

Appendix M

Phase 1 and 2 Environmental Site Assessment



**Roads and Maritime Services
Environmental Site Assessment**

**WestConnex Enabling Works
Mascot, NSW**

**5th March 2014
43069 56464
JBS&G**



Roads and Maritime Services
Phase 1 and 2 Environmental Site
Assessment

WestConnex Enabling Works, Airport East
Precinct
Mascot, NSW

5th March 2014
43069- 56464
JBS&G

Table of Contents

List of Abbreviations	4
Executive Summary.....	6
1 Introduction and Background	8
1.1 Background	8
1.2 Objectives.....	8
1.3 Scope of Work.....	9
2 Site Condition & Surrounding Environment	10
2.1 Site Identification and Condition	10
2.2 Site Description	10
2.3 Surrounding Landuse	10
2.4 Topography.....	11
2.5 Hydrology.....	11
2.6 Geology	11
2.7 Hydrogeology.....	11
2.8 Acid Sulfate Soils	12
3 Site History.....	13
3.1 Aerial Photographs.....	13
4 Previous Investigations	15
4.1 Douglas Partners (DP 2008)	15
4.2 Parsons Brinckerhoff (PB 2011)	15
4.3 Roads and Maritime Services (2013)	16
5 Conceptual Site Model.....	18
5.1 Potential Areas of Environmental Concern.....	18
5.2 Potentially Contaminated Media.....	18
5.3 Potential for Migration	18
5.4 Potential Exposure Pathways.....	19
6 Sampling and Analysis Plan.....	20
6.1 Data Quality Objectives	20
6.1.1 State the Problem	20
6.1.2 Identify the Decision	20
6.1.3 Identify Inputs to the Decision.....	20
6.1.4 Define the Study Boundaries	21
6.1.5 Develop a Decision Rule.....	21
6.1.6 Specify Limits of Decision Error.....	21
6.1.7 Optimise the Design for Obtaining Data	23
6.2 Investigation Methodology.....	24
6.2.1 Soil Sampling Method	24
6.2.2 Groundwater Installation and Sampling Methodology	25
6.2.3 Field PID Screening.....	25
6.2.4 Decontamination	26
6.2.5 Duplicate and Triplicate Sample Preparation	26

6.3	Laboratory Analysis.....	26
7	Assessment Criteria	28
7.1	Regulatory and Technical Guidelines.....	28
7.2	Soil Criteria.....	28
7.3	Groundwater Criteria.....	30
8	Quality Assurance/ Quality Control	34
8.1	QA/QC Results.....	34
8.2	QA/QC Discussion	35
8.2.1	Precision.....	35
8.2.2	Accuracy.....	35
8.2.3	Representativeness.....	36
8.2.4	Comparability.....	37
8.2.5	Completeness.....	37
8.2.6	Sensitivity.....	37
8.3	QA/QC Assessment	37
9	Soil Results	38
9.1	Field Observations	38
9.2	Soil Analytical Results.....	38
9.2.1	Metals	38
9.2.2	TPH	38
9.2.3	BTEX	39
9.2.4	PAHs	39
9.2.5	OCPs and PCBs	39
9.2.6	Asbestos.....	39
9.2.7	Waste Classification and Toxicity Characteristic Leaching Procedure (TCLP).....	39
9.2.8	Acid Sulfate Soils	40
9.3	General Water Quality.....	40
9.4	Groundwater Analytical Results.....	41
9.4.1	Metals	41
9.4.2	TPH/BTEX	41
9.4.3	PAHs	41
10	Site Characterisation.....	42
10.1	Potential Risks to Future Onsite Receptors	42
10.2	Background Soil Concentrations.....	43
10.3	Chemical Mixtures	43
10.4	Aesthetics.....	43
10.5	Potential Migration of Contaminants	43
10.6	Site Management Strategy	43
11	Conclusions and Recommendations.....	44
11.1	Conclusions	44
11.2	Recommendations	45
12	Limitations.....	46

Figures

Figure 1 – Site Location

Figure 2 – Site Layout

Figure 3 – Sampling Locations

Figure 4 – Soil Exceedances

Tables

Table A – Soil Analytical Results - Metals & Metalloids

Table B – Soil Analytical Results - PAHs

Table C – Soil Analytical Results - PCBs, BTEX, Chlorinated Benzenes

Table D – Soil Analytical Results – TPHs & TRHs

Table E – Soil Analytical Results - OCPs

Table F – Soil Analytical Results – Asbestos

Table G – Groundwater Quality Data

Table H – Groundwater Analytical Results

Appendices

Appendix A – Photographic Log

Appendix B – Aerial Photographs

Appendix C – Borehole logs

Appendix D – Bore Licence

Appendix E - Laboratory Analytical Results

Appendix F – Groundwater Sheets

List of Abbreviations

A list of the common abbreviations used throughout this report is provided below.

ACM	Asbestos Containing Material
AHD	Australian Height Datum
As	Arsenic
bgs	below ground surface
BTEX	Benzene, toluene, ethylbenzene and xylenes
B(a)P	Benzo(a)pyrene
Cd	Cadmium
CSM	Conceptual site model
Cr	Chromium
Cu	Copper
DECCW	NSW Department of Environment, Climate Change and Water
DQIs	Data Quality Indicators
DQOs	Data Quality Objectives
EPA	NSW Environment Protection Authority
EIL	Ecological investigation level
ESL	Ecological screening level
ESA	Environmental Site Assessment
GPS	Ground Positioning System
Ha	Hectare
Hg	Mercury
HIL	Health based investigation level
HSL	Health based screening level
JBS&G	JBS&G (NSW & WA) Pty Ltd
LOR	Limit of Reporting
Ni	Nickel
NSW	New South Wales
OEH	Office of Environment and Heritage
OCP	Organochlorine Pesticides
PAHs	Polycyclic aromatic hydrocarbons
Pb	Lead
PCBs	Polychlorinated Biphenyls
PPE	Personal Protective Equipment
PQL	Practical Quantitation Limit
QA/QC	Quality Assurance/Quality Control
RMS	Roads and Maritime Services

RPD	Relative Percentage Difference
TPH	Total Petroleum Hydrocarbons
Zn	Zinc

Executive Summary

JBS&G (NSW & WA) Pty Ltd (JBS&G) was engaged by NSW Roads and Maritime Services (RMS) to conduct a Phase 1 and 2 contamination investigation for the proposed WestConnex enabling works, airport east precinct, located on and between Botany Road and General Holmes Drive, Mascot, NSW (the site). The site location and layout is shown on **Figures 1 and 2**.

It was understood the investigation works were required to inform the concept design and development process. The Preliminary Environmental Investigation (RMS 2013¹) provided with the Brief identified the potential for contaminated soil and groundwater to be encountered by the proposed works.

The specific objectives of the investigation were to identify potentially contaminated soil and groundwater, assess whether potentially contaminated soil and groundwater pose a risk to workers or future users, and to characterise material that may require offsite disposal, as well as assess the potential for reuse of the material onsite.

The completed scope of work comprised:

- Review and summary of relevant published geological and hydrogeological data, including a review of licensed groundwater bore information;
- Review of existing site investigation information;
- A detailed site inspection to identify potential areas of environmental concern (AECs) and contaminants of potential concern (COPCs) identified in the historical review;
- Soil sampling at 49 locations across the site;
- Soil sampling at an additional 10 locations outside of the original site extent, within the rail corridor and wetland area requested by RMS;
- Analysis of selected soil samples for various COPCs;
- Installation of one groundwater monitoring well and sampling. A second monitoring well could not be installed due to services in the area;
- Analysis of one groundwater samples for various COPCs; and
- Preparation of this environmental site assessment (ESA) report in general accordance with guidelines made or approved by the NSW EPA.

Based on the soil and groundwater sampling during the current investigation the following findings were made:

- Hydrocarbon concentrations above the adopted health based investigation level (HIL²) for Parks, open space (HIL-C) criteria were noted mainly along Botany Road and is believed to be associated with the road use and road base fill material present;
- The PAH and TPH concentrations within the soil are considered to pose a potential risk to future site users and workers and require management;

¹ *WestConnex Enabling Works, Preliminary Environmental Investigation*. RMS, July 2013 (RMS 2013)

² *National Environment Protection (Assessment of Site Contamination) Amendment Measure 2013 (No. 1)*, National Environment Protection Council (NEPC 2013)

- Observations made during the assessment indicated the presence of ash and slag materials within the fill.
- Non-friable asbestos containing materials (ACM) was observed during the current investigation at two locations in the surface soils in the southern extent along Mill Pond Rd, and poses a potential risk to future site users;
- Due to potential impact on Aboriginal heritage, several methods for the management of the ACM in the surface soils may be utilised including 'emu picking' of ACM fragments from the surface soils, potential capping of the current surface soils with 'clean' material, or excavation and disposal of the ACM impacted material. The picking option may provide less risk of impact to areas of Aboriginal heritage, however removal is limited to the upper 10 cm in accessible areas, and ongoing management would require regular re-inspection of surfaces. Capping may not be practical due to vegetation and obscuring of areas of Aboriginal heritage, while excavation and removal would likely result in removal of the top 10-20 cm of soil (and vegetation) at least and unacceptable impact to areas of Aboriginal heritage. Picking and ongoing management may be preferred for ACM removal in areas of Aboriginal heritage that are otherwise required to be undisturbed;
- Concentrations of heavy metal in groundwater are considered to be characteristic of background levels and not the result of a source present underlying the site. All other COPC concentrations in the groundwater samples were reported below the adopted site criteria;
- There exists a data gap within the wetland area to the south of the site due to dense vegetation preventing access to the area;
- No potential acid sulfate soils were identified during the assessment; and
- The stockpiled material located within the wetland area to the south of the site, adjacent to the rail corridor would require waste classification under the DECCW 2009 waste classification guidelines for removal offsite.

Based on the results of the current assessment, PAHs, TPH and asbestos are considered to pose potential risks to future site users and workers.

It is therefore recommended that a Remedial Action Plan (RAP) be developed in accordance with the relevant regulatory requirements and implemented during the development works.

The RAP should include, as a minimum, procedures for the following:

- Human health and environmental management procedures to be implemented during the upgrade of the road corridors, the cul-de-sac works and the railway underpass works
- Environmental management procedures to be implemented during the safe removal of asbestos, with care taken not to impact on Aboriginal Heritage areas;
- Either the management or offsite disposal of the asbestos and hydrocarbon contaminated fill under an appropriate waste classification;
- Validation of the residual soils in any resulting excavations to demonstrate suitability of remaining materials to remain on the site; and
- Further assessment of the wetland area should this be impacted by the proposed works.

1 Introduction and Background

1.1 Background

JBS&G (NSW & WA) Pty Ltd (JBS&G) was engaged by NSW Roads and Maritime Services (RMS) to conduct a Phase 1 and 2 contamination investigation for the proposed WestConnex enabling works, airport east precinct, located on and between Botany Road and General Holmes Drive, Mascot, NSW (the site). The site location and layout is shown on **Figures 1 and 2**.

Based on the Brief, the WestConnex enabling works, airport east precinct, include construction of a light vehicle standard rail underpass from Wentworth Avenue to General Holmes Drive to replace the General Holmes Drive railway crossing, as well as some road widening and realignment, the installation of some shared user paths and the relocation of a Botany Road bus stop.

It is understood the investigation works were required to inform the concept design and development process. The Preliminary Environmental Investigation (RMS 2013³) provided with the Brief identified the potential for contaminated soil and groundwater to be encountered by the proposed works. Recommendations were made for a soil and groundwater contamination assessment to be conducted, and a management strategy developed to be implemented during the pre-, during and post-construction phases. Recommendations were also made for assessment of potential acid sulfate soils (ASS) and the management of such soils in accordance with relevant guidelines prior to and during construction.

Asbestos was previously identified in the southern portion of the site, along Mill Pond Drive, which was reportedly sourced from stockpiled material containing building debris on the site (Airsafe 2008, as reported in RMS 2013)..

Previous investigations conducted in the southern portion of the site (DP 2008⁴ and PB 2011⁵) identified filling at depths up to approximately 2.0 m below ground surface (bgs). Groundwater was identified in two testpits at 2.8 m and 2.6 m.

The investigation was completed in general accordance with relevant guidelines made or approved by the NSW Environment Protection Authority (EPA).

1.2 Objectives

The specific objectives of the investigation were:

- to identify potentially contaminated soil and groundwater that may be encountered during the proposed construction works;
- to assess whether potentially contaminated soil and groundwater pose a risk to workers on the construction site or future users following site development;
- to identify potential ASS that may be encountered during the construction works; and
- to characterise material that may require offsite disposal, as well as assess the potential for reuse of the material onsite.

³ *WestConnex Enabling Works, Preliminary Environmental Investigation*. RMS, July 2013 (RMS 2013)

⁴ *Phase 1 Contamination Assessment, Preliminary (In Situ) Waste Classification and ASS Assessment, Corner of General Holmes Drive and Millpond Road, Botany*. Douglas Partners, Project 45322, January 2008 (DP 2008)

⁵ *Phase 1 Environmental Site Assessment*, Botany Road, General Holmes Drive, Mill Pond Drive, Mascot, Parsons Brinckerhoff, February 2011 (PB 2011).

1.3 Scope of Work

The scope of work proposed for the assessment includes:

- Review and summary of relevant published geological and hydrogeological data, including a review of licensed groundwater bore information;
- Review of existing site investigation information;
- A detailed site inspection to identify potential areas of environmental concern (AECs) and contaminants of potential concern (COPCs) identified in the historical review;
- Soil sampling at 49 locations across the site;
- Soil sampling at an additional 10 locations outside of the original site extent, within the rail corridor and wetland area requested by RMS;
- Analysis of selected soil samples for various COPCs;
- Installation of one groundwater monitoring well and sampling. A second monitoring well could not be installed due to services in the area;
- Analysis of one groundwater samples for various COPCs; and
- Preparation of this environmental site assessment (ESA) report in general accordance with guidelines made or approved by the NSW EPA.

2 Site Condition & Surrounding Environment

2.1 Site Identification and Condition

The location of the site is shown in **Figure 1**, and current layout is shown in **Figure 2**. The site details are summarised in **Table 2.1**.

Table 2.1 Summary Site Details

	<p>Part Lot 14 DP787029 & Part Lot 1 DP794238. Botany Road and General Holmes Drive, Mascot, NSW Botany Bay City Council SP2 Infrastructure (Road, Railway or Airport) as per Botany Bay LEP 2013: Road and Rail Corridors WestConnex Road Corridors Approximately 5 ha</p>
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2.2 Site Description

The site consists mainly of road verges and vegetated areas along General Holmes Drive, Joyce Drive, Wentworth Avenue and Mill Pond Drive, Botany Road, and comprised of narrow corridors associated with road infrastructure within this area.

The railway transects north to south through the central eastern portion of the site, with the General Holmes Drive level crossing present in the central north eastern portion of the site. A car park is situated to the north east of the level crossing.

The roads are generally in good condition throughout the site.

The railway that transects the site was not to be investigated, however, based on discussions with RMS, several sampling locations were advanced in the rail corridor.

A wetland area adjacent to the site to the south was to the south west of the rail corridor was not included as part of the original scope of works. This area was heavily vegetated with native bush. RMS requested sample locations to be advanced in the wetland area where access could be achieved. The vegetation in the wetland area was not distressed.

A stockpile of vegetated fill material, approximately 25 m³ was identified within the wetland area. The stockpiles could not be directly observed due to the vegetation covering them but appeared to consist of a yellow to brown sand.

The northern side of Mill Pond Drive (southern portion of the site), between General Holmes Drive and Botany Road is currently vacant. A previous investigation (Airsafe 2008, as reported in RMS 2013) observed asbestos containing material (ACM) fragments within this area. This was confirmed during the site inspection, with ACM fragments observed on the surface soils in this area.

A photographic Log is provided in **Appendix A**.

2.3 Surrounding Landuse

A number of land-uses have been identified in proximity of the road upgrade including low density residential dwellings, business development, mixed use and general industrial landuse, Sydney Airport to the west and south and Railway infrastructure to through the central portion of the site. This runs north to south.

Residential housing and commercial properties are located to the north and north east of the site along Botany Road. Sydney Domestic and International Airport is located to the south and west of the site.

2.4 Topography

Review of the regional topographic data (LPMA website⁶) indicated that the site lies at 4 m Australian Height Datum (AHD). The regional topography is generally flat, with a slight slope gently to the south. During the site inspection, the site appeared to be generally level with the surrounding properties.

2.5 Hydrology

Surface run-off over the site is controlled by the pavement located along the main roads adjacent to the road verges. Overland flow would be anticipated to move over paved areas into drainage collection points throughout the site and along the roadways and into the drainage channel located east of General Holmes Drive and eventually discharging in Mill Pond Drive approximately 75 m to the south of Mill Pond Drive.

Rainfall that falls in the unsealed portions of the site, such as to the west of Wentworth Avenue, north of Mill Pond Drive or between General Holmes Drive and Botany Road are expected to infiltrate down into the underlying soils.

Due to the distance to the nearest surface water body, the drainage channel which bisects the site, the potential for flooding at the site is considered to be low.

2.6 Geology

Review of 1:100000 'Sydney' Geological Survey of NSW Sheet 9130 (1983⁷), indicates that the site is underlain by quaternary sediments. This unit is commonly referred to as the Botany Sand Beds and comprises unconsolidated to semi-consolidated permeable sands. The sands are medium to fine grained quartz marine sands with minor shell fragments and podzols. The sand is interspersed with lenses of layers of peat, peaty sands, silts and clays, which become more common in the lower part of the sequence. The Botany Sands can be up to 30-60 m thick and are underlain with Hawkesbury Sandstone.

The previous investigation (DP 2008) completed six test pits in the southern portion of the site, adjacent to Mill Pond Drive. The test pits encountered fill material from 0.2 to 2.0 m. The fill material mainly consisted of a gravel to clay sand with some anthropogenic material including ash/slag in one test pit. Natural material was observed underlying the fill material at all locations to a depth of 3.2 m and consisted of sand.

By review of Department of Land and Water Conservation (DLWC, March 2000) '*Botany Sand Beds (GWMA 018) Botany Basin, NSW Northern Southern and Western Zones Status Report No. 2*' the Botany Sands are anticipated to be present to a depth of approximately 6 to 9 m underlying the site.

The current investigation observed fill material consisting of a silty sand and gravelly sand to 0.3 m, which is consistent with the previous investigations. Further field observations are described in **Section 9.1**.

2.7 Hydrogeology

The Botany Sands aquifers are characterised by unconfined and semi-confined aquifers comprising layers and lenses of quartz sands, silty/peaty sands and sandy peats, with

⁶ Land and Property Management Authority Spatial Information Exchange website, www.imagery.maps.gov.au accessed 13 March 2012

⁷ Sydney' 1:100,000 Geological Survey of NSW Sheet 9130 (1983)

variances in organic content, geochemistry and aquifer properties including hydraulic conductivities and yields, but with generally good flow rates.

The saturated portion of the Botany Sand Beds (BSB) is known as the Botany Sands Aquifer (BSA). The BSB include deposits from tidal swamps, aeolian dune sands and alluvial material.

There are two main groundwater systems operating at the site. The deeper, confined groundwater system of the fractured / porous Triassic rocks which, at depth, form the basement of the Botany Basin and a shallow unconfined to semi confined system within the Quaternary unconsolidated sediments of the BSB.

Groundwater flow within this unconsolidated aquifer system is through primary porosity, i.e. water flows between the grains of sediments. The inflows, outflows and storage of the BSB define the water balance. Recharge is predominantly through rainfall infiltration. Some water is imported into the basin as leakage from Sydney Water's reticulated mains supply

The BSA is designated as Groundwater Management Area (GMA) 018 by the NSW Department of Water and Energy (DWE). As part of the management, DWE have divided the BSA into four management zones. The site falls into Management Zone 2. Under this zone all domestic groundwater use in the area is banned. There are restrictions on the issue of new licences for groundwater extraction in the BSA.

Groundwater flow within the Botany Basin is generally to the south and southwest.

Additionally, PB (2008 & 2011) identified groundwater in two of testpits at 2.6 and 2.8 m in sand.

Groundwater within the groundwater monitoring well installed at the site was identified at 5.8 m bgs.

2.8 Acid Sulfate Soils

Review of the Botany Bay Local Environmental Plan (2013) for acid sulfate soils indicates the site has potential for acid sulfate soils.

The plan indicates that all Class 1 works (all works) and Class 2 works (works below the natural ground surface) which are below the natural ground surface and/or lower the water table require development consent.

Additionally, review of the Department of Land and Water Conservation (1997) '*Acid Sulfate Soil Risk Map 2nd Edition*' the site is classified as having a high probability of occurrence of acid sulfate soils. Soil analysis completed by DP (2008) did not identify acid sulfate soils.

3 Site History

A detailed site history is provided in Douglas Partners (DP 2008). The previous investigation indicated that the site had had two owners since 1908. The portion of the site DP investigated was owned from 1908 to 1948 by the Ascot Racing Club, with the Commonwealth of Australia taking ownership of the land from 1948.

The historical aerial photographs provided in the previous investigation (DP 2008) were mainly for the southern area of the site, consequently, further aeriels were obtained for the remainder of the site area.

3.1 Aerial Photographs

Copies of aerial photographs obtained from the Department of Lands are included in **Appendix B**. Relevant information from the aerial photograph review is summarised below.

- **1930:** The site appeared to be mainly vacant plot of grassed land, within some located along Botany Road. The railway appeared to be present through the central portion, running north to south.

Botany Road appeared to be a sealed road to the east of the site. General Holmes Drive was present in the northern portion of the site area.

The racing club appeared to be present to the west of the site.

Residential properties are located to the east and north of the site, with commercial/industrial properties with them.

Mill Pond appeared to the south of the site.

- **1942:** The site and surrounding area appeared to be similar to the previous aerial photograph.

Further commercial properties appeared to the south of the site, across Mill Pond.

- **1961:** The site appeared to be more developed than in previous photographs. General Holmes Drive appeared to now extend to the north and south at its current alignment. Further commercial properties were now present to the north of the site boundary along Botany Road.

To the west of the site the racecourse had been replaced with runways of Sydney Airport. Construction works appeared to be occurring in a portion of the airport.

Further commercial properties were located to the south of the site, south of Mill Pond.

- **1970:** The site appeared to be similar to the previous aerial photograph, with the exception of Mill Pond Drive appearing in the southern portion of the site.

Sydney Airport had expanded, with a hanger present.

- **1978:** The site and surrounding area appeared to be similar to the previous aerial photograph.

- **1986:** The site and surrounding area appeared to be similar to the previous aerial photograph.

- **1994:** The site and surrounding area appeared to be similar to the previous aerial photograph.

- **2005:** The site and surrounding area appeared to be similar to the previous aerial photograph with the exception of a multi storey car park being constructed to the north of the site along Botany Road, on the junction with General Holmes Drive.

4 Previous Investigations

4.1 Douglas Partners (DP 2008)

Douglas Partners (DP 2008) undertook an assessment of contamination and potential acid sulfate soils (PASS) at a portion of the site to assess for potential use as a bus lane. The area that was subject to the investigation was the north eastern corner of General Holmes Drive and Mill Pond Drive, Botany. The assessment included a Phase 1 Desktop study and excavation of six test pits across this area of the site.

Relevant findings are summarised as follows:

- This portion of the site was undeveloped since 1908 and the Commonwealth of Australia began ownership of this land from 1943.
- A total of six test pits were excavated across the investigation area;
- Fill material was observed from 0.2 to 2.0 m below ground surface (bgs) and comprised of a silty sandy clay with some anthropogenic material such as asphalt and road base;
- Natural material was observed underlying the fill material, but no description was provided of the natural material. The material was observed from 0.6 to 2.0 m;
- No odours or staining were observed, however black ash/slag material was observed in one test pit;
- Concentrations of COPCs were not reported above the adopted site criteria for commercial/industrial landuse;
- Acid sulfate soils are unlikely to be present based on analytical results;
- The report concluded that the site was suitable for the proposed bus lane and that the preliminary (*in-situ*) waste classification was "Solid Waste" and the natural material classified as "inert waste".

It should be noted that these waste classifications have been superseded by the current DECCW 2009 Waste Classification guidelines. Based on these guidelines it is likely that the material in this area would be classified as General Solid Waste (Fill material) and underlying natural soils potentially Virgin Excavated Natural Material (VENM), however further assessment would be required to provide suitable classification.

Additionally, the land use criteria used during this assessment have been superseded by the current NEPC 2013. The current NEPC 2013 guidelines will be used during the current assessment.

4.2 Parsons Brinckerhoff (PB 2011)

Parsons Brinckerhoff (PB 2011) undertook a Phase 1 ESA for RMS for what the report described as the 'Botany Road Carriageway Works'. As no figures were supplied with the report, the specific area of Botany Road investigation is unknown. The investigation involved a desktop study and site inspection.

Relevant findings are summarised as follows:

- The shallow groundwater and BSB were potential receptors of identified COCPs;

- There was a high potential for acid sulfate soils, which was based on acid sulfate maps, which is contrary to the previous investigation findings;
- PB identified several areas of potential impacts including the fill material used across the investigation area, offsite service station, the nearest being along Joyce Drive adjacent to the site in the north, a possible signal box transformer, railway, the known groundwater contamination plume in the Botany area and stockpiled material in the southern portion of the investigation area.

It should be noted that the PB report indicated the presence of a further previous investigation within their investigation area. This included:

- General Holmes Upgrade – Preliminary Environmental Investigation (2009), Stuart J Hill.

Additionally, PB noted the following documents within the previous investigation section in their report, although neither are strictly investigation reports.

- Sydney Airport Environmental Strategy (2005 & 2010), Sydney Airport Corporation Ltd
- State of the Environmental (2010), Botany Bay City Council.

However, only extracts from these reports were provided in the PB report and JBS&G has not reviewed these reports in full. These reports do not provide any further information to assist with the current assessment

4.3 **Roads and Maritime Services (2013)**

RMS (RMS 2013) completed a preliminary environmental investigation to identify and summarise potential environmental opportunities, constraints and risks in the site area.

The investigation was predominantly a desktop investigation for heritage, landforms, biodiversity, air space protection etc, with a further site inspection completed for ecological purposes.

Relevant findings are summarised as follows, it should be noted that only the contamination aspect is outlined here;

- A search of the NSW EPA Contaminated land records indicated that four sites were recorded within 1km of the site. These include: the Telstra Exchange at 904-922 Botany Road, Mascot; Former Mascot Galvanising, 336-348 King Street, Mascot; RMS depot, Lord Street and Sokol Corporation at 50-56 Robey Street. It should be noted that these sites are not within or adjacent to the current investigation area. The closest is the Sokol Corporation site, approximately 200 m to the north of Joyce Drive, the Telstra Exchange is approximately 400 m to the north of the rail crossing, the former Galvanising site, located approximately 400 m to the north of the west end of Joyce Drive and the RMS depot, approximately 400 south west of Mill Pond Drive.
- The report indicated the presence of the known contamination within the BSB from the former Orica plant within the Botany area and also acknowledged the potential impact of other industrial land uses within the area.
- ACM were identified in the southern portion of the current site area (DP 2008). Several locations were observed where ACM was present and was sourced from



building rubble within stockpiled soils. It was unknown whether removal had occurred.

5 Conceptual Site Model

5.1 Potential Areas of Environmental Concern

Based on the history review and field observations from the site, and from environmental assessments previously undertaken within the site, general areas of environmental concern have been categorised and are presented in (Table 5.1).

Table 5.1 Areas of Environmental Concern and Associated Contaminants of Potential Concern

Fill material of unknown origin underlying the site	Heavy metals, PAHs, TPH/BTEX, OCPs, PCBs and asbestos
Historical use of hazardous building materials in and around the site	Asbestos, lead
Potential migration of contamination from adjoining sites including a service station, the known groundwater plume and former industrial areas including metal processing/fabrication and printing	Heavy metals, TPH/BTEX, PAHs, Chlorinated Solvents
Potential Acid Sulfate Soils	SPOCAS

5.2 Potentially Contaminated Media

Potentially contaminated media targeted for this investigation:

- Fill material;
- Natural soils; and
- Groundwater.

Based on the unknown source of the fill material and potential asbestos observed in previous investigations (DP 2008 & PB 2011), the fill material is considered a potentially contaminated medium.

Based on the potential leachability of the identified contaminants, the natural site soils are considered to be potentially contaminated media.

The potential leachability of identified contaminants of concern and the relatively permeable nature of site soils and shallow groundwater, all contribute to groundwater being nominated as a potentially contaminated medium. As with the natural soils, the potential for contamination of groundwater will depend upon the actual nature, occurrence and characteristics of contamination within the overlying fill material and potentially natural soils.

5.3 Potential for Migration

Contaminants generally migrate from site via a combination of windblown dusts, rainwater infiltration, groundwater migration and surface water runoff. The potential for contaminants to migrate is a combination of:

- The nature of the contaminants (solid/liquid and mobility characteristics);
- The extent of the contaminants (isolated or widespread);
- The location of the contaminants (surface soils or at depth); and
- The site topography, geology, hydrology and hydrogeology.

The potential contaminants identified at the site are present in solid (e.g. impacted soil or fill, asbestos), liquid (e.g. dissolved in water or as PSH) and vapour forms.

Rainfall infiltration at the site is expected to occur in unsealed areas investigated. There is therefore the potential for contaminants in fill to leach into underlying natural soils.

As the site is covered primarily with concrete pavements or vegetation, the potential for windblown dust migration of contamination from the site is generally low, however non-friable ACM fragments are potentially present at the site. Consequently, if the ACM fragments are at the surface, these exposed fragments may weather and produce friable asbestos and therefore the potential for windblown dust contamination increases.

Given the relatively permeable nature of the underlying sandy soils, migration of contamination via groundwater movement is considered to be a potential migration pathway.

5.4 Potential Exposure Pathways

Potential exposure pathways include:

- Dermal;
- Ingestion; and
- Inhalation.

Due to the presence of exposed impacted soil/fill on ground surfaces in areas of the site accessed by workers, dermal exposure must be considered a potential exposure pathway.

The potential for ingestion of soil through eating soil is considered relatively low due to the occupational environment at the site, however, should dust be generated, ingestion must be considered a potential exposure pathway. Although groundwater is not used at the site, there is the potential, albeit low in an occupational environment, for ingestion of contaminants via groundwater removed from monitoring wells.

As there is the possibility for generation of dust in unsealed areas where potentially impacted soil/fill are present, inhalation is also considered a potential exposure pathway. Additionally, should vapours be present and intrude into excavation pits, there is the potential for inhalation of vapours.

6 Sampling and Analysis Plan

6.1 Data Quality Objectives

Data quality objectives (DQOs) are statements that define the confidence required in conclusions drawn for data produced for a project, and which must be set to realistically define and measure the quality of data needed.

DQOs were developed for the investigations, as discussed in the following sections.

6.1.1 State the Problem

The investigation works are required to inform the concept design and development process for the initial WestConnex enabling works, airport east precinct.

6.1.2 Identify the Decision

Based on the decision making process for assessing urban redevelopment sites detailed in DEC (2006⁸), the following decisions were made:

- Are there any unacceptable risks to site workers and/or likely future onsite receptors from fill materials for the proposed land use?
- Are there any issues relating to local area background soil concentrations that exceed the appropriate soil criteria?
- Are there any impacts of chemical mixtures?
- Are there any aesthetic concerns in fill soils present at the site?
- Are there any materials that cannot be reused on site that exceed current waste disposal requirements (i.e. that require treatment for disposal)?
- Is a management strategy required?

6.1.3 Identify Inputs to the Decision

Inputs to the decisions are:

- The results of previous investigations relevant to the areas of investigation, including background historical information, site observations, laboratory results and report findings;
- New environmental data as collected by sampling and analysis and site observations made during this investigation;
- Assessment criteria to be achieved on the site as based on the intended landuse and previous investigations, and project objectives, as defined by assessment criteria nominated in **Section 7**;
- Confirmation that data generated by sampling and analysis are of an acceptable quality to allow reliable comparison to assessment criteria as undertaken by assessment of quality assurance / quality control (QA/QC) as per the data quality indicators (DQIs) established in **Section 6.1.6**.

⁸ *Contaminated Sites: Guidelines for the NSW Site Auditor Scheme, 2nd Edition*, NSW EPA, 2006 (DEC 2006).

6.1.4 Define the Study Boundaries

The study boundaries were limited to those portions of the nominated RMS site areas as described in **Section 1.2** and shown on **Figure 2**.

The vertical extent of the investigation was approximately 0.3 m.

Due to the project objectives, seasonality was not assessed as part of this investigation. Data was therefore representative of the timing and duration of the current investigation.

6.1.5 Develop a Decision Rule

Laboratory analytical data was assessed against EPA endorsed criteria as identified in **Section 7**.

The decision rules adopted to answer the decisions identified in **Section 6.1.2** are summarised in **Table 6.1**.

Table 6.1 Summary of Decision Rules

Decision Required to be Made	Decision Rule
1. Are there any unacceptable risks to site workers and/or onsite future receptors from soil or groundwater?	The nature and extent of soil impacts will be assessed, and soil analytical data was compared against EPA endorsed criteria. Statistical analyses of the data in accordance with relevant guidance documents was undertaken, if appropriate, to facilitate the decisions. The following statistical criteria will be adopted with respect to soils: <u>Either</u> : the reported concentrations are all below the site criteria; <u>Or</u> : the average site concentration for each analyte must be below the adopted site criterion; no single analyte concentration exceeds 250% of the adopted site criterion; and the standard deviation of the results must be less than 50% of the site criteria. <u>And</u> : the 95% upper confidence limit (UCL) ⁹ of the average concentration for each analyte must be below the adopted site criterion. If the statistical criteria stated above are satisfied, and an assessment of risk indicates no unacceptable risks, the decision is No. Otherwise, the decision is Yes.
2. Are there any issues relating to the local area background soil concentrations that exceed appropriate soil criteria?	If the 95% UCL of natural (not impacted) soils exceeded published background concentrations (NEPC 1999), the decision is Yes. Otherwise the decision is No.
3. Are there any chemical mixtures?	Are there mixtures of contaminants present which influence management? If there is, the decision is Yes. Otherwise, the decision is No.
4. Are there any aesthetics issues in fill soils at the site?	If there are any unacceptable odours and/or discolouration (or other aesthetic indicators) the answer to the decision is Yes. Otherwise, the answer to the decision is No.
5. Are there any materials that cannot be reused on site that exceed current waste disposal requirements (i.e. that require treatment for disposal)?	Are any of the potentially surplus materials or materials assessed to represent a potentially unacceptable health risk and which cannot be reused on site, classified as a waste that cannot be disposed without treatment? If not, then the answer is No. If yes, then the answer is Yes and some treatment may be required.
6. Is a management strategy required?	Is the answer to any of the above decisions Yes? If yes, a site management strategy will be required to be developed. If no, a site management strategy is not required. The requirement for site management can be precluded by remediation of the areas of environmental impact that causes a site decision to be yes.

6.1.6 Specify Limits of Decision Error

This step is to establish the decision maker's tolerable limits on decision errors, which are used to establish performance goals for limiting uncertainty in the data. Data generated during this project must be appropriate to allow decisions to be made with confidence.

⁹ *Sampling Design Guidelines*. (NSW EPA,1995)

Specific limits for this project have been adopted in accordance with the appropriate guidance from the NSW EPA, NEPC (2013), ANZECC/ARMCANZ 2000 and DEC 2007 appropriate indicators of data quality (DQIs used to assess QA/QC) and standard JBS&G's procedures for field sampling and handling.

To assess the usability of the data prior to making decisions, the data will be assessed against pre-determined Data Quality Indicators (DQIs) for completeness, comparability, representativeness, precision and accuracy. The acceptable limit on decision error is 95% compliance with DQIs.

The pre-determined Data Quality Indicators (DQIs) established for the project are discussed below in relation to precision, accuracy, representativeness, comparability, completeness and sensitivity (PARCCS parameters), and are shown in **Table 6.2**.

- **Precision** - measures the reproducibility of measurements under a given set of conditions. The precision of the laboratory data and sampling techniques is assessed by calculating the Relative Percent Difference (RPD) of duplicate samples.
- **Accuracy** - measures the bias in a measurement system. The accuracy of the laboratory data that are generated during this study is a measure of the closeness of the analytical results obtained by a method to the 'true' value. Accuracy is assessed by reference to the analytical results of laboratory control samples, laboratory spikes and analyses against reference standards.
- **Representativeness** –expresses the degree which sample data accurately and precisely represent a characteristic of a population or an environmental condition. Representativeness is achieved by collecting samples on a representative basis across the site, and by using an adequate number of sample locations to characterise the site to the required accuracy.
- **Comparability** - expresses the confidence with which one data set can be compared with another. This is achieved through maintaining a level of consistency in techniques used to collect samples; ensuring analysing laboratories use consistent analysis techniques and reporting methods.
- **Completeness** – is defined as the percentage of measurements made which are judged to be valid measurements. The completeness goal is set at there being sufficient valid data generated during the study.
- **Sensitivity** – expresses the appropriateness of the chosen laboratory methods, including the limits of reporting, in producing reliable data in relation to the adopted site assessment criteria.

If any of the DQIs are not met, further assessment will be necessary to determine whether the non-conformance will significantly affect the usefulness of the data. Corrective actions may include requesting further information from samplers and/or analytical laboratories, downgrading of the quality of the data or alternatively, re-collection of the data.

Table 6.2 Summary of Quality Assurance / Quality Control Program

Data Quality Objective	Frequency	Data Quality Indicator
Precision		
Blind duplicates (intra laboratory)	1 / 20 samples	<50% RPD ¹
Blind duplicates (inter laboratory)	1 / 20 samples	<50% RPD ¹
Accuracy		
Surrogate spikes	All organic samples	70-130%
Laboratory control samples	1 per lab batch	70-130%
Matrix spikes	1 per lab batch	70-130%
Representativeness		
Sampling appropriate for media and analytes		-
Samples extracted and analysed within holding times.	-	organics (14 days), inorganics (6 months)
Trip spike (for volatiles)	1 per sampling event when sampling for volatile or semi-volatile COPC	70-130% recovery
Trip blank	1 per sampling event for ambient air sampling	<LOR
Rinsate	1 per sampling date where reusable sampling equipment used	<LOR
Comparability		
Standard operating procedures for sample collection & handling	All Samples	All samples
Standard analytical methods used for all analyses	All Samples	All samples
Consistent field conditions, sampling staff and laboratory analysis	All Samples	All samples
Limits of reporting appropriate and consistent	All Samples	All samples
Completeness		
Sample description and COCs completed and appropriate	All Samples	All samples
Appropriate documentation	All Samples	All samples
Satisfactory frequency and result for QC samples	All QA/QC samples	-
Data from critical samples is considered valid	-	Critical samples valid

1. Relative per cent difference

6.1.7 Optimise the Design for Obtaining Data

Various strategies for developing a statistically based sampling plan are identified in EPA (1995), including judgemental, random, systematic and stratified sampling patterns. Based on known site activities, a systematic grid has been identified as the preferred approach for assessing for the potential site contamination.

Based on the Brief, the WestConnex enabling works, airport east precinct, are being conducted across the area generally bound by General Holmes Drive, Joyce Drive, Wentworth Avenue, Mill Pond Drive. The works will be generally restricted narrow corridors associated with road infrastructure within this area. Based on the plans provided with the Brief, the total area of the narrow corridors of proposed construction work is estimated to be greater than 5 hectares (ha).

The *Contaminated Sites: Sampling Design Guidelines* (EPA 1995) provide no guidance for an appropriate sampling density for sites greater than 5 ha, but indicate the sampling program may be stratified. The proposed construction works will largely include existing road infrastructure, and as such, samples were collected from accessible areas where the current roadways will be widened or realigned. The accessible areas were sampled on a 30 m grid which is in accordance with the sampling density recommended by EPA (1995) for a 5 ha site. This strategy is in line with RTA (2005) which requires sampling densities to be

strictly in accordance with EPA (1995). Additional samples were collected at localised areas of environmental concern (AECs) identified during the field works.

Where the proposed construction works extend across residential properties (as at the intersection of Botany Street and Wentworth Avenue), samples were collected from areas close to but outside of the residential boundaries.

Surface or shallow soil samples were collected from areas identified on the proposed plan of construction works as undergoing road widening or realignment, or path construction. These areas include:

- Proposed road widening on the southern verge of Joyce Drive between O’Riordan Street and General Holmes Drive (which is presumed to extend slightly into SACL land, only if inside the fence line);
- The proposed cul de sacs on the eastern and western sides of the current General Holmes Drive level crossing (no sampling will be undertaken within the rail corridor);
- Proposed road widening and shared user path installation along Botany Road between Baxter Road and Bronti Street, including the eastern extent of the Wentworth Avenue extension underpass;
- Proposed road widening on General Holmes Drive at the western extent of the Wentworth Avenue extension underpass; and
- Proposed road realignment on the northern side of Mil Pond Drive between General Holmes Drive and Botany Road.

As per **Table 6.3**, soil samples were collected from 43 hand auger locations within these areas, along with six soil bores, as shown in **Figure 3**.

The rail corridor and wetland area was not originally included in the assessment and was subsequently requested to be investigated. RMS requested surface soils to be collected within the rail corridor and wetland area, with a total of 12 further hand auger sampling locations in these areas, with sampling restricted due to the difficult access.

Groundwater samples were collected from one monitoring well location installed within the central portion of the site (**Figure 2**). A further groundwater monitoring well location was not able to be installed on the eastern side of the drainage ditch due to services in the area.

6.2 Investigation Methodology

6.2.1 Soil Sampling Method

Soil samples were collected using hand tools at locations from unsealed areas along the road verges or in the vacant areas. Samples were collected from the ground surface (0-0.1 m) and subsurface (0.2-0.3 m). Where physical evidence of gross contamination was identified during the works, sampling locations were extended to vertically delineate contamination. During the collection of soil samples, features such as seepage, discolouration, staining, odours and other indicators of contamination were noted. Borehole logs are provided in **Appendix C**.

Samples were collected from soils at depth within the proposed Wentworth Avenue extension underpass via soil bores installed using a drill rig. Soil bores were extended to depths commensurate with the depth of soil disturbance required to construct the proposed underpass. A total of six soil bores were drilled.

Samples from soil bores were collected using a push tube sampler, ensuring collection of soils which have not contacted the sides of the drilling equipment. Samples were collected from the depth intervals of near surface (0-0.1 m), 0.4-0.5 m and at 1 m intervals until the maximum proposed depth of the investigation.

Collected samples were immediately transferred to laboratory supplied sample jars and plastic resealable 'ziplock' bags, depending on the analytes required. Where soil samples were collected for volatile petroleum hydrocarbons care was taken to minimise the potential for loss of volatile contaminants during sampling. From push-tube locations sampling from the sample tube immediately after withdrawing the sample core was considered appropriate to minimise volatile loss. At hand auger locations, samples were transferred immediately to sample containers.

The sample jars were then transferred to a chilled ice box for sample preservation prior to and during shipment to the testing laboratory. A chain-of-custody form was completed and forwarded with the samples to the testing laboratory. Based upon field observations and the PID screening results, samples were analysed in accordance with the laboratory schedule in **Table 6.3** below.

6.2.2 Groundwater Installation and Sampling Methodology

Prior to installation of two proposed monitoring wells, a groundwater bore licence was obtained from the Office of Water and is provided in **Appendix D**.

One groundwater monitoring well was installed at the site, towards the eastern end of the proposed Wentworth Avenue extension underpass. A second monitoring well was to be installed towards the western end of the extension underpass, however, could not be installed due to services in the area preventing advancement beyond 1.5 m bgs.

The well was extended to approximately 2 m below the depth of encountered groundwater.

Solid flight drilling technique was utilised when within ballast fill, with hollow flight augers being required below the ballast fill to install the monitoring well.

The well was constructed from 50 mm uPVC screen and casing, combined with a lockable cap and steel gatic cover.

The monitoring well was allowed to settle for a minimum of three days after development. The monitoring well was then gauged and sampled. Importantly for potential volatile contaminants at the site, monitoring wells were sampled as per low flow methods in accordance with the provisions of Victorian EPA (2002) *State Environment Protection Policy (Groundwaters of Victoria)*. Field parameters of pH, conductivity, redox and temperature were continuously assessed and samples obtained once the parameters settle to within the limits set by the Victorian EPA for parameter stabilisation. Groundwater samples were obtained through the use of a low flow peristaltic pump and flow cell.

Collected groundwater samples were immediately filtered (as necessary) and transferred to laboratory supplied sample bottles. The sample containers were transferred to a chilled iced box for sample preservation prior to and during shipment to the testing laboratory. A chain-of-custody form was completed and forwarded with the samples. Samples were analysed in accordance with the laboratory schedule in **Table 6.3**.

6.2.3 Field PID Screening

Soil samples were screened on site during works using a photo-ionisation detector (PID) containing a standard ionisation lamp with electron voltage (eV) range associated with the

ionisation potentials of typical volatile organic compounds (VOCs) including petroleum hydrocarbons. The PID used was appropriately calibrated prior to use.

Samples obtained for PID screening were placed in a sealed plastic bag for a period of approximately 5 minutes to equilibrate, prior to a PID being attached to the bag. Readings were then monitored for a period of approximately 1 minute or until values stabilise and the stabilised/highest reading were recorded. PID screening results were recorded on the borehole logs included in the ESA report.

6.2.4 Decontamination

Samples were collected at the majority of locations by reusable (non-disposable) hand tools. Prior to the commencement of soil sampling activities, non-disposable sampling equipment, including augers, sampling trowel, etc were cleaned with a high pressure water/detergent spray, rinsed with water and then air dried. The equipment were then inspected to ensure that no soil, oil, debris or other contaminants are apparent on the equipment prior to the commencement of works.

6.2.5 Duplicate and Triplicate Sample Preparation

Field soil duplicate and triplicate samples were obtained using the above sampling methods. The collected samples were divided laterally into three samples with minimal disturbance to reduce the potential for loss of volatiles and placed in three clean glass jars or sample bags as appropriate. Each sample were then be labelled with a primary, duplicate or triplicate sample identification before being placed in the same chilled esky for laboratory transport.

6.3 Laboratory Analysis

JBS&G contract project laboratories are NATA accredited for the required analyses. In addition, the laboratories were required to meet JBS&G's internal Quality Assurance requirements.

The laboratory analysis program proposed is outlined below and in **Table 6.3**.

Note that not all samples collected were analysed. All samples will remain at the primary laboratory for a period of two months for possible future analysis (provided analysis of analytes is within holding times) if required following the receipt of sample results.

Table 6.3 Sampling and Analytical Program

Sample Type	No. of Sampling Locations	Analyses (exc. QA/QC)
Soil	43 hand auger locations and 6 soil bore locations	Heavy metals (As, Cd, Cr, Cu, Hg, Ni, Pb, Zn) – 37 samples PAHs – 37 samples TPH/BTEX – 37 samples Asbestos – 12 samples OCPs/PCBs – 23 samples
	10 x Additional hand auger locations (within wetland area as per RMS request)	Heavy metals (As, Cd, Cr, Cu, Hg, Ni, Pb, Zn) – 10 samples PAHs – 9 samples TPH/BTEX – 10 samples Asbestos – 4 samples OCPs/PCBs – 9 samples
Groundwater	1 newly installed wells in the proposed underpass area	Heavy metals – 1 sample PAHs – 1 sample TPH/BTEX – 1 sample

7 Assessment Criteria

7.1 Regulatory and Technical Guidelines

The investigation will be undertaken with consideration to aspects of the following guidelines and technical documents, as relevant:

- *National Environment Protection (Assessment of Site Contamination) Amendment Measure 2013 (No. 1), National Environment Protection Council (NEPC 2013)*
- *Contaminated Sites: Guidelines for Assessing Service Station Sites, NSW EPA, 1994 (EPA 1994)*
- *Contaminated Sites: Sampling Design Guidelines, NSW EPA, 1995 (EPA 1995)*
- *Contaminated Sites: Guidelines for Consultants Reporting on Contaminated Sites, NSW EPA, 1997 (OEH 2011)*
- *Contaminated Sites: Guidelines for the NSW Site Auditor Scheme, 2nd Edition, NSW EPA, 2006 (DEC 2006)*
- *Australian and New Zealand Guidelines for the Assessment and Management of Contaminated Sites, Australian and New Zealand Environment and Conservation Council and the National Health and Medical Research Council, 1992 (ANZECC/NHMRC 1992)*
- *Contaminated Sites: Guidelines for the Assessment and Management of Groundwater Contamination, NSW DEC, March 2007 (DEC 2007)*
- *Waste Classification Guidelines Part 1: Classifying Waste. NSW DECCW, December 2009 (DECCW 2009).*
- *Contaminated Sites: Guidelines on Duty to Report Contamination under the Contaminated Land Management Act 1997, NSW DECC, June 2009 (DECC 2009).*
- *Guidelines for Managing Risks in Recreational Water, NHMRC, 2008 (NHMRC 2008).*
- *Australian Drinking Water Guidelines 6, NHMRC, 2011 (NHMRC 2011).*

7.2 Soil Criteria

There are no specific landuse criteria which apply to SP2 Infrastructure land use zoning (as applies to the site) under the NEPC 2013 guidelines. Under the NEPC 2013 where this is the case there are two options, either to use a more sensitive generic health investigation level (HIL) or prepare a site specific risk assessment. A site specific risk assessment as beyond the scope of the current investigation.

Therefore, based on consideration of exposure scenarios and intended infrastructure landuse suggests HIL C - Public open space such as parks, playgrounds, playing fields (e.g. ovals), secondary schools and footpaths to be used.

This does not include undeveloped public open space where the potential for exposure is lower and where a site-specific assessment may be more appropriate; and

Additionally, health screening levels (HSLs) for HSL-C - recreational / open space and ecological based investigation/screening level (EIL/ESL) criteria for urban residential/public open space was used.

Where required, results were statistically assessed in accordance with the method summarised in **Table 7.1**.

Where appropriate, after consideration of relevant ESLs and HSLs for TPH fractions, NEPC (2013) Management Limits for TPH fractions may be utilised.

The results of asbestos observations and analysis will be assessed in general accordance with NEPC (2013) and WA DOH (2009) guidance, although asbestos quantification will only be undertaken if it is deemed to be required.

Table 7.1 Soil Criteria (all units in mg/kg)

	Limit of Reporting	Laboratory Method	Health Investigation/ Screening Levels	
			Recreational/ Open Space	HIL C/HSL C
Metal				
Arsenic	4.0	ICP-AES (USEPA 200.7)	300	
Cadmium	0.4	ICP-AES (USEPA 200.7)	90	
Chromium	1.0	ICP-AES (USEPA 200.7)	300	
Copper	1.0	ICP-AES (USEPA 200.7)	17 000	
Nickel	1.0	ICP-AES (USEPA 200.7)	1200	
Lead	1.0	ICP-AES (USEPA 200.7)	600	
Zinc	1.0	ICP-AES (USEPA 200.7)	30 000	
Mercury (inorganic)	0.1	Cold Vapour ASS (USEPA 7471A)	80	
POLYCYCLIC AROMATIC HYDROCARBONS				
Carcinogenic PAHs (as B(a)P TPE) ³	0.028	GCMS (USEPA8270)	3	
Total PAHs ⁴	0.4	GCMS (USEPA8270)	300	
BTEX				
Benzene	1.0	Purge Trap-GCMS (USEPA8260)	NL	
Toluene	1.0	Purge Trap-GCMS (USEPA8260)	NL	
Ethylbenzene	1.0	Purge Trap-GCMS (USEPA8260)	NL	
Total Xylenes	3.0	Purge Trap-GCMS (USEPA8260)	NL	
TOTAL RECOVERABLE HYDROCARBONS				
F1 C ₆ -C ₁₀	10	TRH Purge Trap-GCMS (USEPA8260)	NL	
F2 >C ₁₀ -C ₁₆	50	TRH Purge Trap-GCMS (USEPA8260)	NL	
F3 >C ₁₆ -C ₃₄	100	Purge Trap-GCFID (USEPA8000)	-	
F4 >C ₃₄ -C ₄₀	100	Purge Trap-GCFID (USEPA8000)	-	
ORGANOCHLORINE PESTICIDES				
DDT + DDD + DDE	0.3	GCECD (USEPA8140,8080)	400	
Aldrin + Dieldrin	0.2	GCECD (USEPA8140,8080)	10	
Chlordane	0.1	GCECD (USEPA8140,8080)	70	
Endosulfan	0.3	GCECD (USEPA8140,8080)	340	
Endrin	0.1	GCECD (USEPA8140,8080)	20	
Heptachlor	0.1	GCECD (USEPA8140,8080)	10	
HCB	0.1	GCECD (USEPA8140,8080)	10	
Methoxychlor	0.1	GCECD (USEPA8140,8080)	400	
PCBs				
Total PCBs	0.7	GCECD (USEPA8140,8080)	1	
VOLATILE ORGANIC COMPOUNDS				
PCE	1.0	Purge Trap-GCMS (USEPA8260)	40	
TCE	1.0	Purge Trap-GCMS (USEPA8260)	0.4	
Cis 1,2 DCE	1.0	Purge Trap-GCMS (USEPA8260)	2	
VC	1.0	Purge Trap-GCMS (USEPA8260)	0.5	
OTHER				
Bonded ACM	-	Field Quantification	0.02%	
Asbestos	Presence	PLM / Dispersion Staining	No asbestos capable of being detected via visual identification and sample analysis by a NATA accredited laboratory, and no Free Asbestos (FA) and Asbestos Fines (AF) above 0.001%	

Notes:

1. Guideline values presented are for Chromium (VI) in absence of total Chromium values. Where total Chromium results are elevated, samples will be analysed for Chromium (VI).
2. Guideline values are for inorganic mercury. Where elevated mercury concentrations are encountered and/or site information suggests the potential presence of elemental mercury and/or methyl mercury, consideration of applicability would be needed.
3. Carcinogenic PAHs calculated as per Benzo(a)pyrene Toxicity Equivalent Factor requirements presented in NEPC (2013)
4. Total PAHs calculated as per requirements presented in NEPC (2013).
5. Soil Health Screening Levels for Vapour Intrusion: Sand Soils. Values presented are those for 0 to <1 m bgs as the most conservative level. Reference should be made to results tables for further detail of levels at greater depths. NL: Non-limiting.
6. Values for F1 C6-C9 are obtained by subtracting BTEX (Sum) from laboratory result for C6-C9 TRH. Naphthalene is not subtracted as there is separate limits for Naphthalene.
7. No EPA endorsed criteria, The LOR is proposed as a screening level in the absence of endorsed site specific criteria.

Table 7.2 Ecological Based Soil Criteria (all units in mg/kg)

	Limit of Reporting	Laboratory Method	EILs/ESLs ¹
			Urban Residential and public open space
Metals			
Arsenic	4.0	ICP-AES (USEPA 200.7)	100
Cadmium	0.4	ICP-AES (USEPA 200.7)	-
Chromium	1.0	ICP-AES (USEPA 200.7)	190
Chromium (VI)	1.0	Alkali leach colorimetric (APHA3500-Cr/USEAP3060A)	-
Copper	1.0	ICP-AES (USEPA 200.7)	130
Nickel	1.0	ICP-AES (USEPA 200.7)	30
Lead	1.0	ICP-AES (USEPA 200.7)	1100
Zinc	1.0	ICP-AES (USEPA 200.7)	180
Mercury (inorganic)	0.1	Cold Vapour ASS (USEPA 7471A)	-
PAHs²			
Benzo(a)pyrene	0.5	GCMS (USEPA8270)	0.7
Naphthalene	0.1	GCMS (USEPA8270)	170
BTEX²			
Benzene	1.0	Purge Trap-GCMS (USEPA8260)	50
Toluene	1.0	Purge Trap-GCMS (USEPA8260)	85
Ethylbenzene	1.0	Purge Trap-GCMS (USEPA8260)	70
Total Xylenes	3.0	Purge Trap-GCMS (USEPA8260)	105
TRH^{2, 3, 4}			
F1 C ₆ -C ₁₀	10	TRH Purge Trap-GCMS (USEPA8260)	180
F2 >C ₁₀ -C ₁₆	50	TRH Purge Trap-GCMS (USEPA8260)	120
F3 >C ₁₆ -C ₃₄	100	Purge Trap-GCFID (USEPA8000)	300
F4 >C ₃₄ -C ₄₀	100	Purge Trap-GCFID (USEPA8000)	2800
OCPs			
DDT	0.1	GCECD (USEPA8140,8080)	180

1. EILs presented for metals other than arsenic are equivalent to the most conservative NEPC (2013) Added Contaminant Level (ACL), including assumed soil pH of 5.5 for Copper and Zinc. Site-specific EILs can be derived according to NEPC (2013) based on site data for pH, CEC, % Clay and Iron. Generic NEPC (2013) EILs are provided for Arsenic, Naphthalene and DDT. Value for Chromium (III) adopted for evaluation of total Chromium in the absence of known Chromium (VI) source.
2. ESLs for TRH fractions, BTEX and BAP are for coarse soil textures per NEPC (2013).
3. Values for F1 C6-C9 are obtained by subtracting BTEX (Sum) from laboratory result for C6-C9 TRH.
4. Naphthalene (EIL) should not be subtracted from values for F2 >C10-C16 as there is no separate ESL for naphthalene (per NEPC 2013 Errata 29 July 2013).

7.3 Groundwater Criteria

DEC (2007) 'Guidelines for the Assessment and Management of Groundwater Contamination' instructs that groundwater investigation levels (GILs) be based on a consideration of groundwater's environmental values. Environmental values are defined in ANZECC / ARMCANZ (2000) as "...particular values or uses of the environment that are important for a healthy ecosystem or for public benefit, welfare, safety or health which require protection from the effects of pollution, waste discharges and deposit".

NEPC (2013) presents six environmental values which are required to be considered in the assessment of contaminated groundwater including:

- Aquatic ecosystems;
- Aquaculture and human consumers of food;
- Agricultural water;
- Recreation and aesthetics;
- Drinking water; and
- Industrial water.

Current and projected contaminant concentrations in groundwater are required to be compared to the GILs at the points of existing and realistic future use for each relevant environmental value.

DEC (2007) instructs that all environmental values of groundwater be identified to allow development of appropriate GILs. NSW Government (2006) *'Environmental Objectives for Water Quality and River Flow'* are nominated as an appropriate source of environmental values.

Groundwater investigation criteria are adopted with reference to EPA's endorsed environmental values for the Cooks River catchment in addition to the inclusion of drinking water as an environmental value based on the requirements outlined in DEC 2007 and the potential for human contact to groundwater down-gradient of the site. It is noted that no abstraction is to occur in the management zone 2, as domestic use is banned in the BSB, however based on the potential exposure to groundwater during excavation and/or sampling application of the adopted groundwater criteria shall be as follows:

- Drinking Water and Recreational Criteria – shall be applied to groundwater as human contact with groundwater may occur via mixing of groundwater and the surface waters of the Alexandra Canal/Cooks River system and subsequent Botany Bay foreshore area.
- Ecological Criteria – shall similarly be applied to groundwater as a result of potential exposure down-gradient of the site.

Given that Botany Bay, the ultimate receiving water body, is a tidal marine environment, threshold values for marine environments have been adopted for this assessment. It has been assumed that the receiving waters are slightly too moderately disturbed ecosystems based on their location within the metropolitan area.

Recreational criteria as provided in **Table 7.3**, and are based on guidance in NHMRC (2008) which indicates concentrations of substances at 10 times drinking water guideline provides a screening approach for assessing whether further consideration of risks to recreational waters is warranted.

Table 7.3 Groundwater Assessment Criteria (units in µg/L unless noted)

	Limit of Reporting	Laboratory Method	Drinking Water Criteria ¹	Marine Aquatic Ecosystem Criteria ²	Recreational Criteria primary and secondary contact ³
METALS					
Arsenic	1.0	ICP-AES (USEPA 200.8, 6020A)	10	2.3	100
Cadmium	0.1	ICP-AES (USEPA 200.8, 6020A)	2	0.7 ⁴	20
Chromium	1.0	ICP-AES (USEPA 200.8, 6020A)	50	4.4	500
Copper	1.0	ICP-AES (USEPA 200.8, 6020A)	2000	1.3	20 000
Lead	1.0	ICP-AES (USEPA 200.8, 6020A)	10	4.4	100
Mercury	0.1	ICP-AES (USEPA 200.8, 6020A)	1	0.1 ⁴	10
Nickel	1.0	ICP-AES (USEPA 200.8, 6020A)	20	7	200
Zinc	1.0	ICP-AES (USEPA 200.8, 6020A)	3000	15	30 000
BTEX					
Benzene	1.0	P&T GC/MS (USEPA 8020A)	1	500	10
Toluene	1.0	P&T GC/MS (USEPA 8020A)	800	180 ⁵	8000
Ethylbenzene	1.0	P&T GC/MS (USEPA 8020A)	300	5 ⁵	3000
o-Xylene	1.0	P&T GC/MS (USEPA 8020A)	600 ⁸	350 ⁵	6000
m-Xylene	1.0	P&T GC/MS (USEPA 8020A)		75 ⁵	
p-Xylene	1.0	P&T GC/MS (USEPA 8020A)		200 ⁵	
PETROLEUM HYDROCARBONS					
C6 – C9 Fraction	10	P&T GC/MS (USEPA 8020A)	-	10 ⁹	-
C10 – C36 Fraction	250	GC/FID (USEPA 8000)	-	250 ⁹	No odour or sheen
POLYCYCLIC AROMATIC HYDROCARBONS					
Naphthalene	0.1	GCMS (USEPA8270)	-	50 ^{4,10}	-
Anthracene	0.1	GCMS (USEPA8270)	-	0.1 ^{4,5,6,7}	-
Phenanthrene	0.1	GCMS (USEPA8270)	-	0.6 ^{4,5,6}	-
Fluoranthene	0.1	GCMS (USEPA8270)	-	1 ^{4,5,6}	-
Benzo(a)pyrene	0.1	GCMS (USEPA8270)	0.1 ⁷	0.1 ^{4,5,6}	0.1
VOLATILE ORGANIC COMPOUNDS					
PCE	1.0	P&T GC/MS (USEPA 8020B)	50	70	500
TCE	1.0	P&T GC/MS (USEPA 8020B)	-	330 ⁶	-
Cis 1,2 DCE	1.0	P&T GC/MS (USEPA 8020B)	-	1 ⁹	-
Trans 1,2 DCE	1.0	P&T GC/MS (USEPA 8020B)	-	1 ⁹	-
VC	10.0	P&T GC/MS (USEPA 8020B)	10 ⁹	100 ⁶	10
Styrene	1.0	P&T GC/MS (USEPA 8020B)	30	-	300
OTHER					
Ammonia (at pH 6)	100	Colorimetric (EPA 350.1)	100	5960 ¹²	1000
NOx (based on Nitrate as N)	100	Colorimetric (EPA 353.2)	10 000	7200 ¹³	100 000

Notes

1. Australian Drinking Water Guidelines (NHMRC/NRMMC 2004)
2. 95% Protection Trigger Values for Marine Water (ANZECC/ARMCANZ 2000)
3. Guidelines for Managing Risks in Recreational Waters – 10 times Drinking Water Values as a screening level (NHMRC 2008)
4. 99% Protection Level used, as recommended by ANZECC/ARMCANZ 2000
5. Low Reliability Trigger Value (ANZECC/ARMCANZ 2000)
6. Indicative Interim Working Level (ANZECC/ARMCANZ 2000)
7. Laboratory limit of reporting is greater than the available criterion, hence the laboratory LOR is adopted as the screening level.
8. Total Xylenes
9. Laboratory LOR is adopted as the criterion as a screening level in the absence of EPA endorsed assessment value.
10. Moderate Reliability Trigger value in marine waters.
11. In absence of NSW EPA endorsed values, USEPA RSLs for Tap Water adopted as screening level for assessment purposes.
12. Ammonia value for pH 7.2 as presented in ANZECC (2000) adopted based on average pH reported by the laboratory for groundwater samples.
13. Nitrate value based on 95% trigger value in freshwater, NIWA Correspondence 30/09/2002: *Nitrate Guideline Values in ANZECC 2000*.

8 Quality Assurance/ Quality Control

8.1 QA/QC Results

The QA/QC results for soil samples collected at the site are summarised in **Table 8.1** and discussed in **Section 6.2**. Detailed QA/QC results are included the laboratory reports in **Appendix E**.

Table 8.1 - Soil QA/QC Results Summary

Data Quality Indicator	Results		DQI met?
Precision	Soil	Groundwater	
Blind duplicates (intra laboratory)	3/59 0-153% RPD The primary and duplicate samples targeting asbestos were in agreement.	1/3 0% RPD duplicate samples were analysed at a rate of 1/20 primary samples	Partial ¹
Blind triplicates (inter laboratory)	3/59 0-180% RPD The primary and triplicate samples targeting asbestos were in agreement.	0% RPD Triplicate samples were analysed at a rate of 1/20 primary samples.	Partial ¹
Laboratory Duplicates	0 – 51% RPD	0 – 30% RPD	Partial ¹
Accuracy			
Surrogate spikes	70 - 130% recovery	70-74% recovery	Yes
Matrix spikes	74 - 130% recovery	70 - 130% recovery	Yes
Representativeness			
Sampling appropriate for media and analytes	All sampling conducted in accordance with JBS&G procedures	All sampling conducted in accordance with JBS&G procedures	Yes
Laboratory blanks	<LOR	<LOR	Yes
Samples extracted and analysed within holding times.	All samples were extracted and analysed within holding times.	All samples were extracted and analysed within holding times	Yes
Trip spike	95-102% 1 trip spikes accompanied soil samples collected	92 - 114% 1 trip spikes accompanied groundwater samples collected	Yes
Storage blank	<LOR 2 storage blanks accompanied soil samples collected	<LOR 1 storage blanks accompanied groundwater samples collected	Yes
Rinsate blank	>LOR 3 rinsate blanks accompanied soil samples collected	<LOR 1 rinsate blanks accompanied groundwater samples collected	Partial ¹
Comparability			
Standard operating procedures used for sample collection & handling	A single field staff member used same standard operating procedures throughout works		Yes
Standard analytical methods used	Standard analytical methods used as listed in Table 5.1 .		Yes
Consistent field conditions, sampling staff and laboratory analysis	Sampling was conducted by a single field staff member using standard operating procedures in the same conditions throughout the works. The primary lab and secondary labs remained consistent throughout the investigation.		Yes
Limits of reporting appropriate and consistent	Limits of reporting were consistent and appropriate.		Yes

Completeness		
Soil description, groundwater forms & COCs completed	All bore logs, groundwater forms and COCs were completed appropriately.	Yes
Appropriate documentation	All appropriate field documentation is included in the Appendices.	Yes
Satisfactory frequency/result for QC samples	The QC results are considered adequate for the purposes of the investigation.	Yes
Data from critical samples is considered valid	Data from critical samples is considered valid.	Yes
Sensitivity		
Analytical methods and limits of recovery appropriate for media and adopted site assessment criteria	All remaining limits of reporting were less than the adopted site assessment criteria.	Yes

¹ See discussion of DQI exceedances in **Section 8.2**.

8.2 QA/QC Discussion

8.2.1 Precision

Blind and Split Duplicates

Soil field blind (intra-laboratory) duplicates and split (inter-laboratory) duplicates were collected at a rate of 1 per 20 primary samples analysed, meeting the 1/20 DQI frequency (for blind duplicates) and the 1/20 DQI frequency (for split duplicates).

Groundwater field blind (intra-laboratory) duplicates and split (inter-laboratory) duplicates were collected at a rate of 1 per 20 primary samples analysed, meeting the 1/20 DQI frequency (for blind duplicates) and the 1/20 DQI frequency (for split duplicates).

No high RPD calculations were observed between the primary, blind duplicate and triplicate soil samples, with the exception of elevated RPD calculations for some metals and PAHs results. The elevated RPD calculations for the soil blind and split duplicates may be attributed to the heterogeneous nature of the fill present at the site and the potentially increased laboratory limit of reporting (LOR).

No high RPD calculations were observed between the primary, blind duplicate and triplicate groundwater samples.

Laboratory Duplicates

All concentrations in the primary and duplicate samples were less than the laboratory limits of reporting, or returned RPD values were within the acceptable limits of 0 – 50%, with the exception of samples for arsenic (30%), cadmium (30%), chromium (30%), nickel (30%), mercury (30%), lead (30%), zinc (30%), benz (a) anthracene (30%), benzo (a) pyrene (30%), chrysene (30%), phenanthrene (30%), pyrene (30%), benzo (g,h,i) perylene, benzo (k) fluoroanthene (30%), fluoranthene (30%), indeno (1,2,3-cd) pyrene, anthracene (30%), benzo (b&j) fluoroanthene (30%) and naphthalene (30%).

The consistency of other laboratory duplicate RPDs indicate that these results do not affect the precision of the dataset.

8.2.2 Accuracy

Surrogate Spikes

Surrogate samples analysed reported recoveries within the acceptable range.

Matrix Spikes

Matrix spikes analysed reported recoveries within the acceptable range.

Laboratory Control Samples

Laboratory control samples analysed reported recoveries within the acceptable range. The accuracy of the analytical results is therefore acceptable.

8.2.3 Representativeness

Sampling appropriate for media and analytes

All soil and groundwater sampling works completed during the investigation were conducted in accordance with JBS&G standard operating procedures. Soil sampling was conducted with the advancement of test pits, considered appropriate for the potential site contaminants.

Groundwater was sampled using a low flow technique and is considered appropriate for the potential site contaminants.

All sampling was completed by trained and experienced field scientists. The current soil and groundwater investigation was completed by Chris Bielby. Chris has 1 ½ years' experience in the contaminated land industry, has a Bachelor of Science (Environmental Science) from the University of New South Wales and has received internal training on the appropriate sampling techniques for soil and low flow groundwater sampling. Chris completed the field works under the guidance of Tom Harding, the project manager for the works. Tom has 6 years of experience in the contaminated land industry.

Laboratory Blanks

Analysis of a method blank was conducted for the laboratory batches. No target analytes were detected above the laboratory LOR within any of the laboratory blanks.

Holding Times

The extraction and analysis of selected soil samples was completed within the recommended holding times.

The extraction and analysis of selected groundwater samples was completed within the recommended holding times and therefore considered to be appropriate.

Rinsate

Two rinsate samples were collected following decontamination of all non-disposable soil sampling equipment. Metal and hydrocarbon concentrations were reported within both rinsate samples collected. However, based on the samples being collected by hand wearing a new set of nitrile gloves each time the results do not affect the outcomes of the report.

One rinsate sample was collected following decontamination of all non-disposable groundwater sampling equipment. All analyte concentrations in each of the rinsate blanks were below the laboratory LOR.

Trip Spike

One trip spike was submitted with the batch of soil samples collected during the assessment. All trip spike recoveries were within the limits specified in the representativeness DQIs.

One trip spike was submitted with the batch of groundwater samples collected during the assessment. All trip spike recoveries were within the limits specified in the representativeness DQIs.

Storage Blank

One storage blank was submitted with the batches of soil samples collected during the assessment. There were no reported concentrations of TPH/BTEX compounds above the laboratory LOR.

One storage blank was submitted with the batch of groundwater samples collected during the assessment. There were no reported concentrations of TPH/BTEX compounds above the laboratory LOR.

8.2.4 Comparability

Experienced JBS&G personnel undertook all sampling in accordance with standard JBS&G sampling methods.

All field works and sampling were undertaken by one experienced JBS&G field scientist.

The laboratory LORs are consistent and are considered appropriate.

8.2.5 Completeness

Samples were transported under full chain of custody (COC) documentation. The COC documentation was completed correctly and the selected analyses were correctly conducted.

All field documentation was completed appropriately and were correct.

The frequency of analysis and result for all QC samples are appropriate.

8.2.6 Sensitivity

Laboratory analysis methods for all contaminants in soil and groundwater adopted during the investigation used limits of reporting significantly less than the site assessment criteria to ensure that contaminant concentrations could be confidently identified as being less than the adopted site assessment criteria.

8.3 QA/QC Assessment

The field sampling and handling procedures produced QA/QC results which indicate that the soil and groundwater data are of an acceptable quality and suitable for use in site characterisation. It should be noted that a data gap area exists within the wetland area due to vegetation preventing access.

The NATA certified laboratory results sheets indicate that the project laboratory was generally achieving levels of performance within its recommended control limits during the period when the samples from this program were analysed.

While several recoveries and RPD's fell outside the DQI limit, the non-conformances described in **Section 7.2** are considered to be acceptable given the consistency of the remaining data, many results falling within the NATA accredited range, and results significantly below the adopted site assessment criteria.

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

9 Soil Results

9.1 Field Observations

Field activities were completed on 9th to 16th December 2013. Several material types were encountered. Borehole logs are included in **Appendix C**. Observations made during the current assessment are summarised below.

Anthropogenic inclusions of asphaltic gravels, plastic, brick, bitumen and coal wash were identified in gravelly silty sand fill material across the site. Fill material was observed to extend from 0.0 m to 0.3 m below ground surface (bgs). Additionally, railway ballast gravels were observed within the sample locations within the railway corridor and within the wetland area.

Trace ash and slag gravels were observed in boreholes BH34, BH35, BH36, BH37, BH38, BH41, BH43, BH56, BH57 and BH59.

Natural soils were not encountered due to the maximum extent of the investigation being 0.3 m bgs.

As discussed, the rail corridor and wetland area was not originally included in the assessment and was subsequently requested to be investigated. Three stockpiles of material were observed within the wetland area in the south east of the site. The vegetation within the wetland area prevented the fill material in this area from being investigated and is considered a data gap area.

No staining or odours were observed in any of the sample locations.

Each soil sample collected was screened with a photoionisation detector (PID). No levels of volatile organic compounds (VOCs) were recorded.

Non-friable ACM was noted in two locations (BH21 and BH23) in the south of the site. This is consistent with the previous reported ACM in the southern portion of the site (DP 2008) No friable asbestos was observed during the intrusive works.

9.2 Soil Analytical Results

The soil sampling locations are shown on **Figure 3** and summarised laboratory results are presented in **Tables A to F**. Detailed laboratory reports and chain of custody documentation are provided in **Appendix E**. Soil exceedances of the adopted site criteria are shown on **Figure 4**.

Analytical results are discussed in the following sections.

9.2.1 Metals

The concentrations of the heavy metals (As, Cd, Cr, Cu, Pb, Hg, Ni and Zn) in the soil samples selected for analysis were all less than the adopted health based criteria.

With the exception of copper in two samples, nickel in one sample and zinc in 12 samples, the concentrations of heavy metals were below the ecological based criteria.

9.2.2 TPH

No soil samples collected and analysed exceeded the adopted HSL criteria for TPH concentrations.

With the exception of four samples there were no reported concentrations of TPH C₁₀-C₄₀ above the adopted ESL criteria. Samples collected from BH27 (0.0-0.1 m), BH28 (0.0-0.1 m),

BH37 (0.0-0.1 m) and BH49 (0.0-0.3 m) contained concentrations of TPH C₁₆-C₃₄ above the adopted ESL criteria, with a maximum concentration of C₁₆-C₃₄ of 620 mg/kg at the depth of 0.3 m bgs.

No other samples contained concentrations of TPH C₁₀-C₄₀ above the ESL or HSL criteria.

9.2.3 BTEX

There were no reported concentrations of BTEX compounds above the laboratory limit of reporting (LOR) within any of the analysed soil samples.

9.2.4 PAHs

A total of 7 samples contained concentrations of carcinogenic PAHs as B(a)P above the adopted HIL-C site criteria. The remaining soil samples collected were below the adopted HIL criteria.

A total of 16 samples contained concentrations of B(a)P above the adopted ESL/ESL criteria. The sample collected from TP49 (0.0-0.2 m), had a maximum B(a)P concentration of 13 mg/kg. This sample was located within a stockpile of material adjacent to the rail corridor. The maximum concentration of B(a)P within the surface soils was from BH34 (0.0-0.1 m) and was 5.6 mg/kg and was located in the road verge along Botany Road to the east of the railway.

9.2.5 OCPs and PCBs

There were no OCP or PCBs reported above the laboratory LOR in any soil sample collected and analysed.

9.2.6 Asbestos

Non-friable asbestos consisting of ACM fragments was identified in one of the soil sample collected and analysed from BH23 (0.0-0.1 m) during the current assessment. ACM was observed within two of the sample locations (BH21 and BH23) on the surface. No further samples collect and analysed contained non-friable ACM fragments.

Friable asbestos was not detected above the laboratory LOR of 0.1 g/kg in any of the soil samples collected and analysed.

There were no asbestos fibres, including respirable fibres, detected at or above the laboratory LOR of 0.1 g/kg in any of the other soil samples collected and analysed.

9.2.7 Waste Classification and Toxicity Characteristic Leaching Procedure (TCLP)

Concentrations of COPCs were compared against the DECCW 2009 waste classification guidelines. A total of 20 Toxicity Characteristic Leaching Procedure (TCLP) samples were analysed from both high and low concentrations.

JBS&G considers that there will likely be three different soil classifications for the fill material at the site. These included the following:

- General Solid Waste (GSW)
- Restricted Solid Waste (RSW) (due to PAHs).
- Special Waste (due to asbestos)

The TCLP data and soil concentrations indicate low leachable metals and PAHs below the General Solid Waste (GSW). Additionally, with the reported presence of ash and, to a lesser degree, slag, suggests that immobilisation approvals (for ash at least) would apply, or could be obtained.

Isolated asbestos (ACM at two locations) would require waste fill at those locations to be classified as Special Waste.

9.2.8 Acid Sulfate Soils

In NSW development of land subject to ASS occurrence is managed in accordance with guidance provided in *Acid Sulfate Soil Manual*, NSW Acid Sulfate Soil Management Advisory Committee, August 1998 (ASSMAC 1998). **Table 9.1** presents Site Action Criteria (SAC) based on actual acid sulfate (ASS) material laboratory analysis results for three broad texture categories. The SAC are based on the percentage of oxidisable sulfur or equivalent acid trail (i.e. titratable actual acidity-TAA or titratable potential acidity-TPA) results. There are two categories based on the scale of the proposed disturbance with the SAC for small scale (i.e. less than 1000 tonnes) works based upon the texture of the soil material and the SAC for large scale works adopting the most sensitive SAC being the SAC for coarse textured soils in small scales works.

