0.001	mg/L	< 0.001
Anthracene	0.001	mg/L	< 0.001
Benz(a)anthracene	0.001	mg/L	< 0.001
Benzo(a)pyrene	0.001	mg/L	< 0.001
Benzo(b&j)fluoranthene[N07]	0.001	mg/L	< 0.001
Benzo(g.h.i)perylene	0.001	mg/L	< 0.001
Benzo(k)fluoranthene	0.001	mg/L	< 0.001
Chrysene	0.001	mg/L	< 0.001
Dibenz(a.h)anthracene	0.001	mg/L	< 0.001
Fluoranthene	0.001	mg/L	< 0.001
Fluorene	0.001	mg/L	< 0.001
Indeno(1.2.3-cd)pyrene	0.001	mg/L	< 0.001

Client Sample ID			QC6
Sample Matrix			**Water**
Eurofins | mgt Sample No.			**S15-My26644**
Date Sampled			**May 29, 2015**
Test/Reference	LOR	Unit	
Polycyclic Aromatic Hydrocarbons			
Naphthalene	0.001	mg/L	< 0.001
Phenanthrene	0.001	mg/L	< 0.001
Pyrene	0.001	mg/L	< 0.001
Total PAH*	0.001	mg/L	< 0.001
2-Fluorobiphenyl (surr.)	1	%	118
p-Terphenyl-d14 (surr.)	1	%	78
Heavy Metals			
Arsenic	0.005	mg/L	< 0.005
Cadmium	0.0005	mg/L	< 0.0005
Chromium	0.005	mg/L	< 0.005
Copper	0.005	mg/L	< 0.005
Lead	0.005	mg/L	< 0.005
Mercury	0.0001	mg/L	< 0.0001
Nickel	0.005	mg/L	< 0.005
Zinc	0.005	mg/L	< 0.005

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	Sydney	May 29, 2015	7 Day
- Method: TRH C6-C36 - LTM-ORG-2010			
BTEX	Sydney	May 29, 2015	14 Day
- Method: TRH C6-C40 - LTM-ORG-2010			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Sydney	May 29, 2015	7 Day
- Method: TRH C6-C40 - LTM-ORG-2010			
Polycyclic Aromatic Hydrocarbons	Sydney	May 29, 2015	7 Day
- Method: E007 Polyaromatic Hydrocarbons (PAH)			
Metals M8	Sydney	May 29, 2015	28 Day
- Method: LTM-MET-3040_R0 TOTAL AND DISSOLVED METALS AND MERCURY IN WATERS BY ICP-MS			

Company Name:	Coffey Geotechnics Pty Ltd Chatswood	**Order No.:**		**Received:**	May 29, 2015 5:39 PM
Address:	Level 18, Tower B, Citadel Tower 799 Pacific Highway	**Report #:**	459646	**Due:**	Jun 2, 2015
	Chatswood	**Phone:**	+61 2 9406 1000	**Priority:**	2 Day
	NSW 2067	**Fax:**	+61 2 9406 1002	**Contact Name:**	Daniel Guille
Project Name:	SURRY HILLS SHOPPING CENTRE				
Project ID:	GEOTLCOV25397AA				

Eurofins | mgt Client Manager: Charl Du Preez

Sample Detail					Asbestos Absence /Presence	HOLD	Eurofins | mgt Suite 13	Eurofins | mgt Suite 7	Halogenated Volatile Organics	Moisture Set
Laboratory where analysis is conducted										
Melbourne Laboratory - NATA Site # 1254 & 14271										
Sydney Laboratory - NATA Site # 18217					X	X	X	X	X	X
Brisbane Laboratory - NATA Site # 20794										
External Laboratory										
Sample ID	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**						
BH10_0.1	May 29, 2015		Soil	S15-My26638		X				
BH10_0.5	May 29, 2015		Soil	S15-My26639	X					
BH10_1.0	May 29, 2015		Soil	S15-My26640	X		X	X		X
BH10_2.0	May 29, 2015		Soil	S15-My26641			X	X		X
BH10_3.0	May 29, 2015		Soil	S15-My26642					X	X
QC5	May 29, 2015		Soil	S15-My26643				X		X
QC6	May 29, 2015		Water	S15-My26644				X		
QC7	May 29, 2015		Water	S15-My26645		X				

Eurofins | mgt 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

Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
LOR	Limit of Reporting.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
LCS	Laboratory Control Sample - reported as percent recovery
CRM	Certified Reference Material - reported as percent recovery
Method Blank	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.
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
Batch Duplicate	A second piece of analysis from a sample outside of the clients batch of samples but run within the laboratory batch of analysis.
Batch SPIKE	Spike recovery reported on a sample from outside of the clients batch of samples but run within the laboratory batch of analysis.
USEPA	United States Environmental Protection Agency
APHA	American Public Health Association
ASLP	Australian Standard Leaching Procedure (AS4439.3)
TCLP	Toxicity Characteristic Leaching Procedure
COC	Chain of Custody
SRA	Sample Receipt Advice
CP	Client Parent - QC was performed on samples pertaining to this report
NCP	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
TEQ	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, Toxophene & Chlordane are not added to the LCS.
4. Organochlorine Pesticide analysis - where reporting Spike data, Toxophene 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 Arochlor 1260 in Matrix Spikes and LCS's.
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 RPD's are calculated from raw analytical data thus it is possible to have two sets of data.

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Quality Control Results

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	mg/L	< 0.02			0.02	Pass	
TRH C10-C14	mg/L	< 0.05			0.05	Pass	
TRH C15-C28	mg/L	< 0.1			0.1	Pass	
TRH C29-C36	mg/L	< 0.1			0.1	Pass	
Method Blank							
BTEX							
Benzene	mg/L	< 0.001			0.001	Pass	
Toluene	mg/L	< 0.001			0.001	Pass	
Ethylbenzene	mg/L	< 0.001			0.001	Pass	
m&p-Xylenes	mg/L	< 0.002			0.002	Pass	
o-Xylene	mg/L	< 0.001			0.001	Pass	
Xylenes - Total	mg/L	< 0.003			0.003	Pass	
Method Blank							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	mg/L	< 0.02			0.02	Pass	
TRH C6-C10	mg/L	< 0.02			0.02	Pass	
TRH C6-C10 less BTEX (F1)	mg/L	< 0.02			0.02	Pass	
TRH >C10-C16	mg/L	< 0.05			0.05	Pass	
TRH >C16-C34	mg/L	< 0.1			0.1	Pass	
TRH >C34-C40	mg/L	< 0.1			0.1	Pass	
Method Blank							
Polycyclic Aromatic Hydrocarbons							
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	
Method Blank							
Heavy Metals							
Arsenic	mg/L	< 0.005			0.005	Pass	
Cadmium	mg/L	< 0.0005			0.0005	Pass	
Chromium	mg/L	< 0.005			0.005	Pass	
Copper	mg/L	< 0.005			0.005	Pass	
Lead	mg/L	< 0.005			0.005	Pass	
Mercury	mg/L	< 0.0001			0.0001	Pass	
Nickel	mg/L	< 0.005			0.005	Pass	
Zinc	mg/L	< 0.005			0.005	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							

Test			Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
TRH C6-C9			%	80			70-130	Pass	
TRH C10-C14			%	83			70-130	Pass	
LCS - % Recovery									
BTEX									
Benzene			%	94			70-130	Pass	
Toluene			%	95			70-130	Pass	
Ethylbenzene			%	94			70-130	Pass	
m&p-Xylenes			%	95			70-130	Pass	
o-Xylene			%	94			70-130	Pass	
Xylenes - Total			%	94			70-130	Pass	
LCS - % Recovery									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions									
Naphthalene			%	113			70-130	Pass	
TRH C6-C10			%	81			70-130	Pass	
TRH >C10-C16			%	93			70-130	Pass	
LCS - % Recovery									
Polycyclic Aromatic Hydrocarbons									
Acenaphthene			%	123			70-130	Pass	
Acenaphthylene			%	127			70-130	Pass	
Anthracene			%	93			70-130	Pass	
Benz(a)anthracene			%	91			70-130	Pass	
Benzo(a)pyrene			%	103			70-130	Pass	
Benzo(b&j)fluoranthene			%	103			70-130	Pass	
Benzo(g.h.i)perylene			%	95			70-130	Pass	
Benzo(k)fluoranthene			%	105			70-130	Pass	
Chrysene			%	103			70-130	Pass	
Dibenz(a.h)anthracene			%	91			70-130	Pass	
Fluoranthene			%	86			70-130	Pass	
Fluorene			%	111			70-130	Pass	
Indeno(1.2.3-cd)pyrene			%	90			70-130	Pass	
Naphthalene			%	80			70-130	Pass	
Phenanthrene			%	110			70-130	Pass	
Pyrene			%	93			70-130	Pass	
LCS - % Recovery									
Heavy Metals									
Arsenic			%	105			70-130	Pass	
Cadmium			%	107			70-130	Pass	
Chromium			%	105			70-130	Pass	
Copper			%	105			70-130	Pass	
Lead			%	93			70-130	Pass	
Mercury			%	105			70-130	Pass	
Nickel			%	102			70-130	Pass	
Zinc			%	111			70-130	Pass	
Test	**Lab Sample ID**	**QA Source**	**Units**	**Result 1**			**Acceptance Limits**	**Pass Limits**	**Qualifying Code**
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic	S15-My26618	NCP	%	104			70-130	Pass	
Cadmium	S15-My26618	NCP	%	103			70-130	Pass	
Chromium	S15-My26618	NCP	%	103			70-130	Pass	
Copper	S15-My26618	NCP	%	101			70-130	Pass	
Lead	S15-My26618	NCP	%	91			70-130	Pass	
Mercury	S15-My26618	NCP	%	103			70-130	Pass	
Nickel	S15-My26618	NCP	%	99			70-130	Pass	
Zinc	S15-My26618	NCP	%	115			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic	S15-My26618	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Cadmium	S15-My26618	NCP	mg/L	< 0.0005	< 0.0005	<1	30%	Pass	
Chromium	S15-My26618	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Copper	S15-My26618	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Lead	S15-My26618	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Mercury	S15-My26618	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Nickel	S15-My26618	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Zinc	S15-My26618	NCP	mg/L	< 0.005	< 0.005	<1	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
Ivan Taylor	Senior Analyst-Metal (NSW)
Ryan Hamilton	Senior Analyst-Organic (NSW)
Ryan Hamilton	Senior Analyst-Volatile (NSW)

Glenn Jackson
National Laboratory 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 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.

Coffey Geotechnics Pty Ltd Chatswood
Level 18, Tower B, Citadel Tower 799 Pacific Highway
Chatswood
NSW 2067

Attention: **Daniel Guille**

Report **459646-S**
Project name SURRY HILLS SHOPPING CENTRE
Project ID GEOTLCOV25397AA
Received Date May 29, 2015

Client Sample ID			**BH10_1.0**	**BH10_2.0**	**BH10_3.0**	**QC5**
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins | mgt Sample No.			**S15-My26640**	**S15-My26641**	**S15-My26642**	**S15-My26643**
Date Sampled			**May 29, 2015**	**May 29, 2015**	**May 29, 2015**	**May 29, 2015**
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	20	mg/kg	< 20	< 20	-	< 20
TRH C10-C14	20	mg/kg	< 20	< 20	-	< 20
TRH C15-C28	50	mg/kg	< 50	< 50	-	< 50
TRH C29-C36	50	mg/kg	< 50	< 50	-	< 50
TRH C10-36 (Total)	50	mg/kg	< 50	< 50	-	< 50
BTEX						
Benzene	0.1	mg/kg	0.1	0.1	-	< 0.1
Toluene	0.1	mg/kg	< 0.1	< 0.1	-	< 0.1
Ethylbenzene	0.1	mg/kg	< 0.1	< 0.1	-	< 0.1
m&p-Xylenes	0.2	mg/kg	< 0.2	< 0.2	-	< 0.2
o-Xylene	0.1	mg/kg	< 0.1	< 0.1	-	< 0.1
Xylenes - Total	0.3	mg/kg	< 0.3	< 0.3	-	< 0.3
4-Bromofluorobenzene (surr.)	1	%	79	79	-	78
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene[N02]	0.5	mg/kg	< 0.5	< 0.5	-	< 0.5
TRH C6-C10	20	mg/kg	< 20	< 20	-	< 20
TRH C6-C10 less BTEX (F1)[N04]	20	mg/kg	< 20	< 20	-	< 20
TRH >C10-C16	50	mg/kg	< 50	< 50	-	< 50
TRH >C10-C16 less Naphthalene (F2)[N01]	50	mg/kg	< 50	< 50	-	< 50
TRH >C16-C34	100	mg/kg	< 100	< 100	-	< 100
TRH >C34-C40	100	mg/kg	< 100	< 100	-	< 100
Halogenated Volatile Organics						
1.1-Dichloroethane	0.5	mg/kg	-	-	< 0.5	-
1.1-Dichloroethene	0.5	mg/kg	-	-	< 0.5	-
1.1.1-Trichloroethane	0.5	mg/kg	-	-	< 0.5	-
1.1.1.2-Tetrachloroethane	0.5	mg/kg	-	-	< 0.5	-
1.1.2-Trichloroethane	0.5	mg/kg	-	-	< 0.5	-
1.1.2.2-Tetrachloroethane	0.5	mg/kg	-	-	< 0.5	-
1.2-Dibromoethane	0.5	mg/kg	-	-	< 0.5	-
1.2-Dichlorobenzene	0.5	mg/kg	-	-	< 0.5	-
1.2-Dichloroethane	0.5	mg/kg	-	-	< 0.5	-
1.2-Dichloropropane	0.5	mg/kg	-	-	< 0.5	-
1.2.3-Trichloropropane	0.5	mg/kg	-	-	< 0.5	-
1.3-Dichlorobenzene	0.5	mg/kg	-	-	< 0.5	-
1.3-Dichloropropane	0.5	mg/kg	-	-	< 0.5	-

Client Sample ID Sample Matrix Eurofins | mgt Sample No. Date Sampled Test/Reference	LOR	Unit	BH10_1.0 Soil S15-My26640 May 29, 2015	BH10_2.0 Soil S15-My26641 May 29, 2015	BH10_3.0 Soil S15-My26642 May 29, 2015	QC5 Soil S15-My26643 May 29, 2015
Halogenated Volatile Organics						
1.4-Dichlorobenzene	0.5	mg/kg	-	-	< 0.5	-
Bromodichloromethane	0.5	mg/kg	-	-	< 0.5	-
Bromoform	0.5	mg/kg	-	-	< 0.5	-
Bromomethane	0.5	mg/kg	-	-	< 0.5	-
Carbon Tetrachloride	0.5	mg/kg	-	-	< 0.5	-
Chlorobenzene	0.5	mg/kg	-	-	< 0.5	-
Chloroform	0.5	mg/kg	-	-	< 0.5	-
Chloromethane	0.5	mg/kg	-	-	< 0.5	-
cis-1.2-Dichloroethene	0.5	mg/kg	-	-	< 0.5	-
cis-1.3-Dichloropropene	0.5	mg/kg	-	-	< 0.5	-
Dibromochloromethane	0.5	mg/kg	-	-	< 0.5	-
Dibromomethane	0.5	mg/kg	-	-	< 0.5	-
Iodomethane	0.5	mg/kg	-	-	< 0.5	-
Methylene Chloride	0.5	mg/kg	-	-	< 0.5	-
Tetrachloroethene	0.5	mg/kg	-	-	< 0.5	-
trans-1.2-Dichloroethene	0.5	mg/kg	-	-	< 0.5	-
trans-1.3-Dichloropropene	0.5	mg/kg	-	-	< 0.5	-
Trichloroethene	0.5	mg/kg	-	-	< 0.5	-
Trichlorofluoromethane	0.5	mg/kg	-	-	< 0.5	-
Vinyl chloride	0.5	mg/kg	-	-	< 0.5	-
Fluorobenzene (surr.)	1	%	-	-	92	-
Polycyclic Aromatic Hydrocarbons						
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	1.0	1.0	-	< 0.5
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	1.3	1.3	-	0.6
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	1.6	1.6	-	1.2
Acenaphthene	0.5	mg/kg	< 0.5	< 0.5	-	< 0.5
Acenaphthylene	0.5	mg/kg	< 0.5	< 0.5	-	< 0.5
Anthracene	0.5	mg/kg	< 0.5	0.6	-	< 0.5
Benz(a)anthracene	0.5	mg/kg	0.8	1.1	-	< 0.5
Benzo(a)pyrene	0.5	mg/kg	0.8	0.8	-	< 0.5
Benzo(b&j)fluoranthene N07	0.5	mg/kg	0.8	0.6	-	< 0.5
Benzo(g.h.i)perylene	0.5	mg/kg	< 0.5	< 0.5	-	< 0.5
Benzo(k)fluoranthene	0.5	mg/kg	0.7	0.7	-	< 0.5
Chrysene	0.5	mg/kg	0.7	0.8	-	< 0.5
Dibenz(a.h)anthracene	0.5	mg/kg	< 0.5	< 0.5	-	< 0.5
Fluoranthene	0.5	mg/kg	1.3	2.1	-	< 0.5
Fluorene	0.5	mg/kg	< 0.5	< 0.5	-	< 0.5
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	< 0.5	< 0.5	-	< 0.5
Naphthalene	0.5	mg/kg	< 0.5	< 0.5	-	< 0.5
Phenanthrene	0.5	mg/kg	0.7	1.8	-	< 0.5
Pyrene	0.5	mg/kg	1.3	1.8	-	< 0.5
Total PAH*	0.5	mg/kg	7.1	10	-	< 0.5
2-Fluorobiphenyl (surr.)	1	%	120	129	-	121
p-Terphenyl-d14 (surr.)	1	%	112	108	-	118
Organochlorine Pesticides						
Chlordanes - Total	0.1	mg/kg	< 0.1	< 0.1	-	-
4.4'-DDD	0.05	mg/kg	< 0.05	< 0.05	-	-
4.4'-DDE	0.05	mg/kg	< 0.05	< 0.05	-	-
4.4'-DDT	0.05	mg/kg	< 0.05	< 0.05	-	-

Client Sample ID Sample Matrix Eurofins | mgt Sample No. Date Sampled Test/Reference	LOR	Unit	BH10_1.0 Soil S15-My26640 May 29, 2015	BH10_2.0 Soil S15-My26641 May 29, 2015	BH10_3.0 Soil S15-My26642 May 29, 2015	QC5 Soil S15-My26643 May 29, 2015
Organochlorine Pesticides						
a-BHC	0.05	mg/kg	< 0.05	< 0.05	-	-
Aldrin	0.05	mg/kg	< 0.05	< 0.05	-	-
b-BHC	0.05	mg/kg	< 0.05	< 0.05	-	-
d-BHC	0.05	mg/kg	< 0.05	< 0.05	-	-
Dieldrin	0.05	mg/kg	< 0.05	< 0.05	-	-
Endosulfan I	0.05	mg/kg	< 0.05	< 0.05	-	-
Endosulfan II	0.05	mg/kg	< 0.05	< 0.05	-	-
Endosulfan sulphate	0.05	mg/kg	< 0.05	< 0.05	-	-
Endrin	0.05	mg/kg	< 0.05	< 0.05	-	-
Endrin aldehyde	0.05	mg/kg	< 0.05	< 0.05	-	-
Endrin ketone	0.05	mg/kg	< 0.05	< 0.05	-	-
g-BHC (Lindane)	0.05	mg/kg	< 0.05	< 0.05	-	-
Heptachlor	0.05	mg/kg	< 0.05	< 0.05	-	-
Heptachlor epoxide	0.05	mg/kg	< 0.05	< 0.05	-	-
Hexachlorobenzene	0.05	mg/kg	< 0.05	< 0.05	-	-
Methoxychlor	0.2	mg/kg	< 0.2	< 0.2	-	-
Toxaphene	1	mg/kg	< 1	< 1	-	-
Dibutylchlorendate (surr.)	1	%	93	119	-	-
Tetrachloro-m-xylene (surr.)	1	%	95	111	-	-
Polychlorinated Biphenyls (PCB)						
Aroclor-1016	0.5	mg/kg	< 0.5	< 0.5	-	-
Aroclor-1232	0.5	mg/kg	< 0.5	< 0.5	-	-
Aroclor-1242	0.5	mg/kg	< 0.5	< 0.5	-	-
Aroclor-1248	0.5	mg/kg	< 0.5	< 0.5	-	-
Aroclor-1254	0.5	mg/kg	< 0.5	< 0.5	-	-
Aroclor-1260	0.5	mg/kg	< 0.5	< 0.5	-	-
Total PCB*	0.1	mg/kg	< 0.5	< 0.5	-	-
Dibutylchlorendate (surr.)	1	%	93	119	-	-
Heavy Metals						
Arsenic	2	mg/kg	21	2.1	-	5.9
Cadmium	0.4	mg/kg	0.8	< 0.4	-	< 0.4
Chromium	5	mg/kg	7.2	< 5	-	7.7
Copper	5	mg/kg	23	7.4	-	< 5
Lead	5	mg/kg	160	90	-	12
Mercury	0.05	mg/kg	0.49	0.44	-	0.09
Nickel	5	mg/kg	11	< 5	-	< 5
Zinc	5	mg/kg	410	180	-	18
% Moisture	0.1	%	11	8.6	12	8.9

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	Sydney	Jun 01, 2015	14 Day
- Method: TRH C6-C36 - LTM-ORG-2010			
BTEX	Sydney	Jun 01, 2015	14 Day
- Method: TRH C6-C40 - LTM-ORG-2010			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Sydney	Jun 01, 2015	14 Day
- Method: TRH C6-C40 - LTM-ORG-2010			
Polycyclic Aromatic Hydrocarbons	Sydney	Jun 01, 2015	14 Day
- Method: E007 Polyaromatic Hydrocarbons (PAH)			
Metals M8	Sydney	Jun 02, 2015	28 Day
- Method: LTM-MET-3040_R0 TOTAL AND DISSOLVED METALS AND MERCURY IN WATERS BY ICP-MS			
Halogenated Volatile Organics	Sydney	Jun 01, 2015	7 Day
- Method: E016 Volatile Halogenated Compounds (VHC)			
Eurofins | mgt Suite 13			
Organochlorine Pesticides	Sydney	Jun 01, 2015	14 Day
- Method: E013 Organochlorine Pesticides (OC)			
Polychlorinated Biphenyls (PCB)	Sydney	Jun 01, 2015	28 Day
- Method: E013 Polychlorinated Biphenyls (PCB)			
% Moisture	Sydney	May 29, 2015	14 Day
- Method: LTM-GEN-7080 Moisture			

Melbourne
3-5 Kingston Town Close
Oakleigh VIC 3166
Phone : +61 3 8564 5000
NATA # 1261
Site # 1254 & 14271

Sydney
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Lane Cove West NSW 2066
Phone : +61 2 9900 8400
NATA # 1261 Site # 18217

Brisbane
1/21 Smallwood Place
Murarrie QLD 4172
Phone : +61 7 3902 4600
NATA # 1261 Site # 20794

Company Name:	Coffey Geotechnics Pty Ltd Chatswood	**Order No.:**		**Received:**	May 29, 2015 5:39 PM
Address:	Level 18, Tower B, Citadel Tower 799 Pacific Highway Chatswood NSW 2067	**Report #:**	459646	**Due:**	Jun 2, 2015
		Phone:	+61 2 9406 1000	**Priority:**	2 Day
		Fax:	+61 2 9406 1002	**Contact Name:**	Daniel Guille
Project Name:	SURRY HILLS SHOPPING CENTRE				
Project ID:	GEOTLCOV25397AA				

Eurofins | mgt Client Manager: Charl Du Preez

Sample Detail					Asbestos Absence /Presence	HOLD	Eurofins | mgt Suite 13	Eurofins | mgt Suite 7	Halogenated Volatile Organics	Moisture Set
Laboratory where analysis is conducted										
Melbourne Laboratory - NATA Site # 1254 & 14271										
Sydney Laboratory - NATA Site # 18217					X	X	X	X	X	X
Brisbane Laboratory - NATA Site # 20794										
External Laboratory										
Sample ID	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**						
BH10_0.1	May 29, 2015		Soil	S15-My26638		X				
BH10_0.5	May 29, 2015		Soil	S15-My26639	X					
BH10_1.0	May 29, 2015		Soil	S15-My26640	X		X	X		X
BH10_2.0	May 29, 2015		Soil	S15-My26641			X	X		X
BH10_3.0	May 29, 2015		Soil	S15-My26642					X	X
QC5	May 29, 2015		Soil	S15-My26643				X		X
QC6	May 29, 2015		Water	S15-My26644				X		
QC7	May 29, 2015		Water	S15-My26645		X				

Eurofins | mgt 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

Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
LOR	Limit of Reporting.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
LCS	Laboratory Control Sample - reported as percent recovery
CRM	Certified Reference Material - reported as percent recovery
Method Blank	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.
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
Batch Duplicate	A second piece of analysis from a sample outside of the clients batch of samples but run within the laboratory batch of analysis.
Batch SPIKE	Spike recovery reported on a sample from outside of the clients batch of samples but run within the laboratory batch of analysis.
USEPA	United States Environmental Protection Agency
APHA	American Public Health Association
ASLP	Australian Standard Leaching Procedure (AS4439.3)
TCLP	Toxicity Characteristic Leaching Procedure
COC	Chain of Custody
SRA	Sample Receipt Advice
CP	Client Parent - QC was performed on samples pertaining to this report
NCP	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
TEQ	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, Toxophene & Chlordane are not added to the LCS.
4. Organochlorine Pesticide analysis - where reporting Spike data, Toxophene 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 Arochlor 1260 in Matrix Spikes and LCS's.
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 RPD's 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
Method Blank							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
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	
Method Blank							
BTEX							
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	
Method Blank							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	mg/kg	< 0.5			0.5	Pass	
TRH C6-C10	mg/kg	< 20			20	Pass	
TRH C6-C10 less BTEX (F1)	mg/kg	< 20			20	Pass	
TRH >C10-C16	mg/kg	< 50			50	Pass	
TRH >C16-C34	mg/kg	< 100			100	Pass	
TRH >C34-C40	mg/kg	< 100			100	Pass	
Method Blank							
Halogenated Volatile Organics							
1.1-Dichloroethane	mg/kg	< 0.5			0.5	Pass	
1.1-Dichloroethene	mg/kg	< 0.5			0.5	Pass	
1.1.1-Trichloroethane	mg/kg	< 0.5			0.5	Pass	
1.1.1.2-Tetrachloroethane	mg/kg	< 0.5			0.5	Pass	
1.1.2-Trichloroethane	mg/kg	< 0.5			0.5	Pass	
1.1.2.2-Tetrachloroethane	mg/kg	< 0.5			0.5	Pass	
1.2-Dibromoethane	mg/kg	< 0.5			0.5	Pass	
1.2-Dichlorobenzene	mg/kg	< 0.5			0.5	Pass	
1.2-Dichloroethane	mg/kg	< 0.5			0.5	Pass	
1.2-Dichloropropane	mg/kg	< 0.5			0.5	Pass	
1.2.3-Trichloropropane	mg/kg	< 0.5			0.5	Pass	
1.3-Dichlorobenzene	mg/kg	< 0.5			0.5	Pass	
1.3-Dichloropropane	mg/kg	< 0.5			0.5	Pass	
1.4-Dichlorobenzene	mg/kg	< 0.5			0.5	Pass	
Bromodichloromethane	mg/kg	< 0.5			0.5	Pass	
Bromoform	mg/kg	< 0.5			0.5	Pass	
Bromomethane	mg/kg	< 0.5			0.5	Pass	
Carbon Tetrachloride	mg/kg	< 0.5			0.5	Pass	
Chlorobenzene	mg/kg	< 0.5			0.5	Pass	
Chloroform	mg/kg	< 0.5			0.5	Pass	
Chloromethane	mg/kg	< 0.5			0.5	Pass	
cis-1.2-Dichloroethene	mg/kg	< 0.5			0.5	Pass	
cis-1.3-Dichloropropene	mg/kg	< 0.5			0.5	Pass	
Dibromochloromethane	mg/kg	< 0.5			0.5	Pass	
Dibromomethane	mg/kg	< 0.5			0.5	Pass	
Iodomethane	mg/kg	< 0.5			0.5	Pass	
Methylene Chloride	mg/kg	< 0.5			0.5	Pass	
Tetrachloroethene	mg/kg	< 0.5			0.5	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
trans-1.2-Dichloroethene	mg/kg	< 0.5			0.5	Pass	
trans-1.3-Dichloropropene	mg/kg	< 0.5			0.5	Pass	
Trichloroethene	mg/kg	< 0.5			0.5	Pass	
Trichlorofluoromethane	mg/kg	< 0.5			0.5	Pass	
Vinyl chloride	mg/kg	< 0.5			0.5	Pass	
Method Blank							
Polycyclic Aromatic Hydrocarbons							
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	
Method Blank							
Organochlorine Pesticides							
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	
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	
Method Blank							
Polychlorinated Biphenyls (PCB)							
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	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Total PCB*	mg/kg	< 0			0.1	Pass	
Method Blank							
Heavy Metals							
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	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	%	100			70-130	Pass	
TRH C10-C14	%	71			70-130	Pass	
LCS - % Recovery							
BTEX							
Benzene	%	101			70-130	Pass	
Toluene	%	88			70-130	Pass	
Ethylbenzene	%	91			70-130	Pass	
m&p-Xylenes	%	94			70-130	Pass	
o-Xylene	%	100			70-130	Pass	
Xylenes - Total	%	96			70-130	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	%	96			70-130	Pass	
TRH C6-C10	%	92			70-130	Pass	
TRH >C10-C16	%	77			70-130	Pass	
LCS - % Recovery							
Halogenated Volatile Organics							
1.1-Dichloroethane	%	107			75-125	Pass	
1.1-Dichloroethene	%	71			70-130	Pass	
1.1.1-Trichloroethane	%	106			70-130	Pass	
1.1.1.2-Tetrachloroethane	%	99			70-130	Pass	
1.1.2-Trichloroethane	%	117			70-130	Pass	
1.1.2.2-Tetrachloroethane	%	108			70-130	Pass	
1.2-Dibromoethane	%	117			70-130	Pass	
1.2-Dichlorobenzene	%	116			70-130	Pass	
1.2-Dichloroethane	%	112			70-130	Pass	
1.2-Dichloropropane	%	110			70-130	Pass	
1.2.3-Trichloropropane	%	118			70-130	Pass	
1.3-Dichlorobenzene	%	114			70-130	Pass	
1.3-Dichloropropane	%	112			70-130	Pass	
1.4-Dichlorobenzene	%	114			70-130	Pass	
Bromodichloromethane	%	106			70-130	Pass	
Bromoform	%	115			70-130	Pass	
Carbon Tetrachloride	%	110			70-130	Pass	
Chlorobenzene	%	102			70-130	Pass	
Chloroform	%	109			70-130	Pass	
Chloromethane	%	84			70-130	Pass	
cis-1.2-Dichloroethene	%	71			70-130	Pass	
cis-1.3-Dichloropropene	%	104			70-130	Pass	
Dibromochloromethane	%	118			70-130	Pass	
Dibromomethane	%	115			70-130	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Iodomethane	%	79			70-130	Pass	
Methylene Chloride	%	78			70-130	Pass	
Tetrachloroethene	%	115			70-130	Pass	
trans-1.2-Dichloroethene	%	106			70-130	Pass	
trans-1.3-Dichloropropene	%	104			70-130	Pass	
Trichloroethene	%	112			70-130	Pass	
Trichlorofluoromethane	%	41			70-130	Fail	Q17
Vinyl chloride	%	87			70-130	Pass	
LCS - % Recovery							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	%	126			70-130	Pass	
Acenaphthylene	%	127			70-130	Pass	
Anthracene	%	111			70-130	Pass	
Benz(a)anthracene	%	126			70-130	Pass	
Benzo(a)pyrene	%	125			70-130	Pass	
Benzo(b&j)fluoranthene	%	108			70-130	Pass	
Benzo(g.h.i)perylene	%	119			70-130	Pass	
Benzo(k)fluoranthene	%	116			70-130	Pass	
Chrysene	%	123			70-130	Pass	
Dibenz(a.h)anthracene	%	119			70-130	Pass	
Fluoranthene	%	122			70-130	Pass	
Fluorene	%	127			70-130	Pass	
Indeno(1.2.3-cd)pyrene	%	121			70-130	Pass	
Naphthalene	%	128			70-130	Pass	
Phenanthrene	%	106			70-130	Pass	
Pyrene	%	125			70-130	Pass	
LCS - % Recovery							
Organochlorine Pesticides							
Chlordanes - Total	%	112			70-130	Pass	
4.4'-DDD	%	106			70-130	Pass	
4.4'-DDE	%	124			70-130	Pass	
4.4'-DDT	%	126			70-130	Pass	
a-BHC	%	99			70-130	Pass	
Aldrin	%	99			70-130	Pass	
b-BHC	%	115			70-130	Pass	
d-BHC	%	93			70-130	Pass	
Dieldrin	%	119			70-130	Pass	
Endosulfan I	%	126			70-130	Pass	
Endosulfan II	%	130			70-130	Pass	
Endosulfan sulphate	%	109			70-130	Pass	
Endrin	%	127			70-130	Pass	
Endrin aldehyde	%	101			70-130	Pass	
Endrin ketone	%	116			70-130	Pass	
g-BHC (Lindane)	%	106			70-130	Pass	
Heptachlor	%	122			70-130	Pass	
Heptachlor epoxide	%	116			70-130	Pass	
Methoxychlor	%	123			70-130	Pass	
LCS - % Recovery							
Polychlorinated Biphenyls (PCB)							
Aroclor-1260	%	100			70-130	Pass	
LCS - % Recovery							
Heavy Metals							
Arsenic	%	119			70-130	Pass	
Cadmium	%	120			70-130	Pass	