Table 9.1 Site Action Criteria based on General Soil Texture Categories (ASSMAC 1998)

Type of material		Action Criteria 1 1000 tonnes disturbed		Action Criteria if more than 1000 tonnes disturbed	
Texture Range. McDonald at al. (1990)	Approx. clay content (%<0.002 mm)	Sulfur trail % S oxidisable (oven-dry basis) e.g. S_{Cr} or S_{Pos}	Acid trail Mol H^+ /tonne (oven-dry basis) e.g., TPA or TSA	Sulfur Trail % S oxidisable (oven-dry basis) e.g. S_{Cr} or S_{Pos}	Acid trail Mol H^+ /tonne (oven-dry basis) e.g., TPA or TSA
Coarse Texture Sands to loamy sands	≤5	0.03	18	0.03	18
Medium texture Sandy loams to light clay	5-40	0.06	36	0.03	18
Fine texture Medium to Heavy clays and silty clays	≥40	0.1	62	0.03	18

Exceedance of the 'Site Action Criteria' (SAC) attributable to ASS material generally triggers the need to prepare a management plan and are based on the percentage of oxidisable sulfur (or equivalent TPA, TAA) for broad categories of soil

No visible indications of acid sulfate soils were reported during the drilling of the soil bores within the underpass area. One sample was collected from BH44 at 5.5 m, within natural material, during the investigation and was submitted for Suspension Peroxide Oxidation Combined Acidity & Sulfur (SPOCAS) tests.

Based on the result of the SPOCAS analysis the material present at the site would not be deemed to be acid sulfate soils. Laboratory results for the SPOCAS test is provided in **Appendix E**.

9.3 General Water Quality

The location of the groundwater monitoring well (MW01) presented in **Figure 3**. Groundwater field water quality parameters, and gauging data are displayed in **Table G**. Groundwater sampling forms are included in **Appendix F**.

During groundwater purging of 6L of groundwater was purged from the monitoring well, with the water quality parameters stabilising after approximately 25 minutes.

The following water quality parameters were measured for the groundwater samples:

- pH was 6.0;
- Electrical conductivity (EC) was 181.3 $\mu\text{S}/\text{cm}$;
- Redox (Eh) was 141 mV;
- Dissolved oxygen was 7.76 mg/L;
- Temperature ranged was 22.6 degrees Celsius; and
- Total Dissolved Solids was 122.1 ppm.

The measured depth to groundwater was to a depth of 5.8 m btoc. The groundwater is inferred to flow towards the south to south west.

By reference to NHMRC (1996) 'Australian Drinking Water Guidelines' and NHMRC (2004) 'Australian Drinking water Guidelines' the water is classified as '*maybe corrosion and acceptable water based on taste*'.

9.4 Groundwater Analytical Results

The groundwater sampling location is shown on **Figure 4** and the summarised laboratory results are presented in **Table H**. Detailed laboratory reports and chain of custody documentation is provided in **Appendix E**.

9.4.1 Metals

The concentrations of the heavy metals (As, Cd, Cr, Cu, Pb, Hg, Ni and Zn) in the groundwater samples selected for analysis were all less than the adopted site criteria.

9.4.2 TPH/BTEX

There were no TPH/BTEX reported above the adopted site criteria in any groundwater sample collected and analysed at the site.

9.4.3 PAHs

All total PAH concentrations were below the adopted site assessment criteria.

10 Site Characterisation

The results are discussed in the following section in relation to the identified decisions developed as part of the DQO process (**Section 6.1.2**). Based on the decision making process for assessing urban redevelopment sites detailed in DECC (2006), the following decisions must be made:

- Are there any unacceptable risks to site workers and/or likely future onsite receptors from fill materials for the proposed land use?
- Are there any issues relating to local area background soil concentrations that exceed the appropriate soil criteria?
- Are there any impacts of chemical mixtures?
- Are there any aesthetic concerns in fill soils present at the site?
- Are there any materials that cannot be reused on site that exceed current waste disposal requirements (i.e. that require treatment for disposal)?
- Is a management strategy required?

10.1 Potential Risks to Future Onsite Receptors

The concentrations above the HIL-C criteria adopted for the site were reported at seven locations for carcinogenic PAHS as B(a)P. Additionally, a total of 16 locations for B(a)P and four locations for concentrations of TPH (C₁₀-C₃₆ less naphthalene) exceeded the adopted ecological criteria for the site

These locations were mainly located along Botany Road and within road base type fill material. Observations made during the current assessment also reported ash and slag materials within the sample locations.

Based on this the concentrations of PAHs and TPH potentially pose a risk to future site users.

It should also be noted that for benzo(a)pyrene, application of NEPC (2013) Ecological Screening levels (ESLs) is considered inappropriate for the site, given the ESLs reported low reliability. Plants have a limited ability to take up PAHs through the roots, especially for higher molecular weight PAHs (such as benzo (a) pyrene). Higher molecular weight PAHs are strongly absorbed to the soil, which limits availability of PAHs to the plants (NEPC 2013).

One sample (BH49) contained concentrations of B(a)P above the adopted HIL-C criteria and was located within a stockpile present adjacent to the rail corridor. This material is also considered to be a potential risk to future site receptors.

Two locations (BH21 and BH23) reported containing non-friable ACM within the southern portion of the site.

Based on these results there is a potential risk to future on site receptors from the ACM based on the adopted open space land-use scenario.

Concentrations of heavy metals were reported above the adopted EILs for copper, nickel and zinc. The heavy metal concentrations are not considered to be a risk to the environment as no existing vegetation was observed to be under stress at the site.

10.2 **Background Soil Concentrations**

Metal concentrations within the material sampled and analysed are consistent with the NEPM (1999) background soil concentrations ranges and appear to represent a regional background concentration.

10.3 **Chemical Mixtures**

There were no potential chemical mixtures identified during the investigation that may pose a contamination issue at the site.

10.4 **Aesthetics**

There was no indication of staining or odours identified in the soil during the current investigation.

However, non-friable ACM was identified in the surface soils (>0.1 m) within one sample location analysed (BH23). Additionally, non-friable ACM fragments were observed to be present in the surface soils at two locations (BH21 and BH23) during the sampling event in the southern portion of the site. As such, the non-friable ACM impacts identified at the site are considered to pose an aesthetic issue.

10.5 **Potential Migration of Contaminants**

Analysis of the groundwater sample collected from the east of the site indicated the absence of significant groundwater contamination impacts at this location.

Where asbestos was observed in the southern portion of the site, there is a potential for ACM present within the surface soils to become weathered and therefore pose a risk from windblown dusts at the site.

Although completed for waste classification purposes, TCLP analysis completed for the soil samples indicated that the COPCs within the site soils, if subjected to landfill conditions, are not likely to leach.

10.6 **Site Management Strategy**

Based on the current investigation a site management strategy would be required to address the potential risk to future site users from the PAHs, TPH and asbestos impacts in soil. Management strategies in some areas of the site will need to consider potential impacts to potential disturbance of areas of Aboriginal heritage.

11 Conclusions and Recommendations

11.1 Conclusions

Based on the findings of this investigation and subject to the limitations in **Section 12**, the following conclusions were made:

- PAHs and TPH concentrations above the adopted HIL-C criteria was noted mainly along Botany Road and is believed to be associated ash and slag observed during the assessment;
- The PAHs and TPH concentrations are considered to pose a potential risk to future site users and workers and require management.
- Non-friable ACM was observed during the current investigation at two locations in the surface soils and poses a potential risk to future site users and workers and requires management;
- Due to potential impact on Aboriginal heritage, several methods for the management of the ACM in the surface soils may be utilised including ‘emu picking’ of ACM fragments from the surface soils, potential capping of the current surface soils with ‘clean’ material, or excavation and disposal of the ACM impacted material. The picking option may provide less risk of impact to areas of Aboriginal heritage, however removal is limited to the upper 10 cm in accessible areas, and ongoing management would require regular re-inspection of surfaces. Capping may not be practical due to vegetation and obscuring of areas of Aboriginal heritage, while excavation and removal would likely result in removal of the top 10-20 cm of soil (and vegetation) at least and unacceptable impact to areas of Aboriginal heritage. Picking and ongoing management may be preferred for ACM removal in areas of Aboriginal heritage that are otherwise required to be undisturbed.
- Concentrations of heavy metal are considered not to be a risk to the environment due to the current healthy plant growth at the site.
- COPC concentrations in the groundwater samples were reported below the adopted site criteria;
- There exists a data gap within the wetland area due to dense vegetation preventing access to the area;
- A risk assessment could be prepared to try and mitigate management of the PAH and TPH impacted soils.
- No potential acid sulfate soils were identified during the assessment; and
- The stockpiled material located adjacent to the rail corridor would require waste classification under the DECCW 2009 waste classification guidelines for removal offsite. Based on the laboratory results the stockpile would be classified as Restricted Solid Waste, however based on the vegetation covering the stockpile further visual assessment should be completed for potential ACM, slag, ash or other anthropogenic materials that may alter the classification. The stockpile is present at BH49 location shown on **Figure 3**.

Due to the presence of non-friable ACM and hydrocarbon impacts in the soil a Remedial Action Plan (RAP) must be prepared prior to the development works to guide the remediation/management of the impacted fill.

11.2 Recommendations

It is recommended that a RAP be developed in accordance with the relevant regulatory requirements and implemented during the development works. The RAP should include, as a minimum, procedures for the following:

- Human health and environmental management procedures to be implemented during the upgrade of the road corridors, the cul-de-sac works and the railway underpass works
- Environmental management procedures to be implemented during the safe removal of asbestos, with care taken not to impact on Aboriginal Heritage areas;
- Either the management or offsite disposal of the asbestos and hydrocarbon contaminated fill under an appropriate waste classification;
- Validation of the residual soils in any resulting excavations to demonstrate suitability of remaining materials to remain on the site; and
- Further assessment of the wetland area should this be impacted by the proposed works.

12 Limitations

This report has been prepared for use by the client who commissioned the works in accordance with the project brief only and has been based in part on information obtained from other parties. The advice herein relates only to this project and all results conclusions and recommendations made should be reviewed by a competent person with experience in environmental investigations, before being used for any other purpose.

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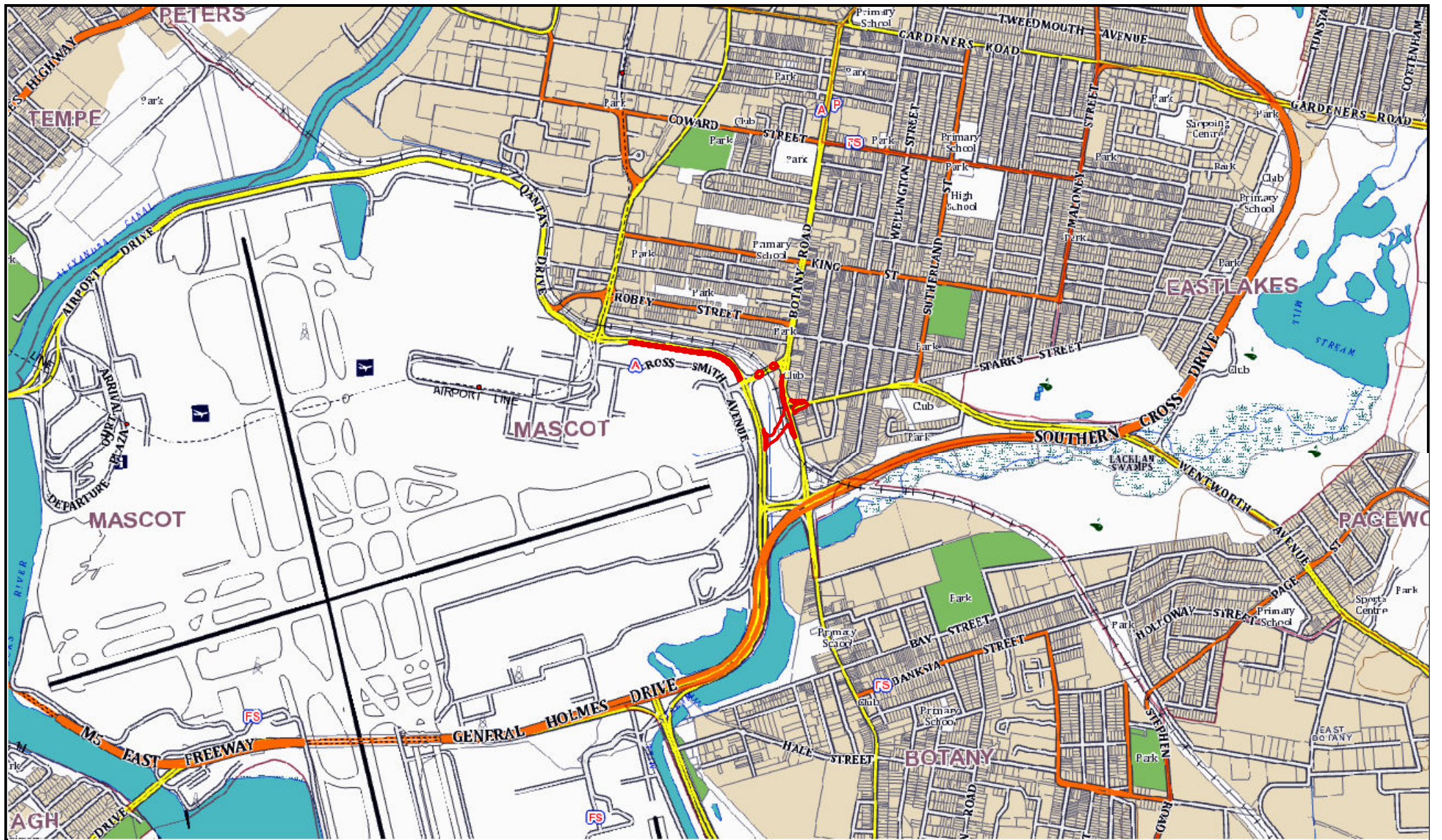
Sampling and chemical analysis of environmental media is based on appropriate guidance documents made and approved by the relevant regulatory authorities. Conclusions arising from the review and assessment of environmental data are based on the sampling and analysis considered appropriate based on the regulatory requirements and site history, not on sampling and analysis of all media at all locations for all potential contaminants.

Limited sampling and laboratory analyses were undertaken as part of the investigations, as described herein. Ground conditions between sampling locations may vary, and this should be considered when extrapolating between sampling points. Chemical analytes are based on the information detailed in the site history. Further chemicals or categories of chemicals may exist at the sites, which were not identified in the site history and which may not be expected at the site.

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

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

Figures



Source: Base Image - © SIX Maps www.maps.six.nsw.gov.au, imagery date 13-04-2011, accessed 20-11-2013

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0 215 430 860 m			
Scale: 1:20,000			
Datum: GDA 1994 MGA Zone 56 - AHD			
A4			
A	Original Issue - R02	SE	05-02-2014
Rev	Description	Dm.	Date:

Legend:
 Approximate Site Boundary

JBS&G Figure 1: Site Location

Client: Roads and Maritime Services

Project: West Connex - ESA

Job No: 43069

File Name: 43069_01





Source: Base Image - © SIX Maps www.maps.six.nsw.gov.au, imagery date 13-04-2011, accessed 20-11-2013

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0 50 100 200 m			
Scale: 1:5,000			
Datum: GDA 1994 MGA Zone 56 - AHD			
A4			
A	Original Issue - R02	SE	07-02-2014
Rev	Description	Dm.	Date:

- Legend:**
- Approximate Site Boundary
 - Area of Additional Sampling Requested by RMS
 - Airsafe (2008) Asbestos Area

JBS&G Figure 2: Site Layout

Client: Roads and Maritime Services

Project: West Connex - ESA

Job No: 43069

File Name: 43069_02





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0 25 50 100 m			
Scale: 1:2,750			
Datum: GDA 1994 MGA Zone 56 - AHD			
A3			
0	Original Issue - R02	RF	05-03-2014
Rev	Description	Dm.	Date

- Legend:**
- Soil Bore Location
 - Soil Bore/Monitoring Well Location
 - Stockpile Location
 - Area of Additional Sampling Requested by RMS
 - Approximate Site Boundary

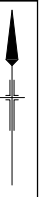
JBS&G Figure 3: Sampling Locations

Client: Roads and Maritime Services

Project: West Connex - ESA

Job No: 43069

File Name: 43069_03





Source: Base Image - © SIX Maps www.maps.six.nsw.gov.au, imagery date 13-04-2013, accessed 20-11-2013

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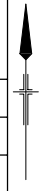
0 25 50 100 m			
Scale: 1:2,750			
Datum: GDA 1994 MGA Zone 56 - AHD			
A3			
A	Original Issue - R02	SE	07-02-2014
Rev	Description	Drn.	Date

- Legend:**
- Approximate Site Boundary
 - Area of Additional Sampling Requested by RMS
 - Soil Bore Location
 - Soil Bore/Monitoring Well Location
 - Asbestos (ACM) Exceedances
 - BaP TEQs Exceedances
 - PAH Exceedances
 - TPH Exceedances

JBS&G Figure 4: Soil Exceedances

Client: Roads and Maritime Services
 Project: West Connex - ESA
 Job No: 43069
 File Name: 43069_04

Note: BH49-51 in stockpile material



Tables

Table A: Soil Analytical Results - Metals and Metalloids

Client: Roads and Maritime Services

Job Number: 43069



			Metals & Metalloids							
			Arsenic (Total)	Cadmium	Chromium (Total)	Copper	Lead	Mercury (Inorganic)	Nickel	Zinc
			mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL			2	0.4	1	1	1	0.05	1	1
NEPC 2013 ESL Urban Residential and Public Open Space, Coarse Soil			100	-	140	130	1100	-	30	180
NEPC 2013 Soil HIL C			300	90	300	17000	600	80	1200	30000
Field ID	Depth (m)	Sample Date								
BH01	0.0-0.2	9/12/2013	2.1	0.8	24	46	140	0.16	12	180
BH02	0.0-0.2	9/12/2013	25	<0.4	120	23	92	0.12	5	130
BH03	0.0-0.2	9/12/2013	6	<0.4	36	28	100	0.13	8	150
BH04	0.0-0.2	9/12/2013	-	-	-	-	-	-	-	-
BH05	0.0-0.2	9/12/2013	4	<0.4	13	43	63	0.08	12	180
BH06	0.0-0.2	9/12/2013	-	-	-	-	-	-	-	-
BH07	0.0-0.2	9/12/2013	<2	1.3	23	100	460	0.29	23	690
BH08	0.0-0.2	9/12/2013	-	-	-	-	-	-	-	-
BH09	0.0-0.2	9/12/2013	<2	<0.4	<5	16	33	0.16	<5	70
BH10	0.0-0.2	9/12/2013	<2	<0.4	7.4	38	88	<0.05	10	120
BH11	0.0-0.2	9/12/2013	<2	1.4	17	98	480	<0.05	15	380
BH12	0.0-0.2	9/12/2013	-	-	-	-	-	-	-	-
BH13	0.0-0.2	9/12/2013	<2	<0.4	<5	27	38	<0.05	<5	71
BH14	0.0-0.2	9/12/2013	<2	0.8	19	93	160	<0.05	19	240
BH15	0.0-0.2	9/12/2013	<2	0.5	10	58	140	<0.05	13	210
BH16	0.0-0.2	9/12/2013	-	-	-	-	-	-	-	-
BH17	0.0-0.2	9/12/2013	<2	<0.4	12	35	33	<0.05	9	120
BH18	0.0-0.1	9/12/2013	-	-	-	-	-	-	-	-
BH19	0.0-0.2	9/12/2013	<2	<0.4	5.7	67	92	<0.05	7.7	120
BH20	0.0-0.2	9/12/2013	-	-	-	-	-	-	-	-
BH21	0.0-0.2	9/12/2013	2.5	<0.4	<5	31	70	<0.05	<5	100
BH22	0.0-0.2	9/12/2013	-	-	-	-	-	-	-	-
BH23	0.0-0.1	10/12/2013	<2	<0.4	<5	14	28	<0.05	<5	37
BH24	0.0-0.1	10/12/2013	-	-	-	-	-	-	-	-
BH25	0.0-0.1	10/12/2013	3.3	<0.4	9.2	33	110	0.12	6.4	93
BH26	0.0-0.1	10/12/2013	-	-	-	-	-	-	-	-
BH27	0.0-0.1	10/12/2013	<2	<0.4	6.3	41	130	<0.05	7	140
BH28	0.0-0.1	10/12/2013	-	-	-	-	-	-	-	-
BH29	0.0-0.1	10/12/2013	2.7	<0.4	8.1	40	160	<0.05	6.7	190
BH30	0.0-0.1	10/12/2013	2.3	<0.4	7.9	45	82	<0.05	14	110
BH31	0.0-0.2	10/12/2013	2.4	<0.4	8.6	40	140	<0.05	9.5	150
BH32	0.0-0.2	10/12/2013	3	0.8	9.5	170	290	0.07	6.8	180
BH33	0.0-0.2	10/12/2013	5	<0.4	<5	<5	<5	<0.05	<5	5.3
BH34	0.0-0.1	10/12/2013	2.2	<0.4	10	36	260	0.27	5.5	170
BH34	0.0-0.1	10/12/2013	-	-	-	-	-	-	-	-
BH35	0.0-0.1	10/12/2013	<2	<0.4	6	23	100	<0.05	7.1	82
BH36	0.0-0.1	10/12/2013	<2	<0.4	8.3	26	57	<0.05	<5	110
BH37	0.0-0.1	10/12/2013	<2	<0.4	12	23	110	<0.05	9.5	110
BH38	0.0-0.2	10/12/2013	<2	<0.4	6.6	26	94	<0.05	<5	85
BH39	0.0-0.2	10/12/2013	<2	0.8	14	72	180	0.09	11	340
BH40	0.0-0.2	10/12/2013	<2	<0.4	5.6	23	120	<0.05	9	150
BH41	0.0-0.1	10/12/2013	3.2	0.7	13	56	230	0.08	20	200
BH41	0.1-0.3	10/12/2013	-	-	-	-	-	-	-	-
BH42	0.0-0.1	10/12/2013	<2	<0.4	<5	28	150	0.08	<5	150
BH44	0.0-0.3	13/12/2013	40	1.9	11	87	74	0.06	19	100
BH44	2.0-2.3	13/12/2013	<2	1.1	<5	<5	<5	<0.05	<5	6.2
BH44	5.5-5.8	13/12/2013	-	-	-	-	-	-	-	-
BH45	1.1-1.3	13/12/2013	<2	3	25	170	110	0.1	38	200
BH47	0.0-0.3	13/12/2013	24	1.8	13	79	39	<0.05	16	61
BH48	0.0-0.3	13/12/2013	<2	1	5.6	17	110	0.09	<5	89
BH49	0.0-0.2	13/12/2013	<2	1.3	12	28	69	<0.05	<5	53
BH50	0.0-0.2	16/12/2013	<2	1.4	27	22	160	0.09	<5	79
BH51	0.0-0.2	16/12/2013	<2	1.6	7.7	31	160	0.08	6.4	240
BH52	0.0-0.2	16/12/2013	<2	1.4	<5	26	14	<0.05	9.6	38
BH53	0.0-0.2	16/12/2013	<2	1.9	16	89	60	<0.05	10	130
BH54	0.0-0.2	16/12/2013	15	1.4	<5	27	39	<0.05	5.2	61
BH55	0.0-0.2	16/12/2013	2.1	1.6	<5	60	32	<0.05	11	52
BH56	0-0.02	17/01/2014	<2	<0.4	10	25	87	0.09	11	65
BH57	0-0.02	17/01/2014	<2	<0.4	16	18	110	0.09	6.8	61
BH58	0-0.02	17/01/2014	<2	<0.4	17	16	98	0.07	<5	37
BH59	0-0.02	17/01/2014	<2	<0.4	14	15	91	0.06	<5	34

Table F: Soil Analytical Results - Asbestos
Client: Roads and Maritime Services
Job Number: 43069



			Asbestos		
			Fibres	Fragments in sample	Fragments surface
				g/10L	g/10L
EQL					
NEPC 2013 HSL - Recreational and Public Open Space			0.0002		
NEPC 2013 Soil HIL C					
Field ID	Depth (m)	Sample Date			
BH01 0.0-0.2	0-0.2	9/12/2013	<0.01	-	-
BH02 0.0-0.2	0-0.2	9/12/2013	-	-	-
BH03 0.0-0.2	0-0.2	9/12/2013	-	-	-
BH04 0.0-0.2	0-0.2	9/12/2013	-	-	-
BH05 0.0-0.2	0-0.2	9/12/2013	-	-	-
BH06 0.0-0.2	0-0.2	9/12/2013	-	-	-
BH07 0.0-0.2	0-0.2	9/12/2013	-	-	-
BH08 0.0-0.2	0-0.2	9/12/2013	-	-	-
BH09 0.0-0.2	0-0.2	9/12/2013	-	-	-
BH10 0.0-0.2	0-0.2	9/12/2013	-	-	-
BH11 0.0-0.2	0-0.2	9/12/2013	-	-	-
BH12 0.0-0.2	0-0.2	9/12/2013	-	-	-
BH13 0.0-0.2	0-0.2	9/12/2013	-	-	-
BH14 0.0-0.2	0-0.2	9/12/2013	-	-	-
BH15 0.0-0.2	0-0.2	9/12/2013	-	-	-
BH16 0.0-0.2	0-0.2	9/12/2013	-	-	-
BH17 0.0-0.2	0-0.2	9/12/2013	<0.01	-	-
BH18 0.0-0.1	0-0.1	9/12/2013	<0.01	-	-
BH19 0.0-0.2	0-0.2	9/12/2013	<0.01	-	-
BH20 0.0-0.2	0-0.2	9/12/2013	<0.01	-	-
BH21 0.0-0.2	0-0.2	9/12/2013	<0.01	-	Fragment
BH22 0.0-0.2	0-0.2	9/12/2013	<0.01	-	-
BH23 0.0-0.1	0-0.1	10/12/2013	<0.01	50.00	Fragment
BH24 0.0-0.1	0-0.1	10/12/2013	-	-	-
BH25 0.0-0.1	0-0.1	10/12/2013	-	-	-
BH26 0.0-0.1	0-0.1	10/12/2013	-	-	-
BH27 0.0-0.1	0-0.1	10/12/2013	-	-	-
BH28 0.0-0.1	0-0.1	10/12/2013	-	-	-
BH29 0.0-0.1	0-0.1	10/12/2013	<0.01	-	-
BH30 0.0-0.1	0-0.1	10/12/2013	-	-	-
BH31 0.0-0.2	0-0.2	10/12/2013	-	-	-
BH32 0.0-0.2	0-0.2	10/12/2013	-	-	-
BH33 0.0-0.2	0-0.2	10/12/2013	<0.01	-	-
BH34	0-0.1	10/12/2013	-	-	-
BH34 0.0-0.1	0-0.1	10/12/2013	-	-	-
BH35 0.0-0.1	0-0.1	10/12/2013	-	-	-
BH36 0.0-0.1	0-0.1	10/12/2013	-	-	-
BH37 0.0-0.1	0-0.1	10/12/2013	<0.01	-	-
BH38 0.0-0.2	0-0.2	10/12/2013	-	-	-
BH39 0.0-0.2	0-0.2	10/12/2013	-	-	-
BH40 0.0-0.2	0-0.2	10/12/2013	-	-	-
BH41 0.0-0.1	0-0.1	10/12/2013	<0.01	-	-
BH41 0.1-0.3	0.1-0.3	10/12/2013	-	-	-
BH42 0.0-0.1	0-0.1	10/12/2013	-	-	-
BH44 0.0-0.3	0-0.3	13/12/2013	-	-	-
BH44 2.0-2.3	2-2.3	13/12/2013	-	-	-
BH44 5.5-5.8	5.5-5.8	13/12/2013	-	-	-
BH45 1.1-1.3	1.1-1.3	13/12/2013	-	-	-
BH47 0.0-0.3	0-0.3	13/12/2013	-	-	-
BH48 0.0-0.3	0-0.3	13/12/2013	-	-	-
BH49 0.0-0.2	0-0.2	13/12/2013	-	-	-
BH50 0.0-0.2	0-0.2	16/12/2013	-	-	-
BH51 0.0-0.2	0-0.2	16/12/2013	-	-	-
BH52 0.0-0.2	0-0.2	16/12/2013	-	-	-
BH53 0.0-0.2	0-0.2	16/12/2013	-	-	-
BH54 0.0-0.2	0-0.2	16/12/2013	-	-	-
BH55 0.0-0.2	0-0.2	16/12/2013	-	-	-
BH56	0-0.02	17/01/2014	<0.01	-	-
BH57	0-0.02	17/01/2014	<0.01	-	-
BH58	0-0.02	17/01/2014	<0.01	-	-
BH59	0-0.02	17/01/2014	<0.01	-	-

Table G - Groundwater and Surface Water Quality Parameters

Client: Roads and Maritime Services

Job No: 43069



Well ID	Date Measured	Depth to Water*	Dissolved Oxygen	Electrical Conductivity	TDS	Redox Potential	pH	Temperature	Comments
		m	(mg/L)	(uS/cm)	(mg/L)	(mV)		(oC)	
Groundwater Monitoring									
MW1	16/12/2013	5/01/1900	7.76	181	122	141	6.00	22.6	No sheen or odour

Notes:

ID = identification

mg/L = milligrams per litre

L = litres

uS/cm = microsiemen per centimetre

mV = millivolts

°C = degrees Celsius

Table H Groundwater Analytical Results
Client: Roads and Maritime Services
Job Number: 43069



	Metals & Metalloids										Polycyclic Aromatic Hydrocarbons															BTEX				TPHs (NEPC 1999)							TRHs (NEPC 2013)					Phenols																			
	Arsenic (Total) (Filtered)	Cadmium (Filtered)	Chromium (Total) (Filtered)	Copper (Filtered)	Lead (Filtered)	Mercury (Inorganic) (Filtered)	Nickel (Filtered)	Zinc (Filtered)	Acenaphthene	Acenaphthylene	Anthracene	Benz(a)anthracene	Benz(a)pyrene	Benz(b)fluoranthene	Benz(a,h)perylene	Benz(k)fluoranthene	Chrysene	Dibenz(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-cd)pyrene	Carcinogenic PAHs as B(a)P TPE	Naphthalene	Phenanthrene	PAHs (Total)	Pyrene	PAHs (Sum of Total)	Benzene	Ethylbenzene	BTEX (Sum of Total)	Toluene	Xylene (m & p)	Xylene (o)	Xylene (Total)	Xylene (Sum of Total)	C6-C9 Fraction	C10-C14 Fraction	>C10-C16 (Sum of Total)	C15-C28 Fraction	C29-C36 Fraction	C10-C36 Fraction (Total)	>C10-C16 Fraction	>C16-C34 Fraction	>C34-C40 Fraction	>C10-C16 less Naphthalene (F2)	C6-C10 Fraction	>C10-C40 (Sum of Total)	C6-C10 less BTEX (F1)	Phenols (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	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	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							
EOL	1	0.1	1	1	1	0.1	1	5	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1	3	20	50	100	100	100	50	100	100	50	20	20	20	10															
NEPC 2013 GIL - Marine Waters	0.7		1.3	4.4	0.1	7	15															50					500																																		
NHMRS & NRMCM 2011 - ADWG Health	10	2	2000	10	1	20	3000					0.01													0.01		1	300	800		600																														
NHMRS 2008 - Recreational Water	100	20	20000	100	10	200	30,000					0.1													0.1		10	3000	8000		6000																														
Sample	Date																																																												
MW1	16/12/2013																																																												
	<1	<0.1	<1	1	<1	<0.1	<1	6	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	7.5	<1	<1	<3	<1	<2	<1	<3	<1.5	<20	<50	<125	<100	<100	<100	<50	<100	<100	<50	<20	<125	<20	<10												



Appendix A – Photographic Log



Photograph 1 – Looking north along General Holmes Drive, near Ross Smith Avenue



Photograph 2 - Looking west along southern boundary, near Mill Pond Drive



Photograph 3 – Asbestos fragments along southern boundary.



Photograph 4 – Looking east along southern boundary




Photograph 5 – Looking south along western boundary with General Holmes Drive (From near BH35)



Photograph 6 – Drainage Channel that bisects the area

Source: JBS2014			
0	Original Issue - A	TH	07/02/2014
Rev	Description	Drn.	Date

 Appendix: Appendix A	
Client: Roads and Maritime Services	
Project: WestConnex Project	
Job No: 43069	File Name: FPI-1



Photograph 1 – Looking south along Botany Road, with Wentworth Avenue Intersection to the left



Photograph 2 - Looking south through rail corridor



Photograph 3 – Sandy clay within the rail corridor (BH44/MW1 – 2.0 m)



Photograph 4 – Water bearing zone within rail corridor (BH44/MW1 – 5.5 m)




Photograph 5 – Wetland area not accessible for sampling



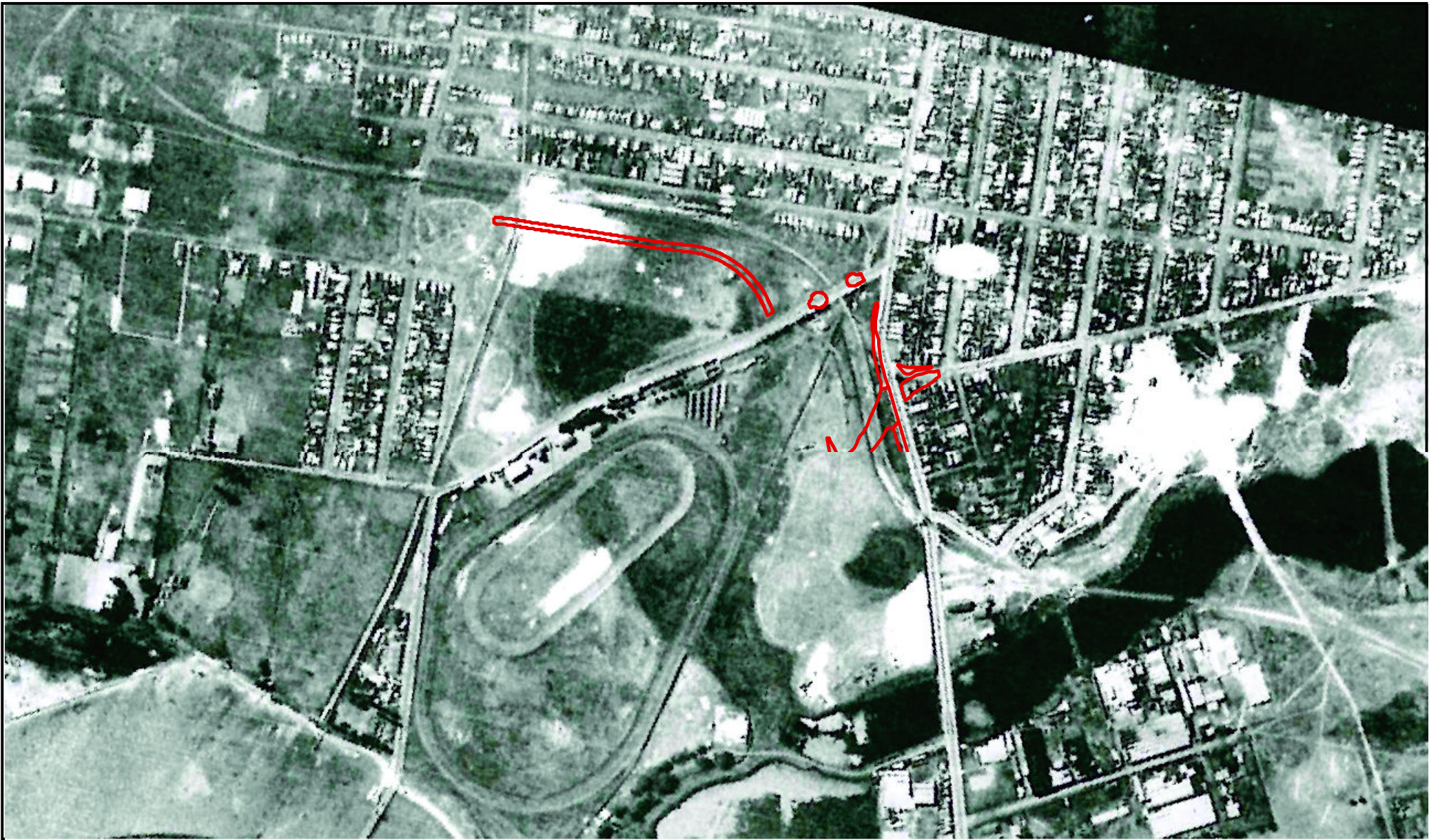
Photograph 6 – Area cleared for sampling, looking from the rail corridor east into the westland

Source: JBS2014			
0	Original Issue -	GB	31/012014
Rev	Description	Drn.	Date

 Appendix: Appendix A	
Client: Government property NSW	
Project: 21 Greenwoods Avenue, Singleton, NSW	
Job No: 43247	File Name: FPI-1



Appendix B – Aerials



Source: Base Image - © Department of Lands, Sydney, 20-02-1930, Run 18

© 2013 JBS&G

0 85 170 340
m

Scale: 1:8,000

Datum: GDA 1994 MGA Zone 56 - AHD

A4

A Original Issue - Aerials SE 02-12-2013

Rev Description Dm. Date:

Legend:

Approximate Site Boundary

JBS&G Figure: Sydney, February 1930
Run 18

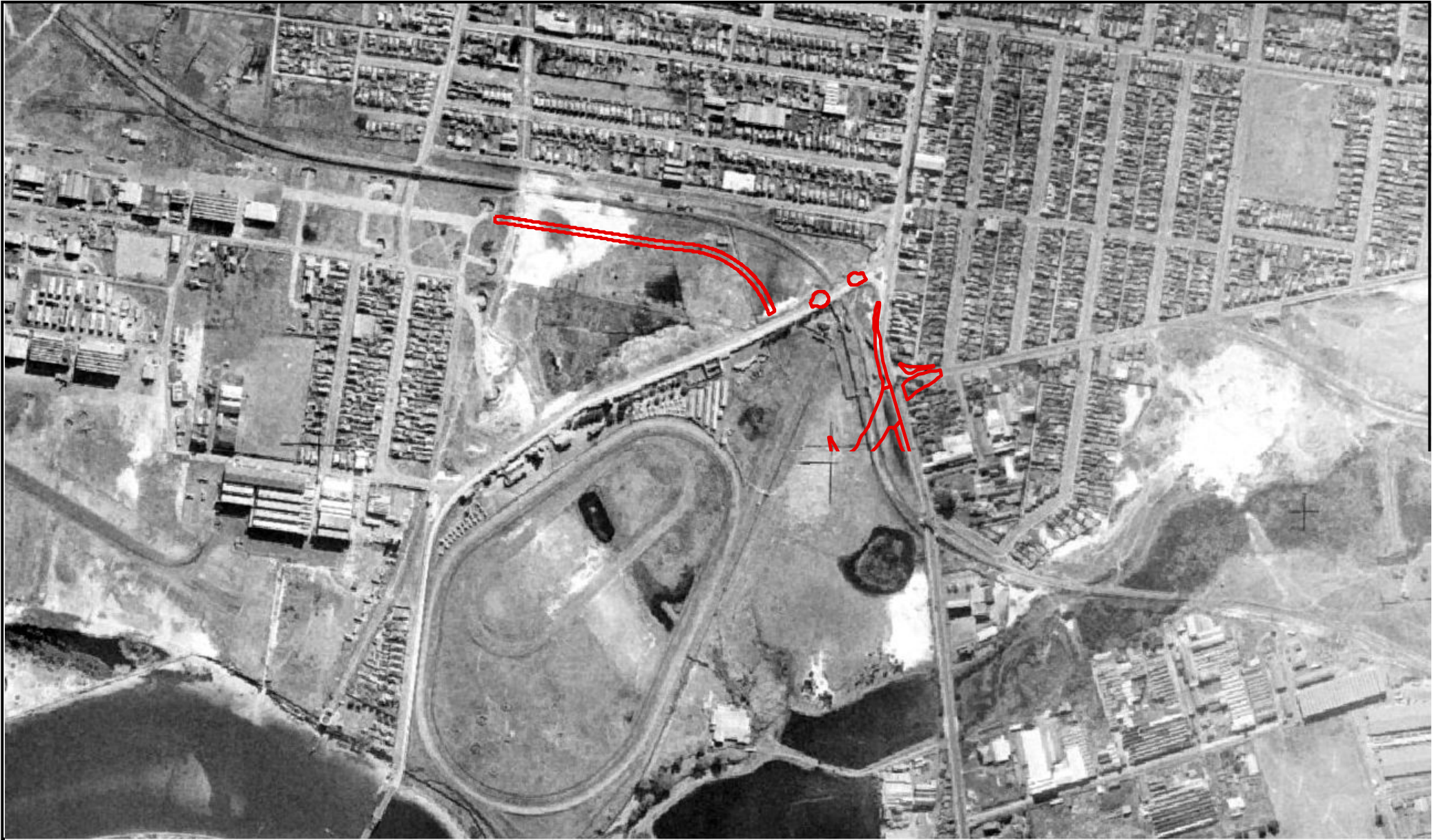
Client: Roads and Maritime Services

Project: West Connex - SAQP

Job No: 43069

File Name: 43069_1930





Source: Base Image - © SIX Maps www.maps.six.nsw.gov.au, imagery date 1942

© 2013 JBS&G

0 85 170 340
m

Scale: 1:8,000

Datum: GDA 1994 MGA Zone 56 - AHD

A4

A Original Issue - Aerials SE 02-12-2013

Rev Description Dm. Date:

Legend:

Approximate Site Boundary

 **JBS&G** Figure: Sydney, 1942

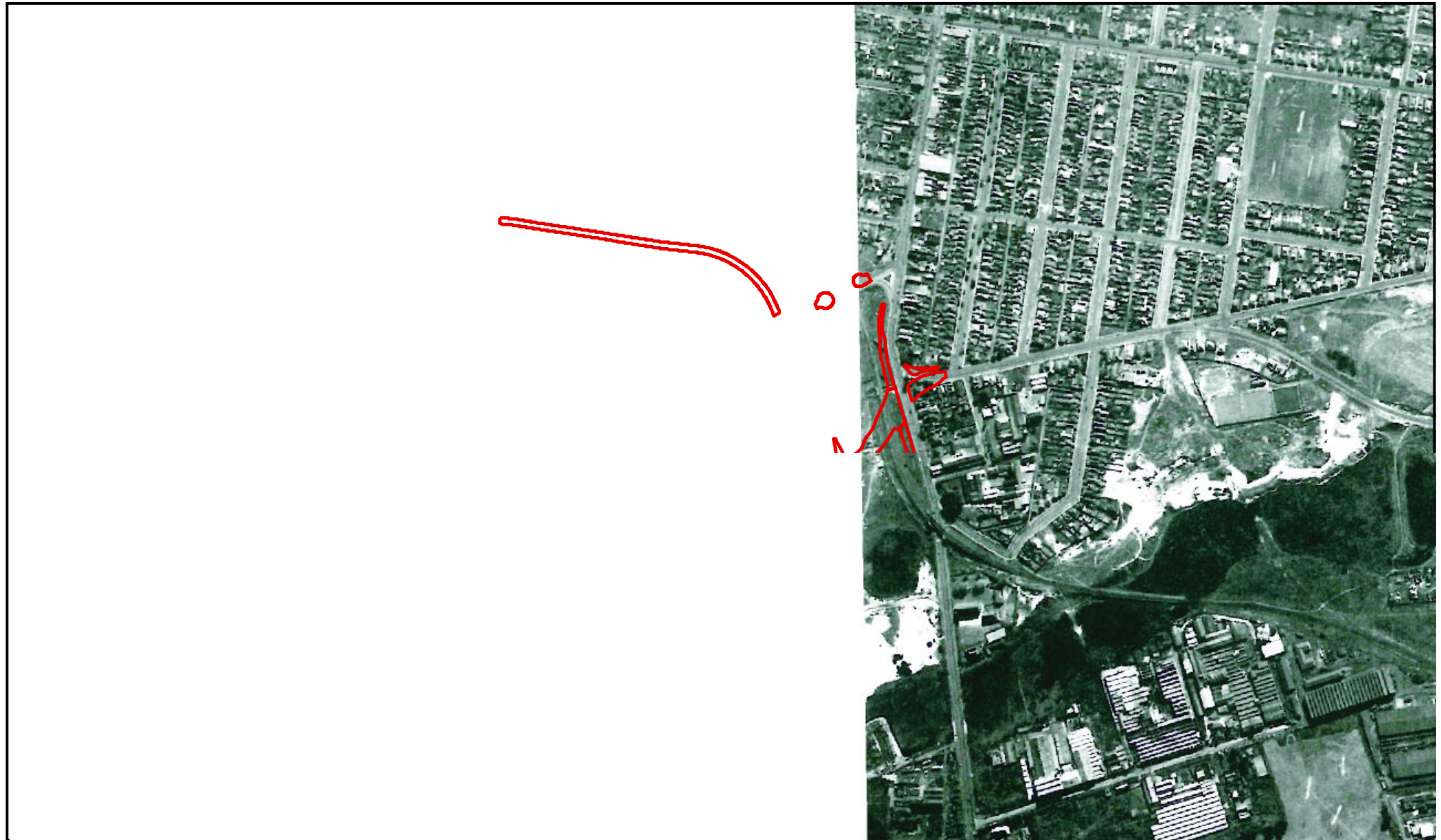
Client: Roads and Maritime Services

Project: West Connex - SAQP

Job No: 43069

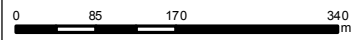
File Name: 43069_1942





Source: Base Image - © Department of Lands, Sydney, 05-1951, Run 17

© 2013 JBS&G



Scale: 1:8,000

Datum: GDA 1994 MGA Zone 56 - AHD

A4			

A	Original Issue - Aerials	SE	02-12-2013
Rev	Description	Dm.	Date:

Legend:
 Approximate Site Boundary

JBS&G Figure: Sydney, May 1951
Run 17

Client: Roads and Maritime Services

Project: West Connex - SAQP

Job No: 43069

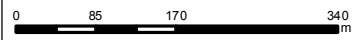
File Name: 43069_1951





Source: Base Image - © Department of Lands, Sydney, 1961, Run 39E

© 2013 JBS&G




Scale: 1:8,000

Datum: GDA 1994 MGA Zone 56 - AHD

A4			

A	Original Issue - Aerials	SE	02-12-2013
Rev	Description	Dm.	Date:

Legend:
 Approximate Site Boundary

JBS&G Figure: Sydney, 1961
Run 39E

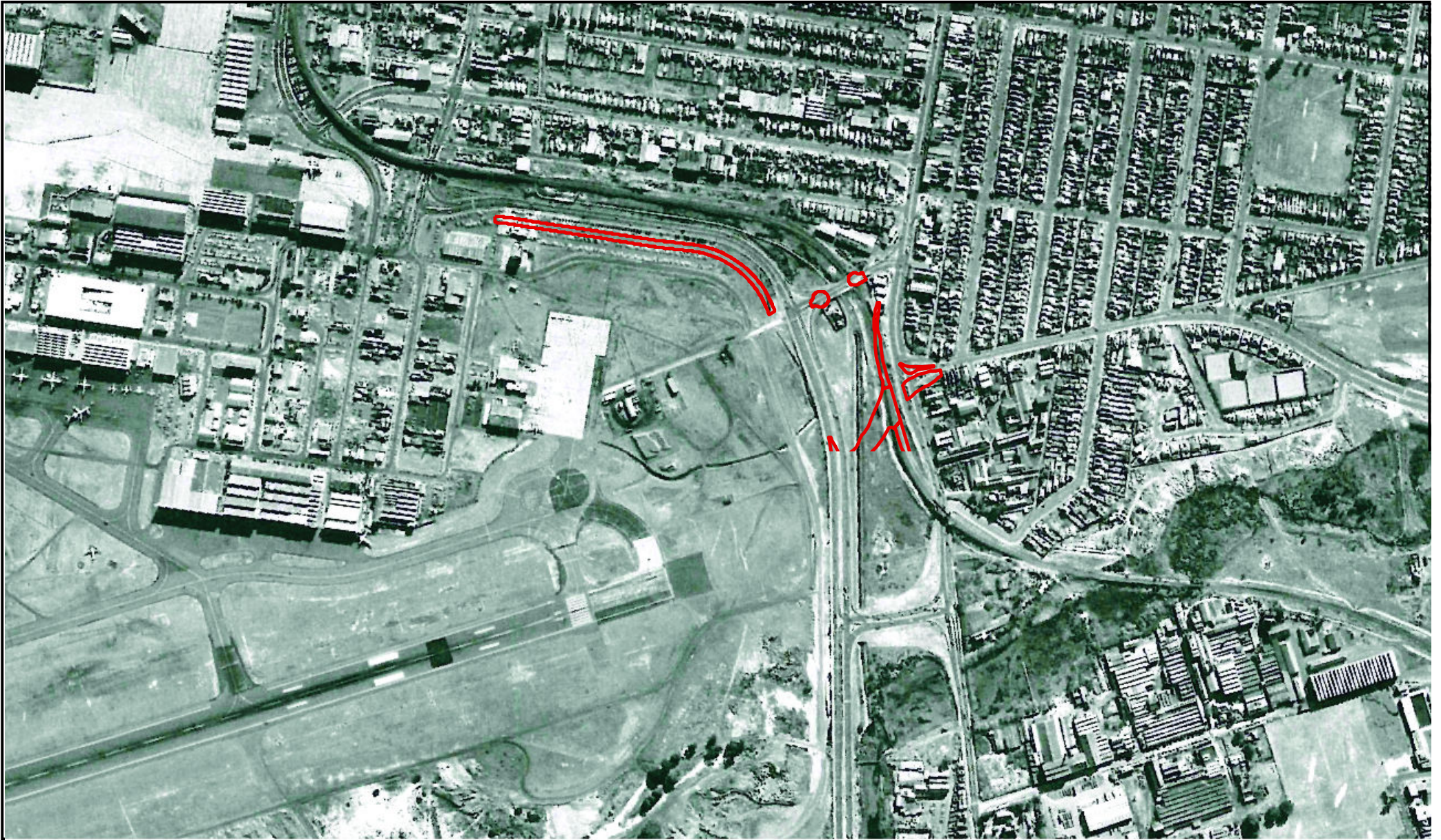
Client: Roads and Maritime Services

Project: West Connex - SAQP

Job No: 43069

File Name: 43069_1961





Source: Base Image - © Department of Lands, Sydney, 07-07-1970, Run 20

© 2013 JBS&G

0 85 170 340
m

Scale: 1:8,000

Datum: GDA 1994 MGA Zone 56 - AHD

A4

A Original Issue - Aerials SE 02-12-2013

Rev Description Dm. Date:

Legend:


 Approximate Site Boundary



Figure: Sydney, July 1970
Run 20

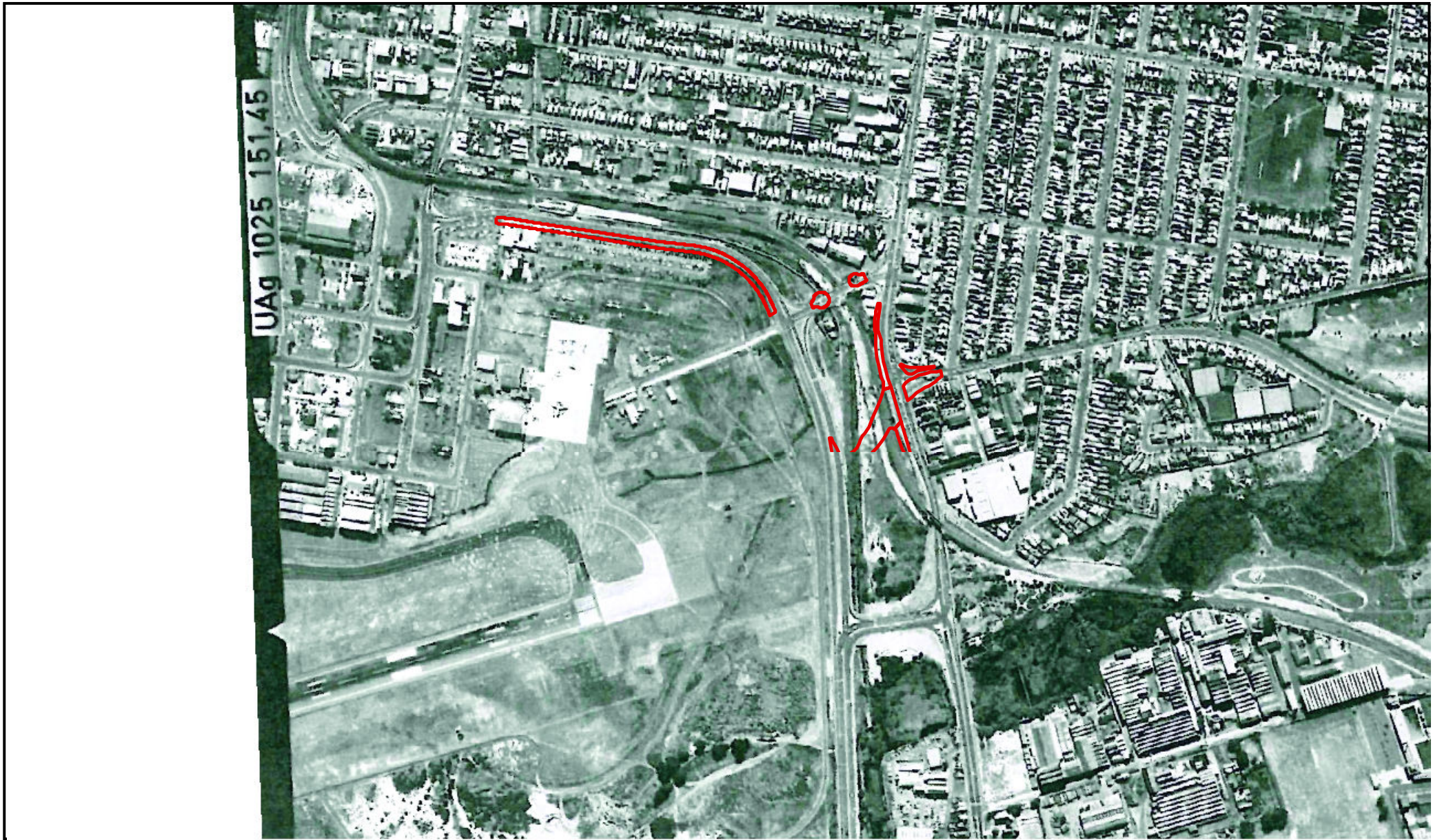
Client: Roads and Maritime Services

Project: West Connex - SAQP

Job No: 43069

File Name: 43069_1970





Source: Base Image - © Department of Lands, Sydney, 13-05-1978, Run 19

© 2013 JBS&G

0 85 170 340
m

Scale: 1:8,000


Datum: GDA 1994 MGA Zone 56 - AHD

A4

A Original Issue - Aerials SE 02-12-2013

Rev Description Dm. Date:

Legend:

 Approximate Site Boundary

 **JBS&G** Figure: Sydney, May 1978
Run 19

Client: Roads and Maritime Services

Project: West Connex - SAQP

Job No: 43069

File Name: 43069_1978





Source: Base Image - © Department of Lands, Sydney, 02-08-1986, Run 25E

© 2013 JBS&G

0 85 170 340
m

Scale: 1:8,000


Datum: GDA 1994 MGA Zone 56 - AHD

A4

A Original Issue - Aerials SE 02-12-2013

Rev Description Dm. Date:

Legend:

 Approximate Site Boundary

 **JBS&G** Figure: Sydney, August 1986
Run 25E

Client: Roads and Maritime Services

Project: West Connex - SAQP

Job No: 43069

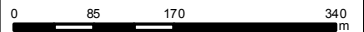
File Name: 43069_1986





Source: Base Image - © Department of Lands, Sydney, 04-10-1994, Run 12

© 2013 JBS&G




Scale: 1:8,000

Datum: GDA 1994 MGA Zone 56 - AHD

A4			

A	Original Issue - Aerials	SE	02-12-2013
Rev	Description	Dm.	Date:

Legend:
 Approximate Site Boundary

JBS&G Figure: Sydney, October 1994
Run 12

Client: Roads and Maritime Services

Project: West Connex - SAQP

Job No: 43069

File Name: 43069_1994





Source: Base Image - © Google Earth, Sydney, 13-12-2005

© 2013 JBS&G

0 85 170 340
m

Scale: 1:8,000


Datum: GDA 1994 MGA Zone 56 - AHD

A4

A Original Issue - Aerials SE 02-12-2013

Rev Description Dm. Date:

Legend:

 Approximate Site Boundary

 **JBS&G** Figure: Sydney, December 2005

Client: Roads and Maritime Services

Project: West Connex - SAQP

Job No: 43069

File Name: 43069_2005





Appendix C – Borehole Logs



Borehole No: BH01

Project No: 43069

Client: Roads and Maritime Services

Project Name: WestConnex Enabling Works

Site Address: Mascot, NSW

Date: 9/10/2013

Contractor: -

Drill Rig: -

Method: Hand Auger

Total Hole Depth (mbgs): 0.3

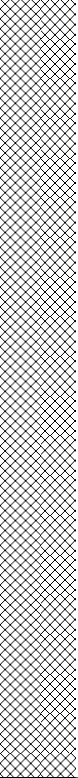
Eastings (MGA): -

Northings (MGA): -

Reference Level: Ground Surface

Elevation - Surface (m): 0

Bore Diameter (mm): 150

SUBSURFACE PROFILE			SAMPLE			
Depth	Graphic Log	Lithologic Description	Sample ID	PID (ppm)	Sample Type	Comments
0.0		Ground Surface				
		Fill (FL) Silty sand, brown, heterogeneous, dry, loose with glass and igneous gravels.	BH01 0.0-0.2	0.1	D	10 L inspected. No ACM observed. No odours or staining.
		End of Hole at 0.3 mbgs. Program depth.				

Drilling Method	Sample Type	Reference Level	Log Details
HA - Hand Auger	U - Undisturbed tube sample	AHD - Australian Height Datum	Logged By: C. Bielby
SFA - Solid Flight Auger	D - Disturbed sample	BGS - Below Ground Surface	Project Manager: T. Harding
HFA - Hollow Flight Auger	CS - Core sample		
PT - Push Tube			
AH - Air Hammer			

NOTE: This bore log is for environmental assessment purposes only and is not intended to provide geotechnical information
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Borehole No: BH02

Project No: 43069

Client: Roads and Maritime Services

Project Name: WestConnex Enabling Works

Site Address: Mascot, NSW

Date: 9/10/2013

Contractor: -

Drill Rig: -

Method: Hand Auger

Total Hole Depth (mbgs): 0.3

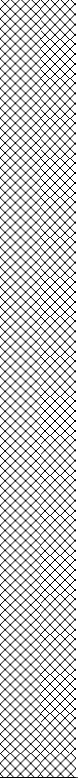
Eastings (MGA): -

Northings (MGA): -

Reference Level: Ground Surface

Elevation - Surface (m): 0

Bore Diameter (mm): 150

SUBSURFACE PROFILE			SAMPLE			
Depth	Graphic Log	Lithologic Description	Sample ID	PID (ppm)	Sample Type	Comments
0.0		<p>Ground Surface</p> <p>Fill (FL) Silty sand, brown, heterogeneous, dry, loose with glass, igneous gravels, copper conduit and plastic.</p>	BH02 0.0-0.2	0.0	D	10 L inspected. No ACM observed. No odours or staining.
		<p>End of Hole at 0.3 mbgs. Program depth.</p>				

Drilling Method	Sample Type	Reference Level	Log Details
HA - Hand Auger	U - Undisturbed tube sample	AHD - Australian Height Datum	Logged By: C. Bielby
SFA - Solid Flight Auger	D - Disturbed sample	BGS - Below Ground Surface	Project Manager: T. Harding
HFA - Hollow Flight Auger	CS - Core sample		
PT - Push Tube			
AH - Air Hammer			

NOTE: This bore log is for environmental assessment purposes only and is not intended to provide geotechnical information
© JBS&G



Borehole No: BH03

Project No: 43069

Client: Roads and Maritime Services

Project Name: WestConnex Enabling Works

Site Address: Mascot, NSW

Date: 9/10/2013

Eastings (MGA): -

Contractor: -

Northings (MGA): -

Drill Rig: -

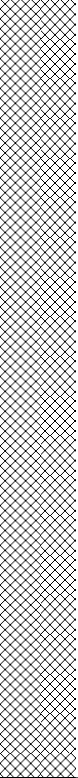
Reference Level: Ground Surface

Method: Hand Auger

Elevation - Surface (m): 0

Total Hole Depth (mbgs): 0.3

Bore Diameter (mm): 150

SUBSURFACE PROFILE			SAMPLE			
Depth	Graphic Log	Lithologic Description	Sample ID	PID (ppm)	Sample Type	Comments
0.0		<p>Ground Surface</p> <p>Fill (FL) Silty sand, brown, heterogeneous, dry, loose with glass, igneous gravels and plastic.</p>	BH03 0.0-0.2	0.0	D	10 L inspected. No ACM observed. No odours or staining.
		<p>End of Hole at 0.3 mbgs. Program depth.</p>				

Drilling Method	Sample Type	Reference Level	Log Details
HA - Hand Auger SFA - Solid Flight Auger HFA - Hollow Flight Auger PT - Push Tube AH - Air Hammer	U - Undisturbed tube sample D - Disturbed sample CS - Core sample	AHD - Australian Height Datum BGS - Below Ground Surface	Logged By: C. Bielby Project Manager: T. Harding

NOTE: This bore log is for environmental assessment purposes only and is not intended to provide geotechnical information
© JBS&G



Borehole No: BH04

Project No: 43069

Client: Roads and Maritime Services

Project Name: WestConnex Enabling Works

Site Address: Mascot, NSW

Date: 9/10/2013

Contractor: -

Drill Rig: -

Method: Hand Auger

Total Hole Depth (mbgs): 0.3

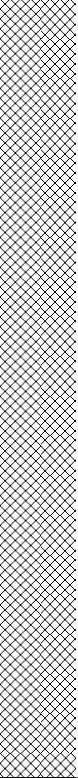
Eastings (MGA): -

Northings (MGA): -

Reference Level: Ground Surface

Elevation - Surface (m): 0

Bore Diameter (mm): 150

SUBSURFACE PROFILE			SAMPLE			
Depth	Graphic Log	Lithologic Description	Sample ID	PID (ppm)	Sample Type	Comments
0.0		Ground Surface				
		Fill (FL) Silty sand, dark brown, heterogeneous, moist, loose with fine igneous gravels.	BH04 0.0-0.2	0.0	D	10 L inspected. No ACM observed. No odours or staining.
		End of Hole at 0.3 mbgs. Program depth.				

Drilling Method	Sample Type	Reference Level	Log Details
HA - Hand Auger	U - Undisturbed tube sample	AHD - Australian Height Datum	Logged By: C. Bielby
SFA - Solid Flight Auger	D - Disturbed sample	BGS - Below Ground Surface	Project Manager: T. Harding
HFA - Hollow Flight Auger	CS - Core sample		
PT - Push Tube			
AH - Air Hammer			

NOTE: This bore log is for environmental assessment purposes only and is not intended to provide geotechnical information
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Borehole No: BH05

Project No: 43069

Client: Roads and Maritime Services

Project Name: WestConnex Enabling Works

Site Address: Mascot, NSW

Date: 9/10/2013

Eastings (MGA): -

Contractor: -

Northings (MGA): -

Drill Rig: -

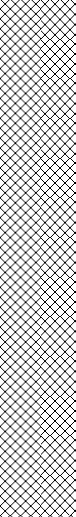

Reference Level: Ground Surface

Method: Hand Auger

Elevation - Surface (m): 0

Total Hole Depth (mbgs): 0.3

Bore Diameter (mm): 150

SUBSURFACE PROFILE			SAMPLE			
Depth	Graphic Log	Lithologic Description	Sample ID	PID (ppm)	Sample Type	Comments
0.0		Ground Surface				
		Fill (FL) Silty sand, dark brown, heterogeneous, moist, loose with fine igneous gravels.	BH05 0.0-0.2	0.1	D	10 L inspected. No ACM observed. No odours or staining.
		Sand (SW) Brown, homogeneous, damp, fine-coarse.	BH05 0.2-0.3	0.0	D	10 L inspected. No ACM observed. No odours or staining.
		End of Hole at 0.3 mbgs. Program depth.				

Drilling Method	Sample Type	Reference Level	Log Details
HA - Hand Auger	U - Undisturbed tube sample	AHD - Australian Height Datum	Logged By: C. Bielby
SFA - Solid Flight Auger	D - Disturbed sample	BGS - Below Ground Surface	Project Manager: T. Harding
HFA - Hollow Flight Auger	CS - Core sample		
PT - Push Tube			
AH - Air Hammer			

NOTE: This bore log is for environmental assessment purposes only and is not intended to provide geotechnical information
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Borehole No: BH06

Project No: 43069

Client: Roads and Maritime Services

Project Name: WestConnex Enabling Works

Site Address: Mascot, NSW

Date: 9/10/2013

Contractor: -

Drill Rig: -

Method: Hand Auger

Total Hole Depth (mbgs): 0.3

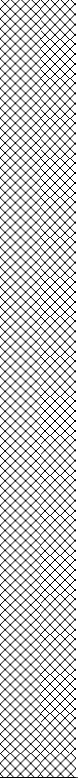
Eastings (MGA): -

Northings (MGA): -

Reference Level: Ground Surface

Elevation - Surface (m): 0

Bore Diameter (mm): 150

SUBSURFACE PROFILE			SAMPLE			
Depth	Graphic Log	Lithologic Description	Sample ID	PID (ppm)	Sample Type	Comments
0.0		Ground Surface				
		Fill (FL) Silty sand, brown-grey, heterogeneous, dry, loose with fine gravels.	BH06 0.0-0.2	0	D	10 L inspected. No ACM observed. No odours or staining.
		End of Hole at 0.3 mbgs. Program depth.				

Drilling Method	Sample Type	Reference Level	Log Details
HA - Hand Auger	U - Undisturbed tube sample	AHD - Australian Height Datum	Logged By: C. Bielby
SFA - Solid Flight Auger	D - Disturbed sample	BGS - Below Ground Surface	Project Manager: T. Harding
HFA - Hollow Flight Auger	CS - Core sample		
PT - Push Tube			
AH - Air Hammer			

NOTE: This bore log is for environmental assessment purposes only and is not intended to provide geotechnical information
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Borehole No: BH07

Project No: 43069

Client: Roads and Maritime Services

Project Name: WestConnex Enabling Works

Site Address: Mascot, NSW

Date: 9/10/2013

Contractor: -

Drill Rig: -

Method: Hand Auger

Total Hole Depth (mbgs): 0.3

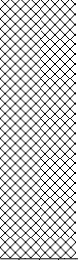

Eastings (MGA): -

Northings (MGA): -

Reference Level: Ground Surface

Elevation - Surface (m): 0

Bore Diameter (mm): 150

SUBSURFACE PROFILE			SAMPLE			
Depth	Graphic Log	Lithologic Description	Sample ID	PID (ppm)	Sample Type	Comments
0.0		<p>Ground Surface</p> <p>Fill (FL) Silty sand, brown-grey, heterogeneous, dry, loose with fine gravels.</p>	BH07 0.0-0.1	0	D	10 L inspected. No ACM observed. No odours or staining.
		<p>Sand (SW) Brown, homogeneous, damp, fine-coarse.</p>	BH07 0.1-0.3	0.1	D	10 L inspected. No ACM observed. No odours or staining.
		<p>End of Hole at 0.3 mbgs. Program depth.</p>				

Drilling Method	Sample Type	Reference Level	Log Details
HA - Hand Auger SFA - Solid Flight Auger HFA - Hollow Flight Auger PT - Push Tube AH - Air Hammer	U - Undisturbed tube sample D - Disturbed sample CS - Core sample	AHD - Australian Height Datum BGS - Below Ground Surface	Logged By: C. Bielby Project Manager: T. Harding

NOTE: This bore log is for environmental assessment purposes only and is not intended to provide geotechnical information
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Borehole No: BH08

Project No: 43069

Client: Roads and Maritime Services

Project Name: WestConnex Enabling Works

Site Address: Mascot, NSW

Date: 9/10/2013

Contractor: -

Drill Rig: -

Method: Hand Auger

Total Hole Depth (mbgs): 0.3

Eastings (MGA): -

Northings (MGA): -

Reference Level: Ground Surface

Elevation - Surface (m): 0

Bore Diameter (mm): 150

SUBSURFACE PROFILE			SAMPLE			
Depth	Graphic Log	Lithologic Description	Sample ID	PID (ppm)	Sample Type	Comments
0.0		Ground Surface Fill (FL) Silty sand, brown-grey, heterogeneous, dry, loose with trace fine gravels.	BH08 0.0-0.2	0	D	10 L inspected. No ACM observed. No odours or staining.
		End of Hole at 0.3 mbgs. Program depth.				

Drilling Method	Sample Type	Reference Level	Log Details
HA - Hand Auger	U - Undisturbed tube sample	AHD - Australian Height Datum	Logged By: C. Bielby
SFA - Solid Flight Auger	D - Disturbed sample	BGS - Below Ground Surface	Project Manager: T. Harding
HFA - Hollow Flight Auger	CS - Core sample		
PT - Push Tube			
AH - Air Hammer			

NOTE: This bore log is for environmental assessment purposes only and is not intended to provide geotechnical information



Borehole No: BH09

Project No: 43069

Client: Roads and Maritime Services

Project Name: WestConnex Enabling Works

Site Address: Mascot, NSW

Date: 9/10/2013

Eastings (MGA): -

Contractor: -

Northings (MGA): -

Drill Rig: -

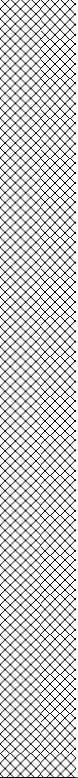
Reference Level: Ground Surface

Method: Hand Auger

Elevation - Surface (m): 0

Total Hole Depth (mbgs): 0.3

Bore Diameter (mm): 150

SUBSURFACE PROFILE			SAMPLE			
Depth	Graphic Log	Lithologic Description	Sample ID	PID (ppm)	Sample Type	Comments
0.0		<p>Ground Surface</p> <p>Fill (FL) Silty sand, brown-grey, heterogeneous, dry, loose with trace fine gravels.</p>	BH09 0.0-0.2	0	D	10 L inspected. No ACM observed. No odours or staining.
		<p>End of Hole at 0.3 mbgs. Program depth.</p>				

Drilling Method	Sample Type	Reference Level	Log Details
HA - Hand Auger SFA - Solid Flight Auger HFA - Hollow Flight Auger PT - Push Tube AH - Air Hammer	U - Undisturbed tube sample D - Disturbed sample CS - Core sample	AHD - Australian Height Datum BGS - Below Ground Surface	Logged By: C. Bielby Project Manager: T. Harding

NOTE: This bore log is for environmental assessment purposes only and is not intended to provide geotechnical information
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Borehole No: BH10

Project No: 43069

Client: Roads and Maritime Services

Project Name: WestConnex Enabling Works

Site Address: Mascot, NSW

Date: 9/10/2013

Eastings (MGA): -

Contractor: -

Northings (MGA): -

Drill Rig: -

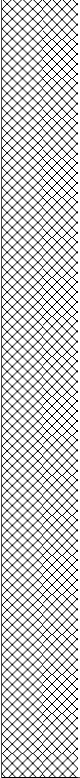
Reference Level: Ground Surface

Method: Hand Auger

Elevation - Surface (m): 0

Total Hole Depth (mbgs): 0.3

Bore Diameter (mm): 150

SUBSURFACE PROFILE			SAMPLE			
Depth	Graphic Log	Lithologic Description	Sample ID	PID (ppm)	Sample Type	Comments
0.0		Ground Surface				
		Fill (FL) Silty sand, brown, heterogeneous, dry, loose with trace fine gravels and plastic.	BH10 0.0-0.2	0	D	10 L inspected. No ACM observed. No odours or staining.
		End of Hole at 0.3 mbgs. Program depth.				

Drilling Method	Sample Type	Reference Level	Log Details
HA - Hand Auger	U - Undisturbed tube sample	AHD - Australian Height Datum	Logged By: C. Bielby
SFA - Solid Flight Auger	D - Disturbed sample	BGS - Below Ground Surface	Project Manager: T. Harding
HFA - Hollow Flight Auger	CS - Core sample		
PT - Push Tube			
AH - Air Hammer			

NOTE: This bore log is for environmental assessment purposes only and is not intended to provide geotechnical information
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Borehole No: BH11

Project No: 43069

Client: Roads and Maritime Services

Project Name: WestConnex Enabling Works

Site Address: Mascot, NSW

Date: 9/10/2013

Contractor: -

Drill Rig: -

Method: Hand Auger

Total Hole Depth (mbgs): 0.3

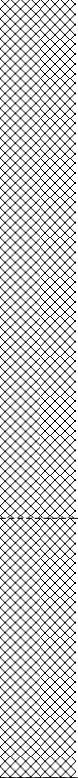
Eastings (MGA): -

Northings (MGA): -

Reference Level: Ground Surface

Elevation - Surface (m): 0

Bore Diameter (mm): 150

SUBSURFACE PROFILE			SAMPLE			
Depth	Graphic Log	Lithologic Description	Sample ID	PID (ppm)	Sample Type	Comments
0.0		Ground Surface Fill (FL) Silty sand, brown, heterogeneous, dry, loose with concrete, plastic, and igneous gravels.	BH11 0.0-0.2	0	D	10 L inspected. No ACM observed. No odours or staining.
		As above, but with less inclusions.				
		End of Hole at 0.3 mbgs. Program depth.				

Drilling Method	Sample Type	Reference Level	Log Details
HA - Hand Auger	U - Undisturbed tube sample	AHD - Australian Height Datum	Logged By: C. Bielby
SFA - Solid Flight Auger	D - Disturbed sample	BGS - Below Ground Surface	Project Manager: T. Harding
HFA - Hollow Flight Auger	CS - Core sample		
PT - Push Tube			
AH - Air Hammer			

NOTE: This bore log is for environmental assessment purposes only and is not intended to provide geotechnical information
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Borehole No: BH12

Project No: 43069

Client: Roads and Maritime Services

Project Name: WestConnex Enabling Works

Site Address: Mascot, NSW

Date: 9/10/2013

Contractor: -

Drill Rig: -

Method: Hand Auger

Total Hole Depth (mbgs): 0.3

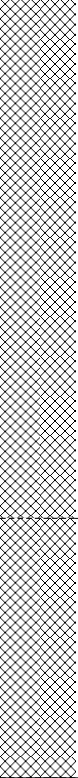
Eastings (MGA): -

Northings (MGA): -

Reference Level: Ground Surface

Elevation - Surface (m): 0

Bore Diameter (mm): 150

SUBSURFACE PROFILE			SAMPLE			
Depth	Graphic Log	Lithologic Description	Sample ID	PID (ppm)	Sample Type	Comments
0.0		Ground Surface Fill (FL) Silty sand, brown, heterogeneous, dry, loose with concrete, plastic, and igneous gravels.	BH12 0.0-0.2	0	D	10 L inspected. No ACM observed. No odours or staining.
		As above, but with less inclusions.				
		End of Hole at 0.3 mbgs. Program depth.				

Drilling Method	Sample Type	Reference Level	Log Details
HA - Hand Auger	U - Undisturbed tube sample	AHD - Australian Height Datum	Logged By: C. Bielby
SFA - Solid Flight Auger	D - Disturbed sample	BGS - Below Ground Surface	Project Manager: T. Harding
HFA - Hollow Flight Auger	CS - Core sample		
PT - Push Tube			
AH - Air Hammer			

NOTE: This bore log is for environmental assessment purposes only and is not intended to provide geotechnical information
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Borehole No: BH13

Project No: 43069

Client: Roads and Maritime Services

Project Name: WestConnex Enabling Works

Site Address: Mascot, NSW

Date: 9/10/2013

Eastings (MGA): -

Contractor: -

Northings (MGA): -

Drill Rig: -

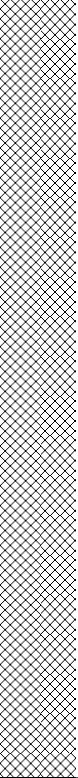
Reference Level: Ground Surface

Method: Hand Auger

Elevation - Surface (m): 0

Total Hole Depth (mbgs): 0.3

Bore Diameter (mm): 150

SUBSURFACE PROFILE			SAMPLE			
Depth	Graphic Log	Lithologic Description	Sample ID	PID (ppm)	Sample Type	Comments
0.0		Ground Surface				
		Fill (FL) Silty sand, brown-grey, heterogeneous, dry, loose with fine gravels.	BH13 0.0-0.2	0	D	10 L inspected. No ACM observed. No odours or staining.
		End of Hole at 0.3 mbgs. Program depth.				

Drilling Method	Sample Type	Reference Level	Log Details
HA - Hand Auger	U - Undisturbed tube sample	AHD - Australian Height Datum	Logged By: C. Bielby
SFA - Solid Flight Auger	D - Disturbed sample	BGS - Below Ground Surface	Project Manager: T. Harding
HFA - Hollow Flight Auger	CS - Core sample		
PT - Push Tube			
AH - Air Hammer			

NOTE: This bore log is for environmental assessment purposes only and is not intended to provide geotechnical information
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Borehole No: BH14

Project No: 43069

Client: Roads and Maritime Services

Project Name: WestConnex Enabling Works

Site Address: Mascot, NSW

Date: 9/10/2013

Contractor: -

Drill Rig: -

Method: Hand Auger

Total Hole Depth (mbgs): 0.3

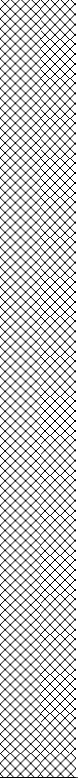
Eastings (MGA): -

Northings (MGA): -

Reference Level: Ground Surface

Elevation - Surface (m): 0

Bore Diameter (mm): 150

SUBSURFACE PROFILE			SAMPLE			
Depth	Graphic Log	Lithologic Description	Sample ID	PID (ppm)	Sample Type	Comments
0.0		<p>Ground Surface</p> <p>Fill (FL) Silty sand, dark brown, heterogeneous, damp, fine-coarse, loose with fine gravels.</p>	BH14 0.0-0.2	0	D	10 L inspected. No ACM observed. No odours or staining.
		<p>End of Hole at 0.3 mbgs. Program depth.</p>				

Drilling Method	Sample Type	Reference Level	Log Details
HA - Hand Auger SFA - Solid Flight Auger HFA - Hollow Flight Auger PT - Push Tube AH - Air Hammer	U - Undisturbed tube sample D - Disturbed sample CS - Core sample	AHD - Australian Height Datum BGS - Below Ground Surface	Logged By: C. Bielby Project Manager: T. Harding

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Borehole No: BH15

Project No: 43069

Client: Roads and Maritime Services

Project Name: WestConnex Enabling Works

Site Address: Mascot, NSW

Date: 9/10/2013

Contractor: -

Drill Rig: -

Method: Hand Auger

Total Hole Depth (mbgs): 0.3

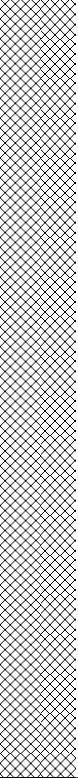
Eastings (MGA): -

Northings (MGA): -

Reference Level: Ground Surface

Elevation - Surface (m): 0

Bore Diameter (mm): 150

SUBSURFACE PROFILE			SAMPLE			
Depth	Graphic Log	Lithologic Description	Sample ID	PID (ppm)	Sample Type	Comments
0.0		Ground Surface				
		Fill (FL) Silty sand, dark brown, heterogeneous, dry, loose with fine gravels.	BH15 0.0-0.2	0	D	10 L inspected. No ACM observed. No odours or staining.
		End of Hole at 0.3 mbgs. Program depth.				

Drilling Method	Sample Type	Reference Level	Log Details
HA - Hand Auger	U - Undisturbed tube sample	AHD - Australian Height Datum	Logged By: C. Bielby
SFA - Solid Flight Auger	D - Disturbed sample	BGS - Below Ground Surface	Project Manager: T. Harding
HFA - Hollow Flight Auger	CS - Core sample		
PT - Push Tube			
AH - Air Hammer			

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Borehole No: BH16

Project No: 43069

Client: Roads and Maritime Services

Project Name: WestConnex Enabling Works

Site Address: Mascot, NSW

Date: 9/10/2013

Contractor: -

Drill Rig: -

Method: Hand Auger

Total Hole Depth (mbgs): 0.3

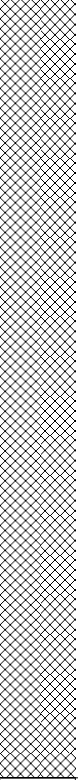
Eastings (MGA): -

Northings (MGA): -

Reference Level: Ground Surface

Elevation - Surface (m): 0

Bore Diameter (mm): 150

SUBSURFACE PROFILE			SAMPLE			
Depth	Graphic Log	Lithologic Description	Sample ID	PID (ppm)	Sample Type	Comments
0.0		Ground Surface				
		Fill (FL) Silty sand, dark brown, heterogeneous, dry, loose with trace fine gravels.	BH16 0.0-0.2	0	D	10 L inspected. No ACM observed. No odours or staining.
		End of Hole at 0.3 mbgs. Program depth.				

Drilling Method	Sample Type	Reference Level	Log Details
HA - Hand Auger	U - Undisturbed tube sample	AHD - Australian Height Datum	Logged By: C. Bielby
SFA - Solid Flight Auger	D - Disturbed sample	BGS - Below Ground Surface	Project Manager: T. Harding
HFA - Hollow Flight Auger	CS - Core sample		
PT - Push Tube			
AH - Air Hammer			

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Borehole No: BH17

Project No: 43069

Client: Roads and Maritime Services

Project Name: WestConnex Enabling Works

Site Address: Mascot, NSW

Date: 9/10/2013

Contractor: -

Drill Rig: -

Method: Hand Auger

Total Hole Depth (mbgs): 0.3

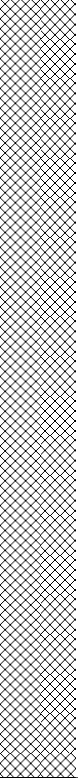
Eastings (MGA): -

Northings (MGA): -

Reference Level: Ground Surface

Elevation - Surface (m): 0

Bore Diameter (mm): 150

SUBSURFACE PROFILE			SAMPLE			
Depth	Graphic Log	Lithologic Description	Sample ID	PID (ppm)	Sample Type	Comments
0.0		Ground Surface				
		Fill (FL) Silty sand, dark brown, heterogeneous, moist, loose with trace fine gravels.	BH17 0.0-0.2	0	D	10 L inspected. No ACM observed. No odours or staining. QC01 & QC01A
		End of Hole at 0.3 mbgs. Program depth.				

Drilling Method	Sample Type	Reference Level	Log Details
HA - Hand Auger	U - Undisturbed tube sample	AHD - Australian Height Datum	Logged By: C. Bielby
SFA - Solid Flight Auger	D - Disturbed sample	BGS - Below Ground Surface	Project Manager: T. Harding
HFA - Hollow Flight Auger	CS - Core sample		
PT - Push Tube			
AH - Air Hammer			

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Borehole No: BH18

Project No: 43069

Client: Roads and Maritime Services

Project Name: WestConnex Enabling Works

Site Address: Mascot, NSW

Date: 9/10/2013

Contractor: -

Drill Rig: -

Method: Hand Auger

Total Hole Depth (mbgs): 0.3

Eastings (MGA): -

Northings (MGA): -

Reference Level: Ground Surface

Elevation - Surface (m): 0

Bore Diameter (mm): 150

SUBSURFACE PROFILE			SAMPLE			
Depth	Graphic Log	Lithologic Description	Sample ID	PID (ppm)	Sample Type	Comments
0.0		Ground Surface				
		Fill (FL) Silty sand, brown, heterogeneous, damp, loose with plastic, glass and sandstone gravels and cobbles.	BH18 0.0-0.1	0	D	10 L inspected. No ACM observed. No odours or staining.
		As above, but light brown and less inclusions.	BH18 0.1-0.3	0	D	10 L inspected. No ACM observed. No odours or staining.
		End of Hole at 0.3 mbgs. Program depth.				

Drilling Method	Sample Type	Reference Level	Log Details
HA - Hand Auger	U - Undisturbed tube sample	AHD - Australian Height Datum	Logged By: C. Bielby
SFA - Solid Flight Auger	D - Disturbed sample	BGS - Below Ground Surface	Project Manager: T. Harding
HFA - Hollow Flight Auger	CS - Core sample		
PT - Push Tube			
AH - Air Hammer			

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Borehole No: BH19

Project No: 43069

Client: Roads and Maritime Services

Project Name: WestConnex Enabling Works

Site Address: Mascot, NSW

Date: 9/10/2013

Contractor: -

Drill Rig: -

Method: Hand Auger

Total Hole Depth (mbgs): 0.3

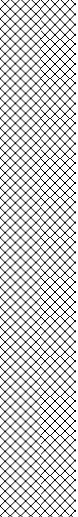

Eastings (MGA): -

Northings (MGA): -

Reference Level: Ground Surface

Elevation - Surface (m): 0

Bore Diameter (mm): 150

SUBSURFACE PROFILE			SAMPLE			
Depth	Graphic Log	Lithologic Description	Sample ID	PID (ppm)	Sample Type	Comments
0.0		Ground Surface				
		Fill (FL) Silty sand, brown, heterogeneous, damp, loose with plastic, glass and sandstone gravels and cobbles.	BH19 0.0-0.1	0	D	10 L inspected. No ACM observed. No odours or staining.
		Sand (SW) Grey, homogeneous, damp, fine-coarse.	BH19 0.2-0.3	0	D	10 L inspected. No ACM observed. No odours or staining.
		End of Hole at 0.3 mbgs. Program depth.				

Drilling Method	Sample Type	Reference Level	Log Details
HA - Hand Auger	U - Undisturbed tube sample	AHD - Australian Height Datum	Logged By: C. Bielby
SFA - Solid Flight Auger	D - Disturbed sample	BGS - Below Ground Surface	Project Manager: T. Harding
HFA - Hollow Flight Auger	CS - Core sample		
PT - Push Tube			
AH - Air Hammer			

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Borehole No: BH20

Project No: 43069

Client: Roads and Maritime Services

Project Name: WestConnex Enabling Works

Site Address: Mascot, NSW

Date: 9/10/2013

Contractor: -

Drill Rig: -

Method: Hand Auger

Total Hole Depth (mbgs): 0.3

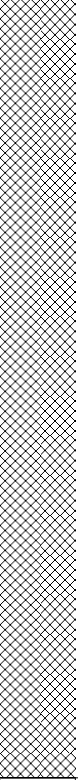
Eastings (MGA): -

Northings (MGA): -

Reference Level: Ground Surface

Elevation - Surface (m): 0

Bore Diameter (mm): 150

SUBSURFACE PROFILE			SAMPLE			
Depth	Graphic Log	Lithologic Description	Sample ID	PID (ppm)	Sample Type	Comments
0.0		Ground Surface				
		Fill (FL) Silty sand, brown, heterogeneous, dry, with igneous gravels.	BH20 0.0-0.2	0	D	10 L inspected. No ACM observed. No odours or staining.
		End of Hole at 0.3 mbgs. Program depth.				

Drilling Method	Sample Type	Reference Level	Log Details
HA - Hand Auger	U - Undisturbed tube sample	AHD - Australian Height Datum	Logged By: C. Bielby
SFA - Solid Flight Auger	D - Disturbed sample	BGS - Below Ground Surface	Project Manager: T. Harding
HFA - Hollow Flight Auger	CS - Core sample		
PT - Push Tube			
AH - Air Hammer			

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Borehole No: BH21

Project No: 43069

Client: Roads and Maritime Services

Project Name: WestConnex Enabling Works

Site Address: Mascot, NSW

Date: 9/10/2013

Contractor: -

Drill Rig: -

Method: Hand Auger

Total Hole Depth (mbgs): 0.4

Eastings (MGA): -

Northings (MGA): -

Reference Level: Ground Surface

Elevation - Surface (m): 0

Bore Diameter (mm): 150

SUBSURFACE PROFILE			SAMPLE			
Depth	Graphic Log	Lithologic Description	Sample ID	PID (ppm)	Sample Type	Comments
0.0		Ground Surface				
		Fill (FL) Silty sand, brown, heterogeneous, dry, loose with igneous gravels.	BH21 0.0-0.2	0	D	10 L inspected. ACM observed on ground surface. No odours or staining.
		Sand (SW) Light brown, homogeneous, damp, loose.	BH21 0.3-0.4	0	D	10 L inspected. No ACM observed. No odours or staining.
		End of Hole at 0.4 mbgs. Program depth.				

Drilling Method	Sample Type	Reference Level	Log Details
HA - Hand Auger	U - Undisturbed tube sample	AHD - Australian Height Datum	Logged By: C. Bielby
SFA - Solid Flight Auger	D - Disturbed sample	BGS - Below Ground Surface	Project Manager: T. Harding
HFA - Hollow Flight Auger	CS - Core sample		
PT - Push Tube			
AH - Air Hammer			

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Borehole No: BH22

Project No: 43069

Client: Roads and Maritime Services

Project Name: WestConnex Enabling Works

Site Address: Mascot, NSW

Date: 9/10/2013

Contractor: -

Drill Rig: -

Method: Hand Auger

Total Hole Depth (mbgs): 0.3

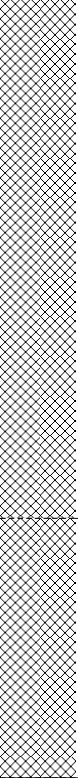
Eastings (MGA): -

Northings (MGA): -

Reference Level: Ground Surface

Elevation - Surface (m): 0

Bore Diameter (mm): 150

SUBSURFACE PROFILE			SAMPLE			
Depth	Graphic Log	Lithologic Description	Sample ID	PID (ppm)	Sample Type	Comments
0.0		Ground Surface				
		Fill (FL) Silty sand, brown-grey, heterogeneous, dry with ash and slag gravels, shell fragments and cobbles.	BH22 0.0-0.2	0	D	10 L inspected. No ACM observed. No odours or staining.
		As above, but with less inclusions.	BH22 0.2-0.3	0	D	10 L inspected. No ACM observed. No odours or staining.
		End of Hole at 0.3 mbgs. Program depth.				

Drilling Method	Sample Type	Reference Level	Log Details
HA - Hand Auger	U - Undisturbed tube sample	AHD - Australian Height Datum	Logged By: C. Bielby
SFA - Solid Flight Auger	D - Disturbed sample	BGS - Below Ground Surface	Project Manager: T. Harding
HFA - Hollow Flight Auger	CS - Core sample		
PT - Push Tube			
AH - Air Hammer			

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Borehole No: BH23

Project No: 43069

Client: Roads and Maritime Services

Project Name: WestConnex Enabling Works

Site Address: Mascot, NSW

Date: 9/10/2013

Contractor: -

Drill Rig: -

Method: Hand Auger

Total Hole Depth (mbgs): 0.3

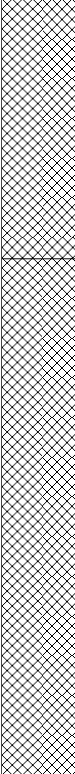
Eastings (MGA): -

Northings (MGA): -

Reference Level: Ground Surface

Elevation - Surface (m): 0

Bore Diameter (mm): 150

SUBSURFACE PROFILE			SAMPLE			
Depth	Graphic Log	Lithologic Description	Sample ID	PID (ppm)	Sample Type	Comments
0.0		Ground Surface				
		Fill (FL) Silty sand, grey, heterogeneous, dry with ACM and fine gravels.	BH23 0.0-0.1	0	D	10 L inspected. ACM observed on ground surface and sub-surface. No odours or staining.
		Silty sand, grey, heterogeneous, damp, dense with igneous gravels and glass.	BH23 0.1-0.3	0	D	10 L inspected. No ACM observed. No odours or staining.
		End of Hole at 0.3 mbgs. Program depth.				

Drilling Method	Sample Type	Reference Level	Log Details
HA - Hand Auger	U - Undisturbed tube sample	AHD - Australian Height Datum	Logged By: C. Bielby
SFA - Solid Flight Auger	D - Disturbed sample	BGS - Below Ground Surface	Project Manager: T. Harding
HFA - Hollow Flight Auger	CS - Core sample		
PT - Push Tube			
AH - Air Hammer			

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Borehole No: BH24

Project No: 43069

Client: Roads and Maritime Services

Project Name: WestConnex Enabling Works

Site Address: Mascot, NSW

Date: 9/10/2013

Contractor: -

Drill Rig: -

Method: Hand Auger

Total Hole Depth (mbgs): 0.3

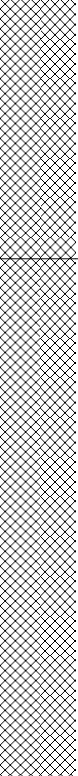
Eastings (MGA): -

Northings (MGA): -

Reference Level: Ground Surface

Elevation - Surface (m): 0

Bore Diameter (mm): 150

SUBSURFACE PROFILE			SAMPLE			
Depth	Graphic Log	Lithologic Description	Sample ID	PID (ppm)	Sample Type	Comments
0.0		Ground Surface				
		Fill (FL) Silty sand, grey, heterogeneous, dry with fine igneous gravels, glass, plastic and foam.	BH24 0.0-0.1	0	D	10 L inspected. No ACM observed. No odours or staining.
		Silty sand, grey, heterogeneous, damp, dense with igneous gravels and glass.	BH24 0.1-0.3	0	D	10 L inspected. No ACM observed. No odours or staining.
		End of Hole at 0.3 mbgs. Program depth.				

Drilling Method	Sample Type	Reference Level	Log Details
HA - Hand Auger	U - Undisturbed tube sample	AHD - Australian Height Datum	Logged By: C. Bielby
SFA - Solid Flight Auger	D - Disturbed sample	BGS - Below Ground Surface	Project Manager: T. Harding
HFA - Hollow Flight Auger	CS - Core sample		
PT - Push Tube			
AH - Air Hammer			

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Borehole No: BH25

Project No: 43069

Client: Roads and Maritime Services

Project Name: WestConnex Enabling Works

Site Address: Mascot, NSW

Date: 9/10/2013

Contractor: -

Drill Rig: -

Method: Hand Auger

Total Hole Depth (mbgs): 0.3

Eastings (MGA): -

Northings (MGA): -

Reference Level: Ground Surface

Elevation - Surface (m): 0

Bore Diameter (mm): 150

SUBSURFACE PROFILE			SAMPLE			
Depth	Graphic Log	Lithologic Description	Sample ID	PID (ppm)	Sample Type	Comments
0.0		Ground Surface				
		Fill (FL) Silty sand, grey-brown, homogeneous, dry, fine-coarse with fine gravels and rootlets.	BH25 0.0-0.1	0	D	10 L inspected. No ACM observed. No odours or staining.
		As above, but with no roots.	BH25 0.1-0.3	0	D	10 L inspected. No ACM observed. No odours or staining.
		End of Hole at 0.3 mbgs. Program depth.				

Drilling Method	Sample Type	Reference Level	Log Details
HA - Hand Auger	U - Undisturbed tube sample	AHD - Australian Height Datum	Logged By: C. Bielby
SFA - Solid Flight Auger	D - Disturbed sample	BGS - Below Ground Surface	Project Manager: T. Harding
HFA - Hollow Flight Auger	CS - Core sample		
PT - Push Tube			
AH - Air Hammer			

NOTE: This bore log is for environmental assessment purposes only and is not intended to provide geotechnical information
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Borehole No: BH26

Project No: 43069

Client: Roads and Maritime Services

Project Name: WestConnex Enabling Works

Site Address: Mascot, NSW

Date: 9/10/2013

Contractor: -

Drill Rig: -

Method: Hand Auger

Total Hole Depth (mbgs): 0.3

Eastings (MGA): -

Northings (MGA): -

Reference Level: Ground Surface

Elevation - Surface (m): 0

Bore Diameter (mm): 150

SUBSURFACE PROFILE			SAMPLE			
Depth	Graphic Log	Lithologic Description	Sample ID	PID (ppm)	Sample Type	Comments
0.0		Ground Surface				
		Fill (FL) Silty sand, grey-brown, homogeneous, dry, fine-coarse with fine gravels and rootlets.	BH26 0.0-0.1	0	D	10 L inspected. No ACM observed. No odours or staining.
		As above, but with no roots.	BH26 0.1-0.3	0	D	10 L inspected. No ACM observed. No odours or staining.
		End of Hole at 0.3 mbgs. Program depth.				

Drilling Method	Sample Type	Reference Level	Log Details
HA - Hand Auger	U - Undisturbed tube sample	AHD - Australian Height Datum	Logged By: C. Bielby
SFA - Solid Flight Auger	D - Disturbed sample	BGS - Below Ground Surface	Project Manager: T. Harding
HFA - Hollow Flight Auger	CS - Core sample		
PT - Push Tube			
AH - Air Hammer			

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Borehole No: BH27

Project No: 43069

Client: Roads and Maritime Services

Project Name: WestConnex Enabling Works

Site Address: Mascot, NSW

Date: 9/10/2013

Contractor: -

Drill Rig: -

Method: Hand Auger

Total Hole Depth (mbgs): 0.3

Eastings (MGA): -

Northings (MGA): -

Reference Level: Ground Surface

Elevation - Surface (m): 0

Bore Diameter (mm): 150

SUBSURFACE PROFILE			SAMPLE			
Depth	Graphic Log	Lithologic Description	Sample ID	PID (ppm)	Sample Type	Comments
0.0		Ground Surface				
		Fill (FL) Silty sand, brown, heterogeneous, dry, loose, fine-coarse with fine gravels and glass.	BH27 0.0-0.1	0	D	10 L inspected. No ACM observed. No odours or staining.
		As above, but dense.	BH27 0.1-0.3	0	D	10 L inspected. No ACM observed. No odours or staining.
		End of Hole at 0.3 mbgs. Program depth.				

Drilling Method	Sample Type	Reference Level	Log Details
HA - Hand Auger	U - Undisturbed tube sample	AHD - Australian Height Datum	Logged By: C. Bielby
SFA - Solid Flight Auger	D - Disturbed sample	BGS - Below Ground Surface	Project Manager: T. Harding
HFA - Hollow Flight Auger	CS - Core sample		
PT - Push Tube			
AH - Air Hammer			

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Borehole No: BH28

Project No: 43069

Client: Roads and Maritime Services

Project Name: WestConnex Enabling Works

Site Address: Mascot, NSW

Date: 10/10/2013

Contractor: -

Drill Rig: -

Method: Hand Auger

Total Hole Depth (mbgs): 0.3

Eastings (MGA): -

Northings (MGA): -

Reference Level: Ground Surface

Elevation - Surface (m): 0

Bore Diameter (mm): 150

SUBSURFACE PROFILE			SAMPLE			
Depth	Graphic Log	Lithologic Description	Sample ID	PID (ppm)	Sample Type	Comments
0.0		Ground Surface				
		Fill (FL) Silty sand, brown, heterogeneous, dry, loose, fine-coarse with fine gravels and glass.	BH28 0.0-0.1	0	D	10 L inspected. No ACM observed. No odours or staining.
		As above, but with sandstone cobbles.	BH28 0.1-0.3	0	D	10 L inspected. No ACM observed. No odours or staining.
		End of Hole at 0.3 mbgs. Program depth.				

Drilling Method	Sample Type	Reference Level	Log Details
HA - Hand Auger	U - Undisturbed tube sample	AHD - Australian Height Datum	Logged By: C. Bielby
SFA - Solid Flight Auger	D - Disturbed sample	BGS - Below Ground Surface	Project Manager: T. Harding
HFA - Hollow Flight Auger	CS - Core sample		
PT - Push Tube			
AH - Air Hammer			

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Borehole No: BH29

Project No: 43069

Client: Roads and Maritime Services

Project Name: WestConnex Enabling Works

Site Address: Mascot, NSW

Date: 10/10/2013

Eastings (MGA): -

Contractor: -

Northings (MGA): -

Drill Rig: -

Reference Level: Ground Surface

Method: Hand Auger

Elevation - Surface (m): 0

Total Hole Depth (mbgs): 0.3

Bore Diameter (mm): 150

SUBSURFACE PROFILE			SAMPLE			
Depth	Graphic Log	Lithologic Description	Sample ID	PID (ppm)	Sample Type	Comments
0.0		Ground Surface				
		Fill (FL) Silty sand, grey-brown, heterogeneous, dry, loose, fine-coarse with igneous gravels and trace ash and slag.	BH29 0.0-0.1	0	D	10 L inspected. No ACM observed. No odours or staining.
		As above, but with less inclusions.	BH29 0.1-0.3	0	D	10 L inspected. No ACM observed. No odours or staining.
		End of Hole at 0.3 mbgs. Program depth.				

Drilling Method	Sample Type	Reference Level	Log Details
HA - Hand Auger	U - Undisturbed tube sample	AHD - Australian Height Datum	Logged By: C. Bielby
SFA - Solid Flight Auger	D - Disturbed sample	BGS - Below Ground Surface	Project Manager: T. Harding
HFA - Hollow Flight Auger	CS - Core sample		
PT - Push Tube			
AH - Air Hammer			

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Borehole No: BH30

Project No: 43069

Client: Roads and Maritime Services

Project Name: WestConnex Enabling Works

Site Address: Mascot, NSW

Date: 10/10/2013

Eastings (MGA): -

Contractor: -

Northings (MGA): -

Drill Rig: -

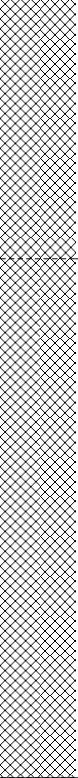
Reference Level: Ground Surface

Method: Hand Auger

Elevation - Surface (m): 0

Total Hole Depth (mbgs): 0.3

Bore Diameter (mm): 150

SUBSURFACE PROFILE			SAMPLE			
Depth	Graphic Log	Lithologic Description	Sample ID	PID (ppm)	Sample Type	Comments
0.0		Ground Surface				
		Fill (FL) Silty sand, light grey-brown, heterogeneous, dry, loose, fine-coarse with igneous gravels, glass and trace ash and slag.	BH30 0.0-0.1	0	D	10 L inspected. No ACM observed. No odours or staining.
		As above, but with less inclusions.	BH30 0.1-0.3	0	D	10 L inspected. No ACM observed. No odours or staining.
		End of Hole at 0.3 mbgs. Program depth.				

Drilling Method	Sample Type	Reference Level	Log Details
HA - Hand Auger	U - Undisturbed tube sample	AHD - Australian Height Datum	Logged By: C. Bielby
SFA - Solid Flight Auger	D - Disturbed sample	BGS - Below Ground Surface	Project Manager: T. Harding
HFA - Hollow Flight Auger	CS - Core sample		
PT - Push Tube			
AH - Air Hammer			

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Borehole No: BH31

Project No: 43069

Client: Roads and Maritime Services

Project Name: WestConnex Enabling Works

Site Address: Mascot, NSW

Date: 10/10/2013

Eastings (MGA): -

Contractor: -

Northings (MGA): -

Drill Rig: -

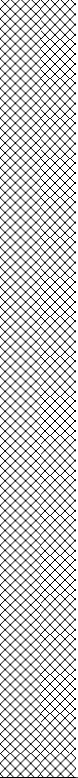
Reference Level: Ground Surface

Method: Hand Auger

Elevation - Surface (m): 0

Total Hole Depth (mbgs): 0.3

Bore Diameter (mm): 150

SUBSURFACE PROFILE			SAMPLE			
Depth	Graphic Log	Lithologic Description	Sample ID	PID (ppm)	Sample Type	Comments
0.0		Ground Surface				
		Fill (FL) Silty sand, grey-brown, heterogeneous, dry, loose, fine-coarse with igneous gravels.	BH31 0.0-0.2	0	D	10 L inspected. No ACM observed. No odours or staining.
		End of Hole at 0.3 mbgs. Program depth.				

Drilling Method	Sample Type	Reference Level	Log Details
HA - Hand Auger	U - Undisturbed tube sample	AHD - Australian Height Datum	Logged By: C. Bielby
SFA - Solid Flight Auger	D - Disturbed sample	BGS - Below Ground Surface	Project Manager: T. Harding
HFA - Hollow Flight Auger	CS - Core sample		
PT - Push Tube			
AH - Air Hammer			

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Borehole No: BH32

Project No: 43069

Client: Roads and Maritime Services

Project Name: WestConnex Enabling Works

Site Address: Mascot, NSW

Date: 10/10/2013

Eastings (MGA): -

Contractor: -

Northings (MGA): -

Drill Rig: -

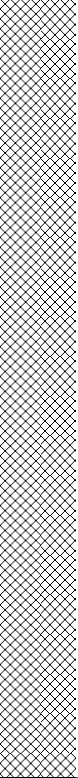
Reference Level: Ground Surface

Method: Hand Auger

Elevation - Surface (m): 0

Total Hole Depth (mbgs): 0.3

Bore Diameter (mm): 150

SUBSURFACE PROFILE			SAMPLE			
Depth	Graphic Log	Lithologic Description	Sample ID	PID (ppm)	Sample Type	Comments
0.0		<p>Ground Surface</p> <p>Fill (FL) Silty sand, grey-brown, heterogeneous, dry, loose, fine-coarse with igneous gravels.</p>	BH32 0.0-0.2	0	D	10 L inspected. No ACM observed. No odours or staining.
		<p>End of Hole at 0.3 mbgs. Program depth.</p>				

Drilling Method	Sample Type	Reference Level	Log Details
HA - Hand Auger SFA - Solid Flight Auger HFA - Hollow Flight Auger PT - Push Tube AH - Air Hammer	U - Undisturbed tube sample D - Disturbed sample CS - Core sample	AHD - Australian Height Datum BGS - Below Ground Surface	Logged By: C. Bielby Project Manager: T. Harding

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Borehole No: BH33

Project No: 43069

Client: Roads and Maritime Services

Project Name: WestConnex Enabling Works

Site Address: Mascot, NSW

Date: 10/10/2013

Eastings (MGA): -

Contractor: -

Northings (MGA): -

Drill Rig: -


Reference Level: Ground Surface

Method: Hand Auger

Elevation - Surface (m): 0

Total Hole Depth (mbgs): 0.3

Bore Diameter (mm): 150

SUBSURFACE PROFILE			SAMPLE			
Depth	Graphic Log	Lithologic Description	Sample ID	PID (ppm)	Sample Type	Comments
0.0		Ground Surface				
		Sand (SW) Grey, homogeneous, dry, loose.	BH33 0.0-0.2	0	D	10 L inspected. No ACM observed. No odours or staining. QC02 & QC02A
		End of Hole at 0.3 mbgs. Program depth.				

Drilling Method	Sample Type	Reference Level	Log Details
HA - Hand Auger	U - Undisturbed tube sample	AHD - Australian Height Datum	Logged By: C. Bielby
SFA - Solid Flight Auger	D - Disturbed sample	BGS - Below Ground Surface	Project Manager: T. Harding
HFA - Hollow Flight Auger	CS - Core sample		
PT - Push Tube			
AH - Air Hammer			

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Borehole No: BH34

Project No: 43069

Client: Roads and Maritime Services

Project Name: WestConnex Enabling Works

Site Address: Mascot, NSW

Date: 10/10/2013

Eastings (MGA): -

Contractor: -

Northings (MGA): -

Drill Rig: -

Reference Level: Ground Surface

Method: Hand Auger

Elevation - Surface (m): 0

Total Hole Depth (mbgs): 0.3

Bore Diameter (mm): 150

SUBSURFACE PROFILE			SAMPLE			
Depth	Graphic Log	Lithologic Description	Sample ID	PID (ppm)	Sample Type	Comments
0.0		Ground Surface				
		Fill (FL) Sand, grey-brown, heterogeneous, dry, loose with plastic and trace ash and slag gravels.	BH34 0.0-0.1	0	D	10 L inspected. No ACM observed. No odours or staining.
		As above, but with less inclusions.	BH34 0.1-0.3	0	D	10 L inspected. No ACM observed. no odours or staining.
		End of Hole at 0.3 mbgs. Program depth.				

Drilling Method	Sample Type	Reference Level	Log Details
HA - Hand Auger	U - Undisturbed tube sample	AHD - Australian Height Datum	Logged By: C. Bielby
SFA - Solid Flight Auger	D - Disturbed sample	BGS - Below Ground Surface	Project Manager: T. Harding
HFA - Hollow Flight Auger	CS - Core sample		
PT - Push Tube			
AH - Air Hammer			

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Borehole No: BH35

Project No: 43069

Client: Roads and Maritime Services

Project Name: WestConnex Enabling Works

Site Address: Mascot, NSW

Date: 10/10/2013

Eastings (MGA): -

Contractor: -

Northings (MGA): -

Drill Rig: -

Reference Level: Ground Surface

Method: Hand Auger

Elevation - Surface (m): 0

Total Hole Depth (mbgs): 0.3

Bore Diameter (mm): 150

SUBSURFACE PROFILE			SAMPLE			
Depth	Graphic Log	Lithologic Description	Sample ID	PID (ppm)	Sample Type	Comments
0.0		Ground Surface				
		Fill (FL) Silty sand, light grey-brown, heterogeneous, dry, loose with igneous gravels and cobbles and trace ash and slag gravels.	BH35 0.0-0.1	0	D	10 L inspected. No ACM observed. No odours or staining.
		As above, but with less inclusions.	BH35 0.1-0.3	0	D	10 L inspected. No ACM observed. no odours or staining.
		End of Hole at 0.3 mbgs. Program depth.				

Drilling Method	Sample Type	Reference Level	Log Details
HA - Hand Auger	U - Undisturbed tube sample	AHD - Australian Height Datum	Logged By: C. Bielby
SFA - Solid Flight Auger	D - Disturbed sample	BGS - Below Ground Surface	Project Manager: T. Harding
HFA - Hollow Flight Auger	CS - Core sample		
PT - Push Tube			
AH - Air Hammer			

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Borehole No: BH36

Project No: 43069

Client: Roads and Maritime Services

Project Name: WestConnex Enabling Works

Site Address: Mascot, NSW

Date: 10/10/2013

Eastings (MGA): -

Contractor: -

Northings (MGA): -

Drill Rig: -

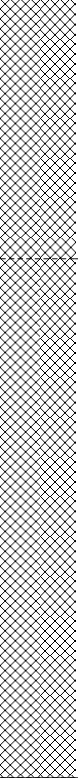
Reference Level: Ground Surface

Method: Hand Auger

Elevation - Surface (m): 0

Total Hole Depth (mbgs): 0.3

Bore Diameter (mm): 150

SUBSURFACE PROFILE			SAMPLE			
Depth	Graphic Log	Lithologic Description	Sample ID	PID (ppm)	Sample Type	Comments
0.0		Ground Surface				
		Fill (FL) Silty sand, light grey-brown, heterogeneous, dry, loose with igneous gravels, plastic and trace ash and slag gravels.	BH36 0.0-0.1	0	D	10 L inspected. No ACM observed. No odours or staining.
		As above, but with less inclusions.	BH36 0.1-0.3	0	D	10 L inspected. No ACM observed. no odours or staining.
		End of Hole at 0.3 mbgs. Program depth.				

Drilling Method	Sample Type	Reference Level	Log Details
HA - Hand Auger	U - Undisturbed tube sample	AHD - Australian Height Datum	Logged By: C. Bielby
SFA - Solid Flight Auger	D - Disturbed sample	BGS - Below Ground Surface	Project Manager: T. Harding
HFA - Hollow Flight Auger	CS - Core sample		
PT - Push Tube			
AH - Air Hammer			

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Borehole No: BH37

Project No: 43069

Client: Roads and Maritime Services

Project Name: WestConnex Enabling Works

Site Address: Mascot, NSW

Date: 10/10/2013

Eastings (MGA): -

Contractor: -

Northings (MGA): -

Drill Rig: -

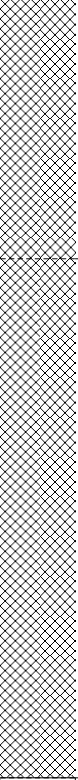
Reference Level: Ground Surface

Method: Hand Auger

Elevation - Surface (m): 0

Total Hole Depth (mbgs): 0.3

Bore Diameter (mm): 150

SUBSURFACE PROFILE			SAMPLE			
Depth	Graphic Log	Lithologic Description	Sample ID	PID (ppm)	Sample Type	Comments
0.0		Ground Surface				
		Fill (FL) Silty sand, grey-brown, heterogeneous, dry, loose with igneous gravels and trace ash and slag gravels.	BH37 0.0-0.1	0	D	10 L inspected. No ACM observed. No odours or staining.
		As above, but light grey and with less inclusions.	BH37 0.1-0.3	0	D	10 L inspected. No ACM observed. no odours or staining.
		End of Hole at 0.3 mbgs. Program depth.				

Drilling Method	Sample Type	Reference Level	Log Details
HA - Hand Auger	U - Undisturbed tube sample	AHD - Australian Height Datum	Logged By: C. Bielby
SFA - Solid Flight Auger	D - Disturbed sample	BGS - Below Ground Surface	Project Manager: T. Harding
HFA - Hollow Flight Auger	CS - Core sample		
PT - Push Tube			
AH - Air Hammer			

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Borehole No: BH38

Project No: 43069

Client: Roads and Maritime Services

Project Name: WestConnex Enabling Works

Site Address: Mascot, NSW

Date: 10/10/2013

Contractor: -

Drill Rig: -

Method: Hand Auger

Total Hole Depth (mbgs): 0.3

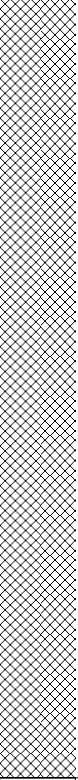
Eastings (MGA): -

Northings (MGA): -

Reference Level: Ground Surface

Elevation - Surface (m): 0

Bore Diameter (mm): 150

SUBSURFACE PROFILE			SAMPLE			
Depth	Graphic Log	Lithologic Description	Sample ID	PID (ppm)	Sample Type	Comments
0.0		<p>Ground Surface</p> <p>Fill (FL) Sand, light grey-brown, heterogeneous, damp with organic matter and trace gravels.</p>	BH38 0.0-0.2	0	D	10 L inspected. No ACM observed. No odours or staining.
		<p>End of Hole at 0.3 mbgs. Program depth.</p>				

Drilling Method	Sample Type	Reference Level	Log Details
HA - Hand Auger	U - Undisturbed tube sample	AHD - Australian Height Datum	Logged By: C. Bielby
SFA - Solid Flight Auger	D - Disturbed sample	BGS - Below Ground Surface	Project Manager: T. Harding
HFA - Hollow Flight Auger	CS - Core sample		
PT - Push Tube			
AH - Air Hammer			

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Borehole No: BH39

Project No: 43069

Client: Roads and Maritime Services

Project Name: WestConnex Enabling Works

Site Address: Mascot, NSW

Date: 10/10/2013

Eastings (MGA): -

Contractor: -

Northings (MGA): -

Drill Rig: -

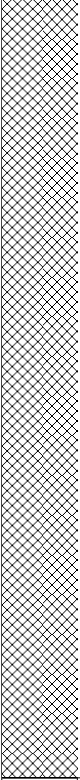
Reference Level: Ground Surface

Method: Hand Auger

Elevation - Surface (m): 0

Total Hole Depth (mbgs): 0.3

Bore Diameter (mm): 150

SUBSURFACE PROFILE			SAMPLE			
Depth	Graphic Log	Lithologic Description	Sample ID	PID (ppm)	Sample Type	Comments
0.0		Ground Surface				
		Fill (FL) Sand, light grey-brown, heterogeneous, damp with organic matter and trace gravels.	BH39 0.0-0.2	0	D	10 L inspected. No ACM observed. No odours or staining.
		End of Hole at 0.3 mbgs. Program depth.				

Drilling Method	Sample Type	Reference Level	Log Details
HA - Hand Auger	U - Undisturbed tube sample	AHD - Australian Height Datum	Logged By: C. Bielby
SFA - Solid Flight Auger	D - Disturbed sample	BGS - Below Ground Surface	Project Manager: T. Harding
HFA - Hollow Flight Auger	CS - Core sample		
PT - Push Tube			
AH - Air Hammer			

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Borehole No: BH40

Project No: 43069

Client: Roads and Maritime Services

Project Name: WestConnex Enabling Works

Site Address: Mascot, NSW

Date: 10/10/2013

Contractor: -

Drill Rig: -

Method: Hand Auger

Total Hole Depth (mbgs): 0.3

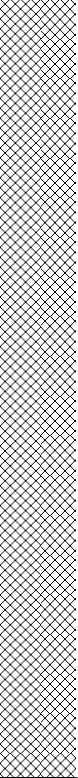
Eastings (MGA): -

Northings (MGA): -

Reference Level: Ground Surface

Elevation - Surface (m): 0

Bore Diameter (mm): 150

SUBSURFACE PROFILE			SAMPLE			
Depth	Graphic Log	Lithologic Description	Sample ID	PID (ppm)	Sample Type	Comments
0.0		Ground Surface				
		Fill (FL) Sand, light grey-brown, heterogeneous, damp with organic matter and trace gravels.	BH40 0.0-0.2	0	D	10 L inspected. No ACM observed. No odours or staining.
		End of Hole at 0.3 mbgs. Program depth.				

Drilling Method	Sample Type	Reference Level	Log Details
HA - Hand Auger	U - Undisturbed tube sample	AHD - Australian Height Datum	Logged By: C. Bielby
SFA - Solid Flight Auger	D - Disturbed sample	BGS - Below Ground Surface	Project Manager: T. Harding
HFA - Hollow Flight Auger	CS - Core sample		
PT - Push Tube			
AH - Air Hammer			

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Borehole No: BH41

Project No: 43069

Client: Roads and Maritime Services

Project Name: WestConnex Enabling Works

Site Address: Mascot, NSW

Date: 10/10/2013

Eastings (MGA): -

Contractor: -

Northings (MGA): -

Drill Rig: -

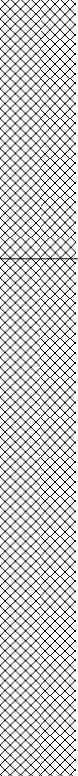
Reference Level: Ground Surface

Method: Hand Auger

Elevation - Surface (m): 0

Total Hole Depth (mbgs): 0.3

Bore Diameter (mm): 150

SUBSURFACE PROFILE			SAMPLE			
Depth	Graphic Log	Lithologic Description	Sample ID	PID (ppm)	Sample Type	Comments
0.0		Ground Surface				
		Fill (FL) Silty sand, brown, heterogeneous, dry, loose with igneous gravels and trace ash and slag.	BH41 0.0-0.1	0	D	10 L inspected. No ACM observed. No odours or staining. QC03 & QC03A
		As above, but with less inclusions.	BH41 0.1-0.3	0	D	10 L inspected. No ACM observed. No odours or staining.
		End of Hole at 0.3 mbgs. Program depth.				

Drilling Method	Sample Type	Reference Level	Log Details
HA - Hand Auger	U - Undisturbed tube sample	AHD - Australian Height Datum	Logged By: C. Bielby
SFA - Solid Flight Auger	D - Disturbed sample	BGS - Below Ground Surface	Project Manager: T. Harding
HFA - Hollow Flight Auger	CS - Core sample		
PT - Push Tube			
AH - Air Hammer			

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Borehole No: BH42

Project No: 43069

Client: Roads and Maritime Services

Project Name: WestConnex Enabling Works

Site Address: Mascot, NSW

Date: 10/10/2013

Eastings (MGA): -

Contractor: -

Northings (MGA): -

Drill Rig: -

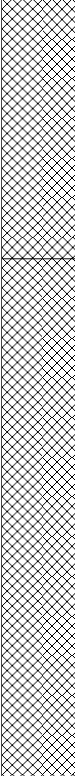
Reference Level: Ground Surface

Method: Hand Auger

Elevation - Surface (m): 0

Total Hole Depth (mbgs): 0.3

Bore Diameter (mm): 150

SUBSURFACE PROFILE			SAMPLE			
Depth	Graphic Log	Lithologic Description	Sample ID	PID (ppm)	Sample Type	Comments
0.0		Ground Surface				
		Fill (FL) Silty sand, brown, heterogeneous, dry, loose with igneous gravels.	BH41 0.0-0.1	0	D	10 L inspected. No ACM observed. No odours or staining.
		As above, but with less inclusions.	BH41 0.1-0.3	0	D	10 L inspected. No ACM observed. No odours or staining.
		End of Hole at 0.3 mbgs. Program depth.				

Drilling Method	Sample Type	Reference Level	Log Details
HA - Hand Auger	U - Undisturbed tube sample	AHD - Australian Height Datum	Logged By: C. Bielby
SFA - Solid Flight Auger	D - Disturbed sample	BGS - Below Ground Surface	Project Manager: T. Harding
HFA - Hollow Flight Auger	CS - Core sample		
PT - Push Tube			
AH - Air Hammer			

NOTE: This bore log is for environmental assessment purposes only and is not intended to provide geotechnical information
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Borehole No: BH43

Project No: 43069

Client: Roads and Maritime Services

Project Name: WestConnex Enabling Works

Site Address: Mascot, NSW

Date: 10/10/2013

Eastings (MGA): -

Contractor: -

Northings (MGA): -

Drill Rig: -

Reference Level: Ground Surface

Method: Hand Auger

Elevation - Surface (m): 0

Total Hole Depth (mbgs): 0.3

Bore Diameter (mm): 150

SUBSURFACE PROFILE			SAMPLE			
Depth	Graphic Log	Lithologic Description	Sample ID	PID (ppm)	Sample Type	Comments
0.0		Ground Surface				
		Fill (FL) Silty sand, grey-brown, heterogeneous, dry, loose with igneous gravels and trace ash and slag gravels.	BH43 0.0-0.1	0	D	10 L inspected. No ACM observed. No odours or staining.
		As above, but light grey and with less inclusions.	BH43 0.1-0.3	0	D	10 L inspected. No ACM observed. no odours or staining.
		End of Hole at 0.3 mbgs. Program depth.				

Drilling Method	Sample Type	Reference Level	Log Details
HA - Hand Auger	U - Undisturbed tube sample	AHD - Australian Height Datum	Logged By: C. Bielby
SFA - Solid Flight Auger	D - Disturbed sample	BGS - Below Ground Surface	Project Manager: T. Harding
HFA - Hollow Flight Auger	CS - Core sample		
PT - Push Tube			
AH - Air Hammer			

NOTE: This bore log is for environmental assessment purposes only and is not intended to provide geotechnical information
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Well No: BH44/MW1

Project No: 43069

Client: RMS

Project Name: WestConnex Enabling Works

Site Address: Mascot, NSW

Date: 13/12/2013

Contractor: Terratest

Drill Rig: -

Method: SFA

Total Hole Depth (mbgs): 7.0

Eastings (MGA): -

Northings (MGA): -

Reference Level:

Elevation: Surface (m) 0 TOC (m):

Bore Diameter (mm):

Water Level Initial (mbgs):

Water Level Static (mbgs):

Casing Type/Surface Finish:

Screen Diameter (mm):

Casing Diameter (mm):

Screen Length (m):

Casing Length (m):

SUBSURFACE PROFILE			SAMPLE				
Depth (m)	Graphic Log	Lithologic Description	Sample ID	PID (ppm)	Sample Type	Comments	Well Construction
0.0		Ground Surface					
0.0 - 2.0		Fill (FL) Gravelly sand, dark brown, heterogeneous, damp, coarse, with igneous gravels.	BH44 0.0-0.3	-	D	10 L observed. No ACM observed. No odours or staining.	<p>Backfill</p> <p>Bentonite</p> <p>2mm Graded Sand</p> <p>Class 18 PVC Casing</p> <p>Class 18 PVC Screen</p>
1.0 - 1.3			BH44 1.0-1.3	-	D	10 L observed. No ACM observed. No odours or staining.	
2.0 - 3.0		Fill (FL) Sand, light yellow to grey, homogeneous, damp, fine to coarse, with organic matter.	BH44 2.0-2.3	-	D	10 L observed. No ACM observed. No odours or staining.	
3.0 - 3.3			BH44 3.0-3.3	-	D	Limited bag sample.	
3.3 - 4.5		As above, light grey to yellow.					
4.5 - 4.8			BH44 4.5-4.8	-	D	10 L observed. No ACM observed. No odours or staining.	
4.8 - 5.5		As above, grey and wet.					
5.5 - 5.8			BH44 5.5-5.8	-	D	10 L observed. No ACM observed. No odours or staining.	
5.8 - 6.3							
6.3 - 6.5			BH44 6.3-6.5	-	D	10 L observed. No ACM observed. No odours or staining.	
6.5 - 7.0		Fill (FL) Dark brown, swampy odour.					
7.0 - 7.0		End of Hole at 7.0 mbgs.					

Method	Sample Type	Reference Level	Casing Type/Surface Finish	Log Details
HA - Hand Auger	U - Undisturbed tube sample	AHD - Australian Height Datum	PVC 18 - Class 18 PVC	Logged By: C. Bielby
SFA - Solid Flight Auger	D - Disturbed sample	BGS - Below Ground Surface	MT - Monument	Project Manager: T. Harding
HFA - Hollow Flight Auger	CS - Core sample	TOC - Top of Casing	RB - Roadbox	
PT - Push Tube			SP - Stickup/Standpipe	
AH - Air Hammer				

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Borehole No: BH45

Project No: 43069

Client: Roads and Maritime Services

Project Name: WestConnex Enabling Works

Site Address: Mascot, NSW

Date: 13/12/2013

Contractor: -

Drill Rig: -

Method: SFA

Total Hole Depth (mbgs): 3.1

Eastings (MGA): -

Northings (MGA): -

Reference Level: Ground Surface

Elevation - Surface (m): 0

Bore Diameter (mm): 150

SUBSURFACE PROFILE			SAMPLE			
Depth	Graphic Log	Lithologic Description	Sample ID	PID (ppm)	Sample Type	Comments
0.0		Ground Surface				
		Fill (FL) Gravels (ballast) with grey sand, heterogeneous, damp, fine.	BH45 0.0-0.3	-	D	10 L inspected. No ACM observed. No odours or staining.
1.0			BH45 1.1-1.3	-	D	10 L obserbed. No ACM observed. No odours or staining.
2.0		As above, increased sand content, black.	BH45 2.1-2.3	-	D	10 L obserbed. No ACM observed. No odours or staining.
3.0		Sand (SW) Sand, homogeneous, dark grey grading to light yellow, damp, fine, coarse.	BH45 2.8-3.1	-	D	10 L obserbed. No ACM observed. No odours or staining.
		End of Hole at 3.1 mbgs. Program depth.				
4.0						
5.0						

Drilling Method	Sample Type	Reference Level	Log Details
HA - Hand Auger	U - Undisturbed tube sample	AHD - Australian Height Datum	Logged By: C. Bielby
SFA - Solid Flight Auger	D - Disturbed sample	BGS - Below Ground Surface	Project Manager: T. Harding
HFA - Hollow Flight Auger	CS - Core sample		
PT - Push Tube			
AH - Air Hammer			

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Borehole No: BH46

Project No: 43069

Client: Roads and Maritime Services

Project Name: WestConnex Enabling Works

Site Address: Mascot, NSW

Date: 13/12/2013

Eastings (MGA): -

Contractor: -

Northings (MGA): -

Drill Rig: -


Reference Level: Ground Surface

Method: SFA

Elevation - Surface (m): 0

Total Hole Depth (mbgs): 1.0

Bore Diameter (mm): 150

SUBSURFACE PROFILE			SAMPLE			
Depth	Graphic Log	Lithologic Description	Sample ID	PID (ppm)	Sample Type	Comments
0.0		Ground Surface				
		Fill (FL) Gravelly sand, brown, heterogeneous, with igneous gravels from ballast.	BH46 0.0-0.3	-	D	10 L inspected. No ACM observed. No odours or staining.
		As above.	BH46 0.8-1.0	-	D	10 L observed. No ACM observed. No odours or staining.
1.0		End of Hole at 1.0 mbgs. Refusal on bedrock.				
2.0						
3.0						

Drilling Method	Sample Type	Reference Level	Log Details
HA - Hand Auger	U - Undisturbed tube sample	AHD - Australian Height Datum	Logged By: C. Bielby
SFA - Solid Flight Auger	D - Disturbed sample	BGS - Below Ground Surface	Project Manager: T. Harding
HFA - Hollow Flight Auger	CS - Core sample		
PT - Push Tube			
AH - Air Hammer			

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Borehole No: BH47

Project No: 43069

Client: Roads and Maritime Services

Project Name: WestConnex Enabling Works

Site Address: Mascot, NSW

Date: 13/12/2013

Contractor: -

Drill Rig: -

Method: SFA

Total Hole Depth (mbgs): 2.5

Eastings (MGA): -

Northings (MGA): -

Reference Level: Ground Surface

Elevation - Surface (m): 0

Bore Diameter (mm): 150

SUBSURFACE PROFILE			SAMPLE			
Depth	Graphic Log	Lithologic Description	Sample ID	PID (ppm)	Sample Type	Comments
0.0		Ground Surface				
		Fill (FL) Gravelly sand, grey to brown, heterogeneous, damp, with ballast, crushed brick, and plastic.	BH47 0.0-0.3	-	D	10 L inspected. No ACM observed. No odours or staining.
1.0		As above, dark brown.	BH47 1.0-1.3	-	D	10 L observed. No ACM observed. No odours or staining.
2.0		Sand (SW) Sand, yellow, homogeneous, damp, fine to coarse.	BH47 2.0-2.3	-	D	10 L observed. No ACM observed. No odours or staining.
		End of Hole at 2.5 mbgs. Program depth.				
3.0						

Drilling Method	Sample Type	Reference Level	Log Details
HA - Hand Auger	U - Undisturbed tube sample	AHD - Australian Height Datum	Logged By: C. Bielby
SFA - Solid Flight Auger	D - Disturbed sample	BGS - Below Ground Surface	Project Manager: T. Harding
HFA - Hollow Flight Auger	CS - Core sample		
PT - Push Tube			
AH - Air Hammer			

NOTE: This bore log is for environmental assessment purposes only and is not intended to provide geotechnical information



Borehole No: BH48

Project No: 43069

Client: Roads and Maritime Services

Project Name: WestConnex Enabling Works

Site Address: Mascot, NSW

Date: 13/12/2013

Contractor: -

Drill Rig: -

Method: SFA

Total Hole Depth (mbgs): 1.5

Eastings (MGA): -

Northings (MGA): -

Reference Level: Ground Surface

Elevation - Surface (m): 0

Bore Diameter (mm): 150

SUBSURFACE PROFILE			SAMPLE			
Depth	Graphic Log	Lithologic Description	Sample ID	PID (ppm)	Sample Type	Comments
0.0		Ground Surface				
		Fill (FL) Sand, brown, heterogeneous, dry, with small amounts of igneous gravels.	BH48 0.0-0.3	-	D	10 L inspected. No ACM observed. No odours or staining.
		Sand (SW) Sand, yellow, homogeneous, damp, fine to coarse.	BH48 1.3-1.5	-	D	10 L observed. No ACM observed. No odours or staining. QC04/A
		End of Hole at 1.5 mbgs. Refusal.				

Drilling Method	Sample Type	Reference Level	Log Details
HA - Hand Auger	U - Undisturbed tube sample	AHD - Australian Height Datum	Logged By: C. Bielby
SFA - Solid Flight Auger	D - Disturbed sample	BGS - Below Ground Surface	Project Manager: T. Harding
HFA - Hollow Flight Auger	CS - Core sample		
PT - Push Tube			
AH - Air Hammer			

NOTE: This bore log is for environmental assessment purposes only and is not intended to provide geotechnical information
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Borehole No: BH49

Project No: 43069

Client: Roads and Maritime Services

Project Name: WestConnex Enabling Works

Site Address: Mascot, NSW

Date: 16/12/2013

Eastings (MGA): -

Contractor: -

Northings (MGA): -

Drill Rig: -

Reference Level: Ground Surface

Method: Hand Auger

Elevation - Surface (m): 0

Total Hole Depth (mbgs): 0.3

Bore Diameter (mm): 150

SUBSURFACE PROFILE			SAMPLE			
Depth	Graphic Log	Lithologic Description	Sample ID	PID (ppm)	Sample Type	Comments
0.0		Ground Surface Fill (FL) Gravelly sand, brown to grey, damp, heterogeneous, with igneous gravels.	BH49 0.0-0.2	0.0	D	10 L inspected. No ACM observed. No odours or staining.
		End of Hole at 0.3 mbgs. Program depth.				

Drilling Method	Sample Type	Reference Level	Log Details
HA - Hand Auger	U - Undisturbed tube sample	AHD - Australian Height Datum	Logged By: C. Bielby
SFA - Solid Flight Auger	D - Disturbed sample	BGS - Below Ground Surface	Project Manager: T. Harding
HFA - Hollow Flight Auger	CS - Core sample		
PT - Push Tube			
AH - Air Hammer			

NOTE: This bore log is for environmental assessment purposes only and is not intended to provide geotechnical information
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Borehole No: BH50

Project No: 43069

Client: Roads and Maritime Services

Project Name: WestConnex Enabling Works

Site Address: Mascot, NSW

Date: 16/12/2013

Contractor: -

Drill Rig: -

Method: Hand Auger

Total Hole Depth (mbgs): 0.3

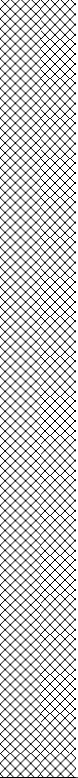
Eastings (MGA): -

Northings (MGA): -

Reference Level: Ground Surface

Elevation - Surface (m): 0

Bore Diameter (mm): 150

SUBSURFACE PROFILE			SAMPLE			
Depth	Graphic Log	Lithologic Description	Sample ID	PID (ppm)	Sample Type	Comments
0.0		Ground Surface				
		Fill (FL) Gravelly sand, brown to grey, damp, heterogeneous, with igneous gravels.	BH50 0.0-0.2	0.0	D	10 L inspected. No ACM observed. No odours or staining.
		End of Hole at 0.3 mbgs. Program depth.				

Drilling Method	Sample Type	Reference Level	Log Details
HA - Hand Auger	U - Undisturbed tube sample	AHD - Australian Height Datum	Logged By: C. Bielby
SFA - Solid Flight Auger	D - Disturbed sample	BGS - Below Ground Surface	Project Manager: T. Harding
HFA - Hollow Flight Auger	CS - Core sample		
PT - Push Tube			
AH - Air Hammer			

NOTE: This bore log is for environmental assessment purposes only and is not intended to provide geotechnical information
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Borehole No: BH51

Project No: 43069

Client: Roads and Maritime Services

Project Name: WestConnex Enabling Works

Site Address: Mascot, NSW

Date: 16/12/2013

Contractor: -

Drill Rig: -

Method: Hand Auger

Total Hole Depth (mbgs): 0.3

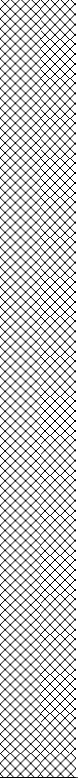
Eastings (MGA): -

Northings (MGA): -

Reference Level: Ground Surface

Elevation - Surface (m): 0

Bore Diameter (mm): 150

SUBSURFACE PROFILE			SAMPLE			
Depth	Graphic Log	Lithologic Description	Sample ID	PID (ppm)	Sample Type	Comments
0.0		<p>Ground Surface</p> <p>Fill (FL) Gravelly sand, brown to grey, damp, heterogeneous, with igneous gravels, brick, plastic, and fine tile fragments.</p>	BH51 0.0-0.2	0.0	D	10 L inspected. No ACM observed. No odours or staining.
		<p>End of Hole at 0.3 mbgs. Program depth.</p>				

Drilling Method	Sample Type	Reference Level	Log Details
HA - Hand Auger	U - Undisturbed tube sample	AHD - Australian Height Datum	Logged By: C. Bielby
SFA - Solid Flight Auger	D - Disturbed sample	BGS - Below Ground Surface	Project Manager: T. Harding
HFA - Hollow Flight Auger	CS - Core sample		
PT - Push Tube			
AH - Air Hammer			

NOTE: This bore log is for environmental assessment purposes only and is not intended to provide geotechnical information
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Borehole No: BH52

Project No: 43069

Client: Roads and Maritime Services

Project Name: WestConnex Enabling Works

Site Address: Mascot, NSW

Date: 16/12/2013

Eastings (MGA): -

Contractor: -

Northings (MGA): -

Drill Rig: -

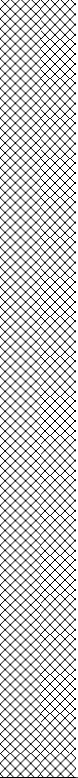
Reference Level: Ground Surface

Method: Hand Auger

Elevation - Surface (m): 0

Total Hole Depth (mbgs): 0.3

Bore Diameter (mm): 150

SUBSURFACE PROFILE			SAMPLE			
Depth	Graphic Log	Lithologic Description	Sample ID	PID (ppm)	Sample Type	Comments
0.0		<p>Ground Surface</p> <p>Fill (FL) Gravelly sand, brown, damp, heterogeneous, with ballast and fine gravels.</p>	BH52 0.0-0.2	0.0	D	10 L inspected. No ACM observed. No odours or staining.
		<p>End of Hole at 0.3 mbgs. Program depth.</p>				

Drilling Method	Sample Type	Reference Level	Log Details
HA - Hand Auger	U - Undisturbed tube sample	AHD - Australian Height Datum	Logged By: C. Bielby
SFA - Solid Flight Auger	D - Disturbed sample	BGS - Below Ground Surface	Project Manager: T. Harding
HFA - Hollow Flight Auger	CS - Core sample		
PT - Push Tube			
AH - Air Hammer			

NOTE: This bore log is for environmental assessment purposes only and is not intended to provide geotechnical information
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Borehole No: BH53

Project No: 43069

Client: Roads and Maritime Services

Project Name: WestConnex Enabling Works

Site Address: Mascot, NSW

Date: 16/12/2013

Eastings (MGA): -

Contractor: -

Northings (MGA): -

Drill Rig: -

Reference Level: Ground Surface

Method: Hand Auger

Elevation - Surface (m): 0

Total Hole Depth (mbgs): 0.3

Bore Diameter (mm): 150

SUBSURFACE PROFILE			SAMPLE			
Depth	Graphic Log	Lithologic Description	Sample ID	PID (ppm)	Sample Type	Comments
0.0		Ground Surface Fill (FL) Gravelly sand, brown, damp, heterogeneous, with ballast and fine gravels.	BH53 0.0-0.2	0.0	D	10 L inspected. No ACM observed. No odours or staining.
		End of Hole at 0.3 mbgs. Program depth.				

Drilling Method	Sample Type	Reference Level	Log Details
HA - Hand Auger	U - Undisturbed tube sample	AHD - Australian Height Datum	Logged By: C. Bielby
SFA - Solid Flight Auger	D - Disturbed sample	BGS - Below Ground Surface	Project Manager: T. Harding
HFA - Hollow Flight Auger	CS - Core sample		
PT - Push Tube			
AH - Air Hammer			

NOTE: This bore log is for environmental assessment purposes only and is not intended to provide geotechnical information
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Borehole No: BH54

Project No: 43069

Client: Roads and Maritime Services

Project Name: WestConnex Enabling Works

Site Address: Mascot, NSW

Date: 16/12/2013

Eastings (MGA): -

Contractor: -

Northings (MGA): -

Drill Rig: -

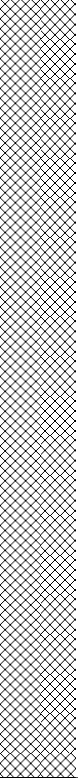
Reference Level: Ground Surface

Method: Hand Auger

Elevation - Surface (m): 0

Total Hole Depth (mbgs): 0.3

Bore Diameter (mm): 150

SUBSURFACE PROFILE			SAMPLE			
Depth	Graphic Log	Lithologic Description	Sample ID	PID (ppm)	Sample Type	Comments
0.0		Ground Surface				
		Fill (FL) Gravelly sand, brown, damp, heterogeneous, with ballast, fine gravels, and roots.	BH54 0.0-0.2	0.0	D	10 L inspected. No ACM observed. No odours or staining. QC05/A
		End of Hole at 0.3 mbgs. Program depth.				

Drilling Method	Sample Type	Reference Level	Log Details
HA - Hand Auger	U - Undisturbed tube sample	AHD - Australian Height Datum	Logged By: C. Bielby
SFA - Solid Flight Auger	D - Disturbed sample	BGS - Below Ground Surface	Project Manager: T. Harding
HFA - Hollow Flight Auger	CS - Core sample		
PT - Push Tube			
AH - Air Hammer			

NOTE: This bore log is for environmental assessment purposes only and is not intended to provide geotechnical information
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Borehole No: BH55

Project No: 43069

Client: Roads and Maritime Services

Project Name: WestConnex Enabling Works

Site Address: Mascot, NSW

Date: 16/12/2013

Eastings (MGA): -

Contractor: -

Northings (MGA): -

Drill Rig: -

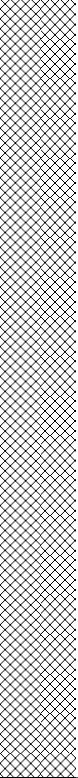
Reference Level: Ground Surface

Method: Hand Auger

Elevation - Surface (m): 0

Total Hole Depth (mbgs): 0.3

Bore Diameter (mm): 150

SUBSURFACE PROFILE			SAMPLE			
Depth	Graphic Log	Lithologic Description	Sample ID	PID (ppm)	Sample Type	Comments
0.0		Ground Surface				
		Fill (FL) Gravelly sand, brown, damp, heterogeneous, with ballast, fine gravels, and glass.	BH55 0.0-0.2	0.0	D	10 L inspected. No ACM observed. No odours or staining.
		End of Hole at 0.3 mbgs. Program depth.				

Drilling Method	Sample Type	Reference Level	Log Details
HA - Hand Auger	U - Undisturbed tube sample	AHD - Australian Height Datum	Logged By: C. Bielby
SFA - Solid Flight Auger	D - Disturbed sample	BGS - Below Ground Surface	Project Manager: T. Harding
HFA - Hollow Flight Auger	CS - Core sample		
PT - Push Tube			
AH - Air Hammer			

NOTE: This bore log is for environmental assessment purposes only and is not intended to provide geotechnical information
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Borehole No: BH56

Project No: 43069

Client: Roads and Maritime Services

Project Name: WestConnex Enabling Works

Site Address: Mascot, NSW

Date: 17/12/2013

Contractor: -

Drill Rig: -

Method: Hand Auger

Total Hole Depth (mbgs): 0.3

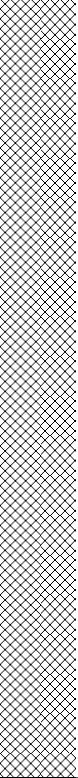
Eastings (MGA): -

Northings (MGA): -

Reference Level: Ground Surface

Elevation - Surface (m): 0

Bore Diameter (mm): 150

SUBSURFACE PROFILE			SAMPLE			
Depth	Graphic Log	Lithologic Description	Sample ID	PID (ppm)	Sample Type	Comments
0.0		Ground Surface				
		Fill (FL) Silty sand, brown-grey, heterogeneous, fine to medium grained, dry, with inclusions of ash (10%), slag, plastic and sandstone gravels.	BH56 0.0-0.2	0.0	D	10 L inspected. No ACM observed. No odours or staining.
		End of Hole at 0.3 mbgs. Program depth.				

Drilling Method	Sample Type	Reference Level	Log Details
HA - Hand Auger	U - Undisturbed tube sample	AHD - Australian Height Datum	Logged By: C. Bielby
SFA - Solid Flight Auger	D - Disturbed sample	BGS - Below Ground Surface	Project Manager: T. Harding
HFA - Hollow Flight Auger	CS - Core sample		
PT - Push Tube			
AH - Air Hammer			

NOTE: This bore log is for environmental assessment purposes only and is not intended to provide geotechnical information



Borehole No: BH57

Project No: 43069

Client: Roads and Maritime Services

Project Name: WestConnex Enabling Works

Site Address: Mascot, NSW

Date: 17/12/2013

Eastings (MGA): -

Contractor: -

Northings (MGA): -

Drill Rig: -

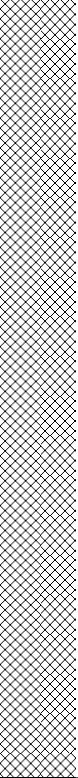
Reference Level: Ground Surface

Method: Hand Auger

Elevation - Surface (m): 0

Total Hole Depth (mbgs): 0.3

Bore Diameter (mm): 150

SUBSURFACE PROFILE			SAMPLE			
Depth	Graphic Log	Lithologic Description	Sample ID	PID (ppm)	Sample Type	Comments
0.0		<p>Ground Surface</p> <p>Fill (FL) Silty sand, grey, heterogeneous, fine to medium grained, dry, loose, with trace ash/slag, gravelsand blue metal gravels.</p>	BH57 0.0-0.2	0.0	D	10 L inspected. No ACM observed. No odours or staining.
		<p>End of Hole at 0.3 mbgs. Program depth.</p>				

Drilling Method	Sample Type	Reference Level	Log Details
HA - Hand Auger	U - Undisturbed tube sample	AHD - Australian Height Datum	Logged By: C. Bielby
SFA - Solid Flight Auger	D - Disturbed sample	BGS - Below Ground Surface	Project Manager: T. Harding
HFA - Hollow Flight Auger	CS - Core sample		
PT - Push Tube			
AH - Air Hammer			

NOTE: This bore log is for environmental assessment purposes only and is not intended to provide geotechnical information
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Borehole No: BH58

Project No: 43069

Client: Roads and Maritime Services

Project Name: WestConnex Enabling Works

Site Address: Mascot, NSW

Date: 17/12/2013

Contractor: -

Drill Rig: -

Method: Hand Auger

Total Hole Depth (mbgs): 0.3

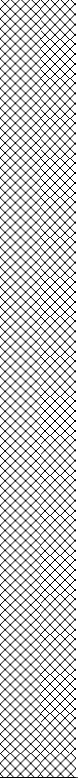
Eastings (MGA): -

Northings (MGA): -

Reference Level: Ground Surface

Elevation - Surface (m): 0

Bore Diameter (mm): 150

SUBSURFACE PROFILE			SAMPLE			
Depth	Graphic Log	Lithologic Description	Sample ID	PID (ppm)	Sample Type	Comments
0.0		<p>Ground Surface</p> <p>Fill (FL) Silty sand, grey, heterogeneous, fine to medium grained, dry, loose, with trace sandstone and igneous gravels.</p>	BH58 0.0-0.2	0.0	D	10 L inspected. No ACM observed. No odours or staining.
		<p>End of Hole at 0.3 mbgs. Program depth.</p>				

Drilling Method	Sample Type	Reference Level	Log Details
HA - Hand Auger	U - Undisturbed tube sample	AHD - Australian Height Datum	Logged By: C. Bielby
SFA - Solid Flight Auger	D - Disturbed sample	BGS - Below Ground Surface	Project Manager: T. Harding
HFA - Hollow Flight Auger	CS - Core sample		
PT - Push Tube			
AH - Air Hammer			

NOTE: This bore log is for environmental assessment purposes only and is not intended to provide geotechnical information
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Borehole No: BH59

Project No: 43069

Client: Roads and Maritime Services

Project Name: WestConnex Enabling Works

Site Address: Mascot, NSW

Date: 17/12/2013

Eastings (MGA): -

Contractor: -

Northings (MGA): -

Drill Rig: -

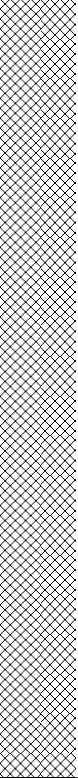
Reference Level: Ground Surface

Method: Hand Auger

Elevation - Surface (m): 0

Total Hole Depth (mbgs): 0.3

Bore Diameter (mm): 150

SUBSURFACE PROFILE			SAMPLE			
Depth	Graphic Log	Lithologic Description	Sample ID	PID (ppm)	Sample Type	Comments
0.0		<p>Ground Surface</p> <p>Fill (FL) Silty sand, grey, heterogeneous, fine to medium grained, dry, loose, with ash/slag (10%) and blue metal gravels.</p>	BH59 0.0-0.2	0.0	D	10 L inspected. No ACM observed. No odours or staining.
		<p>End of Hole at 0.3 mbgs. Program depth.</p>				

Drilling Method	Sample Type	Reference Level	Log Details
HA - Hand Auger	U - Undisturbed tube sample	AHD - Australian Height Datum	Logged By: C. Bielby
SFA - Solid Flight Auger	D - Disturbed sample	BGS - Below Ground Surface	Project Manager: T. Harding
HFA - Hollow Flight Auger	CS - Core sample		
PT - Push Tube			
AH - Air Hammer			

NOTE: This bore log is for environmental assessment purposes only and is not intended to provide geotechnical information
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Appendix D – Groundwater License



Department of
Primary Industries
Office of Water

Contact: Mr Wayne Conners
Phone: 8838-7531
Fax: 8838-7554
Email: wayne.conners@water.nsw.gov.au

Rail Corporation New South Wales
C/- JBS&G
Level 1, 50 Margaret Street
SYDNEY NSW 2000

Our ref: 10BL605496

ATTN: Tom Harding

18 December 2013

Dear Mr Harding

GROUNDWATER BORE LICENSE
Rail Corporation New South Wales
Sydney – Botany Goods Railway, BOTANY – Lot 1 DP 794238

Please find enclosed your license. Your attention is drawn to the nature and description of the work, terms, limitations and conditions under which the license is issued.

Please show the license to the Driller so he is aware of any conditions affecting the construction of the bore. The Driller must have a current Driller's License issued by this Department.

Condition (2) of the license applies whether the bore is successful or not and it is the Driller's responsibility to supply the information. Three copies of the Form 'A' for recording detail of the bore are attached and these should be forwarded to the Driller. One copy will be returned to you when completed by the Driller. This must then be returned to this office together with details of any water analysis and pumping tests carried out.

The Form 'A' requests a sketch of the location of bore site together with the portion number and boundaries. This sketch is required even through you have already indicated the site to the Department.

Your attention is drawn to conditions 11 and 12.

Yours sincerely

Wayne
Wayne Conners
Senior Water Regulation Officer
Water Regulatory Group

NSW Office of Water

Sydney South Coast Region
Po Box 3720
10 Valentine Avenue
Parramatta NSW 2124
Phone: (02)82817777

BORE LICENSE CERTIFICATE
UNDER SECTION 115 OF THE WATER ACT, 1912

10BL605496



Rail Corporation New South Wales
C/- J B S & G
Level 1, 50 Margaret Street
Sydney NSW 2000

LICENSE NUMBER
10BL605496
DATE LICENSE VALID FROM
18-Dec-2013
DATE LICENSE VALID TO
PERPETUITY
FEE
\$0.00
ABN 47661556763 GST NIL

LOCATION OF WORKS

Portion(s) or Lot/Section/DP	PARISH	COUNTY
1//794238	Botany	Cumberland

TYPE OF WORKS	PURPOSE(S) FOR WHICH WATER MAY BE USED
Well	Monitoring Bore

CONDITIONS APPLYING TO THIS LICENSE ARE

As shown on the attached Condition Statement

ORIGINAL

NSW Office of Water**CONDITIONS STATEMENT REFERRED TO ON
10BL605496
ISSUED UNDER PART V OF THE WATER ACT, 1912
ON 18-Dec-2013**

(1) THE LICENCE SHALL LAPSE IF THE WORK IS NOT COMMENCED AND COMPLETED WITHIN THREE YEARS OF THE DATE OF THE ISSUE OF THE LICENCE.

(2) THE LICENSEE SHALL WITHIN TWO MONTHS OF COMPLETION OR AFTER THE ISSUE OF THE LICENSE IF THE WORK IS EXISTING, FURNISH TO NSW OFFICE OF WATER:-

(A) DETAILS OF THE WORK SET OUT IN THE ATTACHED FORM "A" (MUST BE COMPLETED BY A DRILLER).

(B) A PLAN SHOWING ACCURATELY THE LOCATION OF THE WORK, IN RELATION TO PORTION AND PROPERTY BOUNDARIES.

(C) A ONE LITRE WATER SAMPLE FOR ALL LICENCES OTHER THAN THOSE FOR STOCK, DOMESTIC, TEST BORES AND FARMING PURPOSES.

(D) DETAILS OF ANY WATER ANALYSIS AND/OR PUMPING TESTS.

(3) THE LICENSEE SHALL ALLOW NSW OFFICE OF WATER OR ANY PERSON AUTHORISED BY IT, FULL AND FREE ACCESS TO THE WORKS, EITHER DURING OR AFTER CONSTRUCTION, FOR THE PURPOSE OF CARRYING OUT INSPECTION OR TEST OF THE WORKS AND ITS FITTINGS AND SHALL CARRY OUT ANY WORK OR ALTERATIONS DEEMED NECESSARY BY THE DEPARTMENT FOR THE PROTECTION AND PROPER MAINTENANCE OF THE WORKS, OR THE CONTROL OF THE WATER EXTRACTED AND FOR THE PROTECTION OF THE QUALITY AND THE PREVENTION FROM POLLUTION OR CONTAMINATION OF SUB-SURFACE WATER.

(4) IF DURING THE CONSTRUCTION OF THE WORK, SALINE OR POLLUTED WATER IS ENCOUNTERED ABOVE THE PRODUCING AQUIFER, SUCH WATER SHALL BE SEALED OFF BY:-

(A) INSERTING THE APPROPRIATE LENGTH(S) OF CASING TO A DEPTH SUFFICIENT TO EXCLUDE THE SALINE OR POLLUTED WATER FROM THE WORK.

(B) CEMENTING BETWEEN THE CASING(S) AND THE WALLS OF THE BORE HOLE FROM THE BOTTOM OF THE CASING TO GROUND LEVEL.

ANY DEPARTURE FROM THESE PROCEDURES MUST BE APPROVED BY THE DEPARTMENT BEFORE UNDERTAKING THE WORK.

(5) (A) THE LICENSEE SHALL NOTIFY NSW OFFICE OF WATER IF A FLOWING SUPPLY OF WATER IS OBTAINED. THE BORE SHALL THEN BE LINED WITH CASING AND CEMENTED AND A SUITABLE CLOSING GEAR SHALL BE ATTACHED TO THE BOREHEAD AS SPECIFIED BY NSW OFFICE OF WATER.

(B) IF A FLOWING SUPPLY OF WATER IS OBTAINED FROM THE WORK, THE LICENSEE SHALL ONLY DISTRIBUTE WATER FROM THE BORE HEAD BY A SYSTEM OF PIPE LINES AND SHALL NOT DISTRIBUTE IT IN DRAINS, NATURAL OR ARTIFICIAL CHANNELS OR DEPRESSIONS.

(6) IF A WORK IS ABANDONED AT ANY TIME THE LICENSEE SHALL NOTIFY NSW OFFICE OF WATER THAT THE WORK HAS BEEN ABANDONED AND SEAL OFF THE AQUIFER BY:-

(A) BACKFILLING THE WORK TO GROUND LEVEL WITH CLAY OR CEMENT AFTER WITHDRAWING THE CASING (LINING); OR

(B) SUCH METHODS AS AGREED TO OR DIRECTED BY NSW OFFICE OF WATER.