Test			Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Chromium			%	105			70-130	Pass	
Copper			%	120			70-130	Pass	
Lead			%	118			70-130	Pass	
Mercury			%	115			70-130	Pass	
Nickel			%	119			70-130	Pass	
Zinc			%	122			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 C10-C14	S15-Jn01232	NCP	%	72			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1					
TRH >C10-C16	S15-Jn01232	NCP	%	82			70-130	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic	S15-Jn01048	NCP	%	107			70-130	Pass	
Cadmium	S15-Jn01048	NCP	%	87			70-130	Pass	
Chromium	S15-Jn01048	NCP	%	110			70-130	Pass	
Copper	S15-My22951	NCP	%	92			70-130	Pass	
Lead	S15-My22951	NCP	%	96			70-130	Pass	
Mercury	S15-Jn01048	NCP	%	92			70-130	Pass	
Nickel	S15-Jn01048	NCP	%	96			70-130	Pass	
Zinc	S15-My22951	NCP	%	92			70-130	Pass	
Spike - % Recovery									
Organochlorine Pesticides				Result 1					
Chlordanes - Total	S15-My26641	CP	%	111			70-130	Pass	
4.4'-DDD	S15-My26641	CP	%	119			70-130	Pass	
4.4'-DDE	S15-My26641	CP	%	99			70-130	Pass	
4.4'-DDT	S15-My26641	CP	%	127			70-130	Pass	
a-BHC	S15-My26641	CP	%	105			70-130	Pass	
Aldrin	S15-My26641	CP	%	100			70-130	Pass	
b-BHC	S15-My26641	CP	%	119			70-130	Pass	
d-BHC	S15-My26641	CP	%	103			70-130	Pass	
Dieldrin	S15-My26641	CP	%	121			70-130	Pass	
Endosulfan I	S15-My26641	CP	%	100			70-130	Pass	
Endosulfan II	S15-My26641	CP	%	122			70-130	Pass	
Endosulfan sulphate	S15-My26641	CP	%	108			70-130	Pass	
Endrin	S15-My26641	CP	%	127			70-130	Pass	
Endrin aldehyde	S15-My26641	CP	%	93			70-130	Pass	
Endrin ketone	S15-My26641	CP	%	113			70-130	Pass	
g-BHC (Lindane)	S15-My26641	CP	%	112			70-130	Pass	
Heptachlor	S15-My26641	CP	%	125			70-130	Pass	
Heptachlor epoxide	S15-My26641	CP	%	115			70-130	Pass	
Methoxychlor	S15-My26641	CP	%	115			70-130	Pass	
Spike - % Recovery									
Polychlorinated Biphenyls (PCB)				Result 1					
Aroclor-1260	S15-My26641	CP	%	96			70-130	Pass	
Spike - % Recovery									
Halogenated Volatile Organics				Result 1					
1.1-Dichloroethane	S15-My23329	NCP	%	92			75-125	Pass	
1.1-Dichloroethene	S15-My23329	NCP	%	102			70-130	Pass	
1.1.1-Trichloroethane	S15-My23329	NCP	%	81			70-130	Pass	
1.1.1.2-Tetrachloroethane	S15-My23329	NCP	%	80			70-130	Pass	
1.1.2-Trichloroethane	S15-My23329	NCP	%	94			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
1.1.2.2-Tetrachloroethane	S15-My23329	NCP	%	96			70-130	Pass	
1.2-Dibromoethane	S15-My23329	NCP	%	92			70-130	Pass	
1.2-Dichlorobenzene	S15-My23329	NCP	%	93			70-130	Pass	
1.2-Dichloroethane	S15-My23329	NCP	%	90			70-130	Pass	
1.2-Dichloropropane	S15-My23329	NCP	%	90			70-130	Pass	
1.2.3-Trichloropropane	S15-My23329	NCP	%	96			70-130	Pass	
1.3-Dichlorobenzene	S15-My23329	NCP	%	92			70-130	Pass	
1.3-Dichloropropane	S15-My23329	NCP	%	94			70-130	Pass	
1.4-Dichlorobenzene	S15-My23329	NCP	%	93			70-130	Pass	
Bromodichloromethane	S15-My23329	NCP	%	72			70-130	Pass	
Bromoform	S15-My23329	NCP	%	79			70-130	Pass	
Carbon Tetrachloride	S15-My23329	NCP	%	79			70-130	Pass	
Chlorobenzene	S15-My23329	NCP	%	94			70-130	Pass	
Chloroform	S15-My23329	NCP	%	93			70-130	Pass	
Chloromethane	S15-My23329	NCP	%	101			70-130	Pass	
cis-1.2-Dichloroethene	S15-My23329	NCP	%	95			70-130	Pass	
cis-1.3-Dichloropropene	S15-My23329	NCP	%	75			70-130	Pass	
Dibromochloromethane	S15-My23329	NCP	%	79			70-130	Pass	
Dibromomethane	S15-My23329	NCP	%	86			70-130	Pass	
Iodomethane	S15-My23329	NCP	%	93			70-130	Pass	
Methylene Chloride	S15-My23329	NCP	%	88			70-130	Pass	
Tetrachloroethene	S15-My23329	NCP	%	90			70-130	Pass	
trans-1.2-Dichloroethene	S15-My23329	NCP	%	90			70-130	Pass	
trans-1.3-Dichloropropene	S15-My23329	NCP	%	75			70-130	Pass	
Trichloroethene	S15-My23329	NCP	%	88			70-130	Pass	
Trichlorofluoromethane	S15-My23329	NCP	%	81			70-130	Pass	
Vinyl chloride	S15-My23329	NCP	%	92			70-130	Pass	
Test	**Lab Sample ID**	**QA Source**	**Units**	**Result 1**			**Acceptance Limits**	**Pass Limits**	**Qualifying Code**
Duplicate									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1	Result 2	RPD			
TRH C10-C14	S15-Jn01231	NCP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH C15-C28	S15-Jn01231	NCP	mg/kg	< 50	< 50	<1	30%	Pass	
TRH C29-C36	S15-Jn01231	NCP	mg/kg	< 50	< 50	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD			
TRH >C10-C16	S15-Jn01231	NCP	mg/kg	< 50	< 50	<1	30%	Pass	
TRH >C16-C34	S15-Jn01231	NCP	mg/kg	< 100	< 100	<1	30%	Pass	
TRH >C34-C40	S15-Jn01231	NCP	mg/kg	< 100	< 100	<1	30%	Pass	
Duplicate									
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD			
Acenaphthene	S15-Jn01045	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Acenaphthylene	S15-Jn01045	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Anthracene	S15-Jn01045	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benz(a)anthracene	S15-Jn01045	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(a)pyrene	S15-Jn01045	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(b&j)fluoranthene	S15-Jn01045	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(g.h.i)perylene	S15-Jn01045	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(k)fluoranthene	S15-Jn01045	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Chrysene	S15-Jn01045	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Dibenz(a.h)anthracene	S15-Jn01045	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fluoranthene	S15-Jn01045	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fluorene	S15-Jn01045	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Indeno(1.2.3-cd)pyrene	S15-Jn01045	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Naphthalene	S15-Jn01045	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	

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Duplicate									
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD			
Phenanthrene	S15-Jn01045	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Pyrene	S15-Jn01045	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Duplicate									
Organochlorine Pesticides				Result 1	Result 2	RPD			
Chlordanes - Total	S15-My26701	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
4.4'-DDD	S15-My20836	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
4.4'-DDE	S15-My20836	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
4.4'-DDT	S15-My20836	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
a-BHC	S15-My26701	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Aldrin	S15-My26701	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
b-BHC	S15-My26701	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
d-BHC	S15-My26701	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Dieldrin	S15-My26701	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan I	S15-My26701	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan II	S15-My26701	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan sulphate	S15-My26701	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin	S15-My26701	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin aldehyde	S15-My26701	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin ketone	S15-My26701	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
g-BHC (Lindane)	S15-My26701	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Heptachlor	S15-My26701	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Heptachlor epoxide	S15-My26701	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Hexachlorobenzene	S15-My26701	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Methoxychlor	S15-My26701	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Toxaphene	S15-My20836	NCP	mg/kg	< 1	< 1	<1	30%	Pass	
Duplicate									
Polychlorinated Biphenyls (PCB)				Result 1	Result 2	RPD			
Aroclor-1016	S15-My20836	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Aroclor-1232	S15-My20836	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Aroclor-1242	S15-My20836	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Aroclor-1248	S15-My20836	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Aroclor-1254	S15-My20836	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Aroclor-1260	S15-My20836	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic	S15-Jn01047	NCP	mg/kg	4.0	4.3	9.0	30%	Pass	
Cadmium	S15-Jn01047	NCP	mg/kg	< 0.4	< 0.4	<1	30%	Pass	
Chromium	S15-Jn01047	NCP	mg/kg	< 5	< 5	<1	30%	Pass	
Copper	S15-Jn01047	NCP	mg/kg	26	29	10	30%	Pass	
Lead	S15-Jn01047	NCP	mg/kg	18	20	11	30%	Pass	
Mercury	S15-Jn01047	NCP	mg/kg	0.080	0.090	10	30%	Pass	
Nickel	S15-Jn01047	NCP	mg/kg	< 5	< 5	<1	30%	Pass	
Zinc	S15-Jn01047	NCP	mg/kg	9.5	10	9.0	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
% Moisture	S15-My26640	CP	%	11	11	4.0	30%	Pass	
Duplicate									
Halogenated Volatile Organics				Result 1	Result 2	RPD			
1.1-Dichloroethane	S15-My23328	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.1-Dichloroethene	S15-My23328	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.1.1-Trichloroethane	S15-My23328	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.1.1.2-Tetrachloroethane	S15-My23328	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.1.2-Trichloroethane	S15-My23328	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.1.2.2-Tetrachloroethane	S15-My23328	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	

Duplicate									
Halogenated Volatile Organics				Result 1	Result 2	RPD			
1.2-Dibromoethane	S15-My23328	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.2-Dichlorobenzene	S15-My23328	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.2-Dichloroethane	S15-My23328	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.2-Dichloropropane	S15-My23328	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.2.3-Trichloropropane	S15-My23328	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.3-Dichlorobenzene	S15-My23328	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.3-Dichloropropane	S15-My23328	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.4-Dichlorobenzene	S15-My23328	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Bromodichloromethane	S15-My23328	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Bromoform	S15-My23328	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Bromomethane	S15-My23328	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Carbon Tetrachloride	S15-My23328	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Chlorobenzene	S15-My23328	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Chloroform	S15-My23328	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Chloromethane	S15-My23328	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
cis-1.2-Dichloroethene	S15-My23328	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
cis-1.3-Dichloropropene	S15-My23328	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Dibromochloromethane	S15-My23328	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Dibromomethane	S15-My23328	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Iodomethane	S15-My23328	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Methylene Chloride	S15-My23328	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Tetrachloroethene	S15-My23328	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
trans-1.2-Dichloroethene	S15-My23328	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
trans-1.3-Dichloropropene	S15-My23328	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Trichloroethene	S15-My23328	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Trichlorofluoromethane	S15-My23328	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Vinyl chloride	S15-My23328	NCP	mg/kg	< 0.5	< 0.5	<1	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
Q17	LCS Recovery outside of acceptance criteria however acceptable recoveries were obtained for other compounds in this group

Authorised By

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

Glenn Jackson
National Laboratory 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.

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Attention:	Daniel Guille
Report	459646-AID
Project Name	SURRY HILLS SHOPPING CENTRE
Project ID	GEOTLCOV25397AA
Received Date	May 29, 2015
Date Reported	Jun 02, 2015

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 ± 30°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 SHOPPING CENTRE
Project ID	GEOTLCOV25397AA
Date Sampled	May 29, 2015
Report	459646-AID

Client Sample ID	Eurofins | mgt Sample No.	Date Sampled	Sample Description	Result
BH10_0.5	15-My26639	May 29, 2015	Approximate Sample 137g Sample consisted of: Pinkish grey coarse-grained soil and rocks	No asbestos detected. Organic fibre detected. No respirable fibres detected.
BH10_1.0	15-My26640	May 29, 2015	Approximate Sample 211g Sample consisted of: Pinkish grey coarse-grained 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	Jun 01, 2015	Indefinite

eurofins | mgt

ABN – 50 005 085 521 e.mail : EnviroSales@eurofins.com.au web : www.eurofins.com.au

Melbourne
3-5 Kingston Town Close
Oakleigh VIC 3166
Phone : +61 3 8564 5000
NATA # 1261
Site # 1254 & 14271

Sydney
Unit F3, Building F
16 Mars Road
Lane Cove West NSW 2066
Phone : +61 2 9900 8400
NATA # 1261 Site # 18217

Brisbane
1/21 Smallwood Place
Murarrie QLD 4172
Phone : +61 7 3902 4600
NATA # 1261 Site # 20794

Company Name: Coffey Geotechnics Pty Ltd Chatswood
Address: Level 18, Tower B, Citadel Tower 799 Pacific Highway
Chatswood
NSW 2067

Project Name: SURRY HILLS SHOPPING CENTRE
Project ID: GEOTLCOV25397AA

Order No.:
Report #: 459646
Phone: +61 2 9406 1000
Fax: +61 2 9406 1002

Received: May 29, 2015 5:39 PM
Due: Jun 2, 2015
Priority: 2 Day
Contact Name: Daniel Guille

Eurofins | mgt Client Manager: Charl Du Preez

Sample Detail					Asbestos Absence /Presence	HOLD	Eurofins | mgt Suite 13	Eurofins | mgt Suite 7	Halogenated Volatile Organics	Moisture Set
Laboratory where analysis is conducted										
Melbourne Laboratory - NATA Site # 1254 & 14271										
Sydney Laboratory - NATA Site # 18217					X	X	X	X	X	X
Brisbane Laboratory - NATA Site # 20794										
External Laboratory										
Sample ID	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**						
BH10_0.1	May 29, 2015		Soil	S15-My26638		X				
BH10_0.5	May 29, 2015		Soil	S15-My26639	X					
BH10_1.0	May 29, 2015		Soil	S15-My26640	X		X	X		X
BH10_2.0	May 29, 2015		Soil	S15-My26641			X	X		X
BH10_3.0	May 29, 2015		Soil	S15-My26642					X	X
QC5	May 29, 2015		Soil	S15-My26643				X		X
QC6	May 29, 2015		Water	S15-My26644				X		
QC7	May 29, 2015		Water	S15-My26645		X				

Eurofins | mgt 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

Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
LOR	Limit of Reporting.
COC	Chain of custody
SRA	Sample Receipt Advice
ISO	International Standards Organisation
AS	Australian Standards
WA DOH	Western Australia Department of Health
NOHSC	National Occupational Health and Safety Commission
ACM	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.
FA	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).
PACM	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.
AF	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 substatntial degree of damage which increases the potential for fibre release.)
AC	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:

Nibha Vaidya Senior Analyst-Asbestos (NSW)

Glenn Jackson
National Laboratory 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

Company Name:	Coffey Geotechnics Pty Ltd Chatswood	**Order No.:**	
Address:	Level 18, Tower B, Citadel Tower 799 Pacific Highway Chatswood NSW 2067	**Report #:**	459646
		Phone:	+61 2 9406 1000
		Fax:	+61 2 9406 1002
Project Name:	SURRY HILLS SHOPPING CENTRE	**Received:**	May 29, 2015 5:39 PM
Project ID:	GEOTLCOV25397AA	**Due:**	Jun 2, 2015
		Priority:	2 Day
		Contact Name:	Daniel Guille

Eurofins | mgt Client Manager: Charl Du Preez

Sample Detail					Asbestos Absence /Presence	HOLD	Eurofins | mgt Suite 13	Eurofins | mgt Suite 7	Halogenated Volatile Organics	Moisture Set
Laboratory where analysis is conducted										
Melbourne Laboratory - NATA Site # 1254 & 14271										
Sydney Laboratory - NATA Site # 18217					X	X	X	X	X	X
Brisbane Laboratory - NATA Site # 20794										
External Laboratory										
Sample ID	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**						
BH10_0.1	May 29, 2015		Soil	S15-My26638		X				
BH10_0.5	May 29, 2015		Soil	S15-My26639	X					
BH10_1.0	May 29, 2015		Soil	S15-My26640	X		X	X		X
BH10_2.0	May 29, 2015		Soil	S15-My26641			X	X		X
BH10_3.0	May 29, 2015		Soil	S15-My26642					X	X
QC5	May 29, 2015		Soil	S15-My26643				X		X
QC6	May 29, 2015		Water	S15-My26644				X		
QC7	May 29, 2015		Water	S15-My26645		X				

Sample Receipt Advice

Company name:	**Coffey Geotechnics Pty Ltd Chatswood**
Contact name:	Daniel Guille
Project name:	SURRY HILLS SHOPPING CENTRE
Project ID:	GEOTLCOV25397AA
COC number:	0801
Turn around time:	2 Day
Date/Time received:	May 29, 2015 5:39 PM
Eurofins | mgt reference:	**459646**

Sample information

- ☑ A detailed list of analytes logged into our LIMS, is included in the attached summary table.
- ☑ Sample Temperature of a random sample selected from the batch as recorded by Eurofins | mgt Sample Receipt : 17 degrees Celsius.
- ☒ 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.
- ☑ Sample containers for volatile analysis received with zero headspace.
- ☒ Some samples have been subcontracted.
- N/A Custody Seals intact (if used).

Notes

Metals container received as QC labelled as QC6 | Sample ID discrepancy COC: BH10_0.1 BAG & JAR BH10_0.2 ID as per COC | Sample QC5A sent to ALS as requested

Contact notes

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

Charl Du Preez on Phone : or by e.mail: charldupreez@eurofins.com.au

Results will be delivered electronically via e.mail to Daniel Guille - daniel.guille@coffey.com.

Note: A copy of these results will also be delivered to the general Coffey Geotechnics Pty Ltd Chatswood email address.

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

coffey

Consigning Office:
Report Results to: daniel_guille
Invoices to:
Mobile: 0450 655 263
Phone:
Email: daniel_guille @coffey.com
Email: @coffey.com

Project No: GEOTLCOV25397AA Task No: Fehlwage
Project Name: Surry Hills Shopping Centre Laboratory: Eurofins
Sampler's Name: Adam Fitzg. Project Manager: Daniel Guille.
Special Instructions:

Relevant agreements: Eurofins COF_ENAUABTF00952AA_MSA1 ; ALS COF_ENAUABTF00952AA_MSA2 and SGS COF_ENAUABTF00952AA_MSA3

Analysis Request Section

Lab No.	Sample ID	Sample Date	Time	Matrix (Soil...etc)	Container Type & Preservative*	T-A-T (specify)	Asbestos	Eurofins suite B7	Eurofins suite B13	Volatile halogenated hydrocarbons	TRH C6-C9 BTEX						NOTES
	BH10-0.1m.	29/05	AM	Soil	1jar+1bag	48h											
	BH10-0.5	ditto	ditto	ditto	ditto	ditto	X										
	BH10-1.0	ditto	ditto	ditto	ditto	ditto	X	X	X								
	BH10-2.0	ditto	ditto	ditto	ditto	ditto		X	X								
	BH10-3.0	ditto	ditto	ditto	ditto	ditto				X							
	QC5	ditto	ditto	ditto	ditto	ditto		X									
	QC5A	ditto	ditto	ditto	ditto	ditto		X									please forward to ALS
	QC6	ditto	ditto	water	1AG+1V+1P	ditto		X									
	QC7	ditto	ditto	water	1V	ditto											#459646

RELINQUISHED BY		RECEIVED BY		Sample Receipt Advice: (Lab Use Only)
Name: Daniel Guille	Date: 29/5/15	Name: Ellen Ng	Date: 290515	All Samples Recieved in Good Condition ☐
Coffey Environments	Time: 6PM	Company: EF/mgt	Time: 17:39	All Documentation is in Proper Order ☐
Name:	Date:	Name:	Date:	Samples Received Properly Chilled ☐
Company:	Time:	Company:	Time:	Lab. Ref/Batch No. 29 MAY 2015 17:39

*Container Type & Preservation Codes: P - Plastic, G- Glass Bottle, J - Glass Jar, V- Vial, Z - Ziplock Bag, N - Nitric Acid Preserved, C - Hydrochloric Acid Preserved, S - Sulphuric Acid Preserved, I - Ice, ST - Sodium Thiosulfate, NP - No Preservative, OP - Other Preservative

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Certificate of Analysis

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.

Coffey Geotechnics Pty Ltd Chatswood
Level 18, Tower B, Citadel Tower 799 Pacific Highway
Chatswood
NSW 2067

Attention: **Daniel Guille**

Report **460093-W**
Project name ADDITIONAL: SURRY HILLS SHOPPING CENTRE
Project ID GEOTLCOV25397AA
Received Date Jun 03, 2015

Client Sample ID			**QC7**
Sample Matrix			**Water**
Eurofins | mgt Sample No.			**S15-Jn02700**
Date Sampled			**May 29, 2015**
Test/Reference	LOR	Unit	
Total Recoverable Hydrocarbons - 1999 NEPM Fractions			
TRH C6-C9	0.02	mg/L	< 0.02
BTEX			
Benzene	0.001	mg/L	< 0.001
Toluene	0.001	mg/L	< 0.001
Ethylbenzene	0.001	mg/L	< 0.001
m&p-Xylenes	0.002	mg/L	< 0.002
o-Xylene	0.001	mg/L	< 0.001
Xylenes - Total	0.003	mg/L	< 0.003
4-Bromofluorobenzene (surr.)	1	%	96
Total Recoverable Hydrocarbons - 2013 NEPM Fractions			
TRH C6-C10	0.02	mg/L	< 0.02
TRH C6-C10 less BTEX (F1)[N04]	0.02	mg/L	< 0.02
Volatile Organics			
Naphthalene[N02]	0.02	mg/L	< 0.02

eurofins | mgt

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	Sydney	Jun 03, 2015	7 Day
- Method: TRH C6-C36 - LTM-ORG-2010			
BTEX	Sydney	Jun 03, 2015	14 Day
- Method: TRH C6-C40 - LTM-ORG-2010			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Sydney	Jun 03, 2015	7 Day
- Method: TRH C6-C40 - LTM-ORG-2010			
Volatile Organics	Sydney	Jun 03, 2015	7 Day
- Method: E016 Volatile Organic Compounds (VOC)			

Company Name:	Coffey Geotechnics Pty Ltd Chatswood	**Order No.:**		**Received:**	Jun 3, 2015 12:06 PM
Address:	Level 18, Tower B, Citadel Tower 799 Pacific Highway Chatswood NSW 2067	**Report #:**	460093	**Due:**	Jun 5, 2015
		Phone:	+61 2 9406 1000	**Priority:**	2 Day
		Fax:	+61 2 9406 1002	**Contact Name:**	Daniel Guille
Project Name:	ADDITIONAL: SURRY HILLS SHOPPING CENTRE				
Project ID:	GEOTLCOV25397AA				

Eurofins | mgt Client Manager: Charl Du Preez

Sample Detail					Lead	USA Leaching Procedure	BTEX and Volatile TRH
Laboratory where analysis is conducted							
Melbourne Laboratory - NATA Site # 1254 & 14271							
Sydney Laboratory - NATA Site # 18217					X	X	X
Brisbane Laboratory - NATA Site # 20794							
External Laboratory							
Sample ID	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**			
QC7	May 29, 2015		Water	S15-Jn02700			X
BH10 -1.0	May 29, 2015		TCLP	S15-Jn02701	X	X	

Eurofins | mgt 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

Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
LOR	Limit of Reporting.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
LCS	Laboratory Control Sample - reported as percent recovery
CRM	Certified Reference Material - reported as percent recovery
Method Blank	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.
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
Batch Duplicate	A second piece of analysis from a sample outside of the clients batch of samples but run within the laboratory batch of analysis.
Batch SPIKE	Spike recovery reported on a sample from outside of the clients batch of samples but run within the laboratory batch of analysis.
USEPA	United States Environmental Protection Agency
APHA	American Public Health Association
ASLP	Australian Standard Leaching Procedure (AS4439.3)
TCLP	Toxicity Characteristic Leaching Procedure
COC	Chain of Custody
SRA	Sample Receipt Advice
CP	Client Parent - QC was performed on samples pertaining to this report
NCP	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
TEQ	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, Toxophene & Chlordane are not added to the LCS.
4. Organochlorine Pesticide analysis - where reporting Spike data, Toxophene 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 Arochlor 1260 in Matrix Spikes and LCS's.
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 RPD's 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
Method Blank							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	mg/L	< 0.02			0.02	Pass	
Method Blank							
BTEX							
Benzene	mg/L	< 0.001			0.001	Pass	
Toluene	mg/L	< 0.001			0.001	Pass	
Ethylbenzene	mg/L	< 0.001			0.001	Pass	
m&p-Xylenes	mg/L	< 0.002			0.002	Pass	
o-Xylene	mg/L	< 0.001			0.001	Pass	
Xylenes - Total	mg/L	< 0.003			0.003	Pass	
Method Blank							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
TRH C6-C10	mg/L	< 0.02			0.02	Pass	
TRH C6-C10 less BTEX (F1)	mg/L	< 0.02			0.02	Pass	
Method Blank							
Volatile Organics							
Naphthalene	mg/L	< 0.02			0.02	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	%	80			70-130	Pass	
LCS - % Recovery							
BTEX							
Benzene	%	94			70-130	Pass	
Toluene	%	95			70-130	Pass	
Ethylbenzene	%	94			70-130	Pass	
m&p-Xylenes	%	95			70-130	Pass	
o-Xylene	%	94			70-130	Pass	
Xylenes - Total	%	94			70-130	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
TRH C6-C10	%	83			70-130	Pass	
LCS - % Recovery							
Volatile Organics							
Naphthalene	%	113			70-130	Pass	

Comments

Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	Yes
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
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.

Authorised By

Charl Du Preez	Analytical Services Manager
Ryan Hamilton	Senior Analyst-Volatile (NSW)

Glenn Jackson

National Laboratory 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

eurofins | mgt

Certificate of Analysis

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.

Coffey Geotechnics Pty Ltd Chatswood
Level 18, Tower B, Citadel Tower 799 Pacific Highway
Chatswood
NSW 2067

Attention: **Daniel Guille**

Report **460093-L**
Project name ADDITIONAL: SURRY HILLS SHOPPING CENTRE
Project ID GEOTLCOV25397AA
Received Date Jun 03, 2015

Client Sample ID **Sample Matrix** **Eurofins | mgt Sample No.** **Date Sampled** Test/Reference	LOR	Unit	**BH10 -1.0** **TCLP** **S15-Jn02701** **May 29, 2015**
Heavy Metals			
Lead	0.01	mg/L	0.03
USA Leaching Procedure			
Leachate Fluid[C01]		comment	1.0
pH (initial)	0.1	pH Units	8.3
pH (off)	0.1	pH Units	6.5
pH (USA HCl addition)	0.1	pH Units	2.1

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
Heavy Metals	Sydney	Jun 03, 2015	180 Day
- Method: E022 Acid Extractable metals in Soils			
USA Leaching Procedure	Sydney	Jun 03, 2015	14 Day
- Method: E019 TCLP Preparation			

Company Name:	Coffey Geotechnics Pty Ltd Chatswood	**Order No.:**		**Received:**	Jun 3, 2015 12:06 PM
Address:	Level 18, Tower B, Citadel Tower 799 Pacific Highway Chatswood NSW 2067	**Report #:**	460093	**Due:**	Jun 5, 2015
		Phone:	+61 2 9406 1000	**Priority:**	2 Day
		Fax:	+61 2 9406 1002	**Contact Name:**	Daniel Guille
Project Name:	ADDITIONAL: SURRY HILLS SHOPPING CENTRE				
Project ID:	GEOTLCOV25397AA				

Eurofins | mgt Client Manager: Charl Du Preez

Sample Detail					Lead	USA Leaching Procedure	BTEX and Volatile TRH
Laboratory where analysis is conducted							
Melbourne Laboratory - NATA Site # 1254 & 14271							
Sydney Laboratory - NATA Site # 18217					X	X	X
Brisbane Laboratory - NATA Site # 20794							
External Laboratory							
Sample ID	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**			
QC7	May 29, 2015		Water	S15-Jn02700			X
BH10 -1.0	May 29, 2015		TCLP	S15-Jn02701	X	X	

Eurofins | mgt 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

Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
LOR	Limit of Reporting.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
LCS	Laboratory Control Sample - reported as percent recovery
CRM	Certified Reference Material - reported as percent recovery
Method Blank	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.
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
Batch Duplicate	A second piece of analysis from a sample outside of the clients batch of samples but run within the laboratory batch of analysis.
Batch SPIKE	Spike recovery reported on a sample from outside of the clients batch of samples but run within the laboratory batch of analysis.
USEPA	United States Environmental Protection Agency
APHA	American Public Health Association
ASLP	Australian Standard Leaching Procedure (AS4439.3)
TCLP	Toxicity Characteristic Leaching Procedure
COC	Chain of Custody
SRA	Sample Receipt Advice
CP	Client Parent - QC was performed on samples pertaining to this report
NCP	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
TEQ	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, Toxophene & Chlordane are not added to the LCS.
4. Organochlorine Pesticide analysis - where reporting Spike data, Toxophene 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 Arochlor 1260 in Matrix Spikes and LCS's.
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 RPD's are calculated from raw analytical data thus it is possible to have two sets of data.

Quality Control Results

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank									
Heavy Metals									
Lead			mg/L	< 0.01			0.01	Pass	
Test	**Lab Sample ID**	**QA Source**	**Units**	**Result 1**			**Acceptance Limits**	**Pass Limits**	**Qualifying Code**
Spike - % Recovery									
Heavy Metals				Result 1					
Lead	S15-Jn03517	NCP	%	91			70-130	Pass	
Test	**Lab Sample ID**	**QA Source**	**Units**	**Result 1**			**Acceptance Limits**	**Pass Limits**	**Qualifying Code**
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Lead	S15-Jn03516	NCP	mg/L	0.090	0.10	3.0	30%	Pass	

Comments

Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	Yes
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

Authorised By

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

Glenn Jackson
National Laboratory 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

Company Name: Coffey Geotechnics Pty Ltd Chatswood
Address: Level 18, Tower B, Citadel Tower 799 Pacific Highway
Chatswood
NSW 2067

Project Name: ADDITIONAL: SURRY HILLS SHOPPING CENTRE
Project ID: GEOTLCOV25397AA

Order No.:
Report #: 460093
Phone: +61 2 9406 1000
Fax: +61 2 9406 1002

Received: Jun 3, 2015 12:06 PM
Due: Jun 5, 2015
Priority: 2 Day
Contact Name: Daniel Guille

Eurofins | mgt Client Manager: Charl Du Preez

Sample Detail					Lead	USA Leaching Procedure	BTEX and Volatile TRH
Laboratory where analysis is conducted							
Melbourne Laboratory - NATA Site # 1254 & 14271							
Sydney Laboratory - NATA Site # 18217					X	X	X
Brisbane Laboratory - NATA Site # 20794							
External Laboratory							
Sample ID	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**			
QC7	May 29, 2015		Water	S15-Jn02700			X
BH10 -1.0	May 29, 2015		TCLP	S15-Jn02701	X	X	

Sample Receipt Advice

Company name:	**Coffey Geotechnics Pty Ltd Chatswood**
Contact name:	Daniel Guille
Project name:	ADDITIONAL: SURRY HILLS SHOPPING CENTRE
Project ID:	GEOTLCOV25397AA
COC number:	Not provided
Turn around time:	2 Day
Date/Time received:	Jun 3, 2015 12:06 PM
Eurofins | mgt reference:	**460093**

Sample information

☑ A detailed list of analytes logged into our LIMS, is included in the attached summary table.

☑ Sample Temperature of a random sample selected from the batch as recorded by Eurofins | mgt Sample Receipt : 17 degrees Celsius.

☑ 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.

☑ Sample containers for volatile analysis received with zero headspace.

☒ Some samples have been subcontracted.

N/A Custody Seals intact (if used).

Contact notes

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

Charl Du Preez on Phone : or by e.mail: charldupreez@eurofins.com.au

Results will be delivered electronically via e.mail to Daniel Guille - daniel.guille@coffey.com.

Note: A copy of these results will also be delivered to the general Coffey Geotechnics Pty Ltd Chatswood email address.

460093

From: Charl DuPreez
Sent: Wednesday, 3 June 2015 12:06 PM
To: EnviroSampleNSW
Subject: FW: Eurofins | mgt Test Results - Report 459646 : Site SURRY HILLS SHOPPING CENTRE (GEOTLCOV25397AA)

Additional analysis please.

48hr TAT.

Charl DuPreez
Phone : +61 2 9900 8415
Email : CharlDuPreez@eurofins.com.au

From: Daniel Guille [mailto:Daniel.Guille@coffey.com]
Sent: Wednesday, 3 June 2015 12:00 PM
To: Charl DuPreez
Subject: RE: Eurofins | mgt Test Results - Report 459646 : Site SURRY HILLS SHOPPING CENTRE (GEOTLCOV25397AA)

Hi Charl,

Could you please organise additional analyses for samples of this batch.

- QC7 for TPH C6-C10/BTEX
- BH10-1.0 for TCLP for lead

With a 48h TAT.
Thanks,

Sincerely,

Daniel Guille
Senior Environmental Scientist

m: +61 0 450 655 263
t: +61 2 94061000
d: +61 2 94061095

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **ES1522078**

Client	: **COFFEY GEOTECHNICS**	Laboratory	: Environmental Division Sydney
Contact	: MR DANIEL GUILLE	Contact	:
Address	:	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: daniel.guille@coffey.com	E-mail	:
Telephone	: ----	Telephone	: +61-2-8784 8555
Facsimile	: ----	Facsimile	: +61-2-8784 8500
Project	: GEOTLCOV25397AA SURRY HILLS VILLAGE	Page	: 1 of 2
Order number	: ----	Quote number	: EB2014COFGEO0309 (EN/077/14)
C-O-C number	: 0354	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Site	: ----		
Sampler	:		

Dates

Date Samples Received	: 15-May-2015	Issue Date	: 15-May-2015
Client Requested Due Date	: 20-May-2015	Scheduled Reporting Date	: **20-May-2015**

Delivery Details

Mode of Delivery	: Carrier	Security Seal	: Intact.
No. of coolers/boxes	: 1	Temperature	: 17.8'C
Receipt Detail	:	No. of samples received / analysed	: 1 / 1

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- **Sample(s) requiring volatile organic compound analysis received in airtight containers (ZHE).**
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (14 days), Solid (60 days) from date of completion of work order.