(7) THE LICENSEE SHALL NOT ALLOW ANY TAILWATER/DRAINAGE TO DISCHARGE INTO OR ONTO:-

- ANY ADJOINING PUBLIC OR CROWN ROAD;
- ANY OTHER PERSONS LAND;
- ANY CROWN LAND;
- ANY RIVER, CREEK OR WATERCOURSE;
- ANY NATIVE VEGETATION AS DESCRIBED UNDER THE NATIVE VEGETATION CONSERVATION ACT 1997;
- ANY WETLANDS OF ENVIRONMENTAL SIGNIFICANCE.

(8) WORKS USED FOR THE PURPOSE OF CONVEYING, DISTRIBUTING OR STORING WATER TAKEN BY MEANS OF THE LICENSED WORK SHALL NOT BE CONSTRUCTED OR INSTALLED SO AS TO OBSTRUCT THE REASONABLE PASSAGE OF FLOOD WATERS FLOWING INTO OR FROM A RIVER.

(9) IF THE BORE AUTHORISED BY THIS LICENSE IS LINED WITH STEEL OR PLASTIC CASING THE INSIDE DIAMETER OF THAT CASING SHALL NOT EXCEED 220 MM.

(10) WATER SHALL NOT BE PUMPED FROM THE BORE AUTHORISED BY THIS LICENSE FOR ANY PURPOSE OTHER THAN GROUNDWATER INVESTIGATION.

(11) SUBJECT TO CONDITION (12) THE LICENSEE SHALL WITHIN TWO MONTHS OF THE DATE OF COMPLETION OF THE BORE AUTHORISED BY THE LICENSE,

- (1) BACKFILL IT WITH CLAY OR CEMENT TO GROUND LEVEL, AFTER WITHDRAWING ANY CASING(LINING), OR:-
- (2) RENDER IT INEFFECTIVE BY ANY OTHER MEANS ACCEPTABLE TO THE DEPARTMENT.

(12) CONDITION (11) SHALL HAVE NO FORCE OR EFFECT IF:-

- (1) AT THE RELEVANT TIME THERE IS WITH NSW OFFICE OF WATER, AN APPLICATION IN RESPECT OF WHICH THE DEPARTMENT HAS NOT MADE A DECISION TO CONVERT THE GROUNDWATER INVESTIGATION BORE INTO A PRODUCTION BORE; OR
- (2) THE LICENSEE HAS COMPLETED THE BORE FOR THE PURPOSE OF MEASURING WATER LEVELS OR WATER QUALITY BY THE ADDITION OF CASING WITH A DIAMETER NOT EXCEEDING 220MM.

End Of Conditions



Driller's Licence No:	<input type="text"/>	1
Class of Licence:	<input type="text"/>	
Driller's Name:	<input type="text"/>	
Assistant Driller:	<input type="text"/>	
Contractor:	<input type="text"/>	
New bore	<input type="checkbox"/>	Replacement bore
Deepened	<input type="checkbox"/>	Enlarged
Reconditioned	<input type="checkbox"/>	Other (specify)
Final Depth	<input type="text"/> m	

Work Licence No:	<input type="text"/>	2	
Name of Licensee:	<input type="text"/>		
Intended Use:	<input type="text"/>		
Completion Date:	<input type="text"/>		
DRILLING DETAILS			
From (m)	To (m)	Hole Diameter (mm)	Drilling Method
			See Code 3

WATER BEARING ZONES												4
From (m)	To (m)	Thickness (m)	S W L (m)	Estimated Yield (L/s)		Test method	D D L at end of test (m)	Duration		Salinity (Conductivity or TDS)		
				Individual Aquifer	Cumulative			Hrs	min	Cond (µS/cm)	TDS (mg/L)	
						See Code 4						

CASING / LINER DETAILS										5	
Material	OD	Wall Thickness	From	To	Method Fixing	Casing support method					
Code 5	(mm)	(mm)	(m)	(m)	Code 5	See Code 5					
						Type of casing bottom					
						See Code 5					
						Centralisers installed {Yes/No}		(Indicate on sketch)			
						Sump installed {Yes/No}		From	m	To	m
						Pressure cemented {Yes/No}		From	m	To	m
						Casing Protector cemented in place					

WATER ENTRY DESIGN											6
General							Screen	Slot Details			
Material	OD	Wall Thickness	From	To	Opening type	Fixing	Aperture	Length	Width	Alignment	
Code 5	(mm)	(mm)	(m)	(m)	See Code 6	See Code 5	(mm)	(mm)	(mm)	See Code 6	

GRAVEL PACK								7
Type	Grade	Grain size (mm)		Depth (m)		Quantity		
		From	To	From	To	Litres	m ³	
Rounded	Graded							
Crushed	Ungraded							
Bentonite/Grout seal (Yes/No)								
Method of placement of Gravel Pack		See Code 7						

For Departmental use only: **GW**

Work Licence No: _____

BORE DEVELOPMENT 8

Chemical used for breaking down drilling mud (Yes/No) Name: _____

Method	Bailing/Surging <input type="checkbox"/>	Jetting <input type="checkbox"/>	Airlifting <input type="checkbox"/>	Backwashing <input type="checkbox"/>	Pumping <input type="checkbox"/>	Other: _____
Duration	_____ hrs	_____ hrs	_____ hrs	_____ hrs	_____ hrs	_____ hrs

DISINFECTION ON COMPLETION 9

Chemical(s) used	Quantity applied (Litres)	Method of application

PUMPING TESTS ON COMPLETION 10

Test type	Date	Pump intake depth (m)	Initial Water Level (SWL) (m)	Pumping rate (L/s)	Water Level at end of pumping (DDL) (m)	Duration of Test (hrs)	Recovery	
							Water level (m)	Time taken (hrs) (mins)
Multi stage (stepped drawdown)	Stage 1							
	Stage 2							
	Stage 3							
	Stage 4							
Single stage (constant rate)								
Height of measuring point above ground level		_____ m	Test Method		_____	See Code 4		

WORK PARTLY BACKFILLED OR ABANDONED 11

Original depth of work: _____ m Is work partly backfilled: (Yes/No)

Is work abandoned: (Yes/No) Method of abandonment: Backfilled Plugged Capped

Has any casing been left in the work (Yes/No) From _____ m To _____ m

Sealing / fill type	From depth (m)	To depth (m)	Sealing / fill type	From depth (m)	To depth (m)
See Code 11			See Code 11		

Site chosen by: Hydrogeologist Geologist Driller Diviner Client Other 12

Lot No _____ DP No _____ 13

Work Location Co ordinates Easting _____ Northing _____ Zone _____

GPS: (Yes/No) >> AMG/AGD or MGA/GDA (See explanation)

Please mark the work site with "X" on the CLID provided map.
Indicate also the distances in metres from two (2) adjacent boundaries; and attach the map to this Form A package.

Signatures:

Driller: _____ Licensee: _____

Date: _____ Date: _____

CODE TABLES

DRILLING METHOD

<table border="1" style="width: 100%; border-collapse: collapse;"> <tr><td style="width: 20px;">1</td><td>Auger - Hollow Flight</td></tr> <tr><td>2</td><td>Auger - Solid Flight</td></tr> <tr><td>3</td><td>Cable Tool - Drill and Drive Casing</td></tr> <tr><td>4</td><td>Cable Tool - Mud stabilised</td></tr> <tr><td>5</td><td>Rotary Air</td></tr> <tr><td>6</td><td>Rotary - Air/foam</td></tr> <tr><td>7</td><td>Rotary - Mud</td></tr> <tr><td>8</td><td>Rotary - Water</td></tr> </table>	1	Auger - Hollow Flight	2	Auger - Solid Flight	3	Cable Tool - Drill and Drive Casing	4	Cable Tool - Mud stabilised	5	Rotary Air	6	Rotary - Air/foam	7	Rotary - Mud	8	Rotary - Water	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr><td style="width: 20px;">9</td><td>Rotary - Percussion - (Down Hole Hammer)</td></tr> <tr><td>10</td><td>Rotary - Percussion - Foam injection</td></tr> <tr><td>11</td><td>Rotary - Reverse circulation - Air</td></tr> <tr><td>12</td><td>Rotary - Reverse circulation - Mud</td></tr> <tr><td>13</td><td>Rotary - Coring</td></tr> <tr><td>14</td><td>Jetted - Air</td></tr> <tr><td>15</td><td>Jetted - Water</td></tr> <tr><td>16</td><td>Other - See page 2, NO 11</td></tr> </table>	9	Rotary - Percussion - (Down Hole Hammer)	10	Rotary - Percussion - Foam injection	11	Rotary - Reverse circulation - Air	12	Rotary - Reverse circulation - Mud	13	Rotary - Coring	14	Jetted - Air	15	Jetted - Water	16	Other - See page 2, NO 11
1	Auger - Hollow Flight																																
2	Auger - Solid Flight																																
3	Cable Tool - Drill and Drive Casing																																
4	Cable Tool - Mud stabilised																																
5	Rotary Air																																
6	Rotary - Air/foam																																
7	Rotary - Mud																																
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13	Rotary - Coring																																
14	Jetted - Air																																
15	Jetted - Water																																
16	Other - See page 2, NO 11																																

WATER BEARING ZONE

TEST METHOD				FLOW MEASURING DEVICE			
1	Airlift	6	Pump - Helical Rot	A	Container of known volum	F	Weir - Rectangular
2	Bailer	7	Pump - Jet	B	Flow meter	G	Weir - V Notch - 60°
3	Pump - Centrifugal	8	Pump - Turbine	C	Flume	H	Weir - V Notch - 90°
4	Pump - Cylinder	9	Freeflow	D	Orifice, plate & manomete	I	Other
5	Pump - Electric submersi			E	Ultra sonic meter		

CASING / LINER DETAILS

MATERIAL				METHOD OF FIXING			
1	A.B.S.	6	PVC - Class 12	11	Steel - Stainless	1	Glued
2	Aluminium	7	PVC - Class 15	12	Steel - Stainless 304	2	Kwik-lock
3	Concrete cylinder	8	PVC - Class 18	13	Steel - Stainless 316	3	Packer
4	Fibre glass (FRP)	9	Steel - ERW	14	Other	4	Riveted
5	PVC - Class 9	10	Steel - Galvanised			5	Screwed
						6	Welded - Butt
						7	Welded - Colla
						8	Other

CASING SUPPORT METHOD

TYPE OF CASING BOTTOM

1	Driven into small hole	5	Held in clamp	1	Open end	5	Casing shoe
2	Seated on bottom	6	Other	2	End cap	6	Wash down shoe
3	Seated on backfill			3	Plug - concrete	7	Cementing shoe
4	Cemented			4	Plug - wood	8	Other

WATER ENTRY DESIGN

OPENING TYPE				SLOT ALIGNMENT			
1	Casing - Bridge slot	7	Casing - Plasma-cut slot	D	Diagonal		
2	Casing - Drilled holes	8	Casing - Perforated in hole	H	Horizontal		
3	Casing - Hand sawn slot	9	Screen - gauze / mesh	V	Vertical		
4	Casing - Louvre slot	10	Screen - round wire	<i>For MATERIAL and FIXING Codes Please refer to CASING DETAILS code table</i>			
5	Casing - Machine slotted	11	Screen - wedge wire				
6	Casing - Oxy cut slot						

GRAVEL PACK - METHOD OF PLACEMENT

1	Poured or shovelled into annul	2	Placed through tremie pipe	3	Reverse circulated
---	--------------------------------	---	----------------------------	---	--------------------

WORK PARTLY BACKFILLED OR ABANDONED - SEALING MATERIAL

1	Cement grout	3	Bentonite	5	Clay	7	Gravel
2	Concrete	4	Drilled cuttings	6	Sand	8	Coarse stone

DRILLER'S ROCK STRATA DESCRIPTION

Reporting sequence	1	2	3	4	To save confusion, write the full name of colour and abbreviate the following: light = lt, dark = dk, fine grained = fg, medium grained = mg, coarse grained = cg. Texture can relate to weathered, fractured, broken, hard, soft etc.
	Rock type	Colour	Grain size	Texture	
Example	Sandstone	Dk Grey	mg	Fractured	



Driller's Licence No:	<input type="text"/>	1
Class of Licence:	<input type="text"/>	
Driller's Name:	<input type="text"/>	
Assistant Driller:	<input type="text"/>	
Contractor:	<input type="text"/>	
New bore	<input type="checkbox"/>	Replacement bore
Deepened	<input type="checkbox"/>	Enlarged
Reconditioned	<input type="checkbox"/>	Other (specify)
Final Depth	<input type="text"/> m	

Work Licence No:	<input type="text"/>	2	
Name of Licensee:	<input type="text"/>		
Intended Use:	<input type="text"/>		
Completion Date:	<input type="text"/>		
DRILLING DETAILS			
From (m)	To (m)	Hole Diameter (mm)	Drilling Method
			See Code 3

WATER BEARING ZONES												4
From (m)	To (m)	Thickness (m)	S W L (m)	Estimated Yield (L/s)		Test method	D D L at end of test (m)	Duration		Salinity (Conductivity or TDS)		
				Individual Aquifer	Cumulative			Hrs	min	Cond (µS/cm)	TDS (mg/L)	
						See Code 4						

CASING / LINER DETAILS												5	
Material	OD	Wall Thickness	From	To	Method Fixing	Casing support method						See Code 5	
Code 5	(mm)	(mm)	(m)	(m)	Code 5	Type of casing bottom						See Code 5	
						Centralisers installed {Yes/No}		(indicate on sketch)					
						Sump installed {Yes/No}		From		m	To		m
						Pressure cemented {Yes/No}		From		m	To		m
Casing Protector cemented in place													

WATER ENTRY DESIGN											6
General							Screen	Slot Details			
Material	OD	Wall Thickness	From	To	Opening type	Fixing	Aperture	Length	Width	Alignment	
Code 5	(mm)	(mm)	(m)	(m)	See Code 6	See Code 5	(mm)	(mm)	(mm)	See Code 6	

GRAVEL PACK										7
Type	Grade	Grain size (mm)		Depth (m)		Quantity				
		From	To	From	To	Litres	m ³			
Rounded	Graded									
Crushed	Ungraded									
Bentonite/Grout seal (Yes/No)										
Method of placement of Gravel Pack		See Code 7								

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Work Licence No:

BORE DEVELOPMENT 8

Chemical used for breaking down drilling mud (Yes/No) Name:

Method Bailing/Surging Jetting Airlifting Backwashing Pumping Other:
Duration hrs hrs hrs hrs hrs hrs

DISINFECTION ON COMPLETION 9

Chemical(s) used Quantity applied (Litres) Method of application

PUMPING TESTS ON COMPLETION 10

Test type	Date	Pump intake depth (m)	Initial Water Level (SWL) (m)	Pumping rate (L/s)	Water Level at end of pumping (DDL) (m)	Duration of Test (hrs)	Recovery	
							Water level (m)	Time taken (hrs) (mins)
Multi stage (stepped drawdown)	Stage 1							
	Stage 2							
	Stage 3							
	Stage 4							
Single stage (constant rate)								
Height of measuring point above ground level <input type="text"/> m		Test Method <input type="text"/>		See Code 4 <input type="text"/>				

WORK PARTLY BACKFILLED OR ABANDONED 11

Original depth of work: m Is work partly backfilled: (Yes/No)
Is work abandoned: (Yes/No) Method of abandonment: Backfilled Plugged Capped
Has any casing been left in the work (Yes/No) From m To m

Sealing / fill type	From depth (m)	To depth (m)	Sealing / fill type	From depth (m)	To depth (m)
See Code 11			See Code 11		

Site chosen by: Hydrogeologist Geologist Driller Diviner Client Other 12

Lot No DP No 13

Work Location Co ordinates Easting Northing Zone
GPS: (Yes/No) >> AMG/AGD or MGA/GDA (See explanation)

Please mark the work site with "X" on the CLID provided map.
Indicate also the distances in metres from two (2) adjacent boundaries; and attach the map to this Form A package.

Signatures:
Driller: _____ Licensee: _____
Date: _____ Date: _____

CODE TABLES

DRILLING METHOD

1		9	
Auger - Hollow Flight	Rotary - Percussion - (Down Hole Hammer)		
2 Auger - Solid Flight	10 Rotary - Percussion - Foam injection		
3 Cable Tool - Drill and Drive Casing	11 Rotary - Reverse circulation - Air		
4 Cable Tool - Mud stabilised	12 Rotary - Reverse circulation - Mud		
5 Rotary Air	13 Rotary - Coring		
6 Rotary - Air/foam	14 Jetted - Air		
7 Rotary - Mud	15 Jetted - Water		
8 Rotary - Water	16 Other - See page 2, NO 11		

WATER BEARING ZONE

TEST METHOD		FLOW MEASURING DEVICE	
1 Airlift	6 Pump - Helical Rot	A Container of known volum	F Weir - Rectangular
2 Bailer	7 Pump - Jet	B Flow meter	G Weir - V Notch - 60°
3 Pump - Centrifugal	8 Pump - Turbine	C Flume	H Weir - V Notch - 90°
4 Pump - Cylinder	9 Freeflow	D Orifice, plate & manomete	I Other
5 Pump - Electric submersil		E Ultra sonic meter	

CASING / LINER DETAILS

MATERIAL				METHOD OF FIXING			
1	A.B.S.	6	PVC - Class 12	11	Steel - Stainless	1	Glued
2	Aluminium	7	PVC - Class 15	12	Steel - Stainless 304	2	Kwik-lock
3	Concrete cylinder	8	PVC - Class 18	13	Steel - Stainless 316	3	Packer
4	Fibre glass (FRP)	9	Steel - ERW	14	Other	4	Riveted
5	PVC - Class 9	10	Steel - Galvanised			5	Screwed
						6	Welded - Butt
						7	Welded - Colla
						8	Other

CASING SUPPORT METHOD

TYPE OF CASING BOTTOM

1	Driven into small hole	5	Held in clamp	1	Open end	5	Casing shoe
2	Seated on bottom	6	Other	2	End cap	6	Wash down shoe
3	Seated on backfill			3	Plug - concrete	7	Cementing shoe
4	Cemented			4	Plug - wood	8	Other

WATER ENTRY DESIGN

OPENING TYPE				SLOT ALIGNMENT	
1	Casing - Bridge slot	7	Casing - Plasma-cut slot	D	Diagonal
2	Casing - Drilled holes	8	Casing - Perforated in hole	H	Horizontal
3	Casing - Hand sawn slot	9	Screen - gauze / mesh	V	Vertical
4	Casing - Louvre slot	10	Screen - round wire	For MATERIAL and FIXING Codes Please refer to CASING DETAILS code table	
5	Casing - Machine slotted	11	Screen - wedge wire		
6	Casing - Oxy cut slot				

GRAVEL PACK - METHOD OF PLACEMENT

1	Poured or shovelled into annul	2	Placed through tremie pipe	3	Reverse circulated
---	--------------------------------	---	----------------------------	---	--------------------

WORK PARTLY BACKFILLED OR ABANDONED - SEALING MATERIAL

1	Cement grout	3	Bentonite	5	Clay	7	Gravel
2	Concrete	4	Drilled cuttings	6	Sand	8	Coarse stone

DRILLER'S ROCK STRATA DESCRIPTION

Reporting sequence	1	2	3	4	To save confusion, write the <i>full name of colour and abbreviate th following</i> : light = lt, dark = dk, fine grained = fg, medium grained = mg, coarse grained = cg. <i>Texture can relate t</i> weathered, fractured, broken, hard, soft etc.
	Rock type	Colour	Grain size	Texture	
Example	Sandstone	Dk Grey	mg	Fractured	



Driller's Licence No:	<input type="text"/>	1
Class of Licence:	<input type="text"/>	
Driller's Name:	<input type="text"/>	
Assistant Driller:	<input type="text"/>	
Contractor:	<input type="text"/>	
New bore	<input type="checkbox"/>	Replacement bore
Deepened	<input type="checkbox"/>	Enlarged
Reconditioned	<input type="checkbox"/>	Other (specify)
Final Depth	<input type="text"/> m	

Work Licence No:	<input type="text"/>	2	
Name of Licensee:	<input type="text"/>		
Intended Use:	<input type="text"/>		
Completion Date:	<input type="text"/>		
DRILLING DETAILS			
From (m)	To (m)	Hole Diameter (mm)	Drilling Method See Code 3
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

WATER BEARING ZONES												4
From (m)	To (m)	Thickness (m)	S W L (m)	Estimated Yield (L/s)		Test method See Code 4	D D L at end of test (m)	Duration		Salinity (Conductivity or TDS)		
				Individual Aquifer	Cumulative			Hrs	min	Cond (µS/cm)	TDS (mg/L)	
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	

CASING / LINER DETAILS											5
Material Code 5	OD (mm)	Wall Thickness (mm)	From (m)	To (m)	Method Fixing Code 5	Casing support method See Code 5		Type of casing bottom See Code 5			
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	Centralisers installed {Yes/No}		(indicate on sketch)			
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	Sump installed {Yes/No}		From	<input type="text"/> m	To	<input type="text"/> m
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	Pressure cemented {Yes/No}		From	<input type="text"/> m	To	<input type="text"/> m
Casing Protector cemented in place											

WATER ENTRY DESIGN											6
General							Screen	Slot Details			
Material Code 5	OD (mm)	Wall Thickness (mm)	From (m)	To (m)	Opening type See Code 6	Fixing See Code 5	Aperture (mm)	Length (mm)	Width (mm)	Alignment See Code 6	
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	

GRAVEL PACK										7
Type	Grade	Grain size (mm)		Depth (m)		Quantity				
		From	To	From	To	Litres	m ³			
Rounded	Graded	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>			
Crushed	Ungraded	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>			
Bentonite/Grout seal (Yes/No)		<input type="text"/>		<input type="text"/>		<input type="text"/>				
Method of placement of Gravel Pack		<input type="text"/>		<input type="text"/>		<input type="text"/>				

For Departmental use only: **GW**



Work Licence No: _____

BORE DEVELOPMENT 8

Chemical used for breaking down drilling mud (Yes/No) Name: _____

Method Bailing/Surging Jetting Airlifting Backwashing Pumping Other: _____

Duration _____ hrs _____ hrs _____ hrs _____ hrs _____ hrs _____ hrs

DISINFECTION ON COMPLETION 9

Chemical(s) used	Quantity applied (Litres)	Method of application

PUMPING TESTS ON COMPLETION 10

Test type	Date	Pump intake depth (m)	Initial Water Level (SWL) (m)	Pumping rate (L/s)	Water Level at end of pumping (DDL) (m)	Duration of Test (hrs)	Recovery	
							Water level (m)	Time taken (hrs) (mins)
Multi stage (stepped drawdown)	Stage 1							
	Stage 2							
	Stage 3							
	Stage 4							
Single stage (constant rate)								
Height of measuring point above ground level			m	Test Method			See Code 4	

WORK PARTLY BACKFILLED OR ABANDONED 11

Original depth of work: _____ m Is work partly backfilled: (Yes/No)

Is work abandoned: (Yes/No) Method of abandonment: Backfilled Plugged Capped

Has any casing been left in the work (Yes/No) From _____ m To _____ m

Sealing / fill type	From depth (m)	To depth (m)	Sealing / fill type	From depth (m)	To depth (m)
See Code 11			See Code 11		

Site chosen by: Hydrogeologist Geologist Driller Diviner Client Other 12

Lot No _____ DP No _____ 13

Work Location Co ordinates Easting _____ Northing _____ Zone _____

GPS: (Yes/No) >> AMG/AGD or MGA/GDA (See explanation)

Please mark the work site with "X" on the CLID provided map.
Indicate also the distances in metres from two (2) adjacent boundaries, and attach the map to this Form A package.

Signatures:

Driller: _____

Licensee: _____

Date: _____

Date: _____



Work Licence No:

DRILLER'S ROCK/STRATA DESCRIPTION (LITHOLOGY)		15
Depth		Description
From (m)	To (m)	<div style="border: 1px solid black; padding: 2px; display: inline-block;">See Code 15</div>

WORK CONSTRUCTION SKETCH

0			

WORK NOT CONSTRUCTED BY DRILLING RIG	16
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Method of excavation: Hand dug Back hoe Dragline Dozer Other

Depth (m)	Length (m)	Width (m)	Diameter (m)	Lining material	Dimensions of liner (m)	From Depth (m)	To Depth (m)

Please attach copies of the following if available	17
---	-----------

Geologist log (Yes/No) <input type="checkbox"/>	Laboratory analysis of water Sample (Yes/No) <input type="checkbox"/>	Pumping test(s) (Yes/No) <input type="checkbox"/>
Geophysical log (Yes/No) <input type="checkbox"/>	Sieve analysis of aquifer material (Yes/No) <input type="checkbox"/>	Installed Pump details (Yes/No) <input type="checkbox"/>

CODE TABLES

DRILLING METHOD

3

1 Auger - Hollow Flight	9 Rotary - Percussion - (Down Hole Hammer)
2 Auger - Solid Flight	10 Rotary - Percussion - Foam injection
3 Cable Tool - Drill and Drive Casing	11 Rotary - Reverse circulation - Air
4 Cable Tool - Mud stabilised	12 Rotary - Reverse circulation - Mud
5 Rotary Air	13 Rotary - Coring
6 Rotary - Air/foam	14 Jetted - Air
7 Rotary - Mud	15 Jetted - Water
8 Rotary - Water	16 Other - See page 2, NO 11

WATER BEARING ZONE

4

TEST METHOD				FLOW MEASURING DEVICE			
1 Airlift	6 Pump - Helical Rot	A Container of known volum	F Weir - Rectangular				
2 Bailer	7 Pump - Jet	B Flow meter	G Weir - V Notch - 60°				
3 Pump - Centrifugal	8 Pump - Turbine	C Flume	H Weir - V Notch - 90°				
4 Pump - Cylinder	9 Freeflow	D Orifice, plate & manomete	I Other				
5 Pump - Electric submersil		E Ultra sonic meter					

CASING / LINER DETAILS

5

MATERIAL				METHOD OF FIXING			
1 A.B.S.	6 PVC - Class 12	11 Steel - Stainless	1 Glued	6 Welded - Butt			
2 Aluminium	7 PVC - Class 15	12 Steel - Stainless 304	2 Kwik-lock	7 Welded - Colla			
3 Concrete cylinder	8 PVC - Class 18	13 Steel - Stainless 316	3 Packer	8 Other			
4 Fibre glass (FRP)	9 Steel - ERW	14 Other	4 Riveted				
5 PVC - Class 9	10 Steel - Galvanised		5 Screwed				

CASING SUPPORT METHOD

TYPE OF CASING BOTTOM

1 Driven into small hole	5 Held in clamp	1 Open end	5 Casing shoe
2 Seated on bottom	6 Other	2 End cap	6 Wash down shoe
3 Seated on backfill		3 Plug - concrete	7 Cementing shoe
4 Cemented		4 Plug - wood	8 Other

WATER ENTRY DESIGN

6

OPENING TYPE				SLOT ALIGNMENT	
1 Casing - Bridge slot	7 Casing - Plasma-cut slot	D Diagonal			
2 Casing - Drilled holes	8 Casing - Perforated in hole	H Horizontal			
3 Casing - Hand sawn slot	9 Screen - gauze / mesh	V Vertical			
4 Casing - Louvre slot	10 Screen - round wire	<i>For MATERIAL and FIXING Codes Please refer to CASING DETAILS code table</i>			
5 Casing - Machine slotted	11 Screen - wedge wire				
6 Casing - Oxy cut slot					

GRAVEL PACK - METHOD OF PLACEMENT

7

1 Poured or shovelled into annul	2 Placed through tremie pipe	3 Reverse circulated
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WORK PARTLY BACKFILLED OR ABANDONED - SEALING MATERIAL

11

1 Cement grout	3 Bentonite	5 Clay	7 Gravel
2 Concrete	4 Drilled cuttings	6 Sand	8 Coarse stone

DRILLER'S ROCK STRATA DESCRIPTION

15

Reporting sequence	1 Rock type	2 Colour	3 Grain size	4 Texture	To save confusion, write the <i>full name of colour and abbreviate the following</i> : light = lt, dark = dk, fine grained = fg, medium grained = mg, coarse grained = cg. <i>Texture can relate to</i> weathered, fractured, broken, hard, soft etc.
Example	Sandstone	Dk Grey	mg	Fractured	



Appendix E –Laboratory Analytical Reports

Certificate of Analysis

JBS & G (NSW & WA) Pty Ltd
 Level 1, 50 Margaret St
 Sydney
 NSW 2000



NATA Accredited
 Accreditation Number 1261
 Site Number 18217

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

Attention: Thomas Harding

Report 405939-S
 Client Reference WEST CONNEX 43069
 Received Date Jan 17, 2014

Client Sample ID			BH56 0.0-0.02	BH57 0.0-0.02	BH58 0.0-0.02	BH59 0.0-0.02
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins mgt Sample No.			S14-Ja07725	S14-Ja07726	S14-Ja07727	S14-Ja07728
Date Sampled			Jan 17, 2014	Jan 17, 2014	Jan 17, 2014	Jan 17, 2014
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	< 50	< 50
TRH C29-C36	50	mg/kg	< 50	< 50	< 50	72
TRH C10-36 (Total)	50	mg/kg	< 50	< 50	< 50	72
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	%	119	126	120	126
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	< 100	< 100
TRH >C34-C40	100	mg/kg	< 100	< 100	< 100	< 100
Polycyclic Aromatic Hydrocarbons						
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	< 0.5	< 0.5
Benzo(a)pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(b&j)fluoranthene ^{N07}	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(g,h,i)perylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(k)fluoranthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Chrysene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Dibenz(a,h)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Fluoranthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Fluorene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Indeno(1,2,3-cd)pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Naphthalene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5

Client Sample ID			BH56 0.0-0.02	BH57 0.0-0.02	BH58 0.0-0.02	BH59 0.0-0.02
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins mgt Sample No.			S14-Ja07725	S14-Ja07726	S14-Ja07727	S14-Ja07728
Date Sampled			Jan 17, 2014	Jan 17, 2014	Jan 17, 2014	Jan 17, 2014
Test/Reference	LOR	Unit				
Polycyclic Aromatic Hydrocarbons						
Phenanthrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Total PAH	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(a)pyrene TEQ (lower bound)*	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(a)pyrene TEQ (medium bound)*	0.5	mg/kg	0.6	0.6	0.6	0.6
Benzo(a)pyrene TEQ (upper bound)*	0.5	mg/kg	1.2	1.2	1.2	1.2
2-Fluorobiphenyl (surr.)	1	%	84	90	93	88
p-Terphenyl-d14 (surr.)	1	%	111	116	121	115
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
Dibutylchloroendate (surr.)	1	%	-	100	-	98
Tetrachloro-m-xylene (surr.)	1	%	-	78	-	72
Organophosphorous Pesticides						
Bolstar	0.2	mg/kg	-	< 0.2	-	< 0.2
Chlorpyrifos	0.2	mg/kg	-	< 0.2	-	< 0.2
Demeton-O	0.2	mg/kg	-	< 0.2	-	< 0.2
Diazinon	0.2	mg/kg	-	< 0.2	-	< 0.2
Dichlorvos	0.2	mg/kg	-	< 0.2	-	< 0.2
Disulfoton	0.2	mg/kg	-	< 0.2	-	< 0.2
Ethion	0.2	mg/kg	-	< 0.2	-	< 0.2
Ethoprop	0.2	mg/kg	-	< 0.2	-	< 0.2
Fenitrothion	0.2	mg/kg	-	< 0.2	-	< 0.2
Fensulfothion	0.2	mg/kg	-	< 0.2	-	< 0.2
Fenthion	0.2	mg/kg	-	< 0.2	-	< 0.2
Merphos	0.2	mg/kg	-	< 0.2	-	< 0.2
Methyl azinphos	0.2	mg/kg	-	< 0.2	-	< 0.2
Methyl parathion	0.2	mg/kg	-	< 0.2	-	< 0.2
Mevinphos	0.2	mg/kg	-	< 0.2	-	< 0.2
Naled	0.5	mg/kg	-	< 0.5	-	< 0.5

Client Sample ID			BH56 0.0-0.02	BH57 0.0-0.02	BH58 0.0-0.02	BH59 0.0-0.02
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins mgt Sample No.			S14-Ja07725	S14-Ja07726	S14-Ja07727	S14-Ja07728
Date Sampled			Jan 17, 2014	Jan 17, 2014	Jan 17, 2014	Jan 17, 2014
Test/Reference	LOR	Unit				
Organophosphorous Pesticides						
Phorate	0.2	mg/kg	-	< 0.2	-	< 0.2
Ronnel	0.2	mg/kg	-	< 0.2	-	< 0.2
Tokuthion	0.2	mg/kg	-	< 0.2	-	< 0.2
Trichloronate	0.2	mg/kg	-	< 0.2	-	< 0.2
Triphenylphosphate (surr.)	1	%	-	93	-	91
Heavy Metals						
Arsenic	2	mg/kg	< 2	< 2	< 2	< 2
Cadmium	0.4	mg/kg	< 0.4	< 0.4	< 0.4	< 0.4
Chromium	5	mg/kg	10	16	17	14
Copper	5	mg/kg	25	18	16	15
Lead	5	mg/kg	87	110	98	91
Mercury	0.05	mg/kg	0.09	0.09	0.07	0.06
Nickel	5	mg/kg	11	6.8	< 5	< 5
Zinc	5	mg/kg	65	61	37	34
% Moisture						
	0.1	%	1.2	2.6	0.4	0.6

Sample History

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

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

Description	Testing Site	Extracted	Holding Time
Total Recoverable Hydrocarbons - 1999 NEPM Fractions - Method: E004 Petroleum Hydrocarbons (TPH)	Sydney	Jan 23, 2014	14 Day
Total Recoverable Hydrocarbons - 2013 NEPM Fractions - Method: LM-LTM-ORG2010	Sydney	Jan 23, 2014	14 Day
BTEX - Method: E029/E016 BTEX	Sydney	Jan 23, 2014	14 Day
Polycyclic Aromatic Hydrocarbons - Method: E007 Polyaromatic Hydrocarbons (PAH)	Sydney	Jan 23, 2014	14 Day
Organochlorine Pesticides - Method: E013 Organochlorine Pesticides (OC)	Sydney	Jan 22, 2014	14 Day
Organophosphorous Pesticides - Method: USEPA 8141 Organophosphorus Pesticides	Melbourne	Jan 23, 2014	14 Day
Metals M8 - Method: E022 Acid Extractable metals in Soils & E026 Mercury	Sydney	Jan 22, 2014	28 Day
% Moisture - Method: E005 Moisture Content	Sydney	Jan 22, 2014	28 Day

Company Name: JBS & G (NSW & WA) Pty Ltd Address: Level 1, 50 Margaret St Sydney NSW 2000 Client Job No.: WEST CONNEX 43069	Order No.: Report #: 405939 Phone: 02 8245 0300 Fax:	Received: Jan 17, 2014 2:15 PM Due: Jan 24, 2014 Priority: 5 Day Contact Name: Thomas Harding
Eurofins mgt Client Manager: Jean Heng		

Sample Detail					% Moisture	Polycyclic Aromatic Hydrocarbons	Organochlorine Pesticides	Organophosphorous Pesticides	Metals MB	BTEX	Total Recoverable Hydrocarbons
Laboratory where analysis is conducted											
Melbourne Laboratory - NATA Site # 1254 & 14271								X			
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							
BH56 0.0-0.02	Jan 17, 2014		Soil	S14-Ja07725	X	X			X	X	X
BH57 0.0-0.02	Jan 17, 2014		Soil	S14-Ja07726	X	X	X	X	X	X	X
BH58 0.0-0.02	Jan 17, 2014		Soil	S14-Ja07727	X	X			X	X	X
BH59 0.0-0.02	Jan 17, 2014		Soil	S14-Ja07728	X	X	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 PQLs are matrix dependant. Quoted PQLs 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 Acknowledgment.

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: 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	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							
Organophosphorous Pesticides							
Bolstar	mg/kg	< 0.2			0.2	Pass	
Chlorpyrifos	mg/kg	< 0.2			0.2	Pass	
Demeton-O	mg/kg	< 0.2			0.2	Pass	
Diazinon	mg/kg	< 0.2			0.2	Pass	
Dichlorvos	mg/kg	< 0.2			0.2	Pass	
Disulfoton	mg/kg	< 0.2			0.2	Pass	
Ethion	mg/kg	< 0.2			0.2	Pass	
Ethoprop	mg/kg	< 0.2			0.2	Pass	
Fenitrothion	mg/kg	< 0.2			0.2	Pass	
Fensulfothion	mg/kg	< 0.2			0.2	Pass	
Fenthion	mg/kg	< 0.2			0.2	Pass	
Merphos	mg/kg	< 0.2			0.2	Pass	
Methyl azinphos	mg/kg	< 0.2			0.2	Pass	
Methyl parathion	mg/kg	< 0.2			0.2	Pass	
Mevinphos	mg/kg	< 0.2			0.2	Pass	
Naled	mg/kg	< 0.5			0.5	Pass	
Phorate	mg/kg	< 0.2			0.2	Pass	
Ronnel	mg/kg	< 0.2			0.2	Pass	
Tokuthion	mg/kg	< 0.2			0.2	Pass	
Trichloronate	mg/kg	< 0.2			0.2	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	%	98			70-130	Pass	
TRH C10-C14	%	78			70-130	Pass	
LCS - % Recovery							
BTEX							
Benzene	%	99			70-130	Pass	
Toluene	%	99			70-130	Pass	
Ethylbenzene	%	100			70-130	Pass	
m&p-Xylenes	%	102			70-130	Pass	
o-Xylene	%	110			70-130	Pass	

Test	Units	Result 1		Acceptance Limits	Pass Limits	Qualifying Code
Xylenes - Total	%	105		70-130	Pass	
LCS - % Recovery						
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene	%	85		70-130	Pass	
TRH C6-C10	%	100		70-130	Pass	
TRH >C10-C16	%	87		70-130	Pass	
LCS - % Recovery						
Polycyclic Aromatic Hydrocarbons						
Acenaphthene	%	100		70-130	Pass	
Acenaphthylene	%	98		70-130	Pass	
Anthracene	%	116		70-130	Pass	
Benz(a)anthracene	%	105		70-130	Pass	
Benzo(a)pyrene	%	102		70-130	Pass	
Benzo(b&j)fluoranthene	%	97		70-130	Pass	
Benzo(g,h,i)perylene	%	103		70-130	Pass	
Benzo(k)fluoranthene	%	108		70-130	Pass	
Chrysene	%	104		70-130	Pass	
Dibenz(a,h)anthracene	%	103		70-130	Pass	
Fluoranthene	%	110		70-130	Pass	
Fluorene	%	99		70-130	Pass	
Indeno(1,2,3-cd)pyrene	%	102		70-130	Pass	
Naphthalene	%	98		70-130	Pass	
Phenanthrene	%	110		70-130	Pass	
Pyrene	%	105		70-130	Pass	
LCS - % Recovery						
Organochlorine Pesticides						
Chlordanes - Total	%	106		70-130	Pass	
4,4'-DDD	%	110		70-130	Pass	
4,4'-DDE	%	105		70-130	Pass	
4,4'-DDT	%	108		70-130	Pass	
a-BHC	%	106		70-130	Pass	
Aldrin	%	106		70-130	Pass	
b-BHC	%	113		70-130	Pass	
d-BHC	%	109		70-130	Pass	
Dieldrin	%	106		70-130	Pass	
Endosulfan I	%	107		70-130	Pass	
Endosulfan II	%	109		70-130	Pass	
Endosulfan sulphate	%	115		70-130	Pass	
Endrin	%	103		70-130	Pass	
Endrin aldehyde	%	113		70-130	Pass	
Endrin ketone	%	113		70-130	Pass	
g-BHC (Lindane)	%	106		70-130	Pass	
Heptachlor	%	104		70-130	Pass	
Heptachlor epoxide	%	105		70-130	Pass	
Hexachlorobenzene	%	88		70-130	Pass	
Methoxychlor	%	112		70-130	Pass	
LCS - % Recovery						
Organophosphorous Pesticides						
Diazinon	%	87		70-130	Pass	
Ethion	%	87		70-130	Pass	
Fenitrothion	%	92		70-130	Pass	
Methyl parathion	%	80		70-130	Pass	
Mevinphos	%	77		70-130	Pass	
LCS - % Recovery						

Test				Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Heavy Metals										
Arsenic				%	89			70-130	Pass	
Cadmium				%	86			70-130	Pass	
Chromium				%	93			70-130	Pass	
Copper				%	91			70-130	Pass	
Lead				%	91			70-130	Pass	
Mercury				%	85			70-130	Pass	
Nickel				%	94			70-130	Pass	
Zinc				%	89			70-130	Pass	
Test	Lab Sample ID	QA Source	Units	Result 1				Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery										
Total Recoverable Hydrocarbons - 1999 NEPM Fractions					Result 1					
TRH C6-C9	S14-Ja08650	NCP	%	94				70-130	Pass	
TRH C10-C14	S14-Ja06084	NCP	%	73				70-130	Pass	
Spike - % Recovery										
BTEX					Result 1					
Benzene	S14-Ja08650	NCP	%	93				70-130	Pass	
Toluene	S14-Ja08650	NCP	%	90				70-130	Pass	
Ethylbenzene	S14-Ja08650	NCP	%	92				70-130	Pass	
m&p-Xylenes	S14-Ja08650	NCP	%	95				70-130	Pass	
o-Xylene	S14-Ja08650	NCP	%	102				70-130	Pass	
Xylenes - Total	S14-Ja08650	NCP	%	97				70-130	Pass	
Spike - % Recovery										
Total Recoverable Hydrocarbons - 2013 NEPM Fractions					Result 1					
Naphthalene	S14-Ja08650	NCP	%	95				70-130	Pass	
TRH C6-C10	S14-Ja08650	NCP	%	99				70-130	Pass	
TRH >C10-C16	S14-Ja06084	NCP	%	81				70-130	Pass	
Spike - % Recovery										
Polycyclic Aromatic Hydrocarbons					Result 1					
Acenaphthene	S14-Ja08660	NCP	%	99				70-130	Pass	
Acenaphthylene	S14-Ja08660	NCP	%	100				70-130	Pass	
Anthracene	S14-Ja08660	NCP	%	117				70-130	Pass	
Benz(a)anthracene	S14-Ja08660	NCP	%	90				70-130	Pass	
Benzo(a)pyrene	S14-Ja08660	NCP	%	88				70-130	Pass	
Benzo(b&j)fluoranthene	S14-Ja08660	NCP	%	89				70-130	Pass	
Benzo(g,h,i)perylene	S14-Ja08660	NCP	%	90				70-130	Pass	
Benzo(k)fluoranthene	S14-Ja08660	NCP	%	93				70-130	Pass	
Chrysene	S14-Ja08660	NCP	%	87				70-130	Pass	
Dibenz(a,h)anthracene	S14-Ja08660	NCP	%	93				70-130	Pass	
Fluoranthene	S14-Ja08660	NCP	%	91				70-130	Pass	
Fluorene	S14-Ja08660	NCP	%	99				70-130	Pass	
Indeno(1,2,3-cd)pyrene	S14-Ja08660	NCP	%	91				70-130	Pass	
Naphthalene	S14-Ja08660	NCP	%	97				70-130	Pass	
Phenanthrene	S14-Ja08660	NCP	%	100				70-130	Pass	
Pyrene	S14-Ja08660	NCP	%	85				70-130	Pass	
Spike - % Recovery										
Heavy Metals					Result 1					
Lead	S14-Ja09397	NCP	%	71				70-130	Pass	
Mercury	S14-Ja09397	NCP	%	89				70-130	Pass	
Spike - % Recovery										
Organochlorine Pesticides					Result 1					
Chlordanes - Total	S14-Ja08650	NCP	%	100				70-130	Pass	
4,4'-DDD	S14-Ja08650	NCP	%	110				70-130	Pass	
4,4'-DDE	S14-Ja08650	NCP	%	102				70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
4,4'-DDT	S14-Ja08650	NCP	%	106			70-130	Pass	
a-BHC	S14-Ja08650	NCP	%	98			70-130	Pass	
Aldrin	S14-Ja08650	NCP	%	90			70-130	Pass	
b-BHC	S14-Ja08650	NCP	%	107			70-130	Pass	
d-BHC	S14-Ja08650	NCP	%	105			70-130	Pass	
Dieldrin	S14-Ja08650	NCP	%	102			70-130	Pass	
Endosulfan I	S14-Ja08650	NCP	%	103			70-130	Pass	
Endosulfan II	S14-Ja08650	NCP	%	104			70-130	Pass	
Endosulfan sulphate	S14-Ja08650	NCP	%	109			70-130	Pass	
Endrin	S14-Ja08650	NCP	%	112			70-130	Pass	
Endrin aldehyde	S14-Ja08650	NCP	%	106			70-130	Pass	
Endrin ketone	S14-Ja08650	NCP	%	109			70-130	Pass	
g-BHC (Lindane)	S14-Ja08650	NCP	%	98			70-130	Pass	
Heptachlor	S14-Ja08650	NCP	%	98			70-130	Pass	
Heptachlor epoxide	S14-Ja08650	NCP	%	99			70-130	Pass	
Hexachlorobenzene	S14-Ja08650	NCP	%	84			70-130	Pass	
Methoxychlor	S14-Ja08650	NCP	%	111			70-130	Pass	
Spike - % Recovery									
Organophosphorous Pesticides				Result 1					
Diazinon	S14-Ja10049	NCP	%	107			70-130	Pass	
Ethion	S14-Ja10049	NCP	%	92			70-130	Pass	
Fenitrothion	S14-Ja10049	NCP	%	89			70-130	Pass	
Methyl parathion	S14-Ja10049	NCP	%	71			70-130	Pass	
Mevinphos	S14-Ja10049	NCP	%	92			70-130	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic	S14-Ja07727	CP	%	86			70-130	Pass	
Cadmium	S14-Ja07727	CP	%	83			70-130	Pass	
Chromium	S14-Ja07727	CP	%	77			70-130	Pass	
Copper	S14-Ja07727	CP	%	99			70-130	Pass	
Nickel	S14-Ja07727	CP	%	88			70-130	Pass	
Zinc	S14-Ja07727	CP	%	83			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 C6-C9	S14-Ja08650	NCP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH C10-C14	S14-Ja06084	NCP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH C15-C28	S14-Ja06084	NCP	mg/kg	< 50	< 50	<1	30%	Pass	
TRH C29-C36	S14-Ja06084	NCP	mg/kg	< 50	< 50	<1	30%	Pass	
Duplicate									
BTEX				Result 1	Result 2	RPD			
Benzene	S14-Ja08650	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Toluene	S14-Ja08650	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Ethylbenzene	S14-Ja08650	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
m&p-Xylenes	S14-Ja08650	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
o-Xylene	S14-Ja08650	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Xylenes - Total	S14-Ja08650	NCP	mg/kg	< 0.3	< 0.3	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD			
Naphthalene	S14-Ja08650	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
TRH C6-C10	S14-Ja08650	NCP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH C6-C10 less BTEX (F1)	S14-Ja08650	NCP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH >C10-C16	S14-Ja06084	NCP	mg/kg	< 50	< 50	<1	30%	Pass	
TRH >C16-C34	S14-Ja06084	NCP	mg/kg	< 100	< 100	<1	30%	Pass	
TRH >C34-C40	S14-Ja06084	NCP	mg/kg	< 100	< 100	<1	30%	Pass	

Duplicate								
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD		
Acenaphthene	S14-Ja08660	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Acenaphthylene	S14-Ja08660	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Anthracene	S14-Ja08660	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Benz(a)anthracene	S14-Ja08660	NCP	mg/kg	0.70	< 0.5	41	30%	Fail Q15
Benzo(a)pyrene	S14-Ja08660	NCP	mg/kg	0.70	< 0.5	36	30%	Fail Q15
Benzo(b&j)fluoranthene	S14-Ja08660	NCP	mg/kg	0.70	0.50	29	30%	Pass
Benzo(g,h,i)perylene	S14-Ja08660	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Benzo(k)fluoranthene	S14-Ja08660	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Chrysene	S14-Ja08660	NCP	mg/kg	0.70	< 0.5	44	30%	Fail Q15
Dibenz(a,h)anthracene	S14-Ja08660	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Fluoranthene	S14-Ja08660	NCP	mg/kg	2.2	1.4	44	30%	Fail Q15
Fluorene	S14-Ja08660	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Indeno(1,2,3-cd)pyrene	S14-Ja08660	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Naphthalene	S14-Ja08660	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Phenanthrene	S14-Ja08660	NCP	mg/kg	1.1	0.80	37	30%	Fail Q15
Pyrene	S14-Ja08660	NCP	mg/kg	1.9	1.2	45	30%	Fail Q15
Duplicate								
Heavy Metals				Result 1	Result 2	RPD		
Mercury	S14-Ja07973	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Duplicate								
Organochlorine Pesticides				Result 1	Result 2	RPD		
Chlordanes - Total	S14-Ja08650	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
4,4'-DDD	S14-Ja08650	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
4,4'-DDE	S14-Ja08650	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
4,4'-DDT	S14-Ja08650	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
a-BHC	S14-Ja08650	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Aldrin	S14-Ja08650	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
b-BHC	S14-Ja08650	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
d-BHC	S14-Ja08650	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Dieldrin	S14-Ja08650	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Endosulfan I	S14-Ja08650	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Endosulfan II	S14-Ja08650	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Endosulfan sulphate	S14-Ja08650	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Endrin	S14-Ja08650	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Endrin aldehyde	S14-Ja08650	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Endrin ketone	S14-Ja08650	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
g-BHC (Lindane)	S14-Ja08650	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Heptachlor	S14-Ja08650	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Heptachlor epoxide	S14-Ja08650	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Hexachlorobenzene	S14-Ja08650	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Methoxychlor	S14-Ja08650	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Toxaphene	S14-Ja08650	NCP	mg/kg	< 1	< 1	<1	30%	Pass
Duplicate								
Organophosphorous Pesticides				Result 1	Result 2	RPD		
Bolstar	S14-Ja10049	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Chlorpyrifos	S14-Ja10049	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Demeton-O	S14-Ja10049	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Diazinon	S14-Ja10049	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Dichlorvos	S14-Ja10049	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Disulfoton	S14-Ja10049	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Ethion	S14-Ja10049	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Ethoprop	S14-Ja10049	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Fenitrothion	S14-Ja10049	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Fensulfotthion	S14-Ja10049	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass

Duplicate									
Organophosphorous Pesticides				Result 1	Result 2	RPD			
Fenthion	S14-Ja10049	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Merphos	S14-Ja10049	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Methyl azinphos	S14-Ja10049	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Methyl parathion	S14-Ja10049	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Mevinphos	S14-Ja10049	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Naled	S14-Ja10049	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Phorate	S14-Ja10049	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Ronnel	S14-Ja10049	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Tokuthion	S14-Ja10049	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Trichloronate	S14-Ja10049	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic	S14-Ja07727	CP	mg/kg	< 2	< 2	<1	30%	Pass	
Cadmium	S14-Ja07727	CP	mg/kg	< 0.4	< 0.4	<1	30%	Pass	
Chromium	S14-Ja07727	CP	mg/kg	17	13	27	30%	Pass	
Copper	S14-Ja07727	CP	mg/kg	16	11	33	30%	Fail	Q15
Lead	S14-Ja07727	CP	mg/kg	98	78	22	30%	Pass	
Nickel	S14-Ja07727	CP	mg/kg	< 5	< 5	<1	30%	Pass	
Zinc	S14-Ja07727	CP	mg/kg	37	31	17	30%	Pass	

Comments
Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	Yes
Sample correctly preserved	Yes
Organic samples had Teflon liners	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

Jean Heng	Client Services
James Norford	Senior Analyst-Metal (NSW)
Ryan Hamilton	Senior Analyst-Organic (NSW)
Ryan Hamilton	Senior Analyst-Volatile (NSW)
Stacey Jenkins	Senior Analyst-Organic (VIC)


Dr. Bob Symons
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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CHAIN OF CUSTODY

405939



PROJECT NO.: 43069	LABORATORY BATCH NO.:
PROJECT NAME: WESTCONNEX	SAMPLERS: C. BIELBY
SEND REPORT TO: T. HARDING	SEND INVOICE TO: G. J.
DATE NEEDED BY:	PHONE: SYDNEY 02 82450300 - PERTH 08 9488 0100 EMAIL: Tharding@jbsg.com.au
COMMENTS / SPECIAL HANDLING / STORAGE OR DISPOSAL:	

SAMPLE ID	MATRIX	DATE	TIME	TYPE & PRESERVATIVE	pH	JBS&G SPECIFIC SUITES										NOTES:				
						JB1	JB1T	JB1A	JB2	JB2A	B10	JB2/JBL	JB3/JBL	JB4	JBL		6 metals	PAHs	TRH/BTEX	OCP/PCB/As
BH56 0-0-02	Soil	17/1/14		JAR + ICE													X	X	X	X
BH57 0-0-02	↓	↓		↓													X	X	X	X
BH58 0-0-02	↓	↓		↓													X	X	X	X
BH59 0-0-02	↓	↓		↓													X	X	X	X

RELINQUISHED BY:	METHOD OF SHIPMENT:	RECEIVED BY:	FOR RECEIVING LAB USE ONLY:
NAME: C. BIELBY DATE: 17/1/14	CONSIGNMENT NOTE NO.	NAME: Elen Wg 17/1/14	COOLER SEAL - Yes..... No Intact Broken
OF: JBS&G	TRANSPORT CO.	DATE: 17/1/14	COOLER TEMP deg C
NAME:	CONSIGNMENT NOTE NO.	OF: EPMgt 14:10	COOLER SEAL - Yes..... No Intact Broken
DATE:	TRANSPORT CO.	NAME:	COOLER TEMP deg C
OF:		DATE:	

Container & Preservative Codes: P = Plastic; J = Soil Jar; B = Glass Bottle; N = Nitric Acid Prsvd.; C = Sodium Hydroxide Prsvd; VC = Hydrochloric Acid Prsvd Vial; VS = Sulfuric Acid Prsvd Vial; S = Sulfuric Acid Prsvd; Z = Zinc Prsvd; E = EDTA Prsvd; ST = Sterile Bottle; O = Other

- JB1 - TRH/BTEX/PAH/As,Cd,Cr,Cu,Ni,Pb,Zn,Hg/Phenolics (Total)
- JB1T - TRH/BTEX/PAH(Trace Level)/As,Cd,Cr,Cu,Ni,Pb,Zn,Hg/Phenolics (Total)
- JB1A - TRH/BTEX/PAH/As,Cd,Cr,Cu,Ni,Pb,Zn,Hg/Phenolics (Total)/Asbestos
- JB2 - TRH/BTEX/PAH/OCP/PCB/As,Cd,Cr,Cu,Ni,Pb,Zn,Hg
- JB2A - TRH/BTEX/PAH/OCP/PCB/As,Cd,Cr,Cu,Ni,Pb,Zn,Hg/Asbestos
- B10 - TRH/BTEX/PAH/OCP/OPP/As,Cd,Cr,Cu,Ni,Pb,Zn,Hg
- JB2/JBL - TRH/BTEX/PAH/OCP/PCB/As,Cd,Cr,Cu,Ni,Pb,Zn,Hg/TCLP(PAH & 6 Metals)
- JB3/JBL - TRH/BTEX/PAH/OCP/OPP/PCB/As,Cd,Cr,Cu,Ni,Pb,Zn,Hg/TCLP(PAH & 6 Metals)/Asbestos
- JB4 - TRH/BTEX/VOC
- JBL - TCLP(PAH & 6 Metals)

Sample Receipt Advice

Company name: **JBS & G (NSW & WA) Pty Ltd**

Contact name: Thomas Harding
Client job number: WEST CONNEX 43069
COC number: Not provided
Turn around time: 5 Day
Date/Time received: Jan 17, 2014 2:15 PM
Eurofins | mgt reference: **405939**

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 : 7.5 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.
- Organic samples had Teflon liners.
- Some samples have been subcontracted.
- N/A Custody Seals intact (if used).

Notes

OPP analysis conducted by Eurofins | mgt Melbourne

Contact notes

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

Jean Heng on Phone : (+61) (2) 9900 8400 or by e.mail: JeanHeng@eurofins.com.au

Results will be delivered electronically via e.mail to Thomas Harding - tharding@jbsg.com.au.

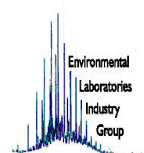
Eurofins | mgt Sample Receipt



Environmental Laboratory
Air Analysis
Water Analysis
Soil Contamination Analysis

NATA Accreditation
Stack Emission Sampling & Analysis
Trade Waste Sampling & Analysis
Groundwater Sampling & Analysis

38 Years of Environmental Analysis & Experience



CERTIFICATE OF ANALYSIS

103704

Client:

JBS & G (NSW & WA) Pty Ltd
Level 1, 50 Margaret St
Sydney
NSW 2000

Attention: Tom Harding

Sample log in details:

Your Reference:	<u>43069, West Connex</u>
No. of samples:	4 Soils
Date samples received / completed instructions received	17/01/14 / 17/01/14

Analysis Details:

Please refer to the following pages for results, methodology summary and quality control data.
Samples were analysed as received from the client. Results relate specifically to the samples as received.
Results are reported on a dry weight basis for solids and on an as received basis for other matrices.

Please refer to the last page of this report for any comments relating to the results.

Report Details:

Date results requested by: / Issue Date:	24/01/14 / 24/01/14
Date of Preliminary Report:	Not issued

NATA accreditation number 2901. This document shall not be reproduced except in full.

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

Results Approved By:



Jacinta Hurst
Laboratory Manager

Asbestos ID - soils WA Our Reference: Your Reference Depth Date Sampled Type of sample	UNITS ----- -----	103704-1 BH56 0.0-0.2 17/01/2014 Soil	103704-2 BH57 0.0-0.2 17/01/2014 Soil	103704-3 BH58 0.0-0.2 17/01/2014 Soil	103704-4 BH59 0.0-0.2 17/01/2014 Soil
Date analysed	-	24/01/2014	24/01/2014	24/01/2014	24/01/2014
Sample mass tested	g	1170.93g	1146.18g	1223.21g	1303.16g
Sample Description	-	Dark brown fine-grained soil & rocks	Dark brown fine-grained soil & rocks	Dark brown fine-grained soil & rocks	Dark brown fine-grained soil & rocks
Asbestos ID in soil	-	No asbestos detected at reporting limit of 0.1g/kg	No asbestos detected at reporting limit of 0.1g/kg	No asbestos detected at reporting limit of 0.1g/kg	No asbestos detected at reporting limit of 0.1g/kg
Trace Analysis	-	No respirable fibres detected	No respirable fibres detected	No respirable fibres detected	No respirable fibres detected

Method ID	Methodology Summary
ASB-003	Asbestos ID - Minimum 500mL soil sample was analysed as recommended by "The Guidelines from the Assessment, Remediation and Management of Asbestos-Contaminated Sites in Western Australia - May 2009" with a reporting limit of 0.1g/kg as per AS4964-2004.

Report Comments:

This report is consistent with the analytical procedures and reporting recommendations in the Western Australian Guidelines for the Assessment, Remediation and Management of Asbestos-Contaminated Sites in Western Australia - May 2009.

Asbestos ID was analysed by Approved Identifier: Alex Tam
Asbestos ID was authorised by Approved Signatory: Matt Mansfield

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

Quality Control Definitions

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

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

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

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

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

Laboratory Acceptance Criteria

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

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

Spikes for Physical and Aggregate Tests are not applicable.

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

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

Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals; 60-140% for organics and 10-140% for SVOC and speciated phenols is acceptable.

In circumstances where no duplicate and/or sample spike has been reported at 1 in 10 and/or 1 in 20 samples respectively, the sample volume submitted was insufficient in order to satisfy laboratory QA/QC protocols.

When samples are received where certain analytes are outside of recommended technical holding times (THTs), the analysis has proceeded. Where analytes are on the verge of breaching THTs, every effort will be made to analyse within the THT or as soon as practicable.

CHAIN OF CUSTODY



PROJECT NO.: 43069
 PROJECT NAME: WEST CORNER
 SEND REPORT TO: T. HARDING
 SEND INVOICE TO: C.M.G.
 DATE NEEDED BY: SOLA
 COMMENTS / SPECIAL HANDLING / STORAGE OR DISPOSAL:

LABORATORY BATCH NO.:
 SAMPLERS: C. BIELBY
 PHONE: SYDNEY 02 82450300 - PERTH 08 9488 0100 EMAIL: Tharding@jbs&g.com.au
 QC LEVEL: NEPM (2013)

SAMPLE ID	MATRIX	DATE	TIME	TYPE & PRESERVATIVE	pH	COMBO SUITES								NOTES:						
						SOIL - 4	SOIL - 4A	SOIL - 5	SOIL 5A	SOIL 5B	SOIL - 12	WATER - 1m	WATER - 2L		WATER - 3L					
BH56 0.0-0.2	SOIL	17/1/14		BAG																
BH57 0.0-0.2	↓	↓	↓	↓																
BH58 0.0-0.2	↓	↓	↓	↓																
BH59 0.0-0.2	↓	↓	↓	↓																

RELINQUISHED BY: NAME: C. BIELBY DATE: 17/1/14
 METHOD OF SHIPMENT: CONSIGNMENT NOTE NO.
 TRANSPORT CO.
 CONSIGNMENT NOTE NO.
 TRANSPORT CO.

RECEIVED BY: NAME: A. WAINMAN DATE: 17/01/13
 OF: ELS
 NAME: DATE:
 OF: DATE:

FOR RECEIVING LAB USE ONLY:
 COOLER SEAL - Yes..... No..... Intact..... Broken.....
 COOLER TEMP..... deg C
 COOLER SEAL - Yes..... No..... Intact..... Broken.....
 COOLER TEMP..... deg C

Container & Preservative Codes: P = Plastic; J = Soil Jar; B = Glass Bottle; N = Nitric Acid Prsvd.; C = Sodium Hydroxide Prsvd.; VC = Hydrochloric Acid Prsvd Vial; VS = Sulfuric Acid Prsvd Vial; Z = Zinc Prsvd; E = EDTA Prsvd; ST = Sterile Bottle; O = Other
 JMSO Forms 013 - Chain of Custody - EnviroLab

Soil Combos
 3 - TRH/BTEX/PAH/As,Cd,Cr,Cu,Ni,Pb,Zn,Hg/
 3A - TRH/BTEX/PAH/As,Cd,Cr,Cu,Ni,Pb,Zn,Hg//Asbestos
 4 - TRH/BTEX/PAH/As,Cd,Cr,Cu,Ni,Pb,Zn,Hg/Phenolics (Total)
 4L - TRH/BTEX/PAH(Trace Level)/As,Cd,Cr,Cu,Ni,Pb,Zn,Hg/Phenolics (Total)
 4A - TRH/BTEX/PAH/As,Cd,Cr,Cu,Ni,Pb,Zn,Hg/Phenolics (Total)/Asbestos

Soil Combos continued
 5 - TRH/BTEX/PAH/OCF/PCB/As,Cd,Cr,Cu,Ni,Pb,Zn,Hg
 5A - TRH/BTEX/PAH/OCF/PCB/As,Cd,Cr,Cu,Ni,Pb,Zn,Hg/Asbestos
 5B - TRH/BTEX/PAH/OCF/OPP/As,Cd,Cr,Cu,Ni,Pb,Zn,Hg
 12 - TRH/BTEX/PAH/OCF/PCB/As,Cd,Cr,Cu,Ni,Pb,Zn,Hg/TCLP(PAH & 6 Metals)

Water Combos
 1m - TRH/BTEX/ 8 metals
 2L - TRH/BTEX/PAH low/Pb
 3L - TRH/BTEX/PAH/8 metals

Certificate of Analysis

JBS & G (NSW & WA) Pty Ltd
Level 1, 50 Margaret St
Sydney
NSW 2000



NATA Accredited
Accreditation Number 1261
Site Number 1254

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

Attention: Thomas Harding

Report 404841-L
 Client Reference ADDITIONAL: WEST CONNEX 43069
 Received Date Jan 07, 2014

Client Sample ID			BH07 0.0-0.2	BH31 0.0-0.2	BH34 0.0-0.1	BH37 0.0-0.1
Sample Matrix	LOR	Unit	TCLP	TCLP	TCLP	TCLP
Eurofins mgt Sample No.			M14-Ja00627	M14-Ja00628	M14-Ja00629	M14-Ja00630
Date Sampled			Dec 09, 2013	Dec 10, 2013	Dec 10, 2013	Dec 10, 2013
Test/Reference						
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
Benzo(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
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	< 0.001	< 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	< 0.001	< 0.001
Total PAH	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
2-Fluorobiphenyl (surr.)	1	%	58	50	72	54
p-Terphenyl-d14 (surr.)	1	%	64	52	73	57
Heavy Metals						
Arsenic	0.01	mg/L	< 0.01	0.01	< 0.01	< 0.01
Cadmium	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Chromium	0.01	mg/L	0.02	0.02	0.02	0.03
Copper	0.01	mg/L	0.16	0.19	0.07	0.10
Lead	0.01	mg/L	0.75	0.74	0.65	0.34
Mercury	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Nickel	0.01	mg/L	0.03	0.03	0.02	0.03
Zinc	0.01	mg/L	2.2	1.1	1.1	0.82
Toxicity Characteristic Leaching Procedure (TCLP)						
Leachate Fluid ^{C01}		comment	1.0	1.0	1.0	1.0
pH (Leachate fluid)	0.1	units	5.0	5.0	5.0	5.0
pH (TCLP - HCl addition)	0.1	units	1.7	1.6	1.6	1.7
pH (TCLP - initial)	0.1	units	6.8	6.6	7.3	6.4
pH (TCLP - off)	0.1	units	5.0	5.0	5.0	5.0

Client Sample ID			BH49 0.0-0.2
Sample Matrix			TCLP
Eurofins mgt Sample No.			M14-Ja00631
Date Sampled			Dec 13, 2013
Test/Reference	LOR	Unit	
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
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	%	52
p-Terphenyl-d14 (surr.)	1	%	55
Heavy Metals			
Arsenic	0.01	mg/L	< 0.01
Cadmium	0.005	mg/L	< 0.005
Chromium	0.01	mg/L	0.02
Copper	0.01	mg/L	0.05
Lead	0.01	mg/L	0.16
Mercury	0.001	mg/L	< 0.001
Nickel	0.01	mg/L	0.01
Zinc	0.01	mg/L	0.26
Toxicity Characteristic Leaching Procedure (TCLP)			
Leachate Fluid ^{C01}		comment	1.0
pH (Leachate fluid)	0.1	units	5.0
pH (TCLP - HCl addition)	0.1	units	1.7
pH (TCLP - initial)	0.1	units	6.7
pH (TCLP - off)	0.1	units	5.0

Sample History

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

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

Description	Testing Site	Extracted	Holding Time
Polycyclic Aromatic Hydrocarbons - Method: USEPA 8270 Polycyclic Aromatic Hydrocarbons	Melbourne	Jan 09, 2014	7 Day
Metals M8 - Method: USEPA 6010/6020 Heavy Metals & USEPA 7470/71 Mercury	Melbourne	Jan 08, 2014	28 Day

Company Name: JBS & G (NSW & WA) Pty Ltd Address: Level 1, 50 Margaret St Sydney NSW 2000 Client Job No.: ADDITIONAL: WEST CONNEX 43069	Order No.: Report #: 404841 Phone: 02 8245 0300 Fax:	Received: Jan 7, 2014 10:30 AM Due: Jan 14, 2014 Priority: 5 Day Contact Name: Thomas Harding
Eurofins mgt Client Manager: Jean Heng		

Sample Detail					% Moisture	Polycyclic Aromatic Hydrocarbons	Toxicity Characteristic Leaching Procedure (TCLP)	Metals M8
Laboratory where analysis is conducted								
Melbourne Laboratory - NATA Site # 1254 & 14271					X	X	X	X
Sydney Laboratory - NATA Site # 18217								
Brisbane Laboratory - NATA Site # 20794								
External Laboratory								
Sample ID	Sample Date	Sampling Time	Matrix	LAB ID				
BH07 0.0-0.2	Dec 09, 2013		TCLP	M14-Ja00627	X	X	X	X
BH31 0.0-0.2	Dec 10, 2013		TCLP	M14-Ja00628	X	X	X	X
BH34 0.0-0.1	Dec 10, 2013		TCLP	M14-Ja00629	X	X	X	X
BH37 0.0-0.1	Dec 10, 2013		TCLP	M14-Ja00630	X	X	X	X
BH49 0.0-0.2	Dec 13, 2013		TCLP	M14-Ja00631	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 PQLs are matrix dependant. Quoted PQLs 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 Acknowledgment.

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: 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				Units	Result 1		Acceptance Limits	Pass Limits	Qualifying Code		
Method Blank											
Heavy Metals											
Mercury				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							
Arsenic	B14-Ja00711	NCP	%	75			75-125	Pass			
Cadmium	B14-Ja00711	NCP	%	83			75-125	Pass			
Chromium	B14-Ja00711	NCP	%	96			75-125	Pass			
Copper	B14-Ja00711	NCP	%	96			75-125	Pass			
Lead	B14-Ja00711	NCP	%	107			75-125	Pass			
Nickel	B14-Ja00711	NCP	%	95			75-125	Pass			
Zinc	B14-Ja00711	NCP	%	102			75-125	Pass			
Spike - % Recovery											
Heavy Metals											
Mercury				M14-Ja00631	CP	%	104		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	B14-Ja00711	NCP	mg/L	0.015	0.015	3.0	30%	Pass			
Cadmium	B14-Ja00711	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass			
Chromium	B14-Ja00711	NCP	mg/L	0.028	0.024	15	30%	Pass			
Copper	B14-Ja00711	NCP	mg/L	0.089	0.071	22	30%	Pass			
Lead	B14-Ja00711	NCP	mg/L	0.18	0.15	18	30%	Pass			
Nickel	B14-Ja00711	NCP	mg/L	0.030	0.025	18	30%	Pass			
Zinc	B14-Ja00711	NCP	mg/L	1.1	1.1	8.0	30%	Pass			
Duplicate											
Heavy Metals											
Mercury				M14-Ja00631	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass

Comments
Sample Integrity

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

Qualifier Codes/Comments

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

Authorised By

Jean Heng	Client Services
Emily Rosenberg	Senior Analyst-Metal (VIC)
Stacey Jenkins	Senior Analyst-Organic (VIC)


Glenn Jackson
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 shall not be liable for loss, cost, damages or expenses incurred by the client, or any other person or company, resulting from the use of any information or interpretation given in this report. In no case shall Eurofins | mgt be liable for consequential damages including, but not limited to, lost profits, damages for failure to meet deadlines and lost production arising from this report. This document shall not be reproduced except in full and relates only to the items tested. Unless indicated otherwise, the tests were performed on the samples as received.

Sample Receipt Advice

Company name: **JBS & G (NSW & WA) Pty Ltd**
Contact name: Thomas Harding
Client job number: ADDITIONAL: WEST CONNEX 43069
COC number: Not provided
Turn around time: 5 Day
Date/Time received: Jan 7, 2014 10:30 AM
Eurofins | mgt reference: **404841**

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 : 9 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.
 - Organic samples had Teflon liners.
 - Some samples have been subcontracted.
- N/A Custody Seals intact (if used).

Notes

All analysis conducted by Eurofins | mgt Melbourne | Additional from reports 403263 & 403894 | PAH conducted outside of recommended holding time

Contact notes

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

Jean Heng on Phone : (+61) (2) 9900 8400 or by e.mail: JeanHeng@eurofins.com.au

Results will be delivered electronically via e.mail to Thomas Harding - tharding@jbsg.com.au.

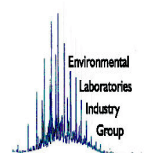
Eurofins | mgt Sample Receipt



Environmental Laboratory
Air Analysis
Water Analysis
Soil Contamination Analysis

NATA Accreditation
Stack Emission Sampling & Analysis
Trade Waste Sampling & Analysis
Groundwater Sampling & Analysis

38 Years of Environmental Analysis & Experience



From: Thomas Harding <THarding@jbsg.com.au>
Date: 7 January 2014 10:29:24 am AEDT
To: Jean Heng <JeanHeng@eurofins.com.au>
Subject: RE: TCLP Analysis WestConnex

Hi Jean,

Could I please have PAHs and heavy metals (As, Cr, Cd, Cu, Pb, Hg, Ni, Zn)

Thank you

Tom

On 7 Jan 2014, at 7:36 am, "Thomas Harding" <THarding@jbsg.com.au> wrote:

Morning Jean,

Hope you had a good Christmas and New Year

Can I put some additional TCLP analysis on for the following laboratory reports for the WestConnex Project (43069) please:

Lab report: 403263

BH07 (0.0-0.2)
BH31 (0.0-0.2)
BH34 (0.0-0.1)
BH37 (0.0-0.1)

Handwritten signature and number #404841

Lab report 403894

BH49 (0.0-0.2)

Standard will be fine, apologies, I thought I had done this before Christmas.

Thank you

Tom

<Tom Harding | Hydrogeologist | JBS&G
Sydney | Melbourne | Adelaide | Perth | Brisbane
Level 1, 50 Margaret Street Sydney NSW 2000
T: 02 8245 0300 | M: 0418 560 381 | www.jbsg.com.au
Contaminated Land | Groundwater Remediation | Auditing and Compliance |
Assessments and Approvals | Occupational Hygiene and Monitoring



24 December 2013

C. Bielby & T. Harding
JBS&G (NSW & WA) Pty Ltd
Level 1
50 Margaret Street
SYDNEY NSW 2000

Email: cbielby@jbsg.com.au, tharding@jbsg.com.au

CERTIFICATE OF ANALYSIS – ASBESTOS IDENTIFICATION

YOUR REFERENCE/JOB No: 43069
TYPE OF SAMPLES: Bulk sample - as received from Envirolab Services
SITE LOCATION: West Connex
DATE SAMPLED: 16 December 2013 **DATE RECEIVED:** 18 December 2013
OUR REFERENCE: 77580-ID

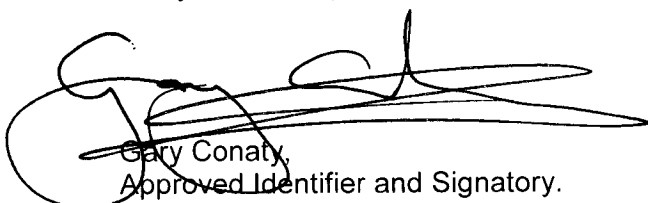
TEST METHOD: Soil samples examined by Stereomicroscopy and Polarized Light Microscopy (with Dispersion Staining) in accordance with AS 4964-2004: - 'Method for the qualitative identification of asbestos in bulk samples' as outlined in Laboratory Method ID/1. The Reporting Limit for the results in this Certificate is numerically equal to the lowest detection limit of 0.1 g/kg. Trace asbestos analysis has been conducted on each sample, which is generally designed to detect 'respirable' asbestos fibres (ie less than 3 micrometres in width) distributed throughout the sample.

Sample No	Lab No	Sample Information	Analysis Result	Description
QC05A	77580	Soil sample as received	No asbestos detected	The sample was a grey, clumpy soil with stones, of total approximate weight 992 g, in which organic fibres were detected in the +2 mm & -2mm fraction. No asbestos fibres were detected in the +2 mm fraction. No asbestos fibres were detected in a representative sub-sample of the -2 mm fraction. No asbestos fibres were found at the Reporting Limit of 0.1g/kg.

All sampling and site work has been undertaken by the client - the analytical procedures and results reported on this Certificate have been conducted by Pickford & Rhyder Consulting.

Sampling is not covered by the scope of accreditation.

Analysed and reported by:


Gary Conaty,
Approved Identifier and Signatory.



Accredited for compliance with ISO/IEC 17025. This document shall not be reproduced except in full.

Accreditation number 2515

Envirolab Services Pty Ltd
 12 Ashley Street
 Chatswood
 NSW 2067

CHAIN OF CUSTODY

PROJECT NO.: 43069
 PROJECT NAME: WEST CONNEX
 SEND REPORT TO: T. HADING CBI REFERENCE INVOICE TO:
 DATE NEEDED BY: Site - start
 COMMENTS / SPECIAL HANDLING / STORAGE OR DISPOSAL:
 LABORATORY BATCH NO.:
 SAMPLERS: C. Bley
 PHONE: SYDNEY 02 82459300 - PERTH 08 9488 0100 EMAIL: C. Bley @ envirolab.com.au
 QC LEVEL: NEPM (2013)

SAMPLE ID	MATRIX	DATE	TIME	TYPE & PRESERVATIVE	pH	COMBO SUITES											NOTES:	
						SOIL - 4A	SOIL - 4L	SOIL - 4A	SOIL - 5	SOIL 5A	SOIL 5B	SOIL - 12	WATER - 1M	WATER - 2L	WATER - 3L	Asbestos		
BH49 00-0.2	Soil	13/12/13		BAG														
BH50 00-0.2																		
BH51 00-0.2																		
BH52 00-0.2																		
BH53 00-0.2																		
BH54 00-0.2																		
BH55 00-0.2																		
QC05																		
QC04A		13/12/13		JAR + ICE														
QC05A		16/12/13																X Serial to Pickbrod.

RELINQUISHED BY: NAME: Sapnu RECEIVED BY:
 DATE: 17/12 DATE:
 OF: IB5&G OF:
 NAME: OF: DATE:
 OF: NAME: OF: DATE:
 OF: NAME: OF: DATE:

METHOD OF SHIPMENT:
 CONSIGNMENT NOTE NO.
 TRANSPORT CO.
 CONSIGNMENT NOTE NO.
 TRANSPORT CO.

FOR RECEIVING LAB USE ONLY:
 COOLER SEAL - Yes..... No..... Intact..... Broken.....
 COOLER TEMP..... deg C
 COOLER SEAL - Yes..... No..... Intact..... Broken.....
 COOLER TEMP..... deg C

Container & Preservative Codes: P = Plastic; J = Soil Jar; B = Glass Bottle; N = Nitric Acid Prsvd.; C = Sodium Hydroxide Prsvd.; VC = Hydrochloric Acid Prsvd. Vial; VS = Sulfuric Acid Prsvd. Vial; S = Sulfuric Acid Prsvd; Z = Zinc Prsvd; E = EDTA Prsvd; ST = Sterile Bottle; O = Other
 IM50 Form5013 - Chain of Custody - Envirolab

Soil Combos continued
 3 - TRH/BTEX/PAH/As,Cd,Cr,Cu,Ni,Pb,Zn,Hg/
 3A - TRH/BTEX/PAH/As,Cd,Cr,Cu,Ni,Pb,Zn,Hg//Asbestos
 4 - TRH/BTEX/PAH/As,Cd,Cr,Cu,Ni,Pb,Zn,Hg/Phenolics (Total)
 4L - TRH/BTEX/PAH(Trace Level)/As,Cd,Cr,Cu,Ni,Pb,Zn,Hg/Phenolics (Total)
 4A - TRH/BTEX/PAH/As,Cd,Cr,Cu,Ni,Pb,Zn,Hg/Phenolics (Total)/Asbestos

Water Combos
 1m - TRH/BTEX/8 metals
 2L - TRH/BTEX/PAH low/Pb
 3L - TRH/BTEX/PAH/8 metals

18/12/13
 10:30
 JM

Lab # 7758P 102741



Certificate of Analysis

JBS & G (NSW & WA) Pty Ltd
 Level 1, 50 Margaret St
 Sydney
 NSW 2000



NATA Accredited
 Accreditation Number 1261
 Site Number 18217

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

Attention: Thomas Harding

Report 404287-S
 Client Reference ADDITIONAL: WEST CONNEX 43069
 Received Date Dec 19, 2013

Client Sample ID			BH03 0.0-0.2	BH27 0.0-0.1	BH25 0.0-0.1	BH34 0.0-0.1
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins mgt Sample No.			S13-De19822	S13-De19823	S13-De19824	S13-De19825
Date Sampled			Dec 09, 2013	Dec 10, 2013	Dec 10, 2013	Dec 10, 2013
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	20	mg/kg	-	< 20	< 20	-
TRH C10-C14	20	mg/kg	-	< 20	< 20	-
TRH C15-C28	50	mg/kg	-	79	63	-
TRH C29-C36	50	mg/kg	-	300	90	-
TRH C10-36 (Total)	50	mg/kg	-	380	150	-
BTEX						
Benzene	0.1	mg/kg	-	< 0.1	< 0.1	-
Toluene	0.1	mg/kg	-	< 0.1	< 0.1	-
Ethylbenzene	0.1	mg/kg	-	< 0.1	< 0.1	-
m&p-Xylenes	0.2	mg/kg	-	< 0.2	< 0.2	-
o-Xylene	0.1	mg/kg	-	< 0.1	< 0.1	-
Xylenes - Total	0.3	mg/kg	-	< 0.3	< 0.3	-
4-Bromofluorobenzene (surr.)	1	%	-	78	81	-
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene ^{N02}	0.5	mg/kg	-	< 0.5	< 0.5	-
TRH C6-C10	20	mg/kg	-	< 20	< 20	-
TRH C6-C10 less BTEX (F1) ^{N04}	20	mg/kg	-	< 20	< 20	-
TRH >C10-C16	50	mg/kg	-	< 50	< 50	-
TRH >C10-C16 less Naphthalene (F2) ^{N01}	50	mg/kg	-	< 50	< 50	-
TRH >C16-C34	100	mg/kg	-	340	130	-
TRH >C34-C40	100	mg/kg	-	140	< 100	-
Polycyclic Aromatic Hydrocarbons						
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	1.0	< 0.5
Benz(a)anthracene	0.5	mg/kg	< 0.5	1.4	2.6	0.5
Benzo(a)pyrene	0.5	mg/kg	< 0.5	1.7	2.5	0.6
Benzo(b&j)fluoranthene ^{N07}	0.5	mg/kg	< 0.5	2.3	3.2	1.0
Benzo(g,h,i)perylene	0.5	mg/kg	< 0.5	1.2	1.4	0.6
Benzo(k)fluoranthene	0.5	mg/kg	< 0.5	0.9	1.0	< 0.5
Chrysene	0.5	mg/kg	< 0.5	1.3	2.3	0.6
Dibenz(a,h)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Fluoranthene	0.5	mg/kg	0.6	2.2	5.3	1.1
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	1.1	1.3	< 0.5
Naphthalene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5

Client Sample ID			BH03 0.0-0.2	BH27 0.0-0.1	BH25 0.0-0.1	BH34 0.0-0.1
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins mgt Sample No.			S13-De19822	S13-De19823	S13-De19824	S13-De19825
Date Sampled			Dec 09, 2013	Dec 10, 2013	Dec 10, 2013	Dec 10, 2013
Test/Reference	LOR	Unit				
Polycyclic Aromatic Hydrocarbons						
Phenanthrene	0.5	mg/kg	< 0.5	0.8	3.3	< 0.5
Pyrene	0.5	mg/kg	0.6	2.3	4.8	1.1
Total PAH	0.5	mg/kg	1.2	15	29	5.5
Benzo(a)pyrene TEQ (lower bound)*	0.5	mg/kg	< 0.5	2.3	3.3	0.8
Benzo(a)pyrene TEQ (medium bound)*	0.5	mg/kg	0.6	2.6	3.6	1.1
Benzo(a)pyrene TEQ (upper bound)*	0.5	mg/kg	1.2	2.8	3.8	1.4
2-Fluorobiphenyl (surr.)	1	%	93	94	93	103
p-Terphenyl-d14 (surr.)	1	%	102	104	107	108
Heavy Metals						
Arsenic	2	mg/kg	-	-	-	2.2
Cadmium	0.4	mg/kg	-	-	-	< 0.4
Chromium	5	mg/kg	-	-	-	10
Copper	5	mg/kg	-	-	-	36
Lead	5	mg/kg	-	-	-	260
Mercury	0.05	mg/kg	-	-	-	0.27
Nickel	5	mg/kg	-	-	-	5.5
Zinc	5	mg/kg	-	-	-	170
% Moisture	0.1	%	6.2	5.2	4.8	1.7

Client Sample ID			BH37 0.0-0.1
Sample Matrix			Soil
Eurofins mgt Sample No.			S13-De19826
Date Sampled			Dec 10, 2013
Test/Reference	LOR	Unit	
Total Recoverable Hydrocarbons - 1999 NEPM Fractions			
TRH C6-C9	20	mg/kg	< 20
TRH C10-C14	20	mg/kg	< 20
TRH C15-C28	50	mg/kg	180
TRH C29-C36	50	mg/kg	160
TRH C10-36 (Total)	50	mg/kg	340
BTEX			
Benzene	0.1	mg/kg	< 0.1
Toluene	0.1	mg/kg	< 0.1
Ethylbenzene	0.1	mg/kg	< 0.1
m&p-Xylenes	0.2	mg/kg	< 0.2
o-Xylene	0.1	mg/kg	< 0.1
Xylenes - Total	0.3	mg/kg	< 0.3
4-Bromofluorobenzene (surr.)	1	%	92
Total Recoverable Hydrocarbons - 2013 NEPM Fractions			
Naphthalene ^{N02}	0.5	mg/kg	< 0.5
TRH C6-C10	20	mg/kg	< 20
TRH C6-C10 less BTEX (F1) ^{N04}	20	mg/kg	< 20
TRH >C10-C16	50	mg/kg	< 50
TRH >C10-C16 less Naphthalene (F2) ^{N01}	50	mg/kg	< 50
TRH >C16-C34	100	mg/kg	300
TRH >C34-C40	100	mg/kg	< 100

Client Sample ID			BH37 0.0-0.1
Sample Matrix			Soil
Eurofins mgt Sample No.			S13-De19826
Date Sampled			Dec 10, 2013
Test/Reference	LOR	Unit	
% Moisture	0.1	%	8.5

Sample History

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

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

Description	Testing Site	Extracted	Holding Time
Total Recoverable Hydrocarbons - 1999 NEPM Fractions - Method: E004 Petroleum Hydrocarbons (TPH)	Sydney	Dec 21, 2013	14 Day
Total Recoverable Hydrocarbons - 2013 NEPM Fractions - Method: LM-LTM-ORG2010	Sydney	Dec 21, 2013	14 Day
BTEX - Method: E029/E016 BTEX	Sydney	Dec 21, 2013	14 Day
Polycyclic Aromatic Hydrocarbons - Method: E007 Polyaromatic Hydrocarbons (PAH)	Sydney	Dec 21, 2013	14 Day
Metals M8 - Method: E022 Acid Extractable metals in Soils & E026 Mercury	Sydney	Dec 21, 2013	28 Day
% Moisture - Method: E005 Moisture Content	Sydney	Dec 21, 2013	28 Day

Company Name: JBS & G (NSW & WA) Pty Ltd Address: Level 1, 50 Margaret St Sydney NSW 2000 Client Job No.: ADDITIONAL: WEST CONNEX 43069	Order No.: Report #: 404287 Phone: 02 8245 0300 Fax:	Received: Dec 19, 2013 4:35 PM Due: Jan 2, 2014 Priority: 5 Day Contact Name: Thomas Harding
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Eurofins | mgt Client Manager: Jean Heng

Sample Detail					% Moisture	Polycyclic Aromatic Hydrocarbons	Metals M8	BTEX	Total Recoverable Hydrocarbons
Laboratory where analysis is conducted									
Melbourne Laboratory - NATA Site # 1254 & 14271									
Sydney Laboratory - NATA Site # 18217					X	X	X	X	X
Brisbane Laboratory - NATA Site # 20794									
External Laboratory									
Sample ID	Sample Date	Sampling Time	Matrix	LAB ID					
BH03 0.0-0.2	Dec 09, 2013		Soil	S13-De19822	X	X			
BH27 0.0-0.1	Dec 10, 2013		Soil	S13-De19823	X	X		X	X
BH25 0.0-0.1	Dec 10, 2013		Soil	S13-De19824	X	X		X	X
BH34 0.0-0.1	Dec 10, 2013		Soil	S13-De19825	X	X	X		
BH37 0.0-0.1	Dec 10, 2013		Soil	S13-De19826	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 PQLs are matrix dependant. Quoted PQLs 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 Acknowledgment.

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: 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	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							
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							

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code	
TRH C6-C9	%	85			70-130	Pass		
TRH C10-C14	%	79			70-130	Pass		
LCS - % Recovery								
BTEX								
Benzene	%	111			70-130	Pass		
Toluene	%	92			70-130	Pass		
Ethylbenzene	%	87			70-130	Pass		
m&p-Xylenes	%	90			70-130	Pass		
o-Xylene	%	89			70-130	Pass		
Xylenes - Total	%	90			70-130	Pass		
LCS - % Recovery								
Total Recoverable Hydrocarbons - 2013 NEPM Fractions								
Naphthalene	%	87			70-130	Pass		
TRH C6-C10	%	93			70-130	Pass		
TRH >C10-C16	%	83			70-130	Pass		
LCS - % Recovery								
Polycyclic Aromatic Hydrocarbons								
Acenaphthene	%	108			70-130	Pass		
Acenaphthylene	%	100			70-130	Pass		
Anthracene	%	109			70-130	Pass		
Benz(a)anthracene	%	111			70-130	Pass		
Benzo(a)pyrene	%	107			70-130	Pass		
Benzo(b&j)fluoranthene	%	101			70-130	Pass		
Benzo(g,h,i)perylene	%	97			70-130	Pass		
Benzo(k)fluoranthene	%	113			70-130	Pass		
Chrysene	%	106			70-130	Pass		
Dibenz(a,h)anthracene	%	108			70-130	Pass		
Fluoranthene	%	105			70-130	Pass		
Fluorene	%	121			70-130	Pass		
Indeno(1,2,3-cd)pyrene	%	105			70-130	Pass		
Naphthalene	%	102			70-130	Pass		
Phenanthrene	%	101			70-130	Pass		
Pyrene	%	103			70-130	Pass		
LCS - % Recovery								
Heavy Metals								
Arsenic	%	86			70-130	Pass		
Cadmium	%	79			70-130	Pass		
Chromium	%	84			70-130	Pass		
Copper	%	84			70-130	Pass		
Lead	%	84			70-130	Pass		
Mercury	%	121			70-130	Pass		
Nickel	%	89			70-130	Pass		
Zinc	%	103			70-130	Pass		
Test	Lab Sample ID	QA Source	Units	Result 1		Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery								
Polycyclic Aromatic Hydrocarbons				Result 1				
Acenaphthene	B13-De16516	NCP	%	126		70-130	Pass	
Acenaphthylene	B13-De16516	NCP	%	110		70-130	Pass	
Anthracene	B13-De16516	NCP	%	120		70-130	Pass	
Benz(a)anthracene	B13-De16516	NCP	%	114		70-130	Pass	
Benzo(a)pyrene	B13-De16516	NCP	%	125		70-130	Pass	
Benzo(b&j)fluoranthene	B13-De16516	NCP	%	121		70-130	Pass	
Benzo(g,h,i)perylene	B13-De16516	NCP	%	113		70-130	Pass	
Benzo(k)fluoranthene	B13-De16516	NCP	%	124		70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1		Acceptance Limits	Pass Limits	Qualifying Code
Chrysene	B13-De16516	NCP	%	129		70-130	Pass	
Dibenz(a,h)anthracene	B13-De16516	NCP	%	125		70-130	Pass	
Fluoranthene	B13-De16516	NCP	%	115		70-130	Pass	
Fluorene	B13-De16516	NCP	%	117		70-130	Pass	
Indeno(1,2,3-cd)pyrene	B13-De16516	NCP	%	122		70-130	Pass	
Naphthalene	B13-De16516	NCP	%	119		70-130	Pass	
Phenanthrene	B13-De16516	NCP	%	115		70-130	Pass	
Pyrene	B13-De16516	NCP	%	117		70-130	Pass	
Spike - % Recovery								
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1				
TRH C6-C9	S13-De19824	CP	%	87		70-130	Pass	
Spike - % Recovery								
BTEX				Result 1				
Benzene	S13-De19824	CP	%	112		70-130	Pass	
Toluene	S13-De19824	CP	%	93		70-130	Pass	
Ethylbenzene	S13-De19824	CP	%	86		70-130	Pass	
m&p-Xylenes	S13-De19824	CP	%	88		70-130	Pass	
o-Xylene	S13-De19824	CP	%	88		70-130	Pass	
Xylenes - Total	S13-De19824	CP	%	88		70-130	Pass	
Spike - % Recovery								
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1				
Naphthalene	S13-De19824	CP	%	89		70-130	Pass	
TRH C6-C10	S13-De19824	CP	%	95		70-130	Pass	
Spike - % Recovery								
Heavy Metals				Result 1				
Arsenic	S13-De19315	NCP	%	106		70-130	Pass	
Cadmium	S13-De19315	NCP	%	72		70-130	Pass	
Chromium	S13-De19315	NCP	%	95		70-130	Pass	
Copper	S13-De17116	NCP	%	123		70-130	Pass	
Lead	S13-De19315	NCP	%	85		70-130	Pass	
Mercury	S13-De18651	NCP	%	114		70-130	Pass	
Nickel	S13-De17116	NCP	%	108		70-130	Pass	
Zinc	S13-De19315	NCP	%	104		70-130	Pass	
Spike - % Recovery								
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1				
TRH C10-C14	S13-De19826	CP	%	72		70-130	Pass	
Spike - % Recovery								
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1				
TRH >C10-C16	S13-De19826	CP	%	82		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		
Acenaphthene	B13-De16516	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Acenaphthylene	B13-De16516	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Anthracene	B13-De16516	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Benz(a)anthracene	B13-De16516	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Benzo(a)pyrene	B13-De16516	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Benzo(b&j)fluoranthene	B13-De16516	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Benzo(g,h,i)perylene	B13-De16516	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Benzo(k)fluoranthene	B13-De16516	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Chrysene	B13-De16516	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Dibenz(a,h)anthracene	B13-De16516	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Fluoranthene	B13-De16516	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Fluorene	B13-De16516	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass

Test	Lab Sample ID	QA Source	Units	Result 1	Result 2	RPD	Acceptance Limits	Pass Limits	Qualifying Code
Duplicate									
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD			
Indeno(1.2.3-cd)pyrene	B13-De16516	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Naphthalene	B13-De16516	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Phenanthrene	B13-De16516	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Pyrene	B13-De16516	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1	Result 2	RPD			
TRH C10-C14	S13-De18707	NCP	mg/kg	30	37	19	30%	Pass	
TRH C15-C28	S13-De18707	NCP	mg/kg	430	480	10	30%	Pass	
TRH C29-C36	S13-De18707	NCP	mg/kg	220	230	6.0	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD			
TRH >C10-C16	S13-De18707	NCP	mg/kg	51	63	20	30%	Pass	
TRH >C16-C34	S13-De18707	NCP	mg/kg	610	660	8.0	30%	Pass	
TRH >C34-C40	S13-De18707	NCP	mg/kg	< 100	100	7.0	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1	Result 2	RPD			
TRH C6-C9	S13-De19824	CP	mg/kg	< 20	< 20	<1	30%	Pass	
Duplicate									
BTEX				Result 1	Result 2	RPD			
Benzene	S13-De19824	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Toluene	S13-De19824	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Ethylbenzene	S13-De19824	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
m&p-Xylenes	S13-De19824	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
o-Xylene	S13-De19824	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Xylenes - Total	S13-De19824	CP	mg/kg	< 0.3	< 0.3	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD			
Naphthalene	S13-De19824	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
TRH C6-C10	S13-De19824	CP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH C6-C10 less BTEX (F1)	S13-De19824	CP	mg/kg	< 20	< 20	<1	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic	S13-De19315	NCP	mg/kg	3.5	4.4	22	30%	Pass	
Cadmium	S13-De19315	NCP	mg/kg	< 0.4	< 0.4	<1	30%	Pass	
Chromium	S13-De19315	NCP	mg/kg	< 5	< 5	<1	30%	Pass	
Copper	S13-De17116	NCP	mg/kg	11	12	9.0	30%	Pass	
Lead	S13-De19315	NCP	mg/kg	7.4	< 5	39	30%	Fail	Q15
Mercury	S13-De18651	NCP	mg/kg	< 0.05	0.060	15	30%	Pass	
Nickel	S13-De19315	NCP	mg/kg	< 5	< 5	<1	30%	Pass	
Zinc	S13-De19315	NCP	mg/kg	22	13	54	30%	Fail	Q15

Comments
Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	Yes
Sample correctly preserved	Yes
Organic samples had Teflon liners	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

Jean Heng	Client Services
James Norford	Senior Analyst-Metal (NSW)
Ryan Hamilton	Senior Analyst-Organic (NSW)
Ryan Hamilton	Senior Analyst-Volatile (NSW)


Dr. Bob Symons
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 shall not be liable for loss, cost, damages or expenses incurred by the client, or any other person or company, resulting from the use of any information or interpretation given in this report. In no case shall Eurofins | mgt be liable for consequential damages including, but not limited to, lost profits, damages for failure to meet deadlines and lost production arising from this report. This document shall not be reproduced except in full and relates only to the items tested. Unless indicated otherwise, the tests were performed on the samples as received.

From: Jean Heng
Sent: Thursday, 19 December 2013 4:36 PM
To: Sample Receipt 1 Syd
Cc: EnviroSampleNSW
Subject: FW: Additional analysis 403263

Not the hold samples

Jean Heng
Client Manager | NSW

Eurofins | mgt
Unit F3-F6, Parkview Building
16 Mars Road,
Lane Cove West, NSW 2066, Australia
Phone: +61 2 9900 8400
Direct: +61 2 9900 8460
Mobile: +61 403 637 214
Fax: +61 2 9420 2977
Website: <http://www.eurofins.com.au>

From: Thomas Harding [mailto:THarding@jbsg.com.au]
Sent: Thursday, 19 December 2013 3:59 PM
To: Jean Heng
Cc: Chris Bielby
Subject: Additional analysis 403263

Jean,

Could I please have the following samples analysed from Batch 403263. All on standard is fine

BH03 – PAHs
BH27 – TPH/BTEX, PAHs
BH25 - TPH/BTEX, PAHs
BH34 – PAHs, metals
BH37 – TPH/BTEX

Chris # 404287

Thank you

Tom



Tom Harding | Hydrogeologist | JBS&G
Sydney | Melbourne | Adelaide | Perth | Brisbane
Level 1, 50 Margaret Street Sydney NSW 2000

Sample Receipt Advice

Company name: **JBS & G (NSW & WA) Pty Ltd**
Contact name: Thomas Harding
Client job number: **ADDITIONAL: WEST CONNEX 43069**
COC number: Not provided
Turn around time: 5 Day
Date/Time received: Dec 19, 2013 4:35 PM
Eurofins | mgt reference: **404287**

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 : 9.5 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.
- Organic samples had Teflon liners.
- Some samples have been subcontracted.
- N/A Custody Seals intact (if used).

Notes

Additional from 403263

Contact notes

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

Jean Heng on Phone : (+61) (2) 9900 8400 or by e.mail: JeanHeng@eurofins.com.au

Results will be delivered electronically via e.mail to Thomas Harding - tharding@jbsg.com.au.

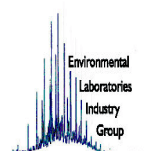
Eurofins | mgt Sample Receipt



Environmental Laboratory
Air Analysis
Water Analysis
Soil Contamination Analysis

NATA Accreditation
Stack Emission Sampling & Analysis
Trade Waste Sampling & Analysis
Groundwater Sampling & Analysis

38 Years of Environmental Analysis & Experience



CERTIFICATE OF ANALYSIS

102741

Client:

JBS & G (NSW & WA) Pty Ltd
Level 1, 50 Margaret St
Sydney
NSW 2000

Attention: T Harding C Bielby

Sample log in details:

Your Reference: **43069, West Connex**
No. of samples: 28 Soils
Date samples received / completed instructions received 17/12/2013 / 17/12/2013

Analysis Details:

Please refer to the following pages for results, methodology summary and quality control data.
Samples were analysed as received from the client. Results relate specifically to the samples as received.
Results are reported on a dry weight basis for solids and on an as received basis for other matrices.
Please refer to the last page of this report for any comments relating to the results.

Report Details:

Date results requested by: / Issue Date: 24/12/13 / 24/12/13
Date of Preliminary Report: Not Issued
NATA accreditation number 2901. This document shall not be reproduced except in full.
Accredited for compliance with ISO/IEC 17025. **Tests not covered by NATA are denoted with *.**

Results Approved By:



Jacinta Hurst
Laboratory Manager

Asbestos ID - soils WA Our Reference: Your Reference Type of sample	UNITS ----- -----	102741-1 BH44 Soil	102741-17 BH48 Soil	102741-19 BH49 Soil	102741-20 BH50 Soil	102741-21 BH51 Soil
Date analysed	-	24/12/2013	24/12/2013	24/12/2013	24/12/2013	24/12/2013
Sample mass tested	g	1246.89g	871.23g	937.58g	1105.02g	986.49g
Sample Description	-	Grey coarse-grained soil & rocks	Grey fine-grained soil & rocks	Brown coarse-grained sandy soil	Brown coarse-grained sandy soil	Brown coarse-grained sandy soil
Asbestos ID in soil	-	No asbestos detected at reporting limit of 0.1g/kg	No asbestos detected at reporting limit of 0.1g/kg	No asbestos detected at reporting limit of 0.1g/kg	No asbestos detected at reporting limit of 0.1g/kg	No asbestos detected at reporting limit of 0.1g/kg
Trace Analysis	-	No respirable fibres detected	No respirable fibres detected	No respirable fibres detected	No respirable fibres detected	No respirable fibres detected

Asbestos ID - soils WA Our Reference: Your Reference Type of sample	UNITS ----- -----	102741-22 BH52 Soil	102741-23 BH53 Soil	102741-24 BH54 Soil	102741-25 BH55 Soil	102741-26 QC05 Soil
Date analysed	-	24/12/2013	24/12/2013	24/12/2013	24/12/2013	24/12/2013
Sample mass tested	g	1075.73g	972.22g	956.78g	1158.05g	1075.60g
Sample Description	-	Brown coarse-grained sandy soil	Brown coarse-grained soil & rocks	Grey coarse-grained soil & rocks	Grey coarse-grained soil & rocks	Brown coarse-grained sandy soil
Asbestos ID in soil	-	No asbestos detected at reporting limit of 0.1g/kg	No asbestos detected at reporting limit of 0.1g/kg	No asbestos detected at reporting limit of 0.1g/kg	No asbestos detected at reporting limit of 0.1g/kg	No asbestos detected at reporting limit of 0.1g/kg
Trace Analysis	-	No respirable fibres detected	No respirable fibres detected	No respirable fibres detected	No respirable fibres detected	No respirable fibres detected

Method ID	Methodology Summary
ASB-003	Asbestos ID - Minimum 500mL soil sample was analysed as recommended by "The Guidelines from the Assessment, Remediation and Management of Asbestos-Contaminated Sites in Western Australia - May 2009" with a reporting limit of 0.1g/kg as per AS4964-2004.

Report Comments:

This report is consistent with the analytical procedures and reporting recommendations in the Western Australian Guidelines for the Assessment, Remediation and Management of Asbestos-Contaminated Sites in Western Australia - May 2009.

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

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

Quality Control Definitions

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

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

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

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

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

Laboratory Acceptance Criteria

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

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

Spikes for Physical and Aggregate Tests are not applicable.

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

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

Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals; 60-140% for organics and 10-140% for SVOC and speciated phenols is acceptable.

In circumstances where no duplicate and/or sample spike has been reported at 1 in 10 and/or 1 in 20 samples respectively, the sample volume submitted was insufficient in order to satisfy laboratory QA/QC protocols.

When samples are received where certain analytes are outside of recommended technical holding times (THTs), the analysis has proceeded. Where analytes are on the verge of breaching THTs, every effort will be made to analyse within the THT or as soon as practicable.



CHAIN OF CUSTODY

PROJECT NO.: 43069
 PROJECT NAME: WESTCONNEX
 SEND REPORT TO: T. HARLING (DISPATCH INVOICE TO:
 DATE NEEDED BY: Standard
 COMMENTS / SPECIAL HANDLING / STORAGE OR DISPOSAL:
 LABORATORY BATCH NO.:
 SAMPLERS: C. Bielby
 PHONE: SYDNEY 02 82450300 - PERTH 08 9488 0100 EMAIL: C.Bielby@envirolab.com.au
 QC LEVEL: NEPM (2013)

SAMPLE ID	MATRIX	DATE	TIME	TYPE & PRESERVATIVE	pH	COMBO SUITES							NOTES:	
						SOIL - 4	SOIL - 4A	SOIL - 5	SOIL 5B	SOIL - 12	WATER - 1m	WATER - 2L		WATER - 3L
BH440-0-0-3	SOIL	13/12/13		BAG										
BH441-0-0-3														
BH442-0-0-3														
BH443-0-0-3														
BH444-0-0-3														
BH445-0-0-3														
BH446-0-0-3														
BH447-0-0-3														
BH448-0-0-3														
BH449-0-0-3														
BH450-0-0-3														

RELINQUISHED BY: NAME: C. BIELBY DATE: 13/12/13
 RECEIVED BY: NAME: Sapna DATE: 17/12/13
 METHOD OF SHIPMENT:
 CONSIGNMENT NOTE NO.:
 TRANSPORT CO.:
 CONSIGNMENT NOTE NO.:
 TRANSPORT CO.:
 CONTAINER & PRESERVATIVE CODES: P = Plastic; J = Soil Jar; B = Glass Bottle; N = Nitric Acid Presvd.; C = Sodium Hydroxide Presvd.; VC = Hydrochloric Acid Presvd Vial; VS = Sulfuric Acid Presvd Vial; S = Sulfuric Acid Presvd Vial; Z = Zinc Presvd; E = EDTA Presvd; ST = Searley Bottle; ENVIROLAB 12.4.4.10/51
 COOLER SEAL - Yes..... No Intact Broken
 COOLER TEMP deg C
 COOLER SEAL - Yes..... No Intact Broken
 COOLER TEMP deg C
 ENVIROLAB 12.4.4.10/51
 Ph: (02) 9910 5250

Job No: 102741
 Date Received: 17/12
 Time Received: 11:25
 Received by: [Signature]
 Temp: Cool/Ambient
 Cooling: Ice/Icepack
 Security: Intact/Broken/None

Soil Combs continued
 3 - TRH/BTEX/PAH/As,Cd,Cr,Cu,Ni,Pb,Zn,Hg/
 3A - TRH/BTEX/PAH/As,Cd,Cr,Cu,Ni,Pb,Zn,Hg//Asbestos
 4 - TRH/BTEX/PAH/As,Cd,Cr,Cu,Ni,Pb,Zn,Hg/Phenolics (Total)
 4L - TRH/BTEX/PAH(Trace Level)/As,Cd,Cr,Cu,Ni,Pb,Zn,Hg/Phenolics (Total)
 4A - TRH/BTEX/PAH/As,Cd,Cr,Cu,Ni,Pb,Zn,Hg/Phenolics (Total)/Asbestos

Water Combs
 1m - TRH/BTEX/8 metals
 2L - TRH/BTEX/PAH low/Pb
 3L - TRH/BTEX/PAH/8 metals



CHAIN OF CUSTODY

PROJECT NO.: 43069
 PROJECT NAME: WEST CONNEX
 SEND REPORT TO: T. HARDING C-BIELBY SEND INVOICE TO:
 DATE NEEDED BY: STE-DARD
 COMMENTS / SPECIAL HANDLING / STORAGE OR DISPOSAL:

LABORATORY BATCH NO.:
 SAMPLERS: C-BIELBY
 PHONE: SYDNEY 02 82459300 - PERTH 08 9488 0100 EMAIL: C-BIELBY@EJBA.COM.AU
 QC LEVEL: NEPM (2013)

SAMPLE ID	MATRIX	DATE	TIME	TYPE & PRESERVATIVE	PH	COMBO SUITES								NOTES	
						SOIL-4	SOIL-4A	SOIL-4A	SOIL-5	SOIL 5A	SOIL 5B	SOIL - 12	WATER - 1m		WATER - 2L
BH49 0.0-0.2	Soil	13/12/13		BAG										X	Asbestos
BH50 0.0-0.2														X	
BH51 0.0-0.2														X	
BH52 0.0-0.2														X	
BH53 0.0-0.2														X	
BH54 0.0-0.2														X	
BH55 0.0-0.2														X	
QC05														X	
QC04A		13/12/13		JAR + ICE										X	
QC05A		16/12/13												X	Standard Pickford.

19 20
21
22
23
24
25
26
27

RELEASING BY: NAME: C-BIELBY DATE: 16/12/13
 METHOD OF SHIPMENT: JAR + ICE
 CONSIGNMENT NOTE NO.:
 TRANSPORT CO.:
 CONSIGNMENT NOTE NO.:
 TRANSPORT CO.:
 RECEIVED BY: NAME: Sophie DATE: 17/12
 FOR RECEIVING LAB USE ONLY:
 COOLER SEAL - Yes..... No Intact Broken
 COOLER TEMP deg C
 COOLER SEAL - Yes..... No Intact Broken
 COOLER TEMP deg C

Container & Preservative Codes: P = Plastic; J = Soil Jar; B = Glass Bottle; N = Nitric Acid Presvd.; C = Sodium Hydroxide Presvd.; VC = Hydrochloric Acid Presvd Vial; VS = Sulfuric Acid Presvd Vial; S = Sulfuric Acid Presvd; Z = Zinc Presvd; E = EDTA Presvd; ST = Sterile Bottle; O = Other
 IMSO Form 013 - Chain of Custody - Envirolab

Soil Combos
 3 - TRH/BTEX/PAH/As,Cd,Cr,Cu,Ni,Pb,Zn,Hg/
 3A - TRH/BTEX/PAH/As,Cd,Cr,Cu,Ni,Pb,Zn,Hg//Asbestos
 4 - TRH/BTEX/PAH/As,Cd,Cr,Cu,Ni,Pb,Zn,Hg/Phenolics (Total)
 4L - TRH/BTEX/PAH(Trace Level)/As,Cd,Cr,Cu,Ni,Pb,Zn,Hg/Phenolics (Total)
 4A - TRH/BTEX/PAH/As,Cd,Cr,Cu,Ni,Pb,Zn,Hg/Phenolics (Total)/Asbestos

Water Combos
 1m - TRH/BTEX/8 metals
 2L - TRH/BTEX/PAH low/Pb
 3L - TRH/BTEX/PAH/8 metals

Certificate of Analysis

JBS & G (NSW & WA) Pty Ltd
 Level 1, 50 Margaret St
 Sydney
 NSW 2000



NATA Accredited
 Accreditation Number 1261
 Site Number 18217

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

Attention: Thomas Harding

Report 403894-S
 Client Reference WEST CONNEX 43069
 Received Date Dec 17, 2013

Client Sample ID			BH44 0.0-0.3	BH44 2.0-2.3	BH44 5.5-5.8	BH45 1.1-1.3
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins mgt Sample No.			S13-De16168	S13-De16170	S13-De16173	S13-De16175
Date Sampled			Dec 13, 2013	Dec 13, 2013	Dec 13, 2013	Dec 13, 2013
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	20	mg/kg	< 20	-	-	< 20
TRH C10-C14	20	mg/kg	< 20	-	-	< 20
TRH C15-C28	50	mg/kg	< 50	-	-	< 50
TRH C29-C36	50	mg/kg	< 50	-	-	< 50
TRH C10-36 (Total)	50	mg/kg	< 50	-	-	< 50
BTEX						
Benzene	0.1	mg/kg	< 0.1	-	-	< 0.1
Toluene	0.1	mg/kg	< 0.1	-	-	< 0.1
Ethylbenzene	0.1	mg/kg	< 0.1	-	-	< 0.1
m&p-Xylenes	0.2	mg/kg	< 0.2	-	-	< 0.2
o-Xylene	0.1	mg/kg	< 0.1	-	-	< 0.1
Xylenes - Total	0.3	mg/kg	< 0.3	-	-	< 0.3
4-Bromofluorobenzene (surr.)	1	%	106	-	-	124
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene ^{N02}	0.5	mg/kg	< 0.5	-	-	< 0.5
TRH C6-C10	20	mg/kg	< 20	-	-	< 20
TRH C6-C10 less BTEX (F1) ^{N04}	20	mg/kg	< 20	-	-	< 20
TRH >C10-C16	50	mg/kg	< 50	-	-	< 50
TRH >C10-C16 less Naphthalene (F2) ^{N01}	50	mg/kg	< 50	-	-	< 50
TRH >C16-C34	100	mg/kg	< 100	-	-	< 100
TRH >C34-C40	100	mg/kg	< 100	-	-	< 100
Polycyclic Aromatic Hydrocarbons						
Acenaphthene	0.5	mg/kg	< 0.5	-	-	< 0.5
Acenaphthylene	0.5	mg/kg	< 0.5	-	-	< 0.5
Anthracene	0.5	mg/kg	< 0.5	-	-	< 0.5
Benz(a)anthracene	0.5	mg/kg	< 0.5	-	-	< 0.5
Benzo(a)pyrene	0.5	mg/kg	< 0.5	-	-	< 0.5
Benzo(b&j)fluoranthene ^{N07}	0.5	mg/kg	0.5	-	-	< 0.5
Benzo(g,h,i)perylene	0.5	mg/kg	< 0.5	-	-	< 0.5
Benzo(k)fluoranthene	0.5	mg/kg	< 0.5	-	-	< 0.5
Chrysene	0.5	mg/kg	0.5	-	-	< 0.5
Dibenz(a,h)anthracene	0.5	mg/kg	< 0.5	-	-	< 0.5
Fluoranthene	0.5	mg/kg	1.2	-	-	< 0.5
Fluorene	0.5	mg/kg	< 0.5	-	-	< 0.5
Indeno(1,2,3-cd)pyrene	0.5	mg/kg	< 0.5	-	-	< 0.5
Naphthalene	0.5	mg/kg	0.7	-	-	< 0.5

Client Sample ID			BH44 0.0-0.3	BH44 2.0-2.3	BH44 5.5-5.8	BH45 1.1-1.3
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins mgt Sample No.			S13-De16168	S13-De16170	S13-De16173	S13-De16175
Date Sampled			Dec 13, 2013	Dec 13, 2013	Dec 13, 2013	Dec 13, 2013
Test/Reference	LOR	Unit				
Polycyclic Aromatic Hydrocarbons						
Phenanthrene	0.5	mg/kg	1.3	-	-	< 0.5
Pyrene	0.5	mg/kg	1.1	-	-	< 0.5
Total PAH	0.5	mg/kg	5.3	-	-	< 0.5
Benzo(a)pyrene TEQ (lower bound)*	0.5	mg/kg	< 0.5	-	-	< 0.5
Benzo(a)pyrene TEQ (medium bound)*	0.5	mg/kg	0.6	-	-	0.6
Benzo(a)pyrene TEQ (upper bound)*	0.5	mg/kg	1.2	-	-	1.2
2-Fluorobiphenyl (surr.)	1	%	124	-	-	100
p-Terphenyl-d14 (surr.)	1	%	129	-	-	101
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	-	-	-
Dibutylchloroendate (surr.)	1	%	103	-	-	-
Tetrachloro-m-xylene (surr.)	1	%	86	-	-	-
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	0.5	mg/kg	< 0.5	-	-	-
Dibutylchloroendate (surr.)	1	%	103	-	-	-
Heavy Metals						
Arsenic	2	mg/kg	40	< 2	-	< 2
Cadmium	0.4	mg/kg	1.9	1.1	-	3.0
Chromium	5	mg/kg	11	< 5	-	25
Copper	5	mg/kg	87	< 5	-	170
Lead	5	mg/kg	74	< 5	-	110
Mercury	0.05	mg/kg	0.06	< 0.05	-	0.10
Nickel	5	mg/kg	19	< 5	-	38
Zinc	5	mg/kg	100	6.2	-	200

Client Sample ID			BH44 0.0-0.3	BH44 2.0-2.3	BH44 5.5-5.8	BH45 1.1-1.3
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins mgt Sample No.			S13-De16168	S13-De16170	S13-De16173	S13-De16175
Date Sampled			Dec 13, 2013	Dec 13, 2013	Dec 13, 2013	Dec 13, 2013
Test/Reference	LOR	Unit				
Acidity Trail						
Acid trail - Titratable Actual Acidity	2	mol H+/t	-	-	< 2	-
Acid trail - Titratable Peroxide Acidity	2	mol H+/t	-	-	< 2	-
Acid trail - Titratable Sulfidic Acidity	2	mol H+/t	-	-	< 2	-
sulfidic - Titratable Actual Acidity	0.02	% pyrite S	-	-	< 0.02	-
sulfidic - Titratable Peroxide Acidity	0.02	% pyrite S	-	-	< 0.02	-
sulfidic - Titratable Sulfidic Acidity	0.02	% pyrite S	-	-	< 0.02	-
Sulfur Trail						
acidity - Peroxide Oxidisable Sulfur	10	mol H+/t	-	-	< 10	-
Sulfur - KCl Extractable	0.02	% S	-	-	< 0.02	-
Sulfur - Peroxide	0.02	% S	-	-	< 0.02	-
Sulfur - Peroxide Oxidisable Sulfur	0.02	% S	-	-	< 0.02	-
pH Measurements						
pH-KCL	0.1	units	-	-	6.0	-
pH-OX	0.1	units	-	-	2.7	-
Calcium Values						
Acid Reacted Calcium	0.02	% Ca	-	-	< 0.02	-
acidity - Acid Reacted Calcium	10	mol H+/t	-	-	< 10	-
Calcium - KCl Extractable	0.02	% Ca	-	-	< 0.02	-
Calcium - Peroxide	0.02	% Ca	-	-	< 0.02	-
sulfidic - Acid Reacted Calcium	0.02	% S	-	-	< 0.02	-
Magnesium Values						
Acid Reacted Magnesium	0.02	% Mg	-	-	< 0.02	-
acidity - Acid Reacted Magnesium	10	mol H+/t	-	-	< 10	-
Magnesium - KCl Extractable	0.02	% Mg	-	-	< 0.02	-
Magnesium - Peroxide	0.02	% Mg	-	-	< 0.02	-
sulfidic - Acid Reacted Magnesium	0.02	% S	-	-	< 0.02	-
Acid Base Accounting (SPOCAS)						
ANC Fineness Factor	0.5	units	-	-	1.5	-
Liming rate - SPOCAS	1	kg CaCO3/t	-	-	< 1	-
Net Acidity (acidity units) - SPOCAS	10	mol H+/t	-	-	< 10	-
Net Acidity (sulfur units) - SPOCAS	0.02	% S	-	-	< 0.02	-
% Moisture						
% Moisture	0.1	%	5.8	2.6	17	13

Client Sample ID			BH47 0.0-0.3	BH48 0.0-0.3	BH49 0.0-0.2	BH50 0.0-0.2
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins mgt Sample No.			S13-De16180	S13-De16183	S13-De16186	S13-De16187
Date Sampled			Dec 13, 2013	Dec 13, 2013	Dec 13, 2013	Dec 16, 2013
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	-	300	< 50
TRH C29-C36	50	mg/kg	< 50	-	400	67
TRH C10-36 (Total)	50	mg/kg	< 50	-	700	67

Client Sample ID			BH47 0.0-0.3	BH48 0.0-0.3	BH49 0.0-0.2	BH50 0.0-0.2
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins mgt Sample No.			S13-De16180	S13-De16183	S13-De16186	S13-De16187
Date Sampled			Dec 13, 2013	Dec 13, 2013	Dec 13, 2013	Dec 16, 2013
Test/Reference	LOR	Unit				
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	%	127	-	121	125
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	-	620	< 100
TRH >C34-C40	100	mg/kg	< 100	-	340	< 100
Polycyclic Aromatic Hydrocarbons						
Acenaphthene	0.5	mg/kg	< 0.5	-	0.8	< 0.5
Acenaphthylene	0.5	mg/kg	< 0.5	-	1.2	< 0.5
Anthracene	0.5	mg/kg	< 0.5	-	3.3	< 0.5
Benz(a)anthracene	0.5	mg/kg	< 0.5	-	9.4	< 0.5
Benzo(a)pyrene	0.5	mg/kg	< 0.5	-	13	< 0.5
Benzo(b&j)fluoranthene ^{N07}	0.5	mg/kg	< 0.5	-	16	< 0.5
Benzo(g,h,i)perylene	0.5	mg/kg	< 0.5	-	9.7	< 0.5
Benzo(k)fluoranthene	0.5	mg/kg	< 0.5	-	8.7	< 0.5
Chrysene	0.5	mg/kg	< 0.5	-	11	< 0.5
Dibenz(a,h)anthracene	0.5	mg/kg	< 0.5	-	2.6	< 0.5
Fluoranthene	0.5	mg/kg	< 0.5	-	18	< 0.5
Fluorene	0.5	mg/kg	< 0.5	-	0.7	< 0.5
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	< 0.5	-	9.2	< 0.5
Naphthalene	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
Phenanthrene	0.5	mg/kg	< 0.5	-	7.8	< 0.5
Pyrene	0.5	mg/kg	< 0.5	-	16	< 0.5
Total PAH	0.5	mg/kg	< 0.5	-	130	< 0.5
Benzo(a)pyrene TEQ (lower bound)*	0.5	mg/kg	< 0.5	-	20	< 0.5
Benzo(a)pyrene TEQ (medium bound)*	0.5	mg/kg	0.6	-	20	0.6
Benzo(a)pyrene TEQ (upper bound)*	0.5	mg/kg	1.2	-	20	1.2
2-Fluorobiphenyl (surr.)	1	%	103	-	97	96
p-Terphenyl-d14 (surr.)	1	%	105	-	100	100
Organochlorine Pesticides						
Chlordanes - Total	0.1	mg/kg	-	< 0.1	< 0.1	< 0.1
4.4'-DDD	0.05	mg/kg	-	< 0.05	< 0.05	< 0.05
4.4'-DDE	0.05	mg/kg	-	< 0.05	< 0.05	< 0.05
4.4'-DDT	0.05	mg/kg	-	< 0.05	< 0.05	< 0.05
a-BHC	0.05	mg/kg	-	< 0.05	< 0.05	< 0.05
Aldrin	0.05	mg/kg	-	< 0.05	< 0.05	< 0.05
b-BHC	0.05	mg/kg	-	< 0.05	< 0.05	< 0.05
d-BHC	0.05	mg/kg	-	< 0.05	< 0.05	< 0.05
Dieldrin	0.05	mg/kg	-	< 0.05	< 0.05	< 0.05
Endosulfan I	0.05	mg/kg	-	< 0.05	< 0.05	< 0.05

Client Sample ID			BH47 0.0-0.3	BH48 0.0-0.3	BH49 0.0-0.2	BH50 0.0-0.2
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins mgt Sample No.			S13-De16180	S13-De16183	S13-De16186	S13-De16187
Date Sampled			Dec 13, 2013	Dec 13, 2013	Dec 13, 2013	Dec 16, 2013
Test/Reference	LOR	Unit				
Organochlorine Pesticides						
Endosulfan II	0.05	mg/kg	-	< 0.05	< 0.05	< 0.05
Endosulfan sulphate	0.05	mg/kg	-	< 0.05	< 0.05	< 0.05
Endrin	0.05	mg/kg	-	< 0.05	< 0.05	< 0.05
Endrin aldehyde	0.05	mg/kg	-	< 0.05	< 0.05	< 0.05
Endrin ketone	0.05	mg/kg	-	< 0.05	< 0.05	< 0.05
g-BHC (Lindane)	0.05	mg/kg	-	< 0.05	< 0.05	< 0.05
Heptachlor	0.05	mg/kg	-	< 0.05	< 0.05	< 0.05
Heptachlor epoxide	0.05	mg/kg	-	< 0.05	< 0.05	< 0.05
Hexachlorobenzene	0.05	mg/kg	-	< 0.05	< 0.05	< 0.05
Methoxychlor	0.2	mg/kg	-	< 0.2	< 0.2	< 0.2
Toxaphene	1	mg/kg	-	< 1	< 1	< 1
Dibutylchlorendate (surr.)	1	%	-	117	129	119
Tetrachloro-m-xylene (surr.)	1	%	-	78	86	72
Polychlorinated Biphenyls (PCB)						
Aroclor-1016	0.5	mg/kg	-	< 0.5	< 0.5	< 0.5
Aroclor-1232	0.5	mg/kg	-	< 0.5	< 0.5	< 0.5
Aroclor-1242	0.5	mg/kg	-	< 0.5	< 0.5	< 0.5
Aroclor-1248	0.5	mg/kg	-	< 0.5	< 0.5	< 0.5
Aroclor-1254	0.5	mg/kg	-	< 0.5	< 0.5	< 0.5
Aroclor-1260	0.5	mg/kg	-	< 0.5	< 0.5	< 0.5
Total PCB	0.5	mg/kg	-	< 0.5	< 0.5	< 0.5
Dibutylchlorendate (surr.)	1	%	-	117	129	119
Heavy Metals						
Arsenic	2	mg/kg	24	< 2	< 2	< 2
Cadmium	0.4	mg/kg	1.8	1.0	1.3	1.4
Chromium	5	mg/kg	13	5.6	12	27
Copper	5	mg/kg	79	17	28	22
Lead	5	mg/kg	39	110	69	160
Mercury	0.05	mg/kg	< 0.05	0.09	< 0.05	0.09
Nickel	5	mg/kg	16	< 5	< 5	< 5
Zinc	5	mg/kg	61	89	53	79
% Moisture	0.1	%	3.5	0.6	11	4.6

Client Sample ID			BH51 0.0-0.2	BH52 0.0-0.2	BH53 0.0-0.2	BH54 0.0-0.2
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins mgt Sample No.			S13-De16188	S13-De16189	S13-De16190	S13-De16191
Date Sampled			Dec 16, 2013	Dec 16, 2013	Dec 16, 2013	Dec 16, 2013
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	< 50	< 50
TRH C29-C36	50	mg/kg	86	< 50	63	< 50
TRH C10-36 (Total)	50	mg/kg	86	< 50	63	< 50

Client Sample ID			BH51 0.0-0.2	BH52 0.0-0.2	BH53 0.0-0.2	BH54 0.0-0.2
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins mgt Sample No.			S13-De16188	S13-De16189	S13-De16190	S13-De16191
Date Sampled			Dec 16, 2013	Dec 16, 2013	Dec 16, 2013	Dec 16, 2013
Test/Reference	LOR	Unit				
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	%	127	116	118	121
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	< 100	< 100
TRH >C34-C40	100	mg/kg	< 100	< 100	< 100	< 100
Polycyclic Aromatic Hydrocarbons						
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	< 0.5	< 0.5
Benzo(a)pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(b&j)fluoranthene ^{N07}	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(g,h,i)perylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(k)fluoranthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Chrysene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Dibenz(a,h)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Fluoranthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Fluorene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Indeno(1,2,3-cd)pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Naphthalene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Phenanthrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Total PAH	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(a)pyrene TEQ (lower bound)*	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(a)pyrene TEQ (medium bound)*	0.5	mg/kg	0.6	0.6	0.6	0.6
Benzo(a)pyrene TEQ (upper bound)*	0.5	mg/kg	1.2	1.2	1.2	1.2
2-Fluorobiphenyl (surr.)	1	%	105	103	101	97
p-Terphenyl-d14 (surr.)	1	%	110	101	129	128
Organochlorine Pesticides						
Chlordanes - Total	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
4,4'-DDD	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
4,4'-DDE	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
4,4'-DDT	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
a-BHC	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Aldrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
b-BHC	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
d-BHC	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Dieldrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endosulfan I	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05

Client Sample ID			BH51 0.0-0.2	BH52 0.0-0.2	BH53 0.0-0.2	BH54 0.0-0.2
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins mgt Sample No.			S13-De16188	S13-De16189	S13-De16190	S13-De16191
Date Sampled			Dec 16, 2013	Dec 16, 2013	Dec 16, 2013	Dec 16, 2013
Test/Reference	LOR	Unit				
Organochlorine Pesticides						
Endosulfan II	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endosulfan sulphate	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endrin aldehyde	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endrin ketone	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
g-BHC (Lindane)	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Heptachlor	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Heptachlor epoxide	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Hexachlorobenzene	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Methoxychlor	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Toxaphene	1	mg/kg	< 1	< 1	< 1	< 1
Dibutylchlorendate (surr.)	1	%	97	110	125	99
Tetrachloro-m-xylene (surr.)	1	%	92	102	104	82
Polychlorinated Biphenyls (PCB)						
Aroclor-1016	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Aroclor-1232	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Aroclor-1242	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Aroclor-1248	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Aroclor-1254	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Aroclor-1260	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Total PCB	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Dibutylchlorendate (surr.)	1	%	97	110	125	99
Heavy Metals						
Arsenic	2	mg/kg	< 2	< 2	< 2	15
Cadmium	0.4	mg/kg	1.6	1.4	1.9	1.4
Chromium	5	mg/kg	7.7	< 5	16	< 5
Copper	5	mg/kg	31	26	89	27
Lead	5	mg/kg	160	14	60	39
Mercury	0.05	mg/kg	0.08	< 0.05	< 0.05	< 0.05
Nickel	5	mg/kg	6.4	9.6	10	5.2
Zinc	5	mg/kg	240	38	130	61
% Moisture	0.1	%	4.0	13	21	13

Client Sample ID			BH55 0.0-0.2	QC05
Sample Matrix			Soil	Soil
Eurofins mgt Sample No.			S13-De16192	S13-De16194
Date Sampled			Dec 16, 2013	Dec 16, 2013
Test/Reference	LOR	Unit		
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				
TRH C6-C9	20	mg/kg	< 20	< 20
TRH C10-C14	20	mg/kg	< 20	< 20
TRH C15-C28	50	mg/kg	< 50	< 50
TRH C29-C36	50	mg/kg	< 50	< 50
TRH C10-36 (Total)	50	mg/kg	< 50	< 50

Client Sample ID			BH55 0.0-0.2	QC05
Sample Matrix			Soil	Soil
Eurofins mgt Sample No.			S13-De16192	S13-De16194
Date Sampled			Dec 16, 2013	Dec 16, 2013
Test/Reference	LOR	Unit		
BTEX				
Benzene	0.1	mg/kg	< 0.1	< 0.1
Toluene	0.1	mg/kg	< 0.1	< 0.1
Ethylbenzene	0.1	mg/kg	< 0.1	< 0.1
m&p-Xylenes	0.2	mg/kg	< 0.2	< 0.2
o-Xylene	0.1	mg/kg	< 0.1	< 0.1
Xylenes - Total	0.3	mg/kg	< 0.3	< 0.3
4-Bromofluorobenzene (surr.)	1	%	123	117
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				
Naphthalene ^{N02}	0.5	mg/kg	< 0.5	< 0.5
TRH C6-C10	20	mg/kg	< 20	< 20
TRH C6-C10 less BTEX (F1) ^{N04}	20	mg/kg	< 20	< 20
TRH >C10-C16	50	mg/kg	< 50	< 50
TRH >C10-C16 less Naphthalene (F2) ^{N01}	50	mg/kg	< 50	< 50
TRH >C16-C34	100	mg/kg	< 100	< 100
TRH >C34-C40	100	mg/kg	< 100	< 100
Polycyclic Aromatic Hydrocarbons				
Acenaphthene	0.5	mg/kg	< 0.5	< 0.5
Acenaphthylene	0.5	mg/kg	< 0.5	< 0.5
Anthracene	0.5	mg/kg	< 0.5	< 0.5
Benzo(a)anthracene	0.5	mg/kg	< 0.5	< 0.5
Benzo(a)pyrene	0.5	mg/kg	< 0.5	< 0.5
Benzo(b&j)fluoranthene ^{N07}	0.5	mg/kg	< 0.5	< 0.5
Benzo(g,h,i)perylene	0.5	mg/kg	< 0.5	< 0.5
Benzo(k)fluoranthene	0.5	mg/kg	< 0.5	< 0.5
Chrysene	0.5	mg/kg	< 0.5	< 0.5
Dibenz(a,h)anthracene	0.5	mg/kg	< 0.5	< 0.5
Fluoranthene	0.5	mg/kg	< 0.5	< 0.5
Fluorene	0.5	mg/kg	< 0.5	< 0.5
Indeno(1,2,3-cd)pyrene	0.5	mg/kg	< 0.5	< 0.5
Naphthalene	0.5	mg/kg	< 0.5	< 0.5
Phenanthrene	0.5	mg/kg	< 0.5	< 0.5
Pyrene	0.5	mg/kg	< 0.5	< 0.5
Total PAH	0.5	mg/kg	< 0.5	< 0.5
Benzo(a)pyrene TEQ (lower bound)*	0.5	mg/kg	< 0.5	< 0.5
Benzo(a)pyrene TEQ (medium bound)*	0.5	mg/kg	0.6	0.6
Benzo(a)pyrene TEQ (upper bound)*	0.5	mg/kg	1.2	1.2
2-Fluorobiphenyl (surr.)	1	%	91	96
p-Terphenyl-d14 (surr.)	1	%	126	127
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

Client Sample ID			BH55 0.0-0.2	QC05
Sample Matrix			Soil	Soil
Eurofins mgt Sample No.			S13-De16192	S13-De16194
Date Sampled			Dec 16, 2013	Dec 16, 2013
Test/Reference	LOR	Unit		
Organochlorine Pesticides				
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
Dibutylchlorodate (surr.)	1	%	113	111
Tetrachloro-m-xylene (surr.)	1	%	94	98
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	0.5	mg/kg	< 0.5	< 0.5
Dibutylchlorodate (surr.)	1	%	113	111
Heavy Metals				
Arsenic	2	mg/kg	2.1	< 2
Cadmium	0.4	mg/kg	1.6	1.4
Chromium	5	mg/kg	< 5	< 5
Copper	5	mg/kg	60	5.5
Lead	5	mg/kg	32	6.2
Mercury	0.05	mg/kg	< 0.05	< 0.05
Nickel	5	mg/kg	11	< 5
Zinc	5	mg/kg	52	20
% Moisture				
	0.1	%	12	15

Sample History

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

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

Description	Testing Site	Extracted	Holding Time
Total Recoverable Hydrocarbons - 1999 NEPM Fractions - Method: E004 Petroleum Hydrocarbons (TPH)	Sydney	Dec 18, 2013	14 Day
BTEX - Method: E029/E016 BTEX	Sydney	Dec 18, 2013	14 Day
Total Recoverable Hydrocarbons - 2013 NEPM Fractions - Method: LM-LTM-ORG2010	Sydney	Dec 18, 2013	14 Day
Polycyclic Aromatic Hydrocarbons - Method: E007 Polyaromatic Hydrocarbons (PAH)	Sydney	Dec 18, 2013	14 Day
Organochlorine Pesticides - Method: E013 Organochlorine Pesticides (OC)	Sydney	Dec 19, 2013	14 Day
Polychlorinated Biphenyls (PCB) - Method: E013 Polychlorinated Biphenyls (PCB)	Sydney	Dec 19, 2013	28 Day
Metals M8 - Method: E022 Acid Extractable metals in Soils & E026 Mercury	Sydney	Dec 19, 2013	28 Day
SPOCAS (Acid Sulphate Soils)			
Acidity Trail - Method: Acid Sulphate Soils Laboratory Methods Guidelines Version 2.1 - June 2004	Melbourne	Dec 18, 2013	7 Day
Sulfur Trail - Method: Acid Sulphate Soils Laboratory Methods Guidelines Version 2.1 - June 2004	Melbourne	Dec 18, 2013	0 Day
pH Measurements - Method: Acid Sulphate Soils Laboratory Methods Guidelines Version 2.1 - June 2004	Melbourne	Dec 18, 2013	0 Day
Calcium Values - Method: Acid Sulphate Soils Laboratory Methods Guidelines Version 2.1 - June 2004	Melbourne	Dec 18, 2013	0 Day
Magnesium Values - Method: Acid Sulphate Soils Laboratory Methods Guidelines Version 2.1 - June 2004	Melbourne	Dec 18, 2013	0 Day
Acid Base Accounting (SPOCAS) - Method: Acid Sulphate Soils Laboratory Methods Guidelines Version 2.1 - June 2004	Melbourne	Dec 18, 2013	0 Day
% Moisture - Method: E005 Moisture Content	Sydney	Dec 19, 2013	28 Day

Company Name: JBS & G (NSW & WA) Pty Ltd Address: Level 1, 50 Margaret St Sydney NSW 2000 Client Job No.: WEST CONNEX 43069	Order No.: Report #: 403894 Phone: 02 8245 0300 Fax:	Received: Dec 17, 2013 2:45 PM Due: Dec 24, 2013 Priority: 5 Day Contact Name: Thomas Harding
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Eurofins | mgt Client Manager: Jean Heng

Sample Detail					% Moisture	% Moisture	HOLD	Phenolics (total)	TRH C6-C9	Polycyclic Aromatic Hydrocarbons	Organochlorine Pesticides	SPOCAS (Acid Sulphate Soils)	Toxicity Characteristic Leaching Procedure (TCLP)	Metals M8	Metals M8 filtered	BTEX	Polychlorinated Biphenyls (PCB)	Total Recoverable Hydrocarbons	JBS&G Leachate Suite	JBS&G Suite 2	
Laboratory where analysis is conducted																					
Melbourne Laboratory - NATA Site # 1254 & 14271					X							X									
Sydney Laboratory - NATA Site # 18217						X	X	X	X	X	X	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																	
BH44 0.0-0.3	Dec 13, 2013		Soil	S13-De16168	X				X	X				X		X	X	X			
BH44 1.0-1.3	Dec 13, 2013		Soil	S13-De16169		X															
BH44 2.0-2.3	Dec 13, 2013		Soil	S13-De16170	X									X							
BH44 3.0-3.3	Dec 13, 2013		Soil	S13-De16171			X														
BH44 4.5-4.8	Dec 13, 2013		Soil	S13-De16172			X														
BH44 5.5-5.8	Dec 13, 2013		Soil	S13-De16173	X							X									
BH44 6.3-6.5	Dec 13, 2013		Soil	S13-De16174			X														
BH45 1.1-1.3	Dec 13, 2013		Soil	S13-De16175	X				X					X		X		X			
BH45 2.1-2.3	Dec 13, 2013		Soil	S13-De16176			X														
BH45 2.8-3.1	Dec 13, 2013		Soil	S13-De16177			X														

Company Name: JBS & G (NSW & WA) Pty Ltd	Order No.:	Received: Dec 17, 2013 2:45 PM
Address: Level 1, 50 Margaret St Sydney NSW 2000	Report #: 403894	Due: Dec 24, 2013
Client Job No.: WEST CONNEX 43069	Phone: 02 8245 0300	Priority: 5 Day
	Fax:	Contact Name: Thomas Harding

Eurofins | mgt Client Manager: Jean Heng

Sample Detail					% Moisture	% Moisture	HOLD	Phenolics (total)	TRH C6-C9	Polycyclic Aromatic Hydrocarbons	Organochlorine Pesticides	SPOCAS (Acid Sulphate Soils)	Toxicity Characteristic Leaching Procedure (TCLP)	Metals M8	Metals M8 filtered	BTEX	Polychlorinated Biphenyls (PCB)	Total Recoverable Hydrocarbons	JBS&G Leachate Suite	JBS&G Suite 2
Laboratory where analysis is conducted																				
Melbourne Laboratory - NATA Site # 1254 & 14271					X							X								
Sydney Laboratory - NATA Site # 18217						X	X	X	X	X	X	X	X	X	X	X	X	X	X	
Brisbane Laboratory - NATA Site # 20794																				
External Laboratory																				
BH46 0.0-0.3	Dec 13, 2013		Soil	S13-De16178			X													
BH46 0.8-1.0	Dec 13, 2013		Soil	S13-De16179			X													
BH47 0.0-0.3	Dec 13, 2013		Soil	S13-De16180		X				X				X		X		X		
BH47 1.0-1.3	Dec 13, 2013		Soil	S13-De16181			X													
BH47 2.0-2.3	Dec 13, 2013		Soil	S13-De16182			X													
BH48 0.0-0.3	Dec 13, 2013		Soil	S13-De16183		X					X			X			X			
BH48 1.3-1.5	Dec 13, 2013		Soil	S13-De16184			X													
BH45 0.0-0.3	Dec 13, 2013		Soil	S13-De16185			X													
BH49 0.0-0.2	Dec 13, 2013		Soil	S13-De16186		X														X
BH50 0.0-0.2	Dec 16, 2013		Soil	S13-De16187		X														X
BH51 0.0-0.2	Dec 16, 2013		Soil	S13-De16188		X														X

Company Name: JBS & G (NSW & WA) Pty Ltd Address: Level 1, 50 Margaret St Sydney NSW 2000 Client Job No.: WEST CONNEX 43069	Order No.: Report #: 403894 Phone: 02 8245 0300 Fax:	Received: Dec 17, 2013 2:45 PM Due: Dec 24, 2013 Priority: 5 Day Contact Name: Thomas Harding
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Eurofins | mgt Client Manager: Jean Heng

Sample Detail					% Moisture	% Moisture	HOLD	Phenolics (total)	TRH C6-C9	Polycyclic Aromatic Hydrocarbons	Organochlorine Pesticides	SPOCAS (Acid Sulphate Soils)	Toxicity Characteristic Leaching Procedure (TCLP)	Metals M8	Metals M8 filtered	BTEX	Polychlorinated Biphenyls (PCB)	Total Recoverable Hydrocarbons	JBS&G Leachate Suite	JBS&G Suite 2
Laboratory where analysis is conducted																				
Melbourne Laboratory - NATA Site # 1254 & 14271					X							X								
Sydney Laboratory - NATA Site # 18217						X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Brisbane Laboratory - NATA Site # 20794																				
External Laboratory																				
BH52 0.0-0.2	Dec 16, 2013		Soil	S13-De16189	X															X
BH53 0.0-0.2	Dec 16, 2013		Soil	S13-De16190	X															X
BH54 0.0-0.2	Dec 16, 2013		Soil	S13-De16191	X															X
BH55 0.0-0.2	Dec 16, 2013		Soil	S13-De16192	X															X
QC04	Dec 13, 2013		Soil	S13-De16193			X													
QC05	Dec 16, 2013		Soil	S13-De16194	X															X
MW1	Dec 16, 2013		Water	S13-De16195				X		X				X	X			X		
RINSATE	Dec 16, 2013		Water	S13-De16196						X	X			X	X	X	X			
TRIP SPIKE	Dec 16, 2013		Water	S13-De16197					X						X					
TRIP BLANK	Dec 16, 2013		Water	S13-De16198					X						X					
BH44 0.0-0.3	Dec 13, 2013		TCLP	S13-De16532	X							X							X	

Company Name: JBS & G (NSW & WA) Pty Ltd Address: Level 1, 50 Margaret St Sydney NSW 2000 Client Job No.: WEST CONNEX 43069	Order No.: Report #: 403894 Phone: 02 8245 0300 Fax:	Received: Dec 17, 2013 2:45 PM Due: Dec 24, 2013 Priority: 5 Day Contact Name: Thomas Harding
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Eurofins | mgt Client Manager: Jean Heng

Sample Detail					% Moisture	% Moisture	HOLD	Phenolics (total)	TRH C6-C9	Polycyclic Aromatic Hydrocarbons	Organochlorine Pesticides	SPOCAS (Acid Sulphate Soils)	Toxicity Characteristic Leaching Procedure (TCLP)	Metals M8	Metals M8 filtered	BTEX	Polychlorinated Biphenyls (PCB)	Total Recoverable Hydrocarbons	JBS&G Leachate Suite	JBS&G Suite 2	
Laboratory where analysis is conducted																					
Melbourne Laboratory - NATA Site # 1254 & 14271					X							X									
Sydney Laboratory - NATA Site # 18217						X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Brisbane Laboratory - NATA Site # 20794																					
External Laboratory																					
BH48 0.0-0.3	Dec 13, 2013		Water	S13-De19000			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 PQLs are matrix dependant. Quoted PQLs 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 Acknowledgment.

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: 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	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	
Total PCB	mg/kg	< 0.5			0.5	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	
Method Blank							
Acidity Trail							
Acid trail - Titratable Actual Acidity	mol H+/t	< 2			2	Pass	
Acid trail - Titratable Peroxide Acidity	mol H+/t	< 2			2	Pass	
Acid trail - Titratable Sulfidic Acidity	mol H+/t	< 2			2	Pass	
sulfidic - Titratable Actual Acidity	% pyrite S	< 0.02			0.02	Pass	
sulfidic - Titratable Peroxide Acidity	% pyrite S	< 0.02			0.02	Pass	
sulfidic - Titratable Sulfidic Acidity	% pyrite S	< 0.02			0.02	Pass	
Method Blank							
Sulfur Trail							
acidity - Peroxide Oxidisable Sulfur	mol H+/t	< 10			10	Pass	
Sulfur - KCl Extractable	% S	< 0.02			0.02	Pass	
Sulfur - Peroxide	% S	< 0.02			0.02	Pass	
Sulfur - Peroxide Oxidisable Sulfur	% S	< 0.02			0.02	Pass	
Method Blank							
Calcium Values							
Acid Reacted Calcium	% Ca	< 0.02			0.02	Pass	
acidity - Acid Reacted Calcium	mol H+/t	< 10			10	Pass	
Calcium - KCl Extractable	% Ca	< 0.02			0.02	Pass	
Calcium - Peroxide	% Ca	< 0.02			0.02	Pass	
sulfidic - Acid Reacted Calcium	% S	< 0.02			0.02	Pass	
Method Blank							
Magnesium Values							
Acid Reacted Magnesium	% Mg	< 0.02			0.02	Pass	

Test	Units	Result 1		Acceptance Limits	Pass Limits	Qualifying Code
acidity - Acid Reacted Magnesium	mol H+/t	< 10		10	Pass	
Magnesium - KCl Extractable	% Mg	< 0.02		0.02	Pass	
Magnesium - Peroxide	% Mg	< 0.02		0.02	Pass	
sulfidic - Acid Reacted Magnesium	% S	< 0.02		0.02	Pass	
LCS - % Recovery						
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	%	78		70-130	Pass	
TRH C10-C14	%	84		70-130	Pass	
LCS - % Recovery						
BTEX						
Benzene	%	107		70-130	Pass	
Toluene	%	98		70-130	Pass	
Ethylbenzene	%	96		70-130	Pass	
m&p-Xylenes	%	96		70-130	Pass	
o-Xylene	%	104		70-130	Pass	
Xylenes - Total	%	99		70-130	Pass	
LCS - % Recovery						
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene	%	106		70-130	Pass	
TRH C6-C10	%	104		70-130	Pass	
TRH >C10-C16	%	90		70-130	Pass	
LCS - % Recovery						
Polycyclic Aromatic Hydrocarbons						
Acenaphthene	%	119		70-130	Pass	
Acenaphthylene	%	116		70-130	Pass	
Anthracene	%	109		70-130	Pass	
Benz(a)anthracene	%	108		70-130	Pass	
Benzo(a)pyrene	%	107		70-130	Pass	
Benzo(b&j)fluoranthene	%	109		70-130	Pass	
Benzo(g,h,i)perylene	%	114		70-130	Pass	
Benzo(k)fluoranthene	%	116		70-130	Pass	
Chrysene	%	114		70-130	Pass	
Dibenz(a,h)anthracene	%	120		70-130	Pass	
Fluoranthene	%	109		70-130	Pass	
Fluorene	%	121		70-130	Pass	
Indeno(1,2,3-cd)pyrene	%	119		70-130	Pass	
Naphthalene	%	116		70-130	Pass	
Phenanthrene	%	111		70-130	Pass	
Pyrene	%	108		70-130	Pass	
LCS - % Recovery						
Organochlorine Pesticides						
Chlordanes - Total	%	85		70-130	Pass	
4,4'-DDD	%	96		70-130	Pass	
4,4'-DDE	%	85		70-130	Pass	
4,4'-DDT	%	93		70-130	Pass	
a-BHC	%	89		70-130	Pass	
Aldrin	%	81		70-130	Pass	
b-BHC	%	103		70-130	Pass	
d-BHC	%	102		70-130	Pass	
Dieldrin	%	86		70-130	Pass	
Endosulfan I	%	84		70-130	Pass	
Endosulfan II	%	97		70-130	Pass	
Endosulfan sulphate	%	117		70-130	Pass	
Endrin	%	87		70-130	Pass	

Test	Units	Result 1	Acceptance Limits	Pass Limits	Qualifying Code		
Endrin aldehyde	%	96	70-130	Pass			
Endrin ketone	%	105	70-130	Pass			
g-BHC (Lindane)	%	91	70-130	Pass			
Heptachlor	%	82	70-130	Pass			
Heptachlor epoxide	%	85	70-130	Pass			
Hexachlorobenzene	%	71	70-130	Pass			
Methoxychlor	%	116	70-130	Pass			
LCS - % Recovery							
Polychlorinated Biphenyls (PCB)							
Aroclor-1260	%	110	70-130	Pass			
LCS - % Recovery							
Heavy Metals							
Arsenic	%	94	70-130	Pass			
Cadmium	%	78	70-130	Pass			
Chromium	%	98	70-130	Pass			
Copper	%	98	70-130	Pass			
Lead	%	99	70-130	Pass			
Mercury	%	85	70-130	Pass			
Nickel	%	102	70-130	Pass			
Zinc	%	100	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	S13-De16168	CP	%	92	70-130	Pass	
Spike - % Recovery							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1			
TRH >C10-C16	S13-De16168	CP	%	97	70-130	Pass	
Spike - % Recovery							
Polycyclic Aromatic Hydrocarbons				Result 1			
Acenaphthene	S13-De16168	CP	%	121	70-130	Pass	
Acenaphthylene	S13-De16168	CP	%	115	70-130	Pass	
Anthracene	S13-De16168	CP	%	110	70-130	Pass	
Benz(a)anthracene	S13-De16168	CP	%	105	70-130	Pass	
Benzo(a)pyrene	S13-De16168	CP	%	97	70-130	Pass	
Benzo(b&j)fluoranthene	S13-De16168	CP	%	97	70-130	Pass	
Benzo(g,h,i)perylene	S13-De16168	CP	%	105	70-130	Pass	
Benzo(k)fluoranthene	S13-De16168	CP	%	109	70-130	Pass	
Chrysene	S13-De16168	CP	%	104	70-130	Pass	
Dibenz(a,h)anthracene	S13-De16168	CP	%	121	70-130	Pass	
Fluoranthene	S13-De16168	CP	%	97	70-130	Pass	
Fluorene	S13-De16168	CP	%	123	70-130	Pass	
Indeno(1.2.3-cd)pyrene	S13-De16168	CP	%	113	70-130	Pass	
Naphthalene	S13-De16168	CP	%	107	70-130	Pass	
Phenanthrene	S13-De16168	CP	%	99	70-130	Pass	
Pyrene	S13-De16168	CP	%	97	70-130	Pass	
Spike - % Recovery							
Organochlorine Pesticides				Result 1			
Chlordanes - Total	S13-De15455	NCP	%	82	70-130	Pass	
4.4'-DDD	S13-De15455	NCP	%	109	70-130	Pass	
4.4'-DDE	S13-De15455	NCP	%	87	70-130	Pass	
4.4'-DDT	S13-De15455	NCP	%	88	70-130	Pass	
a-BHC	S13-De15455	NCP	%	90	70-130	Pass	
Aldrin	S13-De15455	NCP	%	84	70-130	Pass	
b-BHC	S13-De15455	NCP	%	105	70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1		Acceptance Limits	Pass Limits	Qualifying Code
d-BHC	S13-De15455	NCP	%	108		70-130	Pass	
Dieldrin	S13-De15455	NCP	%	83		70-130	Pass	
Endosulfan I	S13-De15455	NCP	%	84		70-130	Pass	
Endosulfan II	S13-De15455	NCP	%	88		70-130	Pass	
Endosulfan sulphate	S13-De15455	NCP	%	101		70-130	Pass	
Endrin	S13-De15455	NCP	%	79		70-130	Pass	
Endrin aldehyde	S13-De15455	NCP	%	85		70-130	Pass	
Endrin ketone	S13-De15455	NCP	%	88		70-130	Pass	
γ-BHC (Lindane)	S13-De15455	NCP	%	94		70-130	Pass	
Heptachlor	S13-De15455	NCP	%	76		70-130	Pass	
Heptachlor epoxide	S13-De15455	NCP	%	83		70-130	Pass	
Hexachlorobenzene	S13-De15455	NCP	%	77		70-130	Pass	
Methoxychlor	S13-De15455	NCP	%	88		70-130	Pass	
Spike - % Recovery								
Heavy Metals				Result 1				
Arsenic	S13-De16168	CP	%	98		70-130	Pass	
Cadmium	S13-De16168	CP	%	103		70-130	Pass	
Chromium	S13-De16168	CP	%	101		70-130	Pass	
Copper	S13-De16168	CP	%	102		70-130	Pass	
Lead	S13-De16168	CP	%	101		70-130	Pass	
Mercury	S13-De16168	CP	%	85		70-130	Pass	
Nickel	S13-De16168	CP	%	100		70-130	Pass	
Zinc	S13-De12884	NCP	%	104		70-130	Pass	
Spike - % Recovery								
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1				
TRH C6-C9	S13-De16175	CP	%	72		70-130	Pass	
Spike - % Recovery								
BTEX				Result 1				
Benzene	S13-De16175	CP	%	100		70-130	Pass	
Toluene	S13-De16175	CP	%	92		70-130	Pass	
Ethylbenzene	S13-De16175	CP	%	89		70-130	Pass	
m&p-Xylenes	S13-De16175	CP	%	89		70-130	Pass	
o-Xylene	S13-De16175	CP	%	97		70-130	Pass	
Xylenes - Total	S13-De16175	CP	%	91		70-130	Pass	
Spike - % Recovery								
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1				
Naphthalene	S13-De16175	CP	%	87		70-130	Pass	
TRH C6-C10	S13-De16175	CP	%	94		70-130	Pass	
Spike - % Recovery								
Polycyclic Aromatic Hydrocarbons				Result 1				
Acenaphthene	S13-De16189	CP	%	130		70-130	Pass	
Acenaphthylene	S13-De16189	CP	%	130		70-130	Pass	
Anthracene	S13-De16189	CP	%	126		70-130	Pass	
Benz(a)anthracene	S13-De16189	CP	%	123		70-130	Pass	
Benzo(a)pyrene	S13-De16189	CP	%	122		70-130	Pass	
Benzo(b&j)fluoranthene	S13-De16189	CP	%	125		70-130	Pass	
Benzo(g,h,i)perylene	S13-De16189	CP	%	125		70-130	Pass	
Benzo(k)fluoranthene	S13-De16189	CP	%	121		70-130	Pass	
Chrysene	S13-De16189	CP	%	129		70-130	Pass	
Dibenz(a,h)anthracene	S13-De16189	CP	%	130		70-130	Pass	
Fluoranthene	S13-De16189	CP	%	127		70-130	Pass	
Fluorene	S13-De16189	CP	%	130		70-130	Pass	
Indeno(1,2,3-cd)pyrene	S13-De16189	CP	%	128		70-130	Pass	
Naphthalene	S13-De16189	CP	%	128		70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Phenanthrene	S13-De16189	CP	%	119			70-130	Pass	
Pyrene	S13-De16189	CP	%	128			70-130	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Mercury	S13-De16192	CP	%	83			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1					
TRH C6-C9	S13-De16194	CP	%	85			70-130	Pass	
TRH C10-C14	S13-De16194	CP	%	102			70-130	Pass	
Spike - % Recovery									
BTEX				Result 1					
Benzene	S13-De16194	CP	%	100			70-130	Pass	
Toluene	S13-De16194	CP	%	91			70-130	Pass	
Ethylbenzene	S13-De16194	CP	%	89			70-130	Pass	
m&p-Xylenes	S13-De16194	CP	%	89			70-130	Pass	
o-Xylene	S13-De16194	CP	%	98			70-130	Pass	
Xylenes - Total	S13-De16194	CP	%	92			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1					
Naphthalene	S13-De16194	CP	%	73			70-130	Pass	
TRH C6-C10	S13-De16194	CP	%	94			70-130	Pass	
TRH >C10-C16	S13-De16194	CP	%	106			70-130	Pass	
Spike - % Recovery									
Polycyclic Aromatic Hydrocarbons				Result 1					
Acenaphthene	S13-De16194	CP	%	121			70-130	Pass	
Acenaphthylene	S13-De16194	CP	%	128			70-130	Pass	
Anthracene	S13-De16194	CP	%	122			70-130	Pass	
Benz(a)anthracene	S13-De16194	CP	%	114			70-130	Pass	
Benzo(a)pyrene	S13-De16194	CP	%	128			70-130	Pass	
Benzo(b&j)fluoranthene	S13-De16194	CP	%	83			70-130	Pass	
Benzo(g,h,i)perylene	S13-De16194	CP	%	119			70-130	Pass	
Benzo(k)fluoranthene	S13-De16194	CP	%	119			70-130	Pass	
Chrysene	S13-De16194	CP	%	128			70-130	Pass	
Dibenz(a,h)anthracene	S13-De16194	CP	%	117			70-130	Pass	
Fluoranthene	S13-De16194	CP	%	126			70-130	Pass	
Fluorene	S13-De16194	CP	%	120			70-130	Pass	
Indeno(1,2,3-cd)pyrene	S13-De16194	CP	%	120			70-130	Pass	
Naphthalene	S13-De16194	CP	%	117			70-130	Pass	
Phenanthrene	S13-De16194	CP	%	102			70-130	Pass	
Pyrene	S13-De16194	CP	%	125			70-130	Pass	
Spike - % Recovery									
Polychlorinated Biphenyls (PCB)				Result 1					
Aroclor-1260	S13-De16194	CP	%	103			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 C6-C9	S13-De16168	CP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH C10-C14	S13-De16168	CP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH C15-C28	S13-De16168	CP	mg/kg	< 50	< 50	<1	30%	Pass	
TRH C29-C36	S13-De16168	CP	mg/kg	< 50	< 50	<1	30%	Pass	