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exist.**

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.

Matrix: **SOIL**

Laboratory sample ID	Client sampling date / time	Client sample ID	SOIL - EA055-103 Moisture Content	SOIL - S-26 8 metals/TRH/BTEXN/PAH
ES1522078-001	[13-May-2015]	QC1A	✓	✓

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

Requested Deliverables

DANIEL GUILLE

- *AU Certificate of Analysis - NATA (COA)	Email	daniel.guille@coffey.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	daniel.guille@coffey.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	daniel.guille@coffey.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Print	DANIEL GUILLE
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	daniel.guille@coffey.com
- A4 - AU Tax Invoice (INV)	Email	daniel.guille@coffey.com
- Chain of Custody (CoC) (COC)	Email	daniel.guille@coffey.com
- EDI Format - ENMRG (ENMRG)	Email	daniel.guille@coffey.com
- EDI Format - ESDAT (ESDAT)	Email	daniel.guille@coffey.com

QA/QC Compliance Assessment for DQO Reporting

Work Order	: **ES1522078**	Page	: 1 of 4
Client	: **COFFEY ENVIRONMENTS PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: MR DANIEL GUILLE	Telephone	: +61-2-8784 8555
Project	: GEOTLCOV25397AA SURRY HILLS VILLAGE	Date Samples Received	: 15-May-2015
Site	: ----	Issue Date	: 21-May-2015
Sampler	: ----	No. of samples received	: 1
Order number	: ----	No. of samples analysed	: 1

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **NO Matrix Spike outliers occur.**
- **For all regular sample matrices, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

- **NO Quality Control Sample Frequency Outliers exist.**

Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / *Container / Client Sample ID(s)*	*Sample Date*	*Extraction / Preparation*			*Analysis*		
		Date extracted	*Due for extraction*	*Evaluation*	*Date analysed*	*Due for analysis*	*Evaluation*
EA055: Moisture Content							
Soil Glass Jar - Unpreserved (EA055-103)							
QC1A	**13-May-2015**	**----**	----	----	**20-May-2015**	27-May-2015	✓
EG005T: Total Metals by ICP-AES							
Soil Glass Jar - Unpreserved (EG005T)							
QC1A	**13-May-2015**	**18-May-2015**	09-Nov-2015	✓	**18-May-2015**	09-Nov-2015	✓
EG035T: Total Recoverable Mercury by FIMS							
Soil Glass Jar - Unpreserved (EG035T)							
QC1A	**13-May-2015**	**18-May-2015**	10-Jun-2015	✓	**19-May-2015**	10-Jun-2015	✓
EP080/071: Total Petroleum Hydrocarbons							
Soil Glass Jar - Unpreserved (EP071)							
QC1A	**13-May-2015**	**18-May-2015**	27-May-2015	✓	**19-May-2015**	27-Jun-2015	✓
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons							
Soil Glass Jar - Unpreserved (EP075(SIM))							
QC1A	**13-May-2015**	**18-May-2015**	27-May-2015	✓	**19-May-2015**	27-Jun-2015	✓
EP080/071: Total Petroleum Hydrocarbons							
Soil Glass Jar - Unpreserved (EP080)							
QC1A	**13-May-2015**	**18-May-2015**	27-May-2015	✓	**18-May-2015**	27-May-2015	✓

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Moisture Content	EA055-103	2	20	**10.00**	**10.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (SIM)	EP075(SIM)	2	19	**10.53**	**10.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	2	14	**14.29**	**10.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	2	14	**14.29**	**10.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TRH - Semivolatile Fraction	EP071	2	18	**11.11**	**10.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TRH Volatiles/BTEX	EP080	2	19	**10.53**	**10.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Laboratory Control Samples (LCS)							
PAH/Phenols (SIM)	EP075(SIM)	1	19	**5.26**	**5.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	14	**7.14**	**5.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	1	14	**7.14**	**5.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TRH - Semivolatile Fraction	EP071	1	18	**5.56**	**5.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TRH Volatiles/BTEX	EP080	1	19	**5.26**	**5.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Method Blanks (MB)							
PAH/Phenols (SIM)	EP075(SIM)	1	19	**5.26**	**5.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	14	**7.14**	**5.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	1	14	**7.14**	**5.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TRH - Semivolatile Fraction	EP071	1	18	**5.56**	**5.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TRH Volatiles/BTEX	EP080	1	19	**5.26**	**5.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Matrix Spikes (MS)							
PAH/Phenols (SIM)	EP075(SIM)	1	19	**5.26**	**5.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	14	**7.14**	**5.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	1	14	**7.14**	**5.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TRH - Semivolatile Fraction	EP071	1	18	**5.56**	**5.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TRH Volatiles/BTEX	EP080	1	19	**5.26**	**5.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	*Method*	*Matrix*	*Method Descriptions*
Moisture Content	EA055-103	SOIL	In-house. A gravimetric procedure based on weight loss over a 12 hour drying period at 103-105 degrees C. This method is compliant with NEPM (2013) Schedule B(3) Section 7.1 and Table 1 (14 day holding time).
Total Metals by ICP-AES	EG005T	SOIL	In house: Referenced to APHA 3120; USEPA SW 846 - 6010. Metals are determined following an appropriate acid digestion of the soil. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM (2013) Schedule B(3)
Total Mercury by FIMS	EG035T	SOIL	In house: Referenced to AS 3550, APHA 3112 Hg - B (Flow-injection (SnCl2)(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. Mercury in solids are determined following an appropriate acid digestion. Ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
TRH - Semivolatile Fraction	EP071	SOIL	(USEPA SW 846 - 8015A) Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C40.
PAH/Phenols (SIM)	EP075(SIM)	SOIL	(USEPA SW 846 - 8270B) Extracts are analysed by Capillary GC/MS in Selective Ion Mode (SIM) and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 502 and 507)
TRH Volatiles/BTEX	EP080	SOIL	(USEPA SW 846 - 8260B) Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve.

Preparation Methods	*Method*	*Matrix*	*Method Descriptions*
Methanolic Extraction of Soils for Purge and Trap	* ORG16	SOIL	(USEPA SW 846 - 5030A) 5g of solid is shaken with surrogate and 10mL methanol prior to analysis by Purge and Trap - GC/MS.
Tumbler Extraction of Solids	ORG17	SOIL	In-house, Mechanical agitation (tumbler). 10g of sample, Na2SO4 and surrogate are extracted with 30mL 1:1 DCM/Acetone by end over end tumble. The solvent is decanted, dehydrated and concentrated (by KD) to the desired volume for analysis.

QUALITY CONTROL REPORT

Work Order	: **ES1522078**	Page	: 1 of 8
Client	: **COFFEY ENVIRONMENTS PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: MR DANIEL GUILLE	Contact	:
Address	: LEVEL 19, 799 PACIFIC HIGHWAY Tower B - Citadel Tower CHATSWOOD NSW, AUSTRALIA 2067	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: daniel_guille@coffey.com	E-mail	:
Telephone	: +61 03 9290 7000	Telephone	: +61-2-8784 8555
Facsimile	: ----	Facsimile	: +61-2-8784 8500
Project	: GEOTLCOV25397AA SURRY HILLS VILLAGE	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Order number	: ----	Date Samples Received	: 15-May-2015
C-O-C number	: 0354	Date Analysis Commenced	: 18-May-2015
Sampler	: ----	Issue Date	: 21-May-2015
Site	: ----	No. of samples received	: 1
Quote number	: ----	No. of samples analysed	: 1

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

NATA Accredited Laboratory 825

Accredited for compliance with ISO/IEC 17025.

Signatories

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Pabi Subba	Senior Organic Chemist	Sydney Inorganics
Pabi Subba	Senior Organic Chemist	Sydney Organics
Shobhna Chandra	Metals Coordinator	Sydney Inorganics

General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR:- 0% - 50%; Result > 20 times LOR:0% - 20%.

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EA055: Moisture Content (QC Lot: 103915)									
ES1522077-002	Anonymous	EA055-103: Moisture Content (dried @ 103°C)	----	1	%	7.9	6.6	17.5	No Limit
ES1522110-001	Anonymous	EA055-103: Moisture Content (dried @ 103°C)	----	1	%	16.7	15.7	6.09	0% - 50%
EG005T: Total Metals by ICP-AES (QC Lot: 101511)									
ES1521860-001	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	10	10	0.00	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	8	8	0.00	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	8	7	0.00	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	10	9	0.00	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	23	19	19.8	No Limit
ES1522052-009	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	34	29	16.4	0% - 50%
		EG005T: Nickel	7440-02-0	2	mg/kg	8	8	0.00	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	13	8	47.8	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	29	30	0.00	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	131	136	3.66	0% - 20%
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 101512)									
ES1521860-001	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
ES1522052-009	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 101734)									
ES1522039-021	Anonymous	EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 101734) - continued									
ES1522039-021	Anonymous	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
ES1522055-002	Anonymous	EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 101726)									
EW1510290-001	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.00	No Limit
EW1510290-005	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 101735)									
ES1522039-021	Anonymous	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
ES1522055-002	Anonymous	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 101726)									
EW1510290-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.00	No Limit
EW1510290-005	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 101735)									
ES1522039-021	Anonymous	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 101735) - continued									
ES1522039-021	Anonymous	EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	0.00	No Limit
ES1522055-002	Anonymous	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	0.00	No Limit
EP080: BTEXN (QC Lot: 101726)									
EW1510290-001	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.00	No Limit
EW1510290-005	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.00	No Limit

Method Blank (MB) and Laboratory Control Spike (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **SOIL**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EG005T: Total Metals by ICP-AES (QCLot: 101511)								
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	21.7 mg/kg	99.0	92	130
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	4.64 mg/kg	88.8	87	121
EG005T: Chromium	7440-47-3	2	mg/kg	<2	43.9 mg/kg	89.4	80	136
EG005T: Copper	7440-50-8	5	mg/kg	<5	32 mg/kg	107	93	127
EG005T: Lead	7439-92-1	5	mg/kg	<5	40 mg/kg	87.4	86	124
EG005T: Nickel	7440-02-0	2	mg/kg	<2	55 mg/kg	98.4	93	131
EG005T: Zinc	7440-66-6	5	mg/kg	<5	60.8 mg/kg	91.6	81	133
EG035T: Total Recoverable Mercury by FIMS (QCLot: 101512)								
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	2.57 mg/kg	88.4	70	105
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 101734)								
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	6 mg/kg	88.6	79	123
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	6 mg/kg	87.9	77	123
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	6 mg/kg	88.2	79	123
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	6 mg/kg	88.3	73	121
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	6 mg/kg	97.6	76	122
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	6 mg/kg	90.6	70	118
EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	6 mg/kg	92.6	72	114
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	6 mg/kg	98.6	77	123
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	6 mg/kg	100	81	123
EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	6 mg/kg	89.6	72	113
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	6 mg/kg	89.3	79	123
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	6 mg/kg	89.8	77	123
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	6 mg/kg	89.3	71	113
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	6 mg/kg	99.0	80	124
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	6 mg/kg	88.4	79	123
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	6 mg/kg	89.3	79	125
EP080/071: Total Petroleum Hydrocarbons (QCLot: 101726)								
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	100	68	128
EP080/071: Total Petroleum Hydrocarbons (QCLot: 101735)								
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	200 mg/kg	114	71	131
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	250 mg/kg	116	74	138
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	200 mg/kg	107	64	128
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 101726)								

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report Spike Concentration	Spike Recovery (%) LCS	Recovery Limits (%) Low	High
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 101726) - continued								
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	98.2	68	128
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 101735)								
EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	250 mg/kg	110	70	130
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	350 mg/kg	115	74	138
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	200 mg/kg	93.8	63	131
EP080: BTEXN (QCLot: 101726)								
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	95.9	62	116
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	99.9	58	118
EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	2 mg/kg	99.0	60	120
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	100	62	138
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	99.8	60	120
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	100	62	128

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **SOIL**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report Spike Concentration	SpikeRecovery(%) MS	Recovery Limits (%) Low	High
EG005T: Total Metals by ICP-AES (QCLot: 101511)							
ES1521860-001	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	103	70	130
		EG005T: Cadmium	7440-43-9	50 mg/kg	98.2	70	130
		EG005T: Chromium	7440-47-3	50 mg/kg	99.9	70	130
		EG005T: Copper	7440-50-8	250 mg/kg	110	70	130
		EG005T: Lead	7439-92-1	250 mg/kg	95.6	70	130
		EG005T: Nickel	7440-02-0	50 mg/kg	92.4	70	130
		EG005T: Zinc	7440-66-6	250 mg/kg	92.6	70	130
EG035T: Total Recoverable Mercury by FIMS (QCLot: 101512)							
ES1521860-001	Anonymous	EG035T: Mercury	7439-97-6	5 mg/kg	107	70	130
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 101734)							
ES1522039-021	Anonymous	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	84.7	70	130
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	86.3	70	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 101726)							
EW1510290-001	Anonymous	EP080: C6 - C9 Fraction	----	32.5 mg/kg	80.3	70	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 101735)							

Sub-Matrix: **SOIL**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%) MS	Recovery Limits (%) Low	Recovery Limits (%) High
EP080/071: Total Petroleum Hydrocarbons (QCLot: 101735) - continued							
ES1522039-021	Anonymous	EP071: C10 - C14 Fraction	----	523 mg/kg	96.3	73	137
		EP071: C15 - C28 Fraction	----	2319 mg/kg	103	53	131
		EP071: C29 - C36 Fraction	----	1714 mg/kg	122	52	132
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 101726)							
EW1510290-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	79.4	70	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 101735)							
ES1522039-021	Anonymous	EP071: >C10 - C16 Fraction	>C10_C16	860 mg/kg	98.5	73	137
		EP071: >C16 - C34 Fraction	----	3223 mg/kg	117	53	131
		EP071: >C34 - C40 Fraction	----	1058 mg/kg	119	52	132
EP080: BTEXN (QCLot: 101726)							
EW1510290-001	Anonymous	EP080: Benzene	71-43-2	2.5 mg/kg	79.8	70	130
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	88.5	70	130
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2.5 mg/kg	88.1	70	130
		EP080: Naphthalene	91-20-3	2.5 mg/kg	80.6	70	130
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	90.2	70	130
		EP080: Toluene	108-88-3	2.5 mg/kg	82.6	70	130

CERTIFICATE OF ANALYSIS

Work Order	: **ES1522078**	Page	: 1 of 4
Client	: **COFFEY ENVIRONMENTS PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: MR DANIEL GUILLE	Contact	:
Address	: LEVEL 19, 799 PACIFIC HIGHWAY Tower B - Citadel Tower CHATSWOOD NSW, AUSTRALIA 2067	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: daniel_guille@coffey.com	E-mail	:
Telephone	: +61 03 9290 7000	Telephone	: +61-2-8784 8555
Facsimile	: ----	Facsimile	: +61-2-8784 8500
Project	: GEOTLCOV25397AA SURRY HILLS VILLAGE	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Order number	: ----	Date Samples Received	: 15-May-2015 18:00
C-O-C number	: 0354	Date Analysis Commenced	: 18-May-2015
Sampler	: ----	Issue Date	: 21-May-2015 16:02
Site	: ----		
		No. of samples received	: 1
Quote number	: ----	No. of samples analysed	: 1

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results

NATA Accredited Laboratory 825

Accredited for compliance with ISO/IEC 17025.

Signatories

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Pabi Subba	Senior Organic Chemist	Sydney Inorganics
Pabi Subba	Senior Organic Chemist	Sydney Organics
Shobhna Chandra	Metals Coordinator	Sydney Inorganics

General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.

- **EP071: Result of sample QC1A has been confirmed by re-extraction and re-analysis.**
- Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1.2.3.cd)pyrene (0.1), Dibenz(a.h)anthracene (1.0), Benzo(g.h.i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero, for 'TEQ 1/2LOR' are treated as half the reported LOR, and for 'TEQ LOR' are treated as being equal to the reported LOR. Note: TEQ 1/2LOR and TEQ LOR will calculate as 0.6mg/Kg and 1.2mg/Kg respectively for samples with non-detects for all of the eight TEQ PAHs.

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	QC1A	----	----	----	----
			Client sampling date / time	[13-May-2015]	----	----	----	----
Compound	CAS Number	LOR	Unit	ES1522078-001	--------	--------	--------	--------
				Result	Result	Result	Result	Result
EA055: Moisture Content								
^ Moisture Content (dried @ 103°C)	----	1	%	**8.4**	----	----	----	----
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	<5	----	----	----	----
Cadmium	7440-43-9	1	mg/kg	<1	----	----	----	----
Chromium	7440-47-3	2	mg/kg	**11**	----	----	----	----
Copper	7440-50-8	5	mg/kg	**73**	----	----	----	----
Lead	7439-92-1	5	mg/kg	**345**	----	----	----	----
Nickel	7440-02-0	2	mg/kg	**9**	----	----	----	----
Zinc	7440-66-6	5	mg/kg	**278**	----	----	----	----
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	**0.3**	----	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	0.5	mg/kg	<0.5	----	----	----	----
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	----	----	----	----
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	----	----	----	----
Fluorene	86-73-7	0.5	mg/kg	<0.5	----	----	----	----
Phenanthrene	85-01-8	0.5	mg/kg	**1.9**	----	----	----	----
Anthracene	120-12-7	0.5	mg/kg	**0.6**	----	----	----	----
Fluoranthene	206-44-0	0.5	mg/kg	**4.9**	----	----	----	----
Pyrene	129-00-0	0.5	mg/kg	**5.4**	----	----	----	----
Benz(a)anthracene	56-55-3	0.5	mg/kg	**2.5**	----	----	----	----
Chrysene	218-01-9	0.5	mg/kg	**2.5**	----	----	----	----
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	**2.8**	----	----	----	----
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	**1.0**	----	----	----	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg	**2.3**	----	----	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	**1.2**	----	----	----	----
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	----	----	----	----
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	**1.5**	----	----	----	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	**26.6**	----	----	----	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	**3.1**	----	----	----	----
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	**3.3**	----	----	----	----
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	**3.6**	----	----	----	----
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	10	mg/kg	<10	----	----	----	----
C10 - C14 Fraction	----	50	mg/kg	<50	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	QC1A	----	----	----	----
			Client sampling date / time	[13-May-2015]	----	----	----	----
Compound	CAS Number	LOR	Unit	ES1522078-001	--------	--------	--------	--------
				Result	Result	Result	Result	Result
EP080/071: Total Petroleum Hydrocarbons - Continued								
C15 - C28 Fraction	----	100	mg/kg	**240**	----	----	----	----
C29 - C36 Fraction	----	100	mg/kg	**210**	----	----	----	----
^ C10 - C36 Fraction (sum)	----	50	mg/kg	**450**	----	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	----	----	----	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	----	----	----	----
>C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	----	----	----	----
>C16 - C34 Fraction	----	100	mg/kg	**370**	----	----	----	----
>C34 - C40 Fraction	----	100	mg/kg	**170**	----	----	----	----
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	**540**	----	----	----	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	<50	----	----	----	----
EP080: BTEXN								
Benzene	71-43-2	0.2	mg/kg	<0.2	----	----	----	----
Toluene	108-88-3	0.5	mg/kg	<0.5	----	----	----	----
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	----	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	----	----	----	----
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	----	----	----	----
^ Sum of BTEX	----	0.2	mg/kg	<0.2	----	----	----	----
^ Total Xylenes	1330-20-7	0.5	mg/kg	<0.5	----	----	----	----
Naphthalene	91-20-3	1	mg/kg	<1	----	----	----	----
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.5	%	**79.8**	----	----	----	----
2-Chlorophenol-D4	93951-73-6	0.5	%	**91.3**	----	----	----	----
2.4.6-Tribromophenol	118-79-6	0.5	%	**107**	----	----	----	----
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.5	%	**91.5**	----	----	----	----
Anthracene-d10	1719-06-8	0.5	%	**87.5**	----	----	----	----
4-Terphenyl-d14	1718-51-0	0.5	%	**96.0**	----	----	----	----
EP080S: TPH(V)/BTEX Surrogates								
1.2-Dichloroethane-D4	17060-07-0	0.2	%	**114**	----	----	----	----
Toluene-D8	2037-26-5	0.2	%	**105**	----	----	----	----
4-Bromofluorobenzene	460-00-4	0.2	%	**96.6**	----	----	----	----

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

Page ___ of ___ 0354

coffey

Consigning Office:	CHATSWOOD (Sydney)
Report Results to:	David Guille	Mobile: 0450 655 263	Email: daniel.guille @coffey.com
Invoices to:	Chatswood (Coffey)	Phone:	Email: @coffey.com

Project No: GEOTLCOV 25397AA Task No:
Project Name: Sunny Hills Village Laboratory: ALS
Sampler's Name: Manaia Rehu Project Manager: Daniel Guille
Special Instructions: Suite S26 = TRH/BTEXN/PAHs/8 metals
Relevant agreements: Eurofins COF_ENAUABTF00952AA_MSA1 ; ALS COF_ENAUABTF00952AA_MSA2 and SGS COF_ENAUABTF00952AA_MSA3

Analysis Request Section: Suite S26

Lab No.	Sample ID	Sample Date	Time	Matrix (Soil...etc)	Container Type & Preservative*	T-A-T (specify)	Suite S26	NOTES
1	QC1A	13/5/15		Soil	1 jar	2day	X	

TAT

Environmental Division
Sydney
Work Order Reference
ES1522078
Telephone : +61-2-8784 8555

RELINQUISHED BY		RECEIVED BY		Sample Receipt Advice: (Lab Use Only)
Name: Daniel Guille	Date: 15/5/2015	Name: Jack	Date: 15/5/2015	All Samples Recieved in Good Condition ☐
Coffey Environments	Time: 1600	Company: Ronds	Time: 3:55 pm	All Documentation is in Proper Order ☐
Name:	Date:	Name: Scott Kephe	Date: 15/5/15	Samples Received Properly Chilled ☐
Company:	Time:	Company: ALS	Time: 1800	Lab. Ref/Batch No.

*Container Type & Preservation Codes: P - Plastic, G- Glass Bottle, J - Glass Jar, V- Vial, Z - Ziplock Bag, N - Nitric Acid Preserved, C - Hydrochloric Acid Preserved, S - Sulphuric Acid Preserved, I - Ice, ST - Sodium Thiosulfate, NP - No Preservative, OP - Other Preservative

Certificate of Analysis

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.

Coffey Geotechnics Pty Ltd Chatswood
Level 18, Tower B, Citadel Tower 799 Pacific Highway
Chatswood
NSW 2067

Attention: **Daniel Guille**

Report **457829-W**
Project name GEOTLCOV25397AA
Received Date May 15, 2015

Client Sample ID **Sample Matrix** **Eurofins | mgt Sample No.** **Date Sampled** Test/Reference	LOR	Unit	**MW1** **Water** **S15-My14400** **May 14, 2015**	**MW2** **Water** **S15-My14401** **May 14, 2015**	**MW4** **Water** **S15-My14402** **May 14, 2015**	**DUP01** **Water** **S15-My14403** **May 14, 2015**
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
TRH C10-C14	0.05	mg/L	< 0.05	< 0.05	< 0.05	< 0.05
TRH C15-C28	0.1	mg/L	< 0.1	< 0.1	0.7	< 0.1
TRH C29-C36	0.1	mg/L	< 0.1	< 0.1	0.9	< 0.1
TRH C10-36 (Total)	0.1	mg/L	< 0.1	< 0.1	1.6	< 0.1
BTEX						
Benzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Toluene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Ethylbenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
m&p-Xylenes	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
o-Xylene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Xylenes - Total	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
4-Bromofluorobenzene (surr.)	1	%	90	89	89	89
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene[N02]	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
TRH C6-C10	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
TRH C6-C10 less BTEX (F1)[N04]	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
TRH >C10-C16	0.05	mg/L	< 0.05	< 0.05	< 0.05	< 0.05
TRH >C10-C16 less Naphthalene (F2)[N01]	0.05	mg/L	< 0.05	< 0.05	< 0.05	< 0.05
TRH >C16-C34	0.1	mg/L	< 0.1	< 0.1	1.5	< 0.1
TRH >C34-C40	0.1	mg/L	< 0.1	< 0.1	0.4	< 0.1
Volatile Organics						
1.1-Dichloroethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.1-Dichloroethene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.1.1-Trichloroethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.1.1.2-Tetrachloroethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.1.2-Trichloroethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.1.2.2-Tetrachloroethane	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
1.2-Dibromoethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.2-Dichlorobenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.2-Dichloroethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.2-Dichloropropane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.2.3-Trichloropropane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.2.4-Trimethylbenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.3-Dichlorobenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.3-Dichloropropane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001

Client Sample ID			MW1	MW2	MW4	DUP01
Sample Matrix			Water	Water	Water	Water
Eurofins | mgt Sample No.			S15-My14400	S15-My14401	S15-My14402	S15-My14403
Date Sampled			May 14, 2015	May 14, 2015	May 14, 2015	May 14, 2015
Test/Reference	LOR	Unit				
Volatile Organics						
1.3.5-Trimethylbenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.4-Dichlorobenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
2-Butanone (MEK)	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
4-Chlorotoluene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
4-Methyl-2-pentanone (MIBK)	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Bromobenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Bromochloromethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Bromodichloromethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Bromoform	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Bromomethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Carbon disulfide	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Carbon Tetrachloride	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Chlorobenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Chloroethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Chloroform	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Chloromethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
cis-1.2-Dichloroethene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
cis-1.3-Dichloropropene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Dibromochloromethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Dibromomethane	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Dichlorodifluoromethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Ethylbenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Iodomethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Isopropyl benzene (Cumene)	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
m&p-Xylenes	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Methylene Chloride	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
o-Xylene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Styrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Tetrachloroethene	0.001	mg/L	0.002	< 0.001	0.001	< 0.001
Toluene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
trans-1.2-Dichloroethene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
trans-1.3-Dichloropropene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Trichloroethene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Trichlorofluoromethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Vinyl chloride	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Xylenes - Total	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
Fluorobenzene (surr.)	1	%	98	95	94	93
4-Bromofluorobenzene (surr.)	1	%	90	89	89	89
Polycyclic Aromatic Hydrocarbons						
Acenaphthene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Acenaphthylene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Anthracene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benz(a)anthracene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(a)pyrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(b&j)fluoranthene[N07]	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(g.h.i)perylene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(k)fluoranthene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Chrysene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001

Client Sample ID			MW1	MW2	MW4	DUP01
Sample Matrix			Water	Water	Water	Water
Eurofins | mgt Sample No.			S15-My14400	S15-My14401	S15-My14402	S15-My14403
Date Sampled			May 14, 2015	May 14, 2015	May 14, 2015	May 14, 2015
Test/Reference	LOR	Unit				
Polycyclic Aromatic Hydrocarbons						
Dibenz(a.h)anthracene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Fluoranthene	0.001	mg/L	< 0.001	< 0.001	0.010	< 0.001
Fluorene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Indeno(1.2.3-cd)pyrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Naphthalene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Phenanthrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Pyrene	0.001	mg/L	< 0.001	< 0.001	0.010	< 0.001
Total PAH*	0.001	mg/L	< 0.001	< 0.001	0.02	< 0.001
2-Fluorobiphenyl (surr.)	1	%	89	Q09A 1	Q09A 1	61
p-Terphenyl-d14 (surr.)	1	%	91	Q09A 1	Q09A 1	71
Semivolatile Organic Compounds (SVOC)						
2-Chloronaphthalene	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
2-Chlorophenol	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
2-Fluorobiphenyl (surr.)	1	%	89	Q09A 1	Q09A 1	61
2-Methylnaphthalene	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
2-Methylphenol (o-Cresol)	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
2-Naphthylamine	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
2-Nitroaniline	0.004	mg/L	< 0.004	< 0.004	< 0.004	< 0.004
2-Nitrophenol	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
3&4-Methylphenol (m&p-Cresol)	0.004	mg/L	< 0.004	< 0.004	< 0.004	< 0.004
3-Methylcholanthrene	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
3-Nitroaniline	0.004	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
4-Aminobiphenyl	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
4-Bromophenyl phenyl ether	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
4-Chloro-3-methylphenol	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
4-Chlorophenyl phenyl ether	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
4-Nitrophenol	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
4.4'-DDD	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
4.4'-DDE	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
4.4'-DDT	0.004	mg/L	< 0.004	< 0.004	< 0.004	< 0.004
Acenaphthene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Acenaphthylene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Acetophenone	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Aldrin	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Aniline	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Anthracene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benz(a)anthracene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(a)pyrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(g.h.i)perylene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Bis(2-chloroethoxy)methane	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Bis(2-chloroethyl)ether	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Bis(2-ethylhexyl)phthalate	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
Butyl benzyl phthalate	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Carbazole	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Chlorpyrifos	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Chrysene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Coumaphos	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
d-BHC	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Demeton-O	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002

Client Sample ID Sample Matrix Eurofins | mgt Sample No. Date Sampled Test/Reference	LOR	Unit	MW1 Water S15-My14400 May 14, 2015	MW2 Water S15-My14401 May 14, 2015	MW4 Water S15-My14402 May 14, 2015	DUP01 Water S15-My14403 May 14, 2015
Semivolatile Organic Compounds (SVOC)						
Demeton-S	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Di-n-butyl phthalate	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Di-n-octyl phthalate	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Diazinon	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Dibenz(a.h)anthracene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Dibenzofuran	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Dichlorvos	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Dieldrin	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Diethyl phthalate	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Dimethoate	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Dimethyl phthalate	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Diphenylamine	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Disulfoton	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Endosulfan sulphate	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Endrin	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Endrin aldehyde	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Endrin ketone	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Ethoprop	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Fenitrothion	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Fensulfothion	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Fenthion	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Fluoranthene	0.001	mg/L	< 0.001	< 0.001	0.010	< 0.001
Fluorene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
g-BHC (Lindane)	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Heptachlor	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Heptachlor epoxide	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Hexachlorobenzene	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Hexachlorobutadiene	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Hexachlorocyclopentadiene	0.004	mg/L	< 0.004	< 0.004	< 0.004	< 0.004
Hexachloroethane	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Indeno(1.2.3-cd)pyrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Malathion	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Methoxychlor	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Methyl azinphos	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Methyl parathion	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Mevinphos	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Monocrotophos	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
N-Nitrosodibutylamine	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
N-Nitrosodipropylamine	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
N-Nitrosopiperidine	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Naphthalene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Nitrobenzene	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Nitrobenzene-d5 (surr.)	1	%	89	[Q09A]1	[Q09A]1	[Q09A]1
p-Terphenyl-d14 (surr.)	1	%	91	[Q09A]1	[Q09A]1	71
Parathion	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Pentachlorobenzene	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Pentachloronitrobenzene	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Pentachlorophenol	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
Phenanthrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001

Client Sample ID			MW1	MW2	MW4	DUP01
Sample Matrix			Water	Water	Water	Water
Eurofins | mgt Sample No.			S15-My14400	S15-My14401	S15-My14402	S15-My14403
Date Sampled			May 14, 2015	May 14, 2015	May 14, 2015	May 14, 2015
Test/Reference	LOR	Unit				
Semivolatile Organic Compounds (SVOC)						
Phenol	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Phenol-d6 (surr.)	1	%	38	Q09A 1	Q09A 1	Q09A 1
Phorate	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Profenofos	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Prothiofos	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Pyrene	0.001	mg/L	< 0.001	< 0.001	0.010	< 0.001
Ronnel	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Stirophos	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Trichloronate	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Heavy Metals						
Arsenic	0.005	mg/L	< 0.005	0.011	< 0.005	0.009
Cadmium	0.0005	mg/L	< 0.0005	< 0.0005	< 0.0005	< 0.0005
Chromium	0.005	mg/L	< 0.005	0.041	0.006	0.032
Copper	0.005	mg/L	< 0.005	0.070	< 0.005	0.054
Lead	0.005	mg/L	< 0.005	0.15	0.017	0.12
Mercury	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Nickel	0.005	mg/L	< 0.005	0.014	< 0.005	0.012
Zinc	0.005	mg/L	0.041	0.12	0.064	0.094

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	Sydney	May 15, 2015	7 Day
- Method: TRH C6-C36 - LTM-ORG-2010			
BTEX	Sydney	May 15, 2015	14 Day
- Method: TRH C6-C40 - LTM-ORG-2010			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Sydney	May 15, 2015	7 Day
- Method: TRH C6-C40 - LTM-ORG-2010			
Polycyclic Aromatic Hydrocarbons	Sydney	May 15, 2015	7 Day
- Method: E007 Polyaromatic Hydrocarbons (PAH)			
Metals M8	Sydney	May 18, 2015	28 Day
- Method: LTM-MET-3040_R0 TOTAL AND DISSOLVED METALS AND MERCURY IN WATERS BY ICP-MS			
Volatile Organics	Sydney	May 15, 2015	7 Day
- Method: E016 Volatile Organic Compounds (VOC)			
Semivolatile Organic Compounds (SVOC)	Sydney	May 15, 2015	14 Day
- Method: E017 Semivolatile Organic Compounds (SVOC)			

Company Name: Coffey Geotechnics Pty Ltd Chatswood
Address: Level 18, Tower B, Citadel Tower 799 Pacific Highway
Chatswood
NSW 2067

Project Name: GEOTLCOV25397AA

Order No.:
Report #: 457829
Phone: +61 2 9406 1000
Fax: +61 2 9406 1002

Received: May 15, 2015 3:30 PM
Due: May 19, 2015
Priority: 2 Day
Contact Name: Daniel Guille

Eurofins | mgt Client Manager: Charl Du Preez

Sample Detail					Semivolatile Organic Compounds (SVOC)	Eurofins | mgt Suite 7	Volatile Organics
Laboratory where analysis is conducted							
Melbourne Laboratory - NATA Site # 1254 & 14271							
Sydney Laboratory - NATA Site # 18217					X	X	X
Brisbane Laboratory - NATA Site # 20794							
External Laboratory							
Sample ID	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**			
MW1	May 14, 2015		Water	S15-My14400	X	X	X
MW2	May 14, 2015		Water	S15-My14401	X	X	X
MW4	May 14, 2015		Water	S15-My14402	X	X	X
DUP01	May 14, 2015		Water	S15-My14403	X	X	X

Eurofins | mgt 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

Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
LOR	Limit of Reporting.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
LCS	Laboratory Control Sample - reported as percent recovery
CRM	Certified Reference Material - reported as percent recovery
Method Blank	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.
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
Batch Duplicate	A second piece of analysis from a sample outside of the clients batch of samples but run within the laboratory batch of analysis.
Batch SPIKE	Spike recovery reported on a sample from outside of the clients batch of samples but run within the laboratory batch of analysis.
USEPA	United States Environmental Protection Agency
APHA	American Public Health Association
ASLP	Australian Standard Leaching Procedure (AS4439.3)
TCLP	Toxicity Characteristic Leaching Procedure
COC	Chain of Custody
SRA	Sample Receipt Advice
CP	Client Parent - QC was performed on samples pertaining to this report
NCP	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
TEQ	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, Toxophene & Chlordane are not added to the LCS.
4. Organochlorine Pesticide analysis - where reporting Spike data, Toxophene 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 Arochlor 1260 in Matrix Spikes and LCS's.
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 RPD's are calculated from raw analytical data thus it is possible to have two sets of data.