Duplicate								
BTEX				Result 1	Result 2	RPD		
Benzene	S13-De16168	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
Toluene	S13-De16168	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
Ethylbenzene	S13-De16168	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
m&p-Xylenes	S13-De16168	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
o-Xylene	S13-De16168	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
Xylenes - Total	S13-De16168	CP	mg/kg	< 0.3	< 0.3	<1	30%	Pass
Duplicate								
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD		
Naphthalene	S13-De16168	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
TRH C6-C10	S13-De16168	CP	mg/kg	< 20	< 20	<1	30%	Pass
TRH C6-C10 less BTEX (F1)	S13-De16168	CP	mg/kg	< 20	< 20	<1	30%	Pass
TRH >C10-C16	S13-De16168	CP	mg/kg	< 50	< 50	<1	30%	Pass
TRH >C16-C34	S13-De16168	CP	mg/kg	< 100	< 100	<1	30%	Pass
TRH >C34-C40	S13-De16168	CP	mg/kg	< 100	< 100	<1	30%	Pass
Duplicate								
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD		
Acenaphthene	S13-De16168	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Acenaphthylene	S13-De16168	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Anthracene	S13-De16168	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Benz(a)anthracene	S13-De16168	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Benzo(a)pyrene	S13-De16168	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Benzo(b&j)fluoranthene	S13-De16168	CP	mg/kg	0.5	< 0.5	32	30%	Fail Q15
Benzo(g,h,i)perylene	S13-De16168	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Benzo(k)fluoranthene	S13-De16168	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Chrysene	S13-De16168	CP	mg/kg	0.5	< 0.5	22	30%	Pass
Dibenz(a,h)anthracene	S13-De16168	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Fluoranthene	S13-De16168	CP	mg/kg	1.2	1.0	20	30%	Pass
Fluorene	S13-De16168	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Indeno(1,2,3-cd)pyrene	S13-De16168	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Naphthalene	S13-De16168	CP	mg/kg	0.7	< 0.5	32	30%	Fail Q15
Phenanthrene	S13-De16168	CP	mg/kg	1.3	1.0	22	30%	Pass
Pyrene	S13-De16168	CP	mg/kg	1.1	0.9	21	30%	Pass
Duplicate								
Heavy Metals				Result 1	Result 2	RPD		
Arsenic	S13-De16168	CP	mg/kg	40	33	21	30%	Pass
Cadmium	S13-De16168	CP	mg/kg	1.9	1.9	3.0	30%	Pass
Chromium	S13-De12884	NCP	mg/kg	< 5	< 5	<1	30%	Pass
Copper	S13-De12884	NCP	mg/kg	15	14	6.0	30%	Pass
Lead	S13-De16168	CP	mg/kg	74	70	6.0	30%	Pass
Mercury	S13-De16168	CP	mg/kg	0.06	0.06	1.0	30%	Pass
Nickel	S13-De16168	CP	mg/kg	19	23	19	30%	Pass
Zinc	S13-De12884	NCP	mg/kg	26	23	12	30%	Pass
Duplicate								
Acidity Trail				Result 1	Result 2	RPD		
Acid trail - Titratable Actual Acidity	S13-De16173	CP	mol H+/t	< 2	< 2	<1	30%	Pass
Acid trail - Titratable Peroxide Acidity	S13-De16173	CP	mol H+/t	< 2	< 2	<1	30%	Pass
sulfidic - Titratable Actual Acidity	S13-De16173	CP	% pyrite S	< 0.02	< 0.02	<1	30%	Pass
sulfidic - Titratable Peroxide Acidity	S13-De16173	CP	% pyrite S	< 0.02	< 0.02	<1	30%	Pass
sulfidic - Titratable Sulfidic Acidity	S13-De16173	CP	% pyrite S	< 0.02	< 0.02	<1	30%	Pass
Duplicate								
Sulfur Trail				Result 1	Result 2	RPD		
Sulfur - KCl Extractable	S13-De16173	CP	% S	< 0.02	< 0.02	<1	30%	Pass
Sulfur - Peroxide	S13-De16173	CP	% S	< 0.02	< 0.02	<1	30%	Pass
Sulfur - Peroxide Oxidisable Sulfur	S13-De16173	CP	% S	< 0.02	< 0.02	<1	30%	Pass

Duplicate								
Calcium Values				Result 1	Result 2	RPD		
Acid Reacted Calcium	S13-De16173	CP	% Ca	< 0.02	< 0.02	<1	30%	Pass
acidity - Acid Reacted Calcium	S13-De16173	CP	mol H+/t	< 10	< 10	<1	30%	Pass
Calcium - KCl Extractable	S13-De16173	CP	% Ca	< 0.02	< 0.02	<1	30%	Pass
Calcium - Peroxide	S13-De16173	CP	% Ca	< 0.02	< 0.02	<1	30%	Pass
sulfidic - Acid Reacted Calcium	S13-De16173	CP	% S	< 0.02	< 0.02	<1	30%	Pass
Duplicate								
Magnesium Values				Result 1	Result 2	RPD		
Acid Reacted Magnesium	S13-De16173	CP	% Mg	< 0.02	< 0.02	<1	30%	Pass
acidity - Acid Reacted Magnesium	S13-De16173	CP	mol H+/t	< 10	< 10	<1	30%	Pass
Magnesium - KCl Extractable	S13-De16173	CP	% Mg	< 0.02	< 0.02	<1	30%	Pass
Magnesium - Peroxide	S13-De16173	CP	% Mg	< 0.02	< 0.02	<1	30%	Pass
sulfidic - Acid Reacted Magnesium	S13-De16173	CP	% S	< 0.02	< 0.02	<1	30%	Pass
Duplicate								
Heavy Metals				Result 1	Result 2	RPD		
Mercury	S13-De16192	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Duplicate								
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1	Result 2	RPD		
TRH C6-C9	S13-De16194	CP	mg/kg	< 20	< 20	<1	30%	Pass
TRH C10-C14	S13-De16194	CP	mg/kg	< 20	< 20	<1	30%	Pass
TRH C15-C28	S13-De16194	CP	mg/kg	< 50	< 50	<1	30%	Pass
TRH C29-C36	S13-De16194	CP	mg/kg	< 50	< 50	<1	30%	Pass
Duplicate								
BTEX				Result 1	Result 2	RPD		
Benzene	S13-De16194	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
Toluene	S13-De16194	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
Ethylbenzene	S13-De16194	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
m&p-Xylenes	S13-De16194	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
o-Xylene	S13-De16194	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
Xylenes - Total	S13-De16194	CP	mg/kg	< 0.3	< 0.3	<1	30%	Pass
Duplicate								
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD		
Naphthalene	S13-De16194	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
TRH C6-C10	S13-De16194	CP	mg/kg	< 20	< 20	<1	30%	Pass
TRH C6-C10 less BTEX (F1)	S13-De16194	CP	mg/kg	< 20	< 20	<1	30%	Pass
TRH >C10-C16	S13-De16194	CP	mg/kg	< 50	< 50	<1	30%	Pass
TRH >C16-C34	S13-De16194	CP	mg/kg	< 100	< 100	<1	30%	Pass
TRH >C34-C40	S13-De16194	CP	mg/kg	< 100	< 100	<1	30%	Pass
Duplicate								
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD		
Acenaphthene	S13-De16194	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Acenaphthylene	S13-De16194	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Anthracene	S13-De16194	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Benz(a)anthracene	S13-De16194	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Benzo(a)pyrene	S13-De16194	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Benzo(b&j)fluoranthene	S13-De16194	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Benzo(g,h,i)perylene	S13-De16194	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Benzo(k)fluoranthene	S13-De16194	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Chrysene	S13-De16194	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Dibenz(a,h)anthracene	S13-De16194	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Fluoranthene	S13-De16194	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Fluorene	S13-De16194	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Indeno(1,2,3-cd)pyrene	S13-De16194	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Naphthalene	S13-De16194	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Phenanthrene	S13-De16194	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Pyrene	S13-De16194	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass

Duplicate								
Organochlorine Pesticides				Result 1	Result 2	RPD		
Chlordanes - Total	S13-De16194	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
4,4'-DDD	S13-De16194	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
4,4'-DDE	S13-De16194	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
4,4'-DDT	S13-De16194	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
a-BHC	S13-De16194	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Aldrin	S13-De16194	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
b-BHC	S13-De16194	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
d-BHC	S13-De16194	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Dieldrin	S13-De16194	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Endosulfan I	S13-De16194	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Endosulfan II	S13-De16194	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Endosulfan sulphate	S13-De16194	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Endrin	S13-De16194	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Endrin aldehyde	S13-De16194	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Endrin ketone	S13-De16194	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
g-BHC (Lindane)	S13-De16194	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Heptachlor	S13-De16194	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Heptachlor epoxide	S13-De16194	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Hexachlorobenzene	S13-De16194	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Methoxychlor	S13-De16194	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Toxaphene	S13-De16194	CP	mg/kg	< 1	< 1	<1	30%	Pass
Duplicate								
Polychlorinated Biphenyls (PCB)				Result 1	Result 2	RPD		
Aroclor-1016	S13-De16194	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Aroclor-1232	S13-De16194	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Aroclor-1242	S13-De16194	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Aroclor-1248	S13-De16194	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Aroclor-1254	S13-De16194	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Aroclor-1260	S13-De16194	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass

Comments
Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	Yes
Sample correctly preserved	Yes
Organic samples had Teflon liners	Yes
Sample containers for volatile analysis received with minimal headspace	Yes
Samples received within HoldingTime	No
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

Jean Heng	Client Services
Glenn Jackson	Senior Analyst-SPOCAS (VIC)
James Norford	Senior Analyst-Metal (NSW)
Ryan Hamilton	Senior Analyst-Organic (NSW)
Ryan Hamilton	Senior Analyst-Volatile (NSW)


Dr. Bob Symons
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

JBS & G (NSW & WA) Pty Ltd
Level 1, 50 Margaret St
Sydney
NSW 2000



NATA Accredited
Accreditation Number 1261
Site Number 18217

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

Attention: **Thomas Harding**

Report **403894-L**
 Client Reference **WEST CONNEX 43069**
 Received Date **Dec 17, 2013**

Client Sample ID			BH44 0.0-0.3
Sample Matrix			TCLP
Eurofins mgt Sample No.			S13-De16532
Date Sampled			Dec 13, 2013
Test/Reference	LOR	Unit	
Polycyclic Aromatic Hydrocarbons			
Acenaphthene	0.001	mg/L	0.005
Acenaphthylene	0.001	mg/L	0.004
Anthracene	0.001	mg/L	< 0.001
Benzo(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	0.005
Indeno(1.2.3-cd)pyrene	0.001	mg/L	< 0.001
Naphthalene	0.001	mg/L	0.017
Phenanthrene	0.001	mg/L	0.004
Pyrene	0.001	mg/L	< 0.001
Total PAH	0.002	mg/L	0.035
2-Fluorobiphenyl (surr.)	1	%	93
p-Terphenyl-d14 (surr.)	1	%	115
Heavy Metals			
Arsenic	0.01	mg/L	< 0.01
Cadmium	0.005	mg/L	< 0.005
Chromium	0.05	mg/L	< 0.05
Copper	0.05	mg/L	< 0.05
Lead	0.01	mg/L	0.04
Nickel	0.05	mg/L	0.06
Zinc	0.05	mg/L	0.19
% Moisture			
	0.1	%	5.8
Toxicity Characteristic Leaching Procedure (TCLP)			
Leachate Fluid ^{C01}		comment	1.0
pH (TCLP - HCl addition)	0.1	units	1.8
pH (TCLP - initial)	0.1	units	8.5
pH (TCLP - off)	0.1	units	5.3

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
Polycyclic Aromatic Hydrocarbons - Method: E007 Polycyclic Aromatic Hydrocarbons (PAH)	Sydney	Dec 18, 2013	7 Day
Metals M7 - Method: E022 Acid Extractable metals in Soils	Sydney	Dec 18, 2013	180 Day
% Moisture - Method: E005 Moisture Content	Sydney	Dec 19, 2013	0 Day
Toxicity Characteristic Leaching Procedure (TCLP) - Method: E019 TCLP Preparation	Sydney	Dec 18, 2013	0 Day

Company Name: JBS & G (NSW & WA) Pty Ltd	Order No.:	Received: Dec 17, 2013 2:45 PM
Address: Level 1, 50 Margaret St Sydney NSW 2000	Report #: 403894	Due: Dec 24, 2013
	Phone: 02 8245 0300	Priority: 5 Day
Client Job No.: WEST CONNEX 43069	Fax:	Contact Name: Thomas Harding

Eurofins | mgt Client Manager: Jean Heng

Sample Detail					% Moisture	% Moisture	HOLD	Phenolics (total)	TRH C6-C9	Polycyclic Aromatic Hydrocarbons	Organochlorine Pesticides	SPOCAS (Acid Sulphate Soils)	Toxicity Characteristic Leaching Procedure (TCLP)	Metals M8	Metals M8 filtered	BTEX	Polychlorinated Biphenyls (PCB)	Total Recoverable Hydrocarbons	JBS&G Leachate Suite	JBS&G Suite 2	
Laboratory where analysis is conducted																					
Melbourne Laboratory - NATA Site # 1254 & 14271					X							X									
Sydney Laboratory - NATA Site # 18217						X	X	X	X	X	X	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																	
BH44 0.0-0.3	Dec 13, 2013		Soil	S13-De16168	X				X	X				X		X	X	X			
BH44 1.0-1.3	Dec 13, 2013		Soil	S13-De16169		X															
BH44 2.0-2.3	Dec 13, 2013		Soil	S13-De16170	X									X							
BH44 3.0-3.3	Dec 13, 2013		Soil	S13-De16171			X														
BH44 4.5-4.8	Dec 13, 2013		Soil	S13-De16172			X														
BH44 5.5-5.8	Dec 13, 2013		Soil	S13-De16173	X							X									
BH44 6.3-6.5	Dec 13, 2013		Soil	S13-De16174			X														
BH45 1.1-1.3	Dec 13, 2013		Soil	S13-De16175	X				X					X		X		X			
BH45 2.1-2.3	Dec 13, 2013		Soil	S13-De16176			X														
BH45 2.8-3.1	Dec 13, 2013		Soil	S13-De16177			X														

Company Name: JBS & G (NSW & WA) Pty Ltd	Order No.:	Received: Dec 17, 2013 2:45 PM
Address: Level 1, 50 Margaret St Sydney NSW 2000	Report #: 403894	Due: Dec 24, 2013
Client Job No.: WEST CONNEX 43069	Phone: 02 8245 0300	Priority: 5 Day
	Fax:	Contact Name: Thomas Harding

Eurofins | mgt Client Manager: Jean Heng

Sample Detail					% Moisture	% Moisture	HOLD	Phenolics (total)	TRH C6-C9	Polycyclic Aromatic Hydrocarbons	Organochlorine Pesticides	SPOCAS (Acid Sulphate Soils)	Toxicity Characteristic Leaching Procedure (TCLP)	Metals M8	Metals M8 filtered	BTEX	Polychlorinated Biphenyls (PCB)	Total Recoverable Hydrocarbons	JBS&G Leachate Suite	JBS&G Suite 2
Laboratory where analysis is conducted																				
Melbourne Laboratory - NATA Site # 1254 & 14271					X							X								
Sydney Laboratory - NATA Site # 18217						X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Brisbane Laboratory - NATA Site # 20794																				
External Laboratory																				
BH46 0.0-0.3	Dec 13, 2013		Soil	S13-De16178			X													
BH46 0.8-1.0	Dec 13, 2013		Soil	S13-De16179			X													
BH47 0.0-0.3	Dec 13, 2013		Soil	S13-De16180		X			X					X		X		X		
BH47 1.0-1.3	Dec 13, 2013		Soil	S13-De16181			X													
BH47 2.0-2.3	Dec 13, 2013		Soil	S13-De16182			X													
BH48 0.0-0.3	Dec 13, 2013		Soil	S13-De16183		X				X				X			X			
BH48 1.3-1.5	Dec 13, 2013		Soil	S13-De16184			X													
BH45 0.0-0.3	Dec 13, 2013		Soil	S13-De16185			X													
BH49 0.0-0.2	Dec 13, 2013		Soil	S13-De16186		X														X
BH50 0.0-0.2	Dec 16, 2013		Soil	S13-De16187		X														X
BH51 0.0-0.2	Dec 16, 2013		Soil	S13-De16188		X														X

Company Name: JBS & G (NSW & WA) Pty Ltd Address: Level 1, 50 Margaret St Sydney NSW 2000 Client Job No.: WEST CONNEX 43069	Order No.: Report #: 403894 Phone: 02 8245 0300 Fax:	Received: Dec 17, 2013 2:45 PM Due: Dec 24, 2013 Priority: 5 Day Contact Name: Thomas Harding
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Eurofins | mgt Client Manager: Jean Heng

Sample Detail					% Moisture	% Moisture	HOLD	Phenolics (total)	TRH C6-C9	Polycyclic Aromatic Hydrocarbons	Organochlorine Pesticides	SPOCAS (Acid Sulphate Soils)	Toxicity Characteristic Leaching Procedure (TCLP)	Metals M8	Metals M8 filtered	BTEX	Polychlorinated Biphenyls (PCB)	Total Recoverable Hydrocarbons	JBS&G Leachate Suite	JBS&G Suite 2
Laboratory where analysis is conducted																				
Melbourne Laboratory - NATA Site # 1254 & 14271					X							X								
Sydney Laboratory - NATA Site # 18217						X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Brisbane Laboratory - NATA Site # 20794																				
External Laboratory																				
BH52 0.0-0.2	Dec 16, 2013		Soil	S13-De16189	X															X
BH53 0.0-0.2	Dec 16, 2013		Soil	S13-De16190	X															X
BH54 0.0-0.2	Dec 16, 2013		Soil	S13-De16191	X															X
BH55 0.0-0.2	Dec 16, 2013		Soil	S13-De16192	X															X
QC04	Dec 13, 2013		Soil	S13-De16193			X													
QC05	Dec 16, 2013		Soil	S13-De16194	X															X
MW1	Dec 16, 2013		Water	S13-De16195				X		X				X	X			X		
RINSATE	Dec 16, 2013		Water	S13-De16196						X	X				X	X	X	X		
TRIP SPIKE	Dec 16, 2013		Water	S13-De16197					X							X				
TRIP BLANK	Dec 16, 2013		Water	S13-De16198					X							X				
BH44 0.0-0.3	Dec 13, 2013		TCLP	S13-De16532	X								X						X	

Company Name: JBS & G (NSW & WA) Pty Ltd Address: Level 1, 50 Margaret St Sydney NSW 2000 Client Job No.: WEST CONNEX 43069	Order No.: Report #: 403894 Phone: 02 8245 0300 Fax:	Received: Dec 17, 2013 2:45 PM Due: Dec 24, 2013 Priority: 5 Day Contact Name: Thomas Harding
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Eurofins | mgt Client Manager: Jean Heng

Sample Detail					% Moisture	% Moisture	HOLD	Phenolics (total)	TRH C6-C9	Polycyclic Aromatic Hydrocarbons	Organochlorine Pesticides	SPOCAS (Acid Sulphate Soils)	Toxicity Characteristic Leaching Procedure (TCLP)	Metals M8	Metals M8 filtered	BTEX	Polychlorinated Biphenyls (PCB)	Total Recoverable Hydrocarbons	JBS&G Leachate Suite	JBS&G Suite 2
Laboratory where analysis is conducted																				
Melbourne Laboratory - NATA Site # 1254 & 14271					X							X								
Sydney Laboratory - NATA Site # 18217						X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Brisbane Laboratory - NATA Site # 20794																				
External Laboratory																				
BH48 0.0-0.3	Dec 13, 2013		Water	S13-De19000			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 PQLs are matrix dependant. Quoted PQLs 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 Acknowledgment.

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: 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			Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
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	< 0.01			0.01	Pass	
Cadmium			mg/L	< 0.005			0.005	Pass	
Chromium			mg/L	< 0.05			0.05	Pass	
Copper			mg/L	< 0.05			0.05	Pass	
Lead			mg/L	< 0.01			0.01	Pass	
Nickel			mg/L	< 0.05			0.05	Pass	
Zinc			mg/L	< 0.05			0.05	Pass	
Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery									
Heavy Metals									
				Result 1					
Arsenic	S13-De12902	NCP	%	87			70-130	Pass	
Cadmium	S13-De12902	NCP	%	92			70-130	Pass	
Chromium	S13-De12902	NCP	%	87			70-130	Pass	
Copper	S13-De12902	NCP	%	84			70-130	Pass	
Lead	S13-De12902	NCP	%	91			70-130	Pass	
Nickel	S13-De12902	NCP	%	81			70-130	Pass	
Zinc	S13-De12902	NCP	%	82			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	S13-De12901	NCP	mg/L	< 0.01	< 0.01	<1	30%	Pass	
Cadmium	S13-De12901	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Chromium	S13-De12901	NCP	mg/L	< 0.05	< 0.05	<1	30%	Pass	
Copper	S13-De12901	NCP	mg/L	< 0.05	< 0.05	<1	30%	Pass	
Lead	S13-De12901	NCP	mg/L	< 0.01	< 0.01	<1	30%	Pass	
Nickel	S13-De12901	NCP	mg/L	< 0.05	< 0.05	<1	30%	Pass	
Zinc	S13-De12901	NCP	mg/L	< 0.05	< 0.05	<1	30%	Pass	

Comments
Sample Integrity

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

Qualifier Codes/Comments

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

Authorised By

Jean Heng	Client Services
James Norford	Senior Analyst-Metal (NSW)
Ryan Hamilton	Senior Analyst-Organic (NSW)


Dr. Bob Symons
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

JBS & G (NSW & WA) Pty Ltd
 Level 1, 50 Margaret St
 Sydney
 NSW 2000



NATA Accredited
 Accreditation Number 1261
 Site Number 18217

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

Attention: Thomas Harding

Report 403894-W
 Client Reference WEST CONNEX 43069
 Received Date Dec 17, 2013

Client Sample ID			MW1	RINSATE	TRIP SPIKE	TRIP BLANK
Sample Matrix			Water	Water	Water	Water
Eurofins mgt Sample No.			S13-De16195	S13-De16196	S13-De16197	S13-De16198
Date Sampled			Dec 16, 2013	Dec 16, 2013	Dec 16, 2013	Dec 16, 2013
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	0.02	mg/L	< 0.02	< 0.02	81%	< 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	114%	< 0.001
Toluene	0.001	mg/L	< 0.001	< 0.001	97%	< 0.001
Ethylbenzene	0.001	mg/L	< 0.001	< 0.001	92%	< 0.001
m&p-Xylenes	0.002	mg/L	< 0.002	< 0.002	98%	< 0.002
o-Xylene	0.001	mg/L	< 0.001	< 0.001	98%	< 0.001
Xylenes - Total	0.003	mg/L	< 0.003	< 0.003	98%	< 0.003
4-Bromofluorobenzene (surr.)	1	%	72	70	96	72
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene ^{N02}	0.02	mg/L	< 0.02	< 0.02	-	-
TRH C6-C10	0.02	mg/L	< 0.02	< 0.02	-	-
TRH C6-C10 less BTEX (F1) ^{N04}	0.02	mg/L	< 0.02	< 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	-	-
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	-	-

Client Sample ID Sample Matrix Eurofins mgt Sample No. Date Sampled Test/Reference	LOR	Unit	MW1 Water S13-De16195 Dec 16, 2013	RINSATE Water S13-De16196 Dec 16, 2013	TRIP SPIKE Water S13-De16197 Dec 16, 2013	TRIP BLANK Water S13-De16198 Dec 16, 2013
Polycyclic Aromatic Hydrocarbons						
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	%	72	114	-	-
p-Terphenyl-d14 (surr.)	1	%	74	128	-	-
Organochlorine Pesticides						
Chlordanes - Total	0.001	mg/L	-	< 0.001	-	-
4,4'-DDD	0.0001	mg/L	-	< 0.0001	-	-
4,4'-DDE	0.0001	mg/L	-	< 0.0001	-	-
4,4'-DDT	0.0001	mg/L	-	< 0.0001	-	-
a-BHC	0.0001	mg/L	-	< 0.0001	-	-
Aldrin	0.0001	mg/L	-	< 0.0001	-	-
b-BHC	0.0001	mg/L	-	< 0.0001	-	-
d-BHC	0.0001	mg/L	-	< 0.0001	-	-
Dieldrin	0.0001	mg/L	-	< 0.0001	-	-
Endosulfan I	0.0001	mg/L	-	< 0.0001	-	-
Endosulfan II	0.0001	mg/L	-	< 0.0001	-	-
Endosulfan sulphate	0.0001	mg/L	-	< 0.0001	-	-
Endrin	0.0001	mg/L	-	< 0.0001	-	-
Endrin aldehyde	0.0001	mg/L	-	< 0.0001	-	-
Endrin ketone	0.0001	mg/L	-	< 0.0001	-	-
g-BHC (Lindane)	0.0001	mg/L	-	< 0.0001	-	-
Heptachlor	0.0001	mg/L	-	< 0.0001	-	-
Heptachlor epoxide	0.0001	mg/L	-	< 0.0001	-	-
Hexachlorobenzene	0.0001	mg/L	-	< 0.0001	-	-
Methoxychlor	0.0001	mg/L	-	< 0.0001	-	-
Toxaphene	0.01	mg/L	-	< 0.01	-	-
Dibutylchloroendate (surr.)	1	%	-	111	-	-
Tetrachloro-m-xylene (surr.)	1	%	-	86	-	-
Polychlorinated Biphenyls (PCB)						
Aroclor-1016	0.005	mg/L	-	< 0.005	-	-
Aroclor-1232	0.005	mg/L	-	< 0.005	-	-
Aroclor-1242	0.005	mg/L	-	< 0.005	-	-
Aroclor-1248	0.005	mg/L	-	< 0.005	-	-
Aroclor-1254	0.005	mg/L	-	< 0.005	-	-
Aroclor-1260	0.005	mg/L	-	< 0.005	-	-
Total PCB	0.005	mg/L	-	< 0.005	-	-
Dibutylchloroendate (surr.)	1	%	-	111	-	-
Phenolics (total)						
Phenolics (total)	0.01	mg/L	< 0.01	-	-	-
Heavy Metals						
Arsenic (filtered)	0.001	mg/L	< 0.001	< 0.001	-	-
Cadmium (filtered)	0.0001	mg/L	< 0.0001	< 0.0001	-	-
Chromium (filtered)	0.001	mg/L	< 0.001	< 0.001	-	-
Copper (filtered)	0.001	mg/L	0.001	0.020	-	-
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	0.006	0.035	-	-

Sample History

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

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

Description	Testing Site	Extracted	Holding Time
Total Recoverable Hydrocarbons - 1999 NEPM Fractions - Method: E004 Petroleum Hydrocarbons (TPH)	Sydney	Dec 18, 2013	7 Day
BTEX - Method: E029/E016 BTEX	Sydney	Dec 17, 2013	14 Day
Total Recoverable Hydrocarbons - 2013 NEPM Fractions - Method: LM-LTM-ORG2010	Sydney	Dec 18, 2013	7 Day
Polycyclic Aromatic Hydrocarbons - Method: E007 Polyaromatic Hydrocarbons (PAH)	Sydney	Dec 18, 2013	7 Day
Organochlorine Pesticides - Method: E013 Organochlorine Pesticides (OC)	Sydney	Dec 18, 2013	7 Day
Polychlorinated Biphenyls (PCB) - Method: E013 Polychlorinated Biphenyls (PCB)	Sydney	Dec 18, 2013	7 Day
Phenolics (total) - Method: E041 /E055 Total Phenolics	Sydney	Dec 19, 2013	28 Day
Metals M8 filtered - Method: E020/E030 Filtered Metals in Water & E026 Mercury	Sydney	Dec 17, 2013	28 Day

Company Name: JBS & G (NSW & WA) Pty Ltd Address: Level 1, 50 Margaret St Sydney NSW 2000 Client Job No.: WEST CONNEX 43069	Order No.: Report #: 403894 Phone: 02 8245 0300 Fax:	Received: Dec 17, 2013 2:45 PM Due: Dec 24, 2013 Priority: 5 Day Contact Name: Thomas Harding
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Eurofins | mgt Client Manager: Jean Heng

Sample Detail					% Moisture	% Moisture	HOLD	Phenolics (total)	TRH C6-C9	Polycyclic Aromatic Hydrocarbons	Organochlorine Pesticides	SPOCAS (Acid Sulphate Soils)	Toxicity Characteristic Leaching Procedure (TCLP)	Metals M8	Metals M8 filtered	BTEX	Polychlorinated Biphenyls (PCB)	Total Recoverable Hydrocarbons	JBS&G Leachate Suite	JBS&G Suite 2	
Laboratory where analysis is conducted																					
Melbourne Laboratory - NATA Site # 1254 & 14271					X							X									
Sydney Laboratory - NATA Site # 18217						X	X	X	X	X	X	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																	
BH44 0.0-0.3	Dec 13, 2013		Soil	S13-De16168	X				X	X				X		X	X	X			
BH44 1.0-1.3	Dec 13, 2013		Soil	S13-De16169		X															
BH44 2.0-2.3	Dec 13, 2013		Soil	S13-De16170	X									X							
BH44 3.0-3.3	Dec 13, 2013		Soil	S13-De16171			X														
BH44 4.5-4.8	Dec 13, 2013		Soil	S13-De16172			X														
BH44 5.5-5.8	Dec 13, 2013		Soil	S13-De16173	X							X									
BH44 6.3-6.5	Dec 13, 2013		Soil	S13-De16174			X														
BH45 1.1-1.3	Dec 13, 2013		Soil	S13-De16175	X				X					X		X		X			
BH45 2.1-2.3	Dec 13, 2013		Soil	S13-De16176			X														
BH45 2.8-3.1	Dec 13, 2013		Soil	S13-De16177			X														

Company Name: JBS & G (NSW & WA) Pty Ltd Address: Level 1, 50 Margaret St Sydney NSW 2000 Client Job No.: WEST CONNEX 43069	Order No.: Report #: 403894 Phone: 02 8245 0300 Fax:	Received: Dec 17, 2013 2:45 PM Due: Dec 24, 2013 Priority: 5 Day Contact Name: Thomas Harding
Eurofins mgt Client Manager: Jean Heng		

Sample Detail					% Moisture	% Moisture	HOLD	Phenolics (total)	TRH C6-C9	Polycyclic Aromatic Hydrocarbons	Organochlorine Pesticides	SPOCAS (Acid Sulphate Soils)	Toxicity Characteristic Leaching Procedure (TCLP)	Metals M8	Metals M8 filtered	BTEX	Polychlorinated Biphenyls (PCB)	Total Recoverable Hydrocarbons	JBS&G Leachate Suite	JBS&G Suite 2
Laboratory where analysis is conducted																				
Melbourne Laboratory - NATA Site # 1254 & 14271					X							X								
Sydney Laboratory - NATA Site # 18217						X	X	X	X	X	X	X	X	X	X	X	X	X	X	
Brisbane Laboratory - NATA Site # 20794																				
External Laboratory																				
BH46 0.0-0.3	Dec 13, 2013		Soil	S13-De16178			X													
BH46 0.8-1.0	Dec 13, 2013		Soil	S13-De16179			X													
BH47 0.0-0.3	Dec 13, 2013		Soil	S13-De16180		X				X				X		X		X		
BH47 1.0-1.3	Dec 13, 2013		Soil	S13-De16181			X													
BH47 2.0-2.3	Dec 13, 2013		Soil	S13-De16182			X													
BH48 0.0-0.3	Dec 13, 2013		Soil	S13-De16183		X					X			X			X			
BH48 1.3-1.5	Dec 13, 2013		Soil	S13-De16184			X													
BH45 0.0-0.3	Dec 13, 2013		Soil	S13-De16185			X													
BH49 0.0-0.2	Dec 13, 2013		Soil	S13-De16186		X														X
BH50 0.0-0.2	Dec 16, 2013		Soil	S13-De16187		X														X
BH51 0.0-0.2	Dec 16, 2013		Soil	S13-De16188		X														X

Company Name: JBS & G (NSW & WA) Pty Ltd	Order No.:	Received: Dec 17, 2013 2:45 PM
Address: Level 1, 50 Margaret St Sydney NSW 2000	Report #: 403894	Due: Dec 24, 2013
	Phone: 02 8245 0300	Priority: 5 Day
Client Job No.: WEST CONNEX 43069	Fax:	Contact Name: Thomas Harding

Eurofins | mgt Client Manager: Jean Heng

Sample Detail					% Moisture	% Moisture	HOLD	Phenolics (total)	TRH C6-C9	Polycyclic Aromatic Hydrocarbons	Organochlorine Pesticides	SPOCAS (Acid Sulphate Soils)	Toxicity Characteristic Leaching Procedure (TCLP)	Metals M8	Metals M8 filtered	BTEX	Polychlorinated Biphenyls (PCB)	Total Recoverable Hydrocarbons	JBS&G Leachate Suite	JBS&G Suite 2
Laboratory where analysis is conducted																				
Melbourne Laboratory - NATA Site # 1254 & 14271					X							X								
Sydney Laboratory - NATA Site # 18217						X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Brisbane Laboratory - NATA Site # 20794																				
External Laboratory																				
BH52 0.0-0.2	Dec 16, 2013		Soil	S13-De16189	X															X
BH53 0.0-0.2	Dec 16, 2013		Soil	S13-De16190	X															X
BH54 0.0-0.2	Dec 16, 2013		Soil	S13-De16191	X															X
BH55 0.0-0.2	Dec 16, 2013		Soil	S13-De16192	X															X
QC04	Dec 13, 2013		Soil	S13-De16193			X													
QC05	Dec 16, 2013		Soil	S13-De16194	X															X
MW1	Dec 16, 2013		Water	S13-De16195				X	X					X	X		X			
RINSATE	Dec 16, 2013		Water	S13-De16196					X	X				X	X	X	X			
TRIP SPIKE	Dec 16, 2013		Water	S13-De16197					X						X					
TRIP BLANK	Dec 16, 2013		Water	S13-De16198					X						X					
BH44 0.0-0.3	Dec 13, 2013		TCLP	S13-De16532	X							X							X	

Company Name: JBS & G (NSW & WA) Pty Ltd Address: Level 1, 50 Margaret St Sydney NSW 2000 Client Job No.: WEST CONNEX 43069	Order No.: Report #: 403894 Phone: 02 8245 0300 Fax:	Received: Dec 17, 2013 2:45 PM Due: Dec 24, 2013 Priority: 5 Day Contact Name: Thomas Harding
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Eurofins | mgt Client Manager: Jean Heng

Sample Detail					% Moisture	% Moisture	HOLD	Phenolics (total)	TRH C6-C9	Polycyclic Aromatic Hydrocarbons	Organochlorine Pesticides	SPOCAS (Acid Sulphate Soils)	Toxicity Characteristic Leaching Procedure (TCLP)	Metals M8	Metals M8 filtered	BTEX	Polychlorinated Biphenyls (PCB)	Total Recoverable Hydrocarbons	JBS&G Leachate Suite	JBS&G Suite 2	
Laboratory where analysis is conducted																					
Melbourne Laboratory - NATA Site # 1254 & 14271					X							X									
Sydney Laboratory - NATA Site # 18217						X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Brisbane Laboratory - NATA Site # 20794																					
External Laboratory																					
BH48 0.0-0.3	Dec 13, 2013		Water	S13-De19000			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 PQLs are matrix dependant. Quoted PQLs 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 Acknowledgment.

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: 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	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							
Organochlorine Pesticides							
Chlordanes - Total	mg/L	< 0.001			0.001	Pass	
4,4'-DDD	mg/L	< 0.0001			0.0001	Pass	
4,4'-DDE	mg/L	< 0.0001			0.0001	Pass	
4,4'-DDT	mg/L	< 0.0001			0.0001	Pass	
a-BHC	mg/L	< 0.0001			0.0001	Pass	
Aldrin	mg/L	< 0.0001			0.0001	Pass	
b-BHC	mg/L	< 0.0001			0.0001	Pass	
d-BHC	mg/L	< 0.0001			0.0001	Pass	
Dieldrin	mg/L	< 0.0001			0.0001	Pass	
Endosulfan I	mg/L	< 0.0001			0.0001	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Endosulfan II	mg/L	< 0.0001			0.0001	Pass	
Endosulfan sulphate	mg/L	< 0.0001			0.0001	Pass	
Endrin	mg/L	< 0.0001			0.0001	Pass	
Endrin aldehyde	mg/L	< 0.0001			0.0001	Pass	
Endrin ketone	mg/L	< 0.0001			0.0001	Pass	
g-BHC (Lindane)	mg/L	< 0.0001			0.0001	Pass	
Heptachlor	mg/L	< 0.0001			0.0001	Pass	
Heptachlor epoxide	mg/L	< 0.0001			0.0001	Pass	
Hexachlorobenzene	mg/L	< 0.0001			0.0001	Pass	
Methoxychlor	mg/L	< 0.0001			0.0001	Pass	
Toxaphene	mg/L	< 0.01			0.01	Pass	
Method Blank							
Polychlorinated Biphenyls (PCB)							
Aroclor-1016	mg/L	< 0.005			0.005	Pass	
Aroclor-1232	mg/L	< 0.005			0.005	Pass	
Aroclor-1242	mg/L	< 0.005			0.005	Pass	
Aroclor-1248	mg/L	< 0.005			0.005	Pass	
Aroclor-1254	mg/L	< 0.005			0.005	Pass	
Aroclor-1260	mg/L	< 0.005			0.005	Pass	
Total PCB	mg/L	< 0.005			0.005	Pass	
Method Blank							
Phenolics (total)	mg/L	< 0.01			0.01	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	
Zinc (filtered)	mg/L	< 0.005			0.005	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	%	93			70-130	Pass	
TRH C10-C14	%	113			70-130	Pass	
LCS - % Recovery							
BTEX							
Benzene	%	117			70-130	Pass	
Toluene	%	97			70-130	Pass	
Ethylbenzene	%	94			70-130	Pass	
m&p-Xylenes	%	94			70-130	Pass	
o-Xylene	%	97			70-130	Pass	
Xylenes - Total	%	95			70-130	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	%	88			70-130	Pass	
TRH C6-C10	%	104			70-130	Pass	
TRH >C10-C16	%	119			70-130	Pass	
LCS - % Recovery							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	%	125			70-130	Pass	
Acenaphthylene	%	124			70-130	Pass	
Anthracene	%	121			70-130	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Benz(a)anthracene	%	120			70-130	Pass	
Benzo(a)pyrene	%	130			70-130	Pass	
Benzo(b&j)fluoranthene	%	121			70-130	Pass	
Benzo(g,h,i)perylene	%	112			70-130	Pass	
Benzo(k)fluoranthene	%	128			70-130	Pass	
Chrysene	%	125			70-130	Pass	
Dibenz(a,h)anthracene	%	106			70-130	Pass	
Fluoranthene	%	124			70-130	Pass	
Fluorene	%	128			70-130	Pass	
Indeno(1,2,3-cd)pyrene	%	117			70-130	Pass	
Naphthalene	%	124			70-130	Pass	
Phenanthrene	%	121			70-130	Pass	
Pyrene	%	128			70-130	Pass	
LCS - % Recovery							
Organochlorine Pesticides							
Chlordanes - Total	%	90			70-130	Pass	
4,4'-DDE	%	80			70-130	Pass	
4,4'-DDT	%	70			70-130	Pass	
a-BHC	%	90			70-130	Pass	
Aldrin	%	90			70-130	Pass	
b-BHC	%	100			70-130	Pass	
d-BHC	%	90			70-130	Pass	
Dieldrin	%	90			70-130	Pass	
Endosulfan I	%	90			70-130	Pass	
Endosulfan II	%	100			70-130	Pass	
Endosulfan sulphate	%	90			70-130	Pass	
Endrin	%	90			70-130	Pass	
Endrin aldehyde	%	90			70-130	Pass	
Endrin ketone	%	90			70-130	Pass	
g-BHC (Lindane)	%	90			70-130	Pass	
Heptachlor	%	90			70-130	Pass	
Heptachlor epoxide	%	90			70-130	Pass	
Hexachlorobenzene	%	90			70-130	Pass	
Methoxychlor	%	70			70-130	Pass	
LCS - % Recovery							
Polychlorinated Biphenyls (PCB)							
Aroclor-1260	%	89			70-130	Pass	
LCS - % Recovery							
Phenolics (total)	%	85			70-130	Pass	
LCS - % Recovery							
Heavy Metals							
Arsenic (filtered)	%	94			70-130	Pass	
Cadmium (filtered)	%	97			70-130	Pass	
Chromium (filtered)	%	99			70-130	Pass	
Copper (filtered)	%	98			70-130	Pass	
Lead (filtered)	%	95			70-130	Pass	
Mercury (filtered)	%	93			70-130	Pass	
Nickel (filtered)	%	98			70-130	Pass	
Zinc (filtered)	%	97			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1					
TRH C6-C9	S13-De18773	NCP	%	89			70-130	Pass	
TRH C10-C14	S13-De14547	NCP	%	85			70-130	Pass	
Spike - % Recovery									
BTEX				Result 1					
Benzene	S13-De18773	NCP	%	106			70-130	Pass	
Toluene	S13-De18773	NCP	%	100			70-130	Pass	
Ethylbenzene	S13-De18773	NCP	%	97			70-130	Pass	
m&p-Xylenes	S13-De18773	NCP	%	105			70-130	Pass	
o-Xylene	S13-De18773	NCP	%	103			70-130	Pass	
Xylenes - Total	S13-De18773	NCP	%	104			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1					
Naphthalene	S13-De18773	NCP	%	103			70-130	Pass	
TRH C6-C10	S13-De18773	NCP	%	97			70-130	Pass	
TRH >C10-C16	S13-De14547	NCP	%	89			70-130	Pass	
Spike - % Recovery									
Polycyclic Aromatic Hydrocarbons				Result 1					
Acenaphthene	S13-De18760	NCP	%	128			70-130	Pass	
Acenaphthylene	S13-De18760	NCP	%	126			70-130	Pass	
Anthracene	S13-De18760	NCP	%	119			70-130	Pass	
Benz(a)anthracene	S13-De18760	NCP	%	109			70-130	Pass	
Benzo(a)pyrene	S13-De18760	NCP	%	97			70-130	Pass	
Benzo(b&j)fluoranthene	S13-De18760	NCP	%	114			70-130	Pass	
Benzo(g,h,i)perylene	S13-De18760	NCP	%	106			70-130	Pass	
Benzo(k)fluoranthene	S13-De18760	NCP	%	126			70-130	Pass	
Chrysene	S13-De18760	NCP	%	121			70-130	Pass	
Dibenz(a,h)anthracene	S13-De18760	NCP	%	89			70-130	Pass	
Fluoranthene	S13-De18760	NCP	%	120			70-130	Pass	
Fluorene	S13-De18760	NCP	%	127			70-130	Pass	
Indeno(1,2,3-cd)pyrene	S13-De18760	NCP	%	102			70-130	Pass	
Naphthalene	S13-De18760	NCP	%	129			70-130	Pass	
Phenanthrene	S13-De18760	NCP	%	118			70-130	Pass	
Pyrene	S13-De18760	NCP	%	126			70-130	Pass	
Spike - % Recovery									
				Result 1					
Phenolics (total)	S13-De16195	CP	%	71			70-130	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic (filtered)	S13-De17295	NCP	%	100			70-130	Pass	
Cadmium (filtered)	S13-De17295	NCP	%	108			70-130	Pass	
Chromium (filtered)	S13-De17295	NCP	%	101			70-130	Pass	
Copper (filtered)	S13-De17295	NCP	%	98			70-130	Pass	
Lead (filtered)	S13-De17295	NCP	%	95			70-130	Pass	
Mercury (filtered)	S13-De17295	NCP	%	83			70-130	Pass	
Nickel (filtered)	S13-De17295	NCP	%	98			70-130	Pass	
Zinc (filtered)	S13-De17295	NCP	%	101			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 C6-C9	S13-De18770	NCP	mg/L	0.047	0.050	7.0	30%	Pass	
TRH C10-C14	S13-De13373	NCP	mg/L	< 0.05	< 0.05	<1	30%	Pass	
TRH C15-C28	S13-De13373	NCP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
TRH C29-C36	S13-De13373	NCP	mg/L	< 0.1	< 0.1	<1	30%	Pass	

Duplicate								
BTEX				Result 1	Result 2	RPD		
Benzene	S13-De18770	NCP	mg/L	0.0083	0.0083	1.0	30%	Pass
Toluene	S13-De18770	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Ethylbenzene	S13-De18770	NCP	mg/L	0.0010	0.0011	5.0	30%	Pass
m&p-Xylenes	S13-De18770	NCP	mg/L	0.0023	0.0023	2.0	30%	Pass
o-Xylene	S13-De18770	NCP	mg/L	0.0013	0.0013	3.0	30%	Pass
Xylenes - Total	S13-De18770	NCP	mg/L	0.0035	0.0036	3.0	30%	Pass
Duplicate								
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD		
Naphthalene	S13-De18770	NCP	mg/L	0.030	0.030	2.0	30%	Pass
TRH C6-C10	S13-De18770	NCP	mg/L	0.066	0.070	6.0	30%	Pass
TRH C6-C10 less BTEX (F1)	S13-De18770	NCP	mg/L	0.053	0.057	8.0	30%	Pass
TRH >C10-C16	S13-De13373	NCP	mg/L	< 0.05	< 0.05	<1	30%	Pass
TRH >C16-C34	S13-De13373	NCP	mg/L	< 0.1	< 0.1	<1	30%	Pass
TRH >C34-C40	S13-De13373	NCP	mg/L	< 0.1	< 0.1	<1	30%	Pass
Duplicate								
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD		
Acenaphthene	S13-De18759	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Acenaphthylene	S13-De18759	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Anthracene	S13-De18759	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Benz(a)anthracene	S13-De18759	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Benzo(a)pyrene	S13-De18759	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Benzo(b&j)fluoranthene	S13-De18759	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Benzo(g,h,i)perylene	S13-De18759	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Benzo(k)fluoranthene	S13-De18759	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Chrysene	S13-De18759	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Dibenz(a,h)anthracene	S13-De18759	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Fluoranthene	S13-De18759	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Fluorene	S13-De18759	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Indeno(1,2,3-cd)pyrene	S13-De18759	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Naphthalene	S13-De18759	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Phenanthrene	S13-De18759	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Pyrene	S13-De18759	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Duplicate								
				Result 1	Result 2	RPD		
Phenolics (total)	S13-De16195	CP	mg/L	< 0.01	< 0.01	<1	30%	Pass
Duplicate								
Heavy Metals				Result 1	Result 2	RPD		
Arsenic (filtered)	S13-De17294	NCP	mg/L	0.0031	0.0031	1.0	30%	Pass
Cadmium (filtered)	M13-De11138	NCP	mg/L	0.00035	0.00037	6.0	30%	Pass
Chromium (filtered)	S13-De17294	NCP	mg/L	0.0010	< 0.001	9.0	30%	Pass
Copper (filtered)	S13-De17294	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Lead (filtered)	S13-De17294	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Mercury (filtered)	S13-De17294	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass
Nickel (filtered)	S13-De17294	NCP	mg/L	0.0046	0.0046	<1	30%	Pass
Zinc (filtered)	S13-De17294	NCP	mg/L	0.011	0.010	8.0	30%	Pass
Duplicate								
Organochlorine Pesticides				Result 1	Result 2	RPD		
Chlordanes - Total	S13-De12301	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
4,4'-DDD	S13-De12301	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass
4,4'-DDE	S13-De12301	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass
4,4'-DDT	S13-De12301	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass
a-BHC	S13-De12301	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass
Aldrin	S13-De12301	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass
b-BHC	S13-De12301	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass

Duplicate								
Organochlorine Pesticides				Result 1	Result 2	RPD		
d-BHC	S13-De12301	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass
Dieldrin	S13-De12301	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass
Endosulfan I	S13-De12301	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass
Endosulfan II	S13-De12301	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass
Endosulfan sulphate	S13-De12301	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass
Endrin	S13-De12301	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass
Endrin aldehyde	S13-De12301	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass
Endrin ketone	S13-De12301	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass
γ-BHC (Lindane)	S13-De12301	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass
Heptachlor	S13-De12301	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass
Heptachlor epoxide	S13-De12301	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass
Hexachlorobenzene	S13-De12301	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass
Methoxychlor	S13-De12301	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass
Toxaphene	S13-De12301	NCP	mg/L	< 0.01	< 0.01	<1	30%	Pass
Duplicate								
Polychlorinated Biphenyls (PCB)				Result 1	Result 2	RPD		
Aroclor-1016	S13-De12301	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Aroclor-1232	S13-De12301	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Aroclor-1242	S13-De12301	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Aroclor-1248	S13-De12301	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Aroclor-1254	S13-De12301	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Aroclor-1260	S13-De12301	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	Yes
Sample correctly preserved	Yes
Organic samples had Teflon liners	Yes
Sample containers for volatile analysis received with minimal headspace	Yes
Samples received within HoldingTime	No
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

Jean Heng	Client Services
Bob Symons	Senior Analyst-Inorganic (NSW)
James Norford	Senior Analyst-Metal (NSW)
Ryan Hamilton	Senior Analyst-Organic (NSW)
Ryan Hamilton	Senior Analyst-Volatile (NSW)


Dr. Bob Symons
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 shall not be liable for loss, cost, damages or expenses incurred by the client, or any other person or company, resulting from the use of any information or interpretation given in this report. In no case shall Eurofins | mgt be liable for consequential damages including, but not limited to, lost profits, damages for failure to meet deadlines and lost production arising from this report. This document shall not be reproduced except in full and relates only to the items tested. Unless indicated otherwise, the tests were performed on the samples as received.

CHAIN OF CUSTODY



PROJECT NO.: 43064					LABORATORY BATCH NO.:																	
PROJECT NAME: WESTCONEX					SAMPLERS: C Bielby																	
SEND REPORT TO: THARDING CDIEP SEND INVOICE TO: G.W.G					PHONE: SYDNEY 02 82450300 – PERTH 08 9488 0100 EMAIL: C.Bielby@jbsg.com																	
DATE NEEDED BY: Standard					QC LEVEL: NEPM (2013)																	
COMMENTS / SPECIAL HANDLING / STORAGE OR DISPOSAL:					JBS&G SPECIFIC SUITES																	
					JB1	JB1T	JB1A	JB2	JB2A	B10	JB2/JBL	JB3/JBL	JB4	JBL	Heavy Metals	PAHS	TPH/BTEX	Asbestos	OCCPS/PCOB	SPOCAS	TCLP	NOTES: #403824
SAMPLE ID	MATRIX	DATE	TIME	TYPE & PRESERVATIVE	pH																	
BH44 0.0-0.3	Soil	13/12/13		JAR ICE											X	X	X		X	X		
BH44 1.0-1.3																						
BH44 2.0-2.3															X							
BH44 3.0-3.3																						
BH44 4.5-4.8																				X		
BH44 5.5-5.8																						
BH44 6.3-6.5																						
BH45 1.1-1.3															X	X	X					
BH45 2.1-2.3																						
BH45 2.8-3.1																						
BH46 0.0-0.3																						
BH46 0.8-1.0																						
BH47 0.0-0.3															X	X	X					
BH47 1.0-1.3																						
BH47 2.0-2.3																						
BH48 0.0-0.3															X				X			
BH48 1.3-1.5																						
BH45 0.0-0.3																						
BH49 0.0-0.2									X													

RELINQUISHED BY:		METHOD OF SHIPMENT:		RECEIVED BY:		FOR RECEIVING LAB USE ONLY:	
NAME: C. Bielby	DATE: 16/12/13			NAME: Ellen Ng	DATE: 17/12/13	COOLER SEAL - Yes..... No Intact Broken	
OF: JBS&G		TRANSPORT CO.:		OF: EF/mgt	DATE: 14:45	COOLER TEMP deg C	
NAME:	DATE:	CONSIGNMENT NOTE NO.:		NAME:	DATE:	COOLER SEAL - Yes..... No Intact Broken	
OF:		TRANSPORT CO.:		OF:		COOLER TEMP deg C	

Container & Preservative Codes: P = Plastic; J = Soil Jar; B = Glass Bottle; N = Nitric Acid Prsrd.; C = Sodium Hydroxide Prsrd.; VC = Hydrochloric Acid Prsrd Vial; VS = Sulfuric Acid Prsrd Vial; S = Sulfuric Acid Prsrd; Z = Zinc Prsrd; E = EDTA Prsrd; ST = Sterile Bottle; O = Other
 IMSO Forms 013 - Chain of Custody - eurofins mgt

- JB1 - TRH/BTEX/PAH/As,Cd,Cr,Cu,Ni,Pb,Zn,Hg/Phenolics (Total)
- JB1T - TRH/BTEX/PAH(Trace Level)/As,Cd,Cr,Cu,Ni,Pb,Zn,Hg/Phenolics (Total)
- JB1A - TRH/BTEX/PAH/As,Cd,Cr,Cu,Ni,Pb,Zn,Hg/Phenolics (Total)/Asbestos
- JB2 - TRH/BTEX/PAH/OCP/PCB/As,Cd,Cr,Cu,Ni,Pb,Zn,Hg
- JB2A - TRH/BTEX/PAH/OCP/PCB/As,Cd,Cr,Cu,Ni,Pb,Zn,Hg/Asbestos
- B10 - TRH/BTEX/PAH/OCP/OPP/As,Cd,Cr,Cu,Ni,Pb,Zn,Hg
- JB2/JBL - TRH/BTEX/PAH/OCP/PCB/As,Cd,Cr,Cu,Ni,Pb,Zn,Hg/TCLP(PAH & 6 Metals)
- JB3/JBL - TRH/BTEX/PAH/OCP/OPP/PCB/As,Cd,Cr,Cu,Ni,Pb,Zn,Hg/TCLP(PAH & 6 Metals)/Asbestos
- JB4 - TRH/BTEX/VOC
- JBL - TCLP(PAH & 6 Metals)

CHAIN OF CUSTODY

PROJECT NO.: 43069						LABORATORY BATCH NO.:													
PROJECT NAME: WEST CONNEX						SAMPLERS: C. BIELBY					Therding@jbsg.com.au								
SEND REPORT TO: T. HARDING C. BIELBY						PHONE: SYDNEY 02 82450300 - PERTH 08 9488 0100					EMAIL: CBIELBY@JBSG.COM.AU								
DATE NEEDED BY: Standard						QC LEVEL: NEPM (2013)													
COMMENTS / SPECIAL HANDLING / STORAGE OR DISPOSAL:						JBS&G SPECIFIC SUITES													
						JB1	JB1T	JB1A	JB2	JB2A	B10	JB2/JBL	JB3/JBL	JB4	JBL	PAH/BTEX	#403834 NOTES:		
SAMPLE ID	MATRIX	DATE	TIME	TYPE & PRESERVATIVE	pH														
BH50 0.0-0.2	SOIL	16/12/13		JAR+ICE					X										
BH51 0.0-0.2									X										
BH52 0.0-0.2									X										
BH53 0.0-0.2									X										
BH54 0.0-0.2									X										
BH55 0.0-0.2									X										
Q004		13/12/13																	
Q005		16/12/13																	
MWI	WATER			1 amber + 1 plastic + 4 vials		X													
RINSTATE									X										
Trip Spike				1 vial + ice									X						
Trip Blank													X						
RELINQUISHED BY:						METHOD OF SHIPMENT:						RECEIVED BY:				FOR RECEIVING LAB USE ONLY:			
NAME: C. BIELBY DATE: 16/12/13						CONSIGNMENT NOTE NO.						NAME: ERLMGT DATE: 17/12/13				COOLER SEAL - Yes..... No Intact Broken			
OF: JBS&G						TRANSPORT CO.						OF: ERLMGT DATE: 14:45				COOLER TEMP deg C			
NAME: DATE:						CONSIGNMENT NOTE NO.						NAME: DATE:				COOLER SEAL - Yes..... No Intact Broken			
OF:						TRANSPORT CO.						OF:				COOLER TEMP deg C			

Container & Preservative Codes: P = Plastic; J = Soil Jar; B = Glass Bottle; N = Nitric Acid Prsvd.; C = Sodium Hydroxide Prsvd; VC = Hydrochloric Acid Prsvd Vial; VS = Sulfuric Acid Prsvd Vial; S = Sulfuric Acid Prsvd; Z = Zinc Prsvd; E = EDTA Prsvd; ST = Sterile Bottle; O = Other

IMS0 Forms013 - Chain of Custody - eurofins mgt

- JB1 - TRH/BTEX/PAH/As,Cd,Cr,Cu,Ni,Pb,Zn,Hg/Phenolics (Total)
- JB1T - TRH/BTEX/PAH(Trace Level)/As,Cd,Cr,Cu,Ni,Pb,Zn,Hg/Phenolics (Total)
- JB1A - TRH/BTEX/PAH/As,Cd,Cr,Cu,Ni,Pb,Zn,Hg/Phenolics (Total)/Asbestos
- JB2 - TRH/BTEX/PAH/OCPP/PCB/As,Cd,Cr,Cu,Ni,Pb,Zn,Hg
- JB2A - TRH/BTEX/PAH/OCPP/PCB/As,Cd,Cr,Cu,Ni,Pb,Zn,Hg/Asbestos

- B10 - TRH/BTEX/PAH/OCPP/OPP/As,Cd,Cr,Cu,Ni,Pb,Zn,Hg
- JB2/JBL - TRH/BTEX/PAH/OCPP/PCB/As,Cd,Cr,Cu,Ni,Pb,Zn,Hg/TCLP(PAH & 6 Metals)
- JB3/JBL - TRH/BTEX/PAH/OCPP/OPP/PCB/As,Cd,Cr,Cu,Ni,Pb,Zn,Hg/TCLP(PAH & 6 Metals)/Asbestos
- JB4 - TRH/BTEX/VOC
- JBL - TCLP(PAH & 6 Metals)

Sample Receipt Advice

Company name: **JBS & G (NSW & WA) Pty Ltd**

Contact name: Thomas Harding
Client job number: WEST CONNEX 43069
COC number: Not provided
Turn around time: 5 Day
Date/Time received: Dec 17, 2013 2:45 PM
Eurofins | mgt reference: **403894**

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 : 12.5 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.
 - Organic samples had Teflon liners.
 - Sample containers for volatile analysis received with zero headspace.
 - Some samples have been subcontracted.
- N/A Custody Seals intact (if used).

Notes

SPOCAS conducted by Eurofins | mgt Melbourne | SPOCAS analyzed outside of recommended holding time | Two samples received with the same sample ID BH48 0.0-0.3 correct sample identified other sample placed on hold, details attached

Contact notes

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

Jean Heng on Phone : (+61) (2) 9900 8400 or by e.mail: JeanHeng@eurofins.com.au

Results will be delivered electronically via e.mail to Thomas Harding - tharding@jbsg.com.au.



20 December 2013

C. Bielby & T. Harding
JBS&G (NSW & WA) Pty Ltd
Level 1
50 Margaret Street
SYDNEY NSW 2000

Email: cbielby@jbsg.com.au, tharding@jbsg.com.au

CERTIFICATE OF ANALYSIS – ASBESTOS IDENTIFICATION

YOUR REFERENCE/JOB No: 43069
TYPE OF SAMPLES: Bulk sample - as received from Envirolab Services
SITE LOCATION: West Connex
DATE SAMPLED: 10 December 2013 **DATE RECEIVED:** 16 December 2013
OUR REFERENCE: 77473-ID

TEST METHOD: Soil samples examined by Stereomicroscopy and Polarized Light Microscopy (with Dispersion Staining) in accordance with AS 4964-2004: - 'Method for the qualitative identification of asbestos in bulk samples' as outlined in Laboratory Method ID/1. The Reporting Limit for the results in this Certificate is numerically equal to the lowest detection limit of 0.1 g/kg. Trace asbestos analysis has been conducted on each sample, which is generally designed to detect 'respirable' asbestos fibres (ie less than 3 micrometres in width) distributed throughout the sample.

Sample No	Lab No	Sample Information	Analysis Result	Description
QC03A	77473	Soil sample as received	No asbestos detected	The sample was a brown soil with plant matter, of total approximate weight 734 g, in which organic fibres were detected in the -2mm fraction. No asbestos fibres were detected in the +2 mm fraction. No asbestos fibres were detected in a representative sub-sample of the -2 mm fraction. No asbestos fibres were found at the Reporting Limit of 0.1g/kg.

All sampling and site work has been undertaken by the client - the analytical procedures and results reported on this Certificate have been conducted by Pickford & Rhyder Consulting.

Sampling is not covered by the scope of accreditation.

Analysed and reported by:

L. Apthorpe,
Approved Identifier and Signatory.



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Accreditation number 2515

For PICKFORD RUMBER

CHAIN OF CUSTODY

102256



77473

PROJECT NO.: 43069
 PROJECT NAME: WESTCOURT
 SEND REPORT TO: T. HARDING C.BIELEGY SEND INVOICE TO:
 DATE NEEDED BY: Standard
 COMMENTS / SPECIAL HANDLING / STORAGE OR DISPOSAL:
 BAG SAMPLES

LABORATORY BATCH NO.:
 SAMPLERS: C.BIELEGY
 PHONE: SYDNEY 02 82450300 - PERTH 08 9488 0100 EMAIL: tbhard@jbsg.com
 QC LEVEL: NEPM (2013)

SAMPLE ID	MATRIX	DATE	TIME	TYPE & PRESERVATIVE	pH	RECEIVED BY:	DATE:	COOLER SEAL - Yes..... No.....	COOLER SEAL - Intact..... Broken.....	COOLER TEMP deg C	COOLER SEAL - Yes..... No.....	COOLER SEAL - Intact..... Broken.....	COOLER TEMP deg C	NOTES:
O2C01A	SOIL	9/12/13		BAG		GARY RUMBER	12/13							500ml sample as per WA guidelines
O2C02A														
O2C03A		10/12/13												

RELINQUISHED BY: _____ METHOD OF SHIPMENT: _____ RECEIVED BY: _____ DATE: 11/12/13

NAME: C.BIELEGY DATE: 11/12/13 CONSIGNMENT NOTE NO. TRANSPORT CO. NAME: GARY RUMBER DATE: 12/13

OF: JBS&G DATE: 13/12/13 CONSIGNMENT NOTE NO. TRANSPORT CO. OF: PICKFORD

Container & Preservative Codes: P = Plastic; J = Soil Jar; B = Glass Bottle; N = Nitric Acid Presv.; C = Sodium Hydroxide Presv.; VC = Hydrochloric Acid Presv; VS = Sulfuric Acid Presv; Vaj; S = Sulfuric Acid Presv; Z = Zinc Presv.; E = EDTA Presv; ST = Sterile Bottle; O = Other

IMSO Form 5013 - Chain of Custody - Generic

13/12/13
1030

Certificate of Analysis

JBS & G (NSW & WA) Pty Ltd
 Level 1, 50 Margaret St
 Sydney
 NSW 2000



NATA Accredited
 Accreditation Number 1261
 Site Number 18217

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

Attention: Chris Bielby

Report 403263-S
 Client Reference WEST CONNEX 43069
 Received Date Dec 11, 2013

Client Sample ID			BH01 0.0-0.2	BH02 0.0-0.2	BH03 0.0-0.2	BH04 0.0-0.2
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins mgt Sample No.			S13-De10528	S13-De10529	S13-De10530	S13-De10531
Date Sampled			Dec 09, 2013	Dec 09, 2013	Dec 09, 2013	Dec 09, 2013
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	20	mg/kg	-	-	< 20	-
TRH C10-C14	20	mg/kg	-	-	< 20	-
TRH C15-C28	50	mg/kg	-	-	64	-
TRH C29-C36	50	mg/kg	-	-	170	-
TRH C10-36 (Total)	50	mg/kg	-	-	230	-
BTEX						
Benzene	0.1	mg/kg	-	-	< 0.1	-
Toluene	0.1	mg/kg	-	-	< 0.1	-
Ethylbenzene	0.1	mg/kg	-	-	< 0.1	-
m&p-Xylenes	0.2	mg/kg	-	-	< 0.2	-
o-Xylene	0.1	mg/kg	-	-	< 0.1	-
Xylenes - Total	0.3	mg/kg	-	-	< 0.3	-
4-Bromofluorobenzene (surr.)	1	%	-	-	115	-
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene ^{N02}	0.5	mg/kg	-	-	< 0.5	-
TRH C6-C10	20	mg/kg	-	-	< 20	-
TRH C6-C10 less BTEX (F1) ^{N04}	20	mg/kg	-	-	< 20	-
TRH >C10-C16	50	mg/kg	-	-	< 50	-
TRH >C10-C16 less Naphthalene (F2) ^{N01}	50	mg/kg	-	-	< 50	-
TRH >C16-C34	100	mg/kg	-	-	180	-
TRH >C34-C40	100	mg/kg	-	-	100	-
Polycyclic Aromatic Hydrocarbons						
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	< 0.5	-	< 0.5
Benz(a)anthracene	0.5	mg/kg	0.7	< 0.5	-	< 0.5
Benzo(a)pyrene	0.5	mg/kg	0.6	< 0.5	-	< 0.5
Benzo(b&j)fluoranthene ^{N07}	0.5	mg/kg	< 0.5	< 0.5	-	< 0.5
Benzo(g,h,i)perylene	0.5	mg/kg	0.5	< 0.5	-	< 0.5
Benzo(k)fluoranthene	0.5	mg/kg	< 0.5	< 0.5	-	< 0.5
Chrysene	0.5	mg/kg	0.5	< 0.5	-	< 0.5
Dibenz(a,h)anthracene	0.5	mg/kg	< 0.5	< 0.5	-	< 0.5
Fluoranthene	0.5	mg/kg	1.1	< 0.5	-	0.7
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

Client Sample ID			BH01 0.0-0.2	BH02 0.0-0.2	BH03 0.0-0.2	BH04 0.0-0.2
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins mgt Sample No.			S13-De10528	S13-De10529	S13-De10530	S13-De10531
Date Sampled			Dec 09, 2013	Dec 09, 2013	Dec 09, 2013	Dec 09, 2013
Test/Reference	LOR	Unit				
Polycyclic Aromatic Hydrocarbons						
Phenanthrene	0.5	mg/kg	< 0.5	< 0.5	-	< 0.5
Pyrene	0.5	mg/kg	1.1	< 0.5	-	0.6
Total PAH	0.5	mg/kg	4.5	< 0.5	-	1.3
Benzo(a)pyrene TEQ (lower bound)*	0.5	mg/kg	0.7	< 0.5	-	< 0.5
Benzo(a)pyrene TEQ (medium bound)*	0.5	mg/kg	1.0	0.6	-	0.6
Benzo(a)pyrene TEQ (upper bound)*	0.5	mg/kg	1.4	1.2	-	1.2
2-Fluorobiphenyl (surr.)	1	%	93	94	-	95
p-Terphenyl-d14 (surr.)	1	%	119	123	-	126
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	-	-
Dibutylchloroendate (surr.)	1	%	-	85	-	-
Tetrachloro-m-xylene (surr.)	1	%	-	107	-	-
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	0.5	mg/kg	-	< 0.5	-	-
Dibutylchloroendate (surr.)	1	%	-	85	-	-
Heavy Metals						
Arsenic	2	mg/kg	2.1	25	6.0	-
Cadmium	0.4	mg/kg	0.8	< 0.4	< 0.4	-
Chromium	5	mg/kg	24	120	36	-
Copper	5	mg/kg	46	23	28	-
Lead	5	mg/kg	140	92	100	-
Mercury	0.05	mg/kg	0.16	0.12	0.13	-
Nickel	5	mg/kg	12	5.0	8.0	-
Zinc	5	mg/kg	180	130	150	-

Client Sample ID			BH01 0.0-0.2	BH02 0.0-0.2	BH03 0.0-0.2	BH04 0.0-0.2
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins mgt Sample No.			S13-De10528	S13-De10529	S13-De10530	S13-De10531
Date Sampled			Dec 09, 2013	Dec 09, 2013	Dec 09, 2013	Dec 09, 2013
Test/Reference	LOR	Unit				
% Moisture	0.1	%	4.1	8.4	5.7	12

Client Sample ID			BH05 0.0-0.2	BH06 0.0-0.2	BH07 0.0-0.2	BH08 0.0-0.2
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins mgt Sample No.			S13-De10532	S13-De10534	S13-De10535	S13-De10537
Date Sampled			Dec 09, 2013	Dec 09, 2013	Dec 09, 2013	Dec 09, 2013
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	20	mg/kg	-	-	-	< 20
TRH C10-C14	20	mg/kg	-	-	-	< 20
TRH C15-C28	50	mg/kg	-	-	-	66
TRH C29-C36	50	mg/kg	-	-	-	240
TRH C10-36 (Total)	50	mg/kg	-	-	-	310
BTEX						
Benzene	0.1	mg/kg	-	-	-	< 0.1
Toluene	0.1	mg/kg	-	-	-	< 0.1
Ethylbenzene	0.1	mg/kg	-	-	-	< 0.1
m&p-Xylenes	0.2	mg/kg	-	-	-	< 0.2
o-Xylene	0.1	mg/kg	-	-	-	< 0.1
Xylenes - Total	0.3	mg/kg	-	-	-	< 0.3
4-Bromofluorobenzene (surr.)	1	%	-	-	-	120
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene ^{N02}	0.5	mg/kg	-	-	-	< 0.5
TRH C6-C10	20	mg/kg	-	-	-	< 20
TRH C6-C10 less BTEX (F1) ^{N04}	20	mg/kg	-	-	-	< 20
TRH >C10-C16	50	mg/kg	-	-	-	< 50
TRH >C10-C16 less Naphthalene (F2) ^{N01}	50	mg/kg	-	-	-	< 50
TRH >C16-C34	100	mg/kg	-	-	-	240
TRH >C34-C40	100	mg/kg	-	-	-	200
Polycyclic Aromatic Hydrocarbons						
Acenaphthene	0.5	mg/kg	-	< 0.5	-	< 0.5
Acenaphthylene	0.5	mg/kg	-	< 0.5	-	< 0.5
Anthracene	0.5	mg/kg	-	< 0.5	-	< 0.5
Benzo(a)anthracene	0.5	mg/kg	-	< 0.5	-	< 0.5
Benzo(a)pyrene	0.5	mg/kg	-	< 0.5	-	< 0.5
Benzo(b&j)fluoranthene ^{N07}	0.5	mg/kg	-	< 0.5	-	< 0.5
Benzo(g,h,i)perylene	0.5	mg/kg	-	< 0.5	-	< 0.5
Benzo(k)fluoranthene	0.5	mg/kg	-	< 0.5	-	< 0.5
Chrysene	0.5	mg/kg	-	< 0.5	-	< 0.5
Dibenz(a,h)anthracene	0.5	mg/kg	-	< 0.5	-	< 0.5
Fluoranthene	0.5	mg/kg	-	0.5	-	< 0.5
Fluorene	0.5	mg/kg	-	< 0.5	-	< 0.5
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	-	< 0.5	-	< 0.5
Naphthalene	0.5	mg/kg	-	< 0.5	-	< 0.5
Phenanthrene	0.5	mg/kg	-	< 0.5	-	< 0.5
Pyrene	0.5	mg/kg	-	0.5	-	< 0.5
Total PAH	0.5	mg/kg	-	1.0	-	< 0.5
Benzo(a)pyrene TEQ (lower bound)*	0.5	mg/kg	-	< 0.5	-	< 0.5

Client Sample ID			BH05 0.0-0.2	BH06 0.0-0.2	BH07 0.0-0.2	BH08 0.0-0.2
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins mgt Sample No.			S13-De10532	S13-De10534	S13-De10535	S13-De10537
Date Sampled			Dec 09, 2013	Dec 09, 2013	Dec 09, 2013	Dec 09, 2013
Test/Reference	LOR	Unit				
Polycyclic Aromatic Hydrocarbons						
Benzo(a)pyrene TEQ (medium bound)*	0.5	mg/kg	-	0.6	-	0.6
Benzo(a)pyrene TEQ (upper bound)*	0.5	mg/kg	-	1.2	-	1.2
2-Fluorobiphenyl (surr.)	1	%	-	91	-	96
p-Terphenyl-d14 (surr.)	1	%	-	126	-	115
Heavy Metals						
Arsenic	2	mg/kg	4.0	-	< 2	-
Cadmium	0.4	mg/kg	< 0.4	-	1.3	-
Chromium	5	mg/kg	13	-	23	-
Copper	5	mg/kg	43	-	100	-
Lead	5	mg/kg	63	-	460	-
Mercury	0.05	mg/kg	0.08	-	0.29	-
Nickel	5	mg/kg	12	-	23	-
Zinc	5	mg/kg	180	-	690	-
% Moisture	0.1	%	19	18	9.1	8.7

Client Sample ID			BH09 0.0-0.2	BH10 0.0-0.2	BH11 0.0-0.2	BH12 0.0-0.2
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins mgt Sample No.			S13-De10538	S13-De10539	S13-De10540	S13-De10541
Date Sampled			Dec 09, 2013	Dec 09, 2013	Dec 09, 2013	Dec 09, 2013
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	20	mg/kg	-	-	-	< 20
TRH C10-C14	20	mg/kg	-	-	-	< 20
TRH C15-C28	50	mg/kg	-	-	-	< 50
TRH C29-C36	50	mg/kg	-	-	-	51
TRH C10-36 (Total)	50	mg/kg	-	-	-	51
BTEX						
Benzene	0.1	mg/kg	-	-	-	< 0.1
Toluene	0.1	mg/kg	-	-	-	< 0.1
Ethylbenzene	0.1	mg/kg	-	-	-	< 0.1
m&p-Xylenes	0.2	mg/kg	-	-	-	< 0.2
o-Xylene	0.1	mg/kg	-	-	-	< 0.1
Xylenes - Total	0.3	mg/kg	-	-	-	< 0.3
4-Bromofluorobenzene (surr.)	1	%	-	-	-	123
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene ^{N02}	0.5	mg/kg	-	-	-	< 0.5
TRH C6-C10	20	mg/kg	-	-	-	< 20
TRH C6-C10 less BTEX (F1) ^{N04}	20	mg/kg	-	-	-	< 20
TRH >C10-C16	50	mg/kg	-	-	-	< 50
TRH >C10-C16 less Naphthalene (F2) ^{N01}	50	mg/kg	-	-	-	< 50
TRH >C16-C34	100	mg/kg	-	-	-	< 100
TRH >C34-C40	100	mg/kg	-	-	-	< 100

Client Sample ID			BH09 0.0-0.2	BH10 0.0-0.2	BH11 0.0-0.2	BH12 0.0-0.2
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins mgt Sample No.			S13-De10538	S13-De10539	S13-De10540	S13-De10541
Date Sampled			Dec 09, 2013	Dec 09, 2013	Dec 09, 2013	Dec 09, 2013
Test/Reference	LOR	Unit				
Polycyclic Aromatic Hydrocarbons						
Acenaphthene	0.5	mg/kg	-	< 0.5	-	< 0.5
Acenaphthylene	0.5	mg/kg	-	< 0.5	-	< 0.5
Anthracene	0.5	mg/kg	-	< 0.5	-	< 0.5
Benzo(a)anthracene	0.5	mg/kg	-	< 0.5	-	< 0.5
Benzo(a)pyrene	0.5	mg/kg	-	< 0.5	-	< 0.5
Benzo(b&j)fluoranthene ^{N07}	0.5	mg/kg	-	< 0.5	-	< 0.5
Benzo(g,h,i)perylene	0.5	mg/kg	-	< 0.5	-	< 0.5
Benzo(k)fluoranthene	0.5	mg/kg	-	< 0.5	-	< 0.5
Chrysene	0.5	mg/kg	-	< 0.5	-	< 0.5
Dibenz(a,h)anthracene	0.5	mg/kg	-	< 0.5	-	< 0.5
Fluoranthene	0.5	mg/kg	-	< 0.5	-	< 0.5
Fluorene	0.5	mg/kg	-	< 0.5	-	< 0.5
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	-	< 0.5	-	< 0.5
Naphthalene	0.5	mg/kg	-	< 0.5	-	< 0.5
Phenanthrene	0.5	mg/kg	-	< 0.5	-	< 0.5
Pyrene	0.5	mg/kg	-	< 0.5	-	< 0.5
Total PAH	0.5	mg/kg	-	< 0.5	-	< 0.5
Benzo(a)pyrene TEQ (lower bound)*	0.5	mg/kg	-	< 0.5	-	< 0.5
Benzo(a)pyrene TEQ (medium bound)*	0.5	mg/kg	-	0.6	-	0.6
Benzo(a)pyrene TEQ (upper bound)*	0.5	mg/kg	-	1.2	-	1.2
2-Fluorobiphenyl (surr.)	1	%	-	91	-	94
p-Terphenyl-d14 (surr.)	1	%	-	122	-	124
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
Dibutylchloroendate (surr.)	1	%	-	-	-	85
Tetrachloro-m-xylene (surr.)	1	%	-	-	-	73

Client Sample ID			BH09 0.0-0.2	BH10 0.0-0.2	BH11 0.0-0.2	BH12 0.0-0.2
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins mgt Sample No.			S13-De10538	S13-De10539	S13-De10540	S13-De10541
Date Sampled			Dec 09, 2013	Dec 09, 2013	Dec 09, 2013	Dec 09, 2013
Test/Reference	LOR	Unit				
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	0.5	mg/kg	-	-	-	< 0.5
Dibutylchloroendate (surr.)	1	%	-	-	-	85
Heavy Metals						
Arsenic	2	mg/kg	< 2	< 2	< 2	-
Cadmium	0.4	mg/kg	< 0.4	< 0.4	1.4	-
Chromium	5	mg/kg	< 5	7.4	17	-
Copper	5	mg/kg	16	38	98	-
Lead	5	mg/kg	33	88	480	-
Mercury	0.05	mg/kg	0.16	< 0.05	< 0.05	-
Nickel	5	mg/kg	< 5	10	15	-
Zinc	5	mg/kg	70	120	380	-
% Moisture	0.1	%	2.7	5.1	5.3	3.6

Client Sample ID			BH13 0.0-0.2	BH14 0.0-0.2	BH15 0.0-0.2	BH16 0.0-0.2
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins mgt Sample No.			S13-De10542	S13-De10543	S13-De10544	S13-De10545
Date Sampled			Dec 09, 2013	Dec 09, 2013	Dec 09, 2013	Dec 09, 2013
Test/Reference	LOR	Unit				
Polycyclic Aromatic Hydrocarbons						
Acenaphthene	0.5	mg/kg	-	< 0.5	-	< 0.5
Acenaphthylene	0.5	mg/kg	-	< 0.5	-	< 0.5
Anthracene	0.5	mg/kg	-	< 0.5	-	< 0.5
Benz(a)anthracene	0.5	mg/kg	-	< 0.5	-	< 0.5
Benzo(a)pyrene	0.5	mg/kg	-	< 0.5	-	< 0.5
Benzo(b&j)fluoranthene ^{N07}	0.5	mg/kg	-	< 0.5	-	< 0.5
Benzo(g,h,i)perylene	0.5	mg/kg	-	< 0.5	-	< 0.5
Benzo(k)fluoranthene	0.5	mg/kg	-	< 0.5	-	< 0.5
Chrysene	0.5	mg/kg	-	< 0.5	-	< 0.5
Dibenz(a,h)anthracene	0.5	mg/kg	-	< 0.5	-	< 0.5
Fluoranthene	0.5	mg/kg	-	< 0.5	-	< 0.5
Fluorene	0.5	mg/kg	-	< 0.5	-	< 0.5
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	-	< 0.5	-	< 0.5
Naphthalene	0.5	mg/kg	-	< 0.5	-	< 0.5
Phenanthrene	0.5	mg/kg	-	< 0.5	-	< 0.5
Pyrene	0.5	mg/kg	-	< 0.5	-	< 0.5
Total PAH	0.5	mg/kg	-	< 0.5	-	< 0.5
Benzo(a)pyrene TEQ (lower bound)*	0.5	mg/kg	-	< 0.5	-	< 0.5
Benzo(a)pyrene TEQ (medium bound)*	0.5	mg/kg	-	0.6	-	0.6
Benzo(a)pyrene TEQ (upper bound)*	0.5	mg/kg	-	1.2	-	1.2
2-Fluorobiphenyl (surr.)	1	%	-	98	-	94
p-Terphenyl-d14 (surr.)	1	%	-	127	-	130

Client Sample ID			BH13 0.0-0.2	BH14 0.0-0.2	BH15 0.0-0.2	BH16 0.0-0.2
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins mgt Sample No.			S13-De10542	S13-De10543	S13-De10544	S13-De10545
Date Sampled			Dec 09, 2013	Dec 09, 2013	Dec 09, 2013	Dec 09, 2013
Test/Reference	LOR	Unit				
Heavy Metals						
Arsenic	2	mg/kg	< 2	< 2	< 2	-
Cadmium	0.4	mg/kg	< 0.4	0.8	0.5	-
Chromium	5	mg/kg	< 5	19	10	-
Copper	5	mg/kg	27	93	58	-
Lead	5	mg/kg	38	160	140	-
Mercury	0.05	mg/kg	< 0.05	< 0.05	< 0.05	-
Nickel	5	mg/kg	< 5	19	13	-
Zinc	5	mg/kg	71	240	210	-
% Moisture	0.1	%	2.0	13	5.9	4.6

Client Sample ID			BH17 0.0-0.2	BH18 0.0-0.1	BH19 0.0-0.2	BH20 0.0-0.2
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins mgt Sample No.			S13-De10546	S13-De10547	S13-De10549	S13-De10551
Date Sampled			Dec 09, 2013	Dec 09, 2013	Dec 09, 2013	Dec 09, 2013
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	51	-	< 50	< 50
TRH C29-C36	50	mg/kg	140	-	250	100
TRH C10-36 (Total)	50	mg/kg	190	-	250	100
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	%	118	-	123	102
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	150	-	230	< 100
TRH >C34-C40	100	mg/kg	110	-	220	140
Polycyclic Aromatic Hydrocarbons						
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	< 0.5	-	< 0.5
Benz(a)anthracene	0.5	mg/kg	< 0.5	< 0.5	-	< 0.5
Benzo(a)pyrene	0.5	mg/kg	< 0.5	< 0.5	-	0.6
Benzo(b&j)fluoranthene ^{N07}	0.5	mg/kg	< 0.5	< 0.5	-	< 0.5
Benzo(g,h,i)perylene	0.5	mg/kg	< 0.5	< 0.5	-	1.0
Benzo(k)fluoranthene	0.5	mg/kg	< 0.5	< 0.5	-	< 0.5
Chrysene	0.5	mg/kg	< 0.5	< 0.5	-	< 0.5

Client Sample ID			BH17 0.0-0.2	BH18 0.0-0.1	BH19 0.0-0.2	BH20 0.0-0.2
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins mgt Sample No.			S13-De10546	S13-De10547	S13-De10549	S13-De10551
Date Sampled			Dec 09, 2013	Dec 09, 2013	Dec 09, 2013	Dec 09, 2013
Test/Reference	LOR	Unit				
Polycyclic Aromatic Hydrocarbons						
Dibenz(a,h)anthracene	0.5	mg/kg	< 0.5	< 0.5	-	< 0.5
Fluoranthene	0.5	mg/kg	< 0.5	< 0.5	-	0.6
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	-	0.6
Naphthalene	0.5	mg/kg	< 0.5	< 0.5	-	< 0.5
Phenanthrene	0.5	mg/kg	< 0.5	< 0.5	-	< 0.5
Pyrene	0.5	mg/kg	< 0.5	< 0.5	-	0.6
Total PAH	0.5	mg/kg	< 0.5	< 0.5	-	3.4
Benzo(a)pyrene TEQ (lower bound)*	0.5	mg/kg	< 0.5	< 0.5	-	0.7
Benzo(a)pyrene TEQ (medium bound)*	0.5	mg/kg	0.6	0.6	-	1.0
Benzo(a)pyrene TEQ (upper bound)*	0.5	mg/kg	1.2	1.2	-	1.3
2-Fluorobiphenyl (surr.)	1	%	93	98	-	89
p-Terphenyl-d14 (surr.)	1	%	117	121	-	125
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
Dibutylchloroendate (surr.)	1	%	-	-	-	70
Tetrachloro-m-xylene (surr.)	1	%	-	-	-	125
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	0.5	mg/kg	-	-	-	< 0.5
Dibutylchloroendate (surr.)	1	%	-	-	-	70

Client Sample ID			BH17 0.0-0.2	BH18 0.0-0.1	BH19 0.0-0.2	BH20 0.0-0.2
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins mgt Sample No.			S13-De10546	S13-De10547	S13-De10549	S13-De10551
Date Sampled			Dec 09, 2013	Dec 09, 2013	Dec 09, 2013	Dec 09, 2013
Test/Reference	LOR	Unit				
Heavy Metals						
Arsenic	2	mg/kg	< 2	-	< 2	-
Cadmium	0.4	mg/kg	< 0.4	-	< 0.4	-
Chromium	5	mg/kg	12	-	5.7	-
Copper	5	mg/kg	35	-	67	-
Lead	5	mg/kg	33	-	92	-
Mercury	0.05	mg/kg	< 0.05	-	< 0.05	-
Nickel	5	mg/kg	9.0	-	7.7	-
Zinc	5	mg/kg	120	-	120	-
% Moisture	0.1	%	16	5.7	4.6	5.3

Client Sample ID			BH21 0.0-0.2	BH22 0.0-0.2	BH23 0.0-0.1	BH24 0.0-0.1
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins mgt Sample No.			S13-De10552	S13-De10554	S13-De10556	S13-De10558
Date Sampled			Dec 09, 2013	Dec 09, 2013	Dec 10, 2013	Dec 10, 2013
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	110	71	-
TRH C10-36 (Total)	50	mg/kg	< 50	110	71	-
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	%	123	123	122	-
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	220	120	-
Polycyclic Aromatic Hydrocarbons						
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	< 0.5	< 0.5
Benz(a)anthracene	0.5	mg/kg	-	< 0.5	< 0.5	1.2
Benzo(a)pyrene	0.5	mg/kg	-	< 0.5	< 0.5	0.9
Benzo(b&j)fluoranthene ^{N07}	0.5	mg/kg	-	< 0.5	< 0.5	0.6
Benzo(g,h,i)perylene	0.5	mg/kg	-	< 0.5	< 0.5	0.9
Benzo(k)fluoranthene	0.5	mg/kg	-	< 0.5	< 0.5	0.6
Chrysene	0.5	mg/kg	-	< 0.5	< 0.5	0.7

Client Sample ID			BH21 0.0-0.2	BH22 0.0-0.2	BH23 0.0-0.1	BH24 0.0-0.1
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins mgt Sample No.			S13-De10552	S13-De10554	S13-De10556	S13-De10558
Date Sampled			Dec 09, 2013	Dec 09, 2013	Dec 10, 2013	Dec 10, 2013
Test/Reference	LOR	Unit				
Polycyclic Aromatic Hydrocarbons						
Dibenz(a,h)anthracene	0.5	mg/kg	-	< 0.5	< 0.5	< 0.5
Fluoranthene	0.5	mg/kg	-	< 0.5	< 0.5	1.7
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	0.6
Naphthalene	0.5	mg/kg	-	< 0.5	< 0.5	< 0.5
Phenanthrene	0.5	mg/kg	-	< 0.5	< 0.5	0.8
Pyrene	0.5	mg/kg	-	< 0.5	< 0.5	1.5
Total PAH	0.5	mg/kg	-	< 0.5	< 0.5	9.5
Benzo(a)pyrene TEQ (lower bound)*	0.5	mg/kg	-	< 0.5	< 0.5	1.2
Benzo(a)pyrene TEQ (medium bound)*	0.5	mg/kg	-	0.6	0.6	1.4
Benzo(a)pyrene TEQ (upper bound)*	0.5	mg/kg	-	1.2	1.2	1.7
2-Fluorobiphenyl (surr.)	1	%	-	84	89	97
p-Terphenyl-d14 (surr.)	1	%	-	126	126	116
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	-
Dibutylchloroendate (surr.)	1	%	-	-	73	-
Tetrachloro-m-xylene (surr.)	1	%	-	-	78	-
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	0.5	mg/kg	-	-	< 0.5	-
Dibutylchloroendate (surr.)	1	%	-	-	73	-

Client Sample ID			BH21 0.0-0.2	BH22 0.0-0.2	BH23 0.0-0.1	BH24 0.0-0.1
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins mgt Sample No.			S13-De10552	S13-De10554	S13-De10556	S13-De10558
Date Sampled			Dec 09, 2013	Dec 09, 2013	Dec 10, 2013	Dec 10, 2013
Test/Reference	LOR	Unit				
Heavy Metals						
Arsenic	2	mg/kg	2.5	-	< 2	-
Cadmium	0.4	mg/kg	< 0.4	-	< 0.4	-
Chromium	5	mg/kg	< 5	-	< 5	-
Copper	5	mg/kg	31	-	14	-
Lead	5	mg/kg	70	-	28	-
Mercury	0.05	mg/kg	< 0.05	-	< 0.05	-
Nickel	5	mg/kg	< 5	-	< 5	-
Zinc	5	mg/kg	100	-	37	-
% Moisture	0.1	%	4.3	3.2	2.4	4.5

Client Sample ID			BH25 0.0-0.1	BH26 0.0-0.1	BH27 0.0-0.1	BH28 0.0-0.1
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins mgt Sample No.			S13-De10560	S13-De10562	S13-De10564	S13-De10566
Date Sampled			Dec 10, 2013	Dec 10, 2013	Dec 10, 2013	Dec 10, 2013
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	20	mg/kg	-	< 20	-	< 20
TRH C10-C14	20	mg/kg	-	< 20	-	< 20
TRH C15-C28	50	mg/kg	-	62	-	78
TRH C29-C36	50	mg/kg	-	140	-	300
TRH C10-36 (Total)	50	mg/kg	-	200	-	380
BTEX						
Benzene	0.1	mg/kg	-	< 0.1	-	< 0.1
Toluene	0.1	mg/kg	-	< 0.1	-	< 0.1
Ethylbenzene	0.1	mg/kg	-	< 0.1	-	< 0.1
m&p-Xylenes	0.2	mg/kg	-	< 0.2	-	< 0.2
o-Xylene	0.1	mg/kg	-	< 0.1	-	< 0.1
Xylenes - Total	0.3	mg/kg	-	< 0.3	-	< 0.3
4-Bromofluorobenzene (surr.)	1	%	-	121	-	119
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene ^{N02}	0.5	mg/kg	-	< 0.5	-	< 0.5
TRH C6-C10	20	mg/kg	-	< 20	-	< 20
TRH C6-C10 less BTEX (F1) ^{N04}	20	mg/kg	-	< 20	-	< 20
TRH >C10-C16	50	mg/kg	-	< 50	-	< 50
TRH >C10-C16 less Naphthalene (F2) ^{N01}	50	mg/kg	-	< 50	-	< 50
TRH >C16-C34	100	mg/kg	-	170	-	320
TRH >C34-C40	100	mg/kg	-	140	-	230
Polycyclic Aromatic Hydrocarbons						
Acenaphthene	0.5	mg/kg	-	< 0.5	-	< 0.5
Acenaphthylene	0.5	mg/kg	-	< 0.5	-	< 0.5
Anthracene	0.5	mg/kg	-	< 0.5	-	< 0.5
Benz(a)anthracene	0.5	mg/kg	-	3.8	-	1.2
Benzo(a)pyrene	0.5	mg/kg	-	4.0	-	1.2
Benzo(b&j)fluoranthene ^{N07}	0.5	mg/kg	-	2.3	-	1.3
Benzo(g,h,i)perylene	0.5	mg/kg	-	2.8	-	1.3
Benzo(k)fluoranthene	0.5	mg/kg	-	2.1	-	0.9
Chrysene	0.5	mg/kg	-	2.4	-	0.9

Client Sample ID			BH25 0.0-0.1	BH26 0.0-0.1	BH27 0.0-0.1	BH28 0.0-0.1
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins mgt Sample No.			S13-De10560	S13-De10562	S13-De10564	S13-De10566
Date Sampled			Dec 10, 2013	Dec 10, 2013	Dec 10, 2013	Dec 10, 2013
Test/Reference	LOR	Unit				
Polycyclic Aromatic Hydrocarbons						
Dibenz(a,h)anthracene	0.5	mg/kg	-	0.7	-	< 0.5
Fluoranthene	0.5	mg/kg	-	4.9	-	1.6
Fluorene	0.5	mg/kg	-	< 0.5	-	< 0.5
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	-	2.2	-	0.9
Naphthalene	0.5	mg/kg	-	< 0.5	-	< 0.5
Phenanthrene	0.5	mg/kg	-	1.1	-	< 0.5
Pyrene	0.5	mg/kg	-	5.6	-	1.7
Total PAH	0.5	mg/kg	-	32	-	11
Benzo(a)pyrene TEQ (lower bound)*	0.5	mg/kg	-	5.8	-	1.7
Benzo(a)pyrene TEQ (medium bound)*	0.5	mg/kg	-	5.8	-	2.0
Benzo(a)pyrene TEQ (upper bound)*	0.5	mg/kg	-	5.8	-	2.2
2-Fluorobiphenyl (surr.)	1	%	-	93	-	93
p-Terphenyl-d14 (surr.)	1	%	-	124	-	124
Heavy Metals						
Arsenic	2	mg/kg	3.3	-	< 2	-
Cadmium	0.4	mg/kg	< 0.4	-	< 0.4	-
Chromium	5	mg/kg	9.2	-	6.3	-
Copper	5	mg/kg	33	-	41	-
Lead	5	mg/kg	110	-	130	-
Mercury	0.05	mg/kg	0.12	-	< 0.05	-
Nickel	5	mg/kg	6.4	-	7.0	-
Zinc	5	mg/kg	93	-	140	-
% Moisture	0.1	%	4.1	5.2	5.6	7.1

Client Sample ID			BH29 0.0-0.1	BH30 0.0-0.1	BH31 0.0-0.2	BH32 0.0-0.2
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins mgt Sample No.			S13-De10568	S13-De10570	S13-De10572	S13-De10573
Date Sampled			Dec 10, 2013	Dec 10, 2013	Dec 10, 2013	Dec 10, 2013
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	20	mg/kg	-	-	< 20	< 20
TRH C10-C14	20	mg/kg	-	-	< 20	< 20
TRH C15-C28	50	mg/kg	-	-	< 50	< 50
TRH C29-C36	50	mg/kg	-	-	100	100
TRH C10-36 (Total)	50	mg/kg	-	-	100	100
BTEX						
Benzene	0.1	mg/kg	-	-	< 0.1	< 0.1
Toluene	0.1	mg/kg	-	-	< 0.1	< 0.1
Ethylbenzene	0.1	mg/kg	-	-	< 0.1	< 0.1
m&p-Xylenes	0.2	mg/kg	-	-	< 0.2	< 0.2
o-Xylene	0.1	mg/kg	-	-	< 0.1	< 0.1
Xylenes - Total	0.3	mg/kg	-	-	< 0.3	< 0.3
4-Bromofluorobenzene (surr.)	1	%	-	-	122	124

Client Sample ID			BH29 0.0-0.1	BH30 0.0-0.1	BH31 0.0-0.2	BH32 0.0-0.2
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins mgt Sample No.			S13-De10568	S13-De10570	S13-De10572	S13-De10573
Date Sampled			Dec 10, 2013	Dec 10, 2013	Dec 10, 2013	Dec 10, 2013
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene ^{N02}	0.5	mg/kg	-	-	< 0.5	< 0.5
TRH C6-C10	20	mg/kg	-	-	< 20	< 20
TRH C6-C10 less BTEX (F1) ^{N04}	20	mg/kg	-	-	< 20	< 20
TRH >C10-C16	50	mg/kg	-	-	< 50	< 50
TRH >C10-C16 less Naphthalene (F2) ^{N01}	50	mg/kg	-	-	< 50	< 50
TRH >C16-C34	100	mg/kg	-	-	110	< 100
TRH >C34-C40	100	mg/kg	-	-	100	100
Polycyclic Aromatic Hydrocarbons						
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	1.5	1.4	2.3	< 0.5
Benzo(a)pyrene	0.5	mg/kg	1.4	1.4	2.2	< 0.5
Benzo(b&j)fluoranthene ^{N07}	0.5	mg/kg	0.9	1.4	1.1	< 0.5
Benzo(g,h,i)perylene	0.5	mg/kg	1.1	1.0	1.6	< 0.5
Benzo(k)fluoranthene	0.5	mg/kg	0.9	1.0	1.4	< 0.5
Chrysene	0.5	mg/kg	0.9	1.0	1.5	< 0.5
Dibenz(a,h)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Fluoranthene	0.5	mg/kg	2.2	2.2	3.8	< 0.5
Fluorene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	0.9	0.9	1.3	< 0.5
Naphthalene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Phenanthrene	0.5	mg/kg	0.5	< 0.5	1.3	< 0.5
Pyrene	0.5	mg/kg	2.1	2.2	3.9	< 0.5
Total PAH	0.5	mg/kg	12	13	20	< 0.5
Benzo(a)pyrene TEQ (lower bound)*	0.5	mg/kg	1.8	1.9	2.8	< 0.5
Benzo(a)pyrene TEQ (medium bound)*	0.5	mg/kg	2.0	2.2	3.1	0.6
Benzo(a)pyrene TEQ (upper bound)*	0.5	mg/kg	2.3	2.4	3.3	1.2
2-Fluorobiphenyl (surr.)	1	%	91	90	92	102
p-Terphenyl-d14 (surr.)	1	%	129	120	122	129
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

Client Sample ID			BH29 0.0-0.1	BH30 0.0-0.1	BH31 0.0-0.2	BH32 0.0-0.2
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins mgt Sample No.			S13-De10568	S13-De10570	S13-De10572	S13-De10573
Date Sampled			Dec 10, 2013	Dec 10, 2013	Dec 10, 2013	Dec 10, 2013
Test/Reference	LOR	Unit				
Organochlorine Pesticides						
Hexachlorobenzene	0.05	mg/kg	-	-	-	< 0.05
Methoxychlor	0.2	mg/kg	-	-	-	< 0.2
Toxaphene	1	mg/kg	-	-	-	< 1
Dibutylchloredate (surr.)	1	%	-	-	-	77
Tetrachloro-m-xylene (surr.)	1	%	-	-	-	130
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	0.5	mg/kg	-	-	-	< 0.5
Dibutylchloredate (surr.)	1	%	-	-	-	77
Heavy Metals						
Arsenic	2	mg/kg	2.7	2.3	2.4	3.0
Cadmium	0.4	mg/kg	< 0.4	< 0.4	< 0.4	0.8
Chromium	5	mg/kg	8.1	7.9	8.6	9.5
Copper	5	mg/kg	40	45	40	170
Lead	5	mg/kg	160	82	140	290
Mercury	0.05	mg/kg	< 0.05	< 0.05	< 0.05	0.07
Nickel	5	mg/kg	6.7	14	9.5	6.8
Zinc	5	mg/kg	190	110	150	180
% Moisture	0.1	%	6.3	4.6	3.6	2.8

Client Sample ID			BH33 0.0-0.2	BH34 0.0-0.1	BH35 0.0-0.1	BH36 0.0-0.1
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins mgt Sample No.			S13-De10574	S13-De10575	S13-De10577	S13-De10579
Date Sampled			Dec 10, 2013	Dec 10, 2013	Dec 10, 2013	Dec 10, 2013
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	20	mg/kg	-	-	< 20	-
TRH C10-C14	20	mg/kg	-	-	< 20	-
TRH C15-C28	50	mg/kg	-	-	< 50	-
TRH C29-C36	50	mg/kg	-	-	61	-
TRH C10-36 (Total)	50	mg/kg	-	-	61	-
BTEX						
Benzene	0.1	mg/kg	-	-	< 0.1	-
Toluene	0.1	mg/kg	-	-	< 0.1	-
Ethylbenzene	0.1	mg/kg	-	-	< 0.1	-
m&p-Xylenes	0.2	mg/kg	-	-	< 0.2	-
o-Xylene	0.1	mg/kg	-	-	< 0.1	-
Xylenes - Total	0.3	mg/kg	-	-	< 0.3	-
4-Bromofluorobenzene (surr.)	1	%	-	-	125	-

Client Sample ID			BH33 0.0-0.2	BH34 0.0-0.1	BH35 0.0-0.1	BH36 0.0-0.1
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins mgt Sample No.			S13-De10574	S13-De10575	S13-De10577	S13-De10579
Date Sampled			Dec 10, 2013	Dec 10, 2013	Dec 10, 2013	Dec 10, 2013
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene ^{N02}	0.5	mg/kg	-	-	< 0.5	-
TRH C6-C10	20	mg/kg	-	-	< 20	-
TRH C6-C10 less BTEX (F1) ^{N04}	20	mg/kg	-	-	< 20	-
TRH >C10-C16	50	mg/kg	-	-	< 50	-
TRH >C10-C16 less Naphthalene (F2) ^{N01}	50	mg/kg	-	-	< 50	-
TRH >C16-C34	100	mg/kg	-	-	< 100	-
TRH >C34-C40	100	mg/kg	-	-	< 100	-
Polycyclic Aromatic Hydrocarbons						
Acenaphthene	0.5	mg/kg	-	0.9	< 0.5	< 0.5
Acenaphthylene	0.5	mg/kg	-	< 0.5	< 0.5	< 0.5
Anthracene	0.5	mg/kg	-	2.8	< 0.5	1.3
Benz(a)anthracene	0.5	mg/kg	-	6.5	< 0.5	5.2
Benzo(a)pyrene	0.5	mg/kg	-	5.6	< 0.5	4.0
Benzo(b&j)fluoranthene ^{N07}	0.5	mg/kg	-	2.5	< 0.5	2.7
Benzo(g,h,i)perylene	0.5	mg/kg	-	3.3	< 0.5	2.2
Benzo(k)fluoranthene	0.5	mg/kg	-	3.3	< 0.5	2.3
Chrysene	0.5	mg/kg	-	4.3	< 0.5	3.2
Dibenz(a,h)anthracene	0.5	mg/kg	-	0.7	< 0.5	0.6
Fluoranthene	0.5	mg/kg	-	18	< 0.5	8.8
Fluorene	0.5	mg/kg	-	1.7	< 0.5	< 0.5
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	-	2.7	< 0.5	1.9
Naphthalene	0.5	mg/kg	-	1.0	< 0.5	< 0.5
Phenanthrene	0.5	mg/kg	-	17	< 0.5	4.3
Pyrene	0.5	mg/kg	-	16	< 0.5	8.7
Total PAH	0.5	mg/kg	-	86	< 0.5	45
Benzo(a)pyrene TEQ (lower bound)*	0.5	mg/kg	-	7.9	< 0.5	5.9
Benzo(a)pyrene TEQ (medium bound)*	0.5	mg/kg	-	7.9	0.6	5.9
Benzo(a)pyrene TEQ (upper bound)*	0.5	mg/kg	-	7.9	1.2	5.9
2-Fluorobiphenyl (surr.)	1	%	-	96	86	92
p-Terphenyl-d14 (surr.)	1	%	-	126	125	128
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

Client Sample ID			BH33 0.0-0.2	BH34 0.0-0.1	BH35 0.0-0.1	BH36 0.0-0.1
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins mgt Sample No.			S13-De10574	S13-De10575	S13-De10577	S13-De10579
Date Sampled			Dec 10, 2013	Dec 10, 2013	Dec 10, 2013	Dec 10, 2013
Test/Reference	LOR	Unit				
Organochlorine Pesticides						
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	%	-	-	74	93
Tetrachloro-m-xylene (surr.)	1	%	-	-	73	72
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	0.5	mg/kg	-	-	< 0.5	< 0.5
Dibutylchlorendate (surr.)	1	%	-	-	74	93
Heavy Metals						
Arsenic	2	mg/kg	5.0	-	< 2	< 2
Cadmium	0.4	mg/kg	< 0.4	-	< 0.4	< 0.4
Chromium	5	mg/kg	< 5	-	6.0	8.3
Copper	5	mg/kg	< 5	-	23	26
Lead	5	mg/kg	< 5	-	100	57
Mercury	0.05	mg/kg	< 0.05	-	< 0.05	< 0.05
Nickel	5	mg/kg	< 5	-	7.1	< 5
Zinc	5	mg/kg	5.3	-	82	110
% Moisture	0.1	%	3.4	2.2	4.1	9.9

Client Sample ID			BH37 0.0-0.1	BH38 0.0-0.2	BH39 0.0-0.2	BH40 0.0-0.2
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins mgt Sample No.			S13-De10581	S13-De10583	S13-De10584	S13-De10585
Date Sampled			Dec 10, 2013	Dec 10, 2013	Dec 10, 2013	Dec 10, 2013
Test/Reference	LOR	Unit				
Polycyclic Aromatic Hydrocarbons						
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	1.4	< 0.5	-	< 0.5
Benz(a)anthracene	0.5	mg/kg	5.7	0.6	-	1.4
Benzo(a)pyrene	0.5	mg/kg	4.1	0.5	-	1.1
Benzo(b&j)fluoranthene ^{N07}	0.5	mg/kg	2.4	< 0.5	-	1.1
Benzo(g,h,i)perylene	0.5	mg/kg	2.3	< 0.5	-	0.8
Benzo(k)fluoranthene	0.5	mg/kg	2.5	< 0.5	-	0.9
Chrysene	0.5	mg/kg	3.4	< 0.5	-	0.9
Dibenz(a,h)anthracene	0.5	mg/kg	0.7	< 0.5	-	< 0.5
Fluoranthene	0.5	mg/kg	9.7	1.0	-	2.3
Fluorene	0.5	mg/kg	< 0.5	< 0.5	-	< 0.5
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	2.0	< 0.5	-	0.7
Naphthalene	0.5	mg/kg	< 0.5	< 0.5	-	< 0.5
Phenanthrene	0.5	mg/kg	4.0	< 0.5	-	0.9
Pyrene	0.5	mg/kg	9.2	1.0	-	2.3

Client Sample ID			BH37 0.0-0.1	BH38 0.0-0.2	BH39 0.0-0.2	BH40 0.0-0.2
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins mgt Sample No.			S13-De10581	S13-De10583	S13-De10584	S13-De10585
Date Sampled			Dec 10, 2013	Dec 10, 2013	Dec 10, 2013	Dec 10, 2013
Test/Reference	LOR	Unit				
Polycyclic Aromatic Hydrocarbons						
Total PAH	0.5	mg/kg	47	3.1	-	12
Benzo(a)pyrene TEQ (lower bound)*	0.5	mg/kg	6.1	0.6	-	1.6
Benzo(a)pyrene TEQ (medium bound)*	0.5	mg/kg	6.1	0.9	-	1.8
Benzo(a)pyrene TEQ (upper bound)*	0.5	mg/kg	6.1	1.2	-	2.1
2-Fluorobiphenyl (surr.)	1	%	90	89	-	85
p-Terphenyl-d14 (surr.)	1	%	115	127	-	128
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	-	-
Dibutylchloroendate (surr.)	1	%	-	97	-	-
Tetrachloro-m-xylene (surr.)	1	%	-	80	-	-
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	0.5	mg/kg	-	< 0.5	-	-
Dibutylchloroendate (surr.)	1	%	-	97	-	-
Heavy Metals						
Arsenic	2	mg/kg	< 2	< 2	< 2	< 2
Cadmium	0.4	mg/kg	< 0.4	< 0.4	0.8	< 0.4
Chromium	5	mg/kg	12	6.6	14	5.6
Copper	5	mg/kg	23	26	72	23
Lead	5	mg/kg	110	94	180	120
Mercury	0.05	mg/kg	< 0.05	< 0.05	0.09	< 0.05
Nickel	5	mg/kg	9.5	< 5	11	9.0
Zinc	5	mg/kg	110	85	340	150
% Moisture	0.1	%	4.2	15	32	4.1

Client Sample ID			BH41 0.0-0.1 Soil	BH41 0.1-0.3 Soil	BH42 0.0-0.1 Soil	QC01 Soil
Sample Matrix			S13-De10586	S13-De10587	S13-De10588	S13-De10590
Eurofins mgt Sample No.			Dec 10, 2013	Dec 10, 2013	Dec 10, 2013	Dec 10, 2013
Date Sampled						
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	20	mg/kg	< 20	-	< 20	-
TRH C10-C14	20	mg/kg	< 20	-	< 20	-
TRH C15-C28	50	mg/kg	< 50	-	55	-
TRH C29-C36	50	mg/kg	51	-	60	-
TRH C10-36 (Total)	50	mg/kg	51	-	120	-
BTEX						
Benzene	0.1	mg/kg	< 0.1	-	< 0.1	-
Toluene	0.1	mg/kg	< 0.1	-	< 0.1	-
Ethylbenzene	0.1	mg/kg	< 0.1	-	< 0.1	-
m&p-Xylenes	0.2	mg/kg	< 0.2	-	< 0.2	-
o-Xylene	0.1	mg/kg	< 0.1	-	< 0.1	-
Xylenes - Total	0.3	mg/kg	< 0.3	-	< 0.3	-
4-Bromofluorobenzene (surr.)	1	%	129	-	121	-
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene ^{N02}	0.5	mg/kg	< 0.5	-	< 0.5	-
TRH C6-C10	20	mg/kg	< 20	-	< 20	-
TRH C6-C10 less BTEX (F1) ^{N04}	20	mg/kg	< 20	-	< 20	-
TRH >C10-C16	50	mg/kg	< 50	-	< 50	-
TRH >C10-C16 less Naphthalene (F2) ^{N01}	50	mg/kg	< 50	-	< 50	-
TRH >C16-C34	100	mg/kg	< 100	-	< 100	-
TRH >C34-C40	100	mg/kg	< 100	-	110	-
Polycyclic Aromatic Hydrocarbons						
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	0.6	< 0.5	< 0.5	< 0.5
Benz(a)anthracene	0.5	mg/kg	1.4	1.4	1.3	< 0.5
Benzo(a)pyrene	0.5	mg/kg	1.1	1.3	1.1	< 0.5
Benzo(b&j)fluoranthene ^{N07}	0.5	mg/kg	1.1	1.3	1.2	< 0.5
Benzo(g,h,i)perylene	0.5	mg/kg	0.8	0.9	0.9	< 0.5
Benzo(k)fluoranthene	0.5	mg/kg	0.8	1.0	0.8	< 0.5
Chrysene	0.5	mg/kg	1.0	1.0	0.9	< 0.5
Dibenz(a,h)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Fluoranthene	0.5	mg/kg	2.6	2.0	1.7	< 0.5
Fluorene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Indeno(1,2,3-cd)pyrene	0.5	mg/kg	0.6	0.7	0.7	< 0.5
Naphthalene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Phenanthrene	0.5	mg/kg	1.0	0.5	< 0.5	< 0.5
Pyrene	0.5	mg/kg	2.3	2.0	1.8	< 0.5
Total PAH	0.5	mg/kg	13	12	10	< 0.5
Benzo(a)pyrene TEQ (lower bound)*	0.5	mg/kg	1.5	1.8	1.5	< 0.5
Benzo(a)pyrene TEQ (medium bound)*	0.5	mg/kg	1.7	2.0	1.8	0.6
Benzo(a)pyrene TEQ (upper bound)*	0.5	mg/kg	2.0	2.3	2.0	1.2
2-Fluorobiphenyl (surr.)	1	%	94	92	91	95
p-Terphenyl-d14 (surr.)	1	%	107	101	127	128
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	-	-	-

Client Sample ID			BH41 0.0-0.1 Soil	BH41 0.1-0.3 Soil	BH42 0.0-0.1 Soil	QC01 Soil
Sample Matrix			S13-De10586	S13-De10587	S13-De10588	S13-De10590
Eurofins mgt Sample No.			Dec 10, 2013	Dec 10, 2013	Dec 10, 2013	Dec 10, 2013
Date Sampled						
Test/Reference	LOR	Unit				
Organochlorine Pesticides						
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	-	-	-
Dibutylchlorodate (surr.)	1	%	75	-	-	-
Tetrachloro-m-xylene (surr.)	1	%	83	-	-	-
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	0.5	mg/kg	< 0.5	-	-	-
Dibutylchlorodate (surr.)	1	%	75	-	-	-
Heavy Metals						
Arsenic	2	mg/kg	3.2	-	< 2	2.1
Cadmium	0.4	mg/kg	0.7	-	< 0.4	0.5
Chromium	5	mg/kg	13	-	< 5	16
Copper	5	mg/kg	56	-	28	59
Lead	5	mg/kg	230	-	150	49
Mercury	0.05	mg/kg	0.08	-	0.08	0.07
Nickel	5	mg/kg	20	-	< 5	14
Zinc	5	mg/kg	200	-	150	220
% Moisture	0.1	%	3.0	2.2	2.6	15

Client Sample ID			QC03
Sample Matrix			Soil
Eurofins mgt Sample No.			S13-De10592
Date Sampled			Dec 10, 2013
Test/Reference	LOR	Unit	
Total Recoverable Hydrocarbons - 1999 NEPM Fractions			
TRH C6-C9	20	mg/kg	< 20
TRH C10-C14	20	mg/kg	< 20
TRH C15-C28	50	mg/kg	< 50
TRH C29-C36	50	mg/kg	54
TRH C10-36 (Total)	50	mg/kg	54
BTEX			
Benzene	0.1	mg/kg	< 0.1
Toluene	0.1	mg/kg	< 0.1
Ethylbenzene	0.1	mg/kg	< 0.1
m&p-Xylenes	0.2	mg/kg	< 0.2
o-Xylene	0.1	mg/kg	< 0.1
Xylenes - Total	0.3	mg/kg	< 0.3
4-Bromofluorobenzene (surr.)	1	%	124
Total Recoverable Hydrocarbons - 2013 NEPM Fractions			
Naphthalene ^{N02}	0.5	mg/kg	< 0.5
TRH C6-C10	20	mg/kg	< 20
TRH C6-C10 less BTEX (F1) ^{N04}	20	mg/kg	< 20
TRH >C10-C16	50	mg/kg	< 50
TRH >C10-C16 less Naphthalene (F2) ^{N01}	50	mg/kg	< 50
TRH >C16-C34	100	mg/kg	< 100
TRH >C34-C40	100	mg/kg	< 100
Polycyclic Aromatic Hydrocarbons			
Acenaphthene	0.5	mg/kg	< 0.5
Acenaphthylene	0.5	mg/kg	< 0.5
Anthracene	0.5	mg/kg	< 0.5
Benz(a)anthracene	0.5	mg/kg	0.6
Benzo(a)pyrene	0.5	mg/kg	0.5
Benzo(b&j)fluoranthene ^{N07}	0.5	mg/kg	< 0.5
Benzo(g,h,i)perylene	0.5	mg/kg	< 0.5
Benzo(k)fluoranthene	0.5	mg/kg	< 0.5
Chrysene	0.5	mg/kg	< 0.5
Dibenz(a,h)anthracene	0.5	mg/kg	< 0.5
Fluoranthene	0.5	mg/kg	0.7
Fluorene	0.5	mg/kg	< 0.5
Indeno(1,2,3-cd)pyrene	0.5	mg/kg	< 0.5
Naphthalene	0.5	mg/kg	< 0.5
Phenanthrene	0.5	mg/kg	< 0.5
Pyrene	0.5	mg/kg	0.7
Total PAH	0.5	mg/kg	2.5
Benzo(a)pyrene TEQ (lower bound)*	0.5	mg/kg	0.6
Benzo(a)pyrene TEQ (medium bound)*	0.5	mg/kg	0.9
Benzo(a)pyrene TEQ (upper bound)*	0.5	mg/kg	1.2
2-Fluorobiphenyl (surr.)	1	%	89
p-Terphenyl-d14 (surr.)	1	%	116
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

Client Sample ID			QC03
Sample Matrix			Soil
Eurofins mgt Sample No.			S13-De10592
Date Sampled			Dec 10, 2013
Test/Reference	LOR	Unit	
Organochlorine Pesticides			
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
Dibutylchlorodate (surr.)	1	%	81
Tetrachloro-m-xylene (surr.)	1	%	74
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	0.5	mg/kg	< 0.5
Dibutylchlorodate (surr.)	1	%	81
Heavy Metals			
Arsenic	2	mg/kg	6.9
Cadmium	0.4	mg/kg	0.6
Chromium	5	mg/kg	14
Copper	5	mg/kg	62
Lead	5	mg/kg	210
Mercury	0.05	mg/kg	0.09
Nickel	5	mg/kg	23
Zinc	5	mg/kg	200
% Moisture			
	0.1	%	2.7

Sample History

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

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

Description	Testing Site	Extracted	Holding Time
Total Recoverable Hydrocarbons - 1999 NEPM Fractions - Method: E004 Petroleum Hydrocarbons (TPH)	Sydney	Dec 12, 2013	14 Day
Total Recoverable Hydrocarbons - 2013 NEPM Fractions - Method: LM-LTM-ORG2010	Sydney	Dec 12, 2013	14 Day
BTEX - Method: E029/E016 BTEX	Sydney	Dec 12, 2013	14 Day
Polycyclic Aromatic Hydrocarbons - Method: E007 Polyaromatic Hydrocarbons (PAH)	Sydney	Dec 12, 2013	14 Day
Organochlorine Pesticides - Method: E013 Organochlorine Pesticides (OC)	Sydney	Dec 12, 2013	14 Day
Polychlorinated Biphenyls (PCB) - Method: E013 Polychlorinated Biphenyls (PCB)	Sydney	Dec 12, 2013	28 Day
Metals M8 - Method: E022 Acid Extractable metals in Soils & E026 Mercury	Sydney	Dec 12, 2013	28 Day
% Moisture - Method: E005 Moisture Content	Sydney	Dec 12, 2013	28 Day

Company Name: JBS & G (NSW & WA) Pty Ltd Address: Level 1, 50 Margaret St Sydney NSW 2000 Client Job No.: WEST CONNEX 43069	Order No.: Report #: 403263 Phone: 02 8245 0300 Fax:	Received: Dec 11, 2013 4:09 PM Due: Dec 19, 2013 Priority: 5 Day Contact Name: Chris Bielby
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Eurofins | mgt Client Manager: Jean Heng

Sample Detail					% Moisture	HOLD	Polycyclic Aromatic Hydrocarbons	Organochlorine Pesticides	Metals M8	Metals M8 filtered	BTEX	Polychlorinated Biphenyls (PCB)	Total Recoverable Hydrocarbons
Laboratory where analysis is conducted													
Melbourne Laboratory - NATA Site # 1254 & 14271													
Sydney Laboratory - NATA Site # 18217					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									
BH01 0.0-0.2	Dec 09, 2013		Soil	S13-De10528	X		X		X				
BH02 0.0-0.2	Dec 09, 2013		Soil	S13-De10529	X		X	X	X			X	
BH03 0.0-0.2	Dec 09, 2013		Soil	S13-De10530	X				X		X		X
BH04 0.0-0.2	Dec 09, 2013		Soil	S13-De10531	X		X						
BH05 0.0-0.2	Dec 09, 2013		Soil	S13-De10532	X				X				
BH05 0.2-0.3	Dec 09, 2013		Soil	S13-De10533		X							
BH06 0.0-0.2	Dec 09, 2013		Soil	S13-De10534	X		X						
BH07 0.0-0.2	Dec 09, 2013		Soil	S13-De10535	X				X				
BH07 0.1-0.3	Dec 09, 2013		Soil	S13-De10536		X							
BH08 0.0-0.2	Dec 09, 2013		Soil	S13-De10537	X		X				X		X

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Sample Detail					% Moisture	HOLD	Polycyclic Aromatic Hydrocarbons	Organochlorine Pesticides	Metals M8	Metals M8 filtered	BTEX	Polychlorinated Biphenyls (PCB)	Total Recoverable Hydrocarbons
Laboratory where analysis is conducted													
Melbourne Laboratory - NATA Site # 1254 & 14271													
Sydney Laboratory - NATA Site # 18217					X	X	X	X	X	X	X	X	X
Brisbane Laboratory - NATA Site # 20794													
External Laboratory													
BH09 0.0-0.2	Dec 09, 2013		Soil	S13-De10538	X				X				
BH10 0.0-0.2	Dec 09, 2013		Soil	S13-De10539	X		X		X				
BH11 0.0-0.2	Dec 09, 2013		Soil	S13-De10540	X				X				
BH12 0.0-0.2	Dec 09, 2013		Soil	S13-De10541	X		X	X			X	X	X
BH13 0.0-0.2	Dec 09, 2013		Soil	S13-De10542	X				X				
BH14 0.0-0.2	Dec 09, 2013		Soil	S13-De10543	X		X		X				
BH15 0.0-0.2	Dec 09, 2013		Soil	S13-De10544	X				X				
BH16 0.0-0.2	Dec 09, 2013		Soil	S13-De10545	X		X						
BH17 0.0-0.2	Dec 09, 2013		Soil	S13-De10546	X		X		X		X		X
BH18 0.0-0.1	Dec 09, 2013		Soil	S13-De10547	X		X						
BH18 0.1-0.3	Dec 09, 2013		Soil	S13-De10548		X							

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Eurofins mgt Client Manager: Jean Heng		

Sample Detail					% Moisture	HOLD	Polycyclic Aromatic Hydrocarbons	Organochlorine Pesticides	Metals M8	Metals M8 filtered	BTEX	Polychlorinated Biphenyls (PCB)	Total Recoverable Hydrocarbons
Laboratory where analysis is conducted													
Melbourne Laboratory - NATA Site # 1254 & 14271													
Sydney Laboratory - NATA Site # 18217					X	X	X	X	X	X	X	X	
Brisbane Laboratory - NATA Site # 20794													
External Laboratory													
BH19 0.0-0.2	Dec 09, 2013		Soil	S13-De10549	X				X		X		X
BH19 0.2-0.3	Dec 09, 2013		Soil	S13-De10550		X							
BH20 0.0-0.2	Dec 09, 2013		Soil	S13-De10551	X		X	X			X	X	X
BH21 0.0-0.2	Dec 09, 2013		Soil	S13-De10552	X				X		X		X
BH21 0.3-0.4	Dec 09, 2013		Soil	S13-De10553		X							
BH22 0.0-0.2	Dec 09, 2013		Soil	S13-De10554	X		X				X		X
BH22 0.2-0.3	Dec 09, 2013		Soil	S13-De10555		X							
BH23 0.0-0.1	Dec 10, 2013		Soil	S13-De10556	X		X	X	X		X	X	X
BH23 0.1-0.3	Dec 10, 2013		Soil	S13-De10557		X							
BH24 0.0-0.1	Dec 10, 2013		Soil	S13-De10558	X		X						
BH24 0.1-0.3	Dec 10, 2013		Soil	S13-De10559		X							

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Sample Detail					% Moisture	HOLD	Polycyclic Aromatic Hydrocarbons	Organochlorine Pesticides	Metals M8	Metals M8 filtered	BTEX	Polychlorinated Biphenyls (PCB)	Total Recoverable Hydrocarbons
Laboratory where analysis is conducted													
Melbourne Laboratory - NATA Site # 1254 & 14271													
Sydney Laboratory - NATA Site # 18217					X	X	X	X	X	X	X	X	X
Brisbane Laboratory - NATA Site # 20794													
External Laboratory													
BH25 0.0-0.1	Dec 10, 2013		Soil	S13-De10560	X				X				
BH25 0.1-0.3	Dec 10, 2013		Soil	S13-De10561		X							
BH26 0.0-0.1	Dec 10, 2013		Soil	S13-De10562	X		X				X	X	
BH26 0.1-0.3	Dec 10, 2013		Soil	S13-De10563		X							
BH27 0.0-0.1	Dec 10, 2013		Soil	S13-De10564	X				X				
BH27 0.1-0.3	Dec 10, 2013		Soil	S13-De10565		X							
BH28 0.0-0.1	Dec 10, 2013		Soil	S13-De10566	X		X				X	X	
BH28 0.1-0.3	Dec 10, 2013		Soil	S13-De10567		X							
BH29 0.0-0.1	Dec 10, 2013		Soil	S13-De10568	X		X		X				
BH29 0.1-0.3	Dec 10, 2013		Soil	S13-De10569		X							
BH30 0.0-0.1	Dec 10, 2013		Soil	S13-De10570	X		X		X				

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Sample Detail					% Moisture	HOLD	Polycyclic Aromatic Hydrocarbons	Organochlorine Pesticides	Metals M8	Metals M8 filtered	BTEX	Polychlorinated Biphenyls (PCB)	Total Recoverable Hydrocarbons
Laboratory where analysis is conducted													
Melbourne Laboratory - NATA Site # 1254 & 14271													
Sydney Laboratory - NATA Site # 18217					X	X	X	X	X	X	X	X	X
Brisbane Laboratory - NATA Site # 20794													
External Laboratory													
BH30 0.1-0.3	Dec 10, 2013		Soil	S13-De10571		X							
BH31 0.0-0.2	Dec 10, 2013		Soil	S13-De10572	X		X		X		X		X
BH32 0.0-0.2	Dec 10, 2013		Soil	S13-De10573	X		X	X	X		X	X	X
BH33 0.0-0.2	Dec 10, 2013		Soil	S13-De10574	X				X				
BH34 0.0-0.1	Dec 10, 2013		Soil	S13-De10575	X		X						
BH34 0.1-0.3	Dec 10, 2013		Soil	S13-De10576		X							
BH35 0.0-0.1	Dec 10, 2013		Soil	S13-De10577	X		X	X	X		X	X	X
BH35 0.1-0.3	Dec 10, 2013		Soil	S13-De10578		X							
BH36 0.0-0.1	Dec 10, 2013		Soil	S13-De10579	X		X	X	X			X	
BH36 0.1-0.3	Dec 10, 2013		Soil	S13-De10580		X							
BH37 0.0-0.1	Dec 10, 2013		Soil	S13-De10581	X		X		X				

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Sample Detail					% Moisture	HOLD	Polycyclic Aromatic Hydrocarbons	Organochlorine Pesticides	Metals M8	Metals M8 filtered	BTEX	Polychlorinated Biphenyls (PCB)	Total Recoverable Hydrocarbons
Laboratory where analysis is conducted													
Melbourne Laboratory - NATA Site # 1254 & 14271													
Sydney Laboratory - NATA Site # 18217					X	X	X	X	X	X	X	X	X
Brisbane Laboratory - NATA Site # 20794													
External Laboratory													
BH37 0.1-0.3	Dec 10, 2013		Soil	S13-De10582		X							
BH38 0.0-0.2	Dec 10, 2013		Soil	S13-De10583	X		X	X	X			X	
BH39 0.0-0.2	Dec 10, 2013		Soil	S13-De10584	X				X				
BH40 0.0-0.2	Dec 10, 2013		Soil	S13-De10585	X		X		X				
BH41 0.0-0.1	Dec 10, 2013		Soil	S13-De10586	X		X	X	X		X	X	X
BH41 0.1-0.3	Dec 10, 2013		Soil	S13-De10587	X		X						
BH42 0.0-0.1	Dec 10, 2013		Soil	S13-De10588	X		X		X		X		X
BH42 0.1-0.3	Dec 10, 2013		Soil	S13-De10589		X							
QC01	Dec 10, 2013		Soil	S13-De10590	X		X		X				
QC02	Dec 10, 2013		Soil	S13-De10591		X							
QC03	Dec 10, 2013		Soil	S13-De10592	X		X	X	X		X	X	X

Company Name: JBS & G (NSW & WA) Pty Ltd Address: Level 1, 50 Margaret St Sydney NSW 2000 Client Job No.: WEST CONNEX 43069	Order No.: Report #: 403263 Phone: 02 8245 0300 Fax:	Received: Dec 11, 2013 4:09 PM Due: Dec 19, 2013 Priority: 5 Day Contact Name: Chris Bielby
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Sample Detail					% Moisture	HOLD	Polycyclic Aromatic Hydrocarbons	Organochlorine Pesticides	Metals M8	Metals M8 filtered	BTEX	Polychlorinated Biphenyls (PCB)	Total Recoverable Hydrocarbons
Laboratory where analysis is conducted													
Melbourne Laboratory - NATA Site # 1254 & 14271													
Sydney Laboratory - NATA Site # 18217					X	X	X	X	X	X	X	X	X
Brisbane Laboratory - NATA Site # 20794													
External Laboratory													
RINSATE	Dec 10, 2013		Water	S13-De10593			X	X		X	X	X	X
TS	Dec 10, 2013		Water	S13-De10594							X		
TB	Dec 10, 2013		Water	S13-De10595							X		
BH38 0.0-0.1	Dec 10, 2013		Soil	S13-De10630		X							
BH38 0.1-0.3	Dec 10, 2013		Soil	S13-De10631		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 PQLs are matrix dependant. Quoted PQLs 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 Acknowledgment.

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: 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	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	
Total PCB	mg/kg	< 0.5			0.5	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	%	94			70-130	Pass	
TRH C10-C14	%	83			70-130	Pass	
LCS - % Recovery							
BTEX							
Benzene	%	103			70-130	Pass	
Toluene	%	101			70-130	Pass	
Ethylbenzene	%	100			70-130	Pass	
m&p-Xylenes	%	102			70-130	Pass	
o-Xylene	%	101			70-130	Pass	
Xylenes - Total	%	102			70-130	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	%	90			70-130	Pass	
TRH C6-C10	%	100			70-130	Pass	
TRH >C10-C16	%	90			70-130	Pass	
LCS - % Recovery							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	%	76			70-130	Pass	
Acenaphthylene	%	72			70-130	Pass	
Anthracene	%	78			70-130	Pass	
Benz(a)anthracene	%	88			70-130	Pass	
Benzo(a)pyrene	%	83			70-130	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code	
Benzo(b&j)fluoranthene	%	76			70-130	Pass		
Benzo(g,h,i)perylene	%	75			70-130	Pass		
Benzo(k)fluoranthene	%	84			70-130	Pass		
Chrysene	%	79			70-130	Pass		
Dibenz(a,h)anthracene	%	77			70-130	Pass		
Fluoranthene	%	76			70-130	Pass		
Fluorene	%	73			70-130	Pass		
Indeno(1,2,3-cd)pyrene	%	77			70-130	Pass		
Naphthalene	%	76			70-130	Pass		
Phenanthrene	%	77			70-130	Pass		
Pyrene	%	77			70-130	Pass		
LCS - % Recovery								
Organochlorine Pesticides								
Chlordanes - Total	%	113			70-130	Pass		
4,4'-DDD	%	108			70-130	Pass		
4,4'-DDE	%	111			70-130	Pass		
4,4'-DDT	%	121			70-130	Pass		
a-BHC	%	112			70-130	Pass		
Aldrin	%	118			70-130	Pass		
b-BHC	%	112			70-130	Pass		
d-BHC	%	109			70-130	Pass		
Dieldrin	%	114			70-130	Pass		
Endosulfan I	%	114			70-130	Pass		
Endosulfan II	%	114			70-130	Pass		
Endosulfan sulphate	%	109			70-130	Pass		
Endrin	%	112			70-130	Pass		
Endrin aldehyde	%	106			70-130	Pass		
Endrin ketone	%	112			70-130	Pass		
g-BHC (Lindane)	%	112			70-130	Pass		
Heptachlor	%	112			70-130	Pass		
Heptachlor epoxide	%	112			70-130	Pass		
Hexachlorobenzene	%	90			70-130	Pass		
Methoxychlor	%	113			70-130	Pass		
LCS - % Recovery								
Polychlorinated Biphenyls (PCB)								
Aroclor-1260	%	96			70-130	Pass		
LCS - % Recovery								
Heavy Metals								
Arsenic	%	88			70-130	Pass		
Cadmium	%	95			70-130	Pass		
Chromium	%	101			70-130	Pass		
Copper	%	103			70-130	Pass		
Lead	%	96			70-130	Pass		
Mercury	%	85			70-130	Pass		
Nickel	%	103			70-130	Pass		
Zinc	%	102			70-130	Pass		
Test	Lab Sample ID	QA Source	Units	Result 1		Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery								
Polycyclic Aromatic Hydrocarbons								
Acenaphthene	S13-De10528	CP	%	130		70-130	Pass	
Acenaphthylene	S13-De10528	CP	%	124		70-130	Pass	
Anthracene	S13-De10528	CP	%	130		70-130	Pass	
Benz(a)anthracene	S13-De10528	CP	%	123		70-130	Pass	
Benzo(a)pyrene	S13-De10528	CP	%	114		70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1		Acceptance Limits	Pass Limits	Qualifying Code
Benzo(b&i)fluoranthene	S13-De10528	CP	%	71		70-130	Pass	
Benzo(g,h,i)perylene	S13-De10528	CP	%	113		70-130	Pass	
Benzo(k)fluoranthene	S13-De10528	CP	%	117		70-130	Pass	
Chrysene	S13-De10528	CP	%	89		70-130	Pass	
Dibenz(a,h)anthracene	S13-De10528	CP	%	124		70-130	Pass	
Fluoranthene	S13-De10528	CP	%	111		70-130	Pass	
Fluorene	S13-De10528	CP	%	126		70-130	Pass	
Indeno(1,2,3-cd)pyrene	S13-De10528	CP	%	120		70-130	Pass	
Naphthalene	S13-De10528	CP	%	125		70-130	Pass	
Phenanthrene	S13-De10528	CP	%	121		70-130	Pass	
Pyrene	S13-De10528	CP	%	110		70-130	Pass	
Spike - % Recovery								
Heavy Metals				Result 1				
Arsenic	S13-De10528	CP	%	99		70-130	Pass	
Cadmium	S13-De10528	CP	%	86		70-130	Pass	
Chromium	S13-De10528	CP	%	94		70-130	Pass	
Copper	S13-De10528	CP	%	122		70-130	Pass	
Lead	S13-De10528	CP	%	97		70-130	Pass	
Mercury	S13-De10528	CP	%	80		70-130	Pass	
Nickel	S13-De10528	CP	%	77		70-130	Pass	
Zinc	S13-De10528	CP	%	121		70-130	Pass	
Spike - % Recovery								
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1				
TRH C6-C9	S13-De10530	CP	%	81		70-130	Pass	
Spike - % Recovery								
BTEX				Result 1				
Benzene	S13-De10530	CP	%	94		70-130	Pass	
Toluene	S13-De10530	CP	%	92		70-130	Pass	
Ethylbenzene	S13-De10530	CP	%	92		70-130	Pass	
m&p-Xylenes	S13-De10530	CP	%	93		70-130	Pass	
o-Xylene	S13-De10530	CP	%	93		70-130	Pass	
Xylenes - Total	S13-De10530	CP	%	93		70-130	Pass	
Spike - % Recovery								
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1				
Naphthalene	S13-De10530	CP	%	82		70-130	Pass	
TRH C6-C10	S13-De10530	CP	%	96		70-130	Pass	
Spike - % Recovery								
Heavy Metals				Result 1				
Arsenic	S13-De10544	CP	%	103		70-130	Pass	
Cadmium	S13-De10544	CP	%	91		70-130	Pass	
Chromium	S13-De10544	CP	%	103		70-130	Pass	
Copper	S13-De10544	CP	%	108		70-130	Pass	
Lead	S13-De10544	CP	%	70		70-130	Pass	
Nickel	S13-De10544	CP	%	89		70-130	Pass	
Zinc	S13-De10544	CP	%	101		70-130	Pass	
Spike - % Recovery								
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1				
TRH C10-C14	S13-De10546	CP	%	85		70-130	Pass	
Spike - % Recovery								
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1				
TRH >C10-C16	S13-De10546	CP	%	90		70-130	Pass	
Spike - % Recovery								
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1				
TRH C6-C9	S13-De10566	CP	%	83		70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1		Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery								
BTEX				Result 1				
Benzene	S13-De10566	CP	%	98		70-130	Pass	
Toluene	S13-De10566	CP	%	96		70-130	Pass	
Ethylbenzene	S13-De10566	CP	%	95		70-130	Pass	
m&p-Xylenes	S13-De10566	CP	%	97		70-130	Pass	
o-Xylene	S13-De10566	CP	%	96		70-130	Pass	
Xylenes - Total	S13-De10566	CP	%	97		70-130	Pass	
Spike - % Recovery								
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1				
Naphthalene	S13-De10566	CP	%	80		70-130	Pass	
TRH C6-C10	S13-De10566	CP	%	101		70-130	Pass	
Spike - % Recovery								
Heavy Metals				Result 1				
Arsenic	S13-De10573	CP	%	88		70-130	Pass	
Cadmium	S13-De10573	CP	%	84		70-130	Pass	
Chromium	S13-De10573	CP	%	101		70-130	Pass	
Mercury	S13-De10573	CP	%	86		70-130	Pass	
Nickel	S13-De10573	CP	%	101		70-130	Pass	
Zinc	S13-De10573	CP	%	79		70-130	Pass	
Spike - % Recovery								
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1				
TRH C10-C14	S13-De10586	CP	%	91		70-130	Pass	
Spike - % Recovery								
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1				
TRH >C10-C16	S13-De10586	CP	%	101		70-130	Pass	
Spike - % Recovery								
Polycyclic Aromatic Hydrocarbons				Result 1				
Acenaphthene	S13-De10586	CP	%	125		70-130	Pass	
Acenaphthylene	S13-De10586	CP	%	101		70-130	Pass	
Anthracene	S13-De10586	CP	%	102		70-130	Pass	
Benz(a)anthracene	S13-De10586	CP	%	96		70-130	Pass	
Benzo(a)pyrene	S13-De10586	CP	%	99		70-130	Pass	
Benzo(b&j)fluoranthene	S13-De10586	CP	%	130		70-130	Pass	
Benzo(g,h,i)perylene	S13-De10586	CP	%	99		70-130	Pass	
Benzo(k)fluoranthene	S13-De10586	CP	%	84		70-130	Pass	
Chrysene	S13-De10586	CP	%	97		70-130	Pass	
Dibenz(a,h)anthracene	S13-De10586	CP	%	118		70-130	Pass	
Fluoranthene	S13-De10586	CP	%	70		70-130	Pass	
Fluorene	S13-De10586	CP	%	114		70-130	Pass	
Indeno(1,2,3-cd)pyrene	S13-De10586	CP	%	108		70-130	Pass	
Naphthalene	S13-De10586	CP	%	123		70-130	Pass	
Phenanthrene	S13-De10586	CP	%	82		70-130	Pass	
Pyrene	S13-De10586	CP	%	77		70-130	Pass	
Spike - % Recovery								
Heavy Metals				Result 1				
Arsenic	S13-De10590	CP	%	108		70-130	Pass	
Cadmium	S13-De10590	CP	%	97		70-130	Pass	
Chromium	S13-De10590	CP	%	76		70-130	Pass	
Copper	S13-De10590	CP	%	128		70-130	Pass	
Mercury	S13-De10590	CP	%	86		70-130	Pass	
Nickel	S13-De10590	CP	%	99		70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1	Result 2	RPD	Acceptance Limits	Pass Limits	Qualifying Code
Duplicate									
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD			
Acenaphthene	S13-De10528	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Acenaphthylene	S13-De10528	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Anthracene	S13-De10528	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benz(a)anthracene	S13-De10528	CP	mg/kg	0.7	0.7	9.0	30%	Pass	
Benzo(a)pyrene	S13-De10528	CP	mg/kg	0.6	0.7	12	30%	Pass	
Benzo(b&j)fluoranthene	S13-De10528	CP	mg/kg	< 0.5	0.5	27	30%	Pass	
Benzo(g,h,i)perylene	S13-De10528	CP	mg/kg	0.5	0.6	10	30%	Pass	
Benzo(k)fluoranthene	S13-De10528	CP	mg/kg	< 0.5	0.5	13	30%	Pass	
Chrysene	S13-De10528	CP	mg/kg	0.5	0.6	10	30%	Pass	
Dibenz(a,h)anthracene	S13-De10528	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fluoranthene	S13-De10528	CP	mg/kg	1.1	1.3	15	30%	Pass	
Fluorene	S13-De10528	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Indeno(1,2,3-cd)pyrene	S13-De10528	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Naphthalene	S13-De10528	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Phenanthrene	S13-De10528	CP	mg/kg	< 0.5	0.5	55	30%	Fail	Q15
Pyrene	S13-De10528	CP	mg/kg	1.1	1.2	12	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic	S13-De10528	CP	mg/kg	2.1	< 2	74	30%	Fail	Q15
Cadmium	S13-De10528	CP	mg/kg	0.8	0.5	47	30%	Fail	Q15
Chromium	S13-De10528	CP	mg/kg	24	16	41	30%	Fail	Q15
Copper	S13-De10528	CP	mg/kg	46	43	7.0	30%	Pass	
Lead	S13-De10528	CP	mg/kg	140	100	29	30%	Pass	
Mercury	S13-De10528	CP	mg/kg	0.16	0.15	11	30%	Pass	
Nickel	S13-De10528	CP	mg/kg	12	6.4	59	30%	Fail	Q15
Duplicate									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1	Result 2	RPD			
TRH C6-C9	S13-De10530	CP	mg/kg	< 20	< 20	<1	30%	Pass	
Duplicate									
BTEX				Result 1	Result 2	RPD			
Benzene	S13-De10530	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Toluene	S13-De10530	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Ethylbenzene	S13-De10530	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
m&p-Xylenes	S13-De10530	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
o-Xylene	S13-De10530	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Xylenes - Total	S13-De10530	CP	mg/kg	< 0.3	< 0.3	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD			
Naphthalene	S13-De10530	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
TRH C6-C10	S13-De10530	CP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH C6-C10 less BTEX (F1)	S13-De10530	CP	mg/kg	< 20	< 20	<1	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic	S13-De10544	CP	mg/kg	< 2	3.2	100	30%	Fail	Q15
Cadmium	S13-De10544	CP	mg/kg	0.5	0.5	9.0	30%	Pass	
Chromium	S13-De10544	CP	mg/kg	10	14	29	30%	Pass	
Copper	S13-De10544	CP	mg/kg	58	62	6.0	30%	Pass	
Lead	S13-De10544	CP	mg/kg	140	140	3.0	30%	Pass	
Nickel	S13-De10544	CP	mg/kg	13	12	8.0	30%	Pass	
Zinc	S13-De10544	CP	mg/kg	210	240	10	30%	Pass	

Duplicate								
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD		
Acenaphthene	S13-De10546	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Acenaphthylene	S13-De10546	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Anthracene	S13-De10546	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Benzo(a)anthracene	S13-De10546	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Benzo(a)pyrene	S13-De10546	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Benzo(b&j)fluoranthene	S13-De10546	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Benzo(g,h,i)perylene	S13-De10546	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Benzo(k)fluoranthene	S13-De10546	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Chrysene	S13-De10546	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Dibenz(a,h)anthracene	S13-De10546	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Fluoranthene	S13-De10546	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Fluorene	S13-De10546	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Indeno(1,2,3-cd)pyrene	S13-De10546	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Naphthalene	S13-De10546	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Phenanthrene	S13-De10546	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Pyrene	S13-De10546	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Duplicate								
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1	Result 2	RPD		
TRH C6-C9	S13-De10566	CP	mg/kg	< 20	< 20	<1	30%	Pass
Duplicate								
BTEX				Result 1	Result 2	RPD		
Benzene	S13-De10566	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
Toluene	S13-De10566	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
Ethylbenzene	S13-De10566	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
m&p-Xylenes	S13-De10566	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
o-Xylene	S13-De10566	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
Xylenes - Total	S13-De10566	CP	mg/kg	< 0.3	< 0.3	<1	30%	Pass
Duplicate								
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD		
Naphthalene	S13-De10566	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
TRH C6-C10	S13-De10566	CP	mg/kg	< 20	< 20	<1	30%	Pass
TRH C6-C10 less BTEX (F1)	S13-De10566	CP	mg/kg	< 20	< 20	<1	30%	Pass
Duplicate								
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD		
Acenaphthene	S13-De10568	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Acenaphthylene	S13-De10568	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Anthracene	S13-De10568	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Benzo(a)anthracene	S13-De10568	CP	mg/kg	1.5	2.1	31	30%	Fail Q15
Benzo(a)pyrene	S13-De10568	CP	mg/kg	1.4	1.8	30	30%	Pass
Benzo(b&j)fluoranthene	S13-De10568	CP	mg/kg	0.9	1.2	30	30%	Pass
Benzo(g,h,i)perylene	S13-De10568	CP	mg/kg	1.1	1.5	31	30%	Fail Q15
Benzo(k)fluoranthene	S13-De10568	CP	mg/kg	0.9	1.2	32	30%	Fail Q15
Chrysene	S13-De10568	CP	mg/kg	0.9	1.2	28	30%	Pass
Dibenz(a,h)anthracene	S13-De10568	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Fluoranthene	S13-De10568	CP	mg/kg	2.2	3.5	48	30%	Fail Q15
Fluorene	S13-De10568	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Indeno(1,2,3-cd)pyrene	S13-De10568	CP	mg/kg	0.9	1.2	32	30%	Fail Q15
Naphthalene	S13-De10568	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Phenanthrene	S13-De10568	CP	mg/kg	0.5	1.3	86	30%	Fail Q15
Pyrene	S13-De10568	CP	mg/kg	2.1	3.4	45	30%	Fail Q15

Duplicate								
Heavy Metals				Result 1	Result 2	RPD		
Arsenic	S13-De10573	CP	mg/kg	3.0	2.7	10	30%	Pass
Cadmium	S13-De10573	CP	mg/kg	0.8	0.8	2.0	30%	Pass
Chromium	S13-De10573	CP	mg/kg	9.5	11	18	30%	Pass
Copper	S13-De10573	CP	mg/kg	170	190	12	30%	Pass
Lead	S13-De10573	CP	mg/kg	290	380	28	30%	Pass
Mercury	S13-De10573	CP	mg/kg	0.07	0.08	8.0	30%	Pass
Nickel	S13-De10573	CP	mg/kg	6.8	7.8	14	30%	Pass
Zinc	S13-De10573	CP	mg/kg	180	220	21	30%	Pass
Duplicate								
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1	Result 2	RPD		
TRH C10-C14	S13-De10586	CP	mg/kg	< 20	< 20	<1	30%	Pass
TRH C15-C28	S13-De10586	CP	mg/kg	< 50	< 50	<1	30%	Pass
TRH C29-C36	S13-De10586	CP	mg/kg	51	< 50	19	30%	Pass
Duplicate								
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD		
TRH >C10-C16	S13-De10586	CP	mg/kg	< 50	< 50	<1	30%	Pass
TRH >C16-C34	S13-De10586	CP	mg/kg	< 100	< 100	<1	30%	Pass
TRH >C34-C40	S13-De10586	CP	mg/kg	< 100	< 100	<1	30%	Pass
Duplicate								
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD		
Acenaphthene	S13-De10586	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Acenaphthylene	S13-De10586	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Anthracene	S13-De10586	CP	mg/kg	0.6	< 0.5	81	30%	Fail Q15
Benzo(a)anthracene	S13-De10586	CP	mg/kg	1.4	1.3	8.0	30%	Pass
Benzo(a)pyrene	S13-De10586	CP	mg/kg	1.1	1.0	8.0	30%	Pass
Benzo(b&j)fluoranthene	S13-De10586	CP	mg/kg	1.1	< 0.5	85	30%	Fail Q15
Benzo(g,h,i)perylene	S13-De10586	CP	mg/kg	0.8	0.7	11	30%	Pass
Benzo(k)fluoranthene	S13-De10586	CP	mg/kg	0.8	0.7	7.0	30%	Pass
Chrysene	S13-De10586	CP	mg/kg	1.0	0.9	7.0	30%	Pass
Dibenz(a,h)anthracene	S13-De10586	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Fluoranthene	S13-De10586	CP	mg/kg	2.6	2.5	4.0	30%	Pass
Fluorene	S13-De10586	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Indeno(1,2,3-cd)pyrene	S13-De10586	CP	mg/kg	0.6	0.6	5.0	30%	Pass
Naphthalene	S13-De10586	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Phenanthrene	S13-De10586	CP	mg/kg	1.0	1.0	3.0	30%	Pass
Pyrene	S13-De10586	CP	mg/kg	2.3	2.2	6.0	30%	Pass
Duplicate								
Heavy Metals				Result 1	Result 2	RPD		
Arsenic	S13-De10590	CP	mg/kg	2.1	5.2	86	30%	Fail Q15
Cadmium	S13-De10590	CP	mg/kg	0.5	0.7	38	30%	Fail Q15
Chromium	S13-De10590	CP	mg/kg	16	14	17	30%	Pass
Copper	S13-De10590	CP	mg/kg	59	70	17	30%	Pass
Lead	S13-De10590	CP	mg/kg	49	250	140	30%	Fail Q15
Mercury	S13-De10590	CP	mg/kg	0.07	0.10	36	30%	Fail Q15
Nickel	S13-De10590	CP	mg/kg	14	21	42	30%	Fail Q15
Zinc	S13-De10590	CP	mg/kg	220	210	5.0	30%	Pass

Comments
Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	Yes
Sample correctly preserved	Yes
Organic samples had Teflon liners	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

Jean Heng	Client Services
James Norford	Senior Analyst-Metal (NSW)
Ryan Hamilton	Senior Analyst-Organic (NSW)
Ryan Hamilton	Senior Analyst-Volatile (NSW)


Dr. Bob Symons
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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JBS & G (NSW & WA) Pty Ltd
Level 1, 50 Margaret St
Sydney
NSW 2000



NATA Accredited
Accreditation Number 1261
Site Number 18217

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

Attention: Chris Bielby

Report 403263-W
 Client Reference WEST CONNEX 43069
 Received Date Dec 11, 2013

Client Sample ID			RINSATE	TS	TB
Sample Matrix			Water	Water	Water
Eurofins mgt Sample No.			S13-De10593	S13-De10594	S13-De10595
Date Sampled			Dec 10, 2013	Dec 10, 2013	Dec 10, 2013
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	0.2	-	-
TRH C29-C36	0.1	mg/L	< 0.1	-	-
TRH C10-36 (Total)	0.1	mg/L	0.2	-	-
BTEX					
Benzene	0.001	mg/L	< 0.001	95%	< 0.001
Toluene	0.001	mg/L	< 0.001	99%	< 0.001
Ethylbenzene	0.001	mg/L	< 0.001	95%	< 0.001
m&p-Xylenes	0.002	mg/L	< 0.002	102%	< 0.002
o-Xylene	0.001	mg/L	< 0.001	100%	< 0.001
Xylenes - Total	0.003	mg/L	< 0.003	102%	< 0.003
4-Bromofluorobenzene (surr.)	1	%	77	99	72
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	0.14	-	-
TRH >C10-C16 less Naphthalene (F2) ^{N01}	0.05	mg/L	0.14	-	-
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	-	-
Naphthalene	0.001	mg/L	< 0.001	-	-

Client Sample ID			RINSATE	TS	TB
Sample Matrix			Water	Water	Water
Eurofins mgt Sample No.			S13-De10593	S13-De10594	S13-De10595
Date Sampled			Dec 10, 2013	Dec 10, 2013	Dec 10, 2013
Test/Reference	LOR	Unit			
Polycyclic Aromatic Hydrocarbons					
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	%	94	-	-
p-Terphenyl-d14 (surr.)	1	%	113	-	-
Organochlorine Pesticides					
Chlordanes - Total	0.001	mg/L	< 0.001	-	-
4,4'-DDD	0.0001	mg/L	< 0.0001	-	-
4,4'-DDE	0.0001	mg/L	< 0.0001	-	-
4,4'-DDT	0.0001	mg/L	< 0.0001	-	-
a-BHC	0.0001	mg/L	< 0.0001	-	-
Aldrin	0.0001	mg/L	< 0.0001	-	-
b-BHC	0.0001	mg/L	< 0.0001	-	-
d-BHC	0.0001	mg/L	< 0.0001	-	-
Dieldrin	0.0001	mg/L	< 0.0001	-	-
Endosulfan I	0.0001	mg/L	< 0.0001	-	-
Endosulfan II	0.0001	mg/L	< 0.0001	-	-
Endosulfan sulphate	0.0001	mg/L	< 0.0001	-	-
Endrin	0.0001	mg/L	< 0.0001	-	-
Endrin aldehyde	0.0001	mg/L	< 0.0001	-	-
Endrin ketone	0.0001	mg/L	< 0.0001	-	-
g-BHC (Lindane)	0.0001	mg/L	< 0.0001	-	-
Heptachlor	0.0001	mg/L	< 0.0001	-	-
Heptachlor epoxide	0.0001	mg/L	< 0.0001	-	-
Hexachlorobenzene	0.0001	mg/L	< 0.0001	-	-
Methoxychlor	0.0001	mg/L	< 0.0001	-	-
Toxaphene	0.01	mg/L	< 0.01	-	-
Dibutylchloroendate (surr.)	1	%	100	-	-
Tetrachloro-m-xylene (surr.)	1	%	102	-	-
Polychlorinated Biphenyls (PCB)					
Aroclor-1016	0.005	mg/L	< 0.005	-	-
Aroclor-1232	0.005	mg/L	< 0.005	-	-
Aroclor-1242	0.005	mg/L	< 0.005	-	-
Aroclor-1248	0.005	mg/L	< 0.005	-	-
Aroclor-1254	0.005	mg/L	< 0.005	-	-
Aroclor-1260	0.005	mg/L	< 0.005	-	-
Total PCB	0.005	mg/L	< 0.005	-	-
Dibutylchloroendate (surr.)	1	%	100	-	-
Heavy Metals					
Arsenic (filtered)	0.001	mg/L	< 0.001	-	-
Cadmium (filtered)	0.0001	mg/L	< 0.0001	-	-
Chromium (filtered)	0.001	mg/L	0.001	-	-
Copper (filtered)	0.001	mg/L	0.002	-	-
Lead (filtered)	0.001	mg/L	< 0.001	-	-
Mercury (filtered)	0.0001	mg/L	< 0.0001	-	-
Nickel (filtered)	0.001	mg/L	< 0.001	-	-
Zinc (filtered)	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 - Method: E004 Petroleum Hydrocarbons (TPH)	Sydney	Dec 11, 2013	7 Day
Total Recoverable Hydrocarbons - 2013 NEPM Fractions - Method: LM-LTM-ORG2010	Sydney	Dec 11, 2013	7 Day
BTEX - Method: E029/E016 BTEX	Sydney	Dec 11, 2013	14 Day
Polycyclic Aromatic Hydrocarbons - Method: E007 Polyaromatic Hydrocarbons (PAH)	Sydney	Dec 11, 2013	7 Day
Organochlorine Pesticides - Method: E013 Organochlorine Pesticides (OC)	Sydney	Dec 11, 2013	7 Day
Polychlorinated Biphenyls (PCB) - Method: E013 Polychlorinated Biphenyls (PCB)	Sydney	Dec 11, 2013	7 Day
Metals M8 filtered - Method: E020/E030 Filtered Metals in Water & E026 Mercury	Sydney	Dec 11, 2013	28 Day

Company Name: JBS & G (NSW & WA) Pty Ltd Address: Level 1, 50 Margaret St Sydney NSW 2000 Client Job No.: WEST CONNEX 43069	Order No.: Report #: 403263 Phone: 02 8245 0300 Fax:	Received: Dec 11, 2013 4:09 PM Due: Dec 19, 2013 Priority: 5 Day Contact Name: Chris Bielby
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Eurofins | mgt Client Manager: Jean Heng

Sample Detail					% Moisture	HOLD	Polycyclic Aromatic Hydrocarbons	Organochlorine Pesticides	Metals M8	Metals M8 filtered	BTEX	Polychlorinated Biphenyls (PCB)	Total Recoverable Hydrocarbons
Laboratory where analysis is conducted													
Melbourne Laboratory - NATA Site # 1254 & 14271													
Sydney Laboratory - NATA Site # 18217					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									
BH01 0.0-0.2	Dec 09, 2013		Soil	S13-De10528	X		X		X				
BH02 0.0-0.2	Dec 09, 2013		Soil	S13-De10529	X		X	X	X			X	
BH03 0.0-0.2	Dec 09, 2013		Soil	S13-De10530	X				X		X		X
BH04 0.0-0.2	Dec 09, 2013		Soil	S13-De10531	X		X						
BH05 0.0-0.2	Dec 09, 2013		Soil	S13-De10532	X				X				
BH05 0.2-0.3	Dec 09, 2013		Soil	S13-De10533		X							
BH06 0.0-0.2	Dec 09, 2013		Soil	S13-De10534	X		X						
BH07 0.0-0.2	Dec 09, 2013		Soil	S13-De10535	X				X				
BH07 0.1-0.3	Dec 09, 2013		Soil	S13-De10536		X							
BH08 0.0-0.2	Dec 09, 2013		Soil	S13-De10537	X		X				X		X

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Eurofins | mgt Client Manager: Jean Heng

Sample Detail					% Moisture	HOLD	Polycyclic Aromatic Hydrocarbons	Organochlorine Pesticides	Metals M8	Metals M8 filtered	BTEX	Polychlorinated Biphenyls (PCB)	Total Recoverable Hydrocarbons
Laboratory where analysis is conducted													
Melbourne Laboratory - NATA Site # 1254 & 14271													
Sydney Laboratory - NATA Site # 18217					X	X	X	X	X	X	X	X	X
Brisbane Laboratory - NATA Site # 20794													
External Laboratory													
BH09 0.0-0.2	Dec 09, 2013		Soil	S13-De10538	X			X					
BH10 0.0-0.2	Dec 09, 2013		Soil	S13-De10539	X		X	X					
BH11 0.0-0.2	Dec 09, 2013		Soil	S13-De10540	X			X					
BH12 0.0-0.2	Dec 09, 2013		Soil	S13-De10541	X		X	X			X	X	X
BH13 0.0-0.2	Dec 09, 2013		Soil	S13-De10542	X			X					
BH14 0.0-0.2	Dec 09, 2013		Soil	S13-De10543	X		X	X					
BH15 0.0-0.2	Dec 09, 2013		Soil	S13-De10544	X			X					
BH16 0.0-0.2	Dec 09, 2013		Soil	S13-De10545	X		X						
BH17 0.0-0.2	Dec 09, 2013		Soil	S13-De10546	X		X	X		X		X	
BH18 0.0-0.1	Dec 09, 2013		Soil	S13-De10547	X		X						
BH18 0.1-0.3	Dec 09, 2013		Soil	S13-De10548		X							

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Eurofins mgt Client Manager: Jean Heng		

Sample Detail					% Moisture	HOLD	Polycyclic Aromatic Hydrocarbons	Organochlorine Pesticides	Metals M8	Metals M8 filtered	BTEX	Polychlorinated Biphenyls (PCB)	Total Recoverable Hydrocarbons
Laboratory where analysis is conducted													
Melbourne Laboratory - NATA Site # 1254 & 14271													
Sydney Laboratory - NATA Site # 18217					X	X	X	X	X	X	X	X	
Brisbane Laboratory - NATA Site # 20794													
External Laboratory													
BH19 0.0-0.2	Dec 09, 2013		Soil	S13-De10549	X				X		X		X
BH19 0.2-0.3	Dec 09, 2013		Soil	S13-De10550		X							
BH20 0.0-0.2	Dec 09, 2013		Soil	S13-De10551	X		X	X			X	X	X
BH21 0.0-0.2	Dec 09, 2013		Soil	S13-De10552	X				X		X		X
BH21 0.3-0.4	Dec 09, 2013		Soil	S13-De10553		X							
BH22 0.0-0.2	Dec 09, 2013		Soil	S13-De10554	X		X				X		X
BH22 0.2-0.3	Dec 09, 2013		Soil	S13-De10555		X							
BH23 0.0-0.1	Dec 10, 2013		Soil	S13-De10556	X		X	X	X		X	X	X
BH23 0.1-0.3	Dec 10, 2013		Soil	S13-De10557		X							
BH24 0.0-0.1	Dec 10, 2013		Soil	S13-De10558	X		X						
BH24 0.1-0.3	Dec 10, 2013		Soil	S13-De10559		X							

Company Name: JBS & G (NSW & WA) Pty Ltd Address: Level 1, 50 Margaret St Sydney NSW 2000 Client Job No.: WEST CONNEX 43069	Order No.: Report #: 403263 Phone: 02 8245 0300 Fax:	Received: Dec 11, 2013 4:09 PM Due: Dec 19, 2013 Priority: 5 Day Contact Name: Chris Bielby
Eurofins mgt Client Manager: Jean Heng		

Sample Detail					% Moisture	HOLD	Polycyclic Aromatic Hydrocarbons	Organochlorine Pesticides	Metals M8	Metals M8 filtered	BTEX	Polychlorinated Biphenyls (PCB)	Total Recoverable Hydrocarbons
Laboratory where analysis is conducted													
Melbourne Laboratory - NATA Site # 1254 & 14271													
Sydney Laboratory - NATA Site # 18217					X	X	X	X	X	X	X	X	X
Brisbane Laboratory - NATA Site # 20794													
External Laboratory													
BH25 0.0-0.1	Dec 10, 2013		Soil	S13-De10560	X				X				
BH25 0.1-0.3	Dec 10, 2013		Soil	S13-De10561		X							
BH26 0.0-0.1	Dec 10, 2013		Soil	S13-De10562	X		X				X		X
BH26 0.1-0.3	Dec 10, 2013		Soil	S13-De10563		X							
BH27 0.0-0.1	Dec 10, 2013		Soil	S13-De10564	X				X				
BH27 0.1-0.3	Dec 10, 2013		Soil	S13-De10565		X							
BH28 0.0-0.1	Dec 10, 2013		Soil	S13-De10566	X		X				X		X
BH28 0.1-0.3	Dec 10, 2013		Soil	S13-De10567		X							
BH29 0.0-0.1	Dec 10, 2013		Soil	S13-De10568	X		X		X				
BH29 0.1-0.3	Dec 10, 2013		Soil	S13-De10569		X							
BH30 0.0-0.1	Dec 10, 2013		Soil	S13-De10570	X		X		X				

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Laboratory where analysis is conducted													
Melbourne Laboratory - NATA Site # 1254 & 14271													
Sydney Laboratory - NATA Site # 18217					X	X	X	X	X	X	X	X	X
Brisbane Laboratory - NATA Site # 20794													
External Laboratory													
BH30 0.1-0.3	Dec 10, 2013		Soil	S13-De10571		X							
BH31 0.0-0.2	Dec 10, 2013		Soil	S13-De10572	X		X		X		X	X	X
BH32 0.0-0.2	Dec 10, 2013		Soil	S13-De10573	X		X	X	X		X	X	X
BH33 0.0-0.2	Dec 10, 2013		Soil	S13-De10574	X				X				
BH34 0.0-0.1	Dec 10, 2013		Soil	S13-De10575	X		X						
BH34 0.1-0.3	Dec 10, 2013		Soil	S13-De10576		X							
BH35 0.0-0.1	Dec 10, 2013		Soil	S13-De10577	X		X	X	X		X	X	X
BH35 0.1-0.3	Dec 10, 2013		Soil	S13-De10578		X							
BH36 0.0-0.1	Dec 10, 2013		Soil	S13-De10579	X		X	X	X			X	
BH36 0.1-0.3	Dec 10, 2013		Soil	S13-De10580		X							
BH37 0.0-0.1	Dec 10, 2013		Soil	S13-De10581	X		X		X				

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Laboratory where analysis is conducted													
Melbourne Laboratory - NATA Site # 1254 & 14271													
Sydney Laboratory - NATA Site # 18217					X	X	X	X	X	X	X	X	
Brisbane Laboratory - NATA Site # 20794													
External Laboratory													
BH37 0.1-0.3	Dec 10, 2013		Soil	S13-De10582		X							
BH38 0.0-0.2	Dec 10, 2013		Soil	S13-De10583	X		X	X	X			X	
BH39 0.0-0.2	Dec 10, 2013		Soil	S13-De10584	X				X				
BH40 0.0-0.2	Dec 10, 2013		Soil	S13-De10585	X		X		X				
BH41 0.0-0.1	Dec 10, 2013		Soil	S13-De10586	X		X	X	X		X	X	X
BH41 0.1-0.3	Dec 10, 2013		Soil	S13-De10587	X		X						
BH42 0.0-0.1	Dec 10, 2013		Soil	S13-De10588	X		X		X		X		X
BH42 0.1-0.3	Dec 10, 2013		Soil	S13-De10589		X							
QC01	Dec 10, 2013		Soil	S13-De10590	X		X		X				
QC02	Dec 10, 2013		Soil	S13-De10591		X							
QC03	Dec 10, 2013		Soil	S13-De10592	X		X	X	X		X	X	X

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Sample Detail					% Moisture	HOLD	Polycyclic Aromatic Hydrocarbons	Organochlorine Pesticides	Metals M8	Metals M8 filtered	BTEX	Polychlorinated Biphenyls (PCB)	Total Recoverable Hydrocarbons
Laboratory where analysis is conducted													
Melbourne Laboratory - NATA Site # 1254 & 14271													
Sydney Laboratory - NATA Site # 18217					X	X	X	X	X	X	X	X	X
Brisbane Laboratory - NATA Site # 20794													
External Laboratory													
RINSATE	Dec 10, 2013		Water	S13-De10593			X	X		X	X	X	X
TS	Dec 10, 2013		Water	S13-De10594							X		
TB	Dec 10, 2013		Water	S13-De10595							X		
BH38 0.0-0.1	Dec 10, 2013		Soil	S13-De10630		X							
BH38 0.1-0.3	Dec 10, 2013		Soil	S13-De10631		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 PQLs are matrix dependant. Quoted PQLs 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 Acknowledgment.