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Quality Control Results

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	mg/L	< 0.02			0.02	Pass	
TRH C10-C14	mg/L	< 0.05			0.05	Pass	
TRH C15-C28	mg/L	< 0.1			0.1	Pass	
TRH C29-C36	mg/L	< 0.1			0.1	Pass	
Method Blank							
BTEX							
Benzene	mg/L	< 0.001			0.001	Pass	
Toluene	mg/L	< 0.001			0.001	Pass	
Ethylbenzene	mg/L	< 0.001			0.001	Pass	
m&p-Xylenes	mg/L	< 0.002			0.002	Pass	
o-Xylene	mg/L	< 0.001			0.001	Pass	
Xylenes - Total	mg/L	< 0.003			0.003	Pass	
Method Blank							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	mg/L	< 0.02			0.02	Pass	
TRH C6-C10	mg/L	< 0.02			0.02	Pass	
TRH C6-C10 less BTEX (F1)	mg/L	< 0.02			0.02	Pass	
TRH >C10-C16	mg/L	< 0.05			0.05	Pass	
TRH >C16-C34	mg/L	< 0.1			0.1	Pass	
TRH >C34-C40	mg/L	< 0.1			0.1	Pass	
Method Blank							
Volatile Organics							
1.1-Dichloroethane	mg/L	< 0.001			0.001	Pass	
1.1-Dichloroethene	mg/L	< 0.001			0.001	Pass	
1.1.1-Trichloroethane	mg/L	< 0.001			0.001	Pass	
1.1.1.2-Tetrachloroethane	mg/L	< 0.001			0.001	Pass	
1.1.2-Trichloroethane	mg/L	< 0.001			0.001	Pass	
1.1.2.2-Tetrachloroethane	mg/L	< 0.005			0.005	Pass	
1.2-Dibromoethane	mg/L	< 0.001			0.001	Pass	
1.2-Dichlorobenzene	mg/L	< 0.001			0.001	Pass	
1.2-Dichloroethane	mg/L	< 0.001			0.001	Pass	
1.2-Dichloropropane	mg/L	< 0.001			0.001	Pass	
1.2.3-Trichloropropane	mg/L	< 0.001			0.001	Pass	
1.2.4-Trimethylbenzene	mg/L	< 0.001			0.001	Pass	
1.3-Dichlorobenzene	mg/L	< 0.001			0.001	Pass	
1.3-Dichloropropane	mg/L	< 0.001			0.001	Pass	
1.3.5-Trimethylbenzene	mg/L	< 0.001			0.001	Pass	
1.4-Dichlorobenzene	mg/L	< 0.001			0.001	Pass	
2-Butanone (MEK)	mg/L	< 0.001			0.001	Pass	
4-Chlorotoluene	mg/L	< 0.001			0.001	Pass	
4-Methyl-2-pentanone (MIBK)	mg/L	< 0.001			0.001	Pass	
Benzene	mg/L	< 0.001			0.001	Pass	
Bromobenzene	mg/L	< 0.001			0.001	Pass	
Bromochloromethane	mg/L	< 0.001			0.001	Pass	
Bromodichloromethane	mg/L	< 0.001			0.001	Pass	
Bromoform	mg/L	< 0.001			0.001	Pass	
Bromomethane	mg/L	< 0.001			0.001	Pass	
Carbon disulfide	mg/L	< 0.001			0.001	Pass	
Carbon Tetrachloride	mg/L	< 0.001			0.001	Pass	
Chlorobenzene	mg/L	< 0.001			0.001	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Chloroethane	mg/L	< 0.001			0.001	Pass	
Chloroform	mg/L	< 0.005			0.005	Pass	
Chloromethane	mg/L	< 0.001			0.001	Pass	
cis-1.2-Dichloroethene	mg/L	< 0.001			0.001	Pass	
cis-1.3-Dichloropropene	mg/L	< 0.001			0.001	Pass	
Dibromochloromethane	mg/L	< 0.001			0.001	Pass	
Dibromomethane	mg/L	< 0.005			0.005	Pass	
Dichlorodifluoromethane	mg/L	< 0.001			0.001	Pass	
Ethylbenzene	mg/L	< 0.001			0.001	Pass	
Iodomethane	mg/L	< 0.001			0.001	Pass	
Isopropyl benzene (Cumene)	mg/L	< 0.001			0.001	Pass	
m&p-Xylenes	mg/L	< 0.002			0.002	Pass	
Methylene Chloride	mg/L	< 0.001			0.001	Pass	
o-Xylene	mg/L	< 0.001			0.001	Pass	
Styrene	mg/L	< 0.001			0.001	Pass	
Tetrachloroethene	mg/L	< 0.001			0.001	Pass	
Toluene	mg/L	< 0.001			0.001	Pass	
trans-1.2-Dichloroethene	mg/L	< 0.001			0.001	Pass	
trans-1.3-Dichloropropene	mg/L	< 0.001			0.001	Pass	
Trichloroethene	mg/L	< 0.001			0.001	Pass	
Trichlorofluoromethane	mg/L	< 0.001			0.001	Pass	
Vinyl chloride	mg/L	< 0.001			0.001	Pass	
Method Blank							
Polycyclic Aromatic Hydrocarbons							
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	
Method Blank							
Semivolatile Organic Compounds (SVOC)							
2-Chloronaphthalene	mg/L	< 0.002			0.002	Pass	
2-Chlorophenol	mg/L	< 0.002			0.002	Pass	
2-Methylnaphthalene	mg/L	< 0.002			0.002	Pass	
2-Methylphenol (o-Cresol)	mg/L	< 0.002			0.002	Pass	
2-Naphthylamine	mg/L	< 0.002			0.002	Pass	
2-Nitroaniline	mg/L	< 0.004			0.004	Pass	
2-Nitrophenol	mg/L	< 0.002			0.002	Pass	
3&4-Methylphenol (m&p-Cresol)	mg/L	< 0.004			0.004	Pass	
3-Methylcholanthrene	mg/L	< 0.002			0.002	Pass	
4-Aminobiphenyl	mg/L	< 0.002			0.002	Pass	
4-Bromophenyl phenyl ether	mg/L	< 0.002			0.002	Pass	
4-Chloro-3-methylphenol	mg/L	< 0.002			0.002	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
4-Chlorophenyl phenyl ether	mg/L	< 0.002			0.002	Pass	
4-Nitrophenol	mg/L	< 0.002			0.002	Pass	
4.4'-DDD	mg/L	< 0.002			0.002	Pass	
4.4'-DDE	mg/L	< 0.002			0.002	Pass	
4.4'-DDT	mg/L	< 0.004			0.004	Pass	
Acetophenone	mg/L	< 0.002			0.002	Pass	
Aldrin	mg/L	< 0.002			0.002	Pass	
Aniline	mg/L	< 0.002			0.002	Pass	
Bis(2-chloroethoxy)methane	mg/L	< 0.002			0.002	Pass	
Bis(2-ethylhexyl)phthalate	mg/L	< 0.02			0.02	Pass	
Butyl benzyl phthalate	mg/L	< 0.002			0.002	Pass	
Chlorpyrifos	mg/L	< 0.002			0.002	Pass	
Coumaphos	mg/L	< 0.002			0.002	Pass	
d-BHC	mg/L	< 0.002			0.002	Pass	
Demeton-O	mg/L	< 0.002			0.002	Pass	
Demeton-S	mg/L	< 0.002			0.002	Pass	
Di-n-butyl phthalate	mg/L	< 0.002			0.002	Pass	
Di-n-octyl phthalate	mg/L	< 0.002			0.002	Pass	
Diazinon	mg/L	< 0.002			0.002	Pass	
Dibenzofuran	mg/L	< 0.002			0.002	Pass	
Dichlorvos	mg/L	< 0.002			0.002	Pass	
Dieldrin	mg/L	< 0.002			0.002	Pass	
Diethyl phthalate	mg/L	< 0.002			0.002	Pass	
Dimethoate	mg/L	< 0.002			0.002	Pass	
Dimethyl phthalate	mg/L	< 0.002			0.002	Pass	
Diphenylamine	mg/L	< 0.002			0.002	Pass	
Disulfoton	mg/L	< 0.002			0.002	Pass	
Endosulfan sulphate	mg/L	< 0.002			0.002	Pass	
Endrin	mg/L	< 0.002			0.002	Pass	
Endrin aldehyde	mg/L	< 0.002			0.002	Pass	
Endrin ketone	mg/L	< 0.002			0.002	Pass	
Ethoprop	mg/L	< 0.002			0.002	Pass	
Fenitrothion	mg/L	< 0.002			0.002	Pass	
Fensulfothion	mg/L	< 0.002			0.002	Pass	
Fenthion	mg/L	< 0.002			0.002	Pass	
g-BHC (Lindane)	mg/L	< 0.002			0.002	Pass	
Heptachlor	mg/L	< 0.002			0.002	Pass	
Heptachlor epoxide	mg/L	< 0.002			0.002	Pass	
Hexachlorobenzene	mg/L	< 0.002			0.002	Pass	
Hexachlorobutadiene	mg/L	< 0.002			0.002	Pass	
Hexachlorocyclopentadiene	mg/L	< 0.004			0.004	Pass	
Hexachloroethane	mg/L	< 0.002			0.002	Pass	
Malathion	mg/L	< 0.002			0.002	Pass	
Methoxychlor	mg/L	< 0.001			0.001	Pass	
Methyl azinphos	mg/L	< 0.002			0.002	Pass	
Methyl parathion	mg/L	< 0.002			0.002	Pass	
Mevinphos	mg/L	< 0.002			0.002	Pass	
Monocrotophos	mg/L	< 0.02			0.02	Pass	
N-Nitrosodibutylamine	mg/L	< 0.002			0.002	Pass	
N-Nitrosodipropylamine	mg/L	< 0.002			0.002	Pass	
N-Nitrosopiperidine	mg/L	< 0.002			0.002	Pass	
Nitrobenzene	mg/L	< 0.002			0.002	Pass	
Parathion	mg/L	< 0.002			0.002	Pass	
Pentachlorobenzene	mg/L	< 0.002			0.002	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Pentachloronitrobenzene	mg/L	< 0.002			0.002	Pass	
Pentachlorophenol	mg/L	< 0.01			0.01	Pass	
Phenol	mg/L	< 0.002			0.002	Pass	
Phorate	mg/L	< 0.002			0.002	Pass	
Profenofos	mg/L	< 0.002			0.002	Pass	
Prothiofos	mg/L	< 0.002			0.002	Pass	
Ronnel	mg/L	< 0.002			0.002	Pass	
Stirophos	mg/L	< 0.002			0.002	Pass	
Method Blank							
Heavy Metals							
Arsenic	mg/L	< 0.005			0.005	Pass	
Cadmium	mg/L	< 0.0005			0.0005	Pass	
Chromium	mg/L	< 0.005			0.005	Pass	
Copper	mg/L	< 0.005			0.005	Pass	
Lead	mg/L	< 0.005			0.005	Pass	
Mercury	mg/L	< 0.0001			0.0001	Pass	
Nickel	mg/L	< 0.005			0.005	Pass	
Zinc	mg/L	< 0.005			0.005	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	%	83			70-130	Pass	
TRH C10-C14	%	101			70-130	Pass	
LCS - % Recovery							
BTEX							
Benzene	%	99			70-130	Pass	
Toluene	%	100			70-130	Pass	
Ethylbenzene	%	96			70-130	Pass	
m&p-Xylenes	%	98			70-130	Pass	
o-Xylene	%	97			70-130	Pass	
Xylenes - Total	%	94			70-130	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	%	95			70-130	Pass	
TRH C6-C10	%	93			70-130	Pass	
TRH >C10-C16	%	98			70-130	Pass	
LCS - % Recovery							
Volatile Organics							
1.1-Dichloroethene	%	100			70-130	Pass	
1.1.1-Trichloroethane	%	93			70-130	Pass	
1.1.1.2-Tetrachloroethane	%	88			70-130	Pass	
1.1.2-Trichloroethane	%	97			70-130	Pass	
1.1.2.2-Tetrachloroethane	%	92			70-130	Pass	
1.2-Dibromoethane	%	94			70-130	Pass	
1.2-Dichlorobenzene	%	98			70-130	Pass	
1.2-Dichloroethane	%	97			70-130	Pass	
1.2-Dichloropropane	%	98			70-130	Pass	
1.2.3-Trichloropropane	%	96			70-130	Pass	
1.2.4-Trimethylbenzene	%	97			70-130	Pass	
1.3-Dichlorobenzene	%	98			70-130	Pass	
1.3-Dichloropropane	%	98			70-130	Pass	
1.3.5-Trimethylbenzene	%	97			70-130	Pass	
1.4-Dichlorobenzene	%	100			70-130	Pass	
2-Butanone (MEK)	%	92			70-130	Pass	
4-Chlorotoluene	%	98			70-130	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
4-Methyl-2-pentanone (MIBK)	%	88			70-130	Pass	
Benzene	%	97			70-130	Pass	
Bromobenzene	%	98			70-130	Pass	
Bromochloromethane	%	102			70-130	Pass	
Bromodichloromethane	%	89			70-130	Pass	
Bromoform	%	87			70-130	Pass	
Carbon disulfide	%	95			70-130	Pass	
Carbon Tetrachloride	%	99			70-130	Pass	
Chlorobenzene	%	98			70-130	Pass	
Chloroform	%	100			70-130	Pass	
Chloromethane	%	112			70-130	Pass	
cis-1.2-Dichloroethene	%	101			70-130	Pass	
cis-1.3-Dichloropropene	%	85			70-130	Pass	
Dibromochloromethane	%	93			70-130	Pass	
Dibromomethane	%	94			70-130	Pass	
Dichlorodifluoromethane	%	116			70-130	Pass	
Ethylbenzene	%	92			70-130	Pass	
Iodomethane	%	84			70-130	Pass	
Isopropyl benzene (Cumene)	%	96			70-130	Pass	
m&p-Xylenes	%	94			70-130	Pass	
Methylene Chloride	%	99			70-130	Pass	
o-Xylene	%	93			70-130	Pass	
Styrene	%	93			70-130	Pass	
Tetrachloroethene	%	98			70-130	Pass	
Toluene	%	94			70-130	Pass	
trans-1.2-Dichloroethene	%	98			70-130	Pass	
trans-1.3-Dichloropropene	%	85			70-130	Pass	
Trichloroethene	%	98			70-130	Pass	
Trichlorofluoromethane	%	107			70-130	Pass	
Vinyl chloride	%	103			70-130	Pass	
LCS - % Recovery							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	%	100			70-130	Pass	
Acenaphthylene	%	87			70-130	Pass	
Anthracene	%	92			70-130	Pass	
Benz(a)anthracene	%	71			70-130	Pass	
Benzo(a)pyrene	%	81			70-130	Pass	
Benzo(b&j)fluoranthene	%	78			70-130	Pass	
Benzo(g.h.i)perylene	%	99			70-130	Pass	
Benzo(k)fluoranthene	%	82			70-130	Pass	
Chrysene	%	88			70-130	Pass	
Dibenz(a.h)anthracene	%	92			70-130	Pass	
Fluoranthene	%	81			70-130	Pass	
Fluorene	%	74			70-130	Pass	
Indeno(1.2.3-cd)pyrene	%	89			70-130	Pass	
Naphthalene	%	80			70-130	Pass	
Phenanthrene	%	96			70-130	Pass	
Pyrene	%	125			70-130	Pass	
LCS - % Recovery							
Semivolatile Organic Compounds (SVOC)							
2-Chlorophenol	%	88			30-130	Pass	
4-Chloro-3-methylphenol	%	88			30-130	Pass	
Chlorpyrifos	%	84			70-130	Pass	
Demeton-S	%	86			70-130	Pass	

Test			Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Diazinon			%	89			70-130	Pass	
Dimethoate			%	83			70-130	Pass	
Disulfoton			%	82			70-130	Pass	
Fenitrothion			%	77			70-130	Pass	
Fenthion			%	91			70-130	Pass	
Methyl parathion			%	81			70-130	Pass	
N-Nitrosodipropylamine			%	100			70-130	Pass	
Pentachlorophenol			%	100			30-130	Pass	
Phenol			%	38			30-130	Pass	
Phorate			%	72			70-130	Pass	
LCS - % Recovery									
Heavy Metals									
Arsenic			%	92			70-130	Pass	
Cadmium			%	94			70-130	Pass	
Chromium			%	90			70-130	Pass	
Copper			%	87			70-130	Pass	
Lead			%	85			70-130	Pass	
Mercury			%	93			70-130	Pass	
Nickel			%	83			70-130	Pass	
Zinc			%	95			70-130	Pass	
Test	**Lab Sample ID**	**QA Source**	**Units**	**Result 1**			**Acceptance Limits**	**Pass Limits**	**Qualifying Code**
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic	S15-My14536	NCP	%	92			70-130	Pass	
Cadmium	S15-My14536	NCP	%	95			70-130	Pass	
Chromium	S15-My14536	NCP	%	89			70-130	Pass	
Copper	S15-My14536	NCP	%	88			70-130	Pass	
Lead	S15-My14536	NCP	%	88			70-130	Pass	
Mercury	S15-My14536	NCP	%	95			70-130	Pass	
Nickel	S15-My14536	NCP	%	84			70-130	Pass	
Zinc	S15-My14536	NCP	%	95			70-130	Pass	
Test	**Lab Sample ID**	**QA Source**	**Units**	**Result 1**			**Acceptance Limits**	**Pass Limits**	**Qualifying Code**
Duplicate									
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD			
Acenaphthylene	S15-My09405	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Anthracene	S15-My09405	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Benz(a)anthracene	S15-My09405	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Benzo(a)pyrene	S15-My09405	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Benzo(b&j)fluoranthene	S15-My09405	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Benzo(g.h.i)perylene	S15-My09405	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Benzo(k)fluoranthene	S15-My09405	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Chrysene	S15-My09405	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Dibenz(a.h)anthracene	S15-My09405	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Fluoranthene	S15-My09405	NCP	mg/L	0.0050	0.0050	10	30%	Pass	
Fluorene	S15-My09405	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Indeno(1.2.3-cd)pyrene	S15-My09405	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Naphthalene	S15-My09405	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Phenanthrene	S15-My09405	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	

Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic	S15-My14536	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Cadmium	S15-My14536	NCP	mg/L	< 0.0005	< 0.0005	<1	30%	Pass	
Chromium	S15-My14536	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Copper	S15-My14536	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Lead	S15-My14536	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Mercury	S15-My14536	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Nickel	S15-My14536	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Zinc	S15-My14536	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass	

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Comments

Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	Yes
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
Q09A	The Surrogate recovery is outside of the recommended acceptance criteria due to matrix interference and is unquantifiable. A result of 1 has been reported for the purposes of providing a numerical result. Acceptance criteria were met for all other QC.

Authorised By

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

Glenn Jackson
National Laboratory 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

Company Name: Coffey Geotechnics Pty Ltd Chatswood
Address: Level 18, Tower B, Citadel Tower 799 Pacific Highway
Chatswood
NSW 2067

Project Name: GEOTLCOV25397AA

Order No.:
Report #: 457829
Phone: +61 2 9406 1000
Fax: +61 2 9406 1002

Received: May 15, 2015 3:30 PM
Due: May 19, 2015
Priority: 2 Day
Contact Name: Daniel Guille

Eurofins | mgt Client Manager: Charl Du Preez

Sample Detail					Semivolatile Organic Compounds (SVOC)	Eurofins | mgt Suite 7	Volatile Organics
Laboratory where analysis is conducted							
Melbourne Laboratory - NATA Site # 1254 & 14271							
Sydney Laboratory - NATA Site # 18217					X	X	X
Brisbane Laboratory - NATA Site # 20794							
External Laboratory							
Sample ID	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**			
MW1	May 14, 2015		Water	S15-My14400	X	X	X
MW2	May 14, 2015		Water	S15-My14401	X	X	X
MW4	May 14, 2015		Water	S15-My14402	X	X	X
DUP01	May 14, 2015		Water	S15-My14403	X	X	X

Sample Receipt Advice

Company name:	**Coffey Geotechnics Pty Ltd Chatswood**
Contact name:	-ALL INVOICES ENAURHODXXXXXX
Project name:	GEOTLCOV25397AA
COC number:	07662
Turn around time:	2 Day
Date/Time received:	May 15, 2015 3:30 PM
Eurofins | mgt reference:	**457829**

Sample information

☑ A detailed list of analytes logged into our LIMS, is included in the attached summary table.

☑ Sample Temperature of a random sample selected from the batch as recorded by Eurofins | mgt Sample Receipt : 16.5 degrees Celsius.

☑ 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.

☑ Sample containers for volatile analysis received with zero headspace.

☒ Some samples have been subcontracted.

N/A Custody Seals intact (if used).

Contact notes

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

Charl Du Preez on Phone : or by e.mail: charldupreez@eurofins.com.au

Results will be delivered electronically via e.mail to -ALL INVOICES ENAURHODXXXXXX - Rajiv.Chauhan@coffey.com.

Note: A copy of these results will also be delivered to the general Coffey Geotechnics Pty Ltd Chatswood email address.

coffey

Chain of Custody

GEOTLCOV25397AA **No:** 07662

Laboratory Quotation / Order No:

Job No: ↗

Sheet 1 of 1

Dispatch to: (Address & Phone No.) MGT	Sampled by: ALEX RUCTTINGER.	Consigning Officer: #457829 Date Dispatched:
Attention: SAMPLE RECEIPT.	Project Manager: (report results to) DANIEL GUILLE	Courier Service: Consignment Note No: N/A

Relinquished by:	Date:	Time:	Received by:	Date:	Time:
Alex Ructtinger.	15/5/15	1530.	Jasmine	15/5/15	3.30pm

Comments	Sample Matrix	Container Type and Preservative	Sample No.	Date Sampled	~~PAHs~~	~~TPHs~~	~~MAHs – BTEX~~	~~Metals~~	TRH	BTEX	PAH	8METALS	VHC/VOC	SVOC						Sample Condition on Receipt
Please Filter METALS	WATER	2V, 1G, 1P	MW1	15/5/15																
			MW2																	
			MW4																	
			DUP01																	

Special Laboratory Instructions:

Detection Limits:

Turnaround Required: 2 DAYS

JOB NUMBER MUST BE REFERENCED ON ALL SUBSEQUENT PAGES

Copies: WHITE: Sign on release. YELLOW: If dispatched to interstate Lab, Lab to sign on receipt and fax back to Coffey. BLUE: To be returned with results

842209-06

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Certificate of Analysis

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.

Coffey Geotechnics Pty Ltd Chatswood
Level 18, Tower B, Citadel Tower 799 Pacific Highway
Chatswood
NSW 2067

Attention: **Daniel Guille**

Report **459907-W**
Project name SURRY HILLS SHOPPING CENTRE
Project ID GEOTLCOV25397AA
Received Date Jun 02, 2015

Client Sample ID **Sample Matrix** **Eurofins | mgt Sample No.** **Date Sampled** Test/Reference	LOR	Unit	**BH10/MW4** **Water** **S15-Jn01430** **Jun 02, 2015**	**QC9** **Water** **S15-Jn01431** **Jun 02, 2015**	**QC10** **Water** **S15-Jn01432** **Jun 02, 2015**
Total Recoverable Hydrocarbons - 1999 NEPM Fractions					
TRH C6-C9	0.02	mg/L	0.54	< 0.02	< 0.02
TRH C10-C14	0.05	mg/L	< 0.05	< 0.05	-
TRH C15-C28	0.1	mg/L	< 0.1	< 0.1	-
TRH C29-C36	0.1	mg/L	< 0.1	< 0.1	-
TRH C10-36 (Total)	0.1	mg/L	< 0.1	< 0.1	-
BTEX					
Benzene	0.001	mg/L	< 0.001	< 0.001	< 0.001
Toluene	0.001	mg/L	< 0.001	< 0.001	< 0.001
Ethylbenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001
m&p-Xylenes	0.002	mg/L	< 0.002	< 0.002	< 0.002
o-Xylene	0.001	mg/L	< 0.001	< 0.001	< 0.001
Xylenes - Total	0.003	mg/L	< 0.003	< 0.003	< 0.003
4-Bromofluorobenzene (surr.)	1	%	105	85	95
Total Recoverable Hydrocarbons - 2013 NEPM Fractions					
Naphthalene[N02]	0.02	mg/L	< 0.02	< 0.02	-
TRH C6-C10	0.02	mg/L	0.54	< 0.02	-
TRH C6-C10 less BTEX (F1)[N04]	0.02	mg/L	0.54	< 0.02	-
TRH >C10-C16	0.05	mg/L	< 0.05	< 0.05	-
TRH >C10-C16 less Naphthalene (F2)[N01]	0.05	mg/L	< 0.05	< 0.05	-
TRH >C16-C34	0.1	mg/L	< 0.1	< 0.1	-
TRH >C34-C40	0.1	mg/L	< 0.1	< 0.1	-
Halogenated Volatile Organics					
1.1-Dichloroethane	0.001	mg/L	< 0.001	-	-
1.1-Dichloroethene	0.001	mg/L	< 0.001	-	-
1.1.1-Trichloroethane	0.001	mg/L	< 0.001	-	-
1.1.1.2-Tetrachloroethane	0.001	mg/L	< 0.001	-	-
1.1.2-Trichloroethane	0.001	mg/L	< 0.001	-	-
1.1.2.2-Tetrachloroethane	0.005	mg/L	< 0.005	-	-
1.2-Dibromoethane	0.001	mg/L	< 0.001	-	-
1.2-Dichlorobenzene	0.001	mg/L	< 0.001	-	-
1.2-Dichloroethane	0.001	mg/L	< 0.001	-	-
1.2-Dichloropropane	0.001	mg/L	< 0.001	-	-
1.2.3-Trichloropropane	0.001	mg/L	< 0.001	-	-
1.3-Dichlorobenzene	0.001	mg/L	< 0.001	-	-
1.3-Dichloropropane	0.001	mg/L	< 0.001	-	-

Client Sample ID			BH10/MW4	QC9	QC10
Sample Matrix			Water	Water	Water
Eurofins | mgt Sample No.			S15-Jn01430	S15-Jn01431	S15-Jn01432
Date Sampled			Jun 02, 2015	Jun 02, 2015	Jun 02, 2015
Test/Reference	LOR	Unit			
Halogenated Volatile Organics					
1.4-Dichlorobenzene	0.001	mg/L	< 0.001	-	-
Bromodichloromethane	0.001	mg/L	< 0.001	-	-
Bromoform	0.001	mg/L	< 0.001	-	-
Bromomethane	0.001	mg/L	< 0.001	-	-
Carbon Tetrachloride	0.001	mg/L	< 0.001	-	-
Chlorobenzene	0.001	mg/L	< 0.001	-	-
Chloroform	0.005	mg/L	< 0.005	-	-
Chloromethane	0.001	mg/L	< 0.001	-	-
cis-1.2-Dichloroethene	0.001	mg/L	0.063	-	-
cis-1.3-Dichloropropene	0.001	mg/L	< 0.001	-	-
Dibromochloromethane	0.001	mg/L	< 0.001	-	-
Dibromomethane	0.005	mg/L	< 0.005	-	-
Iodomethane	0.001	mg/L	< 0.001	-	-
Methylene Chloride	0.001	mg/L	< 0.001	-	-
Tetrachloroethene	0.001	mg/L	0.29	-	-
trans-1.2-Dichloroethene	0.001	mg/L	< 0.001	-	-
trans-1.3-Dichloropropene	0.001	mg/L	< 0.001	-	-
Trichloroethene	0.001	mg/L	0.089	-	-
Trichlorofluoromethane	0.001	mg/L	< 0.001	-	-
Vinyl chloride	0.001	mg/L	< 0.001	-	-
Fluorobenzene (surr.)	1	%	76	-	-
Polycyclic Aromatic Hydrocarbons					
Acenaphthene	0.001	mg/L	< 0.001	< 0.001	-
Acenaphthylene	0.001	mg/L	< 0.001	< 0.001	-
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[N07]	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	< 0.001	-
Phenanthrene	0.001	mg/L	< 0.001	< 0.001	-
Pyrene	0.001	mg/L	< 0.001	< 0.001	-
Total PAH*	0.001	mg/L	< 0.001	< 0.001	-
2-Fluorobiphenyl (surr.)	1	%	122	128	-
p-Terphenyl-d14 (surr.)	1	%	73	71	-
Heavy Metals					
Arsenic (filtered)	0.001	mg/L	0.003	< 0.001	-
Cadmium (filtered)	0.0001	mg/L	0.0001	< 0.0001	-
Chromium (filtered)	0.001	mg/L	0.002	< 0.001	-
Copper (filtered)	0.001	mg/L	0.004	< 0.001	-
Lead (filtered)	0.001	mg/L	< 0.001	< 0.001	-
Mercury (filtered)	0.0001	mg/L	< 0.0001	< 0.0001	-
Nickel (filtered)	0.001	mg/L	0.001	< 0.001	-
Zinc (filtered)	0.005	mg/L	0.016	< 0.005	-

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	Sydney	Jun 02, 2015	7 Day
- Method: TRH C6-C36 - LTM-ORG-2010			
BTEX	Sydney	Jun 02, 2015	14 Day
- Method: TRH C6-C40 - LTM-ORG-2010			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Sydney	Jun 02, 2015	7 Day
- Method: TRH C6-C40 - LTM-ORG-2010			
Polycyclic Aromatic Hydrocarbons	Sydney	Jun 02, 2015	7 Day
- Method: E007 Polyaromatic Hydrocarbons (PAH)			
Metals M8 filtered	Sydney	Jun 02, 2015	28 Day
- Method: LTM-MET-3040_R0 TOTAL AND DISSOLVED METALS AND MERCURY IN WATERS BY ICP-MS			
Halogenated Volatile Organics	Sydney	Jun 02, 2015	7 Day
- Method: E016 Volatile Halogenated Compounds (VHC)			

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NATA # 1261 Site # 18217

Brisbane
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Murarrie QLD 4172
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NATA # 1261 Site # 20794

Company Name:	Coffey Geotechnics Pty Ltd Chatswood	**Order No.:**		**Received:**	Jun 2, 2015 12:41 PM
Address:	Level 18, Tower B, Citadel Tower 799 Pacific Highway	**Report #:**	459907	**Due:**	Jun 4, 2015
	Chatswood	**Phone:**	+61 2 9406 1000	**Priority:**	2 Day
	NSW 2067	**Fax:**	+61 2 9406 1002	**Contact Name:**	Daniel Guille
Project Name:	SURRY HILLS SHOPPING CENTRE				
Project ID:	GEOTLCOV25397AA				

Eurofins | mgt Client Manager: Charl Du Preez

Sample Detail					TRH C6-C9	BTEX	Eurofins | mgt Suite 7 (filtered metals)	Halogenated Volatile Organics
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**				
BH10/MW4	Jun 02, 2015		Water	S15-Jn01430			X	X
QC9	Jun 02, 2015		Water	S15-Jn01431			X	
QC10	Jun 02, 2015		Water	S15-Jn01432	X	X		