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: 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	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							
Organochlorine Pesticides							
Chlordanes - Total	mg/L	< 0.001			0.001	Pass	
4,4'-DDD	mg/L	< 0.0001			0.0001	Pass	
4,4'-DDE	mg/L	< 0.0001			0.0001	Pass	
4,4'-DDT	mg/L	< 0.0001			0.0001	Pass	
a-BHC	mg/L	< 0.0001			0.0001	Pass	
Aldrin	mg/L	< 0.0001			0.0001	Pass	
b-BHC	mg/L	< 0.0001			0.0001	Pass	
d-BHC	mg/L	< 0.0001			0.0001	Pass	
Dieldrin	mg/L	< 0.0001			0.0001	Pass	
Endosulfan I	mg/L	< 0.0001			0.0001	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Endosulfan II	mg/L	< 0.0001			0.0001	Pass	
Endosulfan sulphate	mg/L	< 0.0001			0.0001	Pass	
Endrin	mg/L	< 0.0001			0.0001	Pass	
Endrin aldehyde	mg/L	< 0.0001			0.0001	Pass	
Endrin ketone	mg/L	< 0.0001			0.0001	Pass	
g-BHC (Lindane)	mg/L	< 0.0001			0.0001	Pass	
Heptachlor	mg/L	< 0.0001			0.0001	Pass	
Heptachlor epoxide	mg/L	< 0.0001			0.0001	Pass	
Hexachlorobenzene	mg/L	< 0.0001			0.0001	Pass	
Methoxychlor	mg/L	< 0.0001			0.0001	Pass	
Toxaphene	mg/L	< 0.01			0.01	Pass	
Method Blank							
Polychlorinated Biphenyls (PCB)							
Aroclor-1016	mg/L	< 0.005			0.005	Pass	
Aroclor-1232	mg/L	< 0.005			0.005	Pass	
Aroclor-1242	mg/L	< 0.005			0.005	Pass	
Aroclor-1248	mg/L	< 0.005			0.005	Pass	
Aroclor-1254	mg/L	< 0.005			0.005	Pass	
Aroclor-1260	mg/L	< 0.005			0.005	Pass	
Total PCB	mg/L	< 0.005			0.005	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	
Zinc (filtered)	mg/L	< 0.005			0.005	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	%	80			70-130	Pass	
TRH C10-C14	%	76			70-130	Pass	
LCS - % Recovery							
BTEX							
Benzene	%	91			70-130	Pass	
Toluene	%	100			70-130	Pass	
Ethylbenzene	%	98			70-130	Pass	
m&p-Xylenes	%	104			70-130	Pass	
o-Xylene	%	100			70-130	Pass	
Xylenes - Total	%	103			70-130	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	%	85			70-130	Pass	
TRH C6-C10	%	82			70-130	Pass	
TRH >C10-C16	%	83			70-130	Pass	
LCS - % Recovery							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	%	77			70-130	Pass	
Acenaphthylene	%	74			70-130	Pass	
Anthracene	%	77			70-130	Pass	
Benz(a)anthracene	%	71			70-130	Pass	
Benzo(a)pyrene	%	73			70-130	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code	
Benzo(b&j)fluoranthene	%	75			70-130	Pass		
Benzo(g,h,i)perylene	%	84			70-130	Pass		
Benzo(k)fluoranthene	%	81			70-130	Pass		
Chrysene	%	79			70-130	Pass		
Dibenz(a,h)anthracene	%	77			70-130	Pass		
Fluoranthene	%	79			70-130	Pass		
Fluorene	%	75			70-130	Pass		
Indeno(1,2,3-cd)pyrene	%	78			70-130	Pass		
Naphthalene	%	77			70-130	Pass		
Phenanthrene	%	78			70-130	Pass		
Pyrene	%	83			70-130	Pass		
LCS - % Recovery								
Organochlorine Pesticides								
Chlordanes - Total	%	100			70-130	Pass		
4,4'-DDD	%	100			70-130	Pass		
4,4'-DDE	%	100			70-130	Pass		
4,4'-DDT	%	100			70-130	Pass		
a-BHC	%	100			70-130	Pass		
Aldrin	%	100			70-130	Pass		
b-BHC	%	100			70-130	Pass		
d-BHC	%	110			70-130	Pass		
Dieldrin	%	100			70-130	Pass		
Endosulfan I	%	100			70-130	Pass		
Endosulfan II	%	100			70-130	Pass		
Endosulfan sulphate	%	100			70-130	Pass		
Endrin	%	100			70-130	Pass		
Endrin aldehyde	%	90			70-130	Pass		
Endrin ketone	%	100			70-130	Pass		
g-BHC (Lindane)	%	100			70-130	Pass		
Heptachlor	%	100			70-130	Pass		
Heptachlor epoxide	%	100			70-130	Pass		
Hexachlorobenzene	%	100			70-130	Pass		
Methoxychlor	%	100			70-130	Pass		
LCS - % Recovery								
Polychlorinated Biphenyls (PCB)								
Aroclor-1260	%	83			70-130	Pass		
LCS - % Recovery								
Heavy Metals								
Arsenic (filtered)	%	108			70-130	Pass		
Cadmium (filtered)	%	110			70-130	Pass		
Chromium (filtered)	%	109			70-130	Pass		
Copper (filtered)	%	108			70-130	Pass		
Lead (filtered)	%	109			70-130	Pass		
Mercury (filtered)	%	90			70-130	Pass		
Nickel (filtered)	%	108			70-130	Pass		
Zinc (filtered)	%	110			70-130	Pass		
Test	Lab Sample ID	QA Source	Units	Result 1		Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery								
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1				
TRH C6-C9	S13-De08150	NCP	%	82		70-130	Pass	
TRH C10-C14	S13-De05523	NCP	%	93		70-130	Pass	
Spike - % Recovery								
BTEX				Result 1				
Benzene	S13-De08150	NCP	%	86		70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Toluene	S13-De08150	NCP	%	110			70-130	Pass	
Ethylbenzene	S13-De08150	NCP	%	105			70-130	Pass	
m&p-Xylenes	S13-De08150	NCP	%	113			70-130	Pass	
o-Xylene	S13-De08150	NCP	%	111			70-130	Pass	
Xylenes - Total	S13-De08150	NCP	%	112			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1					
Naphthalene	S13-De08150	NCP	%	113			70-130	Pass	
TRH C6-C10	S13-De08150	NCP	%	84			70-130	Pass	
TRH >C10-C16	S13-De05523	NCP	%	100			70-130	Pass	
Spike - % Recovery									
Polycyclic Aromatic Hydrocarbons				Result 1					
Acenaphthene	S13-De07046	NCP	%	106			70-130	Pass	
Acenaphthylene	S13-De07046	NCP	%	104			70-130	Pass	
Anthracene	S13-De07046	NCP	%	108			70-130	Pass	
Benz(a)anthracene	S13-De07046	NCP	%	105			70-130	Pass	
Benzo(a)pyrene	S13-De07046	NCP	%	105			70-130	Pass	
Benzo(b&j)fluoranthene	S13-De07046	NCP	%	116			70-130	Pass	
Benzo(g,h,i)perylene	S13-De07046	NCP	%	102			70-130	Pass	
Benzo(k)fluoranthene	S13-De07046	NCP	%	114			70-130	Pass	
Chrysene	S13-De07046	NCP	%	109			70-130	Pass	
Dibenz(a,h)anthracene	S13-De07046	NCP	%	90			70-130	Pass	
Fluoranthene	S13-De07046	NCP	%	113			70-130	Pass	
Fluorene	S13-De07046	NCP	%	106			70-130	Pass	
Indeno(1,2,3-cd)pyrene	S13-De07046	NCP	%	100			70-130	Pass	
Naphthalene	S13-De07046	NCP	%	105			70-130	Pass	
Phenanthrene	S13-De07046	NCP	%	109			70-130	Pass	
Pyrene	S13-De07046	NCP	%	121			70-130	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic (filtered)	S13-De12454	NCP	%	103			70-130	Pass	
Cadmium (filtered)	S13-De12454	NCP	%	105			70-130	Pass	
Chromium (filtered)	S13-De12454	NCP	%	98			70-130	Pass	
Copper (filtered)	S13-De12454	NCP	%	92			70-130	Pass	
Lead (filtered)	S13-De12454	NCP	%	97			70-130	Pass	
Mercury (filtered)	S13-De09576	NCP	%	109			70-130	Pass	
Nickel (filtered)	S13-De12454	NCP	%	94			70-130	Pass	
Zinc (filtered)	S13-De12454	NCP	%	99			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 C6-C9	S13-De08147	NCP	mg/L	0.040	0.040	4.0	30%	Pass	
TRH C10-C14	S13-De05522	NCP	mg/L	< 0.05	< 0.05	<1	30%	Pass	
TRH C15-C28	S13-De05522	NCP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
TRH C29-C36	S13-De05522	NCP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
Duplicate									
BTEX				Result 1	Result 2	RPD			
Benzene	S13-De08147	NCP	mg/L	0.011	0.011	4.0	30%	Pass	
Toluene	S13-De08147	NCP	mg/L	0.010	0.010	4.0	30%	Pass	
Ethylbenzene	S13-De08147	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
m&p-Xylenes	S13-De08147	NCP	mg/L	0.0020	0.0020	2.0	30%	Pass	
o-Xylene	S13-De08147	NCP	mg/L	0.0020	0.0020	2.0	30%	Pass	
Xylenes - Total	S13-De08147	NCP	mg/L	0.0040	0.0040	2.0	30%	Pass	

Duplicate								
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD		
Naphthalene	S13-De08147	NCP	mg/L	< 0.02	< 0.02	<1	30%	Pass
TRH C6-C10	S13-De08147	NCP	mg/L	0.040	0.040	4.0	30%	Pass
TRH C6-C10 less BTEX (F1)	S13-De08147	NCP	mg/L	< 0.02	< 0.02	<1	30%	Pass
TRH >C10-C16	S13-De05522	NCP	mg/L	< 0.05	< 0.05	<1	30%	Pass
TRH >C16-C34	S13-De05522	NCP	mg/L	< 0.1	< 0.1	<1	30%	Pass
TRH >C34-C40	S13-De05522	NCP	mg/L	< 0.1	< 0.1	<1	30%	Pass
Duplicate								
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD		
Acenaphthene	S13-De08612	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Acenaphthylene	S13-De08612	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Anthracene	S13-De08612	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Benz(a)anthracene	S13-De08612	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Benzo(a)pyrene	S13-De08612	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Benzo(b&j)fluoranthene	S13-De08612	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Benzo(g,h,i)perylene	S13-De08612	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Benzo(k)fluoranthene	S13-De08612	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Chrysene	S13-De08612	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Dibenz(a,h)anthracene	S13-De08612	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Fluoranthene	S13-De08612	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Fluorene	S13-De08612	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Indeno(1,2,3-cd)pyrene	S13-De08612	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Naphthalene	S13-De08612	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Phenanthrene	S13-De08612	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Pyrene	S13-De08612	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Duplicate								
Heavy Metals				Result 1	Result 2	RPD		
Arsenic (filtered)	S13-De10593	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Cadmium (filtered)	S13-De10593	CP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass
Chromium (filtered)	S13-De10593	CP	mg/L	0.001	< 0.001	2.0	30%	Pass
Copper (filtered)	S13-De10593	CP	mg/L	0.002	0.002	16	30%	Pass
Lead (filtered)	S13-De10593	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Mercury (filtered)	S13-De09575	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass
Nickel (filtered)	S13-De10593	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Zinc (filtered)	S13-De10593	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass

Comments
Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	Yes
Sample correctly preserved	Yes
Organic samples had Teflon liners	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

Jean Heng	Client Services
James Norford	Senior Analyst-Metal (NSW)
Ryan Hamilton	Senior Analyst-Organic (NSW)
Ryan Hamilton	Senior Analyst-Volatile (NSW)


Dr. Bob Symons
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 shall not be liable for loss, cost, damages or expenses incurred by the client, or any other person or company, resulting from the use of any information or interpretation given in this report. In no case shall Eurofins | mgt be liable for consequential damages including, but not limited to, lost profits, damages for failure to meet deadlines and lost production arising from this report. This document shall not be reproduced except in full and relates only to the items tested. Unless indicated otherwise, the tests were performed on the samples as received.

CHAIN OF CUSTODY

PROJECT NO.: 43069	LABORATORY BATCH NO.:
PROJECT NAME: WEST COINTEX	SAMPLERS: C. BILBY
SEND REPORT TO: C. BILBY T. HARDING	SEND INVOICE TO: G. J. G.
DATE NEEDED BY: Standard	PHONE: SYDNEY 02 82450300 - PERTH 08 9488 0100
	EMAIL: T.Harding@jbsg.com.au
COMMENTS / SPECIAL HANDLING / STORAGE OR DISPOSAL:	

SAMPLE ID	MATRIX	DATE	TIME	TYPE & PRESERVATIVE	pH	JBS&G SPECIFIC SUITES										NOTES:									
						JB1	JB1T	JB1A	JB2	JB2A	B10	JB2/JBL	JB3/JBL	JB4	JBL		8 metals	PAHs	TPH/BTEX	OLFs	PCBS				
BH01 0.0-0.2	Soil	9/10/13		JAR + ICE												X	X								
BH02 0.0-0.2																X	X		X	X					
BH03 0.0-0.2																X		X							
BH04 0.0-0.2																X	X								
BH05 0.0-0.2																X									
BH05 0.2-0.2																	X								
BH06 0.0-0.2																	X								
BH07 0.0-0.2																X									
BH07 0.1-0.3																	X								
BH08 0.0-0.2																	X	X							
BH09 0.0-0.2																X	X								
BH10 0.0-0.2																X	X								
BH11 0.6-0.2																X	X								
BH12 0.0-0.2																	X	X	X	X					
BH13 0.0-0.2																X									
BH14 0.0-0.2																X	X								
BH15 0.0-0.2																X									
BH16 0.0-0.2																X	X								
BH17 0.0-0.2																X	X	X							

RELINQUISHED BY: NAME: C. BILBY DATE: 11/10/13	METHOD OF SHIPMENT: CONSIGNMENT NOTE NO. TRANSPORT CO.	RECEIVED BY: NAME: Jasmine DATE: 11/12/13 4:09 pm OF: Eurofins Mgt	FOR RECEIVING LAB USE ONLY: COOLER SEAL - Yes..... No Intact Broken
NAME: DATE:	CONSIGNMENT NOTE NO. TRANSPORT CO.	NAME: DATE:	COOLER TEMP: 9.5 deg C COOLER SEAL - Yes..... No Intact Broken
OF:		OF:	COOLER TEMP deg C

Container & Preservative Codes: P = Plastic; J = Soil Jar; B = Glass Bottle; N = Nitric Acid Prsvd.; C = Sodium Hydroxide Prsvd; VC = Hydrochloric Acid Prsvd Vial; VS = Sulfuric Acid Prsvd Vial; S = Sulfuric Acid Prsvd; Z = Zinc Prsvd; E = EDTA Prsvd; ST = Sterile Bottle; O = Other

- JB1 - TRH/BTEX/PAH/As,Cd,Cr,Cu,Ni,Pb,Zn,Hg/Phenolics (Total)
- JB1T - TRH/BTEX/PAH(Trace Level)/As,Cd,Cr,Cu,Ni,Pb,Zn,Hg/Phenolics (Total)
- JB1A - TRH/BTEX/PAH/As,Cd,Cr,Cu,Ni,Pb,Zn,Hg/Phenolics (Total)/Asbestos
- JB2 - TRH/BTEX/PAH/OCPP/PCB/As,Cd,Cr,Cu,Ni,Pb,Zn,Hg
- JB2A - TRH/BTEX/PAH/OCPP/PCB/As,Cd,Cr,Cu,Ni,Pb,Zn,Hg/Asbestos
- B10 - TRH/BTEX/PAH/OCPP/OPP/As,Cd,Cr,Cu,Ni,Pb,Zn,Hg
- JB2/JBL - TRH/BTEX/PAH/OCPP/PCB/As,Cd,Cr,Cu,Ni,Pb,Zn,Hg/TCLP(PAH & 6 Metals)
- JB3/JBL - TRH/BTEX/PAH/OCPP/OPP/PCB/As,Cd,Cr,Cu,Ni,Pb,Zn,Hg/TCLP(PAH & 6 Metals)/Asbestos
- JB4 - TRH/BTEX/VOC
- JBL - TCLP(PAH & 6 Metals)

CHAIN OF CUSTODY



PROJECT NO.: 43069		LABORATORY BATCH NO.:	
PROJECT NAME: WEST CONNEX		SAMPLERS: C. BIELBY	
SEND REPORT TO: C. BIELBY T. HARDING		PHONE: SYDNEY 02 82450300 - PERTH 08 9488 0100	
SEND INVOICE TO: CUG		EMAIL: <i>Tharding@jbsag.com</i> Cbielby@jbsag.com	
DATE NEEDED BY: Standard		QC LEVEL: NEPM (2013)	

SAMPLE ID	MATRIX	DATE	TIME	TYPE & PRESERVATIVE	pH	JBS&G SPECIFIC SUITES											NOTES:									
						JB1	JB1T	JB1A	JB2	JB2A	B10	JB2/JBL	JB3/JBL	JB4	JBL	Metals		PAHs	TPH/BTEX	OCs	PCBs					
BH18 0.0-0.1	SOIL	9/10/13		JAR+ICE												X										
BH18 0.1-0.3																										
BH19 0.0-0.2																X		X								
BH19 0.2-0.3																										
BH20 0.0-0.2																	X	X	X	X	X					
BH21 0.0-0.2																X		X								
BH21 0.3-0.4																	X	X								
BH22 0.0-0.2																		X	X							
BH22 0.2-0.3																		X	X							
BH23 0.0-0.1		10/10/13															X	X	X	X	X					
BH23 0.1-0.3																		X	X	X	X					
BH24 0.0-0.1																		X								
BH24 0.1-0.3																			X							
BH25 0.0-0.1																	X									
BH25 0.1-0.3																			X							
BH26 0.0-0.1																			X	X						
BH26 0.1-0.3																				X	X					
BH27 0.0-0.1																	X									
BH27 0.1-0.3																	X									

RELINQUISHED BY: NAME: C. BIELBY OF: JBS&G	DATE: 11/10/13	METHOD OF SHIPMENT: CONSIGNMENT NOTE NO.	TRANSPORT CO.	RECEIVED BY: NAME: Jasmine OF: Eurofins mgt	DATE: 11/12/13 4:09pm	FOR RECEIVING LAB USE ONLY: COOLER SEAL - Yes..... No Intact Broken
NAME:	DATE:	CONSIGNMENT NOTE NO.	TRANSPORT CO.	NAME:	DATE:	COOLER TEMP deg C
OF:		CONSIGNMENT NOTE NO.	TRANSPORT CO.	OF:		COOLER SEAL - Yes..... No Intact Broken
						COOLER TEMP deg C

Container & Preservative Codes: P = Plastic; J = Soil Jar; B = Glass Bottle; N = Nitric Acid Prsvd.; C = Sodium Hydroxide Prsvd; VC = Hydrochloric Acid Prsvd Vial; VS = Sulfuric Acid Prsvd Vial; S = Sulfuric Acid Prsvd; Z = Zinc Prsvd; E = EDTA Prsvd; ST = Sterile Bottle; O = Other
IMS0 Forms 013 - Chain of Custody - eurofins mgt

- JB1 - TRH/BTEX/PAH/As,Cd,Cr,Cu,Ni,Pb,Zn,Hg/Phenolics (Total)
- JB1T - TRH/BTEX/PAH(Trace Level)/As,Cd,Cr,Cu,Ni,Pb,Zn,Hg/Phenolics (Total)
- JB1A - TRH/BTEX/PAH/As,Cd,Cr,Cu,Ni,Pb,Zn,Hg/Phenolics (Total)/Asbestos
- JB2 - TRH/BTEX/PAH/OC/PCB/As,Cd,Cr,Cu,Ni,Pb,Zn,Hg
- JB2A - TRH/BTEX/PAH/OC/PCB/As,Cd,Cr,Cu,Ni,Pb,Zn,Hg/Asbestos
- B10 - TRH/BTEX/PAH/OC/OPP/As,Cd,Cr,Cu,Ni,Pb,Zn,Hg
- JB2/JBL - TRH/BTEX/PAH/OC/PCB/As,Cd,Cr,Cu,Ni,Pb,Zn,Hg/TCLP(PAH & 6 Metals)
- JB3/JBL - TRH/BTEX/PAH/OC/OPP/PCB/As,Cd,Cr,Cu,Ni,Pb,Zn,Hg/TCLP(PAH & 6 Metals)/Asbestos
- JB4 - TRH/BTEX/VOC
- JBL - TCLP(PAH & 6 Metals)

CHAIN OF CUSTODY



PROJECT NO.: 43069							LABORATORY BATCH NO.:										
PROJECT NAME: WESTCORNEX							SAMPLERS: C. BIELBY										
SEND REPORT TO: C. BIELBY							PHONE: SYDNEY 02 82450300 - PERTH 08 9488 0100										
SEND INVOICE TO: G.W.G.							EMAIL: CBielby@jbsg.com.au										
DATE NEEDED BY: Standard							QC LEVEL: NEPM (2013)										
COMMENTS / SPECIAL HANDLING / STORAGE OR DISPOSAL:							JBS&G SPECIFIC SUITES										
							JB1	JB1T	JB1A	JB2	JB2A	B10	JB2/JBL	JB3/JBL	JB4	JBL	Metals
SAMPLE ID	MATRIX	DATE	TIME	TYPE & PRESERVATIVE	pH												
BH28 0.0-0.1	SOIL											X	X				
BH28 0.1-0.3																	
BH29 0.0-0.1												X	X				
BH29 0.1-0.3												X	X				
BH30 0.0-0.1												X	X				
BH30 0.1-0.3												X	X				
BH31 0.0-0.2												X	X	X			
BH32 0.0-0.2												X	X	X	X		
BH33 0.0-0.2												X	X	X	X		
BH34 0.0-0.1													X				
BH34 0.1-0.3													X	X	X		
BH35 0.0-0.1													X	X	X		
BH35 0.1-0.3													X	X	X		
BH36 0.0-0.1													X	X	X		
BH36 0.1-0.3													X	X	X		
BH37 0.0-0.1													X	X			
BH37 0.1-0.3													X	X			
BH38 0.0-0.2													X	X	X		
BH39 0.0-0.2													X	X	X		
RELINQUISHED BY:				METHOD OF SHIPMENT:				RECEIVED BY:				FOR RECEIVING LAB USE ONLY:					
NAME: C. BIELBY		DATE: 11/10/13		CONSIGNMENT NOTE NO.				NAME: Jasmine		DATE: 11/2/13 4:09 pm		COOLER SEAL - Yes..... No Intact Broken					
OF: JBS&G				TRANSPORT CO.				OF: Eurofins mgt		DATE:		COOLER TEMP: 4.5 deg C					
NAME:		DATE:		CONSIGNMENT NOTE NO.				NAME:		DATE:		COOLER SEAL - Yes..... No Intact Broken					
OF:				TRANSPORT CO.				OF:				COOLER TEMP: deg C					

IMS Form O13 - Chain of Custody - eurofins mgt

- JB1 - TRH/BTEX/PAH/As,Cd,Cr,Cu,Ni,Pb,Zn,Hg/Phenolics (Total)
- JB1T - TRH/BTEX/PAH(Trace Level)/As,Cd,Cr,Cu,Ni,Pb,Zn,Hg/Phenolics (Total)
- JB1A - TRH/BTEX/PAH/As,Cd,Cr,Cu,Ni,Pb,Zn,Hg/Phenolics (Total)/Asbestos
- JB2 - TRH/BTEX/PAH/OCPP/PCB/As,Cd,Cr,Cu,Ni,Pb,Zn,Hg
- JB2A - TRH/BTEX/PAH/OCPP/PCB/As,Cd,Cr,Cu,Ni,Pb,Zn,Hg/Asbestos
- B10 - TRH/BTEX/PAH/OCPP/OPP/As,Cd,Cr,Cu,Ni,Pb,Zn,Hg
- JB2/JBL - TRH/BTEX/PAH/OCPP/PCB/As,Cd,Cr,Cu,Ni,Pb,Zn,Hg/TCLP(PAH & 6 Metals)
- JB3/JBL - TRH/BTEX/PAH/OCPP/PCB/As,Cd,Cr,Cu,Ni,Pb,Zn,Hg/TCLP(PAH & 6 Metals)/Asbestos
- JB4 - TRH/BTEX/VOC
- JBL - TCLP(PAH & 6 Metals)

CHAIN OF CUSTODY



PROJECT NO.: 43089						LABORATORY BATCH NO.:																	
PROJECT NAME: WESTCONNEX						SAMPLERS: C. Bielby																	
SEND REPORT TO: T. HARDING						PHONE: SYDNEY 02 82450300 – PERTH 08 9488 0100																	
SEND INVOICE TO: G. MGT						EMAIL: C.Bielby@jbsg.com.au																	
DATE NEEDED BY: Standard						QC LEVEL: NEPM (2013)																	
COMMENTS / SPECIAL HANDLING / STORAGE OR DISPOSAL:						JBS&G SPECIFIC SUITES																	
						JB1	JB1T	JB1A	JB2	JB2A	B10	JB2/JBL	JB3/JBL	JB4	JBL	Metals	PAHs	TPH/BTEX	OCRA	PCBs	PTEX	NOTES:	
SAMPLE ID	MATRIX	DATE	TIME	TYPE & PRESERVATIVE	pH																		
BH40 0.0-0.2	SOIL			JAR + ICE								X	X										
BH41 0.0-0.1												X	X	X	X	X							
BH41 0.1-0.3												X											
BH42 0.0-0.1												X	X	X									
BH42 0.1-0.3												X	X	X									
QC01												X	X										
QC02												X	X										
QC03												X	X	X	X	X							
INSATE	WATER			BOTTLE + VIALS + ICE								X	X	X	X	X							
Trip spike				VIALS + ICE								X	X	X	X								
Trip Blank																	X						
																	X						
RELINQUISHED BY:						METHOD OF SHIPMENT:						RECEIVED BY:						FOR RECEIVING LAB USE ONLY:					
NAME: C. Bielby												NAME: Jasmine						COOLER SEAL – Yes..... No Intact Broken					
DATE: 11/10/13												DATE: 11/12/13 4:09pm						COOLER TEMP: 4.5 deg C					
OF: JBS&G												OF: Eurofins mgt						COOLER SEAL – Yes..... No Intact Broken					
NAME:												NAME:						COOLER TEMP deg C					
DATE:												DATE:											
OF:												OF:											

Container & Preservative Codes: P = Plastic; J = Soil Jar; B = Glass Bottle; N = Nitric Acid Prsvd.; C = Sodium Hydroxide Prsvd; VC = Hydrochloric Acid Prsvd Vial; VS = Sulfuric Acid Prsvd Vial; S = Sulfuric Acid Prsvd; Z = Zinc Prsvd; E = EDTA Prsvd; ST = Sterile Bottle; O = Other
 MSO Forms O13 – Chain of Custody - eurofins mgt

- JB1 – TRH/BTEX/PAH/As,Cd,Cr,Cu,Ni,Pb,Zn,Hg/Phenolics (Total)
- JB1T – TRH/BTEX/PAH(Trace Level)/As,Cd,Cr,Cu,Ni,Pb,Zn,Hg/Phenolics (Total)
- JB1A – TRH/BTEX/PAH/As,Cd,Cr,Cu,Ni,Pb,Zn,Hg/Phenolics (Total)/Asbestos
- JB2 – TRH/BTEX/PAH/OCPP/PCB/As,Cd,Cr,Cu,Ni,Pb,Zn,Hg
- JB2A – TRH/BTEX/PAH/OCPP/PCB/As,Cd,Cr,Cu,Ni,Pb,Zn,Hg/Asbestos
- JB10 – TRH/BTEX/PAH/OCPP/PCB/As,Cd,Cr,Cu,Ni,Pb,Zn,Hg
- JB2/JBL – TRH/BTEX/PAH/OCPP/PCB/As,Cd,Cr,Cu,Ni,Pb,Zn,Hg/TCLP(PAH & 6 Metals)
- JB3/JBL – TRH/BTEX/PAH/OCPP/PCB/As,Cd,Cr,Cu,Ni,Pb,Zn,Hg/TCLP(PAH & 6 Metals)/Asbestos
- JB4 – TRH/BTEX/VOC
- JBL – TCLP(PAH & 6 Metals)

Sample Receipt Advice

Company name: **JBS & G (NSW & WA) Pty Ltd**
Contact name: Chris Bielby
Client job number: WEST CONNEXT 43069
COC number: Not provided
Turn around time: 5 Day
Date/Time received: Dec 11, 2013 4:09 PM
Eurofins | mgt reference: **403263**

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 : 9.5 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.
 - Organic samples had Teflon liners.
 - Sample containers for volatile analysis received with zero headspace.
 - Some samples have been subcontracted.
- N/A Custody Seals intact (if used).

Notes

Extra samples received, BH38 0.0-0.1 and BH38 0.1-0.3, all placed on hold | Two soil jars received for BH20 0.0-0.2| Lid of Rinsate amber bottle was loose receipt, possible leakage during transport as bottle is 1/4 filled

Contact notes

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

Jean Heng on Phone : (+61) (2) 9900 8400 or by e.mail: JeanHeng@eurofins.com.au

Results will be delivered electronically via e.mail to Chris Bielby - cbielby@jbsg.com.au.

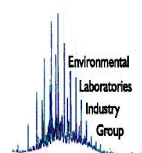
Eurofins | mgt Sample Receipt



Environmental Laboratory
Air Analysis
Water Analysis
Soil Contamination Analysis

NATA Accreditation
Stack Emission Sampling & Analysis
Trade Waste Sampling & Analysis
Groundwater Sampling & Analysis

38 Years of Environmental Analysis & Experience



CERTIFICATE OF ANALYSIS

102256

Client:

JBS & G (NSW & WA) Pty Ltd
Level 1, 50 Margaret St
Sydney
NSW 2000

Attention: Tom Harding, Chris Bielby

Sample log in details:

Your Reference: **43069, West Connex**
No. of samples: 66 soils
Date samples received / completed instructions received 11/12/13 / 11/12/13

Analysis Details:

Please refer to the following pages for results, methodology summary and quality control data.
Samples were analysed as received from the client. Results relate specifically to the samples as received.
Results are reported on a dry weight basis for solids and on an as received basis for other matrices.
Please refer to the last page of this report for any comments relating to the results.

Report Details:

Date results requested by: / Issue Date: 19/12/13 / 18/12/13
Date of Preliminary Report: Not issued
NATA accreditation number 2901. This document shall not be reproduced except in full.
Accredited for compliance with ISO/IEC 17025. **Tests not covered by NATA are denoted with *.**

Results Approved By:



Jacinta Hurst
Laboratory Manager

vTRH(C6-C10)/BTEXN in Soil		
Our Reference:	UNITS	102256-66
Your Reference	-----	QC03A
Depth	-----	-
Type of sample		Soil
Date extracted	-	13/12/2013
Date analysed	-	15/12/2013
TRHC ₆ - C ₉	mg/kg	<25
TRHC ₆ - C ₁₀	mg/kg	<25
vTPHC ₆ - C ₁₀ less BTEX (F1)	mg/kg	<25
Benzene	mg/kg	<0.2
Toluene	mg/kg	<0.5
Ethylbenzene	mg/kg	<1
m+p-xylene	mg/kg	<2
o-Xylene	mg/kg	<1
naphthalene	mg/kg	<1
Surrogate aaa-Trifluorotoluene	%	122

svTRH (C10-C40) in Soil		
Our Reference:	UNITS	102256-66
Your Reference:	-----	QC03A
Depth:	-----	-
Type of sample:		Soil
Date extracted	-	13/12/2013
Date analysed	-	16/12/2013
TRHC ₁₀ - C ₁₄	mg/kg	<50
TRHC ₁₅ - C ₂₈	mg/kg	<100
TRHC ₂₉ - C ₃₆	mg/kg	<100
TRH>C ₁₀ -C ₁₆	mg/kg	<50
TRH>C ₁₀ - C ₁₆ less Naphthalene (F2)	mg/kg	<50
TRH>C ₁₆ -C ₃₄	mg/kg	<100
TRH>C ₃₄ -C ₄₀	mg/kg	<100
Surrogate o-Terphenyl	%	100

PAHs in Soil Our Reference: Your Reference Depth Type of sample	UNITS ----- -----	102256-66 QC03A - Soil
Date extracted	-	13/12/2013
Date analysed	-	14/12/2013
Naphthalene	mg/kg	<0.1
Acenaphthylene	mg/kg	<0.1
Acenaphthene	mg/kg	<0.1
Fluorene	mg/kg	<0.1
Phenanthrene	mg/kg	0.1
Anthracene	mg/kg	<0.1
Fluoranthene	mg/kg	0.4
Pyrene	mg/kg	0.4
Benzo(a)anthracene	mg/kg	0.2
Chrysene	mg/kg	0.3
Benzo(b+k)fluoranthene	mg/kg	0.7
Benzo(a)pyrene	mg/kg	0.35
Indeno(1,2,3-c,d)pyrene	mg/kg	0.3
Dibenzo(a,h)anthracene	mg/kg	<0.1
Benzo(g,h,i)perylene	mg/kg	0.3
Benzo(a)pyrene TEQNEPMB1	mg/kg	<0.5
Total +ve PAH's	mg/kg	3.1
Surrogate p-Terphenyl-d14	%	96

Organochlorine Pesticides in soil	UNITS	102256-66
Our Reference:	-----	QC03A
Your Reference	-----	-
Depth		Soil
Type of sample		
Date extracted	-	13/12/2013
Date analysed	-	15/12/2013
HCB	mg/kg	<0.1
alpha-BHC	mg/kg	<0.1
gamma-BHC	mg/kg	<0.1
beta-BHC	mg/kg	<0.1
Heptachlor	mg/kg	<0.1
delta-BHC	mg/kg	<0.1
Aldrin	mg/kg	<0.1
Heptachlor Epoxide	mg/kg	<0.1
gamma-Chlordane	mg/kg	<0.1
alpha-chlordane	mg/kg	<0.1
Endosulfan I	mg/kg	<0.1
pp-DDE	mg/kg	<0.1
Dieldrin	mg/kg	<0.1
Endrin	mg/kg	<0.1
pp-DDD	mg/kg	<0.1
Endosulfan II	mg/kg	<0.1
pp-DDT	mg/kg	<0.1
Endrin Aldehyde	mg/kg	<0.1
Endosulfan Sulphate	mg/kg	<0.1
Methoxychlor	mg/kg	<0.1
Surrogate TCMX	%	87

PCBs in Soil		
Our Reference:	UNITS	102256-66
Your Reference:	-----	QC03A
Depth:	-----	-
Type of sample:		Soil
Date extracted	-	13/12/2013
Date analysed	-	15/12/2013
Arochlor 1016	mg/kg	<0.1
Arochlor 1221	mg/kg	<0.1
Arochlor 1232	mg/kg	<0.1
Arochlor 1242	mg/kg	<0.1
Arochlor 1248	mg/kg	<0.1
Arochlor 1254	mg/kg	<0.1
Arochlor 1260	mg/kg	<0.1
Surrogate TCLMX	%	87

Acid Extractable metals in soil		
Our Reference:	UNITS	102256-66
Your Reference	-----	QC03A
Depth	-----	-
Type of sample		Soil
Date digested	-	13/12/2013
Date analysed	-	16/12/2013
Arsenic	mg/kg	7
Cadmium	mg/kg	0.5
Chromium	mg/kg	12
Copper	mg/kg	59
Lead	mg/kg	200
Mercury	mg/kg	<0.1
Nickel	mg/kg	18
Zinc	mg/kg	180

Moisture		
Our Reference:	UNITS	102256-66
Your Reference	-----	QC03A
Depth	-----	-
Type of sample		Soil
Date prepared	-	13/12/2013
Date analysed	-	16/12/2013
Moisture	%	2.4

Asbestos ID - soils WA Our Reference: Your Reference Depth Type of sample	UNITS ----- -----	102256-1 BH01 0.0-0.2 Soil	102256-19 BH17 0.0-0.2 Soil	102256-20 BH18 0.0-0.1 Soil	102256-24 BH20 0.0-0.2 Soil	102256-25 BH21 0.0-0.2 Soil
Date analysed	-	18/12/2013	18/12/2013	18/12/2013	18/12/2013	18/12/2013
Sample mass tested	g	924.91g	505.08g	715.01g	642.28g	739.39g
Sample Description	-	Brown coarse-grained sandy soil & rocks	Brown coarse-grained sandy soil & rocks	Brown coarse-grained sandy soil & rocks	Brown coarse-grained sandy soil & rocks	Brown coarse-grained sandy soil & rocks
Asbestos ID in soil	-	No asbestos detected at reporting limit of 0.1g/kg	No asbestos detected at reporting limit of 0.1g/kg	No asbestos detected at reporting limit of 0.1g/kg	No asbestos detected at reporting limit of 0.1g/kg	No asbestos detected at reporting limit of 0.1g/kg
Trace Analysis	-	No respirable fibres detected	No respirable fibres detected	No respirable fibres detected	No respirable fibres detected	No respirable fibres detected

Asbestos ID - soils WA Our Reference: Your Reference Depth Type of sample	UNITS ----- -----	102256-26 BH22 0.0-0.2 Soil	102256-28 BH23 0.0-0.1 Soil	102256-40 BH29 0.0-0.1 Soil	102256-46 BH33 0.0-0.2 Soil	102256-52 BH37 0.0-0.2 Soil
Date analysed	-	18/12/2013	18/12/2013	18/12/2013	18/12/2013	18/12/2013
Sample mass tested	g	962.00g	948.76g	498.42g	734.29g	816.03g
Sample Description	-	Brown coarse-grained sandy soil & rocks	Brown coarse-grained sandy soil & rocks	Brown coarse-grained sandy soil & rocks	Beige coarse-grained sandy soil	Brown coarse-grained sandy soil & rocks
Asbestos ID in soil	-	No asbestos detected at reporting limit of 0.1g/kg	No asbestos detected at reporting limit of 0.1g/kg	No asbestos detected at reporting limit of 0.1g/kg	No asbestos detected at reporting limit of 0.1g/kg	No asbestos detected at reporting limit of 0.1g/kg
Trace Analysis	-	No respirable fibres detected	No respirable fibres detected	No respirable fibres detected	No respirable fibres detected	No respirable fibres detected

Asbestos ID - soils WA			
Our Reference:	UNITS	102256-56	102256-62
Your Reference	-----	BH41	QC03
Depth	-----	0.0-0.1	-
Type of sample		Soil	Soil
Date analysed	-	18/12/2013	18/12/2013
Sample mass tested	g	959.27g	929.60g
Sample Description	-	Brown coarse-grained sandy soil & rocks	Brown coarse-grained sandy soil & rocks
Asbestos ID in soil	-	No asbestos detected at reporting limit of 0.1g/kg	No asbestos detected at reporting limit of 0.1g/kg
Trace Analysis	-	No respirable fibres detected	No respirable fibres detected

MethodID	Methodology Summary
Org-016	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater.
Org-014	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS.
Org-003	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater. Note Naphthalene is determined from the VOC analysis.
Org-012 subset	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS. Benzo(a)pyrene TEQ as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater - 2013.
Org-005	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC with dual ECD's.
Org-006	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-ECD.
Metals-020 ICP-AES	Determination of various metals by ICP-AES.
Metals-021 CV-AAS	Determination of Mercury by Cold Vapour AAS.
Inorg-008	Moisture content determined by heating at 105+/-5 deg C for a minimum of 12 hours.
ASB-003	Asbestos ID - Minimum 500mL soil sample was analysed as recommended by "The Guidelines from the Assessment, Remediation and Management of Asbestos-Contaminated Sites in Western Australia - May 2009" with a reporting limit of 0.1g/kg as per AS4964-2004.

Client Reference: 43069, West Connex

QUALITYCONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
vTRH(C6-C10)/BTEXN in Soil						Base II Duplicate II %RPD		
Date extracted	-			13/12/2013	[NT]	[NT]	LCS-5	13/12/2013
Date analysed	-			15/12/2013	[NT]	[NT]	LCS-5	15/12/2013
TRHC ₆ - C ₉	mg/kg	25	Org-016	<25	[NT]	[NT]	LCS-5	94%
TRHC ₆ - C ₁₀	mg/kg	25	Org-016	<25	[NT]	[NT]	LCS-5	94%
Benzene	mg/kg	0.2	Org-016	<0.2	[NT]	[NT]	LCS-5	98%
Toluene	mg/kg	0.5	Org-016	<0.5	[NT]	[NT]	LCS-5	92%
Ethylbenzene	mg/kg	1	Org-016	<1	[NT]	[NT]	LCS-5	89%
m+p-xylene	mg/kg	2	Org-016	<2	[NT]	[NT]	LCS-5	96%
o-Xylene	mg/kg	1	Org-016	<1	[NT]	[NT]	LCS-5	95%
naphthalene	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
Surrogate aaa-Trifluorotoluene	%		Org-016	114	[NT]	[NT]	LCS-5	120%
QUALITYCONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
svTRH(C10-C40) in Soil						Base II Duplicate II %RPD		
Date extracted	-			13/12/2013	[NT]	[NT]	LCS-5	13/12/2013
Date analysed	-			16/12/2013	[NT]	[NT]	LCS-5	16/12/2013
TRHC ₁₀ - C ₁₄	mg/kg	50	Org-003	<50	[NT]	[NT]	LCS-5	116%
TRHC ₁₅ - C ₂₈	mg/kg	100	Org-003	<100	[NT]	[NT]	LCS-5	100%
TRHC ₂₉ - C ₃₆	mg/kg	100	Org-003	<100	[NT]	[NT]	LCS-5	88%
TRH>C ₁₀ -C ₁₆	mg/kg	50	Org-003	<50	[NT]	[NT]	LCS-5	116%
TRH>C ₁₆ -C ₃₄	mg/kg	100	Org-003	<100	[NT]	[NT]	LCS-5	100%
TRH>C ₃₄ -C ₄₀	mg/kg	100	Org-003	<100	[NT]	[NT]	LCS-5	88%
Surrogate o-Terphenyl	%		Org-003	98	[NT]	[NT]	LCS-5	91%
QUALITYCONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
PAHs in Soil						Base II Duplicate II %RPD		
Date extracted	-			13/12/2013	[NT]	[NT]	LCS-5	13/12/2013
Date analysed	-			14/12/2013	[NT]	[NT]	LCS-5	14/12/2013
Naphthalene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	LCS-5	98%
Acenaphthylene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	[NR]	[NR]
Acenaphthene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	[NR]	[NR]
Fluorene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	LCS-5	105%
Phenanthrene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	LCS-5	98%
Anthracene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	[NR]	[NR]
Fluoranthene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	LCS-5	97%

Client Reference: 43069, West Connex

QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
PAHs in Soil						Base II Duplicate II %RPD		
Pyrene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	LCS-5	102%
Benzo(a)anthracene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	[NR]	[NR]
Chrysene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	LCS-5	93%
Benzo(b+k)fluoranthene	mg/kg	0.2	Org-012 subset	<0.2	[NT]	[NT]	[NR]	[NR]
Benzo(a)pyrene	mg/kg	0.05	Org-012 subset	<0.05	[NT]	[NT]	LCS-5	109%
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	[NR]	[NR]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	[NR]	[NR]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	[NR]	[NR]
Surrogate p-Terphenyl-d14	%		Org-012 subset	98	[NT]	[NT]	LCS-5	100%
QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
Organochlorine Pesticides in soil						Base II Duplicate II %RPD		
Date extracted	-			13/12/2013	[NT]	[NT]	LCS-5	13/12/2013
Date analysed	-			15/12/2013	[NT]	[NT]	LCS-5	15/12/2013
HCB	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NR]	[NR]
alpha-BHC	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	LCS-5	92%
gamma-BHC	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NR]	[NR]
beta-BHC	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	LCS-5	101%
Heptachlor	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	LCS-5	92%
delta-BHC	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NR]	[NR]
Aldrin	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	LCS-5	90%
Heptachlor Epoxide	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	LCS-5	79%
gamma-Chlordane	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NR]	[NR]
alpha-chlordane	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NR]	[NR]
Endosulfan I	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NR]	[NR]
pp-DDE	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	LCS-5	93%
Dieldrin	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	LCS-5	104%
Endrin	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	LCS-5	91%
pp-DDD	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	LCS-5	93%
Endosulfan II	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NR]	[NR]
pp-DDT	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NR]	[NR]
Endrin Aldehyde	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NR]	[NR]
Endosulfan Sulphate	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	LCS-5	96%
Methoxychlor	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NR]	[NR]
Surrogate TCMX	%		Org-005	89	[NT]	[NT]	LCS-5	93%

Client Reference: 43069, West Connex

QUALITYCONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
PCBs in Soil						Base II Duplicate II %RPD		
Date extracted	-			13/12/2013	[NT]	[NT]	LCS-5	13/12/2013
Date analysed	-			15/12/2013	[NT]	[NT]	LCS-5	15/12/2013
Arochlor 1016	mg/kg	0.1	Org-006	<0.1	[NT]	[NT]	[NR]	[NR]
Arochlor 1221	mg/kg	0.1	Org-006	<0.1	[NT]	[NT]	[NR]	[NR]
Arochlor 1232	mg/kg	0.1	Org-006	<0.1	[NT]	[NT]	[NR]	[NR]
Arochlor 1242	mg/kg	0.1	Org-006	<0.1	[NT]	[NT]	[NR]	[NR]
Arochlor 1248	mg/kg	0.1	Org-006	<0.1	[NT]	[NT]	[NR]	[NR]
Arochlor 1254	mg/kg	0.1	Org-006	<0.1	[NT]	[NT]	LCS-5	101%
Arochlor 1260	mg/kg	0.1	Org-006	<0.1	[NT]	[NT]	[NR]	[NR]
Surrogate TCLMX	%		Org-006	89	[NT]	[NT]	LCS-5	101%
QUALITYCONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
Acid Extractable metals in soil						Base II Duplicate II %RPD		
Date digested	-			12/12/2013	[NT]	[NT]	LCS-3	13/12/2013
Date analysed	-			12/12/2013	[NT]	[NT]	LCS-3	16/12/2013
Arsenic	mg/kg	4	Metals-020 ICP-AES	<4	[NT]	[NT]	LCS-3	96%
Cadmium	mg/kg	0.4	Metals-020 ICP-AES	<0.4	[NT]	[NT]	LCS-3	102%
Chromium	mg/kg	1	Metals-020 ICP-AES	<1	[NT]	[NT]	LCS-3	100%
Copper	mg/kg	1	Metals-020 ICP-AES	<1	[NT]	[NT]	LCS-3	100%
Lead	mg/kg	1	Metals-020 ICP-AES	<1	[NT]	[NT]	LCS-3	98%
Mercury	mg/kg	0.1	Metals-021 CV-AAS	<0.1	[NT]	[NT]	LCS-3	89%
Nickel	mg/kg	1	Metals-020 ICP-AES	<1	[NT]	[NT]	LCS-3	99%
Zinc	mg/kg	1	Metals-020 ICP-AES	<1	[NT]	[NT]	LCS-3	99%

QUALITYCONTROL	UNITS	PQL	METHOD	Blank
Moisture				
Date prepared	-			[NT]
Date analysed	-			[NT]
Moisture	%	0.1	Inorg-008	[NT]
QUALITYCONTROL	UNITS	PQL	METHOD	Blank
Asbestos ID - soils WA				
Date analysed	-			[NT]

Report Comments:

Asbestos in soil:

This report is consistent with the analytical procedures and reporting recommendations in the Western Australian Guidelines for the Assessment, Remediation and Management of Asbestos-Contaminated Sites in Western Australia - May 2009.

Note: All samples analysed as received. However, samples 102256-19 7 40 are below the minimum 500mL sample volume as per Western Australia's DOH guidelines.

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

INS: Insufficient sample for this test
NA: Test not required
<: Less than

PQL: Practical Quantitation Limit
RPD: Relative Percent Difference
>: Greater than

NT: Not tested
NA: Test not required
LCS: Laboratory Control Sample

Quality Control Definitions

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

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

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

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

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

Laboratory Acceptance Criteria

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

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

Spikes for Physical and Aggregate Tests are not applicable.

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

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

Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals; 60-140% for organics and 10-140% for SVOC and speciated phenols is acceptable.

In circumstances where no duplicate and/or sample spike has been reported at 1 in 10 and/or 1 in 20 samples respectively, the sample volume submitted was insufficient in order to satisfy laboratory QA/QC protocols.

When samples are received where certain analytes are outside of recommended technical holding times (THTs), the analysis has proceeded. Where analytes are on the verge of breaching THTs, every effort will be made to analyse within the THT or as soon as practicable.

Envirolab Reference: 102256
Revision No: R 00

CHAIN OF CUSTODY



PROJECT NO.: 43069					LABORATORY BATCH NO.:													
PROJECT NAME: WESTCONEX					SAMPLERS: C. BIELBY													
SEND REPORT TO: C. BIELBY T. HARDING SEND INVOICE TO: G. NG					PHONE: SYDNEY 02 82450300 - PERTH 08 9488 0100 EMAIL: C.Bielby@jbsg.com.au													
DATE NEEDED BY: Standard					QC LEVEL: NEPM (2013)													
COMMENTS / SPECIAL HANDLING / STORAGE OR DISPOSAL:					JBS&G SPECIFIC SUITES													
					JB1	JB1T	JB1A	JB2	JB2A	B10	JB2/JBL	JB3/JBL	JB4	JBL	8 metals	PAHs	TRH/BTEX	OC's
SAMPLE ID	MATRIX	DATE	TIME	TYPE & PRESERVATIVE	pH													
BH01 0.0-0.2	Soil	7/10/13		BAG														
BH02 0.0-0.2																		500ml as per WA guidelines
BH03 0.0-0.2																		
BH04 0.0-0.2																		
BH05 0.0-0.2																		
BH05 0.2-0.3																		
BH06 0.0-0.2																		
BH07 0.0-0.2																		
BH07 0.1-0.3																		
BH08 0.0-0.2																		
BH09 0.0-0.2																		
BH10 0.0-0.2																		
BH11 0.6-0.2																		
BH12 0.0-0.2																		
BH13 0.0-0.2																		
BH14 0.0-0.2																		
BH15 0.0-0.2																		
BH16 0.0-0.2																		
BH17 0.0-0.2																		

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

Job No: 102256

Date Received: _____
 Time Received: _____
 Received by: _____
 Temp: Cool/Ambient
 Cooling: Ice/Icepack
 Security: Intact/Broken/None

RELINQUISHED BY:		METHOD OF SHIPMENT:		RECEIVED BY:		FOR RECEIVING LAB USE ONLY:	
NAME: C. BIELBY	DATE: 11/10/13	CONSIGNMENT NOTE NO.		NAME:		COOLER SEAL - Yes..... No..... Intact..... Broken.....	
OF: JBS&G		TRANSPORT CO.		DATE:		COOLER TEMP deg C	
NAME:	DATE:	CONSIGNMENT NOTE NO.		NAME:	DATE:	COOLER SEAL - Yes..... No..... Intact..... Broken.....	
OF:		TRANSPORT CO.		OF:		COOLER TEMP deg C	

Container & Preservative Codes: P = Plastic; J = Soil Jar; B = Glass Bottle; N = Nitric Acid Prsvd.; C = Sodium Hydroxide Prsvd; VC = Hydrochloric Acid Prsvd Vial; VS = Sulfuric Acid Prsvd Vial; S = Sulfuric Acid Prsvd; Z = Zinc Prsvd; E = EDTA Prsvd; ST = Sterile Bottle; O = Other

IMSO Forms O13 - Chain of Custody - eurofins mgt

JB1 - TRH/BTEX/PAH/As,Cd,Cr,Cu,Ni,Pb,Zn,Hg/Phenolics (Total)

JB1T - TRH/BTEX/PAH(Trace Level)/As,Cd,Cr,Cu,Ni,Pb,Zn,Hg/Phenolics (Total)

JB1A - TRH/BTEX/PAH/As,Cd,Cr,Cu,Ni,Pb,Zn,Hg/Phenolics (Total)/Asbestos

JB2 - TRH/BTEX/PAH/OCP/PCB/As,Cd,Cr,Cu,Ni,Pb,Zn,Hg

JB2A - TRH/BTEX/PAH/OCP/PCB/As,Cd,Cr,Cu,Ni,Pb,Zn,Hg/Asbestos

B10 - TRH/BTEX/PAH/OCP/OPP/As,Cd,Cr,Cu,Ni,Pb,Zn,Hg

JB2/JBL - TRH/BTEX/PAH/OCP/PCB/As,Cd,Cr,Cu,Ni,Pb,Zn,Hg/TCLP(PAH & 6 Metals)

JB3/JBL - TRH/BTEX/PAH/OCP/OPP/PCB/As,Cd,Cr,Cu,Ni,Pb,Zn,Hg/TCLP(PAH & 6 Metals)/Asbestos

JB4 - TRH/BTEX/VOC

JBL - TCLP(PAH & 6 Metals)

CHAIN OF CUSTODY



PROJECT NO.: 43069 PROJECT NAME: WEST CONNEX SEND REPORT TO: C. BIELBY T. HARDING SEND INVOICE TO: CWG DATE NEEDED BY: Standard COMMENTS / SPECIAL HANDLING / STORAGE OR DISPOSAL:	LABORATORY BATCH NO.: SAMPLERS: C. BIELBY PHONE: SYDNEY 02 82450300 - PERTH 08 9488 0100 EMAIL: Tharding@jbsag.com QC LEVEL: NEPM (2013)
---	---

SAMPLE ID	MATRIX	DATE	TIME	TYPE & PRESERVATIVE	pH	JBS&G SPECIFIC SUITES											NOTES:			
						JB1	JB1T	JB1A	JB2	JB2A	B10	JB2/JBL	JB3/JBL	JB4	JBL	6 Metals		PAHs	TPH/BTEX	OCPS
BH18 0.0-0.1	SOIL	9/10/13		BAG																
BH18 0.1-0.3																				
BH19 0.0-0.2																				
BH19 0.2-0.3																				
x2 BH20 0.0-0.2																				
BH21 0.0-0.2																				
- BH21 0.3-0.4																				
BH22 0.0-0.2																				
BH22 0.2-0.3																				
BH23 0.0-0.1		10/10/13																		
BH23 0.1-0.3																				
BH24 0.0-0.1																				
BH24 0.1-0.3																				
BH25 0.0-0.1																				
BH25 0.1-0.3																				
BH26 0.0-0.1																				
BH26 0.1-0.3																				
BH27 0.0-0.1																				
BH27 0.1-0.3																				

RELINQUISHED BY: NAME: C. BIELBY DATE: 11/10/13 OF: JBS&G	METHOD OF SHIPMENT: CONSIGNMENT NOTE NO. TRANSPORT CO.	RECEIVED BY: NAME: DATE: OF:	FOR RECEIVING LAB USE ONLY: COOLER SEAL - Yes..... No..... Intact..... Broken..... COOLER TEMP deg C COOLER SEAL - Yes..... No..... Intact..... Broken..... COOLER TEMP deg C
---	--	---------------------------------------	---

Container & Preservative Codes: P = Plastic; J = Soil Jar; B = Glass Bottle; N = Nitric Acid Prsrd.; C = Sodium Hydroxide Prsrd; VC = Hydrochloric Acid Prsrd Vial; VS = Sulfuric Acid Prsrd Vial; S = Sulfuric Acid Prsrd; Z = Zinc Prsrd; E = EDTA Prsrd; ST = Sterile Bottle; O = Other

IMSO Forms 013 - Chain of Custody - eurofins mgt

JB1 - TRH/BTEX/PAH/As,Cd,Cr,Cu,Ni,Pb,Zn,Hg/Phenolics (Total)
 JB1T - TRH/BTEX/PAH(Trace Level)/As,Cd,Cr,Cu,Ni,Pb,Zn,Hg/Phenolics (Total)
 JB1A - TRH/BTEX/PAH/As,Cd,Cr,Cu,Ni,Pb,Zn,Hg/Phenolics (Total)/Asbestos
 JB2 - TRH/BTEX/PAH/OCPP/PCB/As,Cd,Cr,Cu,Ni,Pb,Zn,Hg
 JB2A - TRH/BTEX/PAH/OCPP/PCB/As,Cd,Cr,Cu,Ni,Pb,Zn,Hg/Asbestos
 B10 - TRH/BTEX/PAH/OCPP/As,Cd,Cr,Cu,Ni,Pb,Zn,Hg
 JB2/JBL - TRH/BTEX/PAH/OCPP/PCB/As,Cd,Cr,Cu,Ni,Pb,Zn,Hg/TCLP(PAH & 6 Metals)
 JB3/JBL - TRH/BTEX/PAH/OCPP/PCB/As,Cd,Cr,Cu,Ni,Pb,Zn,Hg/TCLP(PAH & 6 Metals)/Asbestos
 JB4 - TRH/BTEX/VOC
 JBL - TCLP(PAH & 6 Metals)

CHAIN OF CUSTODY



PROJECT NO.: 43069
 PROJECT NAME: WESTCOTT
 SEND REPORT TO: C. BIELBY T. HARDY SEND INVOICE TO: G.W.G.
 DATE NEEDED BY: Standard
 COMMENTS / SPECIAL HANDLING / STORAGE OR DISPOSAL:
 LABORATORY BATCH NO.:
 SAMPLERS: C. BIELBY
 PHONE: SYDNEY 02 82450300 - PERTH 08 9488 0100 EMAIL: C.Bielby@jbsg.com.au
 QC LEVEL: NEPM (2013) EMAIL: thard@jbsg.com.au

SAMPLE ID	MATRIX	DATE	TIME	TYPE & PRESERVATIVE	pH	JBS&G SPECIFIC SUITES											NOTES:								
						JB1	JB1T	JB1A	JB2	JB2A	B10	JB2/JBL	JB3/JBL	JB4	JBL	6 METALS		PAHS	TPH/BTEX	OCPS	PCBS	ASBESTOS			
BH28 0.0-0.1	SOIL	11/10/13		BAG																					
BH28 0.1-0.3																									500ml as per
BH29 0.0-0.1																									WA guidelines
BH29 0.1-0.3																									
BH30 0.0-0.1																									
BH30 0.1-0.3																									
BH31 0.0-0.2																									
BH32 0.0-0.2																									
BH33 0.0-0.2																									
BH34 0.0-0.1																									
BH34 0.1-0.3																									
BH35 0.0-0.1																									
BH35 0.1-0.3																									
BH36 0.0-0.1																									
BH36 0.1-0.3																									
BH37 0.0-0.1																									
BH37 0.1-0.3																									
BH38 0.0-0.2																									
BH39 0.0-0.2																									

RELINQUISHED BY: NAME: C. BIELBY DATE: 11/10/13
 METHOD OF SHIPMENT: CONSIGNMENT NOTE NO.
 RECEIVED BY: NAME: DATE: OF: DATE: OF: DATE: OF:
 FOR RECEIVING LAB USE ONLY:
 COOLER SEAL - Yes No Intact Broken
 COOLER TEMP deg C
 COOLER SEAL - Yes No Intact Broken
 COOLER TEMP deg C

IMSO Forms 013 - Chain of Custody - eurofins mgmt
 Container & Preservative Codes: P = Plastic; J = Soil Jar; B = Glass Bottle; N = Nitric Acid Prsvd.; C = Sodium Hydroxide Prsvd; VC = Hydrochloric Acid Prsvd Vial; VS = Sulfuric Acid Prsvd Vial; S = Sulfuric Acid Prsvd; Z = Zinc Prsvd; E = EDTA Prsvd; ST = Sterile Bottle; O = Other
 JB1 - TRH/BTEX/PAH/As,Cd,Cr,Cu,Ni,Pb,Zn,Hg/Phenolics (Total)
 JB1T - TRH/BTEX/PAH(Trace Level)/As,Cd,Cr,Cu,Ni,Pb,Zn,Hg/Phenolics (Total)
 JB1A - TRH/BTEX/PAH/As,Cd,Cr,Cu,Ni,Pb,Zn,Hg/Phenolics (Total)/Asbestos
 JB2 - TRH/BTEX/PAH/OCP/PCB/As,Cd,Cr,Cu,Ni,Pb,Zn,Hg
 JB2A - TRH/BTEX/PAH/OCP/PCB/As,Cd,Cr,Cu,Ni,Pb,Zn,Hg/Asbestos
 B10 - TRH/BTEX/PAH/OCP/OPP/As,Cd,Cr,Cu,Ni,Pb,Zn,Hg
 JB2/JBL - TRH/BTEX/PAH/OCP/PCB/As,Cd,Cr,Cu,Ni,Pb,Zn,Hg/TCLP(PAH & 6 Metals)
 JB3/JBL - TRH/BTEX/PAH/OCP/OPP/PCB/As,Cd,Cr,Cu,Ni,Pb,Zn,Hg/TCLP(PAH & 6 Metals)/Asbestos
 JB4 - TRH/BTEX/VOC
 JBL - TCLP(PAH & 6 Metals)

CHAIN OF CUSTODY



PROJECT NO.: 43089					LABORATORY BATCH NO.:														
PROJECT NAME: WEST CONNE X					SAMPLERS: C. Bielby														
SEND REPORT TO: T. HARDING @ JBS&G SEND INVOICE TO: G. King					PHONE: SYDNEY 02 82450300 - PERTH 08 9488 0100 EMAIL: C.Bielby@jbsg.com.au														
DATE NEEDED BY: Standard					QC LEVEL: NEPM (2013)														
COMMENTS / SPECIAL HANDLING / STORAGE OR DISPOSAL: Please send QCO1A (Bags only) to Pickford + Ryder. Hold QCO2A + QCO3A.					JBS&G SPECIFIC SUITES														
					JB1	JB1T	JB1A	JB2	JB2A	B10	JB2/JBL	JB3/JBL	JB4	JBL	6 Metals	PAHs	TRH/BTEX	OCPs	PCBs
SAMPLE ID	MATRIX	DATE	TIME	TYPE & PRESERVATIVE	pH													NOTES:	
BH40 0.0-0.2	SOIL	10/10/13		BAG														500ml as per WA guidelines	
BH41 0.0-0.1																			
BH41 0.1-0.3																			
BH42 0.0-0.1																			
BH42 0.1-0.3																			
QCO1		11/10/13																	
QCO2		10/10/13																	
QCO3																			
QCO1A				JARVICE															
QCO2A																			
QCO3A																			
RELINQUISHED BY:					METHOD OF SHIPMENT:					RECEIVED BY:					FOR RECEIVING LAB USE ONLY				
NAME: C. Bielby DATE: 11/10/13					CONSIGNMENT NOTE NO.					NAME:					COOLER SEAL - Yes..... No..... Intact..... Broken.....				
OF: JBS&G					TRANSPORT CO.					DATE:					COOLER TEMP..... deg C				
NAME:					CONSIGNMENT NOTE NO.					NAME:					COOLER SEAL - Yes..... No..... Intact..... Broken.....				
DATE:					TRANSPORT CO.					DATE:					COOLER TEMP..... deg C				
OF:										OF:									

IMSO Forms 013 - Chain of Custody - eurofins mgt

- | | |
|--|---|
| JB1 - TRH/BTEX/PAH/As,Cd,Cr,Cu,Ni,Pb,Zn,Hg/Phenolics (Total)
JB1T - TRH/BTEX/PAH(Trace Level)/As,Cd,Cr,Cu,Ni,Pb,Zn,Hg/Phenolics (Total)
JB1A - TRH/BTEX/PAH/As,Cd,Cr,Cu,Ni,Pb,Zn,Hg/Phenolics (Total)/Asbestos
JB2 - TRH/BTEX/PAH/OCP/PCB/As,Cd,Cr,Cu,Ni,Pb,Zn,Hg
JB2A - TRH/BTEX/PAH/OCP/PCB/As,Cd,Cr,Cu,Ni,Pb,Zn,Hg/Asbestos | B10 - TRH/BTEX/PAH/OCP/OPP/As,Cd,Cr,Cu,Ni,Pb,Zn,Hg
JB2/JBL - TRH/BTEX/PAH/OCP/PCB/As,Cd,Cr,Cu,Ni,Pb,Zn,Hg/TCLP(PAH & 6 Metals)
JB3/JBL - TRH/BTEX/PAH/OCP/OPP/PCB/As,Cd,Cr,Cu,Ni,Pb,Zn,Hg/TCLP(PAH & 6 Metals)/Asbestos
JB4 - TRH/BTEX/VOC
JBL - TCLP(PAH & 6 Metals) |
|--|---|



Appendix F – Groundwater Sheets

Groundwater Sampling Form

FIELD RECORD SHEETS



Project name: WESTCOMEX	Location:	Well ID: MW1
Person sampling: C.B	Sample method: Low-Flow peristaltic	Date: 16/12/13 Weather: Showers.
Pre-purging groundwater depth (m): 5.824	Post-sampling groundwater depth (m): 5.850	Total well depth (m): 6.802
Well diameter (mm): 50 mm	Pump on time: 9:00	Cycles per minute:
Well volume (L):	Pump off time: 9:40	

Field Measurements

SWL

Time	Purge Rate (mL/min)	Volume purged (L)	DO (mg/L)	DO (% saturation)	EC (us/cm)	pH (units)	Redox (mV)	Temp (oC)	TDS ppm
Field Stabilisation Criteria ⁽¹⁾ :			+/- 10%		+/- 3%	+/- 0.5	+/- 10 mV		+/- 3%
9:05	5.850	1L	3.31	37.6	205	6.24	105	22.1	131
9:10	5.850	2L	3.00	35.9	196	6.06	127	22.2	127.7
9:15	5.850	3L	2.80	32.4	190.5	6.03	134	22.6	123.4
9:20	5.850	4L	2.76	32.0	185.8	6.00	144	22.6	121.0
9:25	5.850	5L	2.78	32.1	185.4	6.00	140	22.6	123.0
9:30	5.850	6L	2.76	32.0	187.3	6.00	141	22.6	122.1
Sampled @ 9:30.									

Comments (Odour, colour, turbidity, sheen etc)

No odour, light brown, ~~low~~ slightly turbid, no sheen.

Were Metals Field Filtered?

Yes

Were QA/QC Samples Collected?

No

⁽¹⁾ These parameters may be considered stable when three consecutive readings (obtained several minutes apart) are within these levels.

Source "Victorian Environmental Protection Authority, Groundwater Sampling Guidelines, Publication 669, April 2000".


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Document Status

Rev No.	Author	Reviewer	Approved for Issue		
		Name	Name	Signature	Date
A	Chris Bielby	Tom Harding	Internal Report	-	06/02/2014
B	Tom Harding	Matthew Bennett	Draft for client review	-	07/02/2014
0	Tom Harding	Matthew Bennett	Final for Client		05/03/2014