Eurofins | mgt 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

Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
LOR	Limit of Reporting.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
LCS	Laboratory Control Sample - reported as percent recovery
CRM	Certified Reference Material - reported as percent recovery
Method Blank	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.
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
Batch Duplicate	A second piece of analysis from a sample outside of the clients batch of samples but run within the laboratory batch of analysis.
Batch SPIKE	Spike recovery reported on a sample from outside of the clients batch of samples but run within the laboratory batch of analysis.
USEPA	United States Environmental Protection Agency
APHA	American Public Health Association
ASLP	Australian Standard Leaching Procedure (AS4439.3)
TCLP	Toxicity Characteristic Leaching Procedure
COC	Chain of Custody
SRA	Sample Receipt Advice
CP	Client Parent - QC was performed on samples pertaining to this report
NCP	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
TEQ	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, Toxophene & Chlordane are not added to the LCS.
4. Organochlorine Pesticide analysis - where reporting Spike data, Toxophene 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 Arochlor 1260 in Matrix Spikes and LCS's.
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 RPD's 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
Method Blank							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	mg/L	< 0.02			0.02	Pass	
TRH C10-C14	mg/L	< 0.05			0.05	Pass	
TRH C15-C28	mg/L	< 0.1			0.1	Pass	
TRH C29-C36	mg/L	< 0.1			0.1	Pass	
Method Blank							
BTEX							
Benzene	mg/L	< 0.001			0.001	Pass	
Toluene	mg/L	< 0.001			0.001	Pass	
Ethylbenzene	mg/L	< 0.001			0.001	Pass	
m&p-Xylenes	mg/L	< 0.002			0.002	Pass	
o-Xylene	mg/L	< 0.001			0.001	Pass	
Xylenes - Total	mg/L	< 0.003			0.003	Pass	
Method Blank							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	mg/L	< 0.02			0.02	Pass	
TRH C6-C10	mg/L	< 0.02			0.02	Pass	
TRH C6-C10 less BTEX (F1)	mg/L	< 0.02			0.02	Pass	
TRH >C10-C16	mg/L	< 0.05			0.05	Pass	
TRH >C16-C34	mg/L	< 0.1			0.1	Pass	
TRH >C34-C40	mg/L	< 0.1			0.1	Pass	
Method Blank							
Halogenated Volatile Organics							
1.1-Dichloroethane	mg/L	< 0.001			0.001	Pass	
1.1-Dichloroethene	mg/L	< 0.001			0.001	Pass	
1.1.1-Trichloroethane	mg/L	< 0.001			0.001	Pass	
1.1.1.2-Tetrachloroethane	mg/L	< 0.001			0.001	Pass	
1.1.2-Trichloroethane	mg/L	< 0.001			0.001	Pass	
1.1.2.2-Tetrachloroethane	mg/L	< 0.005			0.005	Pass	
1.2-Dibromoethane	mg/L	< 0.001			0.001	Pass	
1.2-Dichlorobenzene	mg/L	< 0.001			0.001	Pass	
1.2-Dichloroethane	mg/L	< 0.001			0.001	Pass	
1.2-Dichloropropane	mg/L	< 0.001			0.001	Pass	
1.2.3-Trichloropropane	mg/L	< 0.001			0.001	Pass	
1.3-Dichlorobenzene	mg/L	< 0.001			0.001	Pass	
1.3-Dichloropropane	mg/L	< 0.001			0.001	Pass	
1.4-Dichlorobenzene	mg/L	< 0.001			0.001	Pass	
Bromodichloromethane	mg/L	< 0.001			0.001	Pass	
Bromoform	mg/L	< 0.001			0.001	Pass	
Bromomethane	mg/L	< 0.001			0.001	Pass	
Carbon Tetrachloride	mg/L	< 0.001			0.001	Pass	
Chloroform	mg/L	< 0.005			0.005	Pass	
Chloromethane	mg/L	< 0.001			0.001	Pass	
cis-1.2-Dichloroethene	mg/L	< 0.001			0.001	Pass	
cis-1.3-Dichloropropene	mg/L	< 0.001			0.001	Pass	
Dibromochloromethane	mg/L	< 0.001			0.001	Pass	
Dibromomethane	mg/L	< 0.005			0.005	Pass	
Iodomethane	mg/L	< 0.001			0.001	Pass	
Methylene Chloride	mg/L	< 0.001			0.001	Pass	
Tetrachloroethene	mg/L	< 0.001			0.001	Pass	
trans-1.2-Dichloroethene	mg/L	< 0.001			0.001	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
trans-1.3-Dichloropropene	mg/L	< 0.001			0.001	Pass	
Trichloroethene	mg/L	< 0.001			0.001	Pass	
Trichlorofluoromethane	mg/L	< 0.001			0.001	Pass	
Vinyl chloride	mg/L	< 0.001			0.001	Pass	
Method Blank							
Polycyclic Aromatic Hydrocarbons							
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	
Method Blank							
Heavy Metals							
Arsenic (filtered)	mg/L	< 0.001			0.001	Pass	
Cadmium (filtered)	mg/L	< 0.0001			0.0001	Pass	
Chromium (filtered)	mg/L	< 0.001			0.001	Pass	
Copper (filtered)	mg/L	< 0.001			0.001	Pass	
Lead (filtered)	mg/L	< 0.001			0.001	Pass	
Mercury (filtered)	mg/L	< 0.0001			0.0001	Pass	
Nickel (filtered)	mg/L	< 0.001			0.001	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	%	122			70-130	Pass	
TRH C10-C14	%	104			70-130	Pass	
LCS - % Recovery							
BTEX							
Benzene	%	98			70-130	Pass	
Toluene	%	111			70-130	Pass	
Ethylbenzene	%	116			70-130	Pass	
m&p-Xylenes	%	122			70-130	Pass	
o-Xylene	%	124			70-130	Pass	
Xylenes - Total	%	123			70-130	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	%	107			70-130	Pass	
TRH C6-C10	%	115			70-130	Pass	
TRH >C10-C16	%	109			70-130	Pass	
LCS - % Recovery							
Halogenated Volatile Organics							
1.1-Dichloroethane	%	102			75-125	Pass	
1.1-Dichloroethene	%	93			70-130	Pass	
1.1.1-Trichloroethane	%	97			70-130	Pass	
1.1.1.2-Tetrachloroethane	%	91			70-130	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
1.1.2-Trichloroethane	%	104			70-130	Pass	
1.1.2.2-Tetrachloroethane	%	89			70-130	Pass	
1.2-Dibromoethane	%	101			70-130	Pass	
1.2-Dichlorobenzene	%	103			70-130	Pass	
1.2-Dichloroethane	%	99			70-130	Pass	
1.2-Dichloropropane	%	94			70-130	Pass	
1.2.3-Trichloropropane	%	101			70-130	Pass	
1.3-Dichlorobenzene	%	102			70-130	Pass	
1.3-Dichloropropane	%	97			70-130	Pass	
1.4-Dichlorobenzene	%	103			70-130	Pass	
Bromodichloromethane	%	98			70-130	Pass	
Bromoform	%	104			70-130	Pass	
Bromomethane	%	55			70-130	Fail	Q17
Carbon Tetrachloride	%	101			70-130	Pass	
Chlorobenzene	%	91			70-130	Pass	
Chloroform	%	98			70-130	Pass	
Chloromethane	%	102			70-130	Pass	
cis-1.2-Dichloroethene	%	99			70-130	Pass	
cis-1.3-Dichloropropene	%	87			70-130	Pass	
Dibromochloromethane	%	109			70-130	Pass	
Dibromomethane	%	102			70-130	Pass	
Iodomethane	%	96			70-130	Pass	
Methylene Chloride	%	89			70-130	Pass	
Tetrachloroethene	%	108			70-130	Pass	
trans-1.2-Dichloroethene	%	101			70-130	Pass	
trans-1.3-Dichloropropene	%	87			70-130	Pass	
Trichloroethene	%	104			70-130	Pass	
Trichlorofluoromethane	%	123			70-130	Pass	
Vinyl chloride	%	73			70-130	Pass	
LCS - % Recovery							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	%	116			70-130	Pass	
Acenaphthylene	%	124			70-130	Pass	
Anthracene	%	93			70-130	Pass	
Benz(a)anthracene	%	81			70-130	Pass	
Benzo(a)pyrene	%	89			70-130	Pass	
Benzo(b&j)fluoranthene	%	89			70-130	Pass	
Benzo(g.h.i)perylene	%	104			70-130	Pass	
Benzo(k)fluoranthene	%	96			70-130	Pass	
Chrysene	%	102			70-130	Pass	
Dibenz(a.h)anthracene	%	101			70-130	Pass	
Fluoranthene	%	80			70-130	Pass	
Fluorene	%	129			70-130	Pass	
Indeno(1.2.3-cd)pyrene	%	98			70-130	Pass	
Naphthalene	%	72			70-130	Pass	
Phenanthrene	%	114			70-130	Pass	
Pyrene	%	86			70-130	Pass	
LCS - % Recovery							
Heavy Metals							
Arsenic (filtered)	%	101			70-130	Pass	
Cadmium (filtered)	%	108			70-130	Pass	
Chromium (filtered)	%	105			70-130	Pass	
Copper (filtered)	%	103			70-130	Pass	
Lead (filtered)	%	117			70-130	Pass	

Test			Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Mercury (filtered)			%	109			70-130	Pass	
Nickel (filtered)			%	102			70-130	Pass	
Zinc (filtered)			%	109			70-130	Pass	
Test	**Lab Sample ID**	**QA Source**	**Units**	**Result 1**			**Acceptance Limits**	**Pass Limits**	**Qualifying Code**
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic (filtered)	S15-Jn01431	CP	%	104			70-130	Pass	
Cadmium (filtered)	S15-Jn01431	CP	%	111			70-130	Pass	
Chromium (filtered)	S15-Jn01431	CP	%	105			70-130	Pass	
Copper (filtered)	S15-Jn01431	CP	%	103			70-130	Pass	
Lead (filtered)	S15-Jn01431	CP	%	101			70-130	Pass	
Mercury (filtered)	S15-Jn01431	CP	%	111			70-130	Pass	
Nickel (filtered)	S15-Jn01431	CP	%	103			70-130	Pass	
Zinc (filtered)	S15-Jn01431	CP	%	117			70-130	Pass	
Test	**Lab Sample ID**	**QA Source**	**Units**	**Result 1**			**Acceptance Limits**	**Pass Limits**	**Qualifying Code**
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic (filtered)	S15-Jn01430	CP	mg/L	0.003	0.003	7.0	30%	Pass	
Cadmium (filtered)	S15-Jn01430	CP	mg/L	0.0001	0.0001	<1	30%	Pass	
Chromium (filtered)	S15-Jn01430	CP	mg/L	0.002	0.002	2.0	30%	Pass	
Copper (filtered)	S15-Jn01430	CP	mg/L	0.004	0.004	1.0	30%	Pass	
Lead (filtered)	S15-Jn01430	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Mercury (filtered)	S15-Jn01430	CP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Nickel (filtered)	S15-Jn01430	CP	mg/L	0.001	0.001	<1	30%	Pass	
Zinc (filtered)	S15-Jn01430	CP	mg/L	0.016	0.016	<1	30%	Pass	

Comments

Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	Yes
Sample correctly preserved	Yes
Appropriate sample containers have been used	No
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
Q17	LCS Recovery outside of acceptance criteria however acceptable recoveries were obtained for other compounds in this group

Authorised By

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

Glenn Jackson
National Laboratory 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

Company Name: Coffey Geotechnics Pty Ltd Chatswood
Address: Level 18, Tower B, Citadel Tower 799 Pacific Highway
Chatswood
NSW 2067

Project Name: SURRY HILLS SHOPPING CENTRE
Project ID: GEOTLCOV25397AA

Order No.:
Report #: 459907
Phone: +61 2 9406 1000
Fax: +61 2 9406 1002

Received: Jun 2, 2015 12:41 PM
Due: Jun 4, 2015
Priority: 2 Day
Contact Name: Daniel Guille

Eurofins | mgt Client Manager: Charl Du Preez

Sample Detail					TRH C6-C9	BTEX	Eurofins | mgt Suite 7 (filtered metals)	Halogenated Volatile Organics
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**				
BH10/MW4	Jun 02, 2015		Water	S15-Jn01430			X	X
QC9	Jun 02, 2015		Water	S15-Jn01431			X	
QC10	Jun 02, 2015		Water	S15-Jn01432	X	X		

Sample Receipt Advice

Company name:	**Coffey Geotechnics Pty Ltd Chatswood**
Contact name:	Daniel Guille
Project name:	SURRY HILLS SHOPPING CENTRE
Project ID:	GEOTLCOV25397AA
COC number:	0851
Turn around time:	2 Day
Date/Time received:	Jun 2, 2015 12:41 PM
Eurofins | mgt reference:	**459907**

Sample information

- ☑ A detailed list of analytes logged into our LIMS, is included in the attached summary table.
- ☑ Sample Temperature of a random sample selected from the batch as recorded by Eurofins | mgt Sample Receipt : 11.1 degrees Celsius.
- ☑ 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.
- ☑ Sample containers for volatile analysis received with zero headspace.
- ☒ Some samples have been subcontracted.
- N/A Custody Seals intact (if used).

Notes

Metals filtered from amber containers supplied | Sample QC8 forwarded to ALS as requested

Contact notes

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

Charl Du Preez on Phone : or by e.mail: charldupreez@eurofins.com.au

Results will be delivered electronically via e.mail to Daniel Guille - daniel.guille@coffey.com.

Note: A copy of these results will also be delivered to the general Coffey Geotechnics Pty Ltd Chatswood email address.

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

 0851

coffey

Consigning Office: Coffey Chatswood
Report Results to: Daniel Guille — Mobile: 0450655263 — Email: daniel.guille @coffey.com
Invoices to: — Phone: — Email: @coffey.com

Project No: GEOTLCOV25397AD Task No:
Project Name: Surry Hills Village Laboratory: Eurofins.
Sampler's Name: Manaa Rent Project Manager: Daniel Guille
Special Instructions: Please forward QC8 to ALS
Relevant agreements: Eurofins COF_ENAUABTF00952AA_MSA1 ; ALS COF_ENAUABTF00952AA_MSA2 and SGS COF_ENAUABTF00952AA_MSA3

Analysis Request Section

Lab No.	Sample ID	Sample Date	Time	Matrix (Soil...etc)	Container Type & Preservative*	T-A-T (specify)	Metals	PAHs	TPH	BTEXN	VOCs	SVOCs		Suit B7	VHC	C6-C10/BTEXN	NOTES
	BH10/MW4	2/6/15	2/6/15	Water	1G+1P+1V	48h.								X	X		Filter metals
	QC8	↓	↓	↓	↓	↓								X	X		QC8 → forward to ALS.
	QC9													X			
	QC10				1V											X	

02 JUN 2015 12:41

RELINQUISHED BY		RECEIVED BY	
Name: Manaa Rent	Date: 2/6/15.	Name:	Date:
Coffey Environments	Time:	Company:	Time:
Name:	Date:	Name: Ellen Ng	Date: 020615
Company:	Time:	Company: EPlmgt	Time: 12:41

Sample Receipt Advice: (Lab Use Only)
- All Samples Recieved in Good Condition ☐
- All Documentation is in Proper Order ☐
- Samples Received Properly Chilled ☐
- Lab. Ref/Batch No. 459907.

*Container Type & Preservation Codes: P - Plastic, G- Glass Bottle, J - Glass Jar, V- Vial, Z - Ziplock Bag, N - Nitric Acid Preserved, C - Hydrochloric Acid Preserved, S - Sulphuric Acid Preserved, I - Ice, ST - Sodium Thiosulfate, NP - No Preservative, OP - Other Preservative

ALS Environmental

QA/QC Compliance Assessment for DQO Reporting

Work Order	: **ES1523243**	Page	: 1 of 4
Client	: **COFFEY GEOTECHNICS**	Laboratory	: Environmental Division Sydney
Contact	: MR DANIEL GUILLE	Telephone	: +61-2-8784 8555
Project	: GEOTLCOV25397AA SURRY HILLS VILLAGE	Date Samples Received	: 03-Jun-2015
Site	: ----	Issue Date	: 05-Jun-2015
Sampler	: ----	No. of samples received	: 1
Order number	: ----	No. of samples analysed	: 1

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **NO Matrix Spike outliers occur.**
- **For all regular sample matrices, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

- **Quality Control Sample Frequency Outliers exist - please see following pages for full details.**

Outliers : Frequency of Quality Control Samples

Matrix: **WATER**

Quality Control Sample Type / Method	Count QC	Count Regular	Rate (%) Actual	Rate (%) Expected	Quality Control Specification
Laboratory Duplicates (DUP)					
PAH/Phenols (GC/MS - SIM)	0	3	0.00	10.00	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TRH - Semivolatile Fraction	0	3	0.00	10.00	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Matrix Spikes (MS)					
PAH/Phenols (GC/MS - SIM)	0	3	0.00	5.00	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TRH - Semivolatile Fraction	0	3	0.00	5.00	NEPM 2013 Schedule B(3) and ALS QCS3 requirement

Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation: Date extracted	Due for extraction	Evaluation	Analysis: Date analysed	Due for analysis	Evaluation
EG020T: Total Metals by ICP-MS							
Clear Plastic Bottle - Nitric Acid; Unspecified (EG020A-T) QC8	**02-Jun-2015**	**04-Jun-2015**	29-Nov-2015	✓	**04-Jun-2015**	29-Nov-2015	✓
EG035T: Total Recoverable Mercury by FIMS							
Clear Plastic Bottle - Nitric Acid; Unspecified (EG035T) QC8	**02-Jun-2015**	**----**	----	----	**04-Jun-2015**	30-Jun-2015	✓
EP080/071: Total Petroleum Hydrocarbons							
Amber Glass Bottle - Unpreserved (EP071) QC8	**02-Jun-2015**	**04-Jun-2015**	09-Jun-2015	✓	**05-Jun-2015**	14-Jul-2015	✓
EP074A: Monocyclic Aromatic Hydrocarbons							
Amber VOC Vial - Sulfuric Acid (EP074) QC8	**02-Jun-2015**	**04-Jun-2015**	16-Jun-2015	✓	**04-Jun-2015**	16-Jun-2015	✓
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons							
Amber Glass Bottle - Unpreserved (EP075(SIM)) QC8	**02-Jun-2015**	**04-Jun-2015**	09-Jun-2015	✓	**04-Jun-2015**	14-Jul-2015	✓
EP080/071: Total Petroleum Hydrocarbons							
Amber VOC Vial - Sulfuric Acid (EP080) QC8	**02-Jun-2015**	**04-Jun-2015**	16-Jun-2015	✓	**04-Jun-2015**	16-Jun-2015	✓

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **WATER**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	3	**0.00**	**10.00**	×	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	2	**50.00**	**10.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-MS - Suite A	EG020A-T	2	15	**13.33**	**10.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TRH - Semivolatile Fraction	EP071	0	3	**0.00**	**10.00**	×	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TRH Volatiles/BTEX	EP080	2	17	**11.76**	**10.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	2	20	**10.00**	**10.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Laboratory Control Samples (LCS)							
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	3	**33.33**	**5.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	2	**50.00**	**5.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-MS - Suite A	EG020A-T	1	15	**6.67**	**5.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TRH - Semivolatile Fraction	EP071	1	3	**33.33**	**5.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TRH Volatiles/BTEX	EP080	1	17	**5.88**	**5.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	20	**5.00**	**5.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Method Blanks (MB)							
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	3	**33.33**	**5.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	2	**50.00**	**5.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-MS - Suite A	EG020A-T	1	15	**6.67**	**5.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TRH - Semivolatile Fraction	EP071	1	3	**33.33**	**5.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TRH Volatiles/BTEX	EP080	1	17	**5.88**	**5.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	20	**5.00**	**5.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Matrix Spikes (MS)							
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	3	**0.00**	**5.00**	×	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	2	**50.00**	**5.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-MS - Suite A	EG020A-T	1	15	**6.67**	**5.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TRH - Semivolatile Fraction	EP071	0	3	**0.00**	**5.00**	×	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TRH Volatiles/BTEX	EP080	1	17	**5.88**	**5.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	20	**5.00**	**5.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Total Metals by ICP-MS - Suite A	EG020A-T	WATER	In house: Referenced to APHA 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Total Mercury by FIMS	EG035T	WATER	In house: Referenced to AS 3550, APHA 3112 Hg - B (Flow-injection (SnCl2)(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the unfiltered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
TRH - Semivolatile Fraction	EP071	WATER	USEPA SW 846 - 8015A The sample extract is analysed by Capillary GC/FID and quantification is by comparison against an established 5 point calibration curve of n-Alkane standards. This method is compliant with the QC requirements of NEPM (2013) Schedule B(3)
Volatile Organic Compounds	EP074	WATER	USEPA SW 846 - 8260B Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	WATER	USEPA SW 846 - 8270D Sample extracts are analysed by Capillary GC/MS in SIM Mode and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
TRH Volatiles/BTEX	EP080	WATER	USEPA SW 846 - 8260B Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. Alternatively, a sample is equilibrated in a headspace vial and a portion of the headspace determined by GCMS analysis. This method is compliant with the QC requirements of NEPM (2013) Schedule B(3)

Preparation Methods	Method	Matrix	Method Descriptions
Digestion for Total Recoverable Metals	EN25	WATER	USEPA SW846-3005 Method 3005 is a Nitric/Hydrochloric acid digestion procedure used to prepare surface and ground water samples for analysis by ICPAES or ICPMS. This method is compliant with NEPM (2013) Schedule B(3)

QUALITY CONTROL REPORT

Work Order	: **ES1523243**	Page	: 1 of 10
Client	: **COFFEY GEOTECHNICS**	Laboratory	: Environmental Division Sydney
Contact	: MR DANIEL GUILLE	Contact	:
Address	:	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: daniel.guille@coffey.com	E-mail	:
Telephone	: ----	Telephone	: +61-2-8784 8555
Facsimile	: ----	Facsimile	: +61-2-8784 8500
Project	: GEOTLCOV25397AA SURRY HILLS VILLAGE	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Order number	: ----	Date Samples Received	: 03-Jun-2015
C-O-C number	: 0851	Date Analysis Commenced	: 04-Jun-2015
Sampler	: ----	Issue Date	: 05-Jun-2015
Site	: ----	No. of samples received	: 1
Quote number	: ----	No. of samples analysed	: 1

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

NATA Accredited Laboratory 825

Accredited for compliance with ISO/IEC 17025.

Signatories

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out ir compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Pabi Subba	Senior Organic Chemist	Sydney Organics
Shobhna Chandra	Metals Coordinator	Sydney Inorganics

General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot

CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

LOR = Limit of reporting

RPD = Relative Percentage Difference

= Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR:- 0% - 50%; Result > 20 times LOR:0% - 20%.

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EG020T: Total Metals by ICP-MS (QC Lot: 117233)									
ES1522885-001	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.00	No Limit
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	0.005	0.006	0.00	No Limit
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	0.012	0.013	8.48	No Limit
ES1523236-009	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.00	No Limit
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Copper	7440-50-8	0.001	mg/L	0.002	0.002	0.00	No Limit
		EG020A-T: Lead	7439-92-1	0.001	mg/L	0.002	0.002	0.00	No Limit
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	0.005	0.005	0.00	No Limit
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	<0.005	0.00	No Limit
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 117713)									
ES1523243-001	QC8	EG035T: Mercury	7439-97-6	0.0001	mg/L	0.0007	0.0007	0.00	No Limit
EP074D: Fumigants (QC Lot: 118054)									
ES1523243-001	QC8	EP074: 1.2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.2-Dichloropropane	78-87-5	5	µg/L	<5	<5	0.00	No Limit
		EP074: 2.2-Dichloropropane	594-20-7	5	µg/L	<5	<5	0.00	No Limit
		EP074: cis-1.3-Dichloropropylene	10061-01-5	5	µg/L	<5	<5	0.00	No Limit
		EP074: trans-1.3-Dichloropropylene	10061-02-6	5	µg/L	<5	<5	0.00	No Limit
ES1523263-006	Anonymous	EP074: 1.2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.2-Dichloropropane	78-87-5	5	µg/L	<5	<5	0.00	No Limit
		EP074: 2.2-Dichloropropane	594-20-7	5	µg/L	<5	<5	0.00	No Limit
		EP074: cis-1.3-Dichloropropylene	10061-01-5	5	µg/L	<5	<5	0.00	No Limit
		EP074: trans-1.3-Dichloropropylene	10061-02-6	5	µg/L	<5	<5	0.00	No Limit
EP074E: Halogenated Aliphatic Compounds (QC Lot: 118054)									
ES1523243-001	QC8	EP074: 1.1.1.2-Tetrachloroethane	630-20-6	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.1.1-Trichloroethane	71-55-6	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.1.2-Trichloroethane	79-00-5	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.1-Dichloroethane	75-34-3	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.1-Dichloroethene	75-35-4	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.1-Dichloropropylene	563-58-6	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.2.3-Trichloropropane	96-18-4	5	µg/L	<5	<5	0.00	No Limit

Sub-Matrix: **WATER**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
				Laboratory Duplicate (DUP) Report					
EP074E: Halogenated Aliphatic Compounds (QC Lot: 118054) - continued									
ES1523243-001	QC8	EP074: 1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.2-Dichloroethane	107-06-2	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.3-Dichloropropane	142-28-9	5	µg/L	<5	<5	0.00	No Limit
		EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<5	<5	0.00	No Limit
		EP074: cis-1.2-Dichloroethene	156-59-2	5	µg/L	54	51	4.28	0% - 50%
		EP074: cis-1.4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	<5	0.00	No Limit
		EP074: Dibromomethane	74-95-3	5	µg/L	<5	<5	0.00	No Limit
		EP074: Hexachlorobutadiene	87-68-3	5	µg/L	<5	<5	0.00	No Limit
		EP074: Iodomethane	74-88-4	5	µg/L	<5	<5	0.00	No Limit
		EP074: Pentachloroethane	76-01-7	5	µg/L	<5	<5	0.00	No Limit
		EP074: Tetrachloroethene	127-18-4	5	µg/L	234	235	0.00	0% - 20%
		EP074: trans-1.2-Dichloroethene	156-60-5	5	µg/L	<5	<5	0.00	No Limit
		EP074: trans-1.4-Dichloro-2-butene	110-57-6	5	µg/L	<5	<5	0.00	No Limit
		EP074: Trichloroethene	79-01-6	5	µg/L	69	67	2.18	0% - 50%
		EP074: Bromomethane	74-83-9	50	µg/L	<50	<50	0.00	No Limit
		EP074: Chloroethane	75-00-3	50	µg/L	<50	<50	0.00	No Limit
		EP074: Chloromethane	74-87-3	50	µg/L	<50	<50	0.00	No Limit
		EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<50	<50	0.00	No Limit
		EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<50	<50	0.00	No Limit
		EP074: Vinyl chloride	75-01-4	50	µg/L	<50	<50	0.00	No Limit
ES1523263-006	Anonymous	EP074: 1.1.1.2-Tetrachloroethane	630-20-6	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.1.1-Trichloroethane	71-55-6	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.1.2-Trichloroethane	79-00-5	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.1-Dichloroethane	75-34-3	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.1-Dichloroethene	75-35-4	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.1-Dichloropropylene	563-58-6	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.2.3-Trichloropropane	96-18-4	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.2-Dichloroethane	107-06-2	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.3-Dichloropropane	142-28-9	5	µg/L	<5	<5	0.00	No Limit
		EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<5	<5	0.00	No Limit
		EP074: cis-1.2-Dichloroethene	156-59-2	5	µg/L	<5	<5	0.00	No Limit
		EP074: cis-1.4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	<5	0.00	No Limit
		EP074: Dibromomethane	74-95-3	5	µg/L	<5	<5	0.00	No Limit
		EP074: Hexachlorobutadiene	87-68-3	5	µg/L	<5	<5	0.00	No Limit
		EP074: Iodomethane	74-88-4	5	µg/L	<5	<5	0.00	No Limit
		EP074: Pentachloroethane	76-01-7	5	µg/L	<5	<5	0.00	No Limit
		EP074: Tetrachloroethene	127-18-4	5	µg/L	<5	<5	0.00	No Limit
		EP074: trans-1.2-Dichloroethene	156-60-5	5	µg/L	<5	<5	0.00	No Limit
		EP074: trans-1.4-Dichloro-2-butene	110-57-6	5	µg/L	<5	<5	0.00	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP074E: Halogenated Aliphatic Compounds (QC Lot: 118054) - continued									
ES1523263-006	Anonymous	EP074: Trichloroethene	79-01-6	5	µg/L	<5	<5	0.00	No Limit
		EP074: Bromomethane	74-83-9	50	µg/L	<50	<50	0.00	No Limit
		EP074: Chloroethane	75-00-3	50	µg/L	<50	<50	0.00	No Limit
		EP074: Chloromethane	74-87-3	50	µg/L	<50	<50	0.00	No Limit
		EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<50	<50	0.00	No Limit
		EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<50	<50	0.00	No Limit
		EP074: Vinyl chloride	75-01-4	50	µg/L	<50	<50	0.00	No Limit
EP074F: Halogenated Aromatic Compounds (QC Lot: 118054)									
ES1523243-001	QC8	EP074: 1.2.3-Trichlorobenzene	87-61-6	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.2.4-Trichlorobenzene	120-82-1	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.2-Dichlorobenzene	95-50-1	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.3-Dichlorobenzene	541-73-1	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.4-Dichlorobenzene	106-46-7	5	µg/L	<5	<5	0.00	No Limit
		EP074: 2-Chlorotoluene	95-49-8	5	µg/L	<5	<5	0.00	No Limit
		EP074: 4-Chlorotoluene	106-43-4	5	µg/L	<5	<5	0.00	No Limit
		EP074: Bromobenzene	108-86-1	5	µg/L	<5	<5	0.00	No Limit
		EP074: Chlorobenzene	108-90-7	5	µg/L	<5	<5	0.00	No Limit
ES1523263-006	Anonymous	EP074: 1.2.3-Trichlorobenzene	87-61-6	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.2.4-Trichlorobenzene	120-82-1	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.2-Dichlorobenzene	95-50-1	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.3-Dichlorobenzene	541-73-1	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.4-Dichlorobenzene	106-46-7	5	µg/L	<5	<5	0.00	No Limit
		EP074: 2-Chlorotoluene	95-49-8	5	µg/L	<5	<5	0.00	No Limit
		EP074: 4-Chlorotoluene	106-43-4	5	µg/L	<5	<5	0.00	No Limit
		EP074: Bromobenzene	108-86-1	5	µg/L	<5	<5	0.00	No Limit
		EP074: Chlorobenzene	108-90-7	5	µg/L	<5	<5	0.00	No Limit
EP074G: Trihalomethanes (QC Lot: 118054)									
ES1523243-001	QC8	EP074: Bromodichloromethane	75-27-4	5	µg/L	<5	<5	0.00	No Limit
		EP074: Bromoform	75-25-2	5	µg/L	<5	<5	0.00	No Limit
		EP074: Chloroform	67-66-3	5	µg/L	<5	<5	0.00	No Limit
		EP074: Dibromochloromethane	124-48-1	5	µg/L	<5	<5	0.00	No Limit
ES1523263-006	Anonymous	EP074: Bromodichloromethane	75-27-4	5	µg/L	<5	<5	0.00	No Limit
		EP074: Bromoform	75-25-2	5	µg/L	<5	<5	0.00	No Limit
		EP074: Chloroform	67-66-3	5	µg/L	<5	<5	0.00	No Limit
		EP074: Dibromochloromethane	124-48-1	5	µg/L	<5	<5	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 118055)									
ES1523243-001	QC8	EP080: C6 - C9 Fraction	----	20	µg/L	370	360	4.31	0% - 50%
ES1523263-006	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 118055)									
ES1523243-001	QC8	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	370	360	4.24	0% - 50%

Sub-Matrix: **WATER**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
				Laboratory Duplicate (DUP) Report					
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 118055) - continued									
ES1523263-006	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.00	No Limit
EP080: BTEXN (QC Lot: 118055)									
ES1523243-001	QC8	EP080: Benzene	71-43-2	1	µg/L	1	1	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.00	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.00	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.00	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.00	No Limit
ES1523263-006	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.00	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.00	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.00	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.00	No Limit

Method Blank (MB) and Laboratory Control Spike (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **WATER**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EG020T: Total Metals by ICP-MS (QCLot: 117233)								
EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	92.5	79	121
EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	91.5	83	113
EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	93.0	84	116
EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	90.6	83	117
EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	89.5	84	116
EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	92.0	84	116
EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	91.6	77	117
EG035T: Total Recoverable Mercury by FIMS (QCLot: 117713)								
EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.01 mg/L	89.7	77	115
EP074D: Fumigants (QCLot: 118054)								
EP074: 1.2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	10 µg/L	89.9	69	117
EP074: 1.2-Dichloropropane	78-87-5	5	µg/L	<5	10 µg/L	86.3	76	120
EP074: 2.2-Dichloropropane	594-20-7	5	µg/L	<5	10 µg/L	87.1	61	119
EP074: cis-1.3-Dichloropropylene	10061-01-5	5	µg/L	<5	10 µg/L	79.5	62	120
EP074: trans-1.3-Dichloropropylene	10061-02-6	5	µg/L	<5	10 µg/L	79.9	61	119
EP074E: Halogenated Aliphatic Compounds (QCLot: 118054)								
EP074: 1.1.1.2-Tetrachloroethane	630-20-6	5	µg/L	<5	10 µg/L	85.2	66	114
EP074: 1.1.1-Trichloroethane	71-55-6	5	µg/L	<5	10 µg/L	83.9	61	119
EP074: 1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L	<5	10 µg/L	87.2	70	124
EP074: 1.1.2-Trichloroethane	79-00-5	5	µg/L	<5	10 µg/L	88.4	75	123
EP074: 1.1-Dichloroethane	75-34-3	5	µg/L	<5	10 µg/L	87.6	75	119
EP074: 1.1-Dichloroethene	75-35-4	5	µg/L	<5	10 µg/L	96.3	69	123
EP074: 1.1-Dichloropropylene	563-58-6	5	µg/L	<5	10 µg/L	84.6	73	119
EP074: 1.2.3-Trichloropropane	96-18-4	5	µg/L	<5	10 µg/L	88.3	74	128
EP074: 1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	10 µg/L	83.2	66	136
EP074: 1.2-Dichloroethane	107-06-2	5	µg/L	<5	10 µg/L	93.2	78	122
EP074: 1.3-Dichloropropane	142-28-9	5	µg/L	<5	10 µg/L	91.9	79	121
EP074: Bromomethane	74-83-9	50	µg/L	<50	100 µg/L	106	56	140
EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<5	10 µg/L	83.5	63	121
EP074: Chloroethane	75-00-3	50	µg/L	<50	100 µg/L	95.1	63	135
EP074: Chloromethane	74-87-3	50	µg/L	<50	100 µg/L	102	67	130
EP074: cis-1.2-Dichloroethene	156-59-2	5	µg/L	<5	10 µg/L	87.1	77	117
EP074: cis-1.4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	10 µg/L	72.8	71	128
EP074: Dibromomethane	74-95-3	5	µg/L	<5	10 µg/L	84.3	74	118

Sub-Matrix: **WATER**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EP074E: Halogenated Aliphatic Compounds (QCLot: 118054) - continued								
EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<50	100 µg/L	132	61	138
EP074: Hexachlorobutadiene	87-68-3	5	µg/L	<5	10 µg/L	99.3	58	132
EP074: Iodomethane	74-88-4	5	µg/L	<5	10 µg/L	97.1	70	128
EP074: Pentachloroethane	76-01-7	5	µg/L	<5	10 µg/L	103	72	126
EP074: Tetrachloroethene	127-18-4	5	µg/L	<5	10 µg/L	75.4	72	124
EP074: trans-1.2-Dichloroethene	156-60-5	5	µg/L	<5	10 µg/L	96.7	71	119
EP074: trans-1.4-Dichloro-2-butene	110-57-6	5	µg/L	<5	10 µg/L	71.5	60	120
EP074: Trichloroethene	79-01-6	5	µg/L	<5	10 µg/L	87.7	74	120
EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<50	100 µg/L	96.7	65	131
EP074: Vinyl chloride	75-01-4	50	µg/L	<50	100 µg/L	99.7	69	129
EP074F: Halogenated Aromatic Compounds (QCLot: 118054)								
EP074: 1.2.3-Trichlorobenzene	87-61-6	5	µg/L	<5	10 µg/L	90.5	67	125
EP074: 1.2.4-Trichlorobenzene	120-82-1	5	µg/L	<5	10 µg/L	92.1	60	126
EP074: 1.2-Dichlorobenzene	95-50-1	5	µg/L	<5	10 µg/L	91.8	77	117
EP074: 1.3-Dichlorobenzene	541-73-1	5	µg/L	<5	10 µg/L	89.8	74	120
EP074: 1.4-Dichlorobenzene	106-46-7	5	µg/L	<5	10 µg/L	95.0	72	120
EP074: 2-Chlorotoluene	95-49-8	5	µg/L	<5	10 µg/L	93.7	71	121
EP074: 4-Chlorotoluene	106-43-4	5	µg/L	<5	10 µg/L	93.8	71	121
EP074: Bromobenzene	108-86-1	5	µg/L	<5	10 µg/L	91.3	76	116
EP074: Chlorobenzene	108-90-7	5	µg/L	<5	10 µg/L	94.5	80	118
EP074G: Trihalomethanes (QCLot: 118054)								
EP074: Bromodichloromethane	75-27-4	5	µg/L	<5	10 µg/L	84.7	64	118
EP074: Bromoform	75-25-2	5	µg/L	<5	10 µg/L	83.8	74	126
EP074: Chloroform	67-66-3	5	µg/L	<5	10 µg/L	87.1	76	118
EP074: Dibromochloromethane	124-48-1	5	µg/L	<5	10 µg/L	78.2	65	115
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 116953)								
EP075(SIM): Acenaphthene	83-32-9	1	µg/L	<1.0	5 µg/L	85.2	62	113
EP075(SIM): Acenaphthylene	208-96-8	1	µg/L	<1.0	5 µg/L	94.4	64	114
EP075(SIM): Anthracene	120-12-7	1	µg/L	<1.0	5 µg/L	66.8	64	116
EP075(SIM): Benz(a)anthracene	56-55-3	1	µg/L	<1.0	5 µg/L	94.0	64	117
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	5 µg/L	97.4	63	117
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	1	µg/L	<1.0	5 µg/L	93.1	62	119
EP075(SIM): Benzo(g.h.i)perylene	191-24-2	1	µg/L	<1.0	5 µg/L	102	59	118
EP075(SIM): Benzo(k)fluoranthene	207-08-9	1	µg/L	<1.0	5 µg/L	105	62	117
EP075(SIM): Chrysene	218-01-9	1	µg/L	<1.0	5 µg/L	97.5	63	116
EP075(SIM): Dibenz(a.h)anthracene	53-70-3	1	µg/L	<1.0	5 µg/L	105	61	117
EP075(SIM): Fluoranthene	206-44-0	1	µg/L	<1.0	5 µg/L	73.8	64	118
EP075(SIM): Fluorene	86-73-7	1	µg/L	<1.0	5 µg/L	89.4	64	115

Sub-Matrix: **WATER**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 116953) - continued								
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	1	µg/L	<1.0	5 µg/L	105	60	118
EP075(SIM): Naphthalene	91-20-3	1	µg/L	<1.0	5 µg/L	77.5	59	119
EP075(SIM): Phenanthrene	85-01-8	1	µg/L	<1.0	5 µg/L	67.2	63	116
EP075(SIM): Pyrene	129-00-0	1	µg/L	<1.0	5 µg/L	70.2	63	118
EP080/071: Total Petroleum Hydrocarbons (QCLot: 116951)								
EP071: C10 - C14 Fraction	----	50	µg/L	<50	2000 µg/L	92.6	59	129
EP071: C15 - C28 Fraction	----	100	µg/L	<100	3000 µg/L	95.2	71	131
EP071: C29 - C36 Fraction	----	50	µg/L	<50	2000 µg/L	96.8	62	120
EP080/071: Total Petroleum Hydrocarbons (QCLot: 118055)								
EP080: C6 - C9 Fraction	----	20	µg/L	<20	260 µg/L	86.1	75	127
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 116951)								
EP071: >C10 - C16 Fraction	>C10_C16	100	µg/L	<100	2500 µg/L	90.7	59	131
EP071: >C16 - C34 Fraction	----	100	µg/L	<100	3500 µg/L	90.3	74	138
EP071: >C34 - C40 Fraction	----	100	µg/L	<100	1500 µg/L	101	67	127
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 118055)								
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	310 µg/L	87.3	75	127
EP080: BTEXN (QCLot: 118055)								
EP080: Benzene	71-43-2	1	µg/L	<1	10 µg/L	88.3	70	124
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	83.2	70	120
EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	10 µg/L	83.5	69	121
EP080: Naphthalene	91-20-3	5	µg/L	<5	10 µg/L	98.4	70	124
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	87.5	72	122
EP080: Toluene	108-88-3	2	µg/L	<2	10 µg/L	86.9	65	129

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EG020T: Total Metals by ICP-MS (QCLot: 117233)							
ES1523020-002	Anonymous	EG020A-T: Arsenic	7440-38-2	1 mg/L	102	70	130
		EG020A-T: Cadmium	7440-43-9	0.25 mg/L	105	70	130
		EG020A-T: Chromium	7440-47-3	1 mg/L	108	70	130
		EG020A-T: Copper	7440-50-8	1 mg/L	102	70	130
		EG020A-T: Lead	7439-92-1	1 mg/L	103	70	130

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EG020T: Total Metals by ICP-MS (QCLot: 117233) - continued							
ES1523020-002	Anonymous	EG020A-T: Nickel	7440-02-0	1 mg/L	98.5	70	130
		EG020A-T: Zinc	7440-66-6	1 mg/L	105	70	130
EG035T: Total Recoverable Mercury by FIMS (QCLot: 117713)							
ES1523237-001	Anonymous	EG035T: Mercury	7439-97-6	0.01 mg/L	77.4	70	130
EP074E: Halogenated Aliphatic Compounds (QCLot: 118054)							
ES1523243-001	QC8	EP074: 1.1-Dichloroethene	75-35-4	25 µg/L	111	70	130
		EP074: Trichloroethene	79-01-6	25 µg/L	109	70	130
EP074F: Halogenated Aromatic Compounds (QCLot: 118054)							
ES1523243-001	QC8	EP074: Chlorobenzene	108-90-7	25 µg/L	88.8	70	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 118055)							
ES1523243-001	QC8	EP080: C6 - C9 Fraction	----	325 µg/L	106	70	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 118055)							
ES1523243-001	QC8	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	105	70	130
EP080: BTEXN (QCLot: 118055)							
ES1523243-001	QC8	EP080: Benzene	71-43-2	25 µg/L	80.4	70	130
		EP080: Ethylbenzene	100-41-4	25 µg/L	82.9	70	130
		EP080: meta- & para-Xylene	108-38-3 106-42-3	25 µg/L	84.1	70	130
		EP080: Naphthalene	91-20-3	25 µg/L	101	70	130
		EP080: ortho-Xylene	95-47-6	25 µg/L	87.2	70	130
		EP080: Toluene	108-88-3	25 µg/L	87.4	70	130

CERTIFICATE OF ANALYSIS

Work Order	: **ES1523243**	Page	: 1 of 6
Client	: **COFFEY GEOTECHNICS**	Laboratory	: Environmental Division Sydney
Contact	: MR DANIEL GUILLE	Contact	:
Address	:	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: daniel.guille@coffey.com	E-mail	:
Telephone	: ----	Telephone	: +61-2-8784 8555
Facsimile	: ----	Facsimile	: +61-2-8784 8500
Project	: GEOTLCOV25397AA SURRY HILLS VILLAGE	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Order number	: ----	Date Samples Received	: 03-Jun-2015 13:00
C-O-C number	: 0851	Date Analysis Commenced	: 04-Jun-2015
Sampler	: ----	Issue Date	: 05-Jun-2015 17:22
Site	: ----		
		No. of samples received	: 1
Quote number	: ----	No. of samples analysed	: 1

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results

NATA Accredited Laboratory 825

Accredited for compliance with ISO/IEC 17025.

WORLD RECOGNISED ACCREDITATION

Signatories

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Pabi Subba	Senior Organic Chemist	Sydney Organics
Shobhna Chandra	Metals Coordinator	Sydney Inorganics

General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.

- EG035: Positive Hg results have been confirmed by reanalysis.
- Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1.2.3.cd)pyrene (0.1), Dibenz(a.h)anthracene (1.0), Benzo(g.h.i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero.

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Client sample ID	QC8	----	----	----	----
			Client sampling date / time	[02-Jun-2015]	----	----	----	----
Compound	CAS Number	LOR	Unit	ES1523243-001	--------	--------	--------	--------
				Result	Result	Result	Result	Result
EG020T: Total Metals by ICP-MS								
Arsenic	7440-38-2	0.001	mg/L	**0.009**	----	----	----	----
Cadmium	7440-43-9	0.0001	mg/L	**0.0007**	----	----	----	----
Chromium	7440-47-3	0.001	mg/L	**0.035**	----	----	----	----
Copper	7440-50-8	0.001	mg/L	**0.029**	----	----	----	----
Lead	7439-92-1	0.001	mg/L	**0.213**	----	----	----	----
Nickel	7440-02-0	0.001	mg/L	**0.008**	----	----	----	----
Zinc	7440-66-6	0.005	mg/L	**0.468**	----	----	----	----
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.0001	mg/L	**0.0007**	----	----	----	----
EP074D: Fumigants								
2.2-Dichloropropane	594-20-7	5	µg/L	<5	----	----	----	----
1.2-Dichloropropane	78-87-5	5	µg/L	<5	----	----	----	----
cis-1.3-Dichloropropylene	10061-01-5	5	µg/L	<5	----	----	----	----
trans-1.3-Dichloropropylene	10061-02-6	5	µg/L	<5	----	----	----	----
1.2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	----	----	----	----
EP074E: Halogenated Aliphatic Compounds								
Dichlorodifluoromethane	75-71-8	50	µg/L	<50	----	----	----	----
Chloromethane	74-87-3	50	µg/L	<50	----	----	----	----
Vinyl chloride	75-01-4	50	µg/L	<50	----	----	----	----
Bromomethane	74-83-9	50	µg/L	<50	----	----	----	----
Chloroethane	75-00-3	50	µg/L	<50	----	----	----	----
Trichlorofluoromethane	75-69-4	50	µg/L	<50	----	----	----	----
1.1-Dichloroethene	75-35-4	5	µg/L	<5	----	----	----	----
Iodomethane	74-88-4	5	µg/L	<5	----	----	----	----
trans-1.2-Dichloroethene	156-60-5	5	µg/L	<5	----	----	----	----
1.1-Dichloroethane	75-34-3	5	µg/L	<5	----	----	----	----
cis-1.2-Dichloroethene	156-59-2	5	µg/L	**54**	----	----	----	----
1.1.1-Trichloroethane	71-55-6	5	µg/L	<5	----	----	----	----
1.1-Dichloropropylene	563-58-6	5	µg/L	<5	----	----	----	----
Carbon Tetrachloride	56-23-5	5	µg/L	<5	----	----	----	----
1.2-Dichloroethane	107-06-2	5	µg/L	<5	----	----	----	----
Trichloroethene	79-01-6	5	µg/L	**69**	----	----	----	----
Dibromomethane	74-95-3	5	µg/L	<5	----	----	----	----
1.1.2-Trichloroethane	79-00-5	5	µg/L	<5	----	----	----	----
1.3-Dichloropropane	142-28-9	5	µg/L	<5	----	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Client sample ID	QC8	----	----	----	----
			Client sampling date / time	[02-Jun-2015]	----	----	----	----
Compound	CAS Number	LOR	Unit	ES1523243-001	--------	--------	--------	--------
				Result	Result	Result	Result	Result
EP074E: Halogenated Aliphatic Compounds - Continued								
Tetrachloroethene	127-18-4	5	µg/L	**234**	----	----	----	----
1.1.1.2-Tetrachloroethane	630-20-6	5	µg/L	<5	----	----	----	----
trans-1.4-Dichloro-2-butene	110-57-6	5	µg/L	<5	----	----	----	----
cis-1.4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	----	----	----	----
1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L	<5	----	----	----	----
1.2.3-Trichloropropane	96-18-4	5	µg/L	<5	----	----	----	----
Pentachloroethane	76-01-7	5	µg/L	<5	----	----	----	----
1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	----	----	----	----
Hexachlorobutadiene	87-68-3	5	µg/L	<5	----	----	----	----
EP074F: Halogenated Aromatic Compounds								
Chlorobenzene	108-90-7	5	µg/L	<5	----	----	----	----
Bromobenzene	108-86-1	5	µg/L	<5	----	----	----	----
2-Chlorotoluene	95-49-8	5	µg/L	<5	----	----	----	----
4-Chlorotoluene	106-43-4	5	µg/L	<5	----	----	----	----
1.3-Dichlorobenzene	541-73-1	5	µg/L	<5	----	----	----	----
1.4-Dichlorobenzene	106-46-7	5	µg/L	<5	----	----	----	----
1.2-Dichlorobenzene	95-50-1	5	µg/L	<5	----	----	----	----
1.2.4-Trichlorobenzene	120-82-1	5	µg/L	<5	----	----	----	----
1.2.3-Trichlorobenzene	87-61-6	5	µg/L	<5	----	----	----	----
EP074G: Trihalomethanes								
Chloroform	67-66-3	5	µg/L	<5	----	----	----	----
Bromodichloromethane	75-27-4	5	µg/L	<5	----	----	----	----
Dibromochloromethane	124-48-1	5	µg/L	<5	----	----	----	----
Bromoform	75-25-2	5	µg/L	<5	----	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	1	µg/L	<1.0	----	----	----	----
Acenaphthylene	208-96-8	1	µg/L	<1.0	----	----	----	----
Acenaphthene	83-32-9	1	µg/L	<1.0	----	----	----	----
Fluorene	86-73-7	1	µg/L	<1.0	----	----	----	----
Phenanthrene	85-01-8	1	µg/L	<1.0	----	----	----	----
Anthracene	120-12-7	1	µg/L	<1.0	----	----	----	----
Fluoranthene	206-44-0	1	µg/L	<1.0	----	----	----	----
Pyrene	129-00-0	1	µg/L	<1.0	----	----	----	----
Benz(a)anthracene	56-55-3	1	µg/L	<1.0	----	----	----	----
Chrysene	218-01-9	1	µg/L	<1.0	----	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID	QC8	----	----	----	----
				Client sampling date / time	[02-Jun-2015]	----	----	----	----
Compound	CAS Number	LOR	Unit		ES1523243-001	--------	--------	--------	--------
					Result	Result	Result	Result	Result
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued									
Benzo(b+j)fluoranthene	205-99-2 205-82-3	1	µg/L		<1.0	----	----	----	----
Benzo(k)fluoranthene	207-08-9	1	µg/L		<1.0	----	----	----	----
Benzo(a)pyrene	50-32-8	0.5	µg/L		<0.5	----	----	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	1	µg/L		<1.0	----	----	----	----
Dibenz(a.h)anthracene	53-70-3	1	µg/L		<1.0	----	----	----	----
Benzo(g.h.i)perylene	191-24-2	1	µg/L		<1.0	----	----	----	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	µg/L		<0.5	----	----	----	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	µg/L		<0.5	----	----	----	----
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	20	µg/L		**370**	----	----	----	----
C10 - C14 Fraction	----	50	µg/L		<50	----	----	----	----
C15 - C28 Fraction	----	100	µg/L		<100	----	----	----	----
C29 - C36 Fraction	----	50	µg/L		<50	----	----	----	----
^ C10 - C36 Fraction (sum)	----	50	µg/L		<50	----	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	20	µg/L		**370**	----	----	----	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L		**370**	----	----	----	----
>C10 - C16 Fraction	>C10_C16	100	µg/L		<100	----	----	----	----
>C16 - C34 Fraction	----	100	µg/L		<100	----	----	----	----
>C34 - C40 Fraction	----	100	µg/L		<100	----	----	----	----
^ >C10 - C40 Fraction (sum)	----	100	µg/L		<100	----	----	----	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	100	µg/L		<100	----	----	----	----
EP080: BTEXN									
Benzene	71-43-2	1	µg/L		**1**	----	----	----	----
Toluene	108-88-3	2	µg/L		<2	----	----	----	----
Ethylbenzene	100-41-4	2	µg/L		<2	----	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L		<2	----	----	----	----
ortho-Xylene	95-47-6	2	µg/L		<2	----	----	----	----
^ Total Xylenes	1330-20-7	2	µg/L		<2	----	----	----	----
^ Sum of BTEX	----	1	µg/L		**1**	----	----	----	----
Naphthalene	91-20-3	5	µg/L		<5	----	----	----	----
EP074S: VOC Surrogates									
1.2-Dichloroethane-D4	17060-07-0	5	%		**99.2**	----	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Client sample ID	QC8	----	----	----	----
			Client sampling date / time	[02-Jun-2015]	----	----	----	----
Compound	CAS Number	LOR	Unit	ES1523243-001	--------	--------	--------	--------
				Result	Result	Result	Result	Result
EP074S: VOC Surrogates - Continued								
Toluene-D8	2037-26-5	5	%	**106**	----	----	----	----
4-Bromofluorobenzene	460-00-4	5	%	**92.6**	----	----	----	----
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	1	%	**24.6**	----	----	----	----
2-Chlorophenol-D4	93951-73-6	1	%	**54.2**	----	----	----	----
2.4.6-Tribromophenol	118-79-6	1	%	**55.4**	----	----	----	----
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	1	%	**62.0**	----	----	----	----
Anthracene-d10	1719-06-8	1	%	**52.0**	----	----	----	----
4-Terphenyl-d14	1718-51-0	1	%	**65.6**	----	----	----	----
EP080S: TPH(V)/BTEX Surrogates								
1.2-Dichloroethane-D4	17060-07-0	2	%	**97.0**	----	----	----	----
Toluene-D8	2037-26-5	2	%	**101**	----	----	----	----
4-Bromofluorobenzene	460-00-4	2	%	**90.1**	----	----	----	----

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

0851

coffey

Consigning Office: COFFEY CHATSWOOD
Report Results to: DANIEL GUILLE   Mobile: 0450655263   Email: daniel.guille @coffey.com
Invoices to: " "   Phone: " "   Email: " " @coffey.com

Project No: GEOTLCOV25397AA   Task No:
Project Name: SURRY HILLS VILLAGE   Laboratory: EUROFINS.
Sampler's Name: MANAIA REHM   Project Manager: DANIEL GUILLE
Special Instructions: Please forward QC8 to ALS
Relevant agreements: Eurofins COF_ENAUABTF00952AA_MSA1 ; ALS COF_ENAUABTF00952AA_MSA2 and SGS COF_ENAUABTF00952AA_MSA3

Analysis Request Section

Lab No.	Sample ID	Sample Date	Time	Matrix (Soil...etc)	Container Type & Preservative*	T-A-T (specify)	METALS	PAHs	TPH	BTEXN	VOCs	SVOCs		Suite B7	VHC	C6-C10/BTEXN	NOTES
	BH10/MW4	2/6/15	2/6/15	Water	1G+1P+1V	48h.								X	X		Filter Metals
1	QC8	↓	↓	↓	↓	↓								X	X		QC8 → Forward to ALS.
	QC9	↓	↓	↓	↓	↓								X			↓
	QC10	↓	↓	↓	1V	↓										X	

Environmental Division
Sydney
Work Order Reference
ES1523243
Telephone : +61-2-8784 8555

RELINQUISHED BY		RECEIVED BY	
Name: MANAIA REHM	Date: 2/6/15.	Name:	Date:
Coffey Environments	Time:	Company: 2/17	Time:
Name: Sea	Date: 3/6/15	Name: Ellen Ng	Date: 020615
Company: EF/MGT	Time:	Company: EF/mgt	Time: 12:41

Sample Receipt Advice: (Lab Use Only)
All Samples Recieved in Good Condition ☐
All Documentation is in Proper Order ☐
Samples Received Properly Chilled ☐
Lab. Ref/Batch No.

***Container Type & Preservation Codes: P** - Plastic, **G** - Glass Bottle, **J** - Glass Jar, **V** - Vial, **Z** - Ziplock Bag, **N** - Nitric Acid Preserved, **C** - Hydrochloric Acid Preserved, **S** - Sulphuric Acid Preserved, **I** - Ice, **ST** - Sodium Thiosulfate, **NP** - No Preservative, **OP** - Other Preservative

From ALS 3/6/15 1300

GOWANS PRINTING (02) 9755 3545

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order	: **EN1511654**		
Client	: **COFFEY GEOTECHNICS**	Laboratory	: Environmental Division Newcastle
Contact	: MR DANIEL GUILLE	Contact	: Peter Keyte
Address	:	Address	: 5/585 Maitland Road Mayfield West NSW Australia 2304
E-mail	: daniel.guille@coffey.com	E-mail	: peter.keyte@alsglobal.com
Telephone	: ----	Telephone	: +61 2 4014 2500
Facsimile	: ----	Facsimile	: +61 2 4967 7382
Project	: GEOTLCOV25397AA SURRY HILSS VILLAGE	Page	: 1 of 2
Order number	: ----	Quote number	: ----
C-O-C number	: 0353	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Site	: ----		
Sampler	:		

Dates

Date Samples Received	: 18-May-2015	Issue Date	: 19-May-2015
Client Requested Due Date	: 20-May-2015	Scheduled Reporting Date	: **20-May-2015**

Delivery Details

Mode of Delivery	: Carrier	Security Seal	: Not Available
No. of coolers/boxes	: ----	Temperature	: ----
Receipt Detail	:	No. of samples received / analysed	: 5 / 5

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exist.**

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.

Matrix: **AIR**

Laboratory sample ID	*Client sampling date / time*	*Client sample ID*	AIR - CAN-SG1 Canister Sampling - Soil Gas Field Data	AIR - SG-V2-PH Soil Gas - BTEXN + NEPM TPH + Chlorinated
EN1511654-001	[15-May-2015]	#9678 C0708		✓
EN1511654-002	[15-May-2015]	#9680 C0710		✓
EN1511654-003	[15-May-2015]	Unused C1079	✓	
EN1511654-004	[15-May-2015]	Unused C0728	✓	
EN1511654-005	[15-May-2015]	Unused C1117	✓	

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

Requested Deliverables

DANIEL GUILLE

- *AU Certificate of Analysis - NATA (COA)	Email	daniel.guille@coffey.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	daniel.guille@coffey.com
- *AU QC Report - DEFAULT (Anon QC Rep) - USEPA (QC-USEPA)	Email	daniel.guille@coffey.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	daniel.guille@coffey.com
- A4 - AU Tax Invoice (INV)	Email	daniel.guille@coffey.com
- Chain of Custody (CoC) (COC)	Email	daniel.guille@coffey.com
- EDI Format - ENMRG (ENMRG)	Email	daniel.guille@coffey.com
- EDI Format - ESDAT (ESDAT)	Email	daniel.guille@coffey.com
- EDI Format - XTab (XTAB)	Email	daniel.guille@coffey.com

QA/QC Compliance Assessment for DQO Reporting

Work Order	: **EN1511654**	Page	: 1 of 4
Client	: **COFFEY GEOTECHNICS**	Laboratory	: Environmental Division Newcastle
Contact	: MR DANIEL GUILLE	Telephone	: +61 2 4014 2500
Project	: GEOTLCOV25397AA SURRY HILSS VILLAGE	Date Samples Received	: 18-May-2015
Site	: ----	Issue Date	: 21-May-2015
Sampler	: ----	No. of samples received	: 5
Order number	: ----	No. of samples analysed	: 5

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **NO Matrix Spike outliers occur.**
- **For all regular sample matrices, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

- **NO Quality Control Sample Frequency Outliers exist.**

Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **AIR**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / *Container / Client Sample ID(s)*	*Sample Date*	*Extraction / Preparation*			*Analysis*		
		Date extracted	*Due for extraction*	*Evaluation*	*Date analysed*	*Due for analysis*	*Evaluation*
EP101/EP103: Sampling Conditions							
Gas Canister - ALS Stainless Steel Silonite¿ (CAN-001) #9678 - C0708, #9680 - C0710, Unused - C1079, Unused - C0728, Unused - C1117	**15-May-2015**	**----**	----	----	**21-May-2015**	14-May-2016	✓
EP101: VOCs by USEPA Method TO15r							
Gas Canister - ALS Stainless Steel Silonite¿ (EP101-15X) #9678 - C0708, #9680 - C0710	**15-May-2015**	**----**	----	----	**21-May-2015**	14-Jun-2015	✓
EP103: Total Recoverable Hydrocarbons - NEPM 2013							
Gas Canister - ALS Stainless Steel Silonite¿ (EP103-PC) #9678 - C0708, #9680 - C0710	**15-May-2015**	**----**	----	----	**21-May-2015**	14-Jun-2015	✓

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **AIR**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Duplicate Control Samples (DCS)							
VOCs in Air by USEPA TO15r - Extended Suite	EP101-15X	1	2	**50.00**	**5.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile TPH/TRH in Gaseous Samples	EP103-PC	1	2	**50.00**	**5.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Laboratory Duplicates (DUP)							
VOCs in Air by USEPA TO15r - Extended Suite	EP101-15X	1	2	**50.00**	**10.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile TPH/TRH in Gaseous Samples	EP103-PC	1	2	**50.00**	**10.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Laboratory Control Samples (LCS)							
VOCs in Air by USEPA TO15r - Extended Suite	EP101-15X	1	2	**50.00**	**5.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile TPH/TRH in Gaseous Samples	EP103-PC	1	2	**50.00**	**5.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Method Blanks (MB)							
VOCs in Air by USEPA TO15r - Extended Suite	EP101-15X	1	2	**50.00**	**5.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile TPH/TRH in Gaseous Samples	EP103-PC	1	2	**50.00**	**5.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	*Method*	*Matrix*	*Method Descriptions*
Canister Sampling - Field Data	CAN-001	AIR	In house: Referenced to USEPA TO14 / TO15
VOCs in Air by USEPA TO15r - Extended Suite	EP101-15X	AIR	In house: Referenced to USEPA TO15r Volatile Organic Compounds in Air by USEPA TO15. Extended Suite
VOCs in Air by USEPA TO15r - Extended Suite (mass/volume)	EP101-15X-MV	AIR	In house: Referenced to USEPA TO15r Volatile Organic Compounds in Air by USEPA TO15. Extended Suite (Calculated Concentration)
Volatile TPH/TRH in Gaseous Samples	EP103-PC	AIR	Volatile TPH/TRH by GC-MS with Preconcentration and Thermal Desorption Injection Based on USEPA TO15, MassDEP APH (Rev1 2009) and TPH/NEPM Fractions (2013)
Volatile TPH/TRH in Gaseous Samples (Calc Conc)	EP103-PC-MV	AIR	Volatile TPH/TRH by GC-MS with Preconcentration and Thermal Desorption Injection Based on USEPA TO15, MassDEP APH (Rev1 2009) and TPH/NEPM Fractions (2013) Calculated from ppbv results based on given Temperature and Atmospheric Pressure and mid-range molecular weights

QUALITY CONTROL REPORT

Work Order	: **EN1511654**	Page	: 1 of 4
Client	: **COFFEY GEOTECHNICS**	Laboratory	: Environmental Division Newcastle
Contact	: MR DANIEL GUILLE	Contact	: Peter Keyte
Address	:	Address	: 5/585 Maitland Road Mayfield West NSW Australia 2304
E-mail	: daniel.guille@coffey.com	E-mail	: peter.keyte@alsglobal.com
Telephone	: ----	Telephone	: +61 2 4014 2500
Facsimile	: ----	Facsimile	: +61 2 4967 7382
Project	: GEOTLCOV25397AA SURRY HILSS VILLAGE	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Order number	: ----	Date Samples Received	: 18-May-2015
C-O-C number	: 0353	Date Analysis Commenced	: 21-May-2015
Sampler	: ----	Issue Date	: 21-May-2015
Site	: ----	No. of samples received	: 5
Quote number	: ----	No. of samples analysed	: 5

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report ; Recovery and Acceptance Limits
- Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report; Recovery and Acceptance Limits

NATA Accredited
Laboratory 825

Accredited for
compliance with
ISO/IEC 17025.

Signatories

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Daniel Junek	Senior Air Analyst	Newcastle - Organics
Daniel Junek	Senior Air Analyst	Newcastle

General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot

CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

LOR = Limit of reporting

RPD = Relative Percentage Difference

= Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR:- 0% - 50%; Result > 20 times LOR:0% - 20%.

Sub-Matrix: **AIR**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP101: VOCs by USEPA Method TO15r (QC Lot: 105295)									
EN1511654-001	#9678 C0708	EP101-15X: 1.1.1-Trichloroethane	71-55-6	0.5	ppbv	<0.0500	<50.0	0.00	No Limit
		EP101-15X: Benzene	71-43-2	0.5	ppbv	<0.0300	<30.0	0.00	No Limit
		EP101-15X: cis-1.2-Dichloroethene	156-59-2	0.5	ppbv	<0.0050	<5.0	0.00	No Limit
		EP101-15X: Ethylbenzene	100-41-4	0.5	ppbv	<0.0500	<50.0	0.00	No Limit
		EP101-15X: Naphthalene	91-20-3	0.5	ppbv	<0.0190	<19.0	0.00	No Limit
		EP101-15X: ortho-Xylene	95-47-6	0.5	ppbv	<0.0500	<50.0	0.00	No Limit
		EP101-15X: Tetrachloroethene	127-18-4	0.5	ppbv	<0.0500	<50.0	0.00	No Limit
		EP101-15X: Toluene	108-88-3	0.5	ppbv	<0.0500	<50.0	0.00	No Limit
		EP101-15X: Trichloroethene	79-01-6	0.5	ppbv	<0.0010	<1.0	0.00	No Limit
		EP101-15X: Vinyl chloride	75-01-4	0.5	ppbv	<0.0020	<2.0	0.00	No Limit
		EP101-15X: meta- & para-Xylene	108-38-3 106-42-3	1	ppbv	<0.100	<100	0.00	No Limit
EP103: Petroleum Hydrocarbons in Gaseous Samples (QC Lot: 105296)									
EN1511654-001	#9678 C0708	EP103-PC: C10 - C14 Fraction	----	50	ppbv	<5.00	<5000	0.00	No Limit
		EP103-PC: C6 - C9 Fraction	----	50	ppbv	<5.00	<5000	0.00	No Limit
EP103: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 105296)									
EN1511654-001	#9678 C0708	EP103-PC: >C10 - C16 Fraction	>C10_C16	50	ppbv	<5.00	<5000	0.00	No Limit
		EP103-PC: C6 - C10 Fraction	C6_C10	50	ppbv	<5.00	<5000	0.00	No Limit

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control terms Laboratory Control Sample (LCS) and Laboratory Control Sample Duplicate (DCS) refers to certified reference materials, or known interference free matrices spiked with target analytes. The purpose of these QC parameters are to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS and DCS.

Sub-Matrix: **AIR**

Method: Compound	CAS Number	Method Blank (MB) Report			Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report						
					Spike	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
		LOR	Unit	Result	Concentration	LCS	DCS	Low	High	Value	Control Limit
EP101: VOCs by USEPA Method TO15r (QCLot: 105295)											
EP101-15X: 1.1.1-Trichloroethane	71-55-6	0.5	ppbv	<0.5	10 ppbv	105	108	70	130	25	25
EP101-15X: Benzene	71-43-2	0.5	ppbv	<0.5	10 ppbv	96.8	99.9	70	130	25	25
EP101-15X: cis-1.2-Dichloroethene	156-59-2	0.5	ppbv	<0.5	10 ppbv	78.4	82.0	70	130	25	25
EP101-15X: Ethylbenzene	100-41-4	0.5	ppbv	<0.5	10 ppbv	91.7	98.2	70	130	25	25
EP101-15X: meta- & para-Xylene	108-38-3 106-42-3	1	ppbv	<1.0	20 ppbv	93.3	98.7	70	130	25	25
EP101-15X: Naphthalene	91-20-3	0.5	ppbv	<0.5	10 ppbv	74.0	78.7	70	130	25	25
EP101-15X: ortho-Xylene	95-47-6	0.5	ppbv	<0.5	10 ppbv	93.7	97.1	70	130	25	25
EP101-15X: Tetrachloroethene	127-18-4	0.5	ppbv	<0.5	10 ppbv	87.0	91.2	70	130	25	25
EP101-15X: Toluene	108-88-3	0.5	ppbv	<0.5	10 ppbv	91.0	95.2	70	130	25	25
EP101-15X: Trichloroethene	79-01-6	0.5	ppbv	<0.5	10 ppbv	93.1	97.1	70	130	25	25
EP101-15X: Vinyl chloride	75-01-4	0.5	ppbv	<0.5	10 ppbv	117	122	70	130	25	25
EP103: Petroleum Hydrocarbons in Gaseous Samples (QCLot: 105296)											
EP103-PC: C10 - C14 Fraction	----	50	ppbv	<50	1200 ppbv	102	104	70	130	25	25
EP103-PC: C6 - C9 Fraction	----	50	ppbv	<50	2800 ppbv	102	106	70	130	25	25
EP103: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 105296)											
EP103-PC: >C10 - C16 Fraction	>C10_C16	50	ppbv	<50	500 ppbv	99.0	98.3	70	130	25	25
EP103-PC: C6 - C10 Fraction	C6_C10	50	ppbv	<50	3000 ppbv	104	107	70	130	25	25

- **No Matrix Spike (MS) or Matrix Spike Duplicate (MSD) Results are required to be reported.**

CERTIFICATE OF ANALYSIS

Work Order	: **EN1511654**	Page	: 1 of 4
Client	: **COFFEY GEOTECHNICS**	Laboratory	: Environmental Division Newcastle
Contact	: MR DANIEL GUILLE	Contact	: Peter Keyte
Address	:	Address	: 5/585 Maitland Road Mayfield West NSW Australia 2304
E-mail	: daniel.guille@coffey.com	E-mail	: peter.keyte@alsglobal.com
Telephone	: ----	Telephone	: +61 2 4014 2500
Facsimile	: ----	Facsimile	: +61 2 4967 7382
Project	: GEOTLCOV25397AA SURRY HILSS VILLAGE	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Order number	: ----	Date Samples Received	: 18-May-2015 12:44
C-O-C number	: 0353	Date Analysis Commenced	: 21-May-2015
Sampler	: ----	Issue Date	: 21-May-2015 15:24
Site	: ----		
		No. of samples received	: 5
Quote number	: ----	No. of samples analysed	: 5

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results

NATA Accredited Laboratory 825

Accredited for compliance with ISO/IEC 17025.

Signatories

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Daniel Junek	Senior Air Analyst	Newcastle
Daniel Junek	Senior Air Analyst	Newcastle - Organics

General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.

- EP101, EP103: Results reported in mg/m^3 are calculated from PPMV results based on a temperature of 25°C and atmospheric pressure of 101.3 kPa.
- CAN-001: Results for Pressure - As Received are measured under controlled conditions using calibrated laboratory gauges. These results are expressed as an Absolute Pressure. Equivalent gauge pressures may be calculated by subtracting the Pressure - Laboratory Atmosphere taken at the time of measurement.
- CAN-001: Results for Pressure - Gauge as Received are obtained from uncalibrated field gauges and are indicative only. These results may not precisely match calibrated gauge readings and may vary from field measurements due to changes in temperature and pressure

Analytical Results

Sub-Matrix: AIR
(Matrix: AIR)

Compound	CAS Number	LOR	Unit	#9678 C0708	#9680 C0710	Unused C1079	Unused C0728	Unused C1117
			Client sampling date / time	[15-May-2015]	[15-May-2015]	[15-May-2015]	[15-May-2015]	[15-May-2015]
				EN1511654-001	EN1511654-002	EN1511654-003	EN1511654-004	EN1511654-005
				Result	Result	Result	Result	Result
EP101: VOCs by USEPA Method TO15 (Calculated Concentration)								
^ Vinyl chloride	75-01-4	0.0051	mg/m³	<0.0051	<0.0051	----	----	----
^ cis-1.2-Dichloroethene	156-59-2	0.02	mg/m³	<0.0200	<0.0200	----	----	----
^ 1.1.1-Trichloroethane	71-55-6	0.27	mg/m³	<0.270	<0.270	----	----	----
^ Benzene	71-43-2	0.1	mg/m³	<0.100	<0.100	----	----	----
^ Trichloroethene	79-01-6	0.0054	mg/m³	<0.0054	**0.0102**	----	----	----
^ Toluene	108-88-3	0.19	mg/m³	<0.190	<0.190	----	----	----
^ Tetrachloroethene	127-18-4	0.34	mg/m³	<0.340	**8.34**	----	----	----
^ Ethylbenzene	100-41-4	0.22	mg/m³	<0.220	<0.220	----	----	----
^ meta- & para-Xylene	108-38-3 106-42-3	0.43	mg/m³	<0.430	<0.430	----	----	----
^ ortho-Xylene	95-47-6	0.22	mg/m³	<0.220	<0.220	----	----	----
^ Naphthalene	91-20-3	0.1	mg/m³	<0.100	<0.100	----	----	----
EP101: VOCs by USEPA Method TO15r								
Vinyl chloride	75-01-4	0.002	ppmv	<0.0020	<0.0020	----	----	----
cis-1.2-Dichloroethene	156-59-2	0.005	ppmv	<0.0050	<0.0050	----	----	----
1.1.1-Trichloroethane	71-55-6	0.05	ppmv	<0.0500	<0.0500	----	----	----
Benzene	71-43-2	0.03	ppmv	<0.0300	<0.0300	----	----	----
Trichloroethene	79-01-6	0.001	ppmv	<0.0010	**0.0019**	----	----	----
Toluene	108-88-3	0.05	ppmv	<0.0500	<0.0500	----	----	----
Tetrachloroethene	127-18-4	0.05	ppmv	<0.0500	**1.23**	----	----	----
Ethylbenzene	100-41-4	0.05	ppmv	<0.0500	<0.0500	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	0.1	ppmv	<0.100	<0.100	----	----	----
ortho-Xylene	95-47-6	0.05	ppmv	<0.0500	<0.0500	----	----	----
Naphthalene	91-20-3	0.019	ppmv	<0.0190	<0.0190	----	----	----
EP103: Petroleum Hydrocarbons in Gaseous Samples								
C6 - C9 Fraction	----	5	ppmv	<5.00	<5.00	----	----	----
C10 - C14 Fraction	----	5	ppmv	<5.00	<5.00	----	----	----
EP103: Petroleum Hydrocarbons in Gaseous Samples (Calc Conc)								
^ C6 - C9 Fraction	----	20	mg/m³	<20.0	<20.0	----	----	----
^ C10 - C14 Fraction	----	35	mg/m³	<35.0	<35.0	----	----	----
EP103: Total Recoverable Hydrocarbons - NEPM 2013								
C6 - C10 Fraction	C6_C10	5	ppmv	<5.00	<5.00	----	----	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	5	ppmv	<5.00	<5.00	----	----	----
>C10 - C16 Fraction	>C10_C16	5	ppmv	<5.00	<5.00	----	----	----

Analytical Results

Sub-Matrix: AIR
(Matrix: AIR)

Client sample ID				#9678 C0708	#9680 C0710	Unused C1079	Unused C0728	Unused C1117
Client sampling date / time				[15-May-2015]	[15-May-2015]	[15-May-2015]	[15-May-2015]	[15-May-2015]
Compound	CAS Number	LOR	Unit	EN1511654-001	EN1511654-002	EN1511654-003	EN1511654-004	EN1511654-005
				Result	Result	Result	Result	Result
EP103: Total Recoverable Hydrocarbons - NEPM 2013 - Continued								
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	5	ppmv	<5.00	<5.00	----	----	----
EP103: Total Recoverable Hydrocarbons - NEPM 2013 (Calc Conc)								
^ C6 - C10 Fraction	C6_C10	20	mg/m³	<20.0	<20.0	----	----	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	mg/m³	<20.0	<20.0	----	----	----
^ >C10 - C16 Fraction	>C10_C16	40	mg/m³	<40.0	<40.0	----	----	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	40	mg/m³	<40.0	<40.0	----	----	----
Sampling Quality Assurance								
Pressure - As received	PRESSURE	0.1	kPa	**102**	**99.7**	<0.1	<0.1	<0.1
Pressure - Laboratory Atmosphere	----	0.1	kPa	**101**	**101**	**101**	**101**	**101**
Temperature as Received	----	0.1	°C	**21.0**	**21.0**	**21.0**	**21.0**	**21.0**
USEPA Air Toxics Method TO15r Surrogates								
4-Bromofluorobenzene	460-00-4	0.5	%	**94.1**	**83.3**	----	----	----

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

coffey

Consigning Office: Chatswood
Report Results to: daniel guille Mobile: 0450 655 263 Email: daniel.guille @coffey.com
Invoices to: Chatswood office Phone: Email: @coffey.com

Project No: GEOTLCOV25397 AA Task No:
Project Name: Surry Hills Village Laboratory: ALS in Newcastle.
Sampler's Name: Mancia Rehu Project Manager: Daniel Guille.
Special Instructions:
Relevant agreements: Eurofins COF_ENAUABTF00952AA_MSA1 ; ALS COF_ENAUABTF00952AA_MSA2 and SGS COF_ENAUABTF00952AA_MSA3

Lab No.	Sample ID	Sample Date	Time	Matrix (Soil...etc)	Container Type & Preservative*	T-A-T (specify)	SGV2-PH	NOTES
1	# 9678 - 708	15/5	AM	Soil gas	1 canister	2 days	X	
2	# 9680 - 710	15/5	AM	Soil gas	1 Canister	2 days	X	
3	Unused - 1079							
4	- 728							
5	- 1117							

Environmental Division
Newcastle
Work Order Reference
EN1511654

Telephone : +61 2 4014 2500

RELINQUISHED BY		RECEIVED BY	
Name: Daniel Guille	Date: 18/5/2015	Name: Mark Spencer	Date: 18/05/15
Coffey Environments	Time: 9AM	Company: ALS	Time: 12:44pm
Name:	Date:	Name:	Date:
Company:	Time:	Company:	Time:

Sample Receipt Advice: (Lab Use Only)
- All Samples Recieved in Good Condition ☑
- All Documentation is in Proper Order ☑
- Samples Received Properly Chilled ☐
- Lab. Ref/Batch No.

***Container Type & Preservation Codes: P** - Plastic, **G**- Glass Bottle, **J** - Glass Jar, **V**- Vial, **Z** - Ziplock Bag, **N** - Nitric Acid Preserved, **C** - Hydrochloric Acid Preserved, **S** - Sulphuric Acid Preserved, **I** - Ice, **ST** - Sodium Thiosulfate, **NP** - No Preservative, **OP** - Other Preservative

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GAS CANISTER SAMPLING EQUIPMENT — DISPATCH RECORD

Inquiries: Client Services - Newcastle **Phone: +61 (02) 4014 2500** E-mail: samples.newcastle@alsenviro.com

Dispatch to:			
Client / Office:	COFFEY	ALS Use ONLY	
Contact:	Daniel Guille	Request Received By:	HW
Telephone:	0450 655 263	Deliver By:	14/5/15
ALS Quotation:		Date/Time Dispatched:	13-05-15 WED
Delivery Address:	L19, Tower B, 799 Pacific Highway	Workorder:	
	Chatswood NSW 2067	Agreed Rent Free Period:	14 days

SPECIAL INSTRUCTIONS: JOB: GEOTLCOV25397AA-AE , PO: S25653DG

Equipment Request

CANISTERS

No.	Canister Type	Size	Gauge	Valve	Caps	Rental	No Returned
5	Minican™	1.4L	No	QT	Yes	$120 ea	

Analysts Initials & Date

Leak Checked	Certified OK
AS	13-05-15

CONNECTORS AND FLOW CONTROL DEVICES

No.	Equipment Type	Duration (hrs)	Flow (ml/min)	T-Piece	Gauge	Certified	Sealed & Vacuum	Connection (Q Quick Connect, S Swagelok)	No Returned	Rental
3	Soil Gas Sampling Train		150ml	No	Yes	Yes	Yes / Yes	Q		Incl Above
1	Duplicate Soil Gas Sampler		150ml	Yes	Yes	Yes	Yes / Yes	Q		Incl Above
4	Female QT Connectors	-	-	-	-	-	-	Q		$120 ea. Replacement
1	Male QT Connector	-	-	-	-	-	-	Q		$120 ea. Replacement
1	Pressure Gauge - QT	-	-	-	-	-	Yes / Yes	Q		$250 ea. Replacement
2	Sampling Kit Case – Soil Gas	-	-	-	-	-	Yes	NA		$200 Replacement
4	Tripod	-	-	-	-	-	-	NA		$80 ea.
	¼" Swagelok connectors and ferrules (spares)	-	-	-	-	-	-			$5 ea. Replacement

1 Other (specify) 2m tubing ✓

[1] Refer to Acceptance of Terms

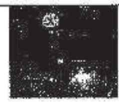
ALS use only			
Gauge Pressures on included COC (Y/N) N	Recorded by: AS	Leak Check OK (Y/N) Y	By: AS 13-05-15
Canister Sampling Guide Included (Y/N) Y	Packed by: HW	Dispatch Time / Date	13/5 PR
Number of Boxes: 2		Consignment Note Number:	ENO 7406464
Courier / Dispatcher: TNT		Consignment Dispatched by:	HW

ALS

Minerals · Coal · Environmental · Tribology · Food & Pharmaceutical · Industrial

GAS CANISTER SAMPLING EQUIPMENT — DISPATCH RECORD

ALS SUPPLIED EQUIPMENT

Item	Quantity	Item Description	Replacement Value	Serial Nos
	5	1.4 L Silonite Mini-Can with QT Valve		1079 ✓ 710 ✓ 1117 708 ✓ 728
	3	Soil Gas Sampling Train (Compact) with QT Connections – 150ml/min		080 ✓ 105 ✓ 041 ✓
	1	Soil Gas Duplicate Sampling Train with QT Connections – 150ml/min (#2)		053 ✓
	1	Vacuum Gauge with female QT Connection		005 ✓ (-35 "Hg)
	✓ 4	Female QT to ¼" tube connector		✓

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www.alsglobal.com

GAS CANISTER SAMPLING EQUIPMENT — DISPATCH RECORD

Item	Quantity	Item Description	Replacement Value	Serial Nos
	√ 1	Male QT to ¼" tube connector		
	√ 4	Tripod		

Acceptance of Terms:

[illegible]

If these conditions are not acceptable please return all equipment to ALS Newcastle immediately.

CANISTER SUPPLY AND LOGISTICS

Additional canisters and samplers can be ordered through any ALS Environmental Laboratory and supplied direct to your site or office by courier. For the fastest turnaround, canisters should be returned direct to Newcastle Laboratory.

GAS CANISTER SAMPLING EQUIPMENT — DISPATCH RECORD

ALS Environmental, Newcastle
5/585 Maitland Road
Mayfield West, NSW 2304

Note that Dangerous Goods Transport Regulations may apply after sampling if the cylinder is pressurised or contains hazardous materials.

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

coffey

Consigning Office: Chatswood
Report Results to: daniel guille | Mobile: 0450 655 263 | Email: daniel.guille @coffey.com
Invoices to: Chatswood office | Phone: | Email: @coffey.com

Project No: GEOTLCOV25397AA Task No:
Project Name: Surry Hills Village Laboratory: ALS in Newcastle.
Sampler's Name: Marcia Rehu Project Manager: Daniel Guille.
Special Instructions:
Relevant agreements: Eurofins COF_ENAUABTF00952AA_MSA1 ; ALS COF_ENAUABTF00952AA_MSA2 and SGS COF_ENAUABTF00952AA_MSA3

Analysis Request Section

Lab No.	Sample ID	Sample Date	Time	Matrix (Soil...etc)	Container Type & Preservative*	T-A-T (specify)	SGV2 - PH	NOTES
1	# 9678	15/5	AM	Soil gas	1 canister	2 days	X	
2	# 9680	15/5	AM.	soil gas	1 Canister	2 days	X	

Environmental Division
Newcastle
Work Order Reference
EN1511654
Telephone : +61 2 4014 2500

RELINQUISHED BY		RECEIVED BY	
Name: Daniel Guilly	Date: 18/5/2015	Name: Mark Spencer	Date: 18/05/15
Coffey Environments	Time: 9AM	Company: ALS	Time: 12:44pm
Name:	Date:	Name:	Date:
Company:	Time:	Company:	Time:

Sample Receipt Advice: (Lab Use Only)
- All Samples Recieved in Good Condition ☐
- All Documentation is in Proper Order ☐
- Samples Received Properly Chilled ☐
- Lab. Ref/Batch No.

***Container Type & Preservation Codes: P** - Plastic, **G**- Glass Bottle, **J** - Glass Jar, **V**- Vial, **Z** - Ziplock Bag, **N** - Nitric Acid Preserved, **C** - Hydrochloric Acid Preserved, **S** - Sulphuric Acid Preserved, **I** - Ice, **ST** - Sodium Thiosulfate, **NP** - No Preservative, **OP** - Other Preservative

GOWANS PRINTING (02) 9755 3545

Appendix D – QA/QC Assessment

QA/QC DATA VALIDATION REPORT
Job No: GETOLCOV25397AA
Batch No: Soil: ES1522078, ES1523062, 459031, 459646, 460093
Groundwater: 457829, 459907, ES1523243
Soil vapour: EN1511654

1. QUALITY CONTROL

1.1 Introduction

The steps in the sampling and analysis process are subject to natural and inherent variability, and this can affect the results produced, and the overall quality of the data sets generated. In order to minimise the effect of this, standard procedures are used throughout for works carried out in the field, and in the laboratory. The use of such procedures represents one aspect of the quality assurance process. To measure the effectiveness of the quality assurance process, quality control samples can be tested, and other quality control tests can be conducted during the analysis of samples taken in the field.

Quality control (QC) samples and tests can be used to assess both the completeness, accuracy and the precision of the results produced.

- Measures of completeness provide information on the percentage of useable data collected during an activity. Completeness is assessed by percentage completion of sampling plan, sampling documentation, samples holding times.
- Measures of comparability provide information on the equivalence of the data collected during each sampling and analytical event. This is assessed by a review of procedures and methods used in the field and laboratory, and of factors that may have affected the consistency of the sampling.
- Measures of representativeness provide information on the appropriateness of the sampling plan and procedures.
- Measures of accuracy provide information on how close to the true result is the reported result. For practical reasons, measures of accuracy are usually confined to the laboratory steps in the overall process.
- Measures of precision provide information on the variability in the results. Precision can be assessed as:
  - "repeatability" or intra-laboratory variation – the degree of variation in a result when the same laboratory analyses a sample (or blind replicate) several times, and;
  - "reproducibility" or inter-laboratory variation – the degree of variation in a result when a different laboratory separately analyses a sample.

In addition, blank samples can be used to assess whether extraneous materials and factors have contributed to the results obtained from the sampling and analysis process.

Quality control testing can be conducted covering all steps of the process (referred to as Field QC in this report), or just one portion of the process, such as the laboratory steps (referred to as Laboratory QC in this report).

1.2 Field Quality Control

Precision of the sample collection, transport and analysis process is measured by the relative percent difference (RPD) between duplicate results. Acceptance targets for laboratory duplicates are dependent on matrix type, contaminant type and contaminant concentrations. Australian Standard AS 4482.1 – 2005 *(Guide to the investigation and sampling of sites with potentially contaminated soil. Part 1: Non-volatile and semi-volatile compounds)* provides the following guidance on the acceptable limits of precision for soil samples.

Typical relative percent difference is 30% – 50% of mean concentration of analyte. This variation can be expected to be higher for organic analysis than for inorganics, and for low concentration of analytes.

Noting this guidance, Coffey Environments has adopted the following acceptance criteria for RPD results on replicate samples for soil (metals, metalloids and organics):

- 30% for concentrations more than 10 times the laboratory limit of reporting (LOR), and;
- 50% for concentrations less than 10 times the LOR.

For groundwater samples, the acceptance targets for a range of contaminants are listed below. These have been based on acceptable RPD limits for laboratory replicate analysis (American Public Health Association (APHA), 1992). Because groundwater is a homogenous medium, sample heterogeneity (which is a potential major contributor to variability in soil samples) would not be expected to play a part in the variability in the sampling and analysis of groundwaters. Hence, the use of laboratory-based acceptance targets can be supported.

Table 1 – RPD Acceptance Targets for Contaminant/Analyte Classes

Contaminant/analyte classes	Acceptable RPD for concentrations more than 20 times the LOR	Acceptable RPD for concentrations less than 20 times the LOR
Volatile and semi-volatile organic compounds (including petroleum hydrocarbons), phenols, organochlorine pesticides, organophosphorus pesticides and herbicides	20%	40%
Metals and other inorganics	10%	25%

For blanks, Coffey Environments' approach is that the concentration of any contaminant should be less than the LOR in all blank samples.

1.3 Laboratory Quality Control

Laboratories are accredited by the National Association of Testing Authorities (NATA) on the basis of their ability to provide quantitative evidence of their ability and competence to produce reliable results against recognised benchmarks NATA-accredited laboratories are able to demonstrate the ability to produce reliable, repeatable results for a range of parameters within a range of sample matrices. Each laboratory method used undergoes a validation process before it is adopted by the laboratory and accredited by NATA. As part of the validation process, the precision and accuracy of the method are established.

In addition, laboratories conduct their own quality control testing to indicate their performance on each reported batch of samples. The results of this testing are compared with the validated precision and accuracy.

Precision of results is measured by the Relative Percent Difference (RPD) between replicate samples selected within the laboratory. RPD is calculated in the same way as described above for Field QC.

Accuracy of results is assessed in a number of ways:

- Reference materials, with known concentrations of analytes are analysed with the batch of samples. The results of this analysis are compared with the established concentrations in the reference material.
- Spike additions. Known amounts of targeted analytes are added to the samples to be analysed, and the spiked samples are processed through the analytical process. The amount of spiked material is measured as the recovery of the added amount reported in the final result.
- Surrogate spikes. Known amounts of chemical compounds with similar properties to the targeted analytes are added to the samples to be analysed, and the spiked samples are processed through the analytical process. The amount of spiked material is measured as the recovery of the added amount reported in the final result.

Schedule B(3) of the National Environment Protection Measure (NEPM) for contaminated sites states that, in general, at least 70% recovery should be achievable from a reference method. Additionally, standard methods prepared by international agencies such as the US EPA and APHA, frequently have performance data such as expected spike recovery incorporated within the method. Where these vary from the 70% figure indicated in the NEPM Schedule, they are noted in the discussion of results which follows this introduction.

Based on the above, Coffey Environments has adopted 70% - 130% as the default acceptable range for spike recovery and surrogates spike recovery results, and as the default acceptance limits for the difference between analysis results and the expected result for reference materials.

2. FIELD QA PROGRAM

A QA assessment of the field procedures is provided in Table 2 below.

Table 2 – Field QA

Item	Quality objective	Comment
Procedures	Compliance of field activities with Coffey SOP	Fieldworks conducted according to Coffey SOP
Calibration of field instruments	Instruments calibrated by qualified technician and checked in the field.	Calibration certificates and field records provided in Appendix G.
COC documentation	COC documentation completed.	COC provided in Appendix C.
Sampling holding time	All samples extracted and analysed within recommended holding times.	All samples were analysed within holding times

2 SOIL SAMPLING QC PROGRAMME

2.1 Field Quality Control Programme

As noted in Section 1.2, precision of the sample collection, transport and analysis process is measured by the relative percent difference (RPD) between duplicate results. The following section assesses the adequacy of this process.

Number of Days of Sampling: 2 days

Number of Primary Samples Analysed: 30

Table 3 – Sampling Event Summary

Date Sampled	Primary Sample	Duplicate Sample	Triplicate Sample	COC
13/05/2015	BH8_0.1	QC1	QC1A	457842
29/05/2015	Location of MW04_3.0m	QC5	QC5A	459646

A summary of the number and type of QC samples collected is presented in Table 4.

Table 4 – QC Sample Summary

Type of QC Samples	No. of Samples
Field Duplicates (at least 1 in 20 samples)	2 intra lab + 2 inter lab
Trip Blanks (at least 1/ sampling event)	1
Rinsate Blanks (at least 1/ sampling day)	1

2.1.1 Field Duplicates

The adequacy of the field duplicate sampling program for soil is summarised in Table 5.

Table 5 – Field Duplicate Sample Adequacy

	Yes	No (comment below)	Not Applicable
A. Was an adequate number of field duplicates analysed	☒	☐	☐
B. Were RPDs within Control Limits?			
a. Organics	☐	☒	☐
b. Metals/inorganics	☐	☒	☐

Two RPD results were outside the acceptable range; sampling procedures, laboratory analytical methods and laboratory results were investigated. The results of this review are presented in Table 6 below.

Table 6 – Soil RPDs outside Acceptable Range

Sampling Date	Primary Sample (ALS)	Duplicate/ Triplicate Sample	Laboratory	Analyte	RPD %
13/05/2015	BH8_0.1	QC1	Eurofins	zinc	32
13/05/2015	BH8_0.1	QC1A	ALS	Pyrene	92
13/05/2015	BH8_0.1	QC1A	ALS	Total PAHs	76

A detailed review of analytical results with RPD exceedances indicated that the unacceptable result is attributed to the heterogeneous nature of soil, and this heterogeneity can give rise to RPD exceedances. These results are not considered to compromise the integrity of the analytical results.

Comments:

RPD values outside the acceptable range can be attributed to heterogeneity of the sample, and the variations in RPDs can be associated with the distribution of the soil matrix.

98% of all replicate sample results gave an RPD value within the acceptable range.

Equipment Rinsates and Trip Blanks

The adequacy of the equipment rinsates and trip blank sampling program for soil is summarised in Table 7.

Table 7 –Trip Blank Sample Adequacy

	Yes	No (Comment below)
A. Was an adequate number of Trip Blanks collected?	☐	☒
B. Were the Trip Blanks free of contaminants?	☒	☐

Comments: A trip blank was prepared and analysed for one day of soil investigation. The results indicated that no analyte was detected in the sample indicating that transport procedures followed during the field works had been adequate.

2.1.2 Rinsate Blanks

The adequacy of the rinsate blank sampling program for soil is summarised in Table 8.

Table 8 – Rinsate Blank Sample Adequacy

	Yes	No (Comment below)
A. Was an adequate number of Rinsate Blanks collected?	☒	☐
B. Were the Rinsate Blanks free of contaminants?	☒	☐

Comments: A rinsate blank was prepared and analysed for one day of soil investigation. The results indicated that no analyte was detected in the sample indicating that decontamination procedures followed during the field works had been adequate.

2.1.3 Overall Field QC Sample

The adequacy of the overall field QC sampling program for soil is summarised in Table 9.

Table 9 – Overall Field QC Sample Adequacy

	Yes	No
Field QC was:	☒ Satisfactory	☐ Unsatisfactory
	☐ Partially Satisfactory	

2.2 Laboratory Quality Control Procedures

As noted in Section 1.3, laboratories conduct their own quality control testing to indicate their performance on each reported batch of samples. The following section assesses the adequacy of these procedures.

Table 10 – Summary Laboratory QC Samples

	Count of Samples
Laboratory Method Blanks (at least 1 per batch)	19
Laboratory Duplicates (at least 1 per batch or 1 per 10 samples whichever is the smaller)	13
Matrix Spikes/Matrix Spike Duplicates (1 for each soil type)	17
Laboratory Control Sample	18

2.2.1 Laboratory Duplicates

The adequacy of the field duplicate sampling program for soil is summarised in Table 11.

Table 11 – Laboratory QC Sample Summary

	Yes	No (Comment below)
Were the laboratory blanks/reagents blanks free of contamination?	☒	☐
Were the spike recoveries within control limits? a. Organic compounds except phenols (60% - 110%)	☒	☐
Were the RPDs of the laboratory duplicates within control limits?	☒	☐

Comments: Nil

2.2.2 Overall Internal Laboratory QC Sampling Program

The adequacy of the internal laboratory QC sampling program for soil is summarised in Table 12.

Table 12 – Overall Internal Laboratory QC Summary

	Yes	No
The laboratory internal QC was:	☒ Satisfactory	☐ Unsatisfactory
	☐ Partially Satisfactory	

3 GROUNDWATER SAMPLING QC PROGRAMME

3.1 Field Quality Control Programme

As noted in Section 1.2, precision of the sample collection, transport and analysis process is measured by the relative percent difference (RPD) between duplicate results. The following section assesses the adequacy of this process.

Number of Days of Sampling: 2 days

Number of Primary Samples Analysed: 4

Table 13 – Sampling Event Summary

Date Sampled	Primary Sample	Duplicate Sample	Triplicate Sample	COC
15/05/2015	MW2	DUP01	-	457829
2/06/2015	MW4	-	QC8	851

A summary of the number and type of QC samples collected is presented in Table 14.

Table 14 – QC Sample Summary

Type of QC Samples	No. of Samples
Field Duplicates (at least 1 in 20 samples)	1 intra lab + 1 inter lab
Trip Blanks (at least 1/ sampling event)	1
Rinsate Blanks (at least 1/day)	1

3.1.1 Field Duplicates

The adequacy of the field duplicate sampling program for groundwater is summarised in Table 15.

Table 15 – Field Duplicate Sample Adequacy

	Yes	No (comment below)	Not Applicable
A. Was an adequate number of field duplicates analysed	☒	☐	☐
B. Were RPDs within Control Limits?			
a. Organics	☐	☒	☐
b. Metals/inorganics	☒	☐	☐

Where RPDs were outside the acceptable range, sampling procedures, laboratory analytical methods and laboratory results were investigated. The results of this review are presented in Table 16.

Table 16 – Groundwater RPDs outside Acceptable Range

Sampling Date	Primary Sample (ALS)	Duplicate/ Triplicate Sample	Laboratory	Analyte	RPD %
2/06/2015	MW4	QC8	ALS	TRH C6-C10 less BTEX (F1)	37
2/06/2015	MW4	QC8	ALS	TRH C6-C10	37
2/06/2015	MW4	QC8	ALS	TRH C6 - C9	37

A detailed review of analytical results with RPD exceedances indicated that all unacceptable results can be attributed either to low analyte concentrations that have exaggerated the percentage differences with respect to small total concentration differences, or to variability of samples in the case where the TRH concentrations were greater than the analytes solubility.

Comment:

RPD values outside the acceptable range can be attributed to one or more of the reasons outline above.

98% of all replicate sample results gave an RPD value within the acceptable range.

3.1.2 Trip Blanks

The adequacy of the trip blank sampling program for soil is summarised in Table 17.

Table 17 – Trip Blank Sample Adequacy

	Yes	No (Comment below)
A. Was an adequate number of Trip Blanks collected?	☐	☒
B. Were the Trip Blanks free of contaminants?	☒	☐

Comments: A trip blank was prepared and analysed for one day of soil investigation. The results indicated that no analyte was detected in the sample indicating that transport procedures followed during the field works had been adequate.

3.1.3 Rinsate Blanks

The adequacy of the rinsate blank sampling program for soil is summarised in Table 18.

Table 18 – Rinsate Blank Sample Adequacy

	Yes	No (Comment below)
A. Was an adequate number of Rinsate Blanks collected?	☐	☒
B. Were the Rinsate Blanks free of contaminants?	☒	☐

Comments: A rinsate blank was prepared and analysed for one day of soil investigation. The results indicated that no analyte was detected in the sample indicating that decontamination procedures followed during the field works had been adequate.

3.1.4 Overall Field QC Sample

The adequacy of the overall field QC sampling program for groundwater is summarised in Table 19.

Table 19 – Overall Field QC Summary

	Yes	No
The Field QC was:	☒ Satisfactory	☐ Unsatisfactory
	☐ Partially Satisfactory	

3.2 Laboratory Quality Control Procedures

As noted in Section 1.3, laboratories conduct their own quality control testing to indicate their performance on each reported batch of samples. The following section assesses the adequacy of these procedures.

Table 20 – Summary Laboratory QC Samples

	Count of Samples
Laboratory Method Blanks (at least 1 per batch)	22
Laboratory Duplicates (at least 1 per batch or 1 per 10 samples whichever is the smaller)	8
Matrix Spikes/Matrix Spike Duplicates (at least 1 per batch or 1 per 10 samples whichever is the smaller)	7
Laboratory Control Sample	26

3.2.1 Laboratory Duplicates

The adequacy of the field duplicate sampling program for soil is summarised in Table I21.

Table 21 – Laboratory QC Sample Summary

	Yes	No (Comment below)
Were the laboratory blanks/reagents blanks free of contamination?	☒	☐
Were the spike recoveries within control limits? b. Organic compounds except phenols (60% - 110%)	☒	☐
Were the RPDs of the laboratory duplicates within control limits?	☒	☐

Comments:

Overall a 100% pass rate was reported for laboratory quality control procedures.

3.2.2 Overall Internal Laboratory QC Sampling Program

The adequacy of the internal laboratory QC sampling program for groundwater is summarised in Table 22.

Table 22 – Overall Internal Laboratory QC Summary

	Yes	No
The laboratory internal QC was:	☒ Satisfactory	☐ Unsatisfactory
	☐ Partially Satisfactory	

4 SOIL VAPOUR SAMPLING QC PROGRAMME

4.1 Field Quality Control Programme

As noted in Section 1.2, precision of the sample collection, transport and analysis process is measured by the relative percent difference (RPD) between duplicate results. The following section assesses the adequacy of this process.

Number of Days of Sampling: 1 days

Number of Primary Samples Analysed: 2

Table 13 – Sampling Event Summary

Date Sampled	Primary Sample	Duplicate Sample	Triplicate Sample	COC
15/05/2015	Sv01	-	-	9680

15/05/2015	Sv02	-	-	9678

A summary of the number and type of QC samples collected is presented in Table 14.

Table 14 – QC Sample Summary

Type of QC Samples	**No. of Samples**
Field Duplicates (at least 1 in 20 samples)	0 intra lab + 0 inter lab
Trip Blanks (at least 1/ sampling event)	0
Rinsate Blanks (at least 1/day)	0

4.1.1 Field Duplicates

The adequacy of the field duplicate sampling program for soil vapour is summarised in Table 15.

Table 15 – Field Duplicate Sample Adequacy

	Yes	No (comment below)	Not Applicable
B. Was an <u>adequate number</u> of field duplicates analysed	☐	☒	☐
B. Were RPDs within Control Limits?			
a. Organics	☐	☐	☒
b. Metals/inorganics	☐	☐	☒

Where RPDs were outside the acceptable range, sampling procedures, laboratory analytical methods and laboratory results were investigated. The results of this review are presented in Table 16.

Table 16 – Soil vapour RPDs outside Acceptable Range

Sampling Date	Primary Sample (ALS)	Duplicate/ Triplicate Sample	Laboratory	Analyte	RPD %
-	-	-	-	-	-

Comment: No duplicate or triplicate sample was analysed.

4.1.2 Trip Blanks

The adequacy of the trip blank sampling program for soil is summarised in Table 17.

Table 17 – Trip Blank Sample Adequacy

	Yes	No (Comment below)
A. Was an <u>adequate number</u> of Trip Blanks collected?	☐	☒
B. Were the Trip Blanks free of contaminants?	☐	☐

Comments: Trip blank were not analysed as part of this investigation.

4.1.3 Overall Field QC Sample

The adequacy of the overall field QC sampling program for groundwater is summarised in Table 19.

Table 19 – Overall Field QC Summary

	Yes	No
The Field QC was:	☒ Satisfactory	☐ Unsatisfactory
	☐ Partially Satisfactory	

4.2 Laboratory Quality Control Procedures

As noted in Section 1.3, laboratories conduct their own quality control testing to indicate their performance on each reported batch of samples. The following section assesses the adequacy of these procedures.

Table 20 – Summary Laboratory QC Samples

	Count of Samples
Laboratory Method Blanks (at least 1 per batch)	2
Laboratory Duplicates (at least 1 per batch or 1 per 10 samples whichever is the smaller)	2
Matrix Spikes/Matrix Spike Duplicates (at least 1 per batch or 1 per 10 samples whichever is the smaller)	2
Laboratory Control Sample	2

4.2.1 Laboratory Duplicates

The adequacy of the field duplicate sampling program for soil is summarised in Table I21.

Table 21 – Laboratory QC Sample Summary

	Yes	No (Comment below)
Were the laboratory blanks/reagents blanks free of contamination?	☒	☐
Were the spike recoveries within control limits? c. Organic compounds except phenols (60% - 110%)	☒	☐
Were the RPDs of the laboratory duplicates within control limits?	☒	☐

Comments:

Overall a 100% pass rate was reported for laboratory quality control procedures.

5 CONCLUSION

5.1 Data Usability

1. Data Directly Usable ☒
2. Data Usable with the following corrections/modifications (see comment below) ☐
3. Data Not Usable. ☐

5.2 Data Quality

Coffey Environments considers that the quality control procedures and results were acceptable for the purposes of this investigation.

QA/QC Report Prepared by Daniel Guille

QA/QC Report Reviewed by: Sam Gunasekera
(Reviewer)

Appendix E – Investigation Criteria

1.1. Acceptable criteria for soil

The assessment criteria were adopted from residential soil investigation levels published in:

- Schedule B1 'Guideline on the Investigation Levels for Soil and Groundwater' of the National Environment Protection (Assessment of Site Contamination) Amendment Measure (NEPC, 1999 amended 2013); and
- CRC Contamination Assessment and Remediation of the Environment (CRC CARE) Technical Report No. 10: Health Screening Levels for Petroleum Hydrocarbons in Soil and Groundwater (2011).

The validation criteria adopted from these guidelines were drawn from the first reference, except as noted:

- Table 1A (1) – Health-based Investigation Levels (HILs) for residential land uses (HIL B);
- Table 1A (3) – Soil Health Screening levels (HSLs) for vapour intrusion for residential land uses (HSL A&B);
- Table B3 – Soil Health Screening Levels for Vapour Intrusion (Intrusive Maintenance Worker – shallow trench) (CRC CARE, 2011), depth 0m to <2m;
- Table B4 – Soil Health Screening levels for Direct Contact (HSL-A&B and Intrusive Maintenance Worker) (CRC CARE, 2011);
- Table 1B (7) – Management Limits for TPH Fractions F1 to F4 for fine soil;

The rationale for the selection of these guidelines is discussed in the following sections. The adopted validation criteria for this site are listed in Tables 4.1 to 4.7.

i. Human Health Criteria

For assessing contamination levels in soil in urban settings, the amended ASC NEPM presents health based investigation levels (HILs) and health screening levels (HSLs) for a range of exposure settings (e.g. industrial/commercial, residential, recreational etc).

The site is proposed to be relinquished for possible residential land use. Contaminant concentrations, excluding TRH, BTEX and naphthalene, will be assessed against the health investigation levels (HILs) applicable to "Residential" land use (HIL-A) from the amended ASC NEPM. TRH, BTEX and naphthalene concentrations will be assessed against the soil health screening levels (HSLs) for vapour intrusion from the relevant depth and soil matrix applicable to "Residential" land use (HSL-A) and from the amended ASC NEPM.

The HILs for heavy metals, PAHs and phenols in soils are summarised in Table 1.1.

Table 1.1: Summary of Health Investigation Levels

Analyte	HIL-B for Residential Land Use (mg/kg)
Arsenic (total)	500
Cadmium	150
Chromium (VI)	100
Copper	30,000
Lead	1,200
Mercury (inorganic)	120
Nickel	1,200

Zinc	760,000
Carcinogenic PAHs (as B(a)P TEQ)[1]	4
Total PAHs	400

1. Health Investigation Level is based on eight carcinogenic PAHs and their Toxic Equivalent Factor (TEF) which represents their toxicity relative to benzo(a)pyrene. The TEQ is calculated by multiplying the concentrations of each carcinogenic PAH compound in the sample by its TEF.

The Residential HSLs (HSL A & B) for TRH, BTEX and naphthalene in soils are summarised in Table 1.2. Based on the consistency of shallow soils observed during the works, the HSLs for sandy soils have been adopted.

Table 1.2: Summary of Residential Health Screening Levels in Soils

Chemical	HSL-A & B – Residential (mg/kg)				HSL-B (mg/kg)
	Vapour Intrusion (for sandy soils)				Direct contact
	0m to <1m bgs	1m to <2m bgs	2m to <4m bgs	>4m bgs	
Toluene	160	220	310	540	21,000
Ethylbenzene	55	NL	NL	NL	5,900
Xylenes	40	60	95	170	17,000
Naphthalene	3	NL	NL	NL	2,200
Benzene	0.5	0.5	0.5	0.5	140
TRH C_6-C_{10} minus BTEX(F1)	45	70	110	200	5,600
TRH >C_{10}-C_{16} minus naphthalene (F2)	110	240	440	NL	4,200
TRH >C_{16}-C_{34}	NA	NA	NA	NA	5,300
TRH >C_{34}-C_{40}	NA	NA	NA	NA	8,100

Notes:
NL: non-limiting (i.e. contaminant is not considered to pose a risk to human health through vapour inhalation regardless of concentration).
NA: not applicable because compounds are considered not to provide a complete exposure pathway due to low volatility.

The HSLs were first published by Friebel & Nadebaum (2011) and included HSLs for intrusive maintenance workers in a shallow (not more than 1.5m deep) trench (inhalation of volatile vapours) and for risks to maintenance workers from dermal contact with contaminated soils. These HSLs are not included in the amended ASC NEPM, however, the HSLs for these exposure scenarios have been adopted because they were derived for Australian conditions by appropriately qualified professionals using a reasonable scientific approach and were subject to independent peer review. A HSL Application Checklist is presented in Appendix D, the HSLs for sandy soils have been adopted, these are summarised in Table 1.3.

Table 1.3: Summary of Intrusive Maintenance Worker Health Screening Levels in Soils

Chemical	HSL – Intrusive Maintenance Worker (mg/kg)	HSL - Intrusive Maintenance Worker (mg/kg)
	Vapour Intrusion (for sandy soils)	Direct Contact
	0m to <2m bgs	
Toluene	NL	120,000
Ethylbenzene	NL	85,000
Xylenes	NL	130,000
Naphthalene	NL	29,000
Benzene	77	1,100
TRH C_6-C_{10} minus BTEX(F1)	NL	82,000
TRH >C_{10}-C_{16} minus naphthalene (F2)	NL	62,000
TRH >C_{16}-C_{34}	NA	85,000
TRH >C_{34}-C_{40}	NA	120,000

Notes:
NL: non-limiting (i.e. contaminant is not considered to pose a risk to human health through vapour inhalation regardless of concentration).
NA: not applicable because compounds are considered not to provide a complete exposure pathway due to low volatility.

Asbestos in soil samples, if identified, was assessed against the HSLs for asbestos contamination in soil presented in the amended NEPM applicable to “Residential” land use (HSL-B).

The HSLs for asbestos contamination in soil are summarised in Table 1.4.

Table 1.4: Summary of Health Screening Levels for Asbestos in Soil

Chemical	HSL (Commercial / Industrial) (w/w)
Bonded ACM	0.01%
FA and AF	0.001%
All forms of asbestos	No visible asbestos in surface soils

ACM: asbestos containing material
FA: fibrous asbestos
AF: asbestos fines

ii. Management limits

The purpose of the Management Limits is to “avoid or minimise” potential effects of petroleum hydrocarbons. Schedule B1 in the amended ASC NEPM provides these as an interim Tier 1 guidance to manage effects of:

- Formation of observable light non-aqueous phase liquid (LNAPL);

- Fire and explosive hazards; and
- Effects on buried infrastructure.

The application of the management limits requires the consideration of site-specific factors such as the depth of building services and depth to groundwater, to assess the maximum depth to which the limits should apply.

Management limits were derived by Canada-Wide Standard for Petroleum Hydrocarbons (CWS-PHC) in Soil (2008) where the lowest limiting value for each effect became the Recommended Management Limit. These recommended Management limits have been used as initial screening criteria to assess these potential risks where residual concentrations of TRH remain.

The Management Limits for TRH in coarse soils have been adopted, these are summarised in Table 4.7, below.

Table 1.7: Management Limits for TRH in Soil

Chemical	Management Limits (for coarse grained soils) (mg/kg)
TRH C_6-C_{10} – BTEX (F1)	700
TRH >C_{10}-C_{16} – naphthalene (F2)	1,000
TRH >C_{16}-C_{34} (F3)	2,500
TRH >C_{34}-C_{40} (F4)	10,000

1.1.1. Assessment of impact to groundwater from residual soil contamination

Whilst the adopted soil remediation criteria are considered appropriate for the mitigation of potential risks to human health and plants, residual concentrations of soil contamination below the soil remediation criteria have the potential to present an on-going source of impact to groundwater.

This issue has been addressed through assessment of groundwater quality after completion of soil remediation works.

1.2. Acceptance criteria for groundwater

To assess potential impacts to groundwater quality, investigation levels (ILs) are selected from published criteria for beneficial use of groundwater and potential environmental impact.

1.2.1. Assessment of environmental values

The NSW EPA Guidelines for the Assessment and Management of Groundwater Contamination (NSW DEC, 2007) describes the process to identify environmental values which must be considered in groundwater investigations at contaminated sites. Based on these guidelines, assessment of relevant environmental values requires that the consultant:

Determines whether the aquifer beneath the site is included in the NSW Office of Water list of major aquifers of drinking water quality;

Assesses the identified uses of groundwater from the aquifer; and

Use groundwater quality indicators to assess whether the aquifer is suitable for use as a possible drinking water resource. The NSW EPA has stated that, “Groundwater with total dissolved solids (TDS) concentrations below 2,000 mg/L is suitable for potential drinking water supply, and hence should be afforded this level of protection from contamination unless other site-specific factors, such as low yield, render such use unlikely.” (DEC, 2007).

Based on these steps, Coffey identified that:

The listed Water Sharing Plans do not include the area of the site. The site is not listed as situated in an Unincorporated Area Groundwater Management Area (GMU). This GMU is not considered to be part of the NSW Office of Water list of protected aquifers as an actual or potential drinking water supply (NSW DEC, 2007).

- The closest potential exposure point to groundwater contamination is considered to be Port Stephens located approximately 450m to the north of the site. Port Stephens supports marine water ecosystems and is used for recreational purposes.

Electrical conductivity and TDS readings from onsite suggest groundwater is relatively fresh however due to the limited catchment area for recharge to the aquifer beneath the site and the readily available reticulated water in the area it is considered unlikely that groundwater beneath the site will be used for drinking water purposes.

Based on the above, Coffey consider that the principal receptor from groundwater beneath the site is the marine waters of Port Stephens. Consequently, environmental values for groundwater quality are for protection of Marine water aquatic species and recreational use.

1.2.2. Adopted groundwater acceptance criteria

Protection of Aquatic Ecosystems

Groundwater investigation levels are provided in Table 1C in Schedule B1 of the amended ASC NEPM. Where values are not listed in Table 1C, investigation levels presented in the ANZECC (2000) guidelines are considered applicable for ecological based values.

ANZECC (2000) advocates a site-specific approach to developing guideline trigger values based on such factors as local biological affects data, the current level of disturbance of the ecosystem etc. The guidelines present ‘low risk guidelines trigger values’ which are defined as concentrations of key performance parameters below which there is a low risk that adverse biological effects will occur. It is important to note that these are not threshold values at which an environmental problem is likely to occur if exceeded. Rather, if the trigger values are exceeded, then further action is required which may include either further site-specific investigations to assess whether or not there is an actual problem or management / remedial action.

Low risk trigger values are provided for the protection of 80-99% of species in marine water (presented in Table 3.4.1 of the guidelines), with the trigger value depending on the ‘health’ of the receiving waters.

It is considered that the marine water trigger values are applicable for investigating chemical concentrations in groundwater leaving the investigation area, as the receiving body (Port Stephens) is Marine.

NSW EPA’s policy is that the trigger values for the protection of 95% of aquatic ecosystems should be used except where contaminants are potentially bioaccumulative in which case the trigger values for protection of 99% of species should be used. Therefore, we have selected trigger values for protection of 95% of marine water species for the majority of contaminants, and 99% of marine water species for bioaccumulative contaminants for initial comparison purposes.

ANZECC (2000) states that there is currently insufficient data to derive high reliability trigger values for various contaminants. For these contaminants, low reliability trigger values have been adopted.

ANZECC (2000) state that there is currently insufficient data to derive a high reliability or low reliability trigger value for TPH. It is understood that the position of NSW EPA is that there should be no phase separate hydrocarbon on the groundwater and that the aromatic component (BTEX and VOC) concentrations should be at concentrations less than the respective ANZECC (2000) trigger values in the receiving waters relevant to the site.

Land Use – Human Health

For protection of human health, TRH, BTEX and naphthalene concentrations will also be screened against the Groundwater HSLs for potential vapour intrusion from the relevant depth and soil matrix applicable to "Low-high Density Residential" land use (HSL A) from the amended ASC NEPM.

The HSLs for TRH, BTEX and naphthalene in groundwater are summarised in Table 4.9. Based on the in-situ natural subsurface conditions, the HSLs for sandy soils have been adopted.

Table 1.9: Summary of HSLs for Residential in Groundwater

Chemical	HSL A & B – Residential (for sandy soils, 2mbgs) (µg/L)
Toluene	NL
Ethylbenzene	NL
Xylenes	NL
Naphthalene	NL
Benzene	780
TRH C_6-C_{10} – BTEX (F1)	980
TRH >C_{10}-C_{16} – naphthalene (F2)	1,100

NL: non-limiting where PSH is absent (i.e. contaminant is not considered to pose a risk to human health).

The HSLs for intrusive maintenance workers in a shallow (not more than 1.5m deep) trench (inhalation of volatile vapours). has also been adopted. An HSL Application Checklist is presented in Appendix D. Where PSH is absent, concentrations for BTEX, naphthalene, and F1 and F2 TRH fractions in groundwater (greater than 2m depth) are not limiting in sandy soils as the contaminants are considered not to pose a risk to human health of intrusive maintenance workers via vapour inhalation.

1.3. Aesthetic criteria

As well as potential human health and ecosystem risks posed by residual contamination, the aesthetic quality of soil and groundwater was also considered when selecting acceptance criteria for the site.

Currently, criteria for aesthetics with regard to soil and / or groundwater contamination are subjective and are generally limited to soil odour, texture (grease, cementation) and appearance (staining or other abnormal coloration) and presence of foreign materials. The Guidelines for the NSW Site Auditor Scheme (2nd edition) (DECC, 2006) state that for residential sites with gardens and accessible soil, Auditors must check that "aesthetic issues have been considered in the assessment of contamination, including the generation of odours from the site and any discolouration of the soil as a result of contamination".

Furthermore, Section 3.6 of Schedule B1 of the amended ASC NEPM provides guidance on assessment of aesthetics and states that the following characteristics or presentations are examples of where site assessment may not have detected chemical contamination above investigation or screening levels but where further assessment would be required:

highly malodorous soils or extracted groundwater (e.g. strong residual petroleum hydrocarbon odours, hydrogen sulphide in soil or extracted groundwater, organosulfur compounds);

hydrocarbon sheen on surface water;

discoloured chemical deposits or soil staining with chemical waste other than of a very minor nature;

large monolithic deposits of otherwise low-risk material, e.g. gypsum as powder or plasterboard, cement kiln dust;

presence of putrescible refuse including material that may generate hazardous levels of methane such as a deep-fill profile of green waste or large quantities of timber waste; and / or

soils containing residue from animal burial (e.g. former abattoir sites).

The approach used by Coffey is to ask what a reasonable person who is a future owner or occupier of the land would expect. Aesthetic qualities of soil include colour, consistency, similarity to surrounding natural soil, odour, sheen and inclusion of foreign objects. Aesthetic qualities of groundwater include colour, turbidity, odour and sheen.

While aesthetic observations are subjective, Coffey considers that discolouration, offensive odour from the soil or if there are obvious components of waste such as building rubble, slag, bagged waste or similar, has potential for aesthetic impairment and further assessment and / or consideration may be warranted. The proposed remediation standard and whether an aesthetic concern is reasonably likely to impact future use of the land must also be considered.

Coffey has applied the following criteria with regard to the potential for aesthetic issues and assessment of the suitability of soils for reuse onsite with regards to aesthetics:

Foundations would be reasonably expected to be constructed in the upper 1-1.5m of the soil profile (below original or likely proposed ground surface). No offensive odour should be present in the soil in the upper 1.5m. Odours associated with contamination (e.g. petrol, diesel, solvent odours) should not be apparent in a newly cut trench, surface scrape or from the ground surface, in soils forming the upper 1.5m below ground surface. PID readings in ambient air below detection limit, in conjunction with olfactory assessment by the Coffey site supervisor, will also be used to confirm the absence of odours where volatile contamination such as petrol was present in soils prior to remediation.

Appendix F – Details of soil, groundwater and soil vapour sampling procedures

1.1. Soil sampling methodology

The soil sampling methodology is summarised in Table 1.1

Table 1.1: Soil Sampling Methodology

Activity	Detail / Comments
Soil Sampling	Sampling was carried out in general accordance with the Coffey's SOPs which are based on current industry practice and relevant guidelines and Australian standards. Soil validation samples were collected using either the hand auger, the auger of the drill rig or directly by hand. Samples collected using the hand auger were collected as hand grab samples from the middle of the auger to reduce the potential for cross-contamination from soil adhered to the walls of the auger. Disposable nitrile gloves were changed between each soil sample collected to eliminate cross-contamination.
Decontamination of sampling equipment	For sampling where a hand auger was used, the equipment was decontaminated between locations using a phosphate-free detergent and potable water.
Soil Screening	Soils were assessed for potential aesthetic impacts (staining and/or odours) at sampling locations and at depths where deemed necessary. Sample headspace was screened for volatile contaminants by placing a portion of sample inside a zip-lock plastic bag and screening with a Photoionisation Detector (PID) which was calibrated daily with 100ppm isobutylene calibration gas.
Sample Handling and Transportation	Sample storage and transport were consistent with Coffey's SOP. Samples were immediately placed into laboratory supplied glass jars with Teflon lined seal to minimise volatile loss and placed into an esky containing ice. Samples were dispatched to NATA accredited laboratories (Eurofins MGT as the primary laboratory and ALS as the secondary laboratory) under chain of custody control (COC records are provided in Appendix C). Samples were sent to the primary laboratory via courier. The ice in the eskies was replenished to ensure the samples remained chilled prior to arrival at the laboratory. Triplicate samples were generally transported from the primary laboratory to the secondary laboratory using registered couriers, under chain of custody control.
Soil Laboratory Analysis	Soil samples were scheduled for laboratory analysis in general accordance with the RAP and COPCs for the site, as summarised below: • Samples (fill material) – heavy metals (As, Cd, Cr, Cu, Pb, Hg, Ni and Zn), total recoverable hydrocarbons (TRH), benzene, toluene, ethylbenzene and xylene (BTEX), polycyclic aromatic hydrocarbons (PAH), phenols, organochlorine pesticides (OCP), polychlorinated biphenyls (PCBs), total organic carbon (TOC), asbestos, electro-conductivity (EC), pH and/or cation exchange capacity (CEC).

1.2. Groundwater sampling methodology

The groundwater monitoring methodology for the post-remediation Groundwater Monitoring Events (GMEs) was generally consistent with Coffey's SOPs for groundwater monitoring well gauging and groundwater sampling and is summarised in Table 1.2.

Table 1.2: Groundwater Monitoring Methodology

Activity	Detail / Comments
Well Gauging	Monitoring wells were gauged using an oil/water interface probe (IP) with depth to water measured from top of well casing. Well gauging results are presented in Table 6.
Well Purging	Groundwater was removed from each groundwater monitoring well using a bailer. Measurement of water quality parameters was conducted using a water quality meter. Purging continued until the groundwater monitoring well produced water which was representative of formation water, as indicated by three consecutive readings meeting the following stabilisation criteria: • +/- 10 % Dissolved Oxygen (DO) • +/- 0.2 ^{o}C Temperature • +/- 10 mV Redox Potential • +/- 3 % Electrical Conductivity (specific conductance) • +/- 0.1 unit for pH. Field purging data is summarised in Table 6 attached.
Sampling Method	Groundwater sampling was conducted following the stabilisation of groundwater parameters or until the well became dry. A bailer was used to obtain groundwater samples. Sample collection, storage and transport were conducted according to Coffey SOP.
Decontamination Procedure	Water sampling equipment (i.e. IP and water quality meter) was decontaminated with a solution of approximately 5% laboratory grade detergent (Decon90) in water and rinsed with deionised water between wells.
Sample Handling and Transportation	Sample storage and transport complied with Coffey's SOP. Samples were placed in laboratory supplied bottles with appropriate preservatives and zero headspace for samples for volatiles analysis. Sample containers were immediately capped and placed in an esky with ice. The samples were dispatched to NATA accredited laboratories (Eurofins MGT) as the primary laboratory and ALS as the secondary laboratory) under chain of custody control for which records are provided in Appendix R. Triplicate samples were transported from the primary laboratory to the secondary laboratory using registered couriers, under chain of custody conditions.
Groundwater Laboratory Analysis	Groundwater samples were scheduled for laboratory analysis for one or more of the following COPCs: heavy metals (As, Cd, Cr, Cu, Pb, Hg, Ni and Zn), total recoverable hydrocarbons (TRH), benzene, toluene, ethylbenzene and xylene (BTEX), polycyclic aromatic hydrocarbons (PAH), phenols, organochlorine pesticides (OCP), polychlorinated biphenyls (PCBs).

1.3. Soil vapour sampling methodology

The soil vapour monitoring methodology was consistent with Coffey's SOPs for soil vapour monitoring and the protocols described in the CRC-Care Technical Report no. 23 '*Petroleum Hydrocarbon Vapour Intrusion Assessment: Australian Guidance'* (Wright, 2013). The methodology is summarised in Table 1.3 below.

Table 1.3: Soil Vapour Monitoring Methodology

Activity	Detail / Comments
Soil vapour bore construction	The sub-slab soil-vapour pins were installed as follows. • The sub-slab soil-vapour pins were installed using through the concrete salb using a drill rig. • The soil-vapour sample implant, which consists of a perforated stainless tube attached to ¼-inch Teflon tubing, was positioned at the base of the slab. The Teflon tubing connects the soil-vapour implant to the surface. • The non-permeability of the seal around the sub-slab vapour pin was tested using water. • The Teflon tubing was capped at the surface to prevent air exchange sub-slab soil-vapour pins.
Equilibration time	The sub-slab soil-vapour pins were installed on 15 May 2015. Given the minimum intrusion into the sub-slab material during the installation, the volume of air introduced into the vadose zone around the soil vapour pin by the drilling method and the installation process was considered to be minimal.
Purging	A minimum volume of 6 L of air was purged from each location. This volume was estimated to be equal or greater than three times the dead space of the Teflon tubing, soil vapour probe and sampling equipment and surroundings of the soil vapour pin was purged from each location prior to sampling.
Sample collection media	Sample collection was conducted using a 1L Restek Silcocan®. Each canister was cleaned, individually certified and evacuated by the supplying laboratory (ALS). The canisters are individually numbered with a unique identifier and are sealed with a diaphragm valve and quick-connect valve. The canisters are considered to be appropriate for the collection of volatile organic compounds (VOCs) by the TOX-15 methodology.
Associated equipment	Each canister was supplied with a cleaned soil gas 'sampling train' which consisted of a flow restrictor to limit the sampling rate, a vacuum gauge to monitor the vacuum within the canister and a fitting to attach to the soil vapour bore. The flow restrictors were set to enable a flow rate of approximately 150mL/min. The soil gas sampling trains were all Siltek® treated and are considered to be appropriate for the collection of volatile organic compounds (VOCs) by the TOX-15 methodology.
Shut-in test	Prior to the collection of samples, the canisters were connected to the soil gas sampling train and the valves were opened, allowing the vacuum to equalise between the canister and the sampling train. After a short period the valves were closed and the vacuum was monitored in the sampling train for a period of two minutes to ensure no leaks were present. Canisters with a vacuum of less than 26 in.Hg were also considered to have leaked in transport and were not used.
Soil vapour collection	After the shut-in test was complete, the valves were re-opened to the sampling train and the initial canister vacuum was recorded on the field log sheet. The sampling

	train was then connected to the soil vapour bore and sample collection commenced. Sample collection was stopped when the canister vacuum reached a vacuum of 5 in.Hg (approximately 10 minutes). The final vacuum was recorded on the field log sheet and the canister valve was closed and disconnected from the sampling train. Duplicate samples were collected in series.
Leak testing	To assess for potential leaks in the installation of the sub-slab soil vapour pin, the set up was tested with water following the recommended procedure.
Laboratory Analysis	The soil vapour samples were analysed for: • Volatile Organic Compounds (VOCs) including BTEX compounds; • NEPM TPHs; and • Chlorinated hydrocarbons.

Appendix G – Field Calibration Documentation

RENTALS

Equipment Report - MINIRAE 3000 PID

This PID has been performance checked / calibrated* as follows:

Calibration	Actual Value	Reading	Pass?		
Zero – fresh air	0.0 ppm	0.0 ppm	☑		
Span – Isobutylene	100 ppm	100.2 ppm	☑		
Set Alarm limits to	High	100 ppm	Low	50 ppm	
Operations Check					

- ☑ Performance Check (pump, lamp, sensor & battery voltage check)
- ☑ Battery Charged ☑ Filters Check ☑ Spare battery Voltage (5.5v minimum) 6 V
- ☑ Electrical Safety Tag attached (AS/NZS 3760) Tag No: 109007 Valid to: 12/06/2015
- ☑ Bump test / Date: 01/06/2015

** Calibration gas traceability information is available upon request.*

Date: 01/06/2015 Checked by: MILENKO

Signed: [signature]

Please check that the following items are received and that all items are cleaned and decontaminated before return. A minimum $20 cleaning / service / repair charge may be applied to any unclean or damaged items. Items not returned will be billed for at the full replacement cost.

Sent	Returned	Item
☑	☐	MiniRae 3000 PID / Operational Check, plus Battery Voltage @ 100%
☑	☐	Lamp Voltage @ 11.7eV Compound Set to: ISOBUTYLENE C/factor: 1
☑	☐	Protective yellow rubber boot
☑	☐	Inlet probe (attached to PID)
☑	☐	Spare water trap filter(s) Qty 1
☑	☐	Charger 240V to 12V 500mA
☑	☐	Instruction Manual behind foam on the lid of case
☑	☐	Quick Guide Sheet behind foam on the lid of case
☑	☐	Spare Alkaline Battery Compartment with batteries
☑	☐	Inline Moisture trap Filter Guide Laminated
☒	☐	Calibration regulator & tubing (optional)
☑	☐	Carry Case
	☐	Check to confirm electrical safety (tag must be valid)
☐	☐	

Processors Signature/ Initials MS

Quote Reference	CS002726	Condition on return
Customer Ref		
Equipment ID	PID 3000-23	
Equipment serial no.	592914222	
Return Date	/ /	
Return Time		

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Oil / Water Interface Meter

Instrument Geotech Interface Meter (30M)
Serial No. 3909

Item	Test	Pass	Comments
Battery	Compartment	✓	
	Capacity	✓	
Probe	Cleaned/Decon.	✓	
	Operation	✓	
Connectors	Condition	✓	
		✓	
Tape Check	Cleaned	✓	
Connectors	Checked for cuts	✓	
Instrument Test	At surface level	✓	

Certificate of Calibration

This is to certify that the above instrument has been cleaned and tested.

Calibrated by: Joanna Wong

Calibration date: 28/05/2015

Next calibration due: 27/07/2015

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Equipment Certification Report – TPS 90FLT Water Quality Meter

This Water Quality Meter has been performance checked and calibrated as follows:

Sensor	Concentration	Span 1	Span 2	Traceability Lot #	Pass?
pH	pH 4.00 / pH 7.00	4.00 pH	7.00 pH	/	☑
Conductivity	12.88 mS/cm	0.00 mS/cm	12.88 mS/cm		☑
TDS	36 ppk	0.0 ppk	36.0 ppk		☑
Dissolved Oxygen	Sodium Sulphite / Air	0.00 ppm in Sodium Sulphite	9.00 ppm Saturation in Air		☑
Turbidity	360 NTU	0 NTU	360 NTU		☑
Redox (ORP)**	☑	Electrode operability test 240mV +/- 10%. Actual: 234 mV			

☑ Battery Status 7.4 (min 7.2V)
☑ Electrical Safety Tag attached (AS/NZS 3760)

☑ Temperature 20.9 °C
☑ Electrodes Cleaned and checked

Tag No: 000040

Valid to: 07/07/2015

Date: 12/05/2015

Signed: Don

Please check that the following items are received and that all items are cleaned and decontaminated before return. A minimum $30 cleaning / service / repair charge may be applied to any unclean or damaged items. Items not returned will be billed for at the full replacement cost.

Sent	Returned	Item
☑	☐	90FLMV Unit. Ops check/Battery status: 7.8
☑	☐	pH sensor with wetting cap, 5m
☑	☐	Conductivity/TDS/Temperature K=10 sensor, 5m
☑	☐	Dissolved oxygen YSI5739 sensor with wetting cap, 5m
☑	☐	Turbidity sensor, 5m
☑	☐	Power supply 240V to 12V DC 200mA
☑	☐	Instruction Manual
☑	☐	Quick Guide
☑	☐	Syringe with storage solution for pH and ORP sensors
☑	☐	Carry Case
☑	☐	Check to confirm electrical safety (tag must be valid)

Date: 13/05/2015

Signed: Don

TFS Reference	CS00~~2451~~ 2591	Return Date:	/ /
Customer Reference		Return Time:	
Equipment ID	90FLTSL	Condition on return:	
Equipment Serial No.	U8624		

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RENTALS

Equipment Certification Report – TPS 90FLMV Water Quality Meter

This Water Quality Meter has been performance checked and calibrated as follows:

Sensor	Concentration	Span 1	Span 2	Traceability Lot #	Pass?
pH	7.00H / pH 4.00	7.00 pH	4.00 pH	/	☑
Conductivity	12.88 mS/cm	0.00 mS/cm	12.88 mS/cm		☑
TDS	36 ppk	0.0 ppk	36.0 ppk		☑
Dissolved Oxygen	Sodium Sulphite / Air	0.00 ppm in Sodium Sulphite	9.03 ppm Saturation in Air		☑

Check only

Redox (ORP) *	Electrode operability test	240mV +/- 10%	229 mV		☑

* This meter uses an Ag/AgCl ORP electrode. To convert readings to SHE (Standard Hydrogen Electrode), add 199mV to the mV reading.

☑ Battery Status 7.4 (min 7.2V)
☑ Electrical Safety Tag attached (AS/NZS 3760)

☑ Temperature 20.9 °C
☐ Electrodes Cleaned and checked

Tag No: 109003

Valid to: 12/06/15

Date: 01/06/2015

Signed:

Please check that the following items are received and that all items are cleaned and decontaminated before return. A minimum $30 cleaning / service / repair charge may be applied to any unclean or damaged items. Items not returned will be billed for at the full replacement cost.

Sent	Returned	Item
☑	☐	90FLMV Unit. Ops check/Battery status: 7.7
☑	☐	pH sensor with wetting cap, 5m
☑	☐	Conductivity/TDS/Temperature K=10 sensor, 5m
☑	☐	Dissolved oxygen YSI5739 sensor with wetting cap, 5m
☑	☐	Redox (ORP) sensor with wetting cap, 5m
☑	☐	Power supply 240V to 12V DC 200mA
☑	☐	Instruction Manual
☑	☐	Quick Guide
☑	☐	Plastic container with storage solution for pH and ORP sensors
☑	☐	Carry Case
☑	☐	Check to confirm electrical safety (tag must be valid)

Date: 01/06/2015

Signed:

TFS Reference	CS902726	Return Date: / /	
Customer Reference		Return Time:	
Equipment ID	90FLMV51	Condition on return:	
Equipment Serial No.	S1649		

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